g.Berdasarkan grafik koefisien gempa dasar PPKGURDG, 1987 untuk wilayah 3, jenis tanah lunak dan T = 0,404 detik, diperoleh koefisien gempa dasar, C = 0,07.

h. Faktor keutamaan gedung olah raga I = 1,5, dan faktor jenis struktur rangka beton bertulang dengan daktilitas penuh K = 1,0 (PPKGURDG, 1987).

i. Gaya geser horizontal total akibat gempa (PPKGURDG, 1987)

$V = C.I.K.W_t$ = 0,07 . 1,5 . 1,0 . 1096,879 = 115,172 kN

j. Distribusi gaya geser horizontal total akibat gempa ke sepanjang tinggi gedung dihitung dengan rumus berikut ini, (PPKGURDG, 1987)

$$F_i = \frac{W_i.h_i}{\sum W_i.h_i}.V$$

Perhitungan distribusi gaya geser gempa disajikan pada tabel berikut ini

Tabel 6.7 Distribusi gaya geser gempa arah depan **(AS Y-6 & AS Y-16)**

Tingkat	h_i *(m)*	W_i *(kN)*	*V (kN)*	$W_i.h_i$ *(kNm)*	F_i *(kN)*
Atap	12,7	122,964	115,172	1561,643	24,092
3	10,3	296,384	115,172	3052,755	47,095
2	5,8	318,038	115,172	1844,620	28,457
1	2,8	359,493	115,172	1006,580	15,529
	$\sum$ =	1096,879		7465,599	115,172

6.1.6 Perhitungan Pembebanan PORTAL A (AS-Y7 & Y-15)

A. Beban Gravitasi Mati

a. Beban mati atap terpusat

P_D = Rangka atap K2 = 126,358 kN

P = 3,71 kN

b. Beban mati merata lantai

- Tribun (lantai 3)

- Pelat a = (3,319) + (3,993) = 7,312 kN/m

balok = 0,40 x 0,50

- Pelat b = ((1-(4/3.1,75^2/6,5^2).1,75.2880)+ (1-(4/3.0,9625^2/6,5^2). 0,9625 . 2,880

= 4,553 + 2,691 = 7,244 kN/m

balok = 0,40 x 0,50

- Lantai 2

- Pelat : a: 8,820 kN

b: 4,10 kN

balok = 0,40 x 0,50

- Lantai 1

- Pelat : a: 8,820 kN

b: 9,10 kN

balok = 0,40 x 0,50

c. Beban mati terpusat

- Tribun (Lantai 3)

- P_b = 3,28 kN

- P_1 = 0,2 . 0,5 . 2,625 . 24 = 6,300 kN

- P_2 = 0,2 . 0,5 . 2,7125 . 24 = 6,510 kN

- Lantai 2

  - P = 0,3 . 0,4 . 6,5 . 24 = 18,720 kN

- Lantai 1

  - P_1 = 0,3 . 0,4 . 6,5 . 24 = 18,720 kN

  - P_2 = 0,3 . 0,4 . 6,5 . 24 = 18,720 kN

B. Beban Gravitasi Hidup

a. Beban hidup atap terpusat

P_L = Pekerja rangka atap K2 = 18 kN

b. Beban hidup merata lantai

- Tribun (lantai 3)

  - Pelat a = 12,694 kN/m

  - Pelat b = 12,576 kN/m

- Lantai 2

  - Pelat a = 8,40 kN/m

  - Pelat b = 4,200 kN/m

- Lantai 1

  - Pelat a = 8,40 kN/m

  - Pelat b = 8,666 kN/m

C. Beban Gempa

a. Berat atap

Beban mati

P_D = Rangka atap K2 = 126,358 kN

P = 3,71 kN

- Kolom : (0,5 . 0,7 . 1,2 . 24).1 = 10,08 kN

w_D = 140,148 kN

Beban hidup

P_L = Rangka atap K2 = 18 kN

w_L = 18 kN

Total berat atap = $w_D + w_L$ = 140,148 + 18 = 149,184 kN

b. Berat Tribun (Lantai 3)

Beban mati

- Pelat : a: 7,312. 7,742 – 56,610 kN

b: 7,244 . 7,159 = 51,860 kN

- Balok: 0,40 . 0,50 . 24 . 14,835 = 71,208 kN

- Kolom: 0,5 . 0.7 . 3,45 . 24 = 28,980 kN

- P_b : 3,28 kN

- P_1 : 6,300 . 7 = 44,100 kN

- P_2 : 6,510 . 6 = 39,060 kN

w_D = 295,098 kN

Beban hidup

- Pelat : a: 12,694 . 7,742 = 98,277 kN

b: 12,576 . 7,159 = 90,032 kN

w_L = 188,309 kN

Total berat Tribun (lantai 3) = $w_D + w_L$ = 295,098 + 188,309 = 483,407 kN

c. Berat Lantai 2

Beban mati

- Pelat a: 8,820 . 3,15 = 27,783 kN

b: 4,410 . 3,15 = 13,892 kN

- Balok: 0,40 . 0,50 . 24 . 6,30 = 30,240 kN

- Kolom: (0,5 . 0.7 . 3,75 . 24) + (0,5 . 0.6 . 1,5 . 24) = 42,30 kN

- P : 18,720 kN

w_D = 130,635 kN

Beban hidup

- Pelat a: 8,40 . 3,15 = 26,46 kN

b: 4,20 . 3,15 = 13,230 kN

w_L = 39,690 kN

Total berat lantai 2 = $w_D + w_L$ = 130,635 + 39,690 = 170,325 kN

d. Berat Lantai 1

Beban mati

- Pelat : a: 8,820 . 6,30 = 55,566 kN

b: 9,10 . 6,50 = 59,150 kN

- Balok: 0,40 . 0,50 . 24 . 12,80 = 61,440 kN

- Kolom:(0,5 . 0.7 . 4,3 . 24)+(0,5 . 0.6 . 4,3 . 24) + (0,5 . 0.5 . 2,8 . 24)= 83,88 kN

- P_1 : 18,720 kN

- P_2 : 18,720 kN

w_D = 297,476 kN

Beban hidup

- Pelat : a: 8,40 . 6,30 = 52,920 kN

b: 8,666 . 6,50 = 56,329 kN

w_L = 109,249 kN

Total berat lantai 1 = $w_D + w_L$ = 297,476 + 109,249 = 406,725 kN

e. Beban total W_t = 149,148 + 483,407 + 170,325 + 406,725 = 1209,605 kN

f. Dengan rumus empiris diperoleh waktu getar alami (PPKGURDG, 1987):

$T = 0{,}06 \,.\, H^{3/4} = 0{,}06 \,.\, 12{,}7^{3/4} = 0{,}404$ detik

g.Berdasarkan grafik koefisien gempa dasar PPKGURDG, 1987 untuk wilayah 3, jenis tanah lunak dan T = 0,404 detik, diperoleh koefisien gempa dasar, C = 0,07.

h. Faktor keutamaan gedung olah raga I = 1,5, dan faktor jenis struktur rangka beton bertulang dengan daktilitas penuh K = 1,0 (PPKGURDG, 1987).

i. Gaya geser horizontal total akibat gempa (PPKGURDG, 1987)

$V = C.I.K.W_t = 0{,}07 \,.\, 1{,}5 \,.\, 1{,}0 \,.\, 1209{,}605 = 127{,}009$ kN

Tabel 6.8 Distribusi gaya geser gempa **PORTAL A (AS-Y7 & Y-15)**

Tingkat	h_i (m)	W_i (kN)	V (kN)	$W_i.h_i$ (kNm)	F_i (kN)
Atap	12,7	149,148	127,009	1894,180	26,731
3	10,3	483,407	127,009	4979,092	70,266
2	5,8	170,325	127,009	987,885	13,941
1	2,8	406,725	127,009	1138,830	16,071
	$\sum$ =	1209,605		8999,987	127,009

Gempa dari arah depan (AS Y-7 & AS Y-15)

Beban Gempa

a. Berat atap = 149,148 kN

b. Berat Tribun (Lantai 3)

Beban mati w_D = 214,933 kN

Beban hidup w_L = 49,139 kN

Total berat Tribun (lantai 3) = 264,072 kN

c. Berat Lantai 2

Beban mati w_D = 153,370 kN

Beban hidup w_L = 133,845 kN

Total berat lantai 2 = 287,215 kN

d. Berat Lantai 1

Beban mati

Beban mati w_D = 256,326 kN

Beban hidup w_L = 154,265 kN

Total berat lantai 1 = 410,591 kN

e. Beban total W_t = 149,148 + 264,072 + 287,215 + 410,591 = 1111,026 kN

f. Dengan rumus empiris diperoleh waktu getar alami (PPKGURDG, 1987):

$T = 0{,}06 \,.\, H^{3/4} = 0{,}06 \,.\, 12{,}7^{3/4} = 0{,}404$ detik

g. Berdasarkan grafik koefisien gempa dasar PPKGURDG, 1987 untuk wilayah 3, jenis tanah lunak dan T = 0,404 detik, diperoleh koefisien gempa dasar, C = 0,07.

h. Faktor keutamaan gedung olah raga I = 1,5, dan faktor jenis struktur rangka beton bertulang dengan daktilitas penuh K = 1,0 (PPKGURDG, 1987).

i. Gaya geser horizontal total akibat gempa (PPKGURDG, 1987)

$V = C.I.K.W_t = 0{,}07 \,.\, 1{,}5 \,.\, 1{,}0 \,.\, 1111{,}026 = 116{,}658$ kN

Perhitungan distribusi gaya geser gempa disajikan pada tabel berikut ini

Tabel 6.9 Distribusi gaya geser gempa arah depan **(AS Y-7 & AS Y-15)**

Tingkat	h_i *(m)*	W_i *(kN)*	*V (kN)*	$W_i.h_i$ *(kNm)*	F_i *(kN)*
Atap	12,7	149,148	116,658	1894,1796	29,742
3	10,3	264,072	116,658	2719,942	42,708
2	5,8	287,215	116,658	1665,847	26,157
1	2,8	410,591	116,658	1149,655	18,052
	$\sum$ =	1111,026		7429,623	116,658

6.1.7 Perhitungan Pembebanan PORTAL A (AS-Y8 & Y-14)

A. Beban Gravitasi Mati

a. Beban mati atap terpusat

P_D = Rangka atap K1" = 139,401 kN

P = 3,71 kN

b. Beban mati merata lantai

- Tribun (lantai 3)

- Pelat a =((3,993)+(1-(4/3.1,925^2/6,3^2)1,925.2,88)=3,993 + 4,854 = 8,847 kN/m

balok = 0,40 x 0,50

- Pelat b = (2,691)+ (4,013) = 6,704 kN/m

balok = 0,40 x 0,50

- Lantai 2

- Pelat : 4,410 kN

balok = 0,40 x 0,50

- Lantai 1

- Pelat : a: 4,410 kN

b: 8,820 kN

c: 9,10 kN

balok = 0,40 x 0,50

c. Beban mati terpusat

- Tribun (Lantai 3)

- P_b = 3,28 kN

- P_1 = 0,2 . 0,5 . 3,425 . 24 = 8,220 kN

- P_2 = 0,2 . 0,5 . 2,4625 . 24 = 5,910 kN

- Lantai 2

- P = 0,3 . 0,4 . 6 . 24 = 17,280 kN

- P_{RT} = 29,37 kN

- Lantai 1

- P_1 = 0,3 . 0,4 . 6 . 24 = 17,280 kN

- P_2 = 0,3 . 0,4 . 6 . 24 = 17,280 kN

- P_{RT} = 29,37 kN

B. Beban Gravitasi Hidup

a. Beban hidup atap terpusat

P_L = Pekerja rangka atap K1" = 20,50 kN

b. Beban hidup merata lantai

- Tribun (lantai 3)

- Pelat a = 15,359 kN/m

- Pelat b = 11,639 kN/m

- Lantai 2

  - Pelat = 4,200 kN/m

  - P_{RT} = 10,20 kN

- Lantai 1

  - Pelat a = 4,200 kN/m

  - Pelat b = 8,400 kN/m

  - Pelat c = 8,666 kN/m

  - P_{RT} = 10,20 kN

C. Beban Gempa

a. Berat atap

Beban mati

P_D = Rangka atap K1" = 139,401 kN

P = 3,71 kN

- Kolom : (0,5 . 0,7 . 1,2 . 24).1 = 10,08 kN

w_D = 153,191 kN

Beban hidup

P_L = Rangka atap K1" = 20,5 kN

w_L = 20,5 kN

Total berat atap = 153,191 + 20,5 = 163,441 kN

b. Berat Tribun (Lantai 3)

Beban mati

- Pelat : a: 8,847. 7,742 = 68,493 kN

  b: 6,704 . 7,159 = 47,994 kN

- Balok: 0,40 . 0,50 . 24 . 14,835 = 71,208 kN

- Kolom: 0,5 . 0.7 . 3,45 . 24 = 28,980 kN

- P_b : 3,28 kN

- P_1 : 8,220 . 7 = 57,540 kN

- P_2 : 5,910 . 6 = 35,460 kN

w_D = 312,955 kN

Beban hidup

- Pelat : a: 15,359 . 7,742 = 118,909 kN

b: 11,639 . 7,159 = 83,324 kN

w_L = 202,233 kN

Total berat Tribun (lantai 3) = $w_D + w_L$ = 312,955 + 202,233 = 515,188 kN

c. Berat Lantai 2

Beban mati

- Pelat: 4,41 . 6,30 = 27,783 kN

- Balok: 0,40 . 0,50 . 24 . 6,30 = 30,240 kN

- Kolom: (0,5 . 0.7 . 3,75 . 24) + (0,5 . 0.6 . 1,5 . 24) = 42,30 kN

- P : 17,28 kN

- P_{RT} : 29,37 . 2 = 58,740 kN

w_D = 176,343 kN

Beban hidup

- Pelat a: 4,20 . 6,30 = 26,46 kN

- P_{RT} : 10,20 . 2 = 20,400 kN

w_L = 46,860 kN

g.Berdasarkan grafik koefisien gempa dasar PPKGURDG, 1987 untuk wilayah 3, jenis tanah lunak dan T = 0,404 detik, diperoleh koefisien gempa dasar, C = 0,07.

h. Faktor keutamaan gedung olah raga I = 1,5, dan faktor jenis struktur rangka beton bertulang dengan daktilitas penuh K = 1,0 (PPKGURDG, 1987).

i. Gaya geser horizontal total akibat gempa (PPKGURDG, 1987)

$V = C.I.K.W_t$ = 0,07 . 1,5 . 1,0 . 1299,957 = 136,495 kN

j. Distribusi gaya geser horizontal total akibat gempa ke sepanjang tinggi gedung dihitung dengan rumus berikut ini, (PPKGURDG, 1987)

Perhitungan distribusi gaya geser gempa disajikan pada tabel berikut ini

Tabel 6.10 Distribusi gaya geser gempa **PORTAL A (AS-Y8 & Y-14)**

Tingkat	h_i (m)	W_i (kN)	V (kN)	$W_i.h_i$ (kNm)	F_i (kN)
Atap	12,7	163,441	136,495	2075,701	28,936
3	10,3	515,188	136,495	5306,436	73,973
2	5,8	223,203	136,495	1294,577	18,047
1	2,8	398,125	136,495	1114,750	15,540
	$\sum$ =	1299,957		9791,464	136,495

Gempa dari arah depan (AS Y-8 & AS Y-14)

Beban Gempa

a. Berat atap = 163,441 kN

b. Berat Tribun (Lantai 3)

Beban mati w_D = 230,715 kN

Total berat lantai 2 = $w_D + w_L$ = 176,343 + 46,860 = 223,203 kN

d. Berat Lantai 1

Beban mati

- Pelat : a: 4,410 . 3,15 = 13,892 kN

b: 8,820 . 3,15 = 27,783 kN

b: 9,10 . 3,250 = 29,575 kN

- Balok: 0,40 . 0,50 . 24 . 12,80 = 61,440 kN

- Kolom:(0,5 . 0.7 . 4,3 . 24)+(0,5 . 0.6 . 4,3 . 24) + (0,5 . 0.5 . 2,8 .24) = 83,88 kN

- P_1 : 17,280 kN

- P_2 : 17,280 kN

- P_{RT} : 29,37 . 2 = 58,740 kN

w_D = 309,870 kN

Beban hidup

- Pelat : a: 4,200 . 3,15 = 13,230 kN

b: 8,400 . 3,15 = 26,460 kN

b: 8,666 . 3,25 = 28,165 kN

- P_{RT} : 10,20 . 2 = 20,400 kN

w_L = 88,255 kN

Total berat lantai 1 = $w_D + w_L$ = 309,870 + 88,255 = 398,125 kN

e. Beban total W_t = 163,441 + 515,188 + 223,203 + 398,125 = 1299,957 kN

f. Dengan rumus empiris diperoleh waktu getar alami (PPKGURDG, 1987):

$T = 0,06 . H^{3/4} = 0,06 . 12,7^{3/4} = 0,404$ detik

Beban hidup w_L = 59,455 kN

Total berat Tribun (lantai 3) = 290,169 kN

c. Berat Lantai 2

Beban mati w_D = 203,087 kN .

Beban hidup w_L = 147,977 kN

Total berat lantai 2 = 351,063 kN

d. Berat Lantai 1

Beban mati

Beban mati w_D = 249,987 kN

Beban hidup w_L = 129,917 kN

Total berat lantai 1 = 379,904 kN

e. Beban total W_t = 163,441 + 290,169 + 351,063 + 379,904 = 1184,577 kN

f. Dengan rumus empiris diperoleh waktu getar alami (PPKGURDG, 1987):

$T = 0{,}06 \,.\, H^{3/4} = 0{,}06 \,.\, 12{,}7^{3/4} = 0{,}404$ detik

g. Berdasarkan grafik koefisien gempa dasar PPKGURDG, 1987 untuk wilayah 3, jenis tanah lunak dan T = 0,404 detik, diperoleh koefisien gempa dasar, C = 0,07.

h. Faktor keutamaan gedung olah raga I = 1,5, dan faktor jenis struktur rangka beton bertulang dengan daktilitas penuh K = 1,0 (PPKGURDG, 1987).

i. Gaya geser horizontal total akibat gempa (PPKGURDG, 1987)

$V = C.I.K.W_t = 0{,}07 \,.\, 1{,}5 \,.\, 1{,}0 \,.\, 1184{,}577 = 124{,}381$ kN

Perhitungan distribusi gaya geser gempa disajikan pada tabel berikut ini

Tabel 6.11 Distribusi gaya geser gempa arah depan **(AS Y-8 & AS Y-14)**

Tingkat	h_i (m)	W_i (kN)	V (kN)	$W_i.h_i$ (kNm)	F_i (kN)
Atap	12,7	163,441	124,381	2075,701	31,623
3	10,3	290,169	124,381	2988,741	45,532
2	5,8	351,063	124,381	2036,165	31,020
1	2,8	379,904	124,381	1063,731	16,206
	$\sum$ =	1184,577		8164,338	124,381

6.1.8 Perhitungan Pembebanan PORTAL A (AS-Y9 & Y-13)

A. Beban Gravitasi Mati

a. Beban mati atap terpusat

P_D = Rangka atap K1 = 147,708 kN

P = 3,71 kN

b. Beban mati merata lantai

- Tribun (lantai 3)

  - Pelat a = 3,993 kN/m

    balok = 0,40 x 0,50

  - Pelat b = 2 . 4,013 = 8,026 kN/m

    balok = 0,40 x 0,50

- Lantai 2

- Pelat : 4,410 kN

  balok = 0,40 x 0,50

- Lantai 1

- Pelat : a: 4,410 kN

b: 8,820 kN

c: ((4,55)+(1-(4/3.1,5^2/3,25^2).1,5.4,20 = 4,55+4,511 = 9,061 kN

balok = 0,40 x 0,50

c. Beban mati terpusat

- Tribun (Lantai 3)

- P_b = 3,28 kN

- P_1 = 0,2 . 0,5 . 1,5 . 24 = 4,32 kN

- P_2 = 0,2 . 0,5 . 3 . 24 = 8,64 kN

- Lantai 2

- P = 0,3 . 0,4 . 6 . 24 = 17,280 kN

- P_{RT} = 29,37 kN

- Lantai 1

- P_1 = 0,3 . 0,4 . 6 . 24 = 17,280 kN

- P_2 = 0,3 . 0,4 . 4,5 . 24 = 12,96 kN

- P_{RT} = 29,37 kN

B. Beban Gravitasi Hidup

a. Beban hidup atap terpusat

P_L = Pekerja rangka atap K1 = 20,50 kN

b. Beban hidup merata lantai

- Tribun (lantai 3)

- Pelat a = 6,932 kN/m

- Pelat b = 13,934 kN/m

- Lantai 2

- Pelat = 4,200 kN/m

- P_{RT} = 10,20 kN

- Lantai 1

- Pelat a = 4,200 kN/m

- Pelat b = 8,400 kN/m

- Pelat c = 8,629 kN/m

- P_{RT} = 10,20 kN

C. Beban Gempa

a. Berat atap

Beban mati

P_D = Rangka atap K1 = 147,708 kN

P = 3,71 kN

- Kolom : (0,5 . 0,7 . 1,2 . 24).1 = 10,08 kN

w_D = 161,498 kN

Beban hidup

P_L = Rangka atap K1" = 20,5 kN

w_L = 20,5 kN

Total berat atap = $w_D + w_L$ = 161,498 + 20,5 = 171,748 kN

b. Berat Tribun (Lantai 3)

Beban mati

- Pelat : a: 3,993 . 7,742 = 30,914 kN

b: 8,026 . 7,159 = 57,458 kN

- Balok: 0,40 . 0,50 . 24 . 14,835 = 71,208 kN

- Kolom: 0,5 . 0.7 . 3,45 . 24 = 28,980 kN

- P_b : 3,28 kN

- P_1 : 4,32 . 7 = 30,240 kN

- P_2 : 8,640 . 6 = 51,840 kN

w_D = 273,920 kN

Beban hidup

- Pelat : a: 6,932 . 7,742 = 53,668 kN

b: 13,934 . 7,159 = 99,754 kN

w_L = 153,422 kN

Total berat Tribun (lantai 3) = $w_D + w_L$ = 273,920 + 153,422 = 427,342 kN

c. Berat Lantai 2

Beban mati

- Pelat: 4,41 . 6,30 = 27,783 kN

- Balok: 0,40 . 0,50 . 24 . 6,30 = 30,240 kN

- Kolom: (0,5 . 0.7 . 3,75 . 24) + (0,5 . 0.6 . 1,5 . 24) = 42,30 kN

- P : 17,28 kN

- P_{RT} : 29,37 . 2 = 58,740 kN

w_D = 176,343 kN

Beban hidup

- Pelat a: 4,20 . 6,30 = 26,46 kN

- P_{RT} : 10,20 . 2 = 20,400 kN

w_L = 46,860 kN

Total berat lantai 2 = $w_D + w_L$ = 176,343 + 46,860 = 223,203 kN

d. Berat Lantai 1

Beban mati

- Pelat : a: 4,410 . 3,15 = 13,892 kN

b: 8,820 . 3,15 = 27,783 kN

c: 9,061 . 3,250 = 29,448 kN

- Balok: 0,40 . 0,50 . 24 . 12,80 = 61,440 kN

- Kolom:(0,5 . 0.7 . 4,3 . 24)+(0,5 . 0.6 . 4,3 . 24) + (0,5 . 0.5 . 2,8 . 24)= 83,88 kN

- P_1 : 17,280 kN

- P_2 : 17,280 kN

- P_{RT} : 29,37 . 2 = 58,740 kN

w_D = 305,423 kN

Beban hidup

- Pelat : a: 4,200 . 3,15 = 13,230 kN

b: 8,400 . 3,15 = 26,460 kN

c: 8,629 . 3,25 = 28,044 kN

- P_{RT} : 10,20 . 2 = 20,400 kN

w_L = 88,134 kN

Total berat lantai 1 = $w_D + w_L$ = 305,423 + 88,134 = 393,557 kN

e. Beban total W_t = 171,748 + 427,342 + 223,203 + 393,557 = 1215,850 kN

f. Dengan rumus empiris diperoleh waktu getar alami (PPKGURDG, 1987):

$T = 0{,}06 \cdot H^{3/4} = 0{,}06 \cdot 12{,}7^{3/4} = 0{,}404$ detik

g.Berdasarkan grafik koefisien gempa dasar PPKGURDG, 1987 untuk wilayah 3, jenis tanah lunak dan T = 0,404 detik, diperoleh koefisien gempa dasar, C = 0,07.

h. Faktor keutamaan gedung olah raga I = 1,5, dan faktor jenis struktur rangka beton bertulang dengan daktilitas penuh K = 1,0 (PPKGURDG, 1987).

i. Gaya geser horizontal total akibat gempa (PPKGURDG, 1987)

$V = C.I.K.W_t$ = 0,07 . 1,5 . 1,0 . 1215,850 = 127,664 kN

Perhitungan distribusi gaya geser gempa disajikan pada tabel berikut ini

Tabel 6.12 Distribusi gaya geser gempa **PORTAL A (AS-Y9 & Y-13)**

Tingkat	h_i (m)	W_i (kN)	V (kN)	$W_i.h_i$ (kNm)	F_i (kN)
Atap	12,7	171,748	127,664	2181,1996	31,011
3	10,3	427,342	127,664	4401,623	62,580
2	5,8	223,203	127,664	1294,577	18,406
1	2,8	393,557	127,664	1101,9596	15,667
	$\sum$ =	1215,850		8979,359	127,664

Gempa dari arah depan (AS Y-9 & AS Y-13)

Beban Gempa

a. Berat atap = 171,748 kN

b. Berat Tribun (Lantai 3)

Beban mati w_D = 201,005 kN

Beban hidup w_L = 26,834 kN

Total berat Tribun (lantai 3) = 227,839 kN

c. Berat Lantai 2

Beban mati w_D = 189,029 kN

Beban hidup w_L = 123,571 kN

Total berat lantai 2 = 312,600 kN

d. Berat Lantai 1

Beban mati

Beban mati w_D = 267,072 kN

Beban hidup w_L = 138,011 kN

Total berat lantai 1 = 405,083 kN

e. Beban total W_t = 171,748 + 227,839 + 312,600 + 405,083 = 1117,270 kN

f. Dengan rumus empiris diperoleh waktu getar alami (PPKGURDG, 1987):

$T = 0{,}06 \,.\, H^{3/4} = 0{,}06 \,.\, 12{,}7^{3/4} = 0{,}404$ detik

g.Berdasarkan grafik koefisien gempa dasar PPKGURDG, 1987 untuk wilayah 3, jenis tanah lunak dan T = 0,404 detik, diperoleh koefisien gempa dasar, C = 0,07.

h. Faktor keutamaan gedung olah raga I = 1,5, dan faktor jenis struktur rangka beton bertulang dengan daktilitas penuh K = 1,0 (PPKGURDG, 1987).

i. Gaya geser horizontal total akibat gempa (PPKGURDG, 1987)

$V = C.I.K.W_t = 0{,}07 \,.\, 1{,}5 \,.\, 1{,}0 \,.\, 1117{,}270 = 117{,}313$ kN

Perhitungan distribusi gaya geser gempa disajikan pada tabel berikut ini

Tabel 6.13 Distribusi gaya geser gempa arah depan **(AS Y-9 & AS Y-13)**

Tingkat	h_i (m)	W_i (kN)	V (kN)	$W_i.h_i$ (kNm)	F_i (kN)
Atap	12,7	171,748	117,313	2181,1996	34,231

3	10,3	227,839	117,313	2346,742	36,829
2	5,8	312,600	117,313	1813,080	28,454
1	2,8	405,083	117,313	1134,232	17,800
	$\sum$ =	1117,270		7475,254	117,313

6.1.9 Perhitungan Pembebanan PORTAL A (AS-Y10 & Y-12)

A. Beban Gravitasi Mati

a. Beban mati merata lantai

- Tribun (lantai 3)

  - Pelat a = 4,013 kN/m

    balok = 0,40 x 0,50

- Lantai 1

  - Pelat a = 4,511 + 4,55 − 9,061 kN/m

    balok = 0,40 x 0,50

- Pelat b : 4,550 kN

    balok = 0,40 x 0,50

b. Beban mati terpusat

- Tribun (Lantai 3)

  - P_1 = 0,2 . 0,5 . 1,5 . 24 = 3,60 kN

  - P_2 = 0,2 . 0,5 . 4,5 . 24 = 10,80 kN

- Lantai 1

  - P_1 = 0,3 . 0,4 . 4,5 . 24 = 12,96 kN

B. Beban Gravitasi Hidup

a. Beban hidup merata lantai

- Tribun (lantai 3)

  - Pelat = 6,967 kN/m

- Lantai 1

  - Pelat a = 8,629 kN/m

  - Pelat b = 4,333 kN/m

C. Beban Gempa

a. Berat Tribun (Lantai 3)

Beban mati

- Pelat : 4,013 . 7,159 = 28,729 kN

- Balok: 0,40 . 0,50 . 24 . 7,159 = 34,363 kN

- Kolom: 0,5 . 0.7 . 1,5 . 24 = 10,08 kN

- P_1 : 3,6 .3 = 10,80 kN

- P_2 : 10,80 . 3 = 32,40 kN

w_D = 117,092 kN

Beban hidup

- Pelat : 6,967 . 7,159 = 49,877 kN

w_L = 49,877 kN

Total berat Tribun (lantai 3) = $w_D + w_L$ = 117,092 + 49,877 = 166,969 kN

b. Berat Lantai 1

Beban mati

- Pelat : a: 9,061 . 3,25 = 29,448 kN

b: 4,550 . 3,25 = 14,788 kN

- Balok: 0,40 . 0,50 . 24 . 6,50 = 31,200 kN

- Kolom: (0,5 . 0.6 . 4,3 . 24) + (0,5 . 0.5 . 2,8 . 24)= 47,760 kN

- P : 12,960 kN

w_D = 136,156 kN

Beban hidup

- Pelat : a: 8,629 . 3,25 = 28,044 kN

b: 4,333 . 3,25 = 14,082 kN

w_L = 42,126 kN

Total berat lantai 1 = $w_D + w_L$ = 136,156 + 42,126 = 178,282 kN

c. Beban total W_t = 166,969 + 178,282 = 345,251 kN

d. Dengan rumus empiris diperoleh waktu getar alami (PPKGURDG, 1987):

$T = 0{,}06 \cdot H^{3/4} = 0{,}06 \cdot 5{,}8^{3/4} = 0{,}224$ detik

e.Berdasarkan grafik koefisien gempa dasar PPKGURDG, 1987 untuk wilayah 3, jenis tanah lunak dan T = 0,224 detik, diperoleh koefisien gempa dasar, C = 0,07.

f. Faktor keutamaan gedung olah raga I = 1,5, dan faktor jenis struktur rangka beton bertulang dengan daktilitas penuh K = 1,0 (PPKGURDG, 1987).

g. Gaya geser horizontal total akibat gempa (PPKGURDG, 1987)

$V = C.I.K.W_t = 0{,}07 \cdot 1{,}5 \cdot 1{,}0 \cdot 345{,}251 = 36{,}251$ kN

Perhitungan distribusi gaya geser gempa disajikan pada tabel berikut ini

Tabel 6.14 Distribusi gaya geser gempa **PORTAL A (AS-Y10 & Y-12)**

Tingkat	h_i (m)	W_i (kN)	V (kN)	$W_i.h_i$ (kNm)	F_i (kN)
2	5,8	166,969	36,251	968,420	23,921
1	2,8	178,282	36,251	499,1896	12,330
	$\sum$ =	345,251		1467,610	36,251

Gempa dari arah depan (AS Y-10 & AS Y-12)

Beban Gempa

a. Berat Tribun (Lantai 3)

Beban mati w_D = 102,728 kN

Beban hidup w_L = 24,939 kN

Total berat Tribun (lantai 3) = 127,666 kN

b. Berat Lantai 1

Beban mati w_D = 119,561 kN

Beban hidup w_L = 67,065 kN

Total berat lantai 1 = 186,625 kN

c. Beban total W_t = 127,666 + 186,625 = 314,291 kN

d. Dengan rumus empiris diperoleh waktu getar alami (PPKGURDG, 1987):

$T = 0{,}06 \,.\, H^{3/4} = 0{,}06 \,.\, 12{,}7^{3/4} = 0{,}404$ detik

e.Berdasarkan grafik koefisien gempa dasar PPKGURDG, 1987 untuk wilayah 3, jenis tanah lunak dan T = 0,404 detik, diperoleh koefisien gempa dasar, C = 0,07.

f. Faktor keutamaan gedung olah raga I = 1,5, dan faktor jenis struktur rangka beton bertulang dengan daktilitas penuh K = 1,0 (PPKGURDG, 1987).

g. Gaya geser horizontal total akibat gempa (PPKGURDG, 1987)

$V = C.I.K.W_t$ = 0,07 . 1,5 . 1,0 . 314,291 = 33,000 kN

Perhitungan distribusi gaya geser gempa disajikan pada tabel berikut ini

Tabel 6.15 Distribusi gaya geser gempa arah depan **(AS Y-10 & AS Y-12)**

Tingkat	h_i *(m)*	W_i *(kN)*	*V (kN)*	$W_i.h_i$ *(kNm)*	F_i *(kN)*
2	5,8	127,666	33,000	740,463	19,347
1	2,8	186,625	33,000	522,550	13,653
	$\sum$ =	314,291		1263,013	33,000

6.1.10 Perhitungan Pembebanan PORTAL A (AS-Y11)

A. Beban Gravitasi Mati

a. Beban mati atap terpusat

P_D = Rangka atap K1 = 147,708 kN

P = 3,71 kN

b. Beban mati merata lantai

- Tribun (lantai 3)

  - Pelat = 3,993 . 2 = 7,986 kN/m

    balok = 0,40 x 0,50

- Lantai 2

  - Pelat = 8,820 kN/m

    balok = 0,40 x 0,50

- Lantai 1

- Pelat = 8,820 kN/m

balok = 0,40 x 0,50

c. Beban mati terpusat

- Tribun (Lantai 3)

- P_b = 3,28 kN

- P = 8,640 kN

- Lantai 2

- P = 0,3 . 0,4 . 24 . 6 = 17,280 kN

- Lantai 1

- P = 0,3 . 0,4 . 24 . 6 = 17,280 kN

B. Beban Gravitasi Hidup

a. Beban hidup atap terpusat

P_L = Pekerja rangka atap K1 = 20,50 kN

b. Beban hidup merata lantai

- Tribun (lantai 3)

- Pelat = 13,865 kN/m

- Lantai 2

- Pelat = 8,40 kN/m

- Lantai 1

- Pelat = 8,40 kN/m

C. Beban Gempa

a. Berat atap

Beban mati

P_D = Rangka atap K1 = 147,708 kN

P = 3,71 kN

- Kolom : (0,5 . 0,7 . 1,2 . 24).1 = 10,08 kN

w_D = 161,498 kN

Beban hidup

P_L = Rangka atap K4 = 20,5 kN

w_L = 20,5 kN

Total berat atap = $w_D + w_L$ = 161,498 + 20,5 = 171,748 kN

b. Berat Tribun (Lantai 3)

Beban mati

- Pelat : 7,986 . 7,742 = 61,828 kN

- Balok: 0,40 . 0,50 . 24 . 7,742 = 37,162 kN

- Kolom: 0,5 . 0.7 . 3,45 . 24 = 28,980 kN

- P_b : 3,28 kN

- P : 8,640 . 7 = 60,480 kN

w_D = 191,730 kN

Beban hidup

- Pelat : 13,865 . 7,742 = 107,343 kN

w_L = 107,343 kN

Total berat Tribun (lantai 3) = $w_D + w_L$ = 191,730 + 107,343 = 299,073 kN

c. Berat Lantai 2

Beban mati

- Pelat : 8,820 . 3,15 = 27,783 kN

- Balok: 0,40 . 0,50 . 24 . 6,30 = 30,240 kN

- Kolom: (0,5 . 0.7 . 3,75 . 24) + (0,5 . 0.6 . 1,5 . 24) = 42,30 kN

- P : 17,280 kN

w_D = 117,603 kN

Beban hidup

- Pelat: w_L = 8,40 . 3,150 = 26,460 kN

Total berat lantai 2 = $w_D + w_L$ = 117,603 + 26,460 = 144,063 kN

d. Berat Lantai 1

Beban mati

- Pelat : 8,820 . 6,30 = 55,566 kN

- Balok: 30,240 kN

- Kolom: (0,5 . 0.7 . 4,3 . 24) + (0,5 . 0.6 . 4,3 . 24) = 67,080 kN

- P : 17,280 kN

w_D = 170,166 kN

Beban hidup

- Pelat : 8,40 . 6,30 = 52,920 kN

w_L = 52,920 kN

Total berat lantai 1 = $w_D + w_L$ = 170,166 + 52,920 = 223,086 kN

e. Beban total W_t = 171,748 + 299,073 + 144,063 + 223,086 = 837,970 kN

f. Dengan rumus empiris diperoleh waktu getar alami (PPKGURDG, 1987):

$T = 0{,}06 \cdot H^{3/4} = 0{,}06 \cdot 12{,}7^{3/4} = 0{,}404$ detik

g.Berdasarkan grafik koefisien gempa dasar PPKGURDG, 1987 untuk wilayah 3, jenis tanah lunak dan T = 0,404 detik, diperoleh koefisien gempa dasar, C = 0,07.

h. Faktor keutamaan gedung olah raga I = 1,5, dan faktor jenis struktur rangka beton bertulang dengan daktilitas penuh K = 1,0 (PPKGURDG, 1987).

i. Gaya geser horizontal total akibat gempa (PPKGURDG, 1987)

$V = C.I.K.W_t$ = 0,07 . 1,5 . 1,0 . 837,970 = 87,987 kN

Perhitungan distribusi gaya geser gempa disajikan pada tabel berikut ini

Tabel 6.16 Distribusi gaya geser gempa **PORTAL A (AS-Y11)**

Tingkat	h_i (m)	W_i (kN)	V (kN)	$W_i.h_i$ (kNm)	F_i (kN)
Atap	12,7	171,748	87,987	2181,200	28,551
3	10,3	299,073	87,987	3080,452	40,322
2	5,8	144,063	87,987	835,565	10,937
1	2,8	223,086	87,987	624,641	8,176
	$\sum$ =	837,970		6721,858	87,987

Gempa dari arah depan (AS Y-11)

Beban Gempa

a. Berat atap = 171,748 kN

b. Berat Tribun (Lantai 3)

Beban mati w_D = 160,816 kN

Beban hidup w_L = 53,672 kN

Total berat Tribun (lantai 3) = 214,488 kN

c. Berat Lantai 2

Beban mati w_D = 117,017 kN

Beban hidup w_L = 80,132 kN

Total berat lantai 2 = 197,149 kN

d. Berat Lantai 1

Beban mati

Beban mati w_D = 119,886 kN

Beban hidup w_L = 52,920 kN

Total berat lantai 1 = 172,806 kN

e. Beban total W_t = 171,748 + 214,488 + 197,149 + 172,806 = 756,191 kN

f. Dengan rumus empiris diperoleh waktu getar alami (PPKGURDG, 1987):

$T = 0{,}06 \,.\, H^{3/4} = 0{,}06 \,.\, 12{,}7^{3/4} = 0{,}404$ detik

g.Berdasarkan grafik koefisien gempa dasar PPKGURDG, 1987 untuk wilayah 3, jenis tanah lunak dan T = 0,404 detik, diperoleh koefisien gempa dasar, C = 0,07.

h. Faktor keutamaan gedung olah raga I = 1,5, dan faktor jenis struktur rangka beton bertulang dengan daktilitas penuh K = 1,0 (PPKGURDG, 1987).

i. Gaya geser horizontal total akibat gempa (PPKGURDG, 1987)

$V = C.I.K.W_t = 0{,}07 \,.\, 1{,}5 \,.\, 1{,}0 \,.\, 756{,}191 = 79{,}400$ kN

Perhitungan distribusi gaya geser gempa disajikan pada tabel berikut ini

Tabel 6.17 Distribusi gaya geser gempa arah depan **(AS Y-11)**

Tingkat	h_i *(m)*	W_i *(kN)*	*V (kN)*	$W_i.h_i$ *(kNm)*	F_i *(kN)*
Atap	12,7	171,748	79,400	2181,1996	28,779
3	10,3	214,488	79,400	2209,226	29,149
2	5,8	197,149	79,400	1143,464	15,087
1	2,8	172,806	79,400	483,857	6,384
	$\sum$ =	756,191		6017,747	79,400

PORTAL B

6.1.11 Perhitungan Pembebanan PORTAL B (AS-Y1)

A. Beban Gravitasi Mati

a. Beban mati atap merata

- Balok ring = 0,4 x 0,4 m

- Listplank = 3,456 kN/m

b. Beban mati atap terpusat

P_D 5 = Rangka atap K5 = 8,616 kN

P_D 6 = Rangka atap K6 = 10,777 kN

P_D 7 = Rangka atap K7 = 15,781 kN

P_D 8 = Rangka atap K8 = 17,758 kN

P_D 9 = Rangka atap K9 = 6,000 kN

P_a = 3,71 kN

c. Beban mati merata lantai

- Tribun (lantai 3)

- Pelat a = (1,075 . 3,15).2,880 = 9,752 kN/m

  balok = 0,25 x 0,7

- Pelat b = (1 – (4/3 . $3,15^2/5,75^2$).3,15 . 2,880 = 5,442 kN/m

  balok = 0,25 x 0,7

- Pelat c = (1 – (4/3 . $3,15^2/4,55^2$).3,15 . 2,880 = 3,275 kN/m

  balok = 0,25 x 0,7

- Pelat d = 1,571 kN/m

  balok = 0,25 x 0,7

- Pelat e = $(1 - (4/3 \cdot 3{,}15^2/6^2).3{,}15 \cdot 2{,}880 = 5{,}738$ kN/m

  balok = 0,25 x 0,7

- Pelat f = $(1 - (4/3 \cdot 3{,}15^2/6^2).3{,}15 \cdot 2{,}880 = 5{,}738$ kN/m

  balok = 0,25 x 0,7

- Lantai 2

  - Pelat a = 7,111 kN/m

    tembok = (4,5 – 0,7).2,5 = 9,50 kN/m

    balok = 0,25 x 0,7

  - Pelat b = $(1 - (4/3 \cdot 1{,}575^2/5{,}75^2). 1{,}575 .4{,}2 = 5{,}953$ kN/m

    tembok = (4,5 – 0,7). 2,5 = 9,50 kN/m

    balok = 0,25 x 0,7

  - Pelat c = $(1 - (4/3 \cdot 1{,}575^2/4{,}55^2). 1{,}575 .4{,}2 = 5{,}558$ kN/m

    tembok = (4,5 – 0,7). 2,5 = 9,50 kN/m

    balok = 0,25 x 0,7

  - Pelat d = 2,291 kN/m

    tembok = (4,5 – 0,7). 2,5 = 9,50 kN/m

    balok = 0,25 x 0,7

  - Pelat e = $(1 - (4/3 \cdot 1{,}575^2/6^2). 1{,}575 .4{,}2 = 6{,}007$ kN/m

    tembok = (4,5 – 0,7). 2,5 = 9,50 kN/m

    balok = 0,25 x 0,7

  - Pelat f = 0

    tembok = (4,5 – 0,7). 2,5 = 9,50 kN/m

    balok = 0,25 x 0,7

- Lantai 1

- Pelat a = 7,111 kN/m

tembok = (3,0 – 0,7).2,5 = 5,75 kN/m

balok = 0,25 x 0,7

- Pelat b = (1 – (4/3 . $1{,}575^2/5{,}75^2$). 1,575 .4,2 = 5,953 kN/m

tembok = (3,0 – 0,7).2,5 = 5,75 kN/m

balok = 0,25 x 0,7

- Pelat c = (1 – (4/3 . $1{,}575^2/4{,}55^2$). 1,575 .4,2 = 5,558 kN/m

tembok = (3,0 – 0,7).2,5 = 5,75 kN/m

balok = 0,25 x 0,7

- Pelat d = 2,291 kN/m

tembok = (3,0 – 0,7).2,5 = 5,75 kN/m

balok = 0,25 x 0,7

- Pelat e = (1 – (4/3 . $1{,}575^2/6^2$). 1,575 .4,2 = 6,007 kN/m

tembok = (3,0 – 0,7).2,5 = 5,75 kN/m

balok = 0,25 x 0,7

- Pelat f = 0

tembok = (3,0 – 0,7).2,5 = 5,75 kN/m

balok = 0,25 x 0,7

d. Beban mati terpusat

- Tribun (Lantai 3)

- P_b = 3,28 kN

- P = 9,702 kN

e. Beban hidup merata lantai

- Tribun (lantai 3)

  - Pelat a = (1,075 . 3,15).5 = 16,931 kN/m

  - Pelat b = (1 – (4/3 . $3,15^2/5,75^2$).3,15 . 5 = 9,448 kN/m

  - Pelat c = (1 – (4/3 . $3,15^2/4,55^2$).3,15 . 5 = 5,686 kN/m

  - Pelat d = 2,727 kN/m

  - Pelat e = (1 – (4/3 . $3,15^2/6^2$).3,15 . 5 = 9,962 kN/m

  - Pelat f = (1 – (4/3 . $3,15^2/6^2$).3,15 . 5 = 9,962 kN/m

- Lantai 2 dan Lantai 1

  - Pelat a = (1,075 . 1,575).4 = 6,772 kN/m

  - Pelat b = (1 – (4/3 . $1,575^2/5,75^2$). 1,575 .4 = 5,669 kN/m

  - Pelat c = (1 – (4/3 . $1,575^2/4,55^2$). 1,575 .4 = 5,293 kN/m

  - Pelat d = 2,182 kN/m

  - Pelat e = (1 – (4/3 . $1,575^2/6^2$). 1,575 .4 = 5,721 kN/m

  - Pelat f = 0

C. Beban Gempa

a. Berat atap

Beban mati

- Balok ring : 0,4 . 0,4 . 56,592 . 24 = 217,313 kN

- Kolom : (0,5 . 0,6 . 1,2 . 24).12 = 120,960 kN

  P_D 5 = Rangka atap K5 = 2 . 8,616 = 17,232 kN

  P_D 6 = Rangka atap K6 = 2 . 10,777 = 21,554 kN

  P_D 7 = Rangka atap K7 = 2 . 15,781 = 31,562 kN

P_D 8 = Rangka atap K8 = 2 . 17,758 = 35,516 kN

P_D 9 = Rangka atap K9 = 2 . 6,000 = 12,000 kN

- Listplank = 3,456 . 56,592 = 195,582 kN

P_a = 3,71 . 35 = 129,85 kN

w_D = 755,599 kN

Beban hidup

P_L 5 = Pekerja rangka atap K5 = 2 . 4,479 = 8,958 kN

P_L 6 = Pekerja rangka atap K6 = 2 .5,664 = 11,328 kN

P_L 7 = Pekerja rangka atap K7 = 2 . 6,321 = 12,642 kN

P_L 8 = Pekerja rangka atap K8 = 2 . 6,994 = 13,988 kN

P_L 9 = Rangka atap K9 = 2 . 3,00 = 6,00 kN

- Listplank = 1,20 . 56,592 = 67,910 kN

w_L = 135,820 kN

Total berat atap = $w_D + w_L$ = 755,599 + 135,820 = 917,877 kN

b. Berat Tribun (Lantai 3)

Beban hidup

- Pelat : a: 9,572 . 2 . 0,919 = 17,593 kN

b: 5,442 . 2 . 5,827 = 63,421 kN

c: 3,275 . 2 . 4,55 = 29,803 kN

d: 1,571 . 4 . 4 = 25,136 kN

e: 5,738 . 2 . 6 = 68,856 kN

f: 5,738 . 1 . 6 = 34,428 kN

- Balok: 0,25 . 0,7 . 24 . 56,592 = 237,686 kN

- Kolom: 0,5 . 0.7 . 3,45 . 24 . 12 = 347,760 kN

- Tembok: (2,25 – 0,7).2,5 . 56,592 = 219,294 kN

- P_b : 3,28 . 28 = 91,840 kN

- P_1 : 9,072 . 5 = 45,360 kN

w_D = 1181,508 kN

Beban hidup

- Pelat: w_L = 415,917 kN

Total berat Tribun (lantai 3) = $w_D + w_L$ = 1181,508 + 415,917 = 1597,425 kN

c. Berat Lantai 2

Beban mati

- Pelat : a: 7,111 . 2 . 0,919 = 13,070 kN

b: 5,953 . 2 . 5,827 = 69,376 kN

c: 5,558 . 2 . 4,55 = 50,578 kN

d: 2,291 . 4 . 4 = 36,656 kN

e: 6,007 . 2 . 6 = 72,084 kN

- Balok: 0,25 . 0,7 . 56,592 . 24 = 237,686 kN

- Kolom: 0,5 . 0,7 . 3,75 . 24 . 12 = 378 kN

- Tembok: (3,75 – 0,7).2,5 . 56,592 = 431,514 kN

w_D = 1289,500 kN

Beban hidup

- Pelat: w_L = 230,244 kN

Total berat lantai 2 = $w_D + w_L$ = 1289,500 + 230,244 = 1519,744 kN

d. Berat Lantai 1

Beban mati

- Pelat : a: 7,111 . 2 . 0,919 = 13,070 kN

b: 5,953 . 2 . 5,827 = 69,376 kN

c: 5,558 . 2 . 4,55 = 50,578 kN

d: 2,291 . 4 . 4 = 36,656 kN

e: 6,007 . 2 . 6 = 72,084 kN

- Balok: 0,25 . 0,7 . 56,592 . 24 = 237,686 kN

- Kolom: 0,5 . 0,7 . 4,3 . 24 . 12 = 433,440 kN

- Tembok: (4,3 – 0,7).2,5 . 56,592 = 509,328 kN

w_D = 1422,754 kN

Beban hidup

- Pelat: w_L = 230,244 kN

Total berat lantai 1 = $w_D + w_L$ = 1422,754 + 230,244 = 1652,998 kN

e. Beban total W_t = 917,877 + 1597,425 + 1519,744 + 1652,998 = 5688,044 kN

f. Dengan rumus empiris diperoleh waktu getar alami (PPKGURDG, 1987):

$T = 0{,}06 \cdot H^{3/4} = 0{,}06 \cdot 12{,}7^{3/4} = 0{,}404$ detik

g.Berdasarkan grafik koefisien gempa dasar PPKGURDG, 1987 untuk wilayah 3, jenis tanah lunak dan T = 0,404 detik, diperoleh koefisien gempa dasar, C = 0,07.

h. Faktor keutamaan gedung olah raga I = 1,5, dan faktor jenis struktur rangka beton bertulang dengan daktilitas penuh K = 1,0 (PPKGURDG, 1987).

i. Gaya geser horizontal total akibat gempa (PPKGURDG, 1987)

$V = C.I.K.W_t = 0{,}07 \cdot 1{,}5 \cdot 1{,}0 \cdot 5688{,}044 = 597{,}245$ kN

Perhitungan distribusi gaya geser gempa disajikan pada tabel berikut ini

Tabel 6.18 Distribusi gaya geser gempa **PORTAL B (AS-Y1)**

Tingkat	h_i (m)	W_i (kN)	V (kN)	$W_i.h_i$ (kNm)	F_i (kN)
Atap	12,7	917,877	597,245	11657,038	167,546
3	10,3	1597,425	597,245	16453,478	236,485
2	5,8	1519,744	597,245	8814,515	126,691
1	2,8	1652,998	597,245	4628,394	66,524
	$\sum$ =	5688,044		41553,425	597,245

6.1.12 Perhitungan Pembebanan PORTAL B (AS-Y2)

A. Beban Gravitasi Mati

a. Beban mati merata lantai

- Tribun (lantai 3)

- Pelat a = 1,075 (3,15 + 3,25).2,880 = 19,814 kN/m

  balok = 0,35 x 0,45

- Pelat b = ((2/3. 6,5 . 2,880) + 5,442) = 17,922 kN/m

  balok = 0,35 x 0,45

- Pelat c = ((2/3 . 6,5 . 2,880) + 3,275) – 15,755 kN/m

  balok = 0,35 x 0,45

- Pelat d = ((1 – (4/3 . $3,25^2/4^2$).3,25 . 2,880) + 1,571) = 2,692 kN/m

  balok = 0,35 x 0,45

- Pelat e = ((1 – (4/3 . $3,25^2/6^2$).3,25 . 2,880) + 5,738) = 11,436 kN/m

  balok = 0,35 x 0,45

- Pelat f = ((1 – (4/3 . $1{,}2^2/6^2$).1,2 . 2,880) + 5,738) = 9,009 kN/m

balok = 0,35 x 0,45

- Lantai 2

- Pelat a = ((1,075 . 1,575) + (1,075 . 1,625)) . 4,20 = 14,448 kN/m

balok = 0,35 x 0,45

- Pelat b = 2,869 kN/m

balok = 0,35 x 0,45

- Lantai 1

- Pelat a = ((1,075 . 1,575) + (1,075 . 1,625)) . 4,20 = 14,448 kN/m

balok = 0,35 x 0,45

- Pelat b = (1 – (4/3 . $1{,}575^2/4{,}5^2$). 1,575 .4,2 = 5,535 kN/m

balok = 0,35 x 0,45

- Pelat c = (1 – (4/3 . $1{,}575^2/3{,}5^2$). 1,575 .4,2 = 5,275 kN/m

balok = 0,35 x 0,45

- Pelat d = ((1 – (4/3 . $1{,}625^2/4^2$). 1,625 .4,2) + 2,291) = 7,614 kN/m

balok – 0,35 x 0,45

- Pelat e = ((1 – (4/3 . $1{,}625^2/6^2$). 1,625 .4,2) + 6,007) = 12,165 kN/m

balok = 0,35 x 0,45

b. Beban mati terpusat

- Tribun (Lantai 3)

- P_b = 3,28 kN

- P_1 = 0,3 . 0,4 . 3,15 . 24 = 9,072 kN

- P_2 = 0,3 . 0,4 . 3,25 . 24 = 9,360 kN

B. Beban Gravitasi Hidup

a. Beban hidup merata lantai

- Tribun (lantai 3)
  - Pelat a = 34,399 kN/m
  - Pelat b = 31,115 kN/m
  - Pelat c = 27,352 kN/m
  - Pelat d = 4,674 kN/m
  - Pelat e = 19,854 kN/m
  - Pelat f = 15,641 kN/m
- Lantai 2
  - Pelat a = 13,760 kN/m
  - Pelat b = 2,732 kN/m
- Lantai 1
  - Pelat a = 13,760 kN/m
  - Pelat b = 5,271 kN/m
  - Pelat c = 5,024 kN/m
  - Pelat d = 7,251 kN/m
  - Pelat e = 11,586 kN/m

C. Beban Gempa

a. Berat Tribun dan Lantai 2

Beban mati

- Pelat : a: 34,262 . 2 . 0,919 = 62,974 kN

b: 17,992 . 2 . 2,885 = 103,410 kN

c: 15,755 . 2 . 2,310 = 72,788 kN

d: 2,692 . 4 . 4 = 43,072 kN

e: (11,436 + 2,869) . 2 . 6 = 171,660 kN

f: 9,009 . 1 . 6 = 54,054 kN

- Balok: 0,35 . 0,45 . 24 . 46,360 = 174,742 kN

- Kolom: 0,5 . 0.6 . 1,5 . 24 . 12 = 129,600 kN

- P_1 : 9,072 . 5 = 45,360 kN

- P_2 : 9,360 . 2 = 18,720 kN

w_D = 876,380 kN

Beban hidup

- Pelat : a: 48,159 . 2 . 0,919 = 88,516 kN

b: 31,115 . 2 . 2,885 = 179,534 kN

c: 27,352 . 2 . 2,310 = 126,366 kN

d: 4,674 . 4 . 4 = 74,784 kN

e: 22,586 . 2 . 6 = 271,032 kN

f: 15,641 . 1 . 6 = 93,846 kN

w_L = 834,078 kN

Total berat Tribun dan lantai 2 = $w_D + w_L$ = 876,380 + 834,078 = 1710,458 kN

b. Berat Lantai 1

Beban mati

- Pelat : a: 14,448 . 2 . 0,919 = 26,555 kN

b: 5,535 . 2 . 2,885 = 31,937 kN

c: 5,275 . 2 . 2,310 = 24,371 kN

d: 7,614 . 4 . 4 = 121,824 kN

e: 12,165 . 3 . 6 = 218,970 kN

- Balok: 0,35 . 0,45 . 24 .46,360 = 174,742 kN

- Kolom: 0,5 . 0,6 . 4,3 . 24 . 12 = 371,520 kN

w_D = 969,919 kN

Beban hidup

- Pelat: w_L = 403,483 kN

Total berat lantai 1 = w_D + w_L = 969,919 + 403,483 = 1373,402 kN

c. Beban total W_t = 1710,458 + 1373,402 = 3083,860 kN

d. Dengan rumus empiris diperoleh waktu getar alami (PPKGURDG, 1987):

$T = 0{,}06 \cdot H^{3/4} = 0{,}06 \cdot 5{,}8^{3/4} = 0{,}224$ detik

e.Berdasarkan grafik koefisien gempa dasar PPKGURDG, 1987 untuk wilayah 3, jenis tanah lunak dan T = 0,224 detik diperoleh koefisien gempa dasar, C = 0,07.

f. Faktor keutamaan gedung olah raga I = 1,5, dan faktor jenis struktur rangka beton bertulang dengan daktilitas penuh K = 1,0 (PPKGURDG, 1987).

g. Gaya geser horizontal total akibat gempa (PPKGURDG, 1987)

$V = C.I.K.W_t = 0{,}07 \cdot 1{,}5 \cdot 1{,}0 \cdot 3083{,}860 = 323{,}805$ kN

Perhitungan distribusi gaya geser gempa disajikan pada tabel berikut ini

Tabel 6.19 Distribusi gaya geser gempa **PORTAL B (AS-Y2)**

Tingkat	h_i (m)	W_i (kN)	V (kN)	$W_i.h_i$ (kNm)	F_i (kN)
2	5,8	1710,458	323,805	9920,656	233,351

1	2,8	1373,402	323,805	3845,526	90,454
	∑ =	3083,860		13766,182	323,805

6.1.13 Perhitungan Pembebanan PORTAL B (AS-Y3)

A. Beban Gravitasi Mati

a. Beban mati merata lantai

- Tribun (lantai 3)

  - Pelat a = 10,062 kN/m

    balok = 0,35 x 0,45

  - Pelat b = 1,121 kN/m

    balok = 0,35 x 0,45

  - Pelat c = 5,698 kN/m

    balok = 0,35 x 0,45

- Lantai 1

  - Pelat a = 10,062 kN/m

    balok = 0,35 x 0,45

  - Pelat b = 6,444 kN/m

    balok = 0,35 x 0,45

b. Beban mati terpusat

- Tribun (Lantai 3)

  - P_2 = 9,360 kN

B Beban Gravitasi Hidup

a. Beban hidup merata lantai

- Tribun (lantai 3)

  - Pelat a = 13,469 kN/m

  - Pelat b = 1,946 kN/m

  - Pelat c = 9,892 kN/m

- Lantai 1

  - Pelat a = 9,583 kN/m

  - Pelat b = 6,137 kN/m

C. Beban Gempa

a. Berat Tribun dan Lantai 1

Beban mati

- Pelat : a: 10,062 . 2 . 0,919 = 18,494 kN

  b: 1,121 . 4 . 4 = 17,936 kN

  c: 5,698 . 2 . 6 = 68,376 kN

  d: 6,444 . 1 . 6 = 38,664 kN

- Balok: 0,35 . 0,45 . 24 . 35,838 = 135,468 kN

- Kolom: 0,5 . 0.5 . 2,8 . 24 . 8 = 134,400 kN

- Listplank = 6,864 . 35,838 = 245,992 kN

- P_2 : 9,360 . 2 = 18,720 kN

  w_D = 678,050 kN

Beban hidup

- Pelat : a: 9,583 . 2 . 0,919 = 17,614 kN

  b: 1,946 . 4 . 4 = 31,136 kN

  c: 9,892 . 2 . 6 = 118,704 kN

d: 6,137 . 1 . 6 = 36,822 kN

- Listplank = 1,30 . 35,838 = 46,589 kN

w_L = 250,865 kN

Total berat Tribun dan lantai 1 = $w_D + w_L$ = 678,050 + 250,865 = 928,915 kN

b. Beban total W_t = 928,915 kN

c. Dengan rumus empiris diperoleh waktu getar alami (PPKGURDG, 1987):

$T = 0{,}06 \cdot H^{3/4} = 0{,}06 \cdot 2{,}8^{3/4} = 0{,}130$ detik

d.Berdasarkan grafik koefisien gempa dasar PPKGURDG, 1987 untuk wilayah 3, jenis tanah lunak dan T = 0,130 detik, diperoleh koefisien gempa dasar, C = 0,07.

e. Faktor keutamaan gedung olah raga I = 1,5, dan faktor jenis struktur rangka beton bertulang dengan daktilitas penuh K = 1,0 (PPKGURDG, 1987).

f. Gaya geser horizontal total akibat gempa (PPKGURDG, 1987)

$V = C.I.K.W_t = 0{,}07 \cdot 1{,}5 \cdot 1{,}0 \cdot 928{,}915 = 97{,}536$ kN

g. Distribusi gaya geser horizontal total akibat gempa ke sepanjang tinggi gedung dihitung dengan rumus berikut ini, (PPKGURDG, 1987)

$$F_i = \frac{W_i.h_i}{\sum W_i.h_i}.V$$

h. F = 97,536 kN

6.1.14 Perhitungan Pembebanan PORTAL B (AS-X4 & AS-X15)

A. Beban Gravitasi Mati

a. Beban mati atap terpusat

- P_1 = 0,2.0,5.2,914.24 = 6,994 kN

- P_2 = 0,2.0,5.1,443.24 = 3,462 kN

- Lantai 2

- P = 0,3.0,4.2,25.24 = 6,480 kN

- Lantai 1

- P_1 = 0,3.0,4.2,25.24 = 6,480 kN

- P_2 = 0,3.0,4.0,75.24 = 2,160 kN

B. Beban Gravitasi Hidup

a. Beban hidup atap terpusat

P_L = Rangka atap K9 = 3,00 kN

b. Beban hidup merata lantai

- Tribun (lantai 3)

- Pelat a = (1-(4/3.2,914^2/6,3^2).2,914.5 = 10,413 kN/m

- Pelat b = 2/3.2,885.5 = 9,617 kN/m

- Lantai 2

- Pelat a = ((1,075.3,15.4,00)+(2/3.1,575.4,00)) = 17,745 kN/m

- Pelat b = 1,075.3,15.4,00 = 13,545 kN/m

- Lantai 1

- Pelat a = ((1,075.3,15.4,00)+(2/3.1,575.4,00)) = 17,745 kN/m

- Pelat b = ((1,075.3,15.4,00)+(2/3.1,575.4,00)) = 17,745 kN/m

- Pelat c = 1,075.6,5.4,00 = 27,950 kN/m

C. Beban Gempa

a. Berat atap

Beban mati

P_D = Rangka atap K9 = 6,00 kN

P = 3,71 kN

- Kolom : (0,5 . 0,7 . 1,2 . 24).1 = 10,08 kN

w_D = 19,790 kN

Beban hidup

P_L = Rangka atap K9 = 3 kN

w_L = 3 kN

Total berat atap = $w_D + w_L$ = 19,790 + 3 = 21,290 kN

b. Berat Tribun (Lantai 3)

Beban mati

- Pelat : a: 5,998 . 7,742 = 46,437 kN

b: 5,539 . 7,159 = 39,653 kN

- Balok: 0,40 . 50 . 24 . 14,835 = 71,208 kN

- Kolom: 0,5 . 0.7 . 3,45 . 24 = 28,980 kN

- P_h : 3,28 kN

- P_1 : 6,994 . 7 = 48,958 kN

- P_2 : 3,462 . 6 = 20,772 kN

w_D = 259,30 kN

Beban hidup

- Pelat : a: 10,413 . 7,742 = 80,617 kN

b: 9,617 . 7,159 = 68,848 kN

w_L = 149,465 kN

P_D = Rangka atap K9 = 6,00 kN

P = 3,71 kN

b. Beban mati merata lantai

- Tribun (lantai 3)

- Pelat a = (1-(4/3.2,914^2/6,3^2).2,914.2,880 = 5,998 kN/m

balok = 0,40 x 0,5

- Pelat b = 2/3.2,885.2,880 = 5,539 kN/m

balok = 0,40 x 0,5

- Lantai 2

- Pelat a = ((1,075.3,15.4,20)+(2/3.1,575.4,20)) = 18,632 kN/m

balok = 0,40 x 0,5

- Pelat b = 1,075.3,15.4,20 = 14,222 kN/m

balok = 0,40 x 0,5

- Lantai 1

- Pelat a = ((1,075.3,15.4,20)+(2/3.1,575.4,20)) = 18,632 kN/m

balok = 0,40 x 0,5

- Pelat b = ((1,075.3,15.4,20)+(2/3.1,575.4,20)) = 18,632 kN/m

balok = 0,40 x 0,5

- Pelat c = 1,075.6,5.4,20 = 29,348 kN/m

balok = 0,40 x 0,5

c. Beban mati terpusat

- Tribun (Lantai 3)

- P_b = 3,28 kN

Total berat Tribun (lantai 3) = $w_D + w_L$ = 259,300 + 149,465 = 408,765 kN

c. Berat Lantai 2

Beban mati

- Pelat : a:18,632 . 6,30 = 117,382 kN

b: 14,222 . 6,30 = 89,599 kN

- Balok: 0,40 . 0,50 . 24 . 6,30 = 30,240 kN

- Kolom: (0,5 . 0.7 . 3,75 . 24) + (0,5 . 0.6 . 1,5 . 24) = 42,30 kN

- P : 6,480 kN

w_D = 286,001 kN

Beban hidup

- Pelat : a:17,745 . 6,30 = 111,794 kN

b: 13,545 . 6,30 = 85,334 kN

w_L = 197,128 kN

Total berat lantai 2 = $w_D + w_L$ = 286,001 + 197,128 = 483,129 kN

d. Berat Lantai 1

Beban mati

- Pelat : a: 18,632 . 3,15 – 58,691 kN

b: 18,632 . 3,15 = 58,691 kN

c: 29,348 . 6,5 = 183,425 kN

- Balok: 0,40 . 0,50 . 24 . 12,80 = 61,440 kN

- Kolom:(0,5 . 0.7 . 4,3 . 24) + (0,5 . 0.6 . 4,3 . 24)+ (0,5 . 0.5 . 2,8 . 24)= 83,88 kN

- P_1 : 6,480 kN

- P_2 : 2,160 kN

w_D = 454,767 kN

Beban hidup

- Pelat : a: 17,745 . 3,15 = 55,897 kN

b: 17,745 . 3,15 = 55,897 kN

c: 27,950 . 6,5 = 181,675 kN

w_L = 293,469 kN

Total berat lantai 1 = $w_D + w_L$ = 454,767+ 293,469 = 748,236 kN

e. Beban total W_t = 21,290 + 408,765 + 483,129 + 748,236 = 1661,420 kN

f. Dengan rumus empiris diperoleh waktu getar alami (PPKGURDG, 1987):

$T = 0{,}06 \cdot H^{3/4} = 0{,}06 \cdot 12{,}7^{3/4} = 0{,}404$ detik

g.Berdasarkan grafik koefisien gempa dasar PPKGURDG, 1987 untuk wilayah 3, jenis tanah lunak dan T = 0,404 detik, diperoleh koefisien gempa dasar, C = 0,07.

h. Faktor keutamaan gedung olah raga I = 1,5, dan faktor jenis struktur rangka beton bertulang dengan daktilitas penuh K = 1,0 (PPKGURDG, 1987).

i. Gaya geser horizontal total akibat gempa (PPKGURDG, 1987)

$V = C.I.K.W_t = 0{,}07 \cdot 1{,}5 \cdot 1{,}0 \cdot 161{,}420 = 174{,}449$ kN

j. Distribusi gaya geser horizontal total akibat gempa ke sepanjang tinggi gedung dihitung dengan rumus berikut ini, (PPKGURDG, 1987)

Perhitungan distribusi gaya geser gempa disajikan pada tabel berikut ini

Tabel 6.20 Distribusi gaya geser gempa **PORTAL B (AS-X4 & AS-X15)**

Tingkat	h_i (m)	W_i (kN)	V (kN)	$W_i.h_i$ (kNm)	F_i (kN)
Atap	12,7	21,290	174,449	270,383	5,030

3	10,3	408,765	174,449	4210,280	78,320
2	5,8	483,129	174,449	2802,148	52,126
1	2,8	748,236	174,449	2095,061	38,973
	$\sum$ =	1661,420		9377,872	174,449

Gempa dari arah depan (AS-X4 & AS-X15)

Beban Gempa

a. Berat atap = 171,748 kN

b. Berat Tribun (Lantai 3)

Beban mati w_D = 160,816 kN

Beban hidup w_L = 53,672 kN

Total berat Tribun (lantai 3) = 214,488 kN

c. Berat Lantai 2

Beban mati w_D = 117,017 kN

Beban hidup w_L = 80,132 kN

Total berat lantai 2 = 197,149 kN

d. Berat Lantai 1

Beban mati

Beban mati w_D = 119,886 kN

Beban hidup w_L = 52,920 kN

Total berat lantai 1 = 172,806 kN

e. Beban total W_t = 171,748 + 214,488 + 197,149 + 172,806 = 756,191 kN

f. Dengan rumus empiris diperoleh waktu getar alami (PPKGURDG, 1987):

$T = 0{,}06 \,.\, H^{3/4} = 0{,}06 \,.\, 12{,}7^{3/4} = 0{,}404$ detik

g.Berdasarkan grafik koefisien gempa dasar PPKGURDG, 1987 untuk wilayah 3, jenis tanah lunak dan T = 0,404 detik, diperoleh koefisien gempa dasar, C = 0,07.

h. Faktor keutamaan gedung olah raga I = 1,5, dan faktor jenis struktur rangka beton bertulang dengan daktilitas penuh K = 1,0 (PPKGURDG, 1987).

i. Gaya geser horizontal total akibat gempa (PPKGURDG, 1987)

$V = C.I.K.W_t = 0{,}07 \,.\, 1{,}5 \,.\, 1{,}0 \,.\, 756{,}191 = 79{,}400$ kN

Perhitungan distribusi gaya geser gempa disajikan pada tabel berikut ini

Tabel 6.21 Distribusi gaya geser gempa arah depan **(AS-X4 & AS-X15)**

Tingkat	h_i (m)	W_i (kN)	V (kN)	$W_i.h_i$ (kNm)	F_i (kN)
Atap	12,7	171,748	79,400	2181,1996	28,779
3	10,3	214,488	79,400	2209,226	29,149
2	5,8	197,149	79,400	1143,464	15,087
1	2,8	172,806	79,400	483,857	6,384
	$\sum$ =	756,191		6017,747	79,400

6.1.15 Perhitungan Pembebanan PORTAL B (AS-X5 & AS-X14)

A. Beban Gravitasi Mati

a. Beban mati atap terpusat

P = 3,71 kN

b. Beban mati merata lantai

- Tribun (lantai 3)

- Pelat a=((1-(4/3.2,275^2/6,3^2).2,275.2,880)+5,998)=5,413+5,998 = 11,411kN/m

balok = 0,40 x 0,50

- Pelat b = (5,593)+(2/3.2,31.2,880) = 5,539+4,435 = 9,974 kN/m

balok = 0,40 x 0,50

- Lantai 2

- Pelat = 2.(2/3.1,575.4,20) = 8,820 kN/m

balok = 0,40 x 0,50

- Lantai 1

- Pelat a = 2.(2/3.1,575.4,20) = 8,820 kN/m

balok = 0,40 x 0,50

- Pelat b = 2.(2/3.1,575.4,20) = 8,820 kN/m

balok = 0,40 x 0,50

c. Beban mati terpusat

- Tribun (Lantai 3)

- P_b = 3,28 kN

- P_1 = 0,2.0,5.5,189.24 = 12,454 kN

- P_2 = 0,2.0,5.2,598.24 = 6,234 kN

- Lantai 2

- P = 0,3.0,4.4.24 = 11,520 kN

- Lantai 1

- P_1 = 0,3.0,4.4.24 = 11,520 kN

- P_2 = 0,3.0,4.(0,6 = 3,960 kN

B. Beban Gravit idup

. Beban hidup merata lantai

- Tribun (lantai 3)

  - Pelat a = 19,811 kN/m

  - Pelat b = 17,316 kN/m

- Lantai 2

  - Pelat = 8,40 kN/m

- Lantai 1

  - Pelat a = 8,40 kN/m

  - Pelat b = 8,40 kN/m

C. Beban Gempa

a. Berat atap

Beban mati

P = 3,71 kN

- Kolom : (0,5 . 0,7 . 1,2 . 24).1 = 10,08 kN

w_D = 13,790 kN

Total berat atap = 13,790 kN

b. Berat Tribun (Lantai 3)

Beban mati

- Pelat : a: 11,411 . 7,742 = 88,344 kN

  b: 9,974 . 7,159 = 71,404 kN

- Balok: 0,40 . 0,50 . 24 . 14,835 = 71,208 kN

- Kolom: 0,5 . 0.7 5 . 24 [illegible]8,980 kN

- P_b : 3,28 kN

- P_1 : 12,454 . 7 = 87,178 kN

- P_2 : 6,234 . 6 = 37,404 kN

w_D = 387,810 kN

Beban hidup

- Pelat : a: 19,811 . 7,742 = 153,377 kN

b: 17,316 . 7,159 = 123,965 kN

w_L = 277,342 kN

Total berat Tribun (lantai 3) = $w_D + w_L$ = 387,810 + 277,342 = 665,152 kN

c. Berat Lantai 2

Beban mati

- Pelat : 8,820 . 3,15 = 27,783 kN

- Balok: 0,40 . 0,50 . 24 . 6,30 = 30,240 kN

- Kolom: (0,5 . 0.7 . 3,75 . 24) + (0,5 . 0.6 . 1,5 . 24) = 42,30 kN

- P : 11,520 kN

w_D = 111,843 kN

Beban hidup

- Pelat : 8,40 . 3,15 = 26,460 kN

w_L = 26,460 kN

Total berat lantai 2 = $w_D + w_L$ = 111,843 + 26,460 = 138,303 kN

d. Berat Lantai 1

Beban mati

- Pelat : a: 8,820 . 3,15 = 27,783 kN

b: 8,820 . 3,15 = 27,783 kN

- Balok: 0,40 . 0,50 . 24 . 12,80 = 61,440 kN

- Kolom:(0,5 . 0.7 . 4,3 . 24) + (0,5 . 0.6 . 4,3 . 24)+(0,5 . 0.5 . 2,8 . 24)= 83,88 kN

- P_1 : 11,520 kN

- P_2 : 3,960 kN

w_D = 216,366 kN

Beban hidup

- Pelat : a: 8,40 . 6,30 = 52,920 kN

w_L = 52,920 kN

Total berat lantai 1 = w_D +w_L = 216,366 + 52,920 = 269,286 kN

e. Beban total W_t= 13,790 + 665,152 + 138,303 + 269,286 = 1086,531 kN

f. Dengan rumus empiris diperoleh waktu getar alami (PPKGURDG, 1987):

T = 0,06 . $H^{3/4}$ = 0,06 . $12,7^{3/4}$ = 0,404 detik

g.Berdasarkan grafik koefisien gempa dasar PPKGURDG, 1987 untuk wilayah 3, jenis tanah lunak dan T = 0,404 detik, diperoleh koefisien gempa dasar, C = 0,07.

h. Faktor keutamaan gedung olah raga I = 1,5, dan faktor jenis struktur rangka beton bertulang dengan daktilitas penuh K = 1,0 (PPKGURDG, 1987).

i. Gaya geser horizontal total akibat gempa (PPKGURDG, 1987)

$V = C.I.K.W_t$ = 0,07 . 1,5 . 1,0 . 1086,531 = 114,086 kN

j. Distribusi gaya geser horizontal total akibat gempa ke sepanjang tinggi gedung dihitung dengan rumus berikut ini, (PPKGURDG, 1987)

$$F_i = \frac{W_i.h_i}{\sum W_i.h_i}.V$$

Perhitungan distribusi gaya geser gempa disajikan pada tabel berikut ini

Tabel 6.22 Distribusi gaya geser gempa **PORTAL B (AS-X5 & AS-X14)**

Tingkat	h_i *(m)*	W_i *(kN)*	*V (kN)*	$W_i.h_i$ *(kNm)*	F_i *(kN)*
Atap	12,7	13,790	114,086	175,133	2,328
3	10,3	665,152	114,086	6851,066	91,072
2	5,8	138,303	114,086	802,157	10,663
1	2,8	269,286	114,086	754,001	10,023
	$\sum$ =	1086,531		8582,357	114,086

Gempa dari arah depan (AS-X5 & AS-X14)

Beban Gempa

a. Berat atap = 13,790 kN

b. Berat Tribun (Lantai 3)

Beban mati w_D = 272,234 kN

Beban hidup w_L = 76,689 kN

Total berat Tribun (lantai 3) = 348,923 kN

c. Berat Lantai 2

Beban mati w_D = 160,217 kN

Beban hidup w_L = 165,131 kN

Total berat lantai 2 = 325,348 kN

d. Berat Lantai 1

Beban mati

Beban mati w_D = 184,988 kN

- P_b = 3,28 kN

- P_1 = 0,2 . 0,5 . 24 . 4,275 = 10,260 kN

- P_2 = 0,2 . 0,5 . 24 . 3,155 = 7,572 kN

- Lantai 2

- P = 0,3 . 0,4 . 24 . 3,75 = 10,800 kN

- Lantai 1

- P_1 = 0,3 . 0,4 . 24 . 3,75 = 10,800 kN

- P_2 = 0,3 . 0,4 . 24 . 2,625 = 7,560 kN

B. Beban Gravitasi Hidup

a. Beban hidup atap terpusat

P_L = Pekerja rangka atap K5 = 4,479 kN

b. Beban hidup merata lantai

- Tribun (lantai 3)

- Pelat a = 18,054 kN/m

- Pelat b = 16,438 kN/m

- Lantai 2

- Pelat = 8,40 kN/m

- Lantai 1

- Pelat a = 8,40 kN/m

- Pelat b = 4,333 kN/m

C. Beban Gempa

a. Berat atap

Beban mati

P_D = Rangka atap K5 = 8,616 kN

P = 3,71 kN

- Kolom : (0,5 . 0,7 . 1,2 . 24).1 = 10,08 kN

w_D = 22,406 kN

Beban hidup

P_L = Rangka atap K5 = 4,497 kN

Total berat atap = $w_D + w_L$ = 22,406 + 4,497 = 24,646 kN

b. Berat Tribun (Lantai 3)

Beban mati

- Pelat : a: 10,399 . 7,742 = 80,509 kN

b: 9,468 . 7,159 = 67,781 kN

- Balok: 0,35 . 0,50 . 24 . 14,835 = 71,208 kN

- Kolom: 0,5 . 0.7 . 3,45 . 24 = 28,980 kN

- P_b : 3,28 kN

- P_1 : 10,260 . 7 = 71,820 kN

- P_2 : 7,572 . 6 = 45,432 kN

w_D = 372,290 kN

Beban hidup

- Pelat : a: 18,054 . 7,742 = 139,774 kN

b: 16,438 . 7,159 = 117,680 kN

w_L = 257,862 kN

Total berat Tribun (lantai 3) = $w_D + w_L$ = 372,290 + 257,862 = 629,744 kN

c. Berat Lantai 2

Beban mati

- Pelat : 8,820 . 3,15 = 27,783 kN

- Balok: 0,40 . 0,50 . 24 . 6,30 = 30,240 kN

- Kolom: (0,5 . 0.7 . 3,75 . 24) + (0,5 . 0.6 . 1,5 . 24) = 42,30 kN

- P : 10,800 kN

w_D = 111,123 kN

Beban hidup

- Pelat : 8,40 . 3,15 = 26,460 kN

w_L = 26,460 kN

Total berat lantai 2 = $w_D + w_L$ = 111,123 + 26,460 = 137,583 kN

d. Berat Lantai 1

Beban mati

- Pelat : a: 8,820 . 6,30 = 55,566 kN

b: 4,550 . 3,25 = 14,788 kN

- Balok: 0,40 . 0,50. 24 . 12,80 = 61,440 kN

- Kolom:(0,5 . 0.7 . 4,3 . 24)+(0,5 . 0.6 . 4,3 . 24) + (0,5 . 0.5 . 2,8 . 24)= 83,88 kN

- P_1 : 10,800 kN

- P_2 : 7,560 kN

w_D = 234,034 kN

Beban hidup

- Pelat : a: 8,40 . 6,30 = 52,920 kN

b: 4,333 . 3,25 = 14,082 kN

w_L = 67,002 kN

Total berat lantai 1 = $w_D + w_L$ = 234,034 + 67,002 = 301,036 kN

e. Beban total W_t = 24,646 + 629,744 + 137,583 + 301,036 = 1093,009 kN

f. Dengan rumus empiris diperoleh waktu getar alami (PPKGURDG, 1987):

$T = 0{,}06 \,.\, H^{3/4} = 0{,}06 \,.\, 12{,}7^{3/4} = 0{,}404$ detik

g. Berdasarkan grafik koefisien gempa dasar PPKGURDG, 1987 untuk wilayah 3, jenis tanah lunak dan T = 0,404 detik, diperoleh koefisien gempa dasar, C = 0,07.

h. Faktor keutamaan gedung olah raga I = 1,5, dan faktor jenis struktur rangka beton bertulang dengan daktilitas penuh K = 1,0 (PPKGURDG, 1987).

i. Gaya geser horizontal total akibat gempa (PPKGURDG, 1987)

$V = C.I.K.W_t = 0{,}07 \,.\, 1{,}5 \,.\, 1{,}0 \,.\, 1093{,}009 = 114{,}766$ kN

j. Distribusi gaya geser horizontal total akibat gempa ke sepanjang tinggi gedung dihitung dengan rumus berikut ini, (PPKGURDG, 1987)

$$F_i = \frac{W_i.h_i}{\sum W_i.h_i}.V$$

Tabel 6.24 Distribusi gaya geser gempa **PORTAL B (AS-X6 & AS-X13)**

Tingkat	h_i (m)	W_i (kN)	V (kN)	$W_i.h_i$ (kNm)	F_i (kN)
Atap	12,7	24,646	114,766	313,004	4,256
3	10,3	629,744	114,766	6486,363	88,198
2	5,8	137,583	114,766	797,981	10,851
1	2,8	301,036	114,766	842,901	11,461

Gempa dari arah depan (AS-X6 & AS-X13)

Beban Gempa

a. Berat atap = 24,646 kN

b. Berat Tribun (Lantai 3)

Beban mati w_D = 264,255 kN

Beban hidup w_L = 69,887 kN

Total berat Tribun (lantai 3) = 334,142 kN

c. Berat Lantai 2

Beban mati w_D = 153,768 kN

Beban hidup w_L = 155,187 kN

Total berat lantai 2 = 308,955 kN

d. Berat Lantai 1

Beban mati

Beban mati w_D = 200,845 kN

Beban hidup w_L = 125,842 kN

Total berat lantai 1 = 326,687 kN

e. Beban total W_t = 24,646 + 334,142 + 308,955+ 326,687 = 994,430 kN

f. Dengan rumus empiris diperoleh waktu getar alami (PPKGURDG, 1987):

$T = 0{,}06 \cdot H^{3/4} = 0{,}06 \cdot 12{,}7^{3/4} = 0{,}404$ detik

g.Berdasarkan grafik koefisien gempa dasar PPKGURDG, 1987 untuk wilayah 3, jenis tanah lunak dan T = 0,404 detik, diperoleh koefisien gempa dasar, C = 0,07.

h. Faktor keutamaan gedung olah raga I = 1,5, dan faktor jenis struktur rangka beton bertulang dengan daktilitas penuh K = 1,0 (PPKGURDG, 1987).

i. Gaya geser horizontal total akibat gempa (PPKGURDG, 1987)

$V = C.I.K.W_t = 0{,}07 \cdot 1{,}5 \cdot 1{,}0 \cdot 994{,}430 = 104{,}415$ kN

Perhitungan distribusi gaya geser gempa disajikan pada tabel berikut ini

Tabel 6.25 Distribusi gaya geser gempa arah depan **(AS-X6 & AS-X13)**

Tingkat	h_i (m)	W_i (kN)	V (kN)	$W_i.h_i$ (kNm)	F_i (kN)
Atap	12,7	24,646	104,415	313,004	5,058
3	10,3	334,142	104,415	3441,663	55,617
2	5,8	308,955	104,415	1791,939	28,958
1	2,8	326,687	104,415	914,724	14,782
	$\sum$ =	994,430		6461,329	104,415

6.1.17 Perhitungan Pembebanan PORTAL B (AS-X7 & AS-X12)

A. Beban Gravitasi Mati

a. Beban mati atap terpusat

P_D = Rangka atap K6 = 10,777 kN

P = 3,71 kN

b. Beban mati merata lantai

- Tribun (lantai 3)

- Pelat a = 2.4,986 = 9,972 kN/m

balok = 0,40 x 0,50

- Pelat b = 2.5,033 = 10,066 kN/m

balok = 0,40 x 0,50

- Lantai 2

- Pelat = 8,820 kN/m

balok = 0,40 x 0,50

- Lantai 1

- Pelat a = 8,820 kN/m

balok = 0,40 x 0,50

- Pelat b = 4,550 kN/m

balok = 0,40 x 0,50

c. Beban mati terpusat

- Tribun (Lantai 3)

- P_h = 3,28 kN

- P_1 = 0,2.0,5.4.24 = 9,600 kN

- P_2 = 0,2.0,5.4.24 = 9,600 kN

- Lantai 2

- P = 0,3.0,4.4.24 = 11,520 kN

- Lantai 1

- P_1 = 0,3.0,4.4.24 = 11,520 kN

- P_2 = 0,3.0,4.4.24 = 11,520 kN

B. Beban Gravitasi Hidup

a. Beban hidup atap terpusat

P_L = Rangka atap K6 = 5,664 kN

b. Beban hidup merata lantai

- Tribun (lantai 3)

  - Pelat a = 17,313 kN/m

  - Pelat b = 17,476 kN/m

- Lantai 2

  - Pelat 8,400 kN/m

- Lantai 1

  - Pelat a = 8,400 kN/m

  - Pelat b = 4,333 kN/m

C. Beban Gempa

a. Berat atap

Beban mati

P_D = Rangka atap K6 = 10,777 kN

P = 3,71 kN

- Kolom : (0,5 . 0,7 . 1,2 . 24).1 = 10,08 kN

w_D = 24,567 kN

Beban hidup

P_L = Rangka atap K6 = 5,664 kN

w_L = 5,664 kN

Total berat atap = $w_D + w_L$ = 24,567 + 5,664 = 30,231 kN

b. Berat Tribun (Lantai 3)

Beban mati

- Pelat : a: 9,972 . 7,742 = 77,203 kN

  b: 10,066 . 7,159 = 72,062 kN

- Balok: 0,40 . 0,50 . 24 . 14,835 = 71,208 kN

- Kolom: 0,5 . 0.7 . 3,45 . 24 = 28,980 kN

- P_b : 3,28 kN

- P_1 : 9,600 . 7 = 67,200 kN

- P_2 : 9,600 . 6 = 57,600 kN

w_D = 377,533 kN

Beban hidup

- Pelat : a: 17,313 . 7,742 = 134,037 kN

b: 17,476 . 7,159 = 125,111 kN

w_L = 259,148 kN

Total berat Tribun (lantai 3) = $w_D + w_L$ = 377,533 + 259,148 = 636,681 kN

c. Berat Lantai 2

Beban mati

- Pelat : 8,820 . 6,30 = 55,566 kN

- Balok: 0,40 . 0,50 . 24 . 6,30 = 30,240 kN

- Kolom: (0,5 . 0.7 . 3,75 . 24) + (0,5 . 0.6 . 1,5 . 24) = 42,30 kN

- P : 11,520 kN

w_D = 139,626 kN

Beban hidup

- Pelat : 8,40 . 6,30 = 52,920 kN

w_L = 52,920 kN

Total berat lantai 2 = $w_D + w_L$ = 139,626 + 52,920 = 192,546 kN

d. Berat Lantai 1

Beban mati

- Pelat : a: 8,820 . 6,30 = 55,566 kN

b: 4,55 . 3,25 = 14,788 kN

- Balok: 0,40 . 0,50 . 24 . 12,80 = 61,440 kN

- Kolom:(0,5 . 0.7 . 4,3 . 24)+(0,5 . 0.6 . 4,3 . 24) + (0,5 . 0.5 . 2,8 . 24)= 83,88 kN

- P_1 : 11,52 kN

- P_2 : 11,52 kN

w_D = 227,194 kN

Beban hidup

- Pelat : a: 8,40 . 6,30 = 52,920 kN

b: 4,333 . 3,25 = 14,082 kN

w_L = 67,002 kN

Total berat lantai 1 = $w_D + w_L$ = 227,194 + 67,002 = 294,196 kN

e. Beban total W_t = 30,231 + 636,681 + 192,546 + 294,196 = 1150,822 kN

f. Dengan rumus empiris diperoleh waktu getar alami (PPKGURDG, 1987):

$T = 0{,}06 \cdot H^{3/4} = 0{,}06 \cdot 12{,}7^{3/4} = 0{,}404$ detik

g.Berdasarkan grafik koefisien gempa dasar PPKGURDG, 1987 untuk wilayah 3, jenis tanah lunak dan T = 0,404 detik, diperoleh koefisien gempa dasar, C = 0,07.

h. Faktor keutamaan gedung olah raga I = 1,5, dan faktor jenis struktur rangka beton bertulang dengan daktilitas penuh K = 1,0 (PPKGURDG, 1987).

i. Gaya geser horizontal total akibat gempa (PPKGURDG, 1987)

$V = C.I.K.W_t = 0{,}07 \cdot 1{,}5 \cdot 1{,}0 \cdot 1150{,}822 = 120{,}836$ kN

Perhitungan distribusi gaya geser gempa disajikan pada tabel berikut ini

Tabel 6.26 Distribusi gaya geser gempa **PORTAL B (AS-X7 & AS-X12)**

Tingkat	h_i (m)	W_i (kN)	V (kN)	$W_i.h_i$ (kNm)	F_i (kN)
Atap	12,7	30,231	120,836	383,934	4,753
3	10,3	636,681	120,836	6557,814	89,576
2	5,8	192,546	120,836	1116,767	15,254
1	2,8	294,196	120,836	823,749	11,252
	$\sum$ =	1150,822		8846,297	120,836

Gempa dari arah depan (AS-X7 & AS-X12)

Beban Gempa

a. Berat atap = 27,399 kN

b. Berat Tribun (Lantai 3)

Beban mati w_D = 266,869 kN

Beban hidup w_L = 67,019 kN

Total berat Tribun (lantai 3) = 333,888 kN

c. Berat Lantai 2

Beban mati w_D = 182,759 kN

Beban hidup w_L = 182,494 kN

Total berat lantai 2 = 365,253 kN

d. Berat Lantai 1

Beban mati

Beban mati w_D = 196,145 kN

Beban hidup w_L = 129,558 kN

Total berat lantai 1 = 325,703 kN

e. Beban total W_t = 27,399 + 333,888 + 365,253+ 325,703 = 1052,243 kN

f. Dengan rumus empiris diperoleh waktu getar alami (PPKGURDG, 1987):

$T = 0{,}06 \,.\, H^{3/4} = 0{,}06 \,.\, 12{,}7^{3/4} = 0{,}404$ detik

g.Berdasarkan grafik koefisien gempa dasar PPKGURDG, 1987 untuk wilayah 3, jenis tanah lunak dan T = 0,404 detik, diperoleh koefisien gempa dasar, C = 0,07.

h. Faktor keutamaan gedung olah raga I = 1,5, dan faktor jenis struktur rangka beton bertulang dengan daktilitas penuh K = 1,0 (PPKGURDG, 1987).

i. Gaya geser horizontal total akibat gempa (PPKGURDG, 1987)

$V = C.I.K.W_t = 0{,}07 \,.\, 1{,}5 \,.\, 1{,}0 \,.\, 1052{,}243 = 110{,}485$ kN

Perhitungan distribusi gaya geser gempa disajikan pada tabel berikut ini

Tabel 6.27 Distribusi gaya geser gempa arah depan **(AS-X7 & AS-X12)**

Tingkat	h_i (m)	W_i (kN)	V (kN)	$W_i.h_i$ (kNm)	F_i (kN)
Atap	12,7	27,399	110,485	347,967	5,639
3	10,3	333,888	110,485	3439,046	55,734
2	5,8	365,253	110,485	2118,467	34,332
1	2,8	325,703	110,485	911,968	14,779
	Σ =	1052,243		6817,4495	110,485

6.1.18 Perhitungan Pembebanan PORTAL B (AS-X8 & AS-X11)

A. Beban Gravitasi Mati

a. Beban mati atap terpusat

P_D = Rangka atap K7 = 15,781 kN

P = 3,71 kN

b. Beban mati merata lantai

- Tribun (lantai 3)

- Pelat a =((4,986)+(1-(4/3.0,9625^2/6,3^2).0,9625.2,88=4,986+2,686=7,672 kN/m

balok = 0,40 x 0,50

- Pelat b = ((5,033)+(1-(4/3.1,50^2/6,5^2).1,5.2,88 = 5,033+4,013 = 9,046 kN/m

balok = 0,40 x 0,50

- Lantai 2

- Pelat a = 8,820 kN/m

balok = 0,40 x 0,50

- Pelat b = 4,410 kN/m

balok = 0,40 x 0,50

- Lantai 1

- Pelat a = 8,820 kN/m

balok = 0,40 x 0,50

- Pelat b = 4,550 kN/m

balok = 0,40 x 0,50

c. Beban mati terpusat

- Tribun (Lantai 3)

- P_b = 3,28 kN

- P_1 = 0,2.0,5.2,9625.24 = 7,110 kN

- P_2 = 0,2.0,5.3,50.24 = 8,400 kN

- Lantai 2

- P = 0,3.0,4.5.24 = 14,40 kN

- Lantai 1

- P_1 = 0,3.0,4.5.24 = 14,40 kN

- P_2 = 0,3.0,4.5.24 = 14,40 kN

B. Beban Gravitasi Hidup

a. Beban hidup atap terpusat

P_L = Rangka atap K7 = 6,321 kN

b. Beban hidup merata lantai

- Tribun (lantai 3)

- Pelat a = 13,319 kN/m

- Pelat b = 15,705 kN/m

- Lantai 2

- Pelat a = 8,400 kN/m

- Pelat b = 4,200 kN/m

- Lantai 1

- Pelat a = 8,400 kN/m

- Pelat b = 4,333 kN/m

C. Beban Gempa

a. Berat atap

Beban mati

P_D = Rangka atap K7 = 15,781 kN

P = 3,71 kN

- Kolom : (0,5 . 0,7 . 1,2 . 24).1 = 10,08 kN

w_D = 29,571 kN

Beban hidup

P_L = Rangka atap K7 = 6,321 kN

w_L = 6,321 kN

Total berat atap = $w_D + w_L$ = 29,571 + 6,321 = 35,892 kN

b. Berat Tribun (Lantai 3)

Beban mati

- Pelat : a: 7,672 . 7,742 = 59,397 kN

b: 9,046 . 7,159 = 64,760 kN

- Balok: 0,40 . 0,50 . 24 . 14,835 = 71,208 kN

- Kolom: 0,5 . 0.7 . 3,45 . 24 = 28,980 kN

- P_b : 3,28 kN

- P_1 : 7,11 . 7 = 49,770 kN

- P_2 : 8,40 . 6 = 50,400 kN

w_D = 327,795 kN

Beban hidup

- Pelat : a: 13,319 . 7,742 = 103,116 kN

b: 15,705 . 7,159 = 112,432 kN

w_L = 215,548 kN

Total berat Tribun (lantai 3) = $w_D + w_L$ = 327,795 + 215,548 = 543,343 kN

c. Berat Lantai 2

Beban mati

- Pelat : a: 8,820. 3,15 = 27,783 kN

b: 4,410 . 3,15 = 13,892 kN

- Balok: 0,40 . 0,50 . 24 . 6,30 = 30,240 kN

- Kolom: (0,5 . 0.7 . 3,75 . 24) + (0,5 . 0.6 . 1,5 . 24) = 42,30 kN

- P : 14,40 kN

w_D = 128,615 kN

Beban hidup

- Pelat : a: 8,400 . 3,15 = 26,460 kN

b: 4,200 . 3,15 = 13,230 kN

w_L = 39,690 kN

Total berat lantai 2 = $w_D + w_L$ = 128,615 + 39,690 = 168,305 kN

d. Berat Lantai 1

Beban mati

- Pelat : a: 8,820 . 6,30 = 55,566 kN

b: 4,550 . 3,25 = 14,788 kN

- Balok: 0,40 . 0,50 . 24 . 12,80 = 61,440 kN

- Kolom: (0,5.0,7 . 4,3 . 24) + (0,5 . 0.6 . 4,3 . 24) + (0,5 . 0.5 . 2,8 . 24)= 83,88 kN

- P_1 : 14,40 kN

- P_2 : 14,40 kN

w_D = 244,474 kN

Beban hidup

- Pelat : a: 8,40 . 6,30 = 52,920 kN

b: 4,333 . 3,25 = 14,083 kN

w_L = 67,003 kN

Total berat lantai 1 = $w_D + w_L$ = 244,474 + 67,003 = 311,477 kN

e. Beban total W_t = 35,892 + 543,343 + 168,305 + 311,477 = 1055,857 kN

f. Dengan rumus empiris diperoleh waktu getar alami (PPKGURDG, 1987):

$T = 0{,}06 \,.\, H^{3/4} = 0{,}06 \,.\, 12{,}7^{3/4} = 0{,}404$ detik

g.Berdasarkan grafik koefisien gempa dasar PPKGURDG, 1987 untuk wilayah 3, jenis tanah lunak dan T = 0,404 detik, diperoleh koefisien gempa dasar, C = 0,07.

h. Faktor keutamaan gedung olah raga I = 1,5, dan faktor jenis struktur rangka beton bertulang dengan daktilitas penuh K = 1,0 (PPKGURDG, 1987).

i. Gaya geser horizontal total akibat gempa (PPKGURDG, 1987)

$V = C.I.K.W_t = 0{,}07 \,.\, 1{,}5 \,.\, 1{,}0 \,.\, 1055{,}857 = 110{,}865$ kN

j. Distribusi gaya geser horizontal total akibat gempa ke sepanjang tinggi gedung dihitung dengan rumus berikut ini, (PPKGURDG, 1987)

$$F_i = \frac{W_i.h_i}{\sum W_i.h_i}.V$$

Perhitungan distribusi gaya geser gempa disajikan pada tabel berikut ini

Tabel 6.28 Distribusi gaya geser gempa **PORTAL B (AS-X8 & AS-X11)**

Tingkat	h_i (m)	W_i (kN)	V (kN)	$W_i.h_i$ (kNm)	F_i (kN)

Atap	12,7	35,892	110,865	415,696	5,863
3	10,3	543,343	110,865	5596,433	78,933
2	5,8	168,305	110,865	976,169	13,768
1	2,8	311,477	110,865	872,136	12,301
	$\sum$ =	1055,857		7860,434	110,865

Gempa dari arah depan (AS-X8 & AS-X11)

Beban Gempa

a. Berat atap = 32,732 kN

b. Berat Tribun (Lantai 3)

Beban mati w_D = 233,337 kN

Beban hidup w_L = 51,558 kN

Total berat Tribun (lantai 3) = 284,895 kN

c. Berat Lantai 2

~~Beban mati w_D = 159,194 kN~~

Beban hidup w_L = 147,464 kN

Total berat lantai 2 = 306,658 kN

d. Berat Lantai 1

Beban mati

Beban mati w_D = 209,774 kN

Beban hidup w_L = 123,219 kN

Total berat lantai 1 = 332,993 kN

e. Beban total W_t = 32,732 + 284,895 + 306,658 + 332,993 = 957,278 kN

f. Dengan rumus empiris diperoleh waktu getar alami (PPKGURDG, 1987):

$T = 0{,}06 \,.\, H^{3/4} = 0{,}06 \,.\, 12{,}7^{3/4} = 0{,}404$ detik

g.Berdasarkan grafik koefisien gempa dasar PPKGURDG, 1987 untuk wilayah 3, jenis tanah lunak dan $T = 0{,}404$ detik, diperoleh koefisien gempa dasar, $C = 0{,}07$.

h. Faktor keutamaan gedung olah raga $I = 1{,}5$, dan faktor jenis struktur rangka beton bertulang dengan daktilitas penuh $K = 1{,}0$ (PPKGURDG, 1987).

i. Gaya geser horizontal total akibat gempa (PPKGURDG, 1987)

$V = C.I.K.W_t = 0{,}07 \,.\, 1{,}5 \,.\, 1{,}0 \,.\, 957{,}278 = 100{,}514$ kN

j. Distribusi gaya geser horizontal total akibat gempa ke sepanjang tinggi gedung dihitung dengan rumus berikut ini, (PPKGURDG, 1987)

$$F_i = \frac{W_i.h_i}{\sum W_i.h_i}.V$$

Perhitungan distribusi gaya geser gempa disajikan pada tabel berikut ini

Tabel 6.29 Distribusi gaya geser gempa arah depan **(AS-X8 & AS-X11)**

Tingkat	h_i (m)	W_i (kN)	V (kN)	$W_i.h_i$ (kNm)	F_i (kN)
Atap	12,7	32,732	100,514	415,696	6,894
3	10,3	284,895	100,514	2934,419	48,663
2	5,8	306,658	100,514	1778,616	29,496
1	2,8	332,993	100,514	932,380	15,462
	$\sum$ =	957,278		6011,111	100,514

6.1.19 Perhitungan Pembebanan PORTAL B (AS-X9 & AS-X10)

A. Beban Gravitasi Mati

a. Beban mati atap terpusat

P_D = Rangka atap K8 = 17,758 kN

P = 3,71 kN

b. Beban mati merata lantai

- Tribun (lantai 3)

- Pelat a = ((2,686)+(1-(4/3.1,5^2/6,3^2).1,5.2,88 = 2,686+3,993 = 6,679 kN/m

balok = 0,40 x 0,50

- Pelat b = ((4,013)+(2/3.2,40.2,880)) = 4,013+4,608 = 8,621 kN/m

balok = 0,40 x 0,50

- Lantai 2

- Pelat = 4,410 kN/m

balok = 0,40 x 0,50

- Lantai 1

- Pelat a = 4,410 kN/m

balok – 0,40 x 0,50

- Pelat b = 8,820 kN/m

balok = 0,40 x 0,50

- Pelat c = 9,100 kN/m

balok = 0,40 x 0,50

- Pelat d = 4,550 kN/m

balok = 0,40 x 0,50

c. Beban mati terpusat

- Tribun (Lantai 3)

  - P_b = 3,28 kN

  - P_1 = 0,2.0,5.2,4625.24 = 5,910 kN

  - P_2 = 0,2.0,5.2,750.24 = 6,600 kN

- Lantai 2

  - P = 0,3.0,4.6.24 = 17,280 kN

- Lantai 1

  - P_1 = 0,3.0,4.6.24 = 17,280 kN

  - P_2 = 0,3.0,4.6.24 = 17,280 kN

B. Beban Gravitasi Hidup

a. Beban hidup atap terpusat

P_L = Rangka atap K8 = 6,994 kN

b. Beban hidup merata lantai

- Tribun (lantai 3)

  - Pelat a = 11,596 kN/m

  - Pelat b = 14,967 kN/m

- Lantai 2

  - Pelat = 4,20 kN/m

- Lantai 1

  - Pelat a = 4,20 kN/m

  - Pelat b = 8,40 kN/m

- Pelat c = 12,639 kN/m

- Pelat d = 4,333 kN/m

C. Beban Gempa

a. Berat atap

Beban mati

P_D = Rangka atap K8 = 17,758 kN

P = 3,71 kN

- Kolom : (0,5 . 0,7 . 1,2 . 24).1 = 10,08 kN

w_D = 31,548 kN

Beban hidup

P_L = Rangka atap K8 = 6,994 kN

w_L = 6,994 kN

Total berat atap = $w_D + w_L$ = 31,548 + 6,994 = 38,542 kN

b. Berat Tribun (Lantai 3)

Beban mati

- Pelat : a: 6,679 . 7,742 = 51,709 kN

b: 8,621 . 7,159 = 61,718 kN

- Balok: 0,40 . 0,50 . 24 . 14,835 = 71,208 kN

- Kolom: 0,5 . 0.7 . 3,45 . 24 = 28,980 kN

- P_b : 3,28 kN

- P_1 : 5,910 . 7 = 41,370 kN

- P_2 : 6,600 . 6 = 39,600 kN

w_D = 297,865 kN

Beban hidup

- Pelat : a: 11,596 . 7,742 = 89,776 kN

b: 14,967 . 7,159 = 107,149 kN

w_L = 196,925 kN

Total berat Tribun (lantai 3) = $w_D + w_L$ = 297,865 + 196,925 = 494,790 kN

c. Berat Lantai 2

Beban mati

- Pelat : 4,410. 3,15 = 13,892 kN

- Balok: 0,40 . 0,50 . 24 . 6,30 = 30,240 kN

- Kolom: (0,5 . 0.7 . 3,75 . 24) + (0,5 . 0.6 . 1,5 . 24) = 42,30 kN

- P : 17,280 kN

w_D = 162,452 kN

Beban hidup

- Pelat : 4,20 . 3,15 = 13,230 kN

w_L = 13,230 kN

Total berat lantai 2 = $w_D + w_L$ = 162,452 + 13,230 = 175,682 kN

d. Berat Lantai 1

Beban mati

- Pelat : a: 4,410 . 3,15 = 13,892 kN

b: 8,820 . 3,15 = 27,783 kN

c:9,10 . 3,25 = 29,575 kN

d: 4,55 . 3,25 = 14,788 kN

- Balok: 0,40 . 0,50 . 24 . 12,80 = 61,440 kN

- Kolom:(0,5 . 0.7 . 4,3 . 24)+(0,5 . 0.6 . 4,3 . 24) + (0,5 . 0.5 . 2,8 . 24)= 83,88 kN

- P_1 : 17,280 kN

- P_2 : 17,280 kN

w_D = 324,658 kN

Beban hidup

- Pelat : a: 4,20 . 3,15 = 13,230 kN

b: 8,40 . 3,15 = 26,460 kN

c: 12,639 . 3,25 = 41,077 kN

d: 4,333 . 3,25 = 14,082 kN

w_L = 94,849 kN

Total berat lantai 1 = $w_D + w_L$ = 324,658 + 94,849 = 419,507 kN

c. Beban total W_t = 38,542 + 494,790 + 175,682 + 419,507 = 1125,024 kN

f. Dengan rumus empiris diperoleh waktu getar alami (PPKGURDG, 1987):

$T = 0{,}06 \cdot H^{3/4} = 0{,}06 \cdot 12{,}7^{3/4} = 0{,}404$ detik

g. Berdasarkan grafik koefisien gempa dasar PPKGURDG, 1987 untuk wilayah 3, jenis tanah lunak dan T = 0,404 detik, diperoleh koefisien gempa dasar, C = 0,07.

h. Faktor keutamaan gedung olah raga I = 1,5, dan faktor jenis struktur rangka beton bertulang dengan daktilitas penuh K = 1,0 (PPKGURDG, 1987).

i. Gaya geser horizontal total akibat gempa (PPKGURDG, 1987)

$V = C.I.K.W_t = 0{,}07 \cdot 1{,}5 \cdot 1{,}0 \cdot 1125{,}024 = 118{,}128$ kN

Perhitungan distribusi gaya geser gempa disajikan pada tabel berikut ini

Tabel 6.30 Distribusi gaya geser gempa **PORTAL B (AS-X9 & AS-X10)**

Tingkat	h_i *(m)*	W_i *(kN)*	*V (kN)*	$W_i.h_i$ *(kNm)*	F_i *(kN)*
Atap	12,7	38,542	118,128	445,072	6,797
3	10,3	494,790	118,128	5096,337	77,831
2	5,8	175,682	118,128	1018,956	15,561
1	2,8	419,507	118,128	1174,620	17,939
	$\sum$ =	1125,024		7734,985	118,128

Gempa dari arah depan (AS-X9 & AS-X10)

Beban Gempa

a. Berat atap = 35,045 kN

b. Berat Tribun (Lantai 3)

Beban mati w_D = 210,293 kN

Beban hidup w_L = 44,888 kN

~~Total berat Tribun (lantai 3) = 255,180 kN~~

c. Berat Lantai 2

Beban mati w_D = 176,866 kN

Beban hidup w_L = 111,693 kN

Total berat lantai 2 = 288,558 kN

d. Berat Lantai 1

Beban mati

Beban mati w_D = 288,437 kN

Beban hidup w_L = 148,424 kN

Total berat lantai 1 = 436,861 kN

e. Beban total W_t = 35,045 + 255,180 + 288,558 + 436,861 = 1015,644 kN

f. Dengan rumus empiris diperoleh waktu getar alami (PPKGURDG, 1987):

$T = 0{,}06 \,.\, H^{3/4} = 0{,}06 \,.\, 12{,}7^{3/4} = 0{,}404$ detik

g.Berdasarkan grafik koefisien gempa dasar PPKGURDG, 1987 untuk wilayah 3, jenis tanah lunak dan T = 0,404 detik, diperoleh koefisien gempa dasar, C = 0,07.

h. Faktor keutamaan gedung olah raga I = 1,5, dan faktor jenis struktur rangka beton bertulang dengan daktilitas penuh K = 1,0 (PPKGURDG, 1987).

i. Gaya geser horizontal total akibat gempa (PPKGURDG, 1987)

$V = C.I.K.W_t = 0{,}07 \,.\, 1{,}5 \,.\, 1{,}0 \,.\, 1015{,}644 = 106{,}643$ kN

j. Distribusi gaya geser horizontal total akibat gempa ke sepanjang tinggi gedung dihitung dengan rumus berikut ini, (PPKGURDG, 1987)

$$F_i = \frac{W_i.h_i}{\sum W_i.h_i}.V$$

Perhitungan distribusi gaya geser gempa disajikan pada tabel berikut ini

Tabel 6.31 Distribusi gaya geser gempa arah depan **(AS-X9 & AS-X10)**

Tingkat	h_i (m)	W_i (kN)	V (kN)	$W_i.h_i$ (kNm)	F_i (kN)
Atap	12,7	35,045	106,643	445,072	7,950
3	10,3	255,180	106,643	2628,354	46,949
2	5,8	288,558	106,643	1673,636	29,895
1	2,8	436,861	106,643	223,211	21,849
	$\sum$ =	1015,644		5970,273	106,643

BAB VII

PERENCANAAN STRUKTUR PORTAL BETON BERTULANG DENGAN DAKTILITAS PENUH

Bab ini merupakan perencanaan lanjutan dari bahasan analisa struktur sebelumnya untuk daktilitas penuh meliputI: desain balok, desain kolom, desain pertemuan balok kolom, dan desain pondasi. Pada perencanaan dengan daktilitas penuh ini struktur diberi beban gempa dikalikan faktor pengali $K = 1$, tetapi dengan persyaratan daktilitas yang ketat.

7.1 Desain Balok

7.1.1 Momen Rencana Balok

Momen rencana balok dihitung berdasarkan tipe-tipe pembebanan menurut SK SNI T-12-1991-03 adalah sebagai berikut:

$M_{u1} = 1{,}2\ M_D + 1{,}6\ M_L$

$M_{u2} = 1{,}05\ (M_D + 0{,}5 M_L + M_{Eki})$

$M_{u3} = 1{,}05\ (M_D + 0{,}5 M_L + M_{Eka})$

$M_{u4} = 0{,}9\ (M_D + M_{Eki})$

$M_{u5} = 0{,}9\ (M_D + M_{Eka})$

7.1.2 Penulangan Lentur Balok dan Perhitungan Momen Nominal Aktual Balok

Sebagai contoh perhitungan lentur balok induk dan perhitungan momen nominal aktual balok induk ditinjau pada balok induk AS X-2 Lantai 2 adalah sebagai berikut:

- Tabel momen rencana balok didapat:

$M_{tumpuan}$ = 378,240 kNm

$M^{+}_{tumpuan}$ = 42.331 kNm

$M_{lapangan}$ = 261,155 kNm

- Pemeriksaan rasio tulangan apakah boleh dilakukan redistribusi momen

$$\rho_b = \frac{0,85.f'_c}{f_y}\beta_1\left(\frac{600}{600+f_y}\right)$$

$$= \frac{0,85.20}{400}0,85\left(\frac{600}{600+400}\right) = 0,0217$$

$$m = \frac{f_y}{0,85.f'_c} = \frac{400}{0,85.20} = 23,529$$

$$R_n = \frac{M_u}{\phi.b.d^2} = \frac{378,240.10^6}{.0,8.350.387,5^2} = 8,996 \text{ MPa}$$

$$\rho = \frac{1}{m}\left(1-\sqrt{1-\frac{2.m.R_n}{f_y}}\right) = \frac{1}{23,529}\left(1-\sqrt{1-\frac{2.23,529.8,996}{400}}\right) = 0,0322$$

$$R_n = \frac{M_u}{\phi.b.d^2} = \frac{42,331.10^6}{.0,8.350.387,5^2} = 1,007 \text{ Mpa}$$

$$\rho' = \frac{1}{m}\left(1-\sqrt{1-\frac{2.m.R_n}{f_y}}\right) = \frac{1}{23,529}\left(1-\sqrt{1-\frac{2.23,529.1,007}{400}}\right) \quad 0,0026$$

$\rho - \rho' = 0{,}032 - 0{,}0026 = 0{,}0296 > 0{,}5.\ \rho_b = 0{,}5.\ 0{,}0217 = 0{,}0108$

Dipakai 0,5 ρ_b

- Faktor redistribusi maksimum

$$30\left(1-\frac{4}{3}\frac{\rho-\rho'}{\rho_b}\right)\% = 30\left(1-\frac{4}{3}\frac{0{,}0108'}{0{,}0217}\right)\% = 10\ \%$$

- Redistribusi momen negatif pada pertemuan kolom tepi

$\partial M = 378{,}240\ .\ 10\ \% = 37{,}824$ kNm

- Momen balok rencana terredistribusi (dengan cara yang sama lihat tabel 7.1.c.)

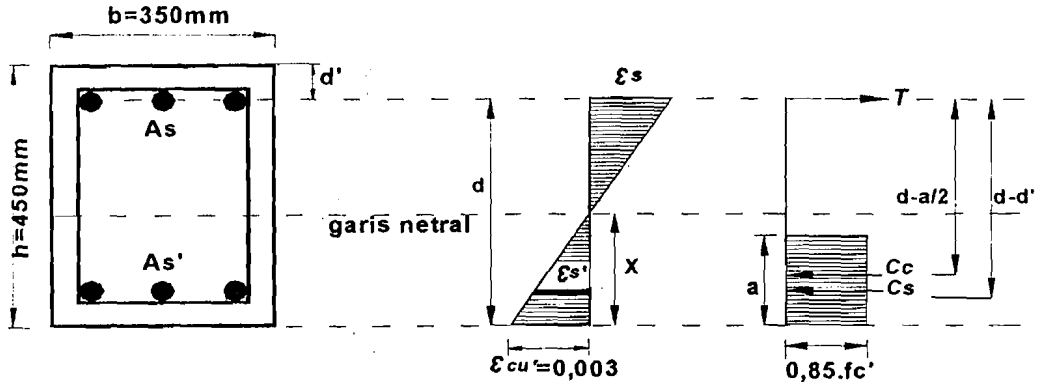
$M_{tumpuan} = 378{,}240 - 37{,}824 = 340{,}417$ kNm

$M_{tumpuan} = 42{,}331 + 37{,}824 = 80{,}155$ kNm

$M_{lapangan} = 261{,}155 + 37{,}824 = 298{,}979$ kNm

- Perhitungan lentur balok induk dan perhitungan momen nominal aktual balok induk (Cara perhitungan menurut: Dipohusodo,1996):

- Untuk momen tumpuan negatif ($M_{tumpuan}$ – 340,417 kNm)



Gambar 7.1 Analisis balok bertulangan rangkap tumpuan untuk momen negatif

$$\rho_b = \frac{0{,}85.f'_c}{f_y}\beta_1\left(\frac{600}{600+f_y}\right)$$

$$= \frac{0{,}85.20}{400}0{,}85\left(\frac{600}{600+400}\right) = 0{,}0217$$

$\rho_{min} = 1{,}4/f_y = 1{,}4/400 = 0{,}0035$

$\rho_{maks} = 0{,}75\ .\ \rho_b = 0{,}75\ .\ 0\ 0217 = 0{,}0163$

$\rho_{min} < \rho \leq \rho_{maks}$ diambil $\rho = (0{,}0035 + 0{,}0217)/4 = 0{,}0063$

d' = P(selimut beton) + Ø tul. Sengkang + ½.Ø tul.lentur

= 40 + 10 + ½.25 = 62,50 mm

$d = h - d' = 450 - 62{,}5 = 387{,}50$ mm

$$x = \frac{600}{(600+f_y)} \times d = \frac{600}{(600+400)} \times 387{,}50 = 232{,}50 \text{ mm}$$

$a = \beta_1\ .\ x = 0{,}85\ .\ 232{,}50 = 197{,}625$ mm

Luas tulangan tarik

$A_{s1} = \rho\ .\ b\ .\ d = 0{,}0063\ .\ 350\ .\ 387{,}50 = 854{,}438\ \text{mm}^2$

$T_1 = A_{s1}\ .\ f_y = 854{,}438\ .\ 400 = 341775$ kN

$M_{n1} = T_1\ .\ (d - a/2) = 341775.\ (387{,}50 - 197{,}625/2)$

$= 98{,}666$ kNm $< (M_u/0{,}8 = 123{,}333$ kNm)

$M_n = M_u/0{,}8 = 340{,}417/0{,}8 = 425{,}521$ kNm

$M_{n2} = M_n - M_{n1} = 425{,}521 - 123{,}333 = 302{,}188$ kNm

$M_{n2} = C_s\ .\ (d - d')$ atau $M_{n2} = T_2\ .\ (d - d')$

$T_2 = C_s = M_{n2}/(d - d') = 302{,}188\ .\ 10^6/(387{,}50 - 62{,}50) = 929810$ kN

Periksa regangan tulangan tekan:

$\varepsilon_s = [(x - d')/x]\ \varepsilon_{cu} = [(232{,}50 - 62{,}50)/232{,}50]0{,}003 = 0{,}0022$

$\varepsilon_y = f_y/E_s = 400/ 200000 = 0{,}002$

$\varepsilon_s > \varepsilon_y$

Dianggap baja tekan telah leleh saat beton tekan mencapai regangan hancur 0,003

dan $f'_s = f_y = 400$ MPa

Luas tulangan tekan:

$A_s' = C_s/f_s = 929810/400 = 2324{,}525$ mm^2

Tambahan luas tulangan tarik:

$A_{s2} = T_2/f_y = 929810/400 = 2324{,}525$ mm^2

Luas tulangan tarik:

$A_s = A_{s1} + A_{s2} = 854{,}438 + 2324{,}525 = 3178{,}963$ mm^2

Dipakai tulangan:

- Tulangan tarik/atas : **8D25** = 3926,991 mm^2 > A_s = 3178,963 mm^2

- Tulangan tekan/bawah : **6D25** = 2945,243 mm^2 > A_s' = 2688,219 mm^2

Periksa kapasitas penampang:

$A_s = 3926{,}991$ mm^2 , $A_s' = 2945{,}243$ mm^2

$d' = 62{,}50$ mm , $d = 387{,}50$ mm

Anggap tulangan tarik dan tulangan tekan telah leleh:

$C_c = 0{,}85 \,.\, f'_c \,.\, b \,.\, a = 0{,}85 \,.20\,.\, 350 \,.\, a = 5950a$

$C_s = A_s' \,.\, (f_y - 0{,}85 \,.\, f'_c) = 2945{,}243 \,.\, (400 - 0{,}85 \,.\, 20) = 1504037{,}553$ N

$T = A_s \,.\, f_y = 3926{,}991 \,.\, 400 = 1570796{,}40$ N

Keseimbangan gaya-gaya dalam:

$T = C_c + C_s$

$1570796{,}40 = 5950a + 1504037{,}553$

$a = 11{,}220$ mm

$x = a/\beta_1 = 11{,}220/0{,}85 = 13{,}200$ mm

$\varepsilon_s' = [(x - d')/x]\ \varepsilon_{cu} = [(13{,}200 - 62{,}50)/13{,}200]0{,}003 = -0{,}0112 < (\varepsilon_y = 0{,}002)$

$\varepsilon_s = [(d - x)/x]\ \varepsilon_{cu} = [(387{,}5 - 13{,}200)/13{,}200]0{,}003 = 0.0851 > (\varepsilon_y = 0{,}002)$

Anggapan tidak benar, tulangan tekan belum leleh diperlukan mencari garis netral terlebih dahulu:

Untuk mendapat nilai x digunakan persamaan sebagai berikut:

$(0{,}85 . f'c . b . \beta_1) . x^2 + (600 . A_s' - A_s . f_y) . x - 600 . d' . A_s' = 0$

$(0{,}85 .20 . 350 . 0{,}85)\ x^2 + (600. 2945{,}243\text{-}3926{,}991 .400)x - 600 .62{,}5 . 2945{,}243 = 0$

$5057{,}500\ x^2 + 785398{,}200\ x - 147262162{,}500 = 0$

dari persamaan di atas didapat $x = 109{,}827$ mm

$f_s' = [(x - d')/x]600 = [(109{,}827 - 62{,}50)/109{,}827]600 = 258{,}554$MPa $(f_y = 400$MPa)

Periksa rasio tulangan

$\rho = A_{s1}/(b . d)$

$= A_s - [(A_s' . f_s')/f_y]/(b.d)$

$= 3926{,}991 - [(2945{,}243.258{,}554/400]/(350.387{,}5)$

$= 0{,}0149$

$(\rho_{min}\ 0{,}0035) < \rho = 0{,}0149 \leq (\rho_{maks} = 0{,}0163)$, memenuhi syarat

$a = 0{,}85 . x = 0{,}85 . 109{,}827 = 93{,}353$ mm

Hitung momen nominal aktual negatif tumpuan:

$C_c = 0{,}85 . f'_c . b . a = 0{,}85 . 20 . 350 . 93{,}353 . 10^{-3} = 555{,}450$ kN

$C_s = A_s' . f_s' = 2945{,}243 . 258{,}554 . 10^{-3} = 1015{,}339$ kN

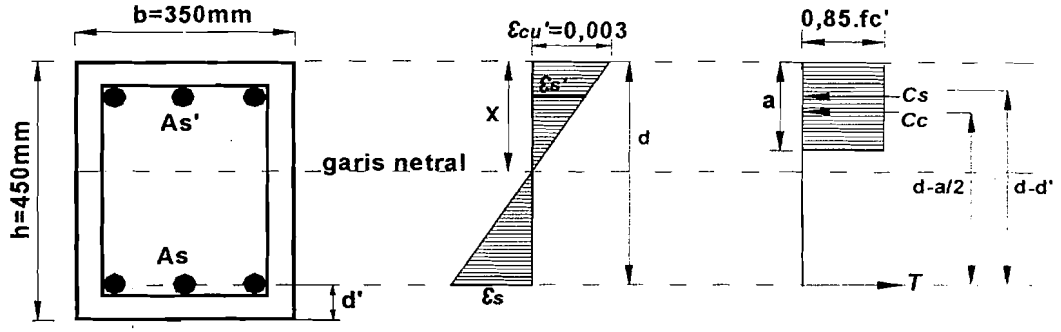
$M_{nak} = C_c \left[d - (a/2')\right] + C_s.(d - d')$

$= 555{,}450 \left[387{,}5 - (93{,}353/2)\right] + 1015{,}339.(387{,}5 - 62{,}5) \,.\, 10^{-3}$

$= 519{,}296$ kNm

($\Phi\, M_{nak\ tump} = 0{,}8 \,.\, 519{,}296 = 415{,}436$ kNm) > ($M_{tumpuan} = 340{,}417$ kNm) – aman-

- Untuk momen tumpuan positif ($M^{+}_{tumpuan} = 80{,}155$ kNm)



Gambar 7.2 Analisis balok bertulangan rangkap tumpuan untuk momen positif

$$\rho_b = \frac{0{,}85.f'_c}{f_y}\beta_1\left(\frac{600}{600+f_y}\right)$$

$$= \frac{0{,}85.20}{400}0{,}85\left(\frac{600}{600+400}\right) = 0{,}0217$$

$\rho_{min} = 1{,}4/f_y = 1{,}4/400 = 0{,}0035$

$\rho_{maks} = 0{,}75 \,.\, \rho_b = 0{,}75 \,.\, 0\ 0217 = 0{,}0163$

$\rho_{min} < \rho \leq \rho_{maks}$ diambil $\rho = (0{,}0035 + 0{,}0217)/4 = 0{,}0063$

d' = P(selimut beton) + Ø tul. Sengkang + ½.Ø tul.lentur

$= 40 + 10 + \frac{1}{2}.25 = 62{,}50$ mm

$d = h - d' = 450 - 62{,}5 = 387{,}50$ mm

$$x = \frac{600}{(600 + f_y)} \times d = \frac{600}{(600 + 400)} \times 387{,}50 = 232{,}50 \text{ mm}$$

$a = \beta_1 . x = 0{,}85 . 232{,}50 = 197{,}625$ mm

Luas tulangan tarik

$A_{s1} = \rho . b . d = 0{,}0063 . 350 . 387{,}50 = 854{,}438$ mm^2

$T_1 = A_{s1} . f_y = 854{,}438 . 400 = 341775$ kN

$M_{n1} = T_1 . (d - a/2) = 341775. (387{,}50 - 197{,}625/2)$

$= 98{,}666$ kNm $< (M_u/0{,}8 = 123{,}333$ kNm)

$M_n = M_u/0{,}8 = 80{,}155/0{,}8 = 100{,}194$ kNm

$M_{n2} = M_n - M_{n1} = 100{,}194 - 123{,}333 = -23{,}139$ kNm

$M_{n2} = C_s . (d - d')$ *atau* $M_{n2} = T_2 . (d - d')$

$T_2 = C_s = M_{n2}/(d - d') = -23{,}139 . 10^6/(387{,}50 - 62{,}50) = -71197{,}692$ kN

Periksa regangan tulangan tekan:

$\varepsilon_s = [(x - d')/x]\, \varepsilon_{cu} = [(232{,}50 - 62{,}50)/232{,}50]0{,}003 = 0{,}0022$

$\varepsilon_y = f_y/E_s = 400/200000 = 0{,}002$

$\varepsilon_s > \varepsilon_y$

Dianggap baja tekan telah leleh saat beton tekan mencapai regangan hancur 0,003

dan $f'_s = f_y = 400$ MPa

Luas tulangan tekan:

$A_s' = C_s/f_s = -71197{,}692/400 = -177{,}992$ mm^2

Tambahan luas tulangan tarik:

$A_{s2} = T_2 / f_y$ = -71197,692/400 = -177,992 mm^2

Luas tulangan tarik:

$A_s = A_{s1} - A_{s2}$ = 854,438 + -177,992) = 676,446 mm^2

Dipakai tulangan:

- Tulangan tarik/atas : **2D25** = 981,748 mm^2 > A_s = 676,446 mm^2

- Tulangan tekan/bawah : **2D25** = 981,748 mm^2 > A_s' = -177,992 mm^2

Periksa kapasitas penampang:

A_s = 981,748 mm^2 , A_s' = 981,748 mm^2

d' = 62,50 mm , d = 387,50 mm

Anggap tulangan tarik dan tulangan tekan telah leleh:

$C_c = 0,85 . f'_c . b . a = 0,85 .20 . 350 . a = 5950a$

$C_s = A_s' . (f_y - 0,85 . f'_c)$ = 981,748 . (400 – 0,85 . 20) = 376009,371 N

$T = A_s . f_y$ = 981,748 . 400 = 392699,200 N

Kesetimbangan gaya-gaya dalam:

$T = C_c - C_s$

392699,200 – 5950a = 376009,371

a = 2,805 mm

$x = a / \beta_1$ = 2,805/0,85 = 3,300 mm

$\varepsilon_s' = [(x - d')/x]\ \varepsilon_{cu} = [(3,300 - 62,50)/3,300]0,003 = -0,054 < (\varepsilon_y = 0,002)$

$\varepsilon_s = [(d - x)/x]\ \varepsilon_{cu} = [(387,5 - 3,300)/3,300]0,003 = 0,349 > (\varepsilon_y = 0,002)$

Anggapan tidak benar, tulangan tekan belum leleh diperlukan mencari garis netral terlebih dahulu:

Untuk mendapat nilai x digunakan persamaan sebagai berikut:

$(0,85 . f'c . b . \beta_1) . x^2 + (600 . A_s' - A_s . f_y) . x - 600 . d' . A_s' = 0$

$(0,85 .20 . 350 . 0,85) x^2 + (600. 981,748 - 981,748 .400)x - 600 .62,5 . 981,748 = 0$

$5057,500 x^2 + 196349,600 x - 36815550 = 0$

dari persamaan di atas didapat $x = 68,074$ mm

$f_s' = [(x - d') / x]600 = [(68,074 - 62,50) / 68,074].600 = 49,129$ MPa $< (f_y = 400$MPa$)$

Periksa rasio tulangan

$\rho = A_{s1} / (b . d)$

$= A_s - [(A_s' . f_s') / f_y] / (b.d)$

$= 981,748 - [(981,748.49,129 / 400] / (350.387,5)$

$= 0,00635$

$(\rho_{min} 0,0035) < \rho = 0,00635 \leq (\rho_{maks} = 0,0163)$, memenuhi syarat

$a = 0,85 . x = 0,85 . 68,074 = 57,863$ mm

Hitung momen nominal aktual negatif tumpuan:

$C_c = 0,85 . f'_c . b . a = 0,85 . 20 . 350 . 57,863 . 10^{-3} = 344,284$ kN

$C_s = A_s' . f_s' = 981,748 . 49,129 . 10^{-3} = 48,232$ kN

$M_{nak} = C_c [d - (a / 2')] + C_s . (d - d')$

$= 344,284 [387,5 - (57,863 / 2)] + 48,232.(387,5 - 62,5) . 10^{-3}$

$= 139,125$ kNm

$(\Phi M_{nak\ tump} = 0,8 . 139,125 = 111,300$ kNm$) > (M^+_{tumpuan} = 80,155$ kNm$)$ – aman-

- Untuk momen lapangan positif ($M_{u\ lapangan} = 298,979$ kNm)

$$\rho_b = \frac{0,85 . f'_c}{f_y} \beta_1 \left(\frac{600}{600 + f_y} \right)$$

$$= \frac{0{,}85.20}{400} 0{,}85 \left(\frac{600}{600+400} \right) = 0{,}0217$$

$\rho_{min} = 1{,}4/f_y = 1{,}4/400 = 0{,}0035$

$\rho_{maks} = 0{,}75 \,.\, \rho_b = 0{,}75 \,.\, 0\ 0217 = 0{,}0163$

$\rho_{min} < \rho \leq \rho_{maks}$ diambil $\rho = (0{,}0035 + 0{,}0217)/4 = 0{,}0063$

d' = P(selimut beton) + Ø tul. Sengkang + ½.Ø tul.lentur

$= 40 + 10 + ½.25 = 62{,}50$ mm

$d = h - d' = 450 - 62{,}5 = 387{,}50$ mm

$$x = \frac{600}{(600+f_y)} \times d = \frac{600}{(600+400)} \times 387{,}50 = 232{,}50 \text{ mm}$$

$a = \beta_1 \,.\, x = 0{,}85 \,.\, 232{,}50 = 197{,}625$ mm

Luas tulangan tarik

$A_{s1} = \rho \,.\, b \,.\, d = 0{,}0063 \,.\, 350 \,.\, 387{,}50 = 854{,}438$ mm^2

$T_1 = A_{s1} \,.\, f_y = 854{,}438 \,.\, 400 = 341775$ kN

$M_{n1} = T_1 \,.\, (d - a/2) = 341775 \,.\, (387{,}50 - 197{,}625/2)$

$= 98{,}666$ kNm < $(M_u/0{,}8 = 123{,}333$ kNm)

$M_n = M_u/0{,}8 = 298{,}979/0{,}8 = 373{,}723$ kNm

$M_{n2} = M_n - M_{n1} = 373{,}723 - 123{,}333 = 250{,}391$ kNm

$M_{n2} = C_s \,.\, (d - d')$ atau $M_{n2} = T_2 \,.\, (d - d')$

$T_2 = C_s = M_{n2}/(d - d') = 250{,}391 \,.\, 10^6/(387{,}50 - 62{,}50) = 770433{,}079$ kN

Periksa regangan tulangan tekan:

$\varepsilon_s = [(x - d')/x]\ \varepsilon_{cu} = [(232{,}50 - 62{,}50)/232{,}50]0{,}003 = 0{,}0022$

$\varepsilon_y = fy/Es = 400/200000 = 0{,}002$

$\varepsilon_s > \varepsilon_y$

Dianggap baja tekan telah leleh saat beton tekan mencapai regangan hancur 0,003

dan $f'_s = f_y = 400$ MPa

Luas tulangan tekan:

$A_s' = C_s/f_s = 770433{,}079/400 = 1926{,}083$ mm^2

Tambahan luas tulangan tarik:

$A_{s2} = T_2/f_y = 770433{,}079/400 = 1926{,}083$ mm^2

Luas tulangan tarik:

$A_s = A_{s1} + A_{s2} = 854{,}438 + 1926{,}083 = 2780{,}521$ mm^2

Dipakai tulangan:

- Tulangan tarik/atas : **6D25** = 2945,243 mm^2 > A_s = 2780,521 mm^2

- Tulangan tekan/bawah : **4D25** = 1963,495 mm^2 > A_s' = 1926,083 mm^2

Periksa kapasitas penampang:

$A_s = 2945{,}243$ mm^2 , $A_s' = 1963{,}495$ mm^2

$d' = 62{,}50$ mm , $d = 387{,}50$ mm

Anggap tulangan tarik dan tulangan tekan telah leleh:

$C_c = 0{,}85 \cdot f'c \cdot b \cdot a = 0{,}85 \cdot 20 \cdot 350 \cdot a = 5950a$

$C_s = A_s' \cdot (f_y - 0{,}85 \cdot f'_c) = 1963{,}495 \cdot (400 - 0{,}85 \cdot 20) = 1128028{,}172$ N

$T = A_s \cdot f_y = 2945{,}243 \cdot 400 = 1178097{,}20$ N

Keseimbangan gaya-gaya dalam:

$T = C_c + C_s$

$1178097{,}20 = 5950a + 1128028{,}172$

$a = 8{,}415$ mm

$x = a/\beta_1 = 8{,}415/0{,}85 = 9{,}900$ mm

$\varepsilon_s' = [(x - d')/x]\ \varepsilon_{cu} = [(9{,}900 - 62{,}50)/9{,}900]0{,}003 = -0{,}0159 < (\varepsilon_y = 0{,}002)$

$\varepsilon_s = [(d - x)/x]\ \varepsilon_{cu} = [(387{,}5 - 9{,}900)/9{,}900]0{,}003 = 0{,}114 > (\varepsilon_y = 0{,}002)$

Anggapan tidak benar, tulangan tekan belum leleh diperlukan mencari garis netral terlebih dahulu:

Untuk mendapat nilai x digunakan persamaan sebagai berikut:

$(0{,}85 \cdot f'_c \cdot b \cdot \beta_1) \cdot x^2 + (600 \cdot A_s' - A_s \cdot f_y) \cdot x - 600 \cdot d' \cdot As' = 0$

$(0{,}85 \cdot 20 \cdot 350 \cdot 0{,}85)\, x^2 + (600 \cdot 1963{,}495 - 2945{,}243 \cdot 400)x - 600 \cdot 62{,}5 \cdot 1963{,}495 = 0$

$5057{,}500\, x^2 + 589048{,}600\, x - 110446612{,}500 = 0$

dari persamaan di atas didapat $x = 100{,}590$ mm

$f_s' = [(x - d')/x]600 = [(100{,}590 - 62{,}50)/100{,}590].600 = 227{,}199$ MPa $< (f_y =$ 400MPa)

Periksa rasio tulangan

$\rho = A_s/(b \cdot d)$

$= A_s - [(A_s' \cdot f_s')/f_y]/(b.d)$

$= 2945{,}243 - [(1963{,}495 \cdot 227{,}199/400)]/(350 \cdot 387{,}5)$

$= 0{,}0135$

$(\rho_{min}\ 0{,}0035) < \rho = 0{,}0135 \leq (\rho_{maks} = 0{,}0163)$, memenuhi syarat

$a = 0{,}85 \cdot x = 0{,}85 \cdot 100{,}590 = 85{,}502$ mm

Hitung momen nominal aktual negatif tumpuan:

$C_c = 0{,}85 \cdot f'_c \cdot b \cdot a = 0{,}85 \cdot 20 \cdot 350 \cdot 85{,}502 \cdot 10^{-3} = 508{,}737$ kN

$C_s = A_s' \cdot f_s' = 1963{,}495 \cdot 227{,}199 \cdot 10^{-3} = 669{,}156$ kN

$M_{nak} = C_c\ [d - (a/2')] + C_s \cdot (d - d')$

$= 508{,}737\ [387{,}5 - (85{,}502/2)] + 669{,}156.(387{,}5 - 62{,}5)\ .\ 10^{-3}$

$= 392{,}862$ kNm

($\Phi\ M_{nak\_lap} = 0{,}8\ .\ 392{,}862 = 314{,}290$ kNm) > ($M_{u\ lapangan} = 298{,}979$ kNm) -aman-

Dengan cara yang sama didapat penulangan lentur untuk semua balok anak, disajikan dalam Tabel 7.3.a dan Tabel 7.3.b..

7.1.3 Gaya Geser Rencana Balok

Gaya geser rencana balok dapat dihitung dengan rumus (Kusuma dan Andriono,1993):

$$V_{u,b} = 1{,}05.(V_{D,b} + V_{L,b}) \pm 0{,}7.1{,}25.\left[\frac{M_{nak,b} + M'_{nak,b}}{l_n}\right]$$

Tetapi gaya geser terpakai balok tidak perlu lebih besar dari gaya geser maksimum,

$$V_{u,b\,maks} = 1{,}05.(V_{D,b} + V_{L,b} \pm 4/K.\ V_{E,b})$$

Sebagai contoh perhitungan gaya geser rencana balok portal sebagai berikut:

Portal AS X-3 (lantai 1)

Diketahui:

$V_{D,b} =$ 67,649 kN

$V_{L,b} =$ 53,759 kN

$V_{E,b} =$ 15,542 kN

$M_{nak,b} =$ 226,287 kNm

$M_{nak,b'} =$ 139,117 kNm

$l_n = 7 - 0{,}5 = 6{,}5$ m

$$V_{u,b\,1} = 1{,}05.(V_{D,b} + V_{L,b}) + 0{,}7.1{,}25.\left[\frac{M_{nak,b} + M_{nak,b'}}{l_n}\right]$$

$$= 1{,}05.(67{,}649 + 53{,}759) + 0{,}7.1{,}25.\left[\frac{226{,}287 + 139{,}117}{6{,}5}\right] = 182{,}053 \text{ kNm}$$

$$V_{u,b\,2} = 1{,}05.(V_{D,b} + V_{L,b}) - 0{,}7.1{,}25.\left[\frac{M_{nak,b} + M_{nak,b'}}{l_n}\right]$$

$$= 1{,}05.(67{,}649 + 53{,}759) - 0{,}7.1{,}25.\left[\frac{226{,}287 + 139{,}117}{6{,}5}\right] = 72{,}905 \text{ kNm}$$

Tidak perlu lebih besar dari:

$V_{u,b1\ maks} = 1{,}05.(\ V_{D,b} + V_{L,b} + 4/K.\ V_{E,b}) =$ kN

$= 1{,}05.(\ 67{,}649 + 53{,}759 + 4/1.\ 15{,}542) = 192{,}759$ kN

$V_{u,b2\ maks} = 1{,}05.(\ V_{D,b} + V_{L,b} - 4/K.\ V_{E,b}) =$ kN

$= 1{,}05.(\ 67{,}649 + 53{,}759 - 4/1.\ 15{,}542) = 62{,}202$ kN

Gaya geser balok terpakai adalah:

$V_{u,b\ 1\ pakai} = 182{,}053$ kN

$V_{u,b\ 2\ pakai} = 62{,}202$ kN

Dengan cara yang sama didapat gaya geser rencana dari semua balok, disajikan dalam Tabel 7.4.a dan Tabel 7.4.b.

7.1.4 Penulangan Geser Balok

Sebagai contoh perhitungan penulangan geser balok portal AS X-3 (lantai 1) :

a) Daerah sendi plastis (0 s/d $2h = 2 \,.\, 0{,}45 = 0{,}9$ m)

($V_c = 0$)

$V_s = V_{u,b} / \Phi = 182{,}053/0{,}6 = 303{,}422$ kN

Dipakai sengkang diameter 10 mm

$A_v = \frac{1}{4}.\pi.d^2 = \frac{1}{4}.3{,}14.10^2 = 78{,}540$ mm^2

$S = A_v f_y d / V_s = 4.78{,}540.240.387{,}5.10^{-3}/303{,}422 = 96{,}291$ mm ~ 95 mm

Kontrol jarak sengkang maksimum pada lokasi sendi plastis (SK-SNI, 1991):

- $d/4 = 387{,}50/4 = 96{,}875$ mm = 95 mm
- 8 . diameter tulangan pokok = 8.25 = 400 mm
- 24.diameter sengkang = 24.10 = 240 mm
- 200 mm
- $1600.f_y.A_v.l/[(A_{s,a}+A_{s,b}).f_y] = 1600.400.(1/4.\pi.10^2)/[(1/4.\pi.25^2).400] = 256$mm

$S = 95$ mm $= d/4 = 387{,}5/4 = 95$ mm

$S_{terpakai} = 95$ mm

Dipakai sengkang **4P10–95**

Kontrol Kuat geser

$V_{u,b} \leq 0{,}6.(V_c + V_s)$

182,053 kN $\leq 0{,}6.(0 + (4.78{,}54.240.387{,}5)/95.10^3) = 184{,}528$ kN -aman-

b) Daerah kritis (0 s/d d = 387,5 mm)

$V_{u,b\ terpakai} = [(V_{u,b\,1} - V_{u,b\,2}).(l_n - d)/l_n] + V_{u,b\,2}$

$$V_{u,b} = (182{,}053 - 62{,}202)\frac{6{,}5 - 0{,}3875}{6{,}5} + 62{,}202 = 174{,}910 \text{ kN}$$

$V_c = 1/6.\sqrt{f'_c}.b_w.d = 1/6.\sqrt{20}.350.387,5.10^{-3} = 101,089$ kN

$V_s = V_{u,b}/\Phi - Vc = 174,910/0,6 - 101,089 = 190,428$ kN

Dipakai sengkang diameter 10 mm

$A_v = ¼.\pi.d^2 = ¼.3,14.10^2 = 78,540$ mm^2

$S = A_v.f_y.d/ V_s = 4.78,540.240.387,5.10^{-3}/190,428 = 153,427$ mm ~ 150 mm

$S \geq d/4 = 387,5/4 = 96,875$ mm ~ 95 mm

Dipakai sengkang **4P10–95**

Kontrol Kuat geser

$V_{u,b} \leq 0,6.(V_c + V_s)$

174,910 kN $\leq 0,6.(101,089+(4.78,540.240.387,5)/ 95.10^3) = 245,181$ kN -ok-

c) Daerah luar sendi plastis (2h = 900 mm)

$V_{u,b\ terpakai} = [(V_{u,b\,1} - V_{u,b\,2}).(l_n-d)/ l_n] + V_{u,b\,2}$ (lihat gambar 7.3)

$$V_{u,b} = (182,053 - 62,202)\frac{6,5 - 0,900}{6,5} + 62,202 = 165,460 \text{ kN}$$

$V_c = 1/6.\sqrt{f'_c}.b_w.d = 1/6.\sqrt{20}.350.387,5.10^{-3} = 101,089$ kN

~~$V_s = V_{u,b}/\Phi - Vc = (165,460/0,6) - 101,089 = 174,678$ kN~~

Dipakai sengkang diameter 10 mm

$A_v = ¼.\pi.d^2 = ¼.3,14.10^2 = 78,540$ mm^2

$S = A_v.f_y.d/ V_s = 4.78,540.240.387,5.10^{-3}/174,678 = 167, 261$ mm ~ 160 mm

$S \leq d/2 = 387,5/2 = 193,750$ mm

Dipakai sengkang **4P10–160**

Kontrol Kuat geser

$V_{u,b} \leq 0,6.(V_c + V_s)$

165,460 kN $\leq 0,6.(101,089+(4.78,540.240.387,5)/160.10^3) = 170,217$ kN -ok-

$V_{u,b\ 1\ pakai}$ = 182,053 kN

$V_{u,b\ 2\ pakai}$ = 62,202 kN

a) Daerah sendi plastis (0 s/d $2h = 2 \cdot 0{,}45 = 0{,}9$ m)

($V_c = 0$)

$V_s = V_{u,b} / \Phi = 182{,}053/0{,}6 = 303{,}422$ kN

Dipakai sengkang diameter 10 mm

$A_v = \frac{1}{4}.\pi.d^2 = \frac{1}{4}.3{,}14.10^2 = 78{,}540\ mm^2$

$S = A_v.f_y.d / V_s = 4.78{,}540.240.387{,}5.10^{-3}/303{,}422 = 96{,}291$ mm ~ 95 mm

Kontrol jarak sengkang maksimum pada lokasi sendi plastis (SK-SNI, 1991):

- $d/4 = 387{,}50/4 = 96{,}875$ mm = 95 mm
- 8 . diameter tulangan pokok = 8.25 = 400 mm
- 24.diameter sengkang = 24.10 = 240 mm
- 200 mm
- $1600.f_y.A_v.1/[(A_{s,a}+A_{s,b}).f_y] = 1600.400.(1/4.\pi.10^2)/[(1/4.\pi.25^2).400] = 256$mm

S = 95 mm = $d/4$ = 387,5/4 = 95 mm

$S_{terpakai}$ = 95 mm

Dipakai sengkang **4P10–95**

Kontrol Kuat geser

$V_{u,b} \leq 0{,}6.(V_c + V_s)$

182,053 kN $\leq 0{,}6.(0 + (4.78{,}54.240.387{,}5)/95.10^3) = 184{,}528$ kN -aman-

b) Daerah kritis (0 s/d d = 387,5 mm)

$V_{u,b\ terpakai} = [(V_{u,b\ 1} - V_{u,b\ 2}).(l_n - d)/l_n] + V_{u,b\ 2}$

$$V_{u,b} = (182{,}053 - 62{,}202)\frac{6{,}5 - 0{,}3875}{6{,}5} + 62{,}202 = 174{,}910 \text{ kN}$$

$V_c = 1/6.\sqrt{f'_c}.b_w.d = 1/6.\sqrt{20}.350.387,5.10^{-3} = 101,089$ kN

$V_s = V_{u,b}/\Phi - Vc = 174,910/0,6 - 101,089 = 190,428$ kN

Dipakai sengkang diameter 10 mm

$A_v = ¼.\pi.d^2 = ¼.3,14.10^2 = 78,540$ mm^2

$S = A_v f_y.d/ V_s = 4.78,540.240.387,5.10^{-3}/190,428 = 153,427$ mm ~ 150 mm

$S \geq d/4 = 387,5/4 = 96,875$ mm ~ 95 mm

Dipakai sengkang **4P10–95**

Kontrol Kuat geser

$V_{u,b} \leq 0,6.(V_c + V_s)$

174,910 kN $\leq 0,6.(101,089+(4.78,540.240.387,5)/95.10^3) = 245,181$ kN -ok-

c) Daerah luar sendi plastis (2h = 900 mm s/d sisa)

$V_{u,b\ terpakai} = [(V_{u,b\,1} - V_{u,b\,2}).(l_n-2h)/l_n] + V_{u,b\,2}$ (lihat gambar 7.3)

$$V_{u,b} = (182,053 - 62,202)\frac{6,5 - 0,900}{6,5} + 62,202 = 165,460 \text{ kN}$$

$V_c = 1/6.\sqrt{f'_c}.b_w.d = 1/6.\sqrt{20}.350.387,5.10^{-3} = 101,089$ kN

$V_s = V_{u,b}/\Phi - Vc = (165,460/0,6) - 101,089 = 174,678$ kN

Dipakai sengkang diameter 10 mm

$A_v = ¼.\pi.d^2 = ¼.3,14.10^2 = 78,540$ mm^2

$S = A_v f_y.d/ V_s = 4.78,540.240.387,5.10^{-3}/174,678 = 167,261$ mm ~ 160 mm

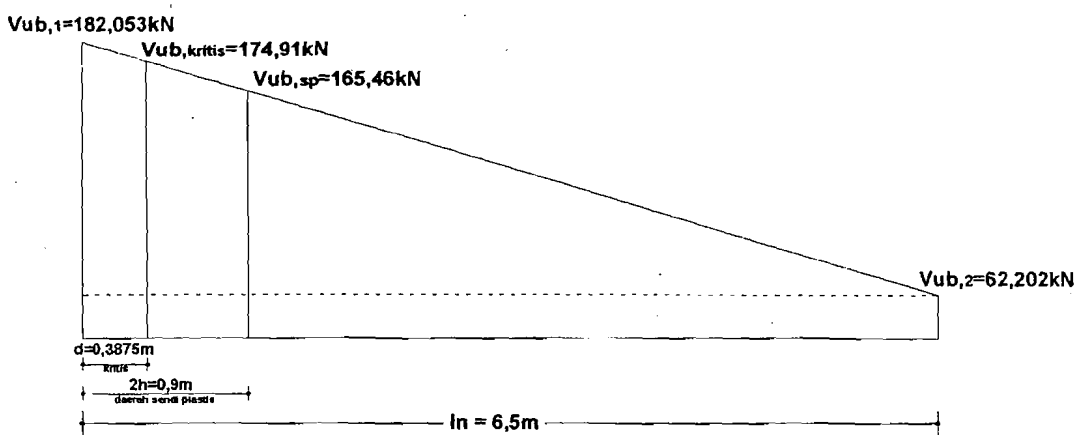
$S \leq d/2 = 387,5/2 = 193,750$ mm

Dipakai sengkang **4P10–160**

Kontrol kuat geser

$V_{u,b} \leq 0,6.(V_c + V_s)$

165,460 kN $\leq 0,6.(101,089+(4.78,540.240.387,5)/160.10^3) = 170,217$ kN -ok-



Gambar 7.3 Distribusi gaya geser balok

Dengan cara yang sama didapat penulangan geser balok dari semua balok, disajikan pada Tabel 7.5.a dan Tabel 7.5.b.

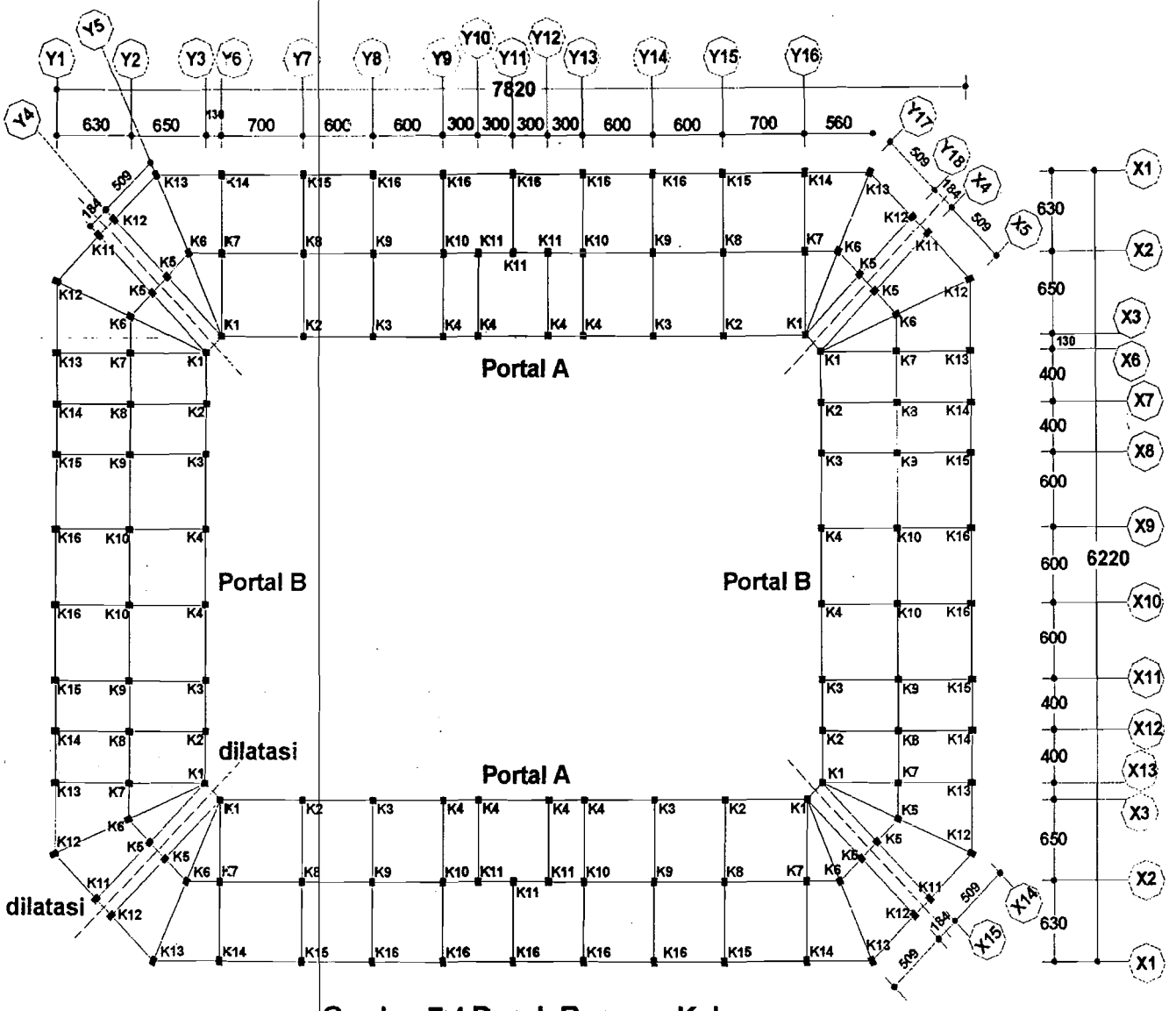
7.2 Desain Kolom

Kolom yang akan didesain telah ditentukan terlebih dahulu letak pada denah rencana kolom dan ukuran dimensinya. Kolom-kolom yang didesain adalah sebagai berikut (lihat gambar 7.4) :

- Semua kolom pada portal X3 & Y3 ukuran 500mm x 500mm
- Semua kolom pada portal X2 & Y2 ukuran 500mm x 600mm
- Semua kolom pada portal X1 & Y1 ukuran 500mm x 700mm

Desain kolom pada pembahasan ini meliputi :

1. Momen rencana kolom
2. Gaya aksial rencana kolom
3. Perhitungan diagram interaksi kolom
4. Cek kelangsingan kolom dan faktor pembesaran momen
5. Penulangan lentur dan aksial kolom
6. Gaya geser rencana kolom
7. Penulangan geser kolom
8. Perencanaan pertemuan kolom



Gambar 7.4 Denah Rencana Kolom

7.2.1 Momen Rencana Kolom

Momem rencana kolom dengan daktilitas penuh yang ditentukan pada muka balok $M_{u,k}$ dihitung berdasarkan terjadinya kapasitas lentur sendi plastis pada kedua ujung balok yang bertemu pada kolom tersebut. Momen rencana kolom ditentukan dengan mengambil nilai terkecil dari persamaan sebagai berikut (Kusuma dan Andriono, 1993):

$$M_{u,k} = \frac{h_n}{h}.0,7.\omega_d.\alpha.1,25\left[\begin{array}{l}\dfrac{l_{ki,x}}{l_{n\,ki,x}}.M_{nak,b,ki-x} + \dfrac{l_{ka,x}}{l_{nka,x}}.M_{nak,b,ka-x} \\ +0,3.\left(\dfrac{l_{ki,y}}{l_{n\,ki,y}}.M_{nak,b,ki-y} + \dfrac{l_{ka,y}}{l_{nka,y}}.M_{nak,b,ka-y}\right)\end{array}\right]$$

tetapi tidak perlu lebih besar dari:

$$M_{u,k\,maks} = 1,05\left[M_{D,k.x} + M_{L.x} + \frac{4}{k}.(M_{E\cdot k.x} + 0,3M_{E.k.y})\right]$$

Sebagai contoh perhitungan ditinjau pada momen kolom K1 (sejajar sumbu x)

Diketahui:

h = 2,8 m

h_n = 2,8 – (0,45/2) = 2,575 m

ω_d = 1 (untuk kolom lantai 1 dan lantai paling atas)

$M_{E,k\ lt\ atas}$ = 111,777 kNm

$M_{E,k\ lt\ i\ -\ 1\ bawah}$ = 0 kNm

$\alpha_{k\ atas}$ – $(M_{E,k\ lt\ atas})/(M_{E,k\ lt\ atas} + M_{E,k\ lt\ i\ -\ 1\ bawah})$

= (111,777)/(111,777 + 0) = 1,000

$M_{nak,\ b\ kiri.x}$ = 266,287 kNm

$l_{ki,x}$ = 0,919 m

$l_{n\ ki,x}$ = 0,919 – (0,5/2) = 0,669 m

$M_{nak,\ b\ kanan.x}$ = 266,287 kNm

$l_{ka,x}$ = 7,00 m

$l_{n\ ka,x}$ = 7,00 –0,5 = 6,50 m

$M_{nak,\ b\ kiri.y}$ = 0 kNm

$l_{ki,y}$ = 0 m

$l_{n\ ki,y}$ = 0 m

7.2.2 Gaya Aksial Rencana Kolom

Gaya aksial rencana $N_{u,k}$ yang bekerja pada kolom dengan daktilitas penuh dihitung dengan rumus sebagai berikut, untuk gaya gempa arah tegak lurusnya hanya diambil 30% saja.(Kusuma dan Andriono, 1993)

$$N_{u,k} = 1{,}05\,(N_{g,k.}) + Rv.0{,}7.1{,}25 \left[\begin{array}{l} \left(\dfrac{\sum M_{nak,b.ki.x}}{l_{n,b.ki.x}} + \dfrac{\sum M_{nak,b.ka.x}}{l_{n,b.ka.x}} \right) \\ +0{,}3 \left(\dfrac{\sum M_{nak,b.ki.y}}{l_{n,b.ki.y}} + \dfrac{\sum M_{nak,b.ka.y}}{l_{n,b.ka.y}} \right) \end{array} \right]$$

tetapi tidak perlu lebih besar dari

$N_{u,k,maks} = 1{,}05\,[N_{g,k,} + 4/k.(N_{E,k,x} + 0{,}3.N_{E,k,y})]$

dengan:

$\sum M_{nak} = M_{nak,b,} + M_{nak',b,}$

$N_{g,k} = N_{D,k} + N_{L,k}$ (sesuai arah x atau arah y)

Sebagai contoh perhitungan ditinjau pada kolom K1

Diketahui:

$N_{D,k,x}$ = -293,369 kN, $N_{L,k,x}$ = -166,529 kN

$N_{g,k.x}$ = -293,369 + (-166,529) = -459,898 kN

$\sum M_{nak,b}$ sebelah kiri kolom sejajar sumbu x

$M_{nak,b\,-}$ = 266,287 kNm

$M_{nak,b\,+}$ = 139,117 kNm

$\sum M_{nak,b,ki,x}$ = 266,287 + 139,117 = 405,404 kNm

$l_{n\,b,ki}$ = 0,669 m

$\sum M_{nak,b}$ sebelah kanan kolom sejajar sumbu x

$M_{nak,b\,-}$ = 266,287 kNm

$M_{nak,b\,+}$ = 139,117 kNm

$\sum M_{nak,b,ka,x}$ = 266,287 + 139,117 = 405,404 kNm

$l_{n\,b,ka}$ = 6,500 m

$\sum M_{nak,b}$ sebelah kiri kolom sejajar sumbu y

$M_{nak,b\,-} = 0$ kNm

$M_{nak,b\,+} = 0$ kNm

$\sum M_{nak,b,ki,y} = 0$ kNm

$l_{n\,b,ki} = 0{,}669$ m

$\sum M_{nak,b}$ sebelah kanan kolom sejajar sumbu y

$M_{nak,b\,-} = 1550{,}348$ kNm

$M_{nak,b\,+} = 961{,}632$ kNm

$\sum M_{nak,b,ka,y} = 1550{,}348 + 961{,}632 = 2511{,}980$ kNm

$l_{n\,b,ka} = 6{,}972$ m

$Rv = 1$

$N_{E,ki,x} = -146{,}587$ kN

$N_{E,ka,x} = 14{,}383$ kN

$N_{E,ki,y} = 187{,}190$ kN

$N_{E,ka,y} = -212{,}188$ kN

$$N_{u,k,x} = 1{,}05\ (-459{,}898) + 1.0{,}7.1{,}25 \left[\begin{array}{l} \left(\dfrac{405{,}404}{0{,}669} + \dfrac{405{,}404}{6{,}500} \right) \\ +0{,}3 \left(\dfrac{0}{0} + \dfrac{2511{,}980}{6{,}972} \right) \end{array} \right] = 196{,}495 \text{ kN}$$

$N_{u,k,x1} = 1{,}05.(-459{,}898 + 4/1.(-146{,}587 + 0{,}3.\ 187{,}190) = -862{,}699$ kN

$N_{u,k,x2} = 1{,}05.(-459{,}898 + 4/1.(14{,}383 + 0{,}3.\ -212{,}188) = -535{,}719$ kN

$N_{u,k,x} = 196{,}495$ kN

$N_{u,k,x,maks} = -862{,}699$ kN

Dipakai $N_{u,k,x} = 196{,}495$ kN

Dengan cara yang sama didapat gaya aksial rencana kolom-kolom, disajikan pada lampiran Tabel 7.9.a dan 7.9.b, untuk gaya aksial maksimum kolom-kolom disajikan pada lampiran Tabel 7.10.a dan 7.10.b, untuk gaya aksial terpakai kolom-kolom disajikan dalam Tabel 7.11.a dan 7.11.b.

$M_{nak,\ b\ kanan,y}$ = (160,272+234,051+234,051+380,528+234,051+307,395)

= 1550,348 kNm

$l_{ka,y}$ = 7,522 m

$l_{n\ ka,y}$ = 7,522 – (0,55) = 6,972 m

$M_{D,k\ .x\ atas}$ = 30,289 kNm

$M_{L,k\ .x\ atas}$ = 29,658 kNm

$M_{Eki,k\ .x\ atas}$ = -111,777 kNm

$M_{Eki,k\ .y\ atas}$ = 13,842 kNm

$M_{u,k\ .x\ atas}$ = (2,575/2,8).0,7.1,0.1,0.1,25[((0,919/0,669). 266,287)

+((7,00/6,50). 266,287)+(0,3(((0/0). 0)+((7,522/6,972). 1550,348))]

= 928,901 kNm

$M_{u,k\ .x\ atas\ maks}$ = 1,05.[30,289+29,658+((4/1).(-111,777+0,3.13,842))]

= -389,078 kNm

dipakai $M_{u,k\ .x\ atas}$ = -389,078 kNm

Dengan cara yang sama dapat dihitung momen rencana kolom–kolom disajikan pada Tabel 7.6.a dan Tabel 7.6.b, untuk momen maksimum kolom-kolom disajikan pada Tabel 7.7.a dan Tabel 7.7.b, dan untuk momen terpakai kolom-kolom disajikan dalam Tabel 7.8.a dan Tabel 7.8.b.

7.2.3 Perhitungan Diagram Interaksi Kolom

Sebagai contoh perhitungan diagram interaksi kolom 500 mm x 500 mm ditinjau pada $\rho_g = 0.024$, diketahui :

Tulangan yang dianalisis 12D25 (terdistribusi merata pada tiap sisi)

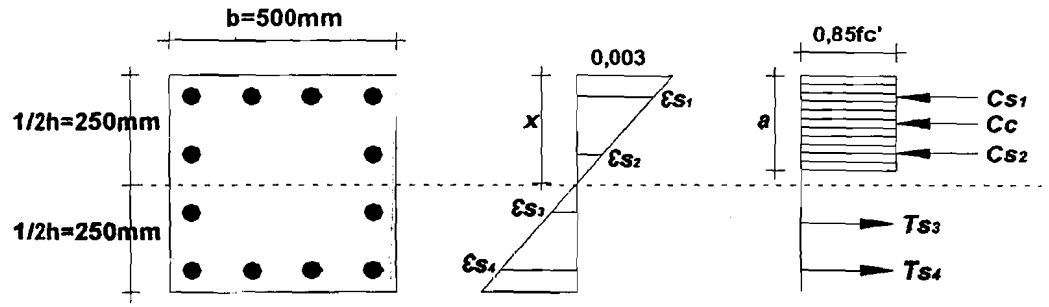
$A_s = (1/4).\pi.25^2.12 = 5890{,}486 mm^2$

$\rho = A_s/A_g = 5890{,}486/250.000 = 0{,}024$

$f'_c = 20$ Mpa, $f_y = 400$ Mpa

$b = 500$ mm, $h = 500$ mm, $A_g = 500 \times 500 = 250.000$ mm^2

$d' = 60$ mm, d=500-60=440mm



Gambar 7.5 Penampang dengan tulangan terdistribusi merata pada keempat sisinya

Pada contoh perhitungan ini digunakan pada kondisi *balance* (seimbang),

$xb = 600/(600+400).440 = 264$mm

Jarak masing-masing tulangan pada serat beton yang tertekan ditentukan sebagai berikut:

Lapis 1, $A_{s1} = (1/4).\pi.25^2. 4 = 1962{,}5$ mm^2

$d_1 = d' = 60$ mm

$\varepsilon s_1 = 0{,}003.((264-60)/ 264)$

$f_{s1} = 600.((264-60)/ 264) = 463{,}636$ MPa $> f_y$ maka

$C_{s1} = A_s'.(f'_s - 0{,}85.f'_c) = 1962{,}5.(400-0{,}85.20) = 751637{,}5$ N

Lapis 2, A_{s2} = (1/4).π.25^2. 2 = 981,25 mm^2

d_2 = 60 +((500-2.60)/3) = 186,667 mm

εs_2 = 0,003.((264-186,667)/ 264)

f_{s2} = 600.((264-186,667)/ 264) = 152 MPa < f_y maka

$C_{s2} = A_s'.(f'_s - 0{,}85.f'_c)$ = 981,25.(152-0,85.20) = 155780,9 N

Lapis 3, A_{s3} = (1/4).π.25^2. 2 = 981,25 mm^2

d_3 = 60+2.((500-2.60)/3) = 313,333 mm

εs_3 = 0,003.((264-313,333)/ 264)

f_{s3} = 600.((264-313,333)/ 264) = -152 MPa <- f_y maka

C_{s3} = 981,25.(-152) = -110018,9 N

Lapis 4, A_{s4} = (1/4).π.25^2. 4 = 1962,5 mm^2

d_4 = 60 +3.((500-2.60)/3) = 440 mm

εs_4 = 0,003.((264-440)/ 264)

f_{s4} = 600.((264-440)/264) = -456 MPa > - f_y maka

C_{s4} = 1962,5.(-400) = -785000 N

Untuk gaya desak serat beton:

$C_c = 0{,}85.f'_c.a.b$ = 0,85.20.(0,85. 264).500 = 1907400,0 N

Dengan demikian,

$0{,}65P_n = 0{,}65(C_c + C_{s1} + C_{s2} + C_{s3} + C_{s4})$

= 0,65((1907400+752018,585+155780,9 +(-110018,9)+(-785000))10^{-3}

= 1247,9 kN

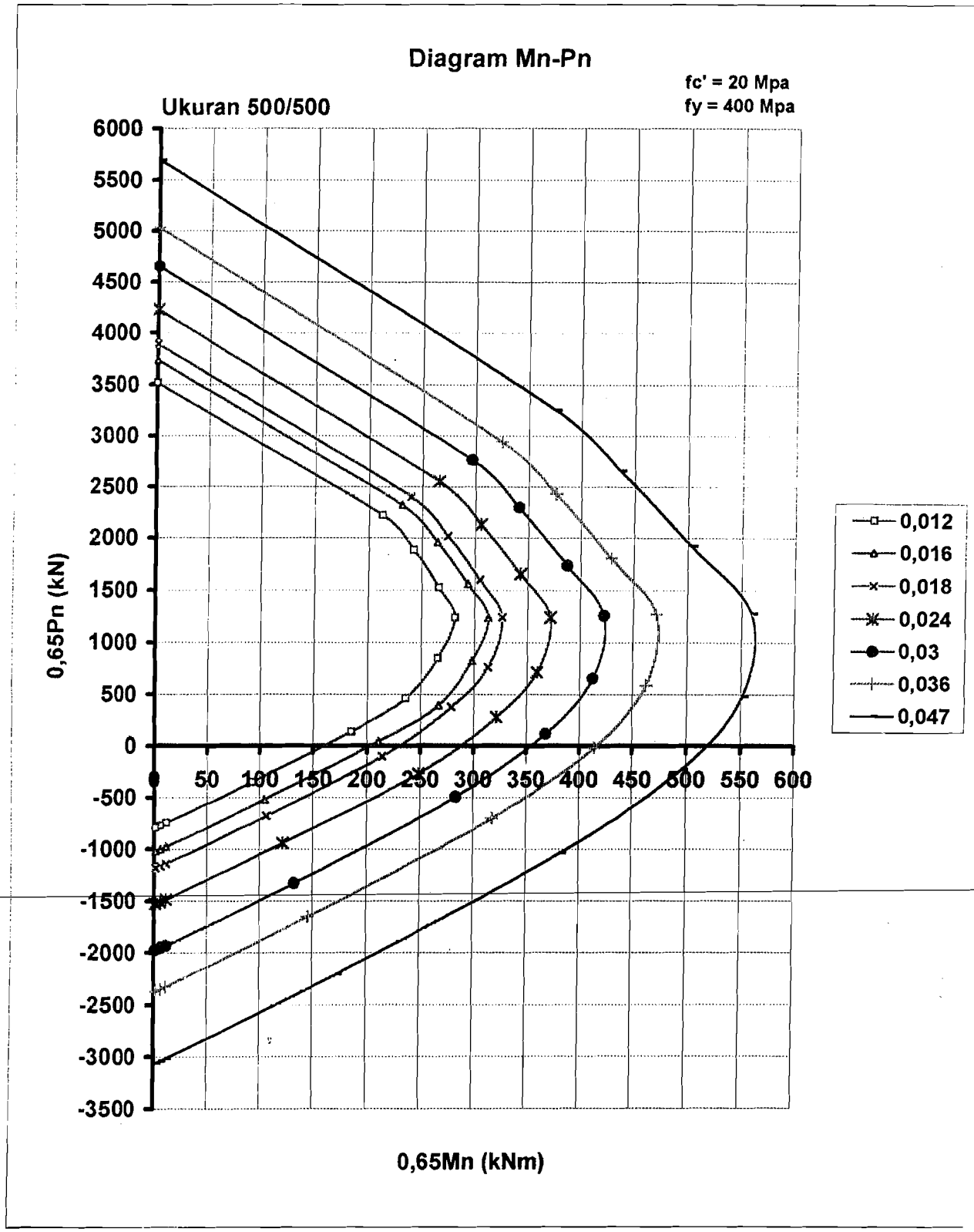
Perhitungan momennya adalah sebagai berikut,

$0{,}65M_n = 0{,}65[C_c.1/2.(h-a)+\sum C_{si}.(1/2h-d_i)]$

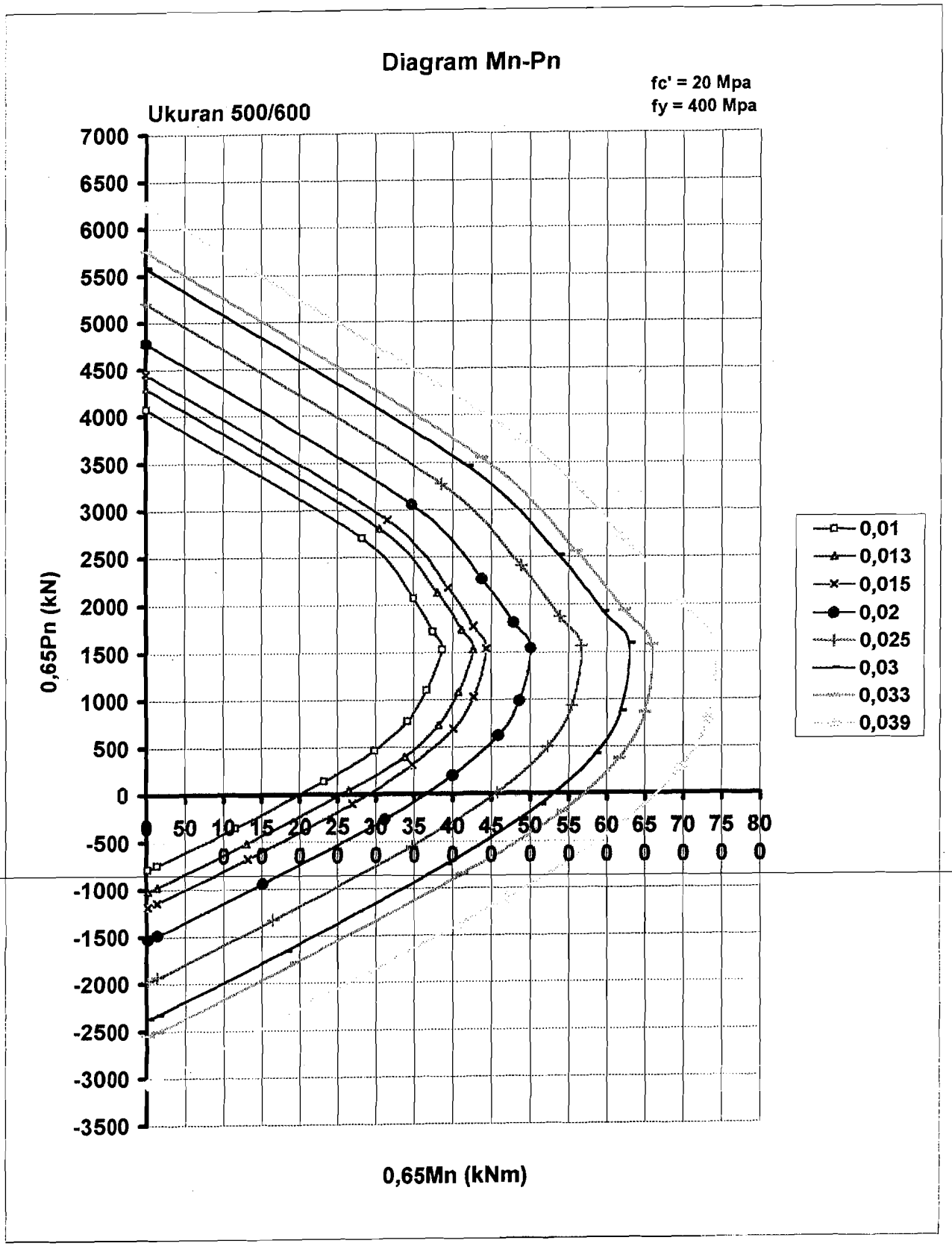
= 0,65[1907400.1/2(500-224,4)+ 752018,585 (264-60)+ 155780,9 (264-186,667)+(-110018,9)(264-313,333)+ (-785000)(264-440)]10^{-6}

= 371,6 kNm

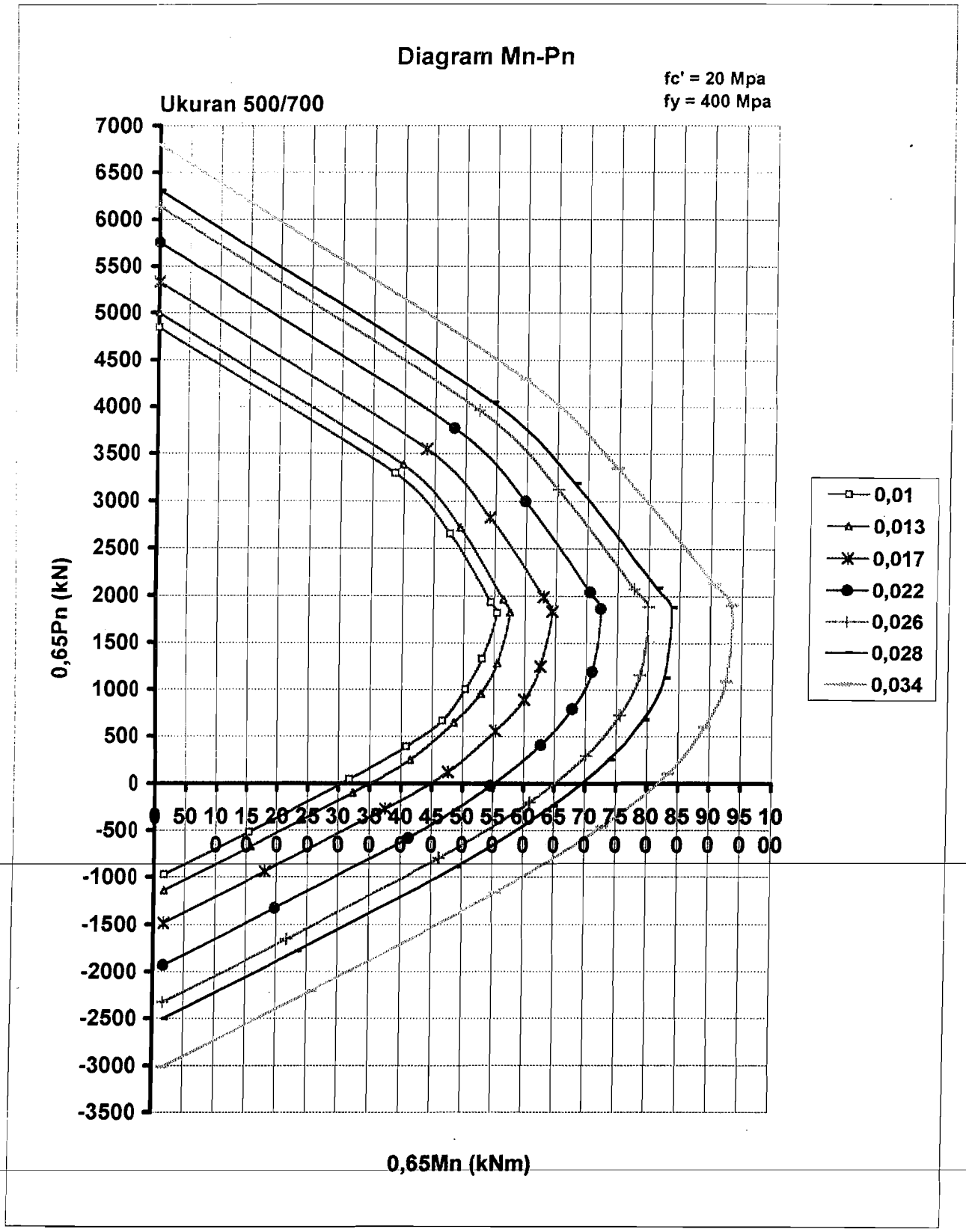
Dengan cara yang sama dihitung pula untuk kondisi *x* yang lain, sehingga dapat digambarkan diagram interaksi kolom. Dihitung pula untuk kolom ukuran 500 mm x 600 mm dan 500 mm x 700 mm. Seluruh perhitungan disajikan dalam Tabel 7.12.a, Tabel 7.12.b, dan Tabel 7.12.c, beserta diagramnya dalam Gambar 7.6 – 7.8 untuk kepentingan penulangan.



Gambar 7.6 Diagram Mn-Pn kolom ukuran 500mm x 500mm



Gambar 7.7 Diagram Mn-Pn kolom ukuran 500mm x 600mm



Gambar 7.8 Diagram Mn-Pn kolom ukuran 500mm x 700mm

7.2.4 Perhitungan Kelangsingan Kolom dan Faktor Pembesaran Momen

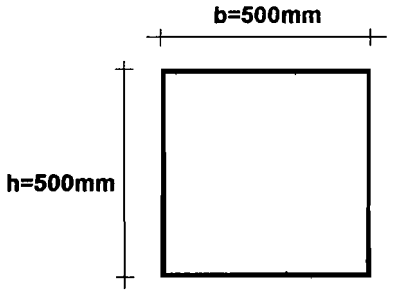
Sebagai contoh perhitungan kelangsingan kolom dan pembesaran momen ditinjau pada kolom K2 (sejajar sumbu x).

- Cek kelangsingan kolom

$$\beta_d = \frac{1{,}2M_{D,K}}{(1{,}2M_{D,K} + 1{,}6M_{L,k})}$$

$$= \frac{1{,}2.25{,}78}{(1{,}2.25{,}78 + 1{,}6.33{,}48)} = 0{,}366$$

- Ukuran kolom: b = 500 mm, h = 500 mm



Gambar 7.9 Penampang melintang kolom ukuran 500 mm x 500 mm

$E_c = 4700.\sqrt{f'_c} = 4700.\sqrt{20} = 21019{,}039$ Mpa

$I_k = 1/12.b.h^3 = 1/12.500.500^3 = 5208333333$ mm^4

$$EI_k = \frac{\left(\frac{E_c.I_k}{2{,}5}\right)}{1+\beta_d} = \frac{\left(\frac{21019{,}039.5208333333}{2{,}5}\right)}{1+0{,}366} = 3{,}2057\text{E}13 \text{ Nmm}^2$$

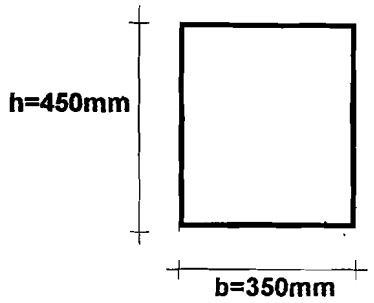
l_k = 2800 mm (panjang kolom lantai 1)

$l_{n,k}$ = 2800 – (0,5.450) = 2775 mm (panjang bersih kolom lantai 1)

l_k = 0 (panjang kolom lantai 2)

$l_{n,k}$ = 0 (panjang bersih kolom lantai 2)

- Ukuran balok lantai 1 : h = 450 mm, b = 350 mm



Gambar 7.10 Penampang melintang balok ukuran 350 mm x 450 mm

$E_c = 4700.\sqrt{f'_c} = 4700.\sqrt{20} = 21019{,}039$ Mpa

$I_b = 1/12.b.h^3 = 1/12.350.450^3 = 2657812500$ mm^4

$$EI_{b.a} = \frac{\left(\frac{E_c.I_b}{5}\right)}{1+\beta_d} = \frac{\left(\frac{21019{,}039.2657812500}{5}\right)}{1+0{,}366} = 8{,}179\text{E}12 \text{ Nmm}^2$$

l_b = 7000 mm (panjang balok sebelah kiri kolom)

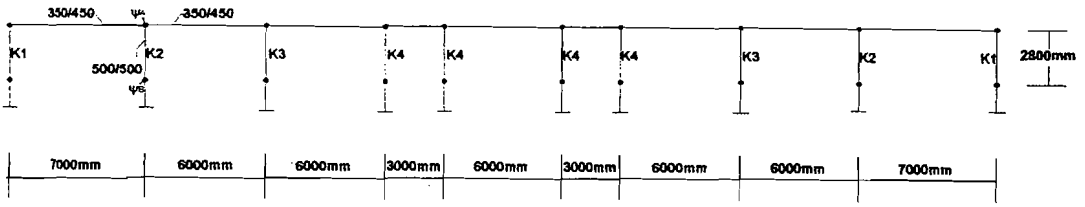
$l_{n,b}$ = 7000 – 500 = 6500 mm (panjang bersih balok sebelah kiri kolom)

l_b = 6000 mm (panjang balok sebelah kanan kolom)

$l_{n,b}$ = 6000 – 500 = 5500 mm (panjang bersih balok sebelah kanan kolom)

- Kekuatan relatif kolom bagian atas

$$\psi A = \frac{\sum\left(\frac{EI_k}{l_{n,k}}\right)}{\sum\left(\frac{EI_b}{l_{n,b}}\right)} = \frac{\frac{3{,}2057E13}{2575}+\frac{3{,}2057E13}{0}}{\frac{8{,}179E12}{6500}+\frac{8{,}179E12}{5500}} = 4{,}534$$



Gambar 7.11 Kekuatan relatif kolom K2 (As X-3) portal A sejajar sumbu x

-Kekuatan relatif kolom bagian bawah

$\Psi B = 0$ (dianggap dukungan jepit)

Nilai k diambil dari grafik nomogram (Struktur beton Bertulang, Istimawan Dipohusodo), dengan mengacu pada kekakuan kolom portal tanpa pengaku.

Didapat nilai $k = 1{,}48$

-Cek kelangsingan kolom K2 portal bergoyang

$A = 500 \times 500 = 250000\ mm^2$

$r = \sqrt{(I/A)} = \sqrt{(5308333333/250000)} = 144{,}338$

$L = 2775$ mm (panjang bersih kolom lantai 1)

$(k.L)/r = (1{,}48.2575)/144{,}338 = 26{,}403 > 22$ (merupakan kolom langsing)

$P_{c,k2} = (\pi^2.EI_k)/(k.l)^2$

$= (\pi^2.\ 3{,}2054.10^{13})/(1{,}48.2575)^2$

$= 21760{,}39$ kN

$P_{u,k2} = N_{u,k2} = 234{,}984$kN

$\Sigma P_u = 2.(\ P_{u,k1} + P_{u,k2} + P_{u,k3} + (2.\ P_{u,k4}))$

$= 2.(196{,}5 + 234{,}984 + 200{,}813 + (2.131{,}104))$

$= 1302{,}07$kN

$\Sigma P_c = 2.(\ P_{c,k1} + P_{c,k2} + P_{c,k3} + (2.\ P_{c,k4}))$

$= 2.(34340{,}93 + 21760{,}39 + 31780{,}38 + (2.24488{,}29))$

$= 273716{,}53$ kN

Faktor pembesaran momen

$\delta_b = C_m / [1-(P_u/\phi P_c)]$, untuk portal tanpa pengaku $C_m = 1$

$= 1 / [1-(234{,}984/0{,}65.21760{,}39)]$

$= 1{,}017 > 1$

$\delta_{sx} = 1 / [1-(\Sigma P_u / \Sigma \phi P_c)]$

$= 1 / [1-(1302,07/0,65.\ 273716,53)]$

$= 1,008 > 1$

Dengan cara yang sama didapat perhitungan kolom dan faktor kelangsingan kolom-kolom yang lain, disajikan pada Tabel 7.13.a dan Tabel 7.13.b .

7.2.5 Penulangan Kombinasi Lentur dan Aksial Kolom

Sebagai contoh perhitungan penulangan lentur kolom ditinjau pada kolom K2 (portal A), sebagai berikut :

Diketahui dari perhitungan sebelumnya:

$P_u = N_{u,k} = 234{,}984$ kN

$M_{u,k,x} = 445{,}665$ kNm ; $\delta_{s,x} = 1{,}008$

$M_{c,x} = \delta_{s,x} \,.\, M_{u,k,x} = 445{,}665 \,.\, 1{,}008 = 449{,}363$ kNm

$M_{u,k,y} = 177{,}989$ kNm ; $\delta_{s,y} = 1{,}011$

$M_{c,y} = \delta_{s,y} \,.\, M_{u,k,y} = 177{,}989 \,.\, 1{,}011 = 179{,}972$ kNm

Eksentrisitasnya kolom yang terjadi adalah :

$e_x = M_{c,y} / P_u = 179{,}972 / 234{,}984 = 0{,}769$ m

$e_y = M_{c,x} / P_u = 449{,}363 / 234{,}984 = 1{,}921$ m

- Perencanaan tulangan kolom arah x

$M_c = 179{,}972$ kNm

$P_u = N_{u,k} = 234{,}984$ kN

Dari diagram Interaksi Kolom 500 mm x 500 mm (Gambar 7.6), diambil penulangan 8D22 dengan $A_{st} = 3039{,}52$ mm^2, jadi $\rho_g \quad A_{st} / A_g = 3039{,}52/250000 = 0{,}012$. $A_s = A_s' = 0{,}5.A_{st} = 0{,}5.\ 3039{,}52 = 1519{,}76$ mm^2.

Sedangkan eksentrisitas kolom dalam keadaan seimbang (e_b) adalah $0{,}65Mn/0{,}65Pn = 1242{,}9/281{,}1 = 0{,}226$m. (lihat tabel 7.12.a)

Cek dengan rumus pendekatan Whitney untuk menentukan tulangan kolom terpasang aman digunakan atau tidak.

Eksentrisitas kolom yang terjadi ($e_x = 0{,}769$ m) > eksentrisitas kolom seimbang ($e_b = 0{,}226$m), maka kondisinya adalah patah tarik.

Kontrol Whitney pada kondisi patah tarik :

$$e' = \left[e + \left(d - \frac{h}{2} \right) \right]$$

$$= \left[0{,}769.10^3 + \left(440 - \frac{500}{2} \right) \right]$$

$$= 955{,}89 \text{ mm}$$

$$m = \frac{fy}{0{,}85\,fc'} = \frac{400}{0{,}85.20} = 23{,}529$$

$$\rho = \frac{As'}{b.d} = \frac{1519{,}76}{500.440} = 0{,}0069$$

$$Pn = 0{,}85.fc'.b.d.\left[\left(1-\frac{e'}{d}\right)+\sqrt{\left(1-\frac{e'}{d}\right)^2+2m\rho.\left(1-\frac{d'}{d}\right)}\ \right]$$

$$=0{,}85.20.500.440.\left[\left(1-\frac{955{,}89}{440}\right)+\sqrt{\left(1-\frac{955{,}89}{440}\right)^2+2.23{,}529.0{,}0069.\left(1-\frac{60}{440}\right)}\ \right]$$

$$= 426{,}988 \text{ kN}$$

$\phi Pn = 0{,}65.426{,}988 = 277{,}542$ kN > Pu = 234,984 kN -aman-

Jadi tulangan kolom 8D22, dengan penempatan tulangan kolom 3D22 di masing-masing sisinya dapat dipergunakan pada kolom K2.

Dengan cara yang sama didapat penulangan lentur untuk semua kolom, disajikan dalam Tabel 7.14.a dan 7.14.b .

7.2.6. Gaya Geser Rencana Kolom

Gaya geser rencana kolom diperoleh dengan menentukan nilai terkecil dari persamaan berikut (Andriono dan Takim, 1993)

$$V_{u,k} = (M_{u,k\ atas} + M_{u,k\ bawah})/h_n$$

tetapi tidak perlu lebih besar dari:

$$V_{u,k\ maks} = 1{,}05.(V_{D,k,x} + V_{L,k,x} + 4/K.(V_{E,k,x} + 0{,}3.V_{E,k,y}))$$

Dengan harga $K = 1$

Akan tetapi pada lantai dasar dan lantai paling atas yang memperbolehkan terjadinya sendi plastis pada kolom, gaya geser rencana kolom dihitung berdasarkan momen kapasitas dari kolom.

$$V_{u,k\ lantai\ 1} = (M_{u,k\ atas\ lt.1} + M_{kap,k\ lt.1})/h_n$$

$$V_{u,k\ lantai\ tribun} = (2.M_{kap,k\ lt\ tribun})/h_n$$

Sebagai contoh perhitungan ditinjau pada kolom K2 (portal A) sejajar sumbu x :

$M_{u,k\ atas\text{-}x} = 445{,}665$ kNm ; $M_{u,k\ atas\text{-}y} = 177{,}989$ kNm

Menentukan momen kapasitas kolom:

$P_{n\text{-}x} = 426{,}988$ kN (hasil perhitungan sebelumnya, tulangan pokok 8D22)

$e_x = 0{,}769$ m

$M_{kap,k,x} = 1{,}25.\ P_{n\text{-}x}.\ e_x = 1{,}25.\ 426{,}988.\ 0{,}769 = 410{,}781$ kNm

$P_{n\text{-}y} = 410{,}92$ kN (hasil perhitungan sebelumnya, tulangan pokok 24D22)

$e_y = 1{,}912$ m

$M_{kap,k,y} = 1{,}25.\ P_{n\text{-}y}.\ e_y = 1{,}25.\ 267{,}098.\ 1{,}912 = 982{,}099$ kNm

Perhitungan gaya geser kolom ditambah 30% gaya geser arah tegak lurus yang ditinjau.

Karena kolom K2 adalah kolom lantai 1 dan sekaligus kolom lantai paling atas maka gaya geser rencana kolomnya adalah sebagai berikut:

$$V_{u,k,x} = (2.M_{kap,k,x} + 0{,}3(2.\ M_{kap,k,y}))/h_n$$

$$= (2.\ 410{,}781 + 0{,}3.(2.\ 982{,}099))/2{,}575 = 547{,}892\ \text{kN}$$

Dengan cara yang sama didapat gaya-gaya geser rencana kolom lainnya yang disajikan pada Tabel 7.15.a dan Tabel 7.15.b .

Tetapi gaya geser rencana kolom tidak perlu lebih besar dari:

$$V_{u,k\,maks} = 1{,}05.(V_{D,k,x} + V_{L,k,x} + 4/K.(V_{E,k,x} + 0{,}3.V_{E,k,y}))$$

$$= 1{,}05.(-14{,}446 + (-18{,}044) + 4(-87{,}971 + 0{,}3.0{,}134))$$

$$= 385{,}836 \text{ kN}$$

dipakai $V_{u,k} = 385{,}836$ kN

Dengan cara yang sama didapat gaya geser maksimum kolom lainnya yang disajikan dalam Tabel 7.16.a dan Tabel 7.16.b, dan gaya geser kolom terpakai disajikan pada Tabel 7.17.a dan Tabel 7.17.b .

7.2.7 Penulangan Geser Kolom

Sebagai contoh perhitungan penulangan geser kolom ditinjau pada kolom K2 (portal A), adalah sebagai berikut ini.

-Penulangan geser sepanjang *lo*

Syarat panjang *lo* dari muka balok (SK-SNI T-15-1991-03)

- $lo \geq h = 500$ mm, bila $Nu,k \leq 0{,}3.Ag.fc'$
- $lo \geq 1{,}5h = 1{,}5.500 = 750$ mm, bila $Nu,k > 0{,}3.Ag.fc'$
- $lo \geq 1/6$.bentang bersih kolom $= 1/6.2575 = 430$ mm
- $lo \geq 450$ mm

$Nu,k = 234{,}984$ kN > (0,3.500.500.20 = 1500 kN), maka dipakai $lo = 500$ mm

$Vs,k = Vu,k/0{,}6 - Vc = 385{,}836/0{,}6 - 0 = 643{,}06$ kN

$$s = \frac{Av.fy.d}{Vs,k} = \frac{\left(4.\tfrac{1}{4}.\pi.12^2\right)240.440}{643060} = 74{,}751 \text{ mm}$$

Jarak maksimum tulangan geser pada daerah *lo* (SK-SNI T-15-1991-03) :

- ¼.b = ¼.500 = 125 mm
- 8 kali diameter tulangan longitudinal = 8.22 = 176 mm
- 100 mm

dipakai **4P12-70**

Cek tulangan geser kolom :

$$Vs,k = \frac{Av.fy.d}{s} = \frac{\left(4.\tfrac{1}{4}.\pi.12^2\right)240.440.10^{-3}}{70} = 682{,}462 \text{ kN}$$

$0{,}6.Vs,k = 0{,}6.682{,}462 = 409{,}269$ kN > $Vu,k = 385{,}836$ kN - aman –

-Penulangan geser daerah di luar *lo*

$$Vc = \left[1 + \frac{Nu,k}{14Ag}\right].\frac{1}{6}\sqrt{fc'}.b.d$$

$$= \left[1 + \frac{234{,}984}{14.(500.500)}\right].\frac{1}{6}\sqrt{20}.500.440$$

$$= 163{,}989 \text{ kN}$$

$$Vs,k = Vu,k/0{,}6 - Vc = 385{,}836/0{,}6 - 163{,}989 = 479{,}071 \text{ kN}$$

$$s = \frac{Av.fy.d}{Vs,k} = \frac{\left(4.\tfrac{1}{4}.\pi.12^2\right)240.440}{479071} = 99{,}69 \text{ mm}$$

Jarak maksimum tulangan geser daerah di luar *lo* (SK-SNI T-15-1991-03) :

- 200 mm

dipakai **4P12-100**

Cek tulangan geser kolom :

$$Vs,k = \frac{Av.fy.d}{s} = \frac{\left(4.\tfrac{1}{4}.\pi.12^2\right)240.440.10^{-3}}{100} = 477{,}723 \text{ kN}$$

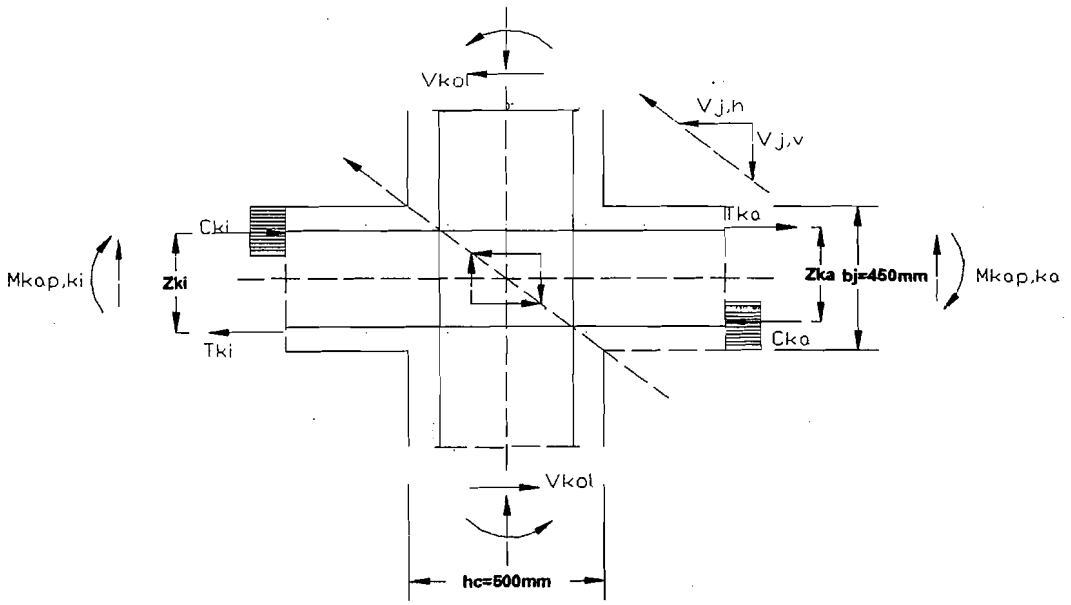
$0{,}6.(Vs,k+Vc) = 0{,}6.(477{,}723 + 163{,}989) = 641{,}712 \text{ kN} > Vu,k = 385{,}836 \text{ kN}$ - aman –

Dengan cara yang sama didapat penulangan geser kolom lainnya yang disajikan dalam Tabel 7.18.a dan Tabel 7.18.b .

7.3 Desain Pertemuan Balok Kolom

Perencanaan pertemuan balok kolom (joint) didasarkan dengan memperhitungkan kebutuhan penulangan geser arah horizontal dan vertikal. Sebagai contoh hitungan ditinjau pada pertemuan balok kolom K10 lantai 1

(T. Andriono dan Gideon Kusuma, 1993)



Gambar 7.12 Joint balok kolom dalam

1. Penulangan Geser Horisontal

Diketahui :

- *Mnak,b ki-x* = 202,891 kNm
- *Mnak,b ka-x* = 202,891 kNm
- *Mnak,b ki-y* = 160,272 kNm
- *Mnak,b ka-y* = 0

Tinjauan sejajar sumbu-x (portal A) yang paling menentukan.

Dihitung 100% dalam satu arah sumbu-x dan 30% dalam arah tegak lurusnya yaitu sumbu-y.

$$Vkol\text{-}x = \frac{0{,}7.\left[\left(\Sigma \frac{l_{k,x}}{\ln_{k,x}} Mkap,x + 0{,}3.\Sigma \frac{l_{k,y}}{\ln_{k,y}} Mkap,y\right)\right]}{\frac{1}{2}\left(h_{k.a} + h_{k.b}\right)}$$

$$= \frac{0,7.1,25.\left[\left(\frac{l_{ki,x}}{\ln_{ki,x}} M_{nak\,b,ki-x} + \frac{l_{ka,x}}{\ln_{ka,x}} M_{nak\,b.ka-x}\right) + 0,3.\left(\frac{l_{ki,y}}{\ln_{ki,y}} M_{nak\,b,ki-y} + \frac{l_{ka,y}}{\ln_{ka,y}} M_{nak\,b,ka-y}\right)\right]}{\frac{1}{2}\left(h_{k,a} + h_{k,b}\right)}$$

$$= \frac{0,7.1,25.\left[\left(\frac{6}{5,5}202,891 + \frac{6}{5,5}202,891\right) + 0,3.\left(\frac{6,5}{5,95}160,272 + 0\right)\right]}{\frac{1}{2}(3 + 2,8)}$$

= 149,413 kN

$Zki = Zka$ = h – d' – a/2

= 450 – 62,5 – 67/2

= 354 mm = 0,35 m

$Cki,x = Tki,x$ = 0,7.1,25.(*Mnak,b ki-x* + 0,3.*Mnak,b ki-y*)/*Zki*

= 0,7.1,25.(202,891 + 0,3. 160,272)/ 0,35

= 627,432 kN

$Tka,x = Cka,x$ =0,7.1,25.(*Mnak,b ka-x* + 0,3.*Mnak,b ka-y*)/*Zka*

= 0,7.1,25.(202,891 + 0,3.0)/0,35

= 507,228 kN

Vjh,x = *Cki* + *Tka* – *Vkol*

= 627,432 + 507,228 -149,413

= 985,246 kN

Kontrol tegangan geser horisontal nominal dalam join :

$Vjh,x = Vjh,x/(bj.hc) < 1,5\sqrt{fc}$

$Vjh,x = 985,246/(0,5.0,45).10^{-3} < 1,5\ \sqrt{20}$

$4,379\ N/mm^2 < 6,708\ N/mm^2$

Penulangan geser horisontal

$Nu,k = 805,347$ kN

$Nu,k/Ag = 805,347.10^3/(500.600) = 2,68$ Mpa > 0,1fc' = 0,1.20 = 2,0 Mpa

maka, sumbangan gaya geser beton horisontal adalah :

$Vch = 2/3.\sqrt{(Nu,k/Ag) - 0{,}1fc'}.(bj.hc)$

$= 124{,}101$ kN

$Vsh + Vch = Vjh$

$Vsh = 985{,}246 - 124{,}101 = 861{,}145$ kN

$Ajh = Vsh/fy$

$= 861{,}145.10^3/240$

$= 3588\ mm^2$

Digunakan luasan 4 sengkang tertutup 4P12 = $4.1/4.\pi.12^2 = 452{,}39\ mm^2$

∴Jumlah lapis sengkang horisontal = $3588/452{,}39 = 7{,}93 \approx 8$ lapis

2. Penulangan Geser Vertikal

As' = As (luasan tulangan pokok kolom)

maka, sumbangan gaya geser beton vertikal adalah :

$$Vcv = Vjh,x.\frac{As'}{As}\left(0{,}6 + \frac{Nu,k}{Ag.fc'}\right); \qquad As' = As \text{ (luasan tulangan pokok kolom)}$$

$= 985{,}246$

$= 723{,}392$ kN

$$Vjv = \frac{hc}{bj}.Vjh = \frac{500}{450}.985{,}246 = 1094{,}718 \text{ kN}$$

$Vsv = Vjv - Vcv$

$= 1094{,}718 - 723{,}392$

$= 371{,}33$ kN

$Ajv = Vsv/fy$

$= 371{,}33.10^3/240$

$= 1547\ mm^2$

Tulangan kolom terpasang = 8D22 = $3039{,}52\ mm^2 > Ajv = 1547\ mm^2$.

∴Tulangan pokok kolom dapat menahan gaya geser vertikal.

Dengan cara yang sama didapat penulangan geser horisontal dan vertikal pada pertemuan balok kolom, yang disajikan pada Tabel 7.19.a dan Tabel 7.19.b .

7.4 Perencanaan Pondasi Tiang Pancang

Sebagai contoh perhitungan pondasi ditinjau pada kolom K8, sebagai berikut:

A. Data Perencanaan

Pondasi diletakkan pada kedalaman 10 m.

P = 1176,647 kN

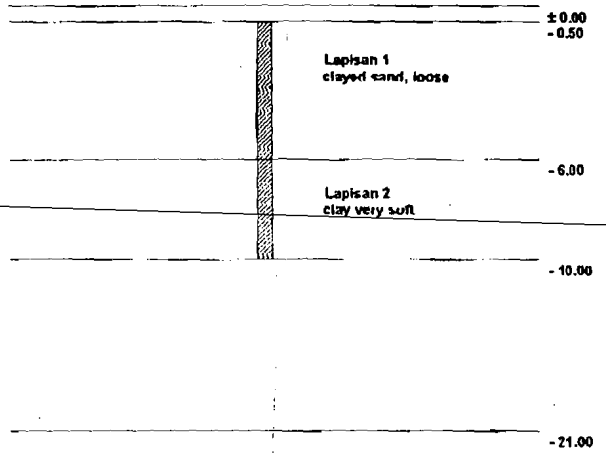
$M_{x\ tetap}$ = 20,730 kNm

$M_{y\ tetap}$ = 20,730 kNm

f'_c = 50 MPa

f_y = 400 MPa

Pondasi berbentuk segi tiga sama sisi dengan panjang sisinya 32 cm



Gambar 7.13 Penempatan Pondasi Tiang Pancang

Dari hasil pengujian tanah diperoleh data sebagai berikut:

- Lapisan 1 : ∂_{t1} = 1,6 t/m^3 = 16 kN/m^3

c_1 = 0,3 kg/cm2

$c_{u1} = C_1 = 0{,}3$ kg/cm^2 $= 0{,}3.10^{-3}$ t/10^{-4} m^2 $= 3$ t/m^2

$= 30$ kN/m^2

- Lapisan 2 : $\partial_{t2} = 1{,}6$ t/m^3 $= 16$ kN/m^3

$c_2 = 1{,}0$ kg/cm2

$c_{u2} = C_2 = 1{,}0$ kg/cm^2 $= 1{,}0.10^{-3}$ t/10^{-4} m^2 $= 10$ t/m^2

$= 100$ kN/m^2

B. Perhitungan Kapasitas Tiang Tunggal

1. Berdasarkan Kekuatan Tanah

- Tahanan ujung (Q_p)

Jenis tanah di bawah pondasi adalah lempung, sehingga:

$\phi = 0$

sehingga didapat : $N_c^* = 9$, dan $N_q^* = 0$

Dicoba tiang pancang penampang segi tiga sama sisi dengan panjang sisinya 32 cm.

$Q_p = A_p.(c.N_c^* + \bar{q}.N_q^*)$

Tahanan lempung : $\phi = 0$; $\bar{q}.N_q^*$ relatif kecil; $N_c^* = 9$

$Q_p = A_p.9.c_u$

dengan A_p adalah luas penampang tiang, dan c_u adalah *undrained cohesion.*

$Q_p = A_p.9.c_u$

$= (0{,}5.0{,}32.(0{,}32.\sin 60°)).9.100 = 39{,}906$ kN

- Tahanan Selimut Tiang / Tahanan Friksi (Q_s)

Diketahui bahwa jenis tanah pada lapisan 1 dan lapisan 2 adalah lempung,maka:

Rumus umum: $Q_s = \sum p.\Delta L.f$

dengan $\sum p$ adalah luas selimut tiang, ΔL adalah unit panjang tiang, dan f adalah unit tahanan friksi.

- Menghitung tahanan friksi

- Lapisan 1

Dicari dengan Metoda α

$f = \alpha \,.\, c_u = \alpha \,.\, S_u$

dengan f adalah unit friksi, α adalah *adhesion factor*, c_u adalah *undrained cohesion*, dan S_u adalah *undrained strength.*

c_{u1} = 30 kN/m2 = 3 t/m^2 = 600 lb/ft^2

dari grafik diperoleh α_1 = 0,98

$f_1 = \alpha_1.c_{u1}$ = 0,98.30 = 29,40 kN/m^2

$Q_{s1} = \sum p_1.\Delta L_1.f_1$

= (3.0,32).5,5.29,4 ~ 155,232 kN

- Lapisan 2

c_{u2} = 100 kN/m2 = 10 t/m^2 = 2000 lb/ft^2

dari grafik diperoleh α_2 = 0,50

$f_2 = \alpha_2.c_{u2}$ = 0,50.100 = 50 kN/m^2

$Q_{s2} = \sum p_2.\Delta L_2.f_2$

= (3.0,32).4.50 = 192 kN

$Q_s = Q_{s1} + Q_{s2}$ = 155,232 + 192 = 347,232 kN

Dari perhitungan diperoleh:

Q_p = 39,906 kN; Qs = 347,232 kN

$$Q_{all} = \frac{Q_p}{SF_1} + \frac{Q_s}{SF_2} - W$$

SF_1 adalah angka keamanan untuk tahanan ujung = 3

SF_2 adalah angka keamanan untuk tahanan friksi = 2

W adalah berat tiang pancang

W = (0,5.0,32.0,32.sin 60°).9,5.24 = 10,110 kN

$$Q_{all} = \frac{39,906}{3} + \frac{347,232}{2} - 10,110$$

= 176,808 kN

2. Berdasarkan Kekuatan Beton

Tiang dianggap sebagai kolom langsing.

$E = 4700\sqrt{f'_c} = 4700.\sqrt{50}$ = 33234,019 Mpa

$I = (1/36).b.h^3$ (bentuk tiang pancang segi tiga sama sisi)

b = 320 mm

$h = 320.sin\ 60° = 277,128$ mm

$I = (1/36).320.277,128^3 = 189186136,200$ mm^4

P_c adalah beban tekuk Euler yang terjadi, sebesar:

$$P_c = \frac{\pi^2 E.I}{L^2} = \frac{\pi^2 33234,019.189186136,200}{9500^2} = 687582,328 \text{ N}$$

= 687,582 kN

SF = 2,5

$P = P_c/SF = 687,582/2,5 = 275,033$ kN

Dipakai $Q_{all} = 171,417$ kN

C. Perhitungan Kapasitas Tiang Kelompok

1. Kelompok Tiang Pada Tanah Lempung

Asumsi ukuran pile cap : 3 . 3 = 9 m^2

Tebal pile : 0,5 m

Berat pile : 0,5.3.3.24 = 108 kN

Ukuran kolom : 0,50 m x 0,60 m

$P = 1176,647$ kN

$M_{x\,tetap} = 20,730$ kNm

$M_{y\,tetap} = 20,730$ kNm

$P_{total} = P + berat\ pile = 1176,647 + 108 = 1284,647$ kN

$$n = \frac{P_{total}}{Q_{all}} = \frac{1284,647}{171,417} = 7,494$$

dipakai 8 buah

Penentuan konfigurasi kelompok tiang

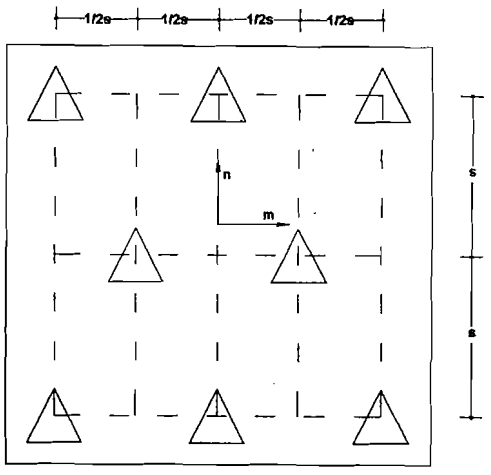
$s = d_{optimum}$ = (2,5 sampai 3D)

s (2,5D) = 2,5.(0,32) = 0,80 m

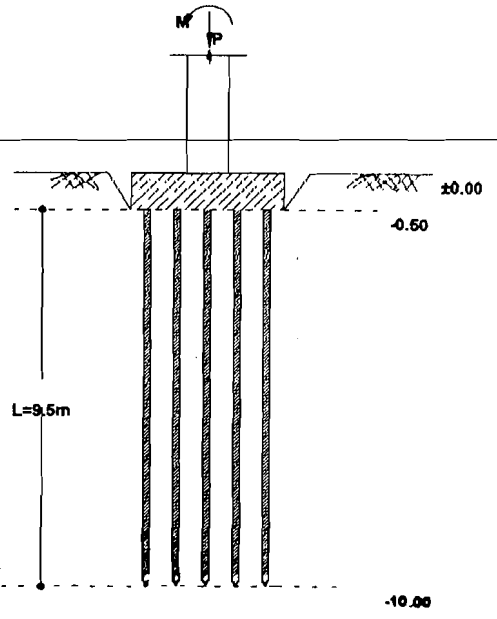
s (3D) = 3.(0,32) = 0,96 m

dipakai $s = d_{optimum} = 0,96$ m

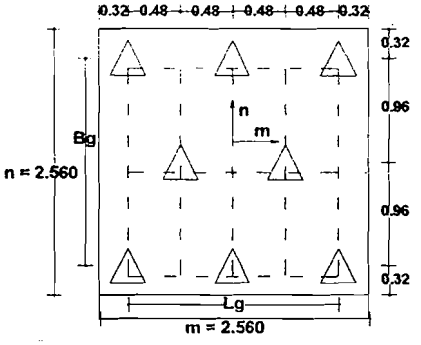
dengan d adalah spasi (jarak as-as tiang) dan D adalah diameter tiang.



Gambar 7.14 Konfigurasi Tiang Pancang



Gambar 7.15 Pemasangan tiang pancang tampak samping



Gambar 7.16 Pemasangan tiang pancang tampak atas

$L_g = (n_1\text{-}1)d + 2(D/2)$

$= (3\text{-}1).960 + 2(320/2) = 2240$ mm $= 2{,}24$ m

$B_g = (n_2\text{-}1)d + 2(D/2)$

$= (3\text{-}1).960 + 2(320/2) = 2240$ mm $= 2{,}24$ m

2. Jumlah Total Kapasitas Kelompok Tiang

$\sum Q_u = m.n.(Q_p + Q_s)$

$= 2{,}56.2{,}56.(\ 39{,}906 + 347{,}232)$

$= 2537{,}148$ kN

$\sum Q_u = L_g.B_g.c_u.N_c + \ 2.(L_g.B_g) \sum c_u.\Delta L$

$= (2{,}24.2{,}24.100.9) + 2.(2{,}24.2{,}24).[(30.5{,}5)+(100.6)]$

$= 12192{,}768$ kN

dipakai $\sum Q_u = 2537{,}148$ kN

$P_{total} = 1284{,}647$ kN

$x_{maks} = s = 0{,}96$ m

$y_{maks} = s = 0{,}96$ m

$n = 8$

$\sum x^2 = 2.(s)^2 = 2.(0{,}96)^2 = 1{,}843$

$\sum y^2 = 2.(s)^2 = 2.(0{,}96)^2 = 1{,}843$

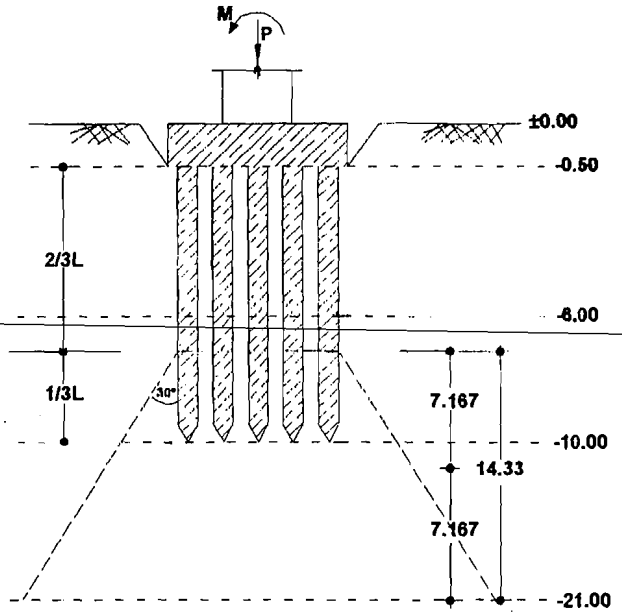
Kontrol:

$$P = \frac{P_{total}}{n} + \frac{M_x.y}{\sum x^2} + \frac{M_y.x}{\sum y^2}$$

$$= \frac{1284{,}647}{8} + \frac{20{,}730.0{,}96}{1{,}843} + \frac{20{,}730.0{,}96}{1{,}843}$$

$= 182{,}175\text{kN} < \sum Q_u = 2537{,}148$ kN -ok-

D. Perhitungan Penurunan Pondasi Tiang



Gambar 7.17 Penurunan Pondasi Tiang

Berat pile cap = 0,5.2,56.2,56.24 = 78,643 kN

Berat tiang pancang = (0,5.0,32.0,32.sin 60°).9,5.24).8 = 80,877 kN

P = 1176,647 kN

$Q = 78{,}643 + 80{,}877 + 1176{,}647 = 1336{,}167$ kN

$$\Delta p = \frac{Q}{(B_g + z_1).(L_g + z_2)} = \frac{1336{,}167}{(2{,}24 + 7{,}083).(2{,}24 + 7{,}083)}$$

$= 15{,}373$ kN/m^2 $= 1{,}537$ t/m^2

$P_0 = \sum H.\gamma$

$= 5{,}5(16\text{-}10) + ((0{,}333 + 7{,}083)(16\text{-}10)) = 77{,}496$ kN/m^2 $= 7{,}7496$ t/m^2

$$\Delta s = \left[\frac{C_c.H}{1+e_0}\right]\log\left[\frac{P_0 + \Delta p}{P_0}\right] = \left[\frac{3.7{,}083}{1+8}\right]\log\left[\frac{7{,}7496 + 1{,}537}{7{,}7496}\right] = 0{,}188 \text{ m}$$

$s_c = \Delta s = 0{,}186$ m $= 18{,}6$ cm

Jadi penurunan total yang terjadi adalah sebesar 18,6 cm

BAB VIII

PEMBAHASAN

8.1 Umum

Perencanaan struktur suatu bangunan adalah bertujuan untuk menghasilkan suatu struktur yang stabil, cukup kuat, mampu layan, awet, ekonomis dan mudah dilaksanakan. Struktur dikatakan stabil apabila tidak mudah terguling atau tergeser selama umur bangunan yang direncanakan, cukup kuat dan mampu layan apabila kemungkinan terjadi kegagalan struktur dan kehilangan kemampuan layan selama umur bangunan yang direncanakan adalah kecil dan dalam batas yang direncanakan.

Struktur Gedung Olah Raga Universitas Negeri Yogyakarta dalam Tugas Akhir ini direncanakan dengan menggunakan daktilitas penuh, sehingga struktur tersebut diharapkan mampu memberikan respon inelastik terhadap beban siklis yang bekerja dan mampu menjamin pengembangan mekanisme terbentuknya sendi-sendi plastis dengan kapasitas perencanaan energi yang diperlukan tanpa mengalami keruntuhan.

Analisis mekanika struktur pada Tugas Akhir ini menggunakan program SAP 2000 non linier versi 7.42, dan analisa output menggunakan program aplikasi Microsoft Access dan Microsoft Excel.

8.2 Atap

Perencanaan ini menggunakan atap dengan rangka baja sebagai kuda-kudanya. Terdapat sembilan tipe kuda-kuda baja yang direncanakan dengan menggunakan metode *Load Resistance Factor Design* dari AISC. Profil yang digunakan yaitu: H BEAM 200x200x8x12x13, IWF 200x100x5,5x8x11, 2L 80x80x 8, 2L 70x70x7, 2L 60x60x6, 2L 50x50x5, 2L 90x90x9, dengan mutu baja BJ 37 dan tegangan leleh f_y = 240 Mpa.

Sebagai sambungan digunakan baut diameter 19 mm, 16 mm, dan 12 mm. Mutu baut non fulldrat A325-X dengan tegangan leleh f_y = 205 MPa dan kuat tarik f_u = 825 MPa. Tebal pelat sambung 12 mm.

8.3 Pelat

Pada bangunan ini terdiri dari pelat lantai dan pelat tribun. Perencanaan tipe pelat berdasarkan perbandingan panjang sisi-sisinya dan dukungan pada pelat, schingga didapatkan tipe pelat dua arah dengan ditumpu keempat sisinya. Perencanaan pelat mengacu pada PBI 1971 tabel 13.3.2.

Tebal pelat lantai direncanakan 120 mm dan pelat tribun 100 mm. Penulanagan pelat lantai maupun pelat tribun menggunakan tulangan pokok Ø 8 mm dan tulangan bagi Ø 6 mm. Mutu baja yang digunakan pada pelat lantai dan pelat tribun adalah f_y = 240 MPa, dan mutu betonnya f'_c = 20 MPa.

8.4 Balok Tribun

Balok tribun adalah balok yang berfungsi untuk menyangga pelat tribun. Perhitungan momen pada balok tribun ini menggunakan cara pendekatan berdasarkan SK SNI T-15-1991-03, yaitu dengan menggunakan koefisien momen. Spesifikasi bahan yang digunakan adalah f'_c = 20 MPa, f_y = 400 MPa untuk tulangan ulir dan f_y = 240 MPa untuk tulangan polos. Tulangan pokok menggunakan Ø 13 mm, tulangan susut menggunakan Ø 10 mm dan tulangan geser menggunakan Ø 6 mm.

8.5 Balok Anak

Balok anak pada struktur ini merupakan struktur non-portal yang perencanaannya dilaksanakan sebelum analisis portal. Perencanaan balok anak dibagi dalam beberapa tahap, yaitu pembebanan balok anak, analisis struktur balok anak, serta penulangan lentur dan penulangan geser balok anak.

Pembebanan pada balok anak sesuai dengan ketentuan PPPURDG 1987, sedangkan beban pelat sesuai dengan perhitungan sebelumnya. Analisis struktur balok anak dihitung menggunakan program aplikasi komputer SAP 2000. Spesifikasi bahan yang digunakan adalah f'_c = 20 MPa, f_y = 400 MPa untuk tulangan ulir dan f_y = 240 MPa untuk tulangan polos Tulangan pokok yang digunakan adalah Ø 25 mm dan tulangan gesernya menggunakan Ø 10 mm.

8.6 Balok Induk

Balok induk merupakan struktur portal sehingga direncanakan berdasarkan analisis portal. Pada perencanaan ini didapat penulangan yang menggunakan tulangan rangkap. Spesifikasi bahan yang digunakan adalah $f'_c = 20$ MPa, $f_y = 400$ MPa untuk tulangan ulir dan $f_y = 240$ MPa untuk tulangan polos. Tulangan pokok yang digunakan adalah Ø 25 mm, sedangkan tulangan geser menggunakan Ø 10 mm dan Ø 12 mm.

8.7 Kolom

Kolom juga merupakan struktur portal yang direncanakan berdasarkan analisis portal. Penentuan lebar kolom disesuaikan dengan lebar balok agar mempermudah dalam penulangan di lapangan. Lebar kolom direncanakan lebih besar dari lebar balok untuk memberikan kekuatan yang baik. Spesifikasi bahan yang digunakan adalah $f'_c = 20$ MPa, $f_y = 400$ MPa untuk tulangan ulir dan $f_y = 240$ MPa untuk tulangan polos. Tulangan pokok yang digunakan adalah Ø 22 mm dan Ø 25 mm, sedangkan tulangan gesernya menggunakan Ø 10 mm dan 12 mm.

8.8 Pondasi

Pondasi direncanakan dengan pondasi tiang pancang. Dipilih pondasi ini dikarenakan jenis tanah pada proyek ini adalah lempung (*clay*) dan tanah baik terdapat pada kedalaman 10 m.. Spesifikasi bahan yang dipergunakan adalah $f'_c = 50$ MPa, $f_y = 400$ MPa, dan Pondasi berbentuk segi tiga sama sisi dengan panjang sisinya 32 cm.

8.9 Tangga

Perencanaan tangga meliputi perencanaan optrede dan antrede, pembebanan tangga dan bordes, penulangan pelat tangga dan bordes, penulangan balok bordes. Perencanaan tangga menggunakan tulangan pokok Ø 12 mm dan tulangan bagi Ø 8 mm. Spesifikasi bahan yang dipergunakan adalah f'_c = 50 MPa, f_y = 240 MPa.

Tabel 8.1 Rekapitulasi Tulangan Balok Anak Terpasang

Balok	Dimensi	Tumpuan			Lapangan		
		Tul. Lentur		Geser	Tul. Lentur		Geser
		Atas	Bawah		Atas	Bawah	
BALk	300/400	2D25	2D25	P10 - 150	2D25	2D25	P10 - 150
BALj	300/400	2D25	2D25	P10 - 150	2D25	2D25	P10 - 150
BALi	300/400	3D25	2D25	P10 - 150	2D25	2D25	P10 - 150
BALg	300/400	4D25	3D25	P10 -50	3D25	2D25	P10 -50
BALd	300/400	4D25	3D25	P10 - 60	2D25	2D25	P10 - 60
BALl	300/400	2D25	2D25	P10 - 150	2D25	2D25	P10 - 150
BALm	300/400	2D25	2D25	P10 - 150	2D25	2D25	P10 - 150
BALn	300/400	2D25	2D25	P10 - 150	2D25	2D25	P10 - 150
BALf	300/400	2D25	2D25	P10 - 150	2D25	2D25	P10 - 150
BALc	300/400	2D25	2D25	P10 - 150	2D25	2D25	P10 - 150
BALh	300/400	2D25	2D25	P10 - 150	2D25	2D25	P10 - 150
BALe	300/400	3D25	2D25	P10 -80	2D25	2D25	P10 -80
BALb	300/400	2D25	2D25	P10 - 150	2D25	2D25	P10 - 150
BALa	300/400	2D25	2D25	P10 - 150	2D25	2D25	P10 - 150
BALo	300/400	2D25	2D25	P10 - 60	2D25	2D25	P10 - 60
BALp	300/400	3D25	2D25	P10 - 150	2D25	2D25	P10 - 150

Tabel 8.2 Rekapitulasi Tulangan Balok Tribun Terpasang

Balok	Dimensi	Tumpuan			Lapangan		
		Tul. Lentur		Geser	Tul. Lentur		Geser
		Atas	Bawah		Atas	Bawah	
BATa	300/400	4D25	3D25	P10 - 40	2D25	2D25	P10 - 40
BATb	300/400	4D25	3D25	P10 - 50	2D25	2D25	P10 - 50
BATc	300/400	4D25	3D25	P10 - 40	2D25	2D25	P10 - 40
BATd	300/400	3D25	2D25	P10 - 110	3D25	2D25	P10 - 110
BATe	300/400	2D25	2D25	P10 - 150	2D25	2D25	P10 - 150
BATf	300/400	2D25	2D25	P10 - 150	2D25	2D25	P10 - 150
BATg	300/400	2D25	2D25	P10 - 150	2D25	2D25	P10 - 150

Tabel 8.3.a Rekapitulasi Tulangan Balok Terpasang Portal A

Balok	Lantai	Dimensi	Tulangan LenturTumpuan					Tulangan Lentur Lapangan		
			Kiri		Kanan		Geser	Tul. Lentur		Geser
			Atas	Bawah	Atas	Bawah		Atas	Bawah	
AS X-3	1	350/450	4D25	3D25	4D25	3D25	4P10-95	3D25	4D25	4P10-165
AS X-2	1	350/450	3D25	2D25	3D25	2D25	2P10-65	2D25	3D25	2P10-140
	2	350/450	8D25	6D25	8D25	6D25	4P12-85	5D25	6D25	4P12-120
AS X-1	1	250/700	2D25	2D25	2D25	2D25	2P10-100	2D25	2D25	P10-195
	2	250/700	2D25	2D25	2D25	2D25	2P10-95	2D25	2D25	P10-140
	3	250/700	3D25	2D25	2D25	2D25	2P10-60	2D25	2D25	2P10-105
	Atap	400/400	2D25	2D25	2D25	2D25	P10-75	2D25	2D25	P10-160
AS Y-4 & Y 18	1	400/500	2D25	2D25	2D25	2D25	2P10-80	2D25	2D25	P10-150
	2	400/500	2D25	2D25	2D25	2D25	2P10-105	2D25	2D25	P10-210
	Tribun	400/500	3D25	2D25	3D25	2D25	2P10-85	2D25	3D25	P10-165
AS Y-5 & Y 17	1	400/500	3D25	2D25	3D25	2D25	2P10-70	2D25	3D25	P10-100
	2	400/500	2D25	2D25	2D25	2D25	2P10-105	2D25	2D25	P10-210
	Tribun	400/500	5D25	3D25	5D25	3D25	2P10-60	2D25	4D25	2P10-130
AS Y-6 & Y 16	1	400/500	3D25	2D25	3D25	2D25	4P10-105	2D25	4D25	2P10-135
	2	400/500	3D25	2D25	3D25	2D25	2P10-65	2D25	3D25	P10-90
	Tribun	400/500	4D25	2D25	4D25	2D25	2P10-95	2D25	3D25	P10-210
AS Y-7 & Y 15	1	400/500	4D25	2D25	4D25	2D25	4P10-105	2D25	4D25	2P10-135
	2	400/500	4D25	2D25	4D25	2D25	2P10-65	2D25	4D25	P10-85
	Tribun	400/500	4D25	2D25	4D25	2D25	2P10-80	2D25	3D25	P10-170
AS Y-8 & Y 14	1	400/500	3D25	2D25	3D25	2D25	2P10-70	2D25	3D25	P10-105
	2	400/500	3D25	2D25	3D25	2D25	P10-105	2D25	3D25	P10-210
	Tribun	400/500	3D25	2D25	3D25	2D25	2P10-75	2D25	3D25	P10-125
AS Y-9 & Y 13	1	400/500	3D25	2D25	3D25	2D25	2P10-105	2D25	3D25	P10-210
	2	400/500	2D25	2D25	2D25	2D25	2P10-105	2D25	2D25	P10-210
	Tribun	400/500	4D25	2D25	4D25	2D25	2P10-75	2D25	3D25	P10-130
AS Y-10 & Y-12	1	400/500	2D25	2D25	2D25	2D25	2P10-60	2D25	3D25	2P10-130
	Tribun	400/500	4D25	2D25	4D25	2D25	2P10-65	2D25	3D25	2P10-180
AS Y-11	1	400/500	3D25	2D25	3D25	2D25	4P10-105	2D25	4D25	2P10-125
	2	400/500	3D25	2D25	3D25	2D25	2P10-80	2D25	3D25	P10-165
	Tribun	400/500	2D25	2D25	2D25	2D25	2P10-85	2D25	3D25	P10-170

Tabel 8.3.b Rekapitulasi Tulangan Balok Terpasang Portal B

Balok	Lantai	Dimensi	Tulangan LenturTumpuan				Tulangan Lentur Lapangan			
			Kiri		Kanan		Geser	Tul. Lentur		Geser
			Atas	Bawah	Atas	Bawah		Atas	Bawah	
AS Y-3	1	350/450	3D25	2D25	3D25	2D25	2P10-60	2D25	3D25	2P10-125
AS Y-2	1	350/450	2D25	2D25	2D25	2D25	4P10-95	2D25	2D25	2P10-145
	2	350/450	4D25	3D25	4D25	3D25	4P10-80	2D25	4D25	4P10-130
ASY-1	1	250/700	2D25	2D25	2D25	2D25	2P10-110	2D25	2D25	P10-230
	2	250/700	2D25	2D25	2D25	2D25	2P10-90	2D25	2D25	P10-125
	3	250/700	3D25	2D25	2D25	2D25	P10-70	2D25	2D25	P10-310
	Atap	400/400	2D25	2D25	2D25	2D25	P10-80	2D25	2D25	P10-165
AS X-4 & X 15	1	400/500	2D25	2D25	2D25	2D25	2P10-95	2D25	2D25	P10-210
	2	400/500	2D25	2D25	2D25	2D25	P10-60	2D25	2D25	P10-210
	Tribun	400/500	3D25	2D25	3D25	2D25	2P10-80	2D25	3D25	P10-150
AS X-5 & X 14	1	400/500	3D25	2D25	3D25	2D25	2P10-80	2D25	3D25	P10-180
	2	400/500	2D25	2D25	2D25	2D25	P10-60	2D25	2D25	P10-210
	Tribun	400/500	5D25	3D25	5D25	3D25	4P10-105	2D25	4D25	2P10-135
AS X-6 & X 13	1	400/500	2D25	2D25	2D25	2D25	2P10-80	2D25	3D25	P10-170
	2	400/500	2D25	2D25	2D25	2D25	2P10-105	2D25	2D25	P10-210
	Tribun	400/500	4D25	2D25	4D25	2D25	2P10-65	2D25	3D25	2P10-175
AS X-7 & X 12	1	400/500	5D25	3D25	5D25	3D25	4P10-105	3D25	5D25	4P10-215
	2	400/500	2D25	2D25	2D25	2D25	P10-60	2D25	2D25	P10-210
	Tribun	400/500	4D25	2D25	4D25	2D25	2P10-65	2D25	3D25	2P10-175
AS X-8 & X 11	1	400/500	3D25	2D25	3D25	2D25	2P10-65	2D25	3D25	2P10-165
	2	400/500	3D25	2D25	3D25	2D25	2P10-75	2D25	4D25	2P10-190
	Tribun	400/500	4D25	2D25	4D25	2D25	4P10-80	2D25	3D25	4P10-130
AS X-9 & X 10	1	400/500	2D25	2D25	2D25	2D25	2P10-80	2D25	3D25	P10-175
	2	400/500	3D25	2D25	3D25	2D25	2P10-85	2D25	4D25	P10-210
	Tribun	400/500	3D25	2D25	3D25	2D25	2P10-100	2D25	3D25	P10-210

Tabel 8.4.a Rekapitulasi Tulangan Kolom Terpasang Portal A

Kolom	Lantai	Dimensi	Tul. Lentur	Tulangan Geser	
				Daerah lo	Di luar lo
K1	1	500/500	20D22	4P12-70	4P12-90
K2	1	500/500	24D22	4P12-70	4P12-100
K3	1	500/500	12D25	4P12-100	4P12-150
K4	1	500/500	20D22	4P12-100	4P12-150
K5	1	500/600	12D22	4P12-100	4P12-150
	2	500/600	16D22	3P12-100	2P12-200
K6	1	500/600	8D22	2P12-100	2P10-200
	2	500/600	20D22	2P12-100	2P10-200
K7	1	500/600	8D22	2P12-100	2P10-200
	2	500/600	8D25	2P12-100	2P10-200
K8	1	500/600	8D22	2P12-100	2P10-200
	2	500/600	8D22	3P12-100	2P12-200
K9	1	500/600	8D22	3P12-100	3P12-200
	2	500/600	8D22	2P10-100	2P10-200
K10	1	500/600	8D22	2P12-100	2P10-200
	2	500/600	12D25	2P10-100	2P10-200
K11	1	500/600	8D22	2P12-100	2P10-200
	2	500/600	8D22	2P10-100	2P10-200
K12	1	500/700	12D22	4P12-100	4P12-200
	1	500/700	8D25	2P12-100	2P10-200
	3	500/700	20D25	2P12-100	2P10-200
	Atap	400/400	12D22	2P12-100	2P10-200
K13	1	500/700	12D25	2P12-100	2P10-200
	2	500/700	8D25	2P12-100	2P10-200
	3	500/700	20D25	2P12-100	2P10-200
	Atap	400/400	8D25	2P12-100	2P10-200
K14	1	500/700	8D25	2P12-100	2P10-200
	2	500/700	12D22	2P12-100	2P10-200
	3	500/700	20D25	4P12-100	4P12-200
	Atap	400/400	8D25	3P12-100	2P12-200
K15	1	500/700	8D25	2P12-100	2P10-200
	2	500/700	8D25	2P12-100	2P10-200
	3	500/700	16D25	2P10-100	2P10-200
	Atap	400/400	8D25	4P12-40	4P12-50
K16	1	500/700	8D25	2P10-100	2P10-200
	2	500/700	8D25	2P10-100	2P10-200
	3	500/700	12D25	2P10-100	2P10-200
	Atap	400/400	8D25	2P10-100	2P10-200

Tabel 8.4.b Rekapitulasi Tulangan Kolom Terpasang Portal B

Kolom	Lantai	Dimensi	Tul. Lentur	Tulangan Geser	
				Daerah lo	Di luar lo
K1	1	500/500	12D25	4P12-90	4P12-140
K2	1	500/500	20D22	4P12-100	4P12-150
K3	1	500/500	8D25	3P12-100	2P12-200
K4	1	500/500	8D25	3P12-100	2P12-200
K5	1	500/600	8D25	3P12-100	2P12-200
	2	500/600	12D22	2P12-100	2P10-200
K6	1	500/600	8D22	2P10-100	2P10-200
	2	500/600	12D22	2P10-100	2P10-200
K7	1	500/600	8D22	2P10-100	2P10-200
	2	500/600	8D25	2P10-100	2P10-200
K8	1	500/600	8D22	2P12-100	2P10-200
	2	500/600	8D22	3P10-100	2P10-200
K9	1	500/600	8D22	2P10-100	2P10-200
	2	500/600	8D22	2P10-100	2P10-200
K10	1	500/600	8D22	2P10-100	2P10-200
	2	500/600	8D22	2P10-100	2P10-200
K11	1	500/700	8D25	2P12-100	2P10-200
	2	500/700	8D25	2P10-100	2P10-200
	3	500/700	12D25	2P10-100	2P10-200
	Atap	400/400	8D25	2P10-100	2P10-200
K12	1	500/700	8D25	2P10-100	2P10-200
	1	500/700	8D25	2P10-100	2P10-200
	3	500/700	12D25	2P10-100	2P10-200
	Atap	400/400	8D25	2P10-100	2P10-200
K13	1	500/700	8D25	2P10-100	2P10-200
	2	500/700	8D25	2P10-100	2P10-200
	3	500/700	20D22	2P10-100	2P10-200
	Atap	400/400	8D25	2P10-100	2P10-200
K14	1	500/700	8D25	4P10-100	3P10-200
	2	500/700	8D25	2P10-100	2P10-200
	3	500/700	12D25	2P10-100	2P10-200
	Atap	400/400	8D25	2P10-100	2P10-200
K15	1	500/700	8D25	2P10-100	2P10-200
	2	500/700	8D25	2P10-100	2P10-200
	3	500/700	8D25	2P10-100	2P10-200
	Atap	400/400	8D25	2P10-100	2P10-200
K16	1	500/700	8D25	2P10-100	2P10-200
	2	500/700	8D25	2P10-100	2P10-200
	3	500/700	8D25	2P10-100	2P10-200
	Atap	400/400	8D25	2P10-100	2P10-200

BAB IX

KESIMPULAN DAN SARAN

9.1 Kesimpulan

Berdasarkan hasil perhitungan dan pembahasan pada bab-bab sebelumnya dapat diambil kesimpulan sebagai berikut:

1. Gedung yang didesain ulang terletak di kawasan kampus Universitas Negeri Yogyakarta dan direncanakan menggunakan analisis 3-D dengan menggunakan progran SAP 2000 terhadap berat sendiri, beban kerja dan beban gempa. Beban gempa yang bekerja adalah yang terjadi di wilayah Yogyakarta (wilayah gempa 3).
2. Struktur bangunan gedung dibagi menjadi dua yaitu struktur atas (*upper structure*) dan struktur bawah (*sub structure*). Struktur atas merupakan elemen bangunan yang berada di atas permukaan tanah, sedangkan struktur bawah merupakan elemen bangunan yang terletak di bawan permukaan tanah.
3. Dalam perencanan ini menggunakan metode kekuatan batas yaitu beban kerja dinaikkan dengan memberikan faktor beban sehingga diperoleh suatu beban yang dipakai untuk perencanaan.
4. Perencanaan konstruksi meliputi:
   - Perencanaan rangka atap dengan menggunakan metode *Load Resistance Factor Design* dari AISC.

- Perencanaan pelat dengan menggunakan metode koefisien momen dengan menganggap bahwa tumpuan tepi jepit elastis sehingga didapat koefisien momen dari Tabel 13.3.2. PBI 1971.
- Perencanaan balok tribun menggunakan cara pendekatan berdasarkan SK SNI T-15-1991-03, yaitu dengan menggunakan koefisien momen.
- Balok anak dianalisis dengan menggunakan program aplikasi komputer SAP 2000, dan direncanakan berdasarkan SK SNI-T-15-1991-03.
- Perencanaan portal dengan daktilitas penuh meliputi balok dan kolom, direncanakan berdasarkan SK SNI-T-15-1991-03.
- Perencanaan pondasi dengan menggunakan pondasi tiang pancang.

9.2 Saran

Dengan memperhatikan hal-hal tersebut di atas, maka dapat diberikan beberapa saran antara lain sebagai berikut:

1. Perlu adanya perhitungan sampai tahap akhir (RAB) pada tugas akhir ini, sehingga penghematan dari segi biaya dapat diketahui dengan jelas.
2. Perlu adanya re-desain untuk Tugas Akhir ini dengan peningkatan spesifikasi bahan yang lain sehingga diketahui sejauh mana efisiensi bahan yang dipergunakan.

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FM-UII-AA-FPU-09

KARTU PESERTA TUGAS AKHIR

NO.	N A M A	NO. MHS.	BID.STUDI
1	Novval A.R.	99511277	Teknik Sipil
2	Roviyani	99511111	Teknik Sipil

JUDUL TUGAS AKHIR :

Perancangan struktur gedung olah raga Universitas Negeri Yogyakarta.

PERIODE III : MARET - AGUSTUS
TAHUN : 2002 / 2003

No.	Kegiatan	Bulan Ke :					
		Mar.	Apr.	Mei.	Jun.	Jul.	Aug.
1.	Pendaftaran	■					
2.	Penentuan Dosen Pembimbing	■	■				
3.	Pembuatan Proposal		■	■			
4.	Seminar Proposal			■	■		
5.	Konsultasi Penyusunan TA.			■	■	■	
6.	Sidang-Sidang					■	■
7.	Pendadaran.						■

DOSEN PEMBIMBING I : **Ir. Fatkhurrohman N.., MT.**
DOSEN PEMBIMBING II : **Ir. Helmy Akbar Bale, MT.**

Yogyakarta, 19 April 2003
a.n. Dekan,

Ir. H. Munadhir, MS
(.....)

Catatan.

Seminar : .....
Sidang : .....
Pendadaran : .....

FM-UII-AA-FPU-09

KARTU PESERTA TUGAS AKHIR

NO.	N A M A	NO. MHS.	BID.STUDI
1			
2			

JUDUL TUGAS AKHIR :

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PERIODE III : MARET - AGUSTUS
TAHUN :

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		Mar.	Apr.	Mei.	Jun.	Jul.	Aug.
1.	Pendaftaran						
2.	Penentuan Dosen Pembimbing						
3.	Pembuatan Proposal						
4.	Seminar Proposal						
5.	Konsultasi Penyusunan TA.						
6.	Sidang-Sidang						
7.	Pendadaran.						

DOSEN PEMBIMBING I : .....

DOSEN PEMBIMBING II : .....

Yogyakarta, ...

a.n. Dekan,

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Catatan.

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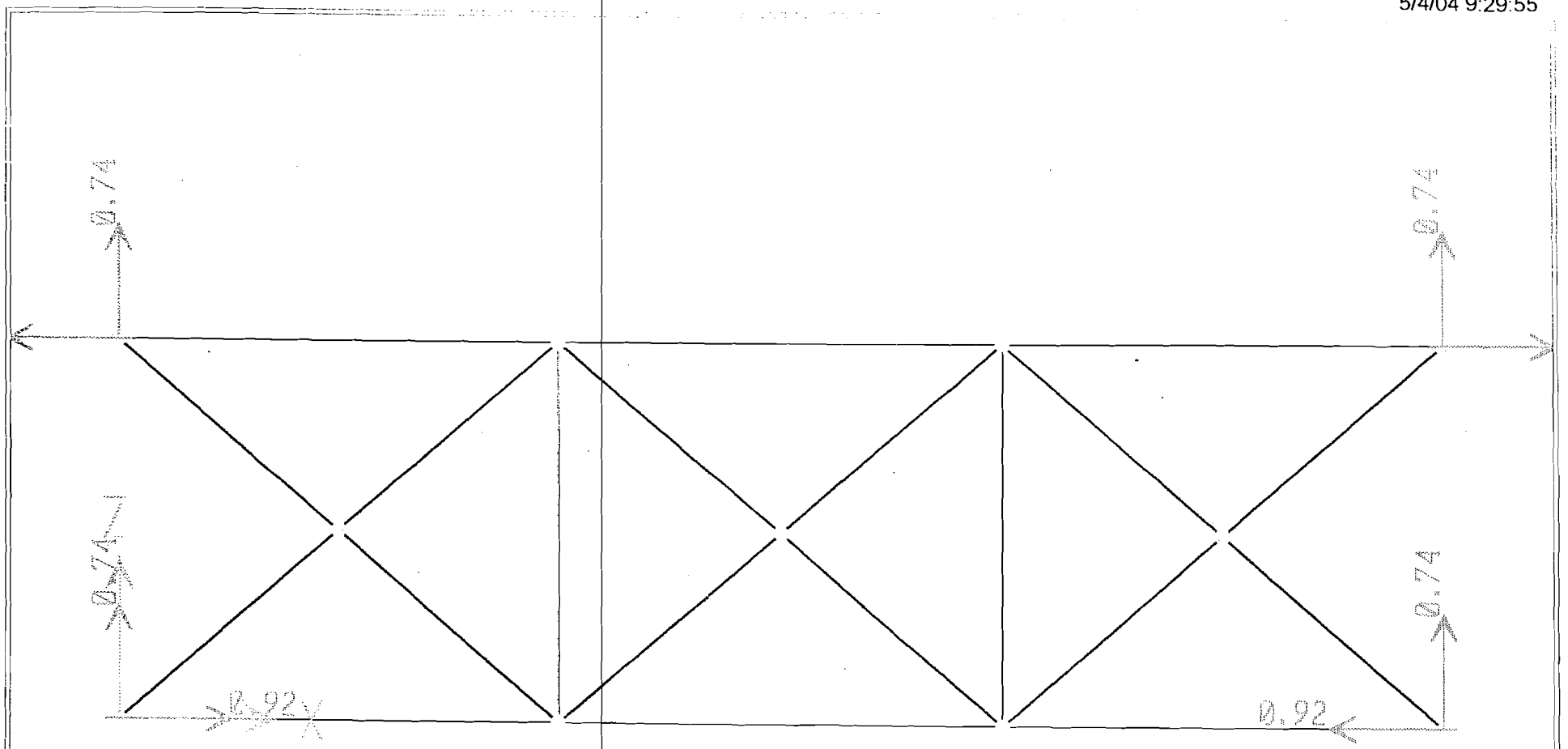

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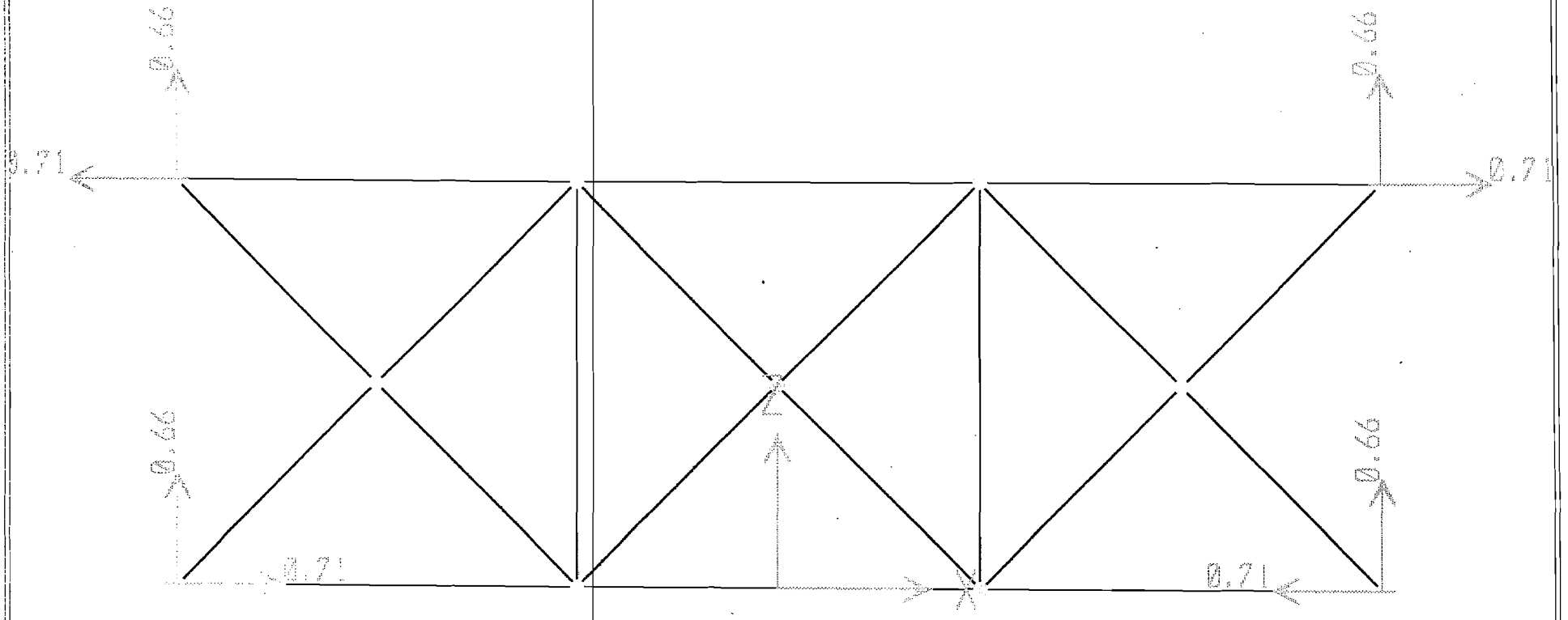
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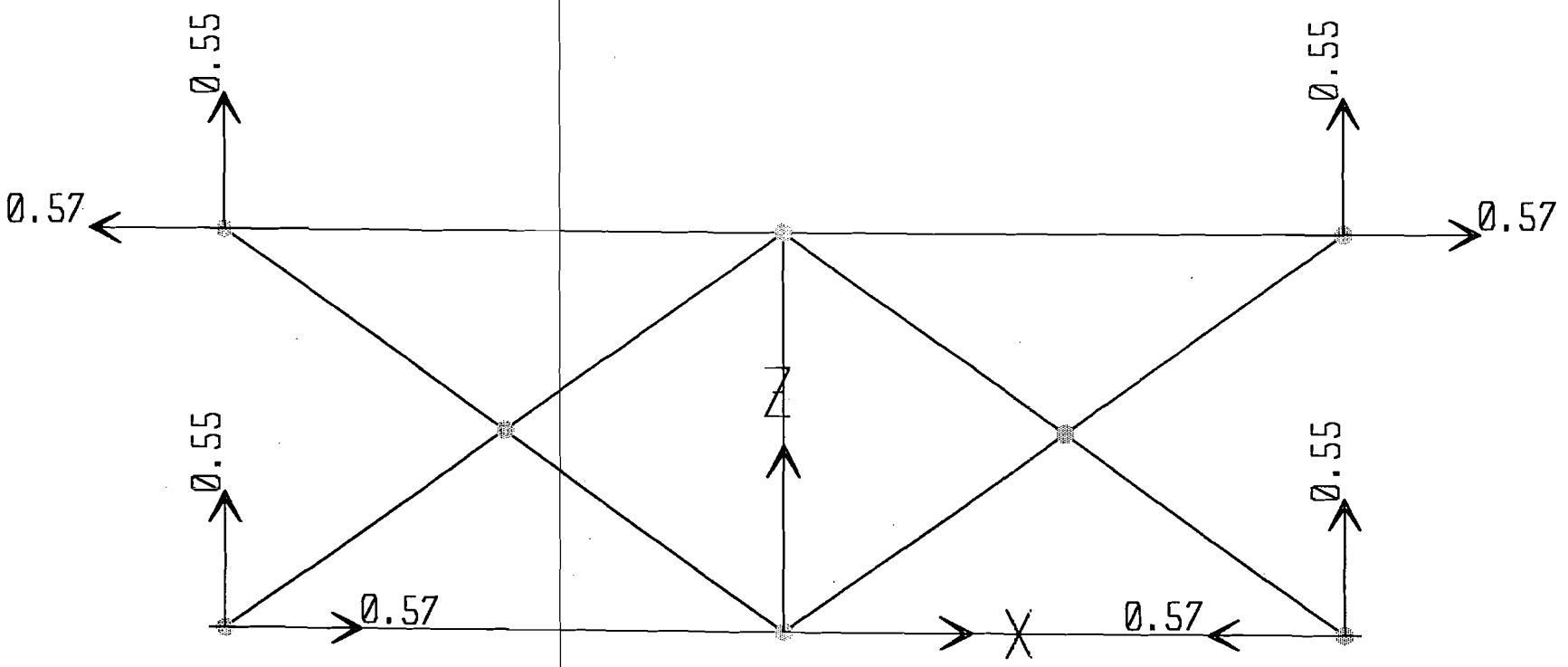
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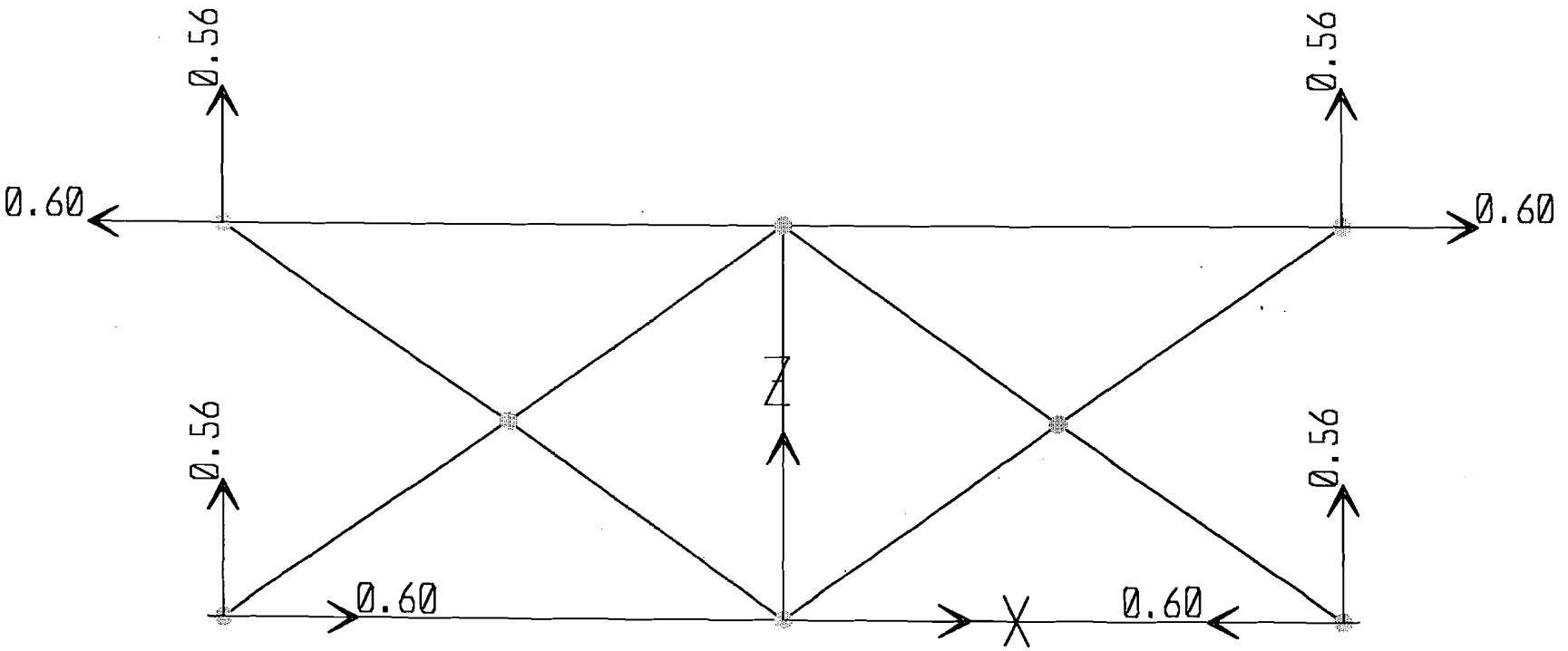
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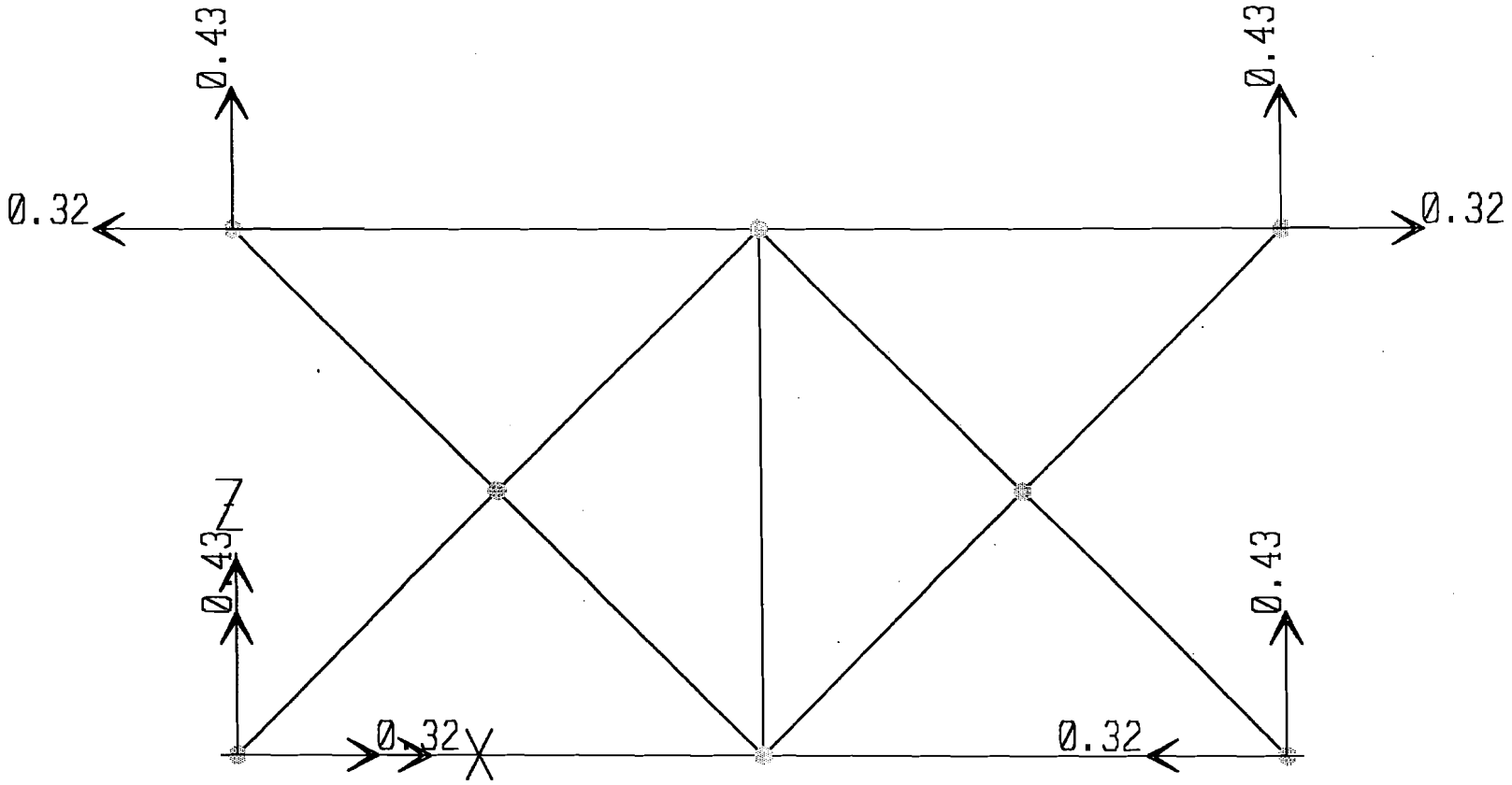
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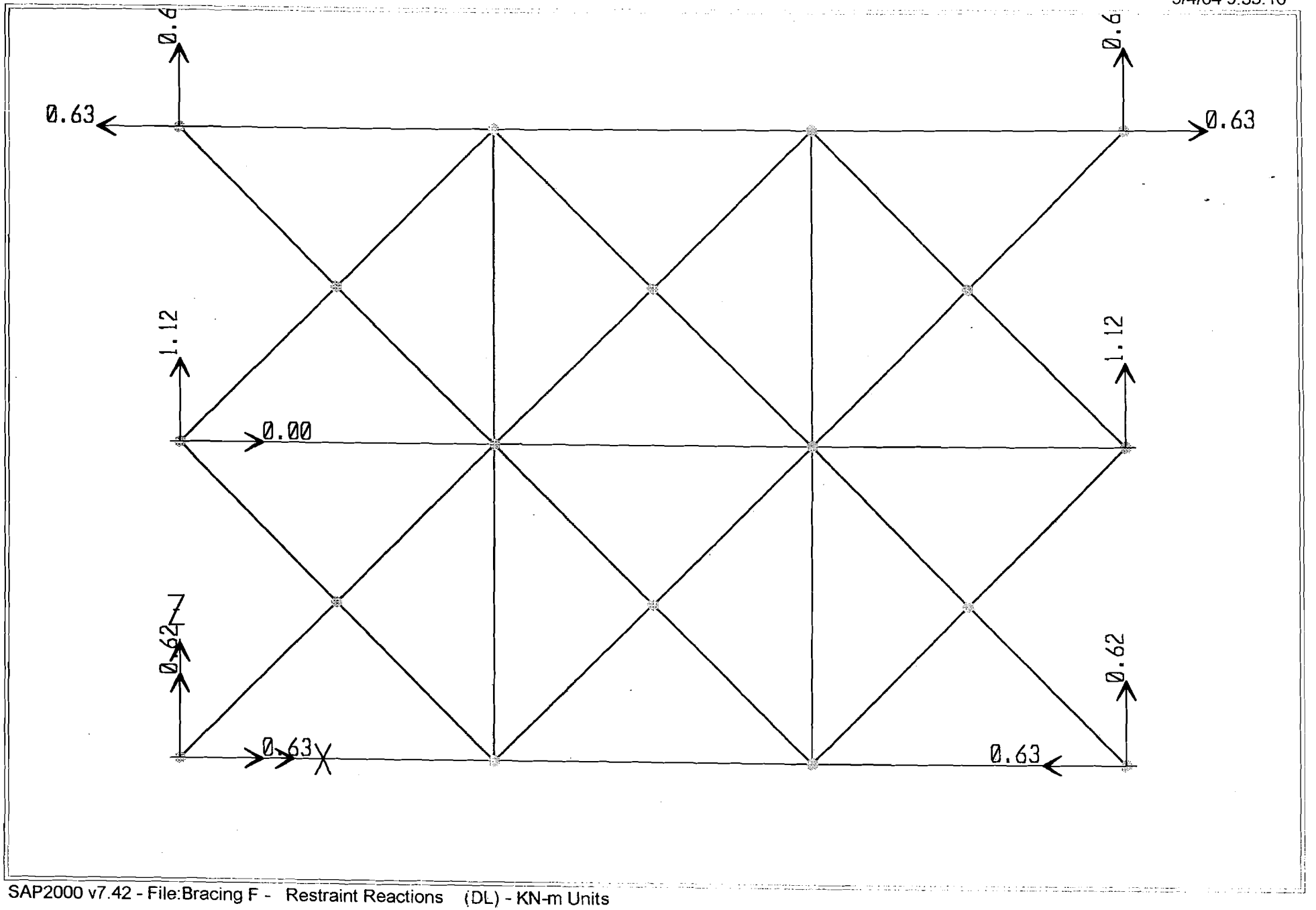

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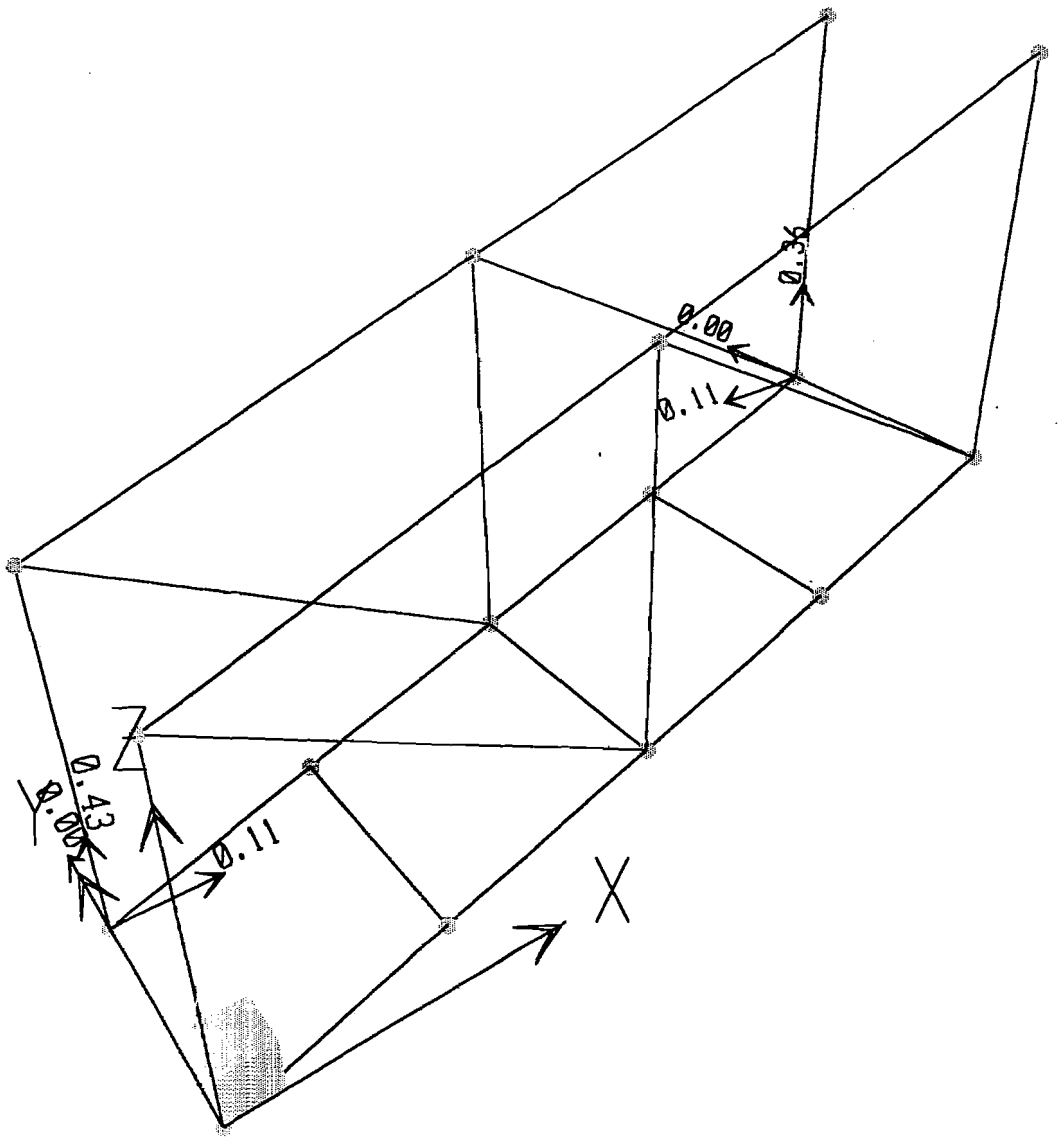
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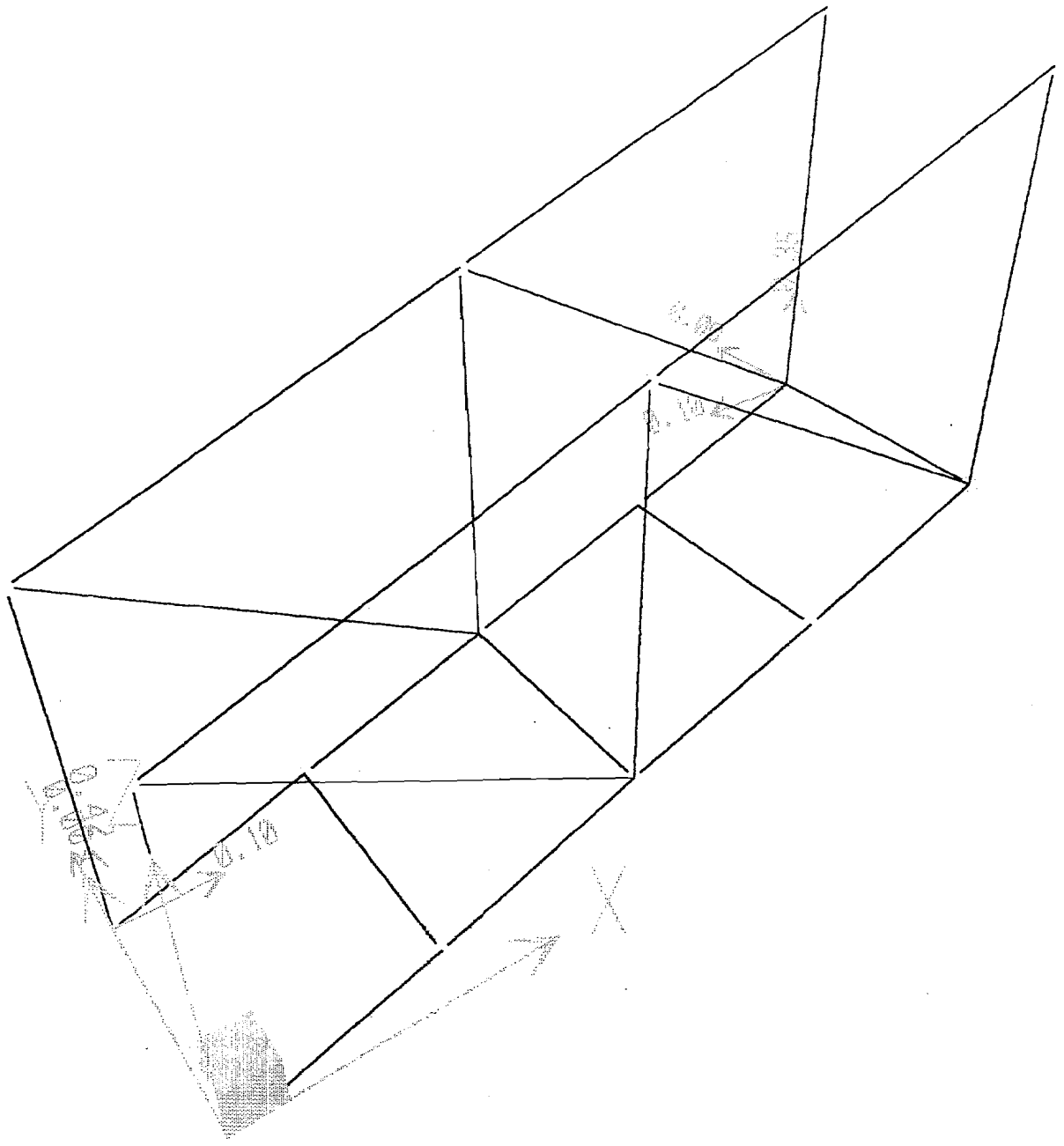

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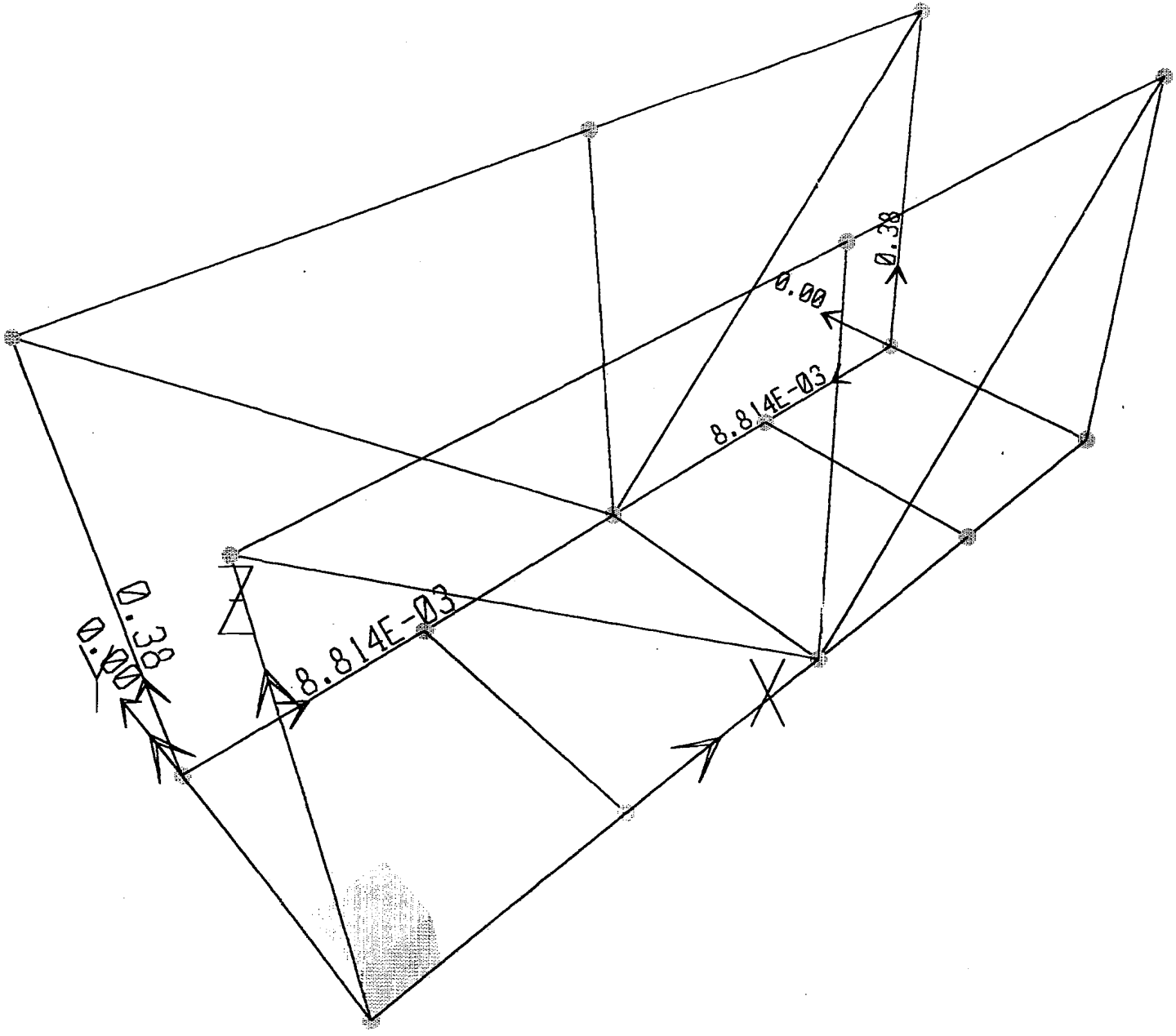
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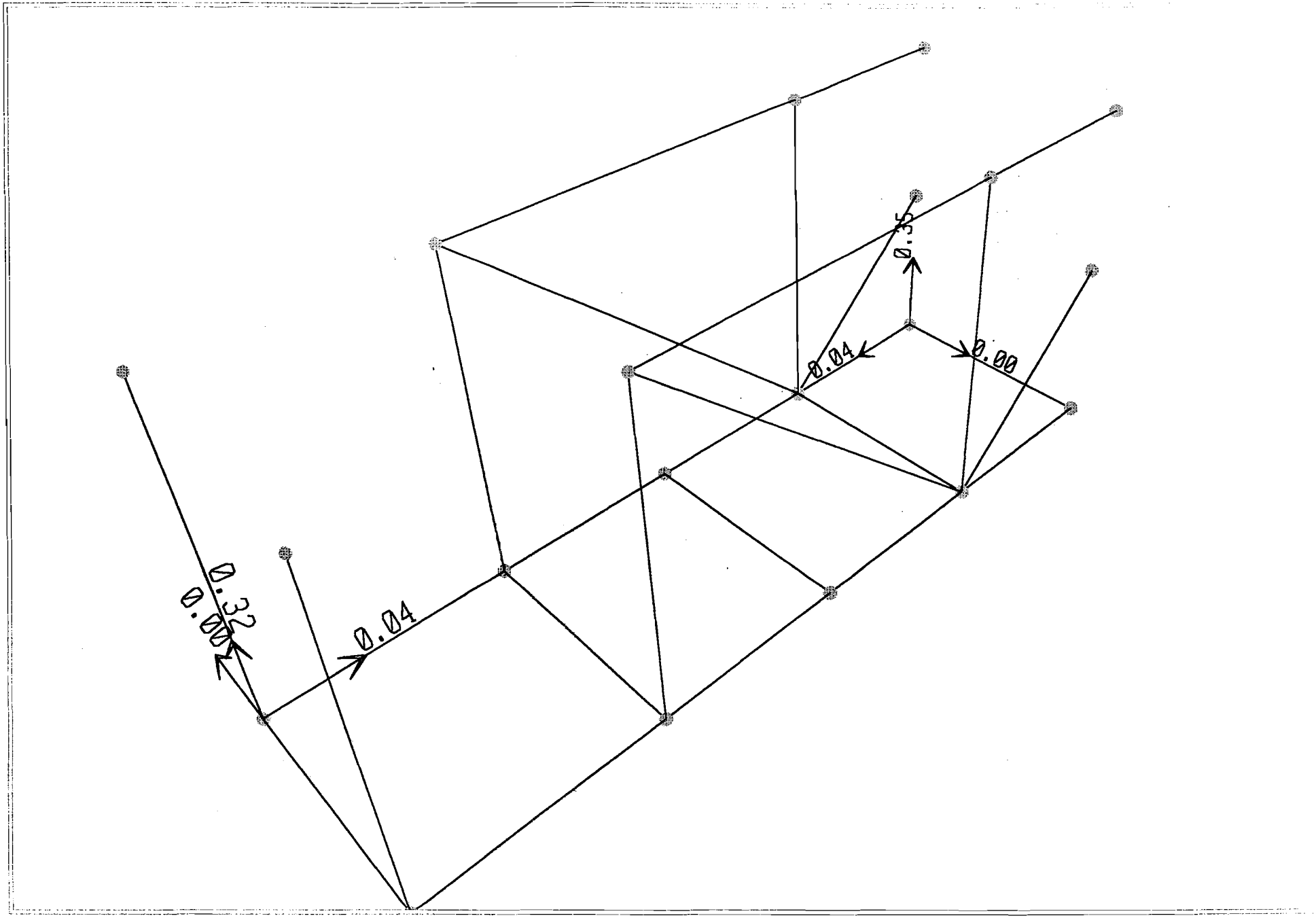

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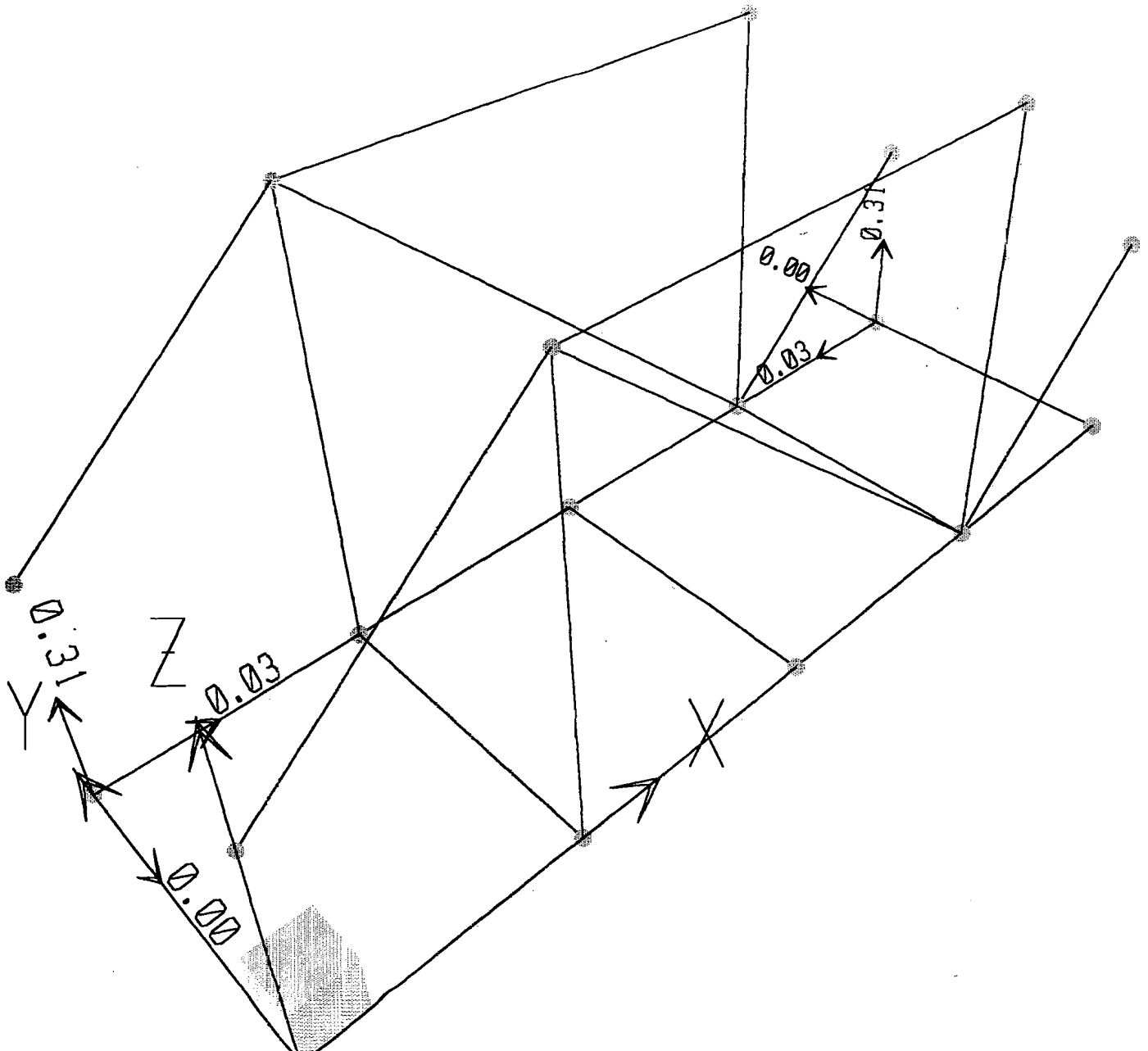

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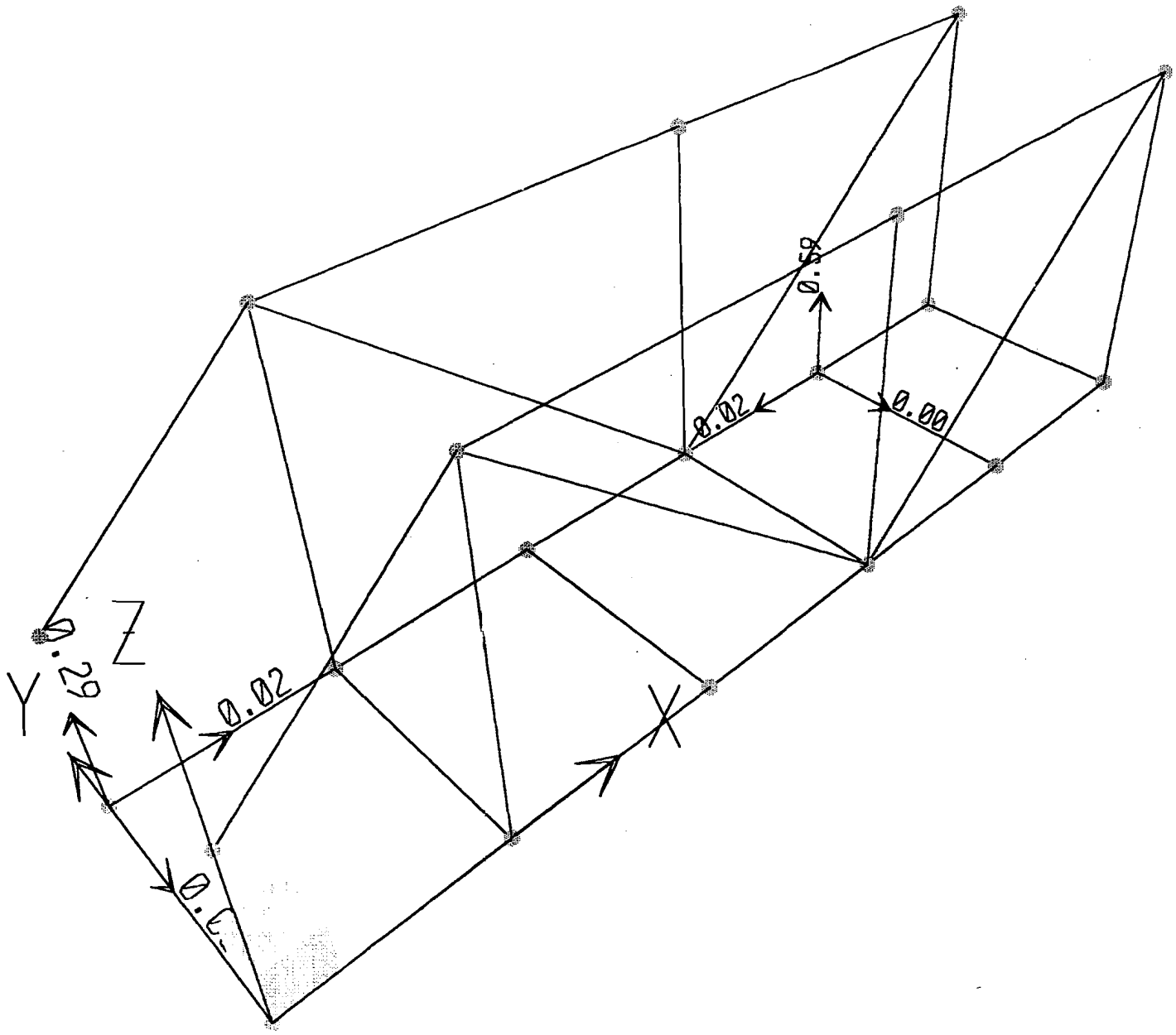
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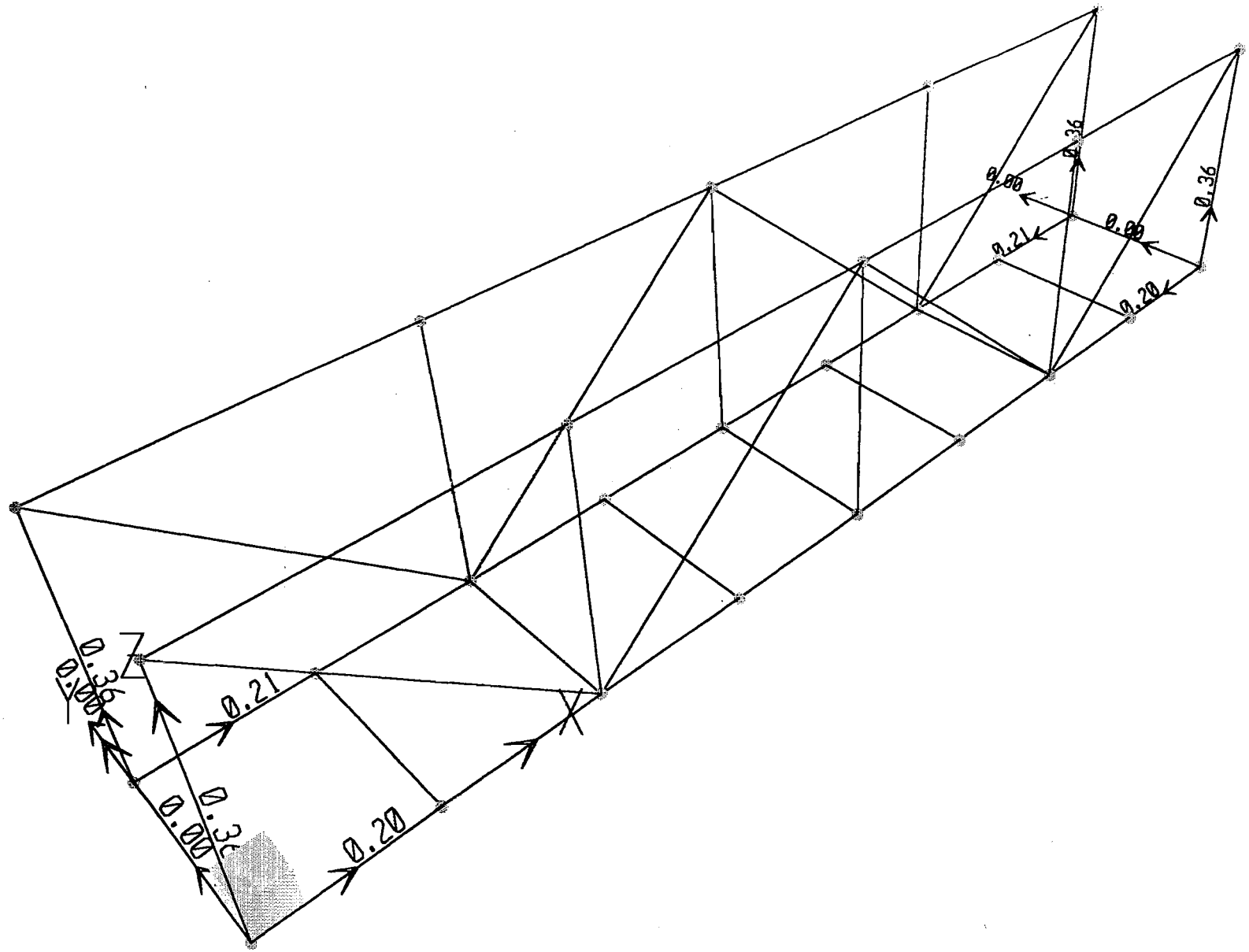

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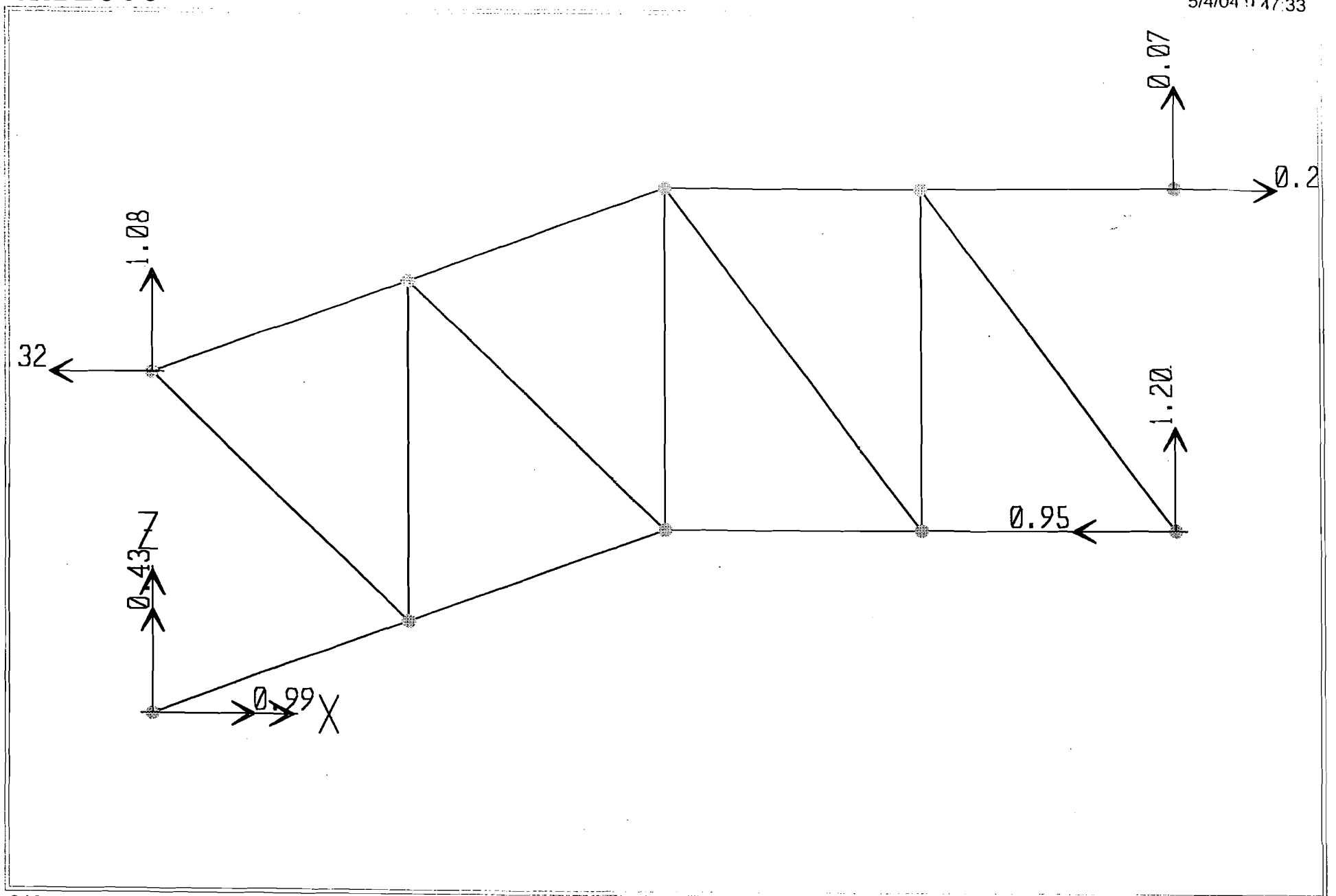

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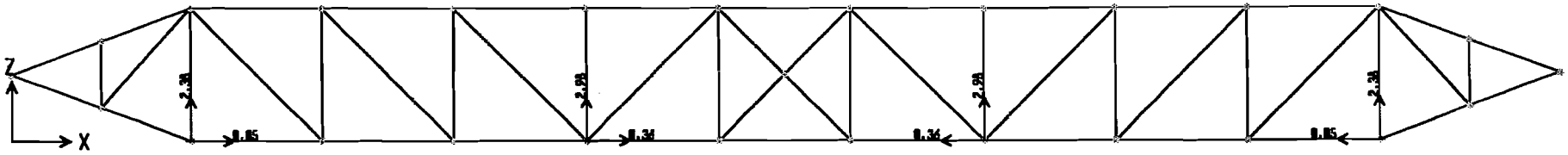
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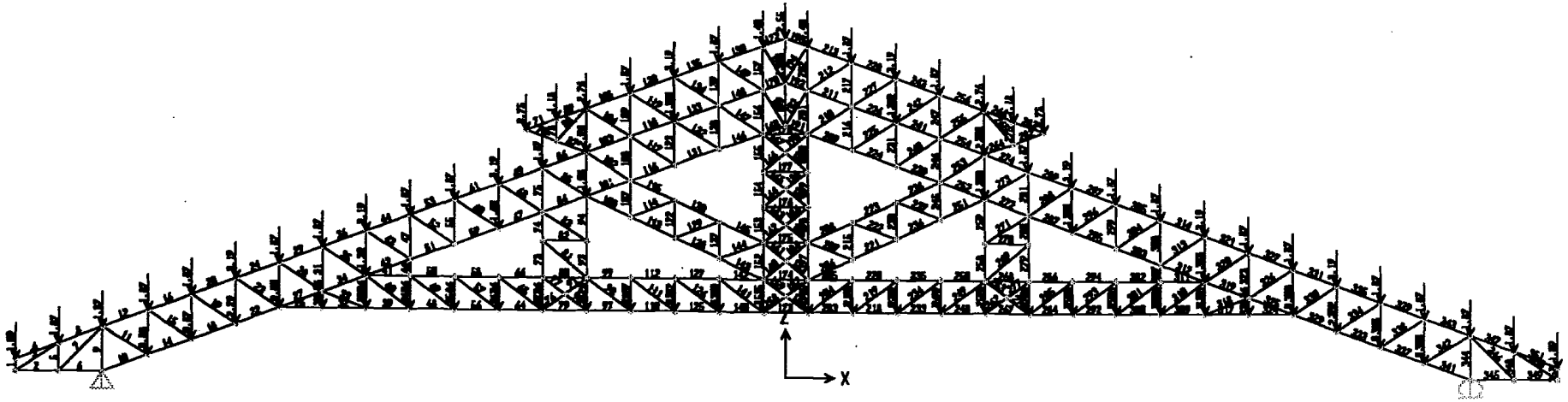
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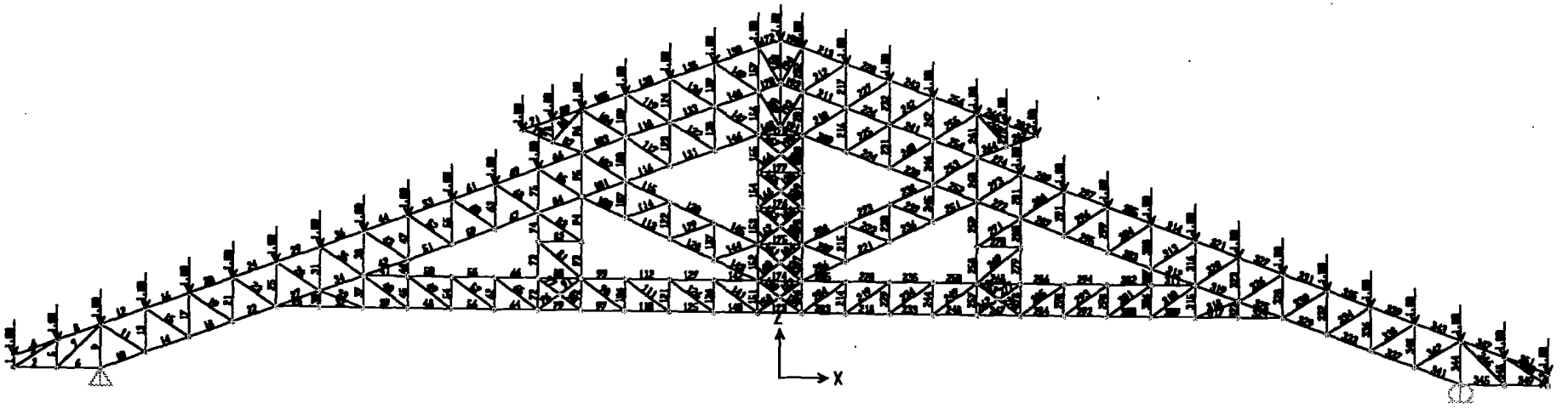
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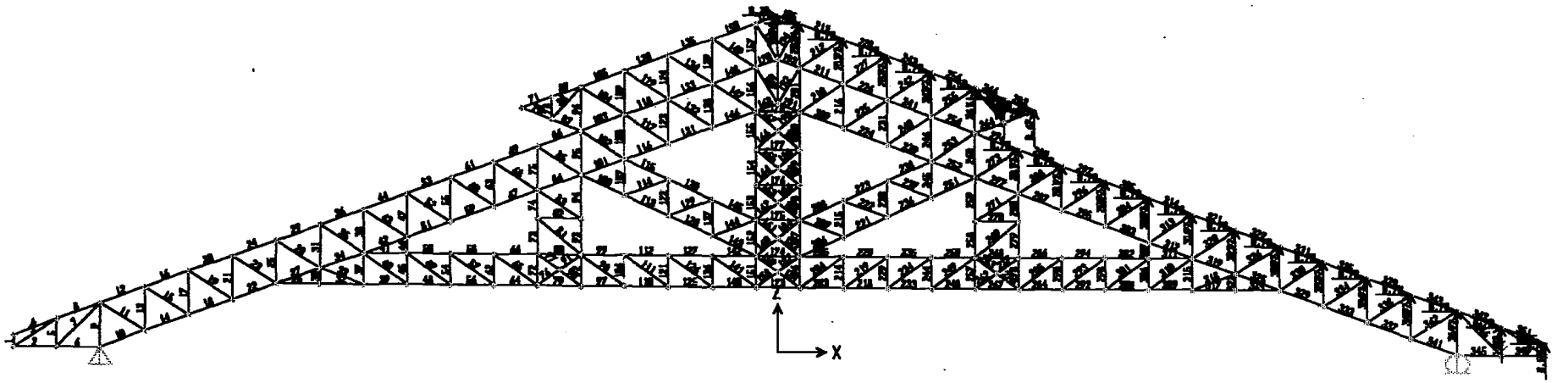
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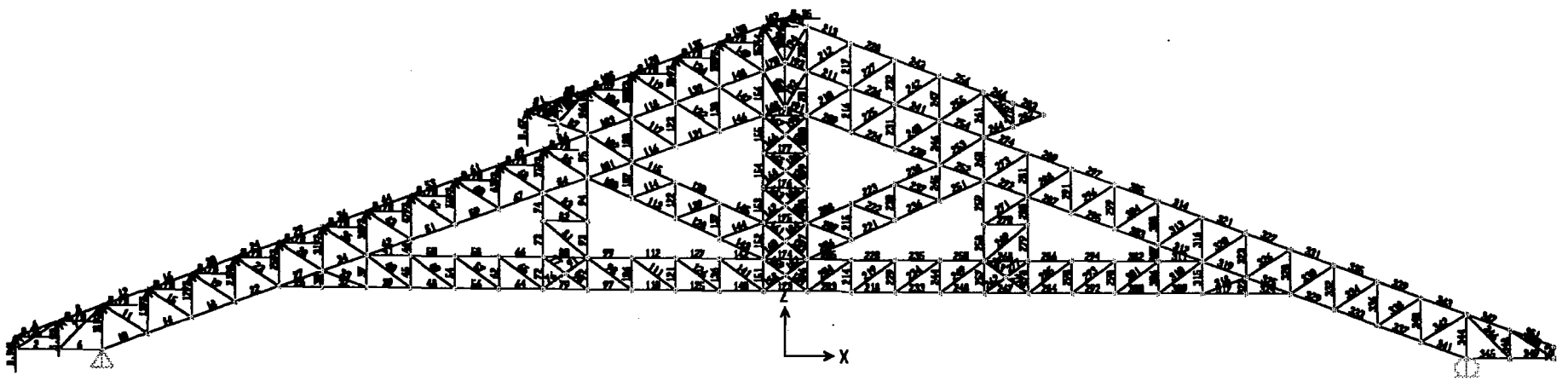
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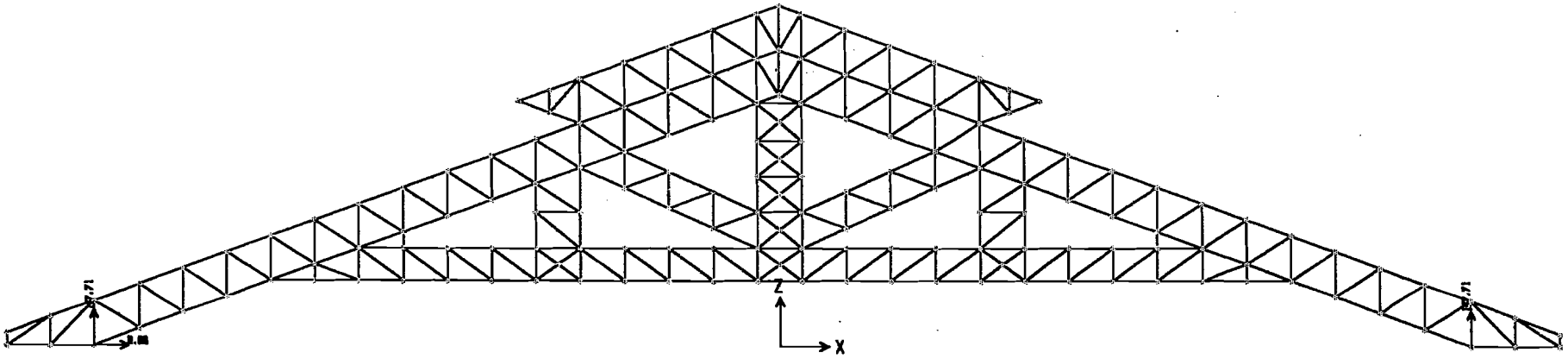
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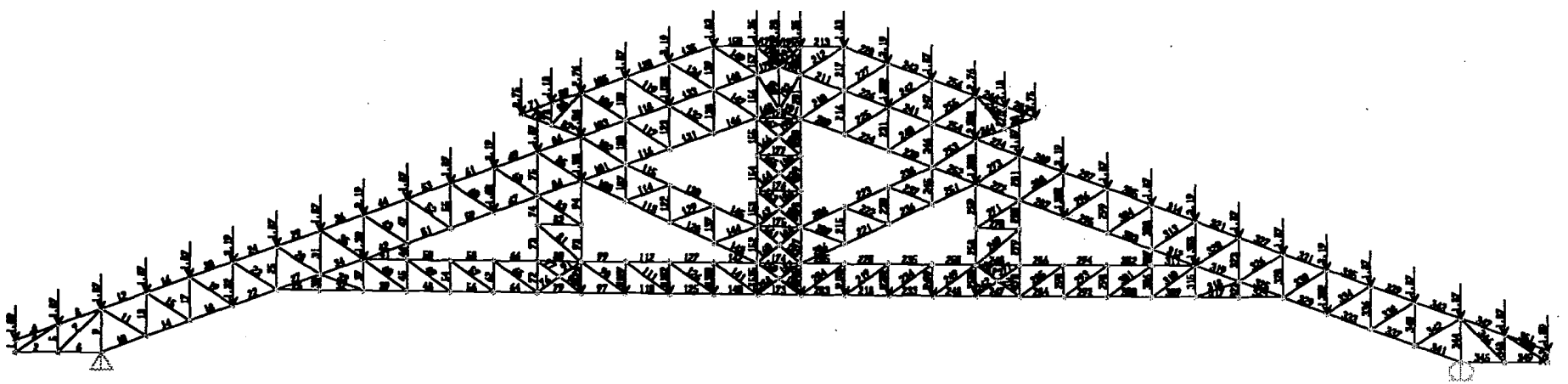

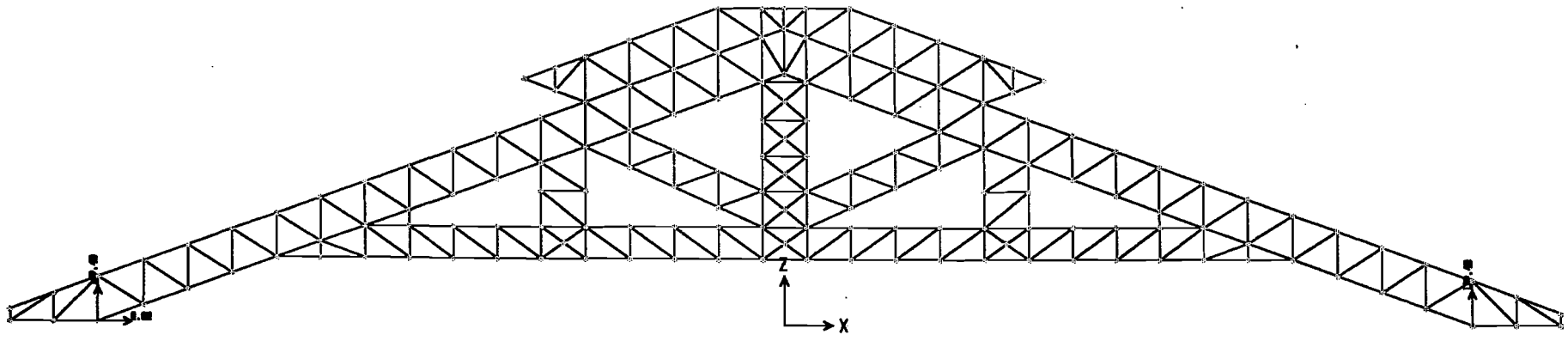
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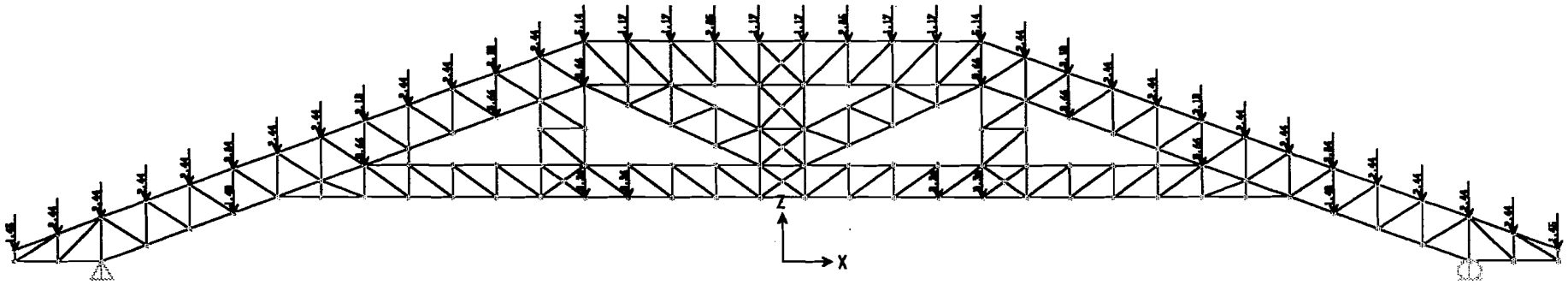
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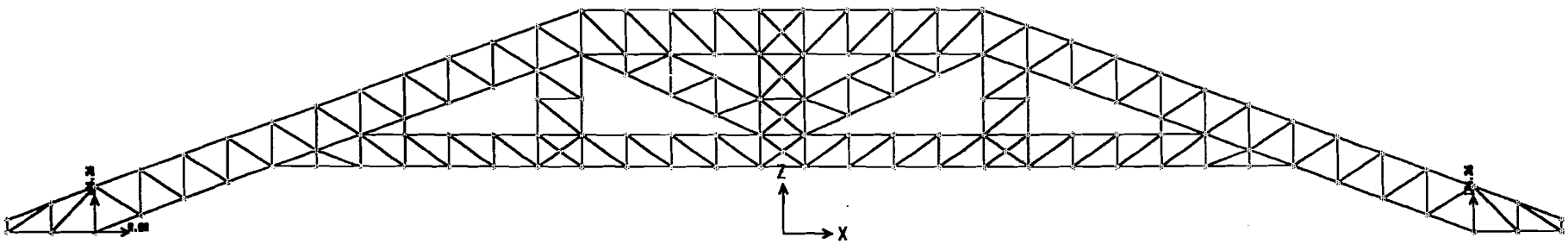

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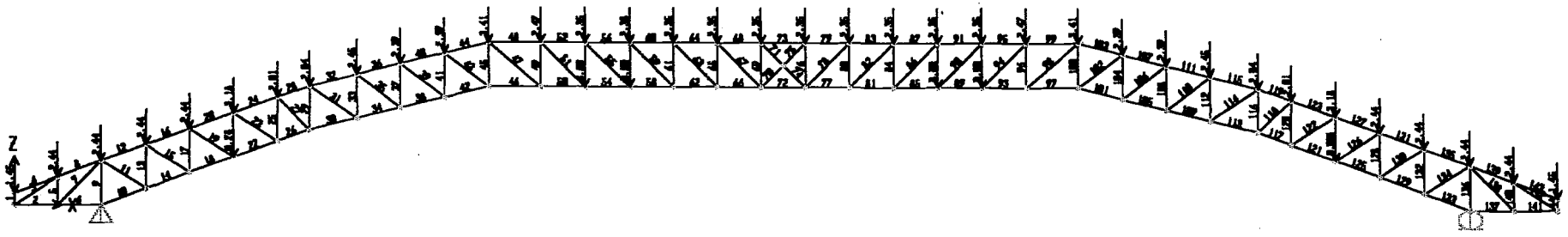
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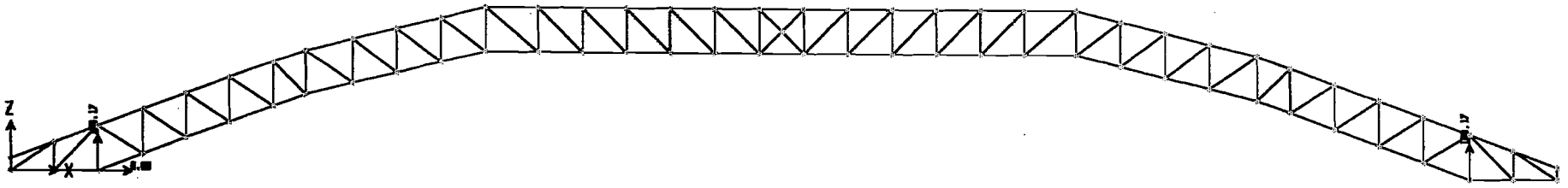
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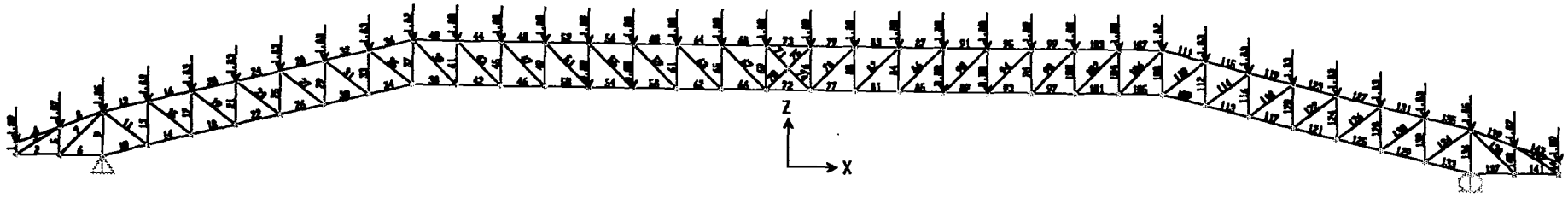
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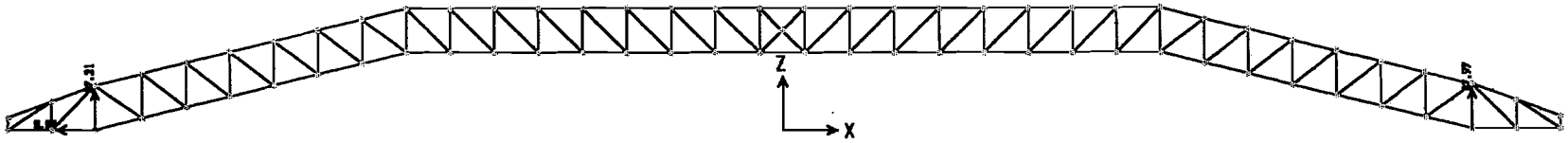
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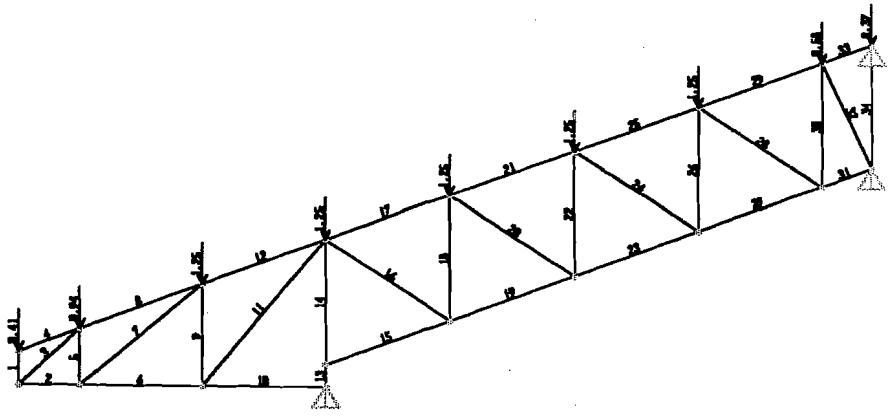

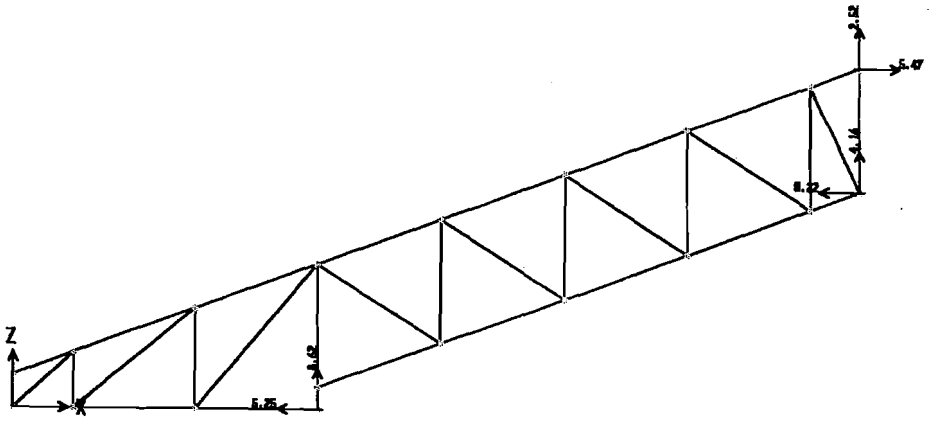
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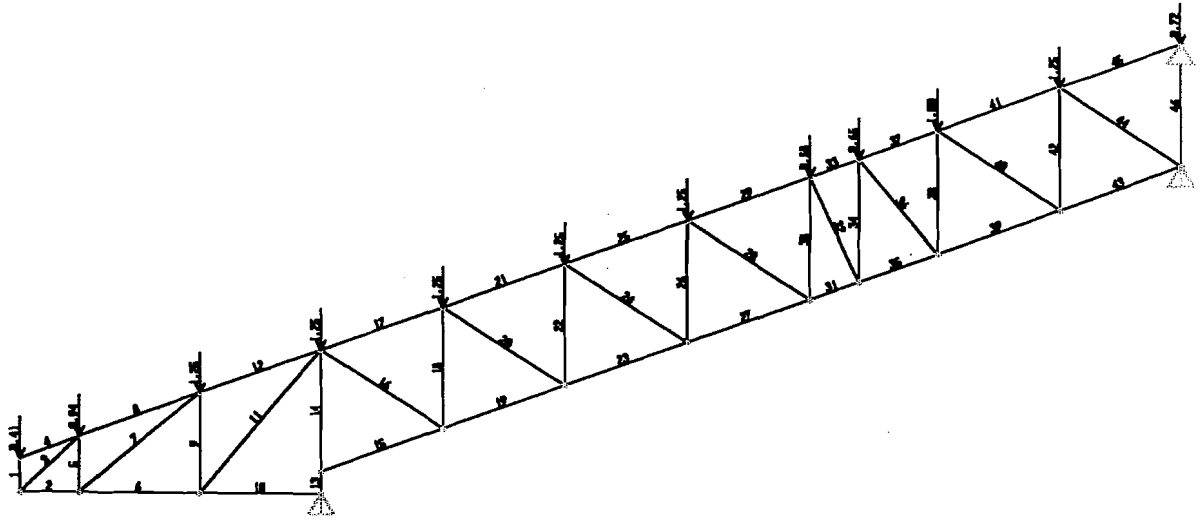

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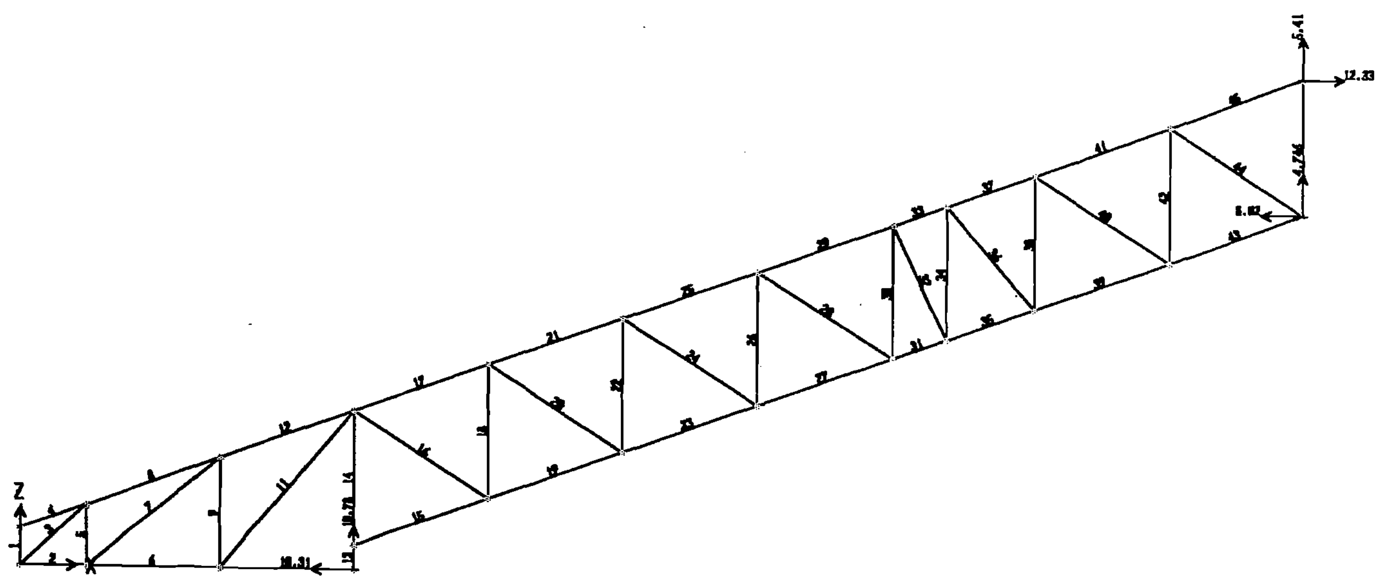

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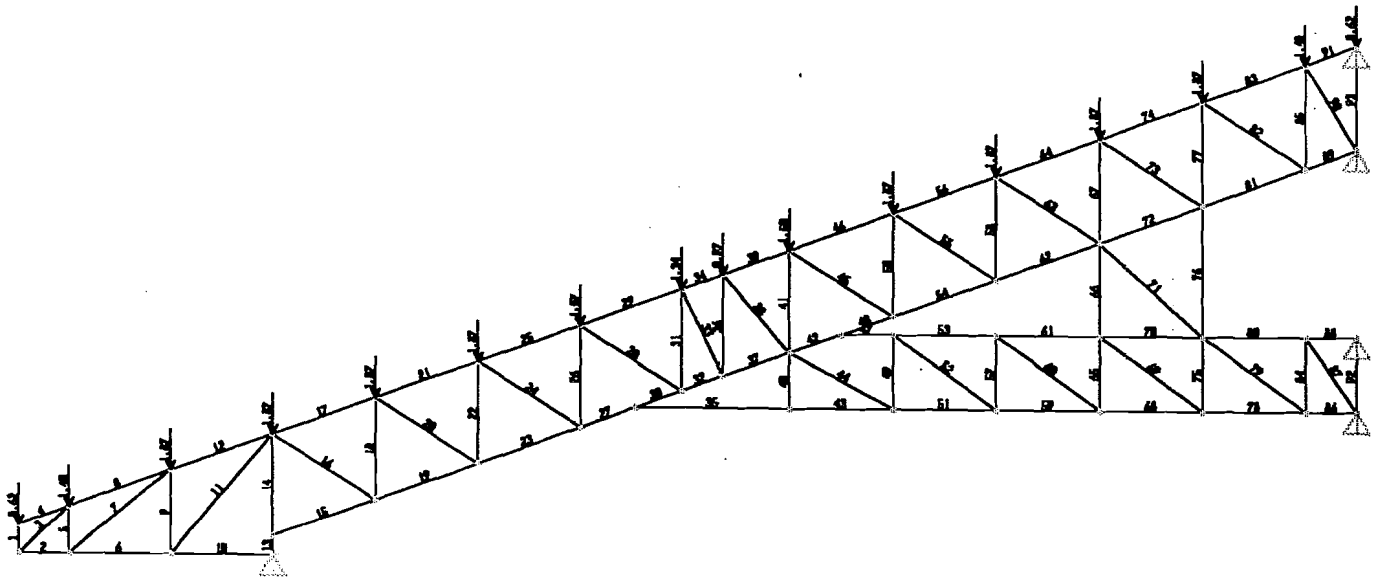

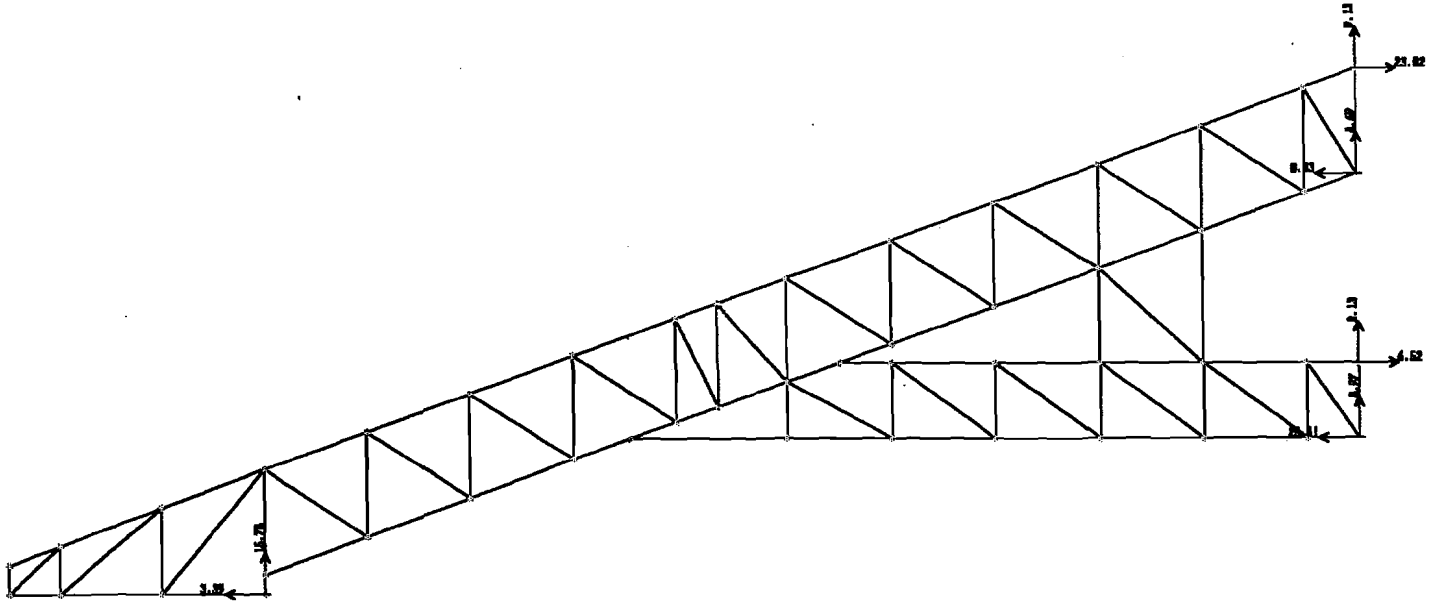

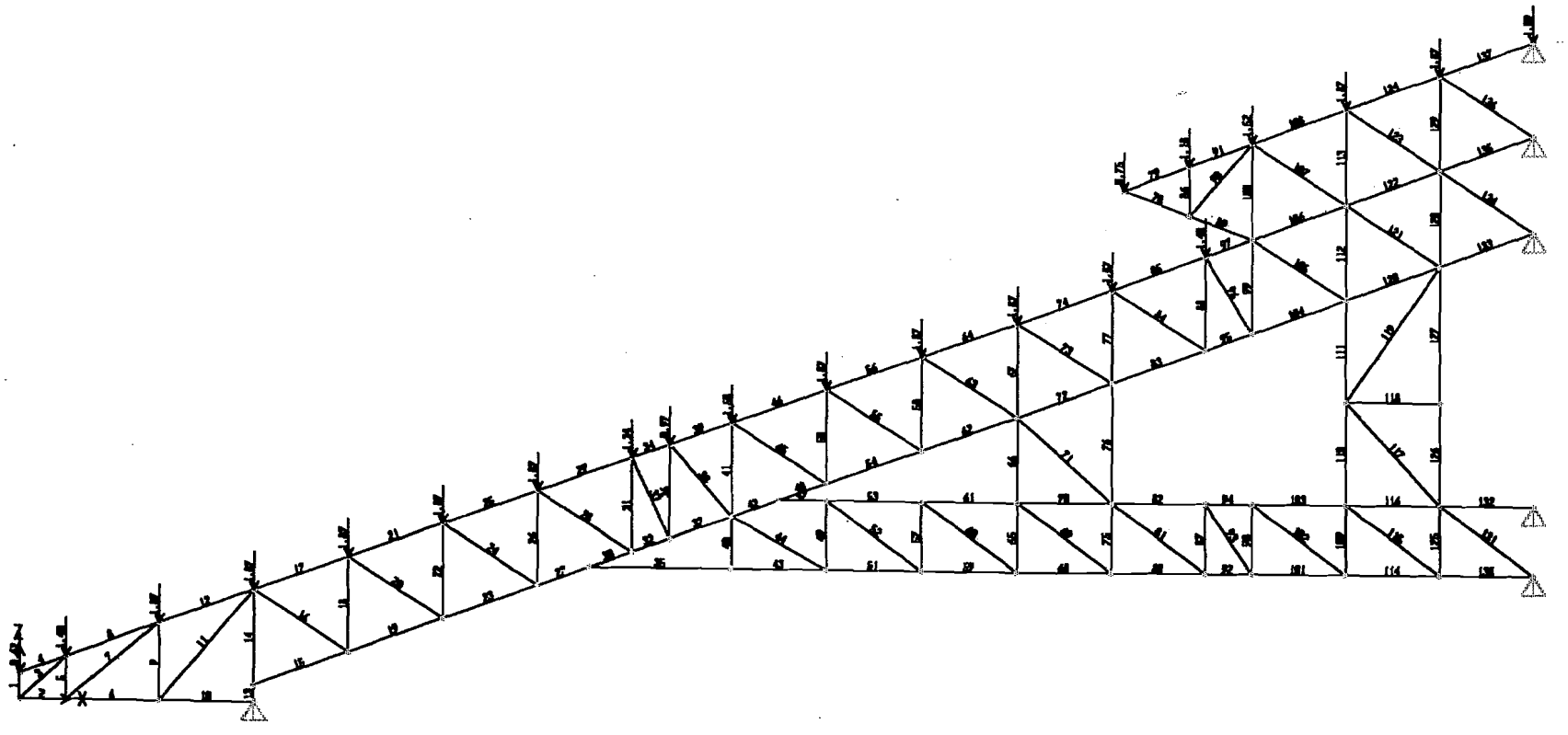

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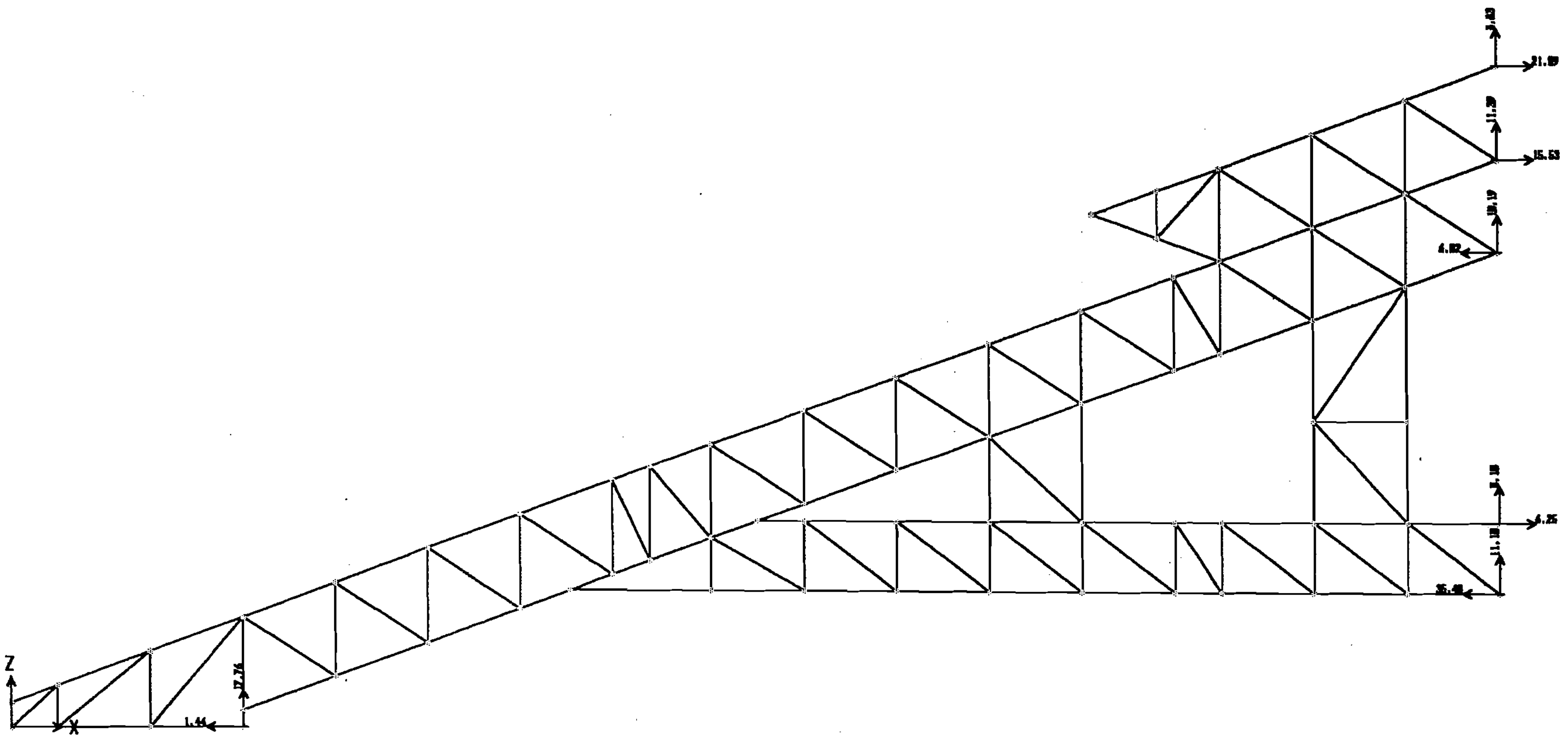

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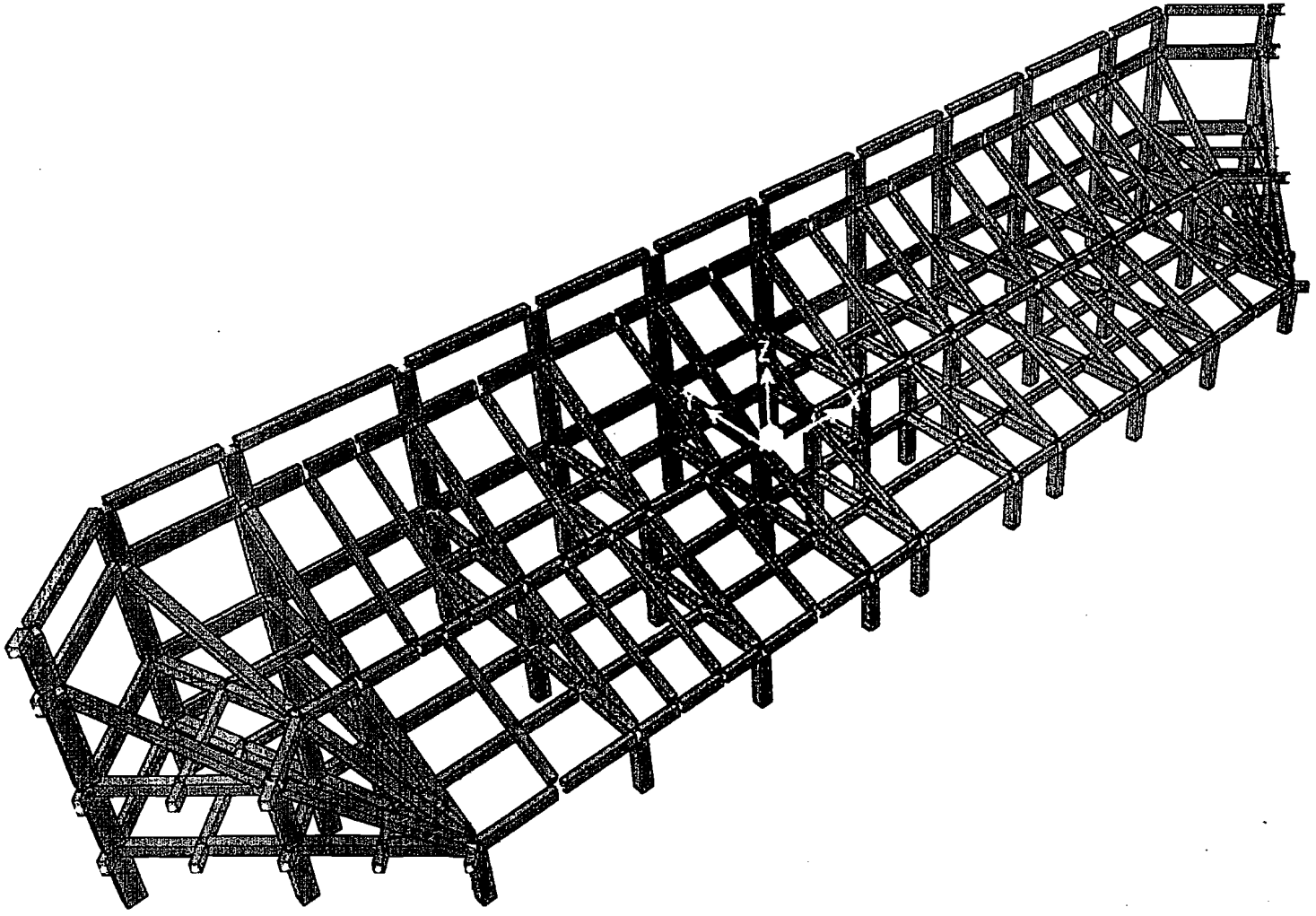

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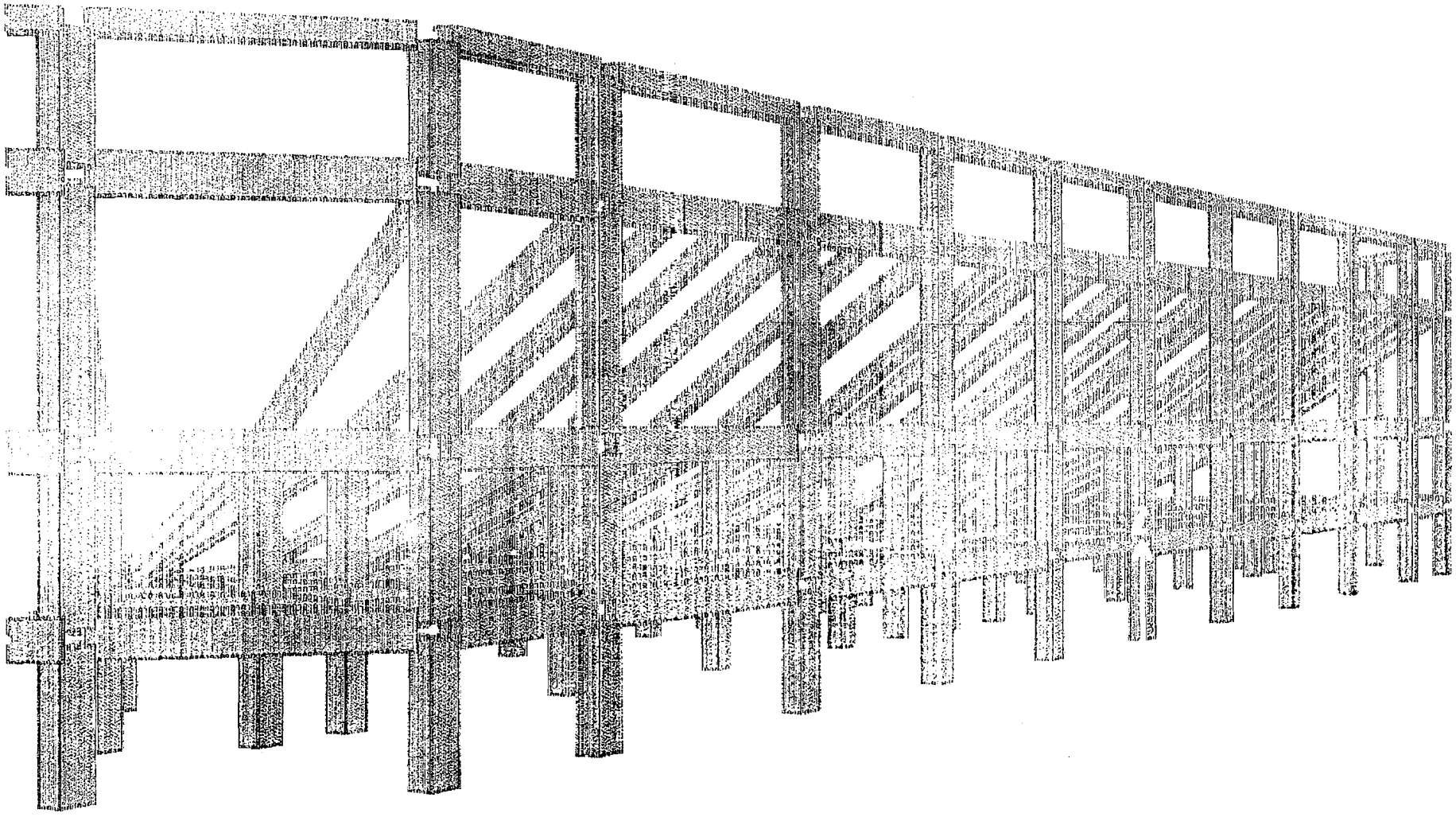

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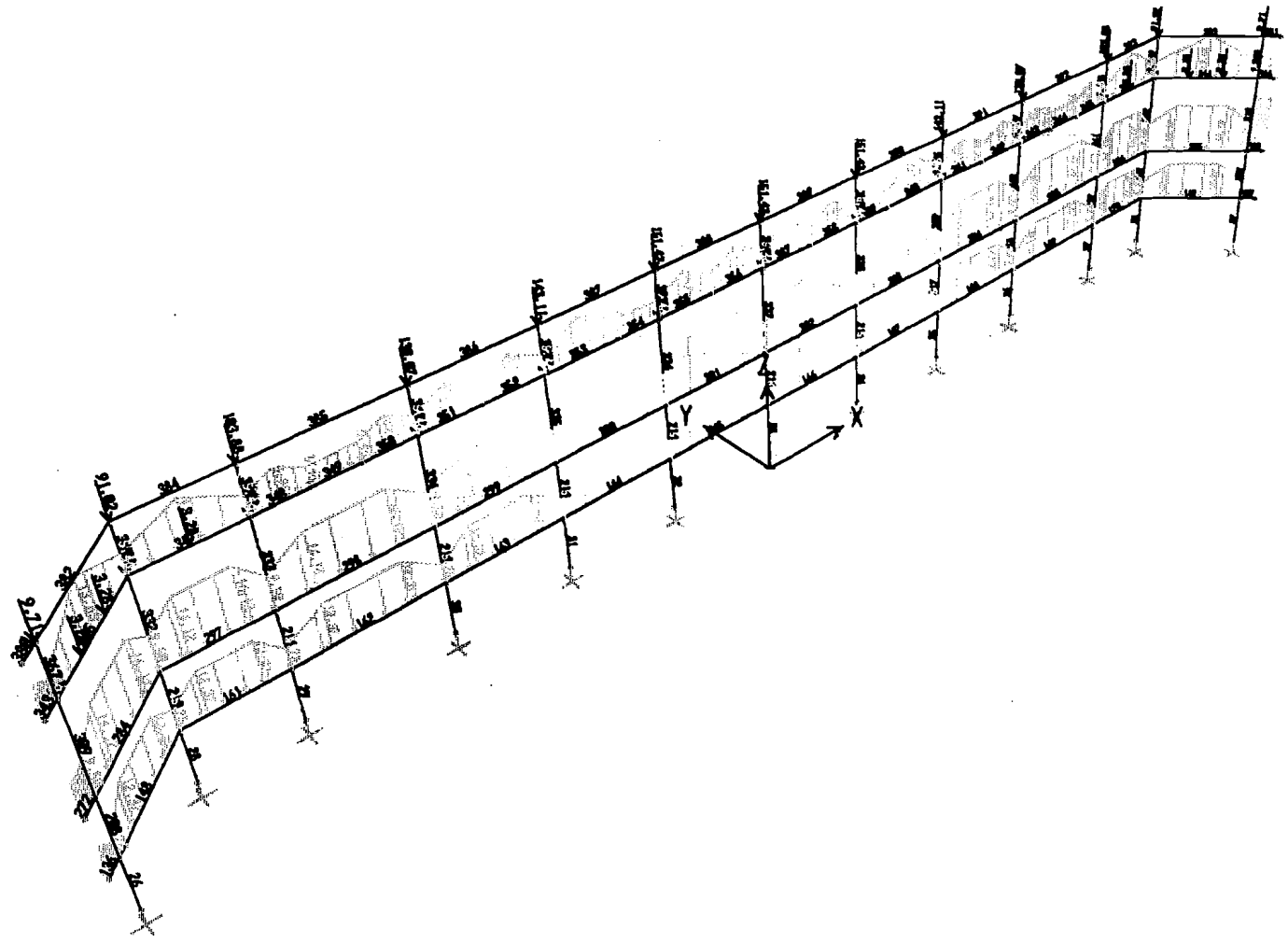
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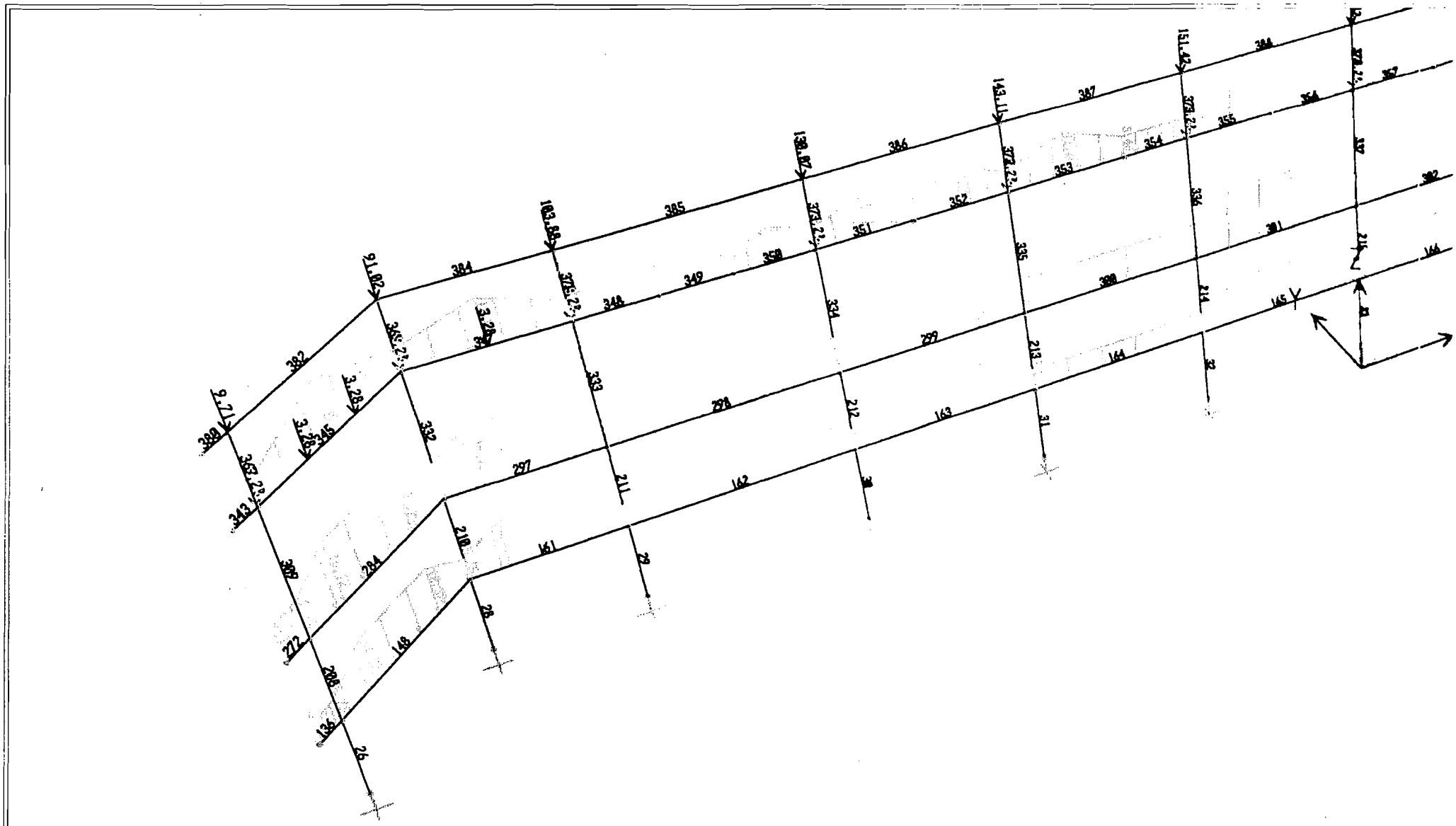
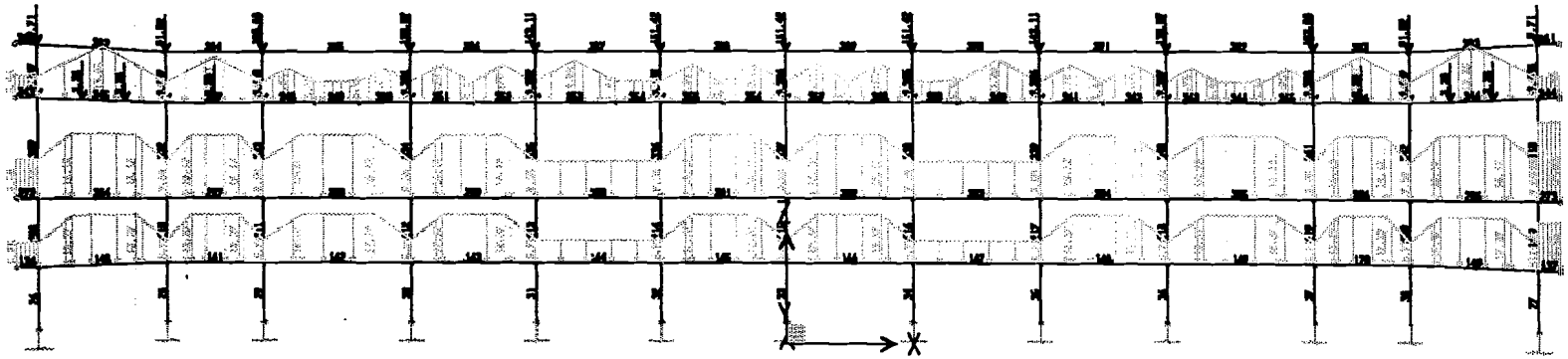
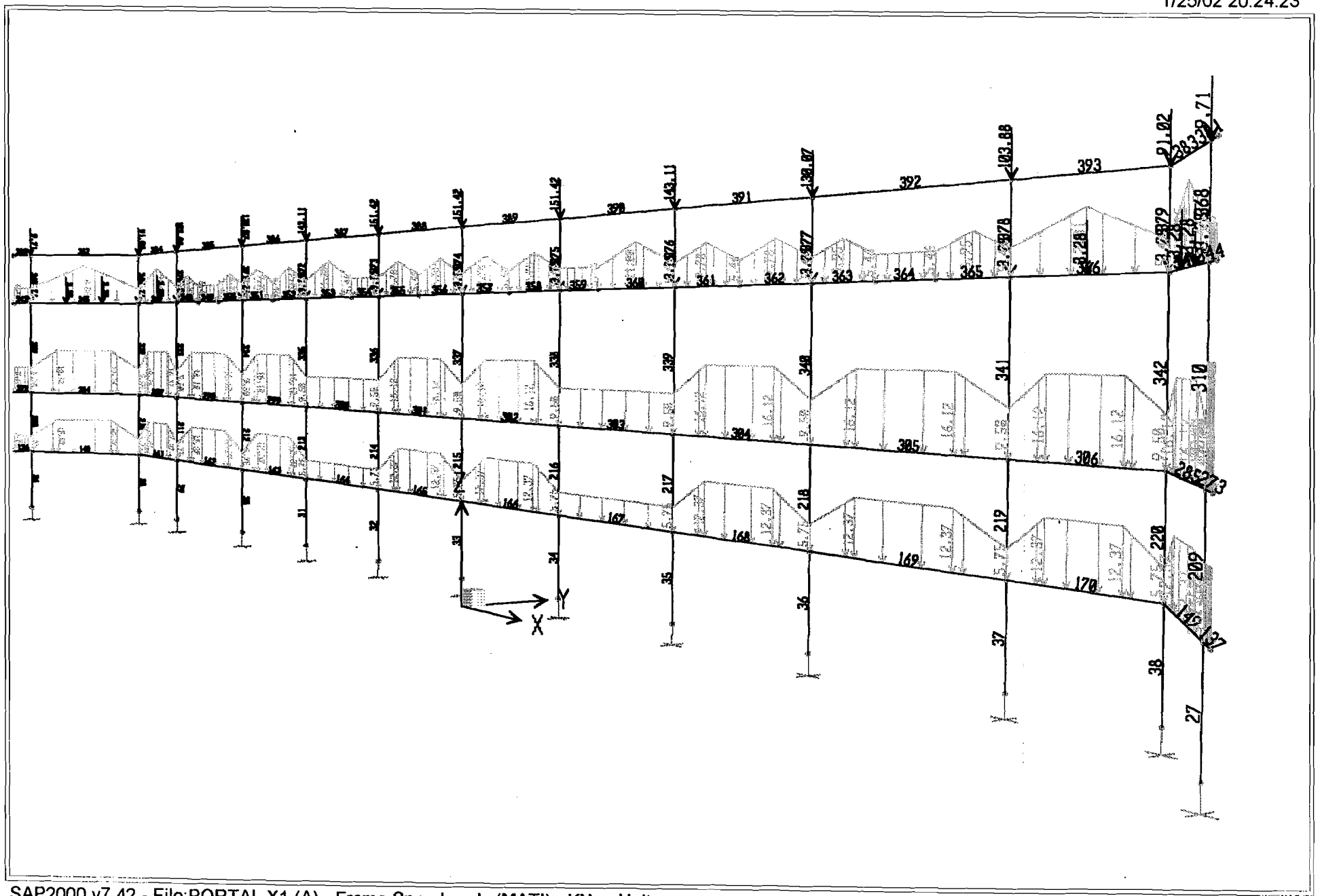
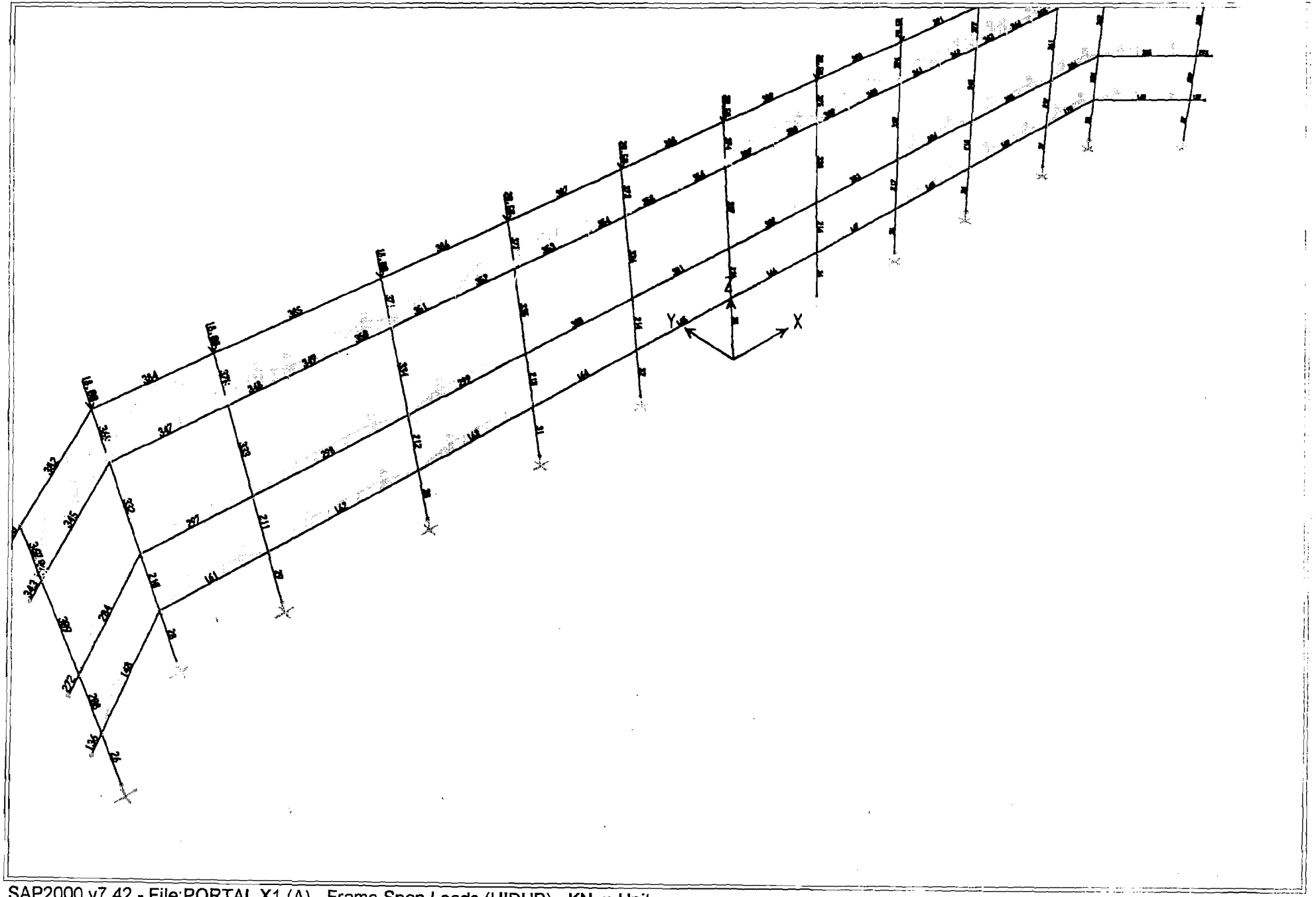


SAP2000 v7.42 - File:PORTAL X1 (A) - Frame Span Loads (MATI) - KN-m Units

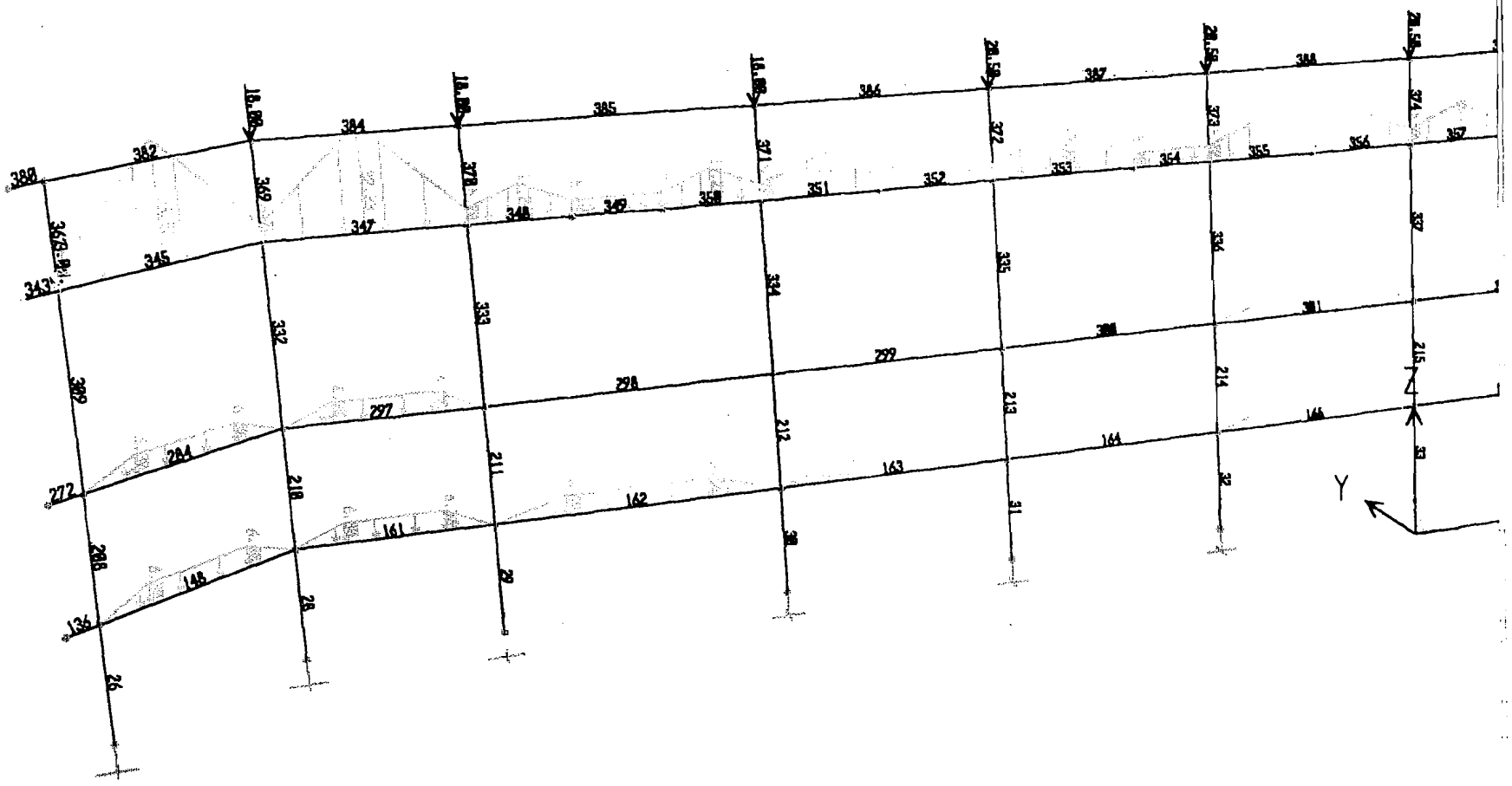




SAP2000 v7.42 - File:PORTAL X1 (A) - Frame Span Loads (MATI) - KN-m Units



SAP2000 v7.42 - File:PORTAL X1 (A) - Frame Span Loads (HIDUP) - KN-m Units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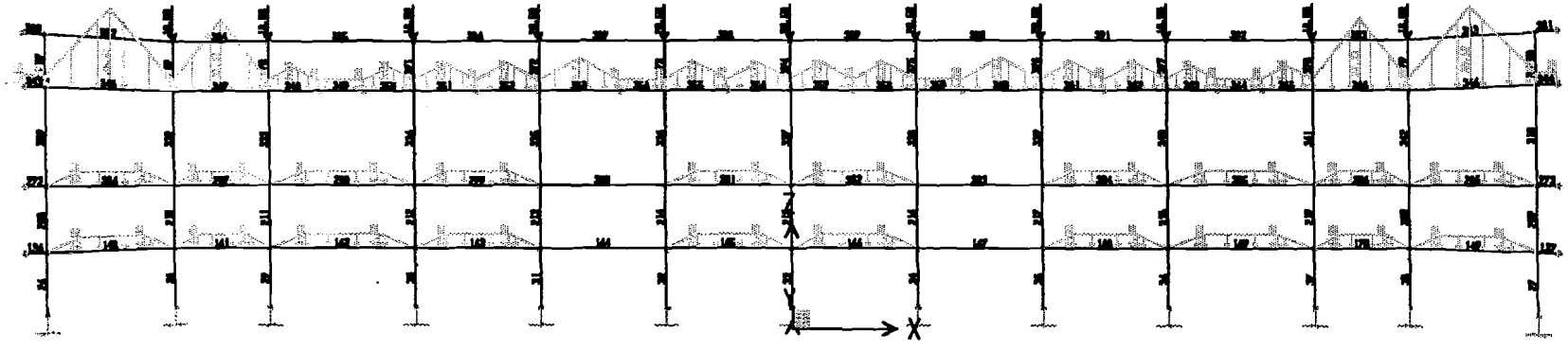

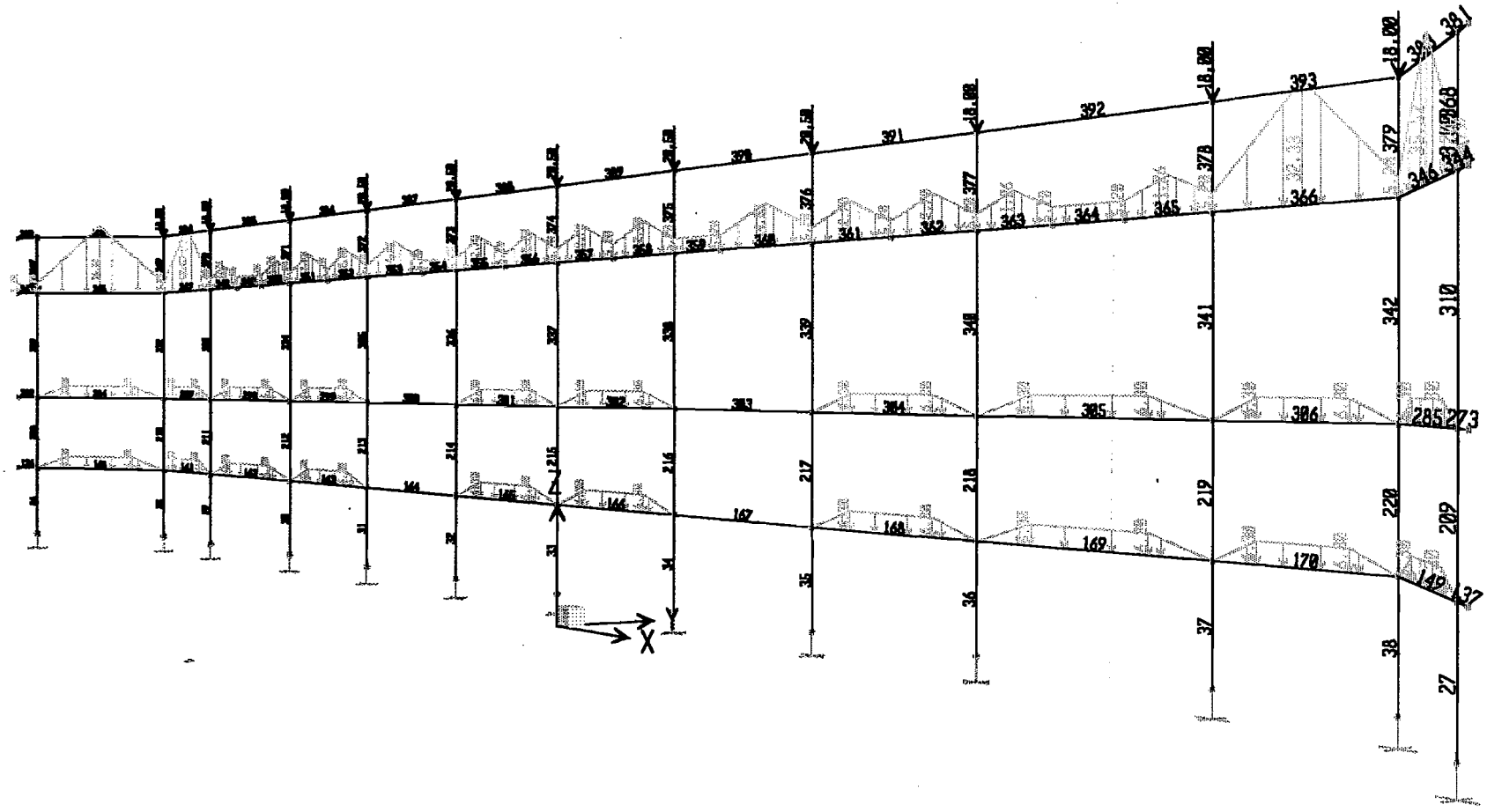

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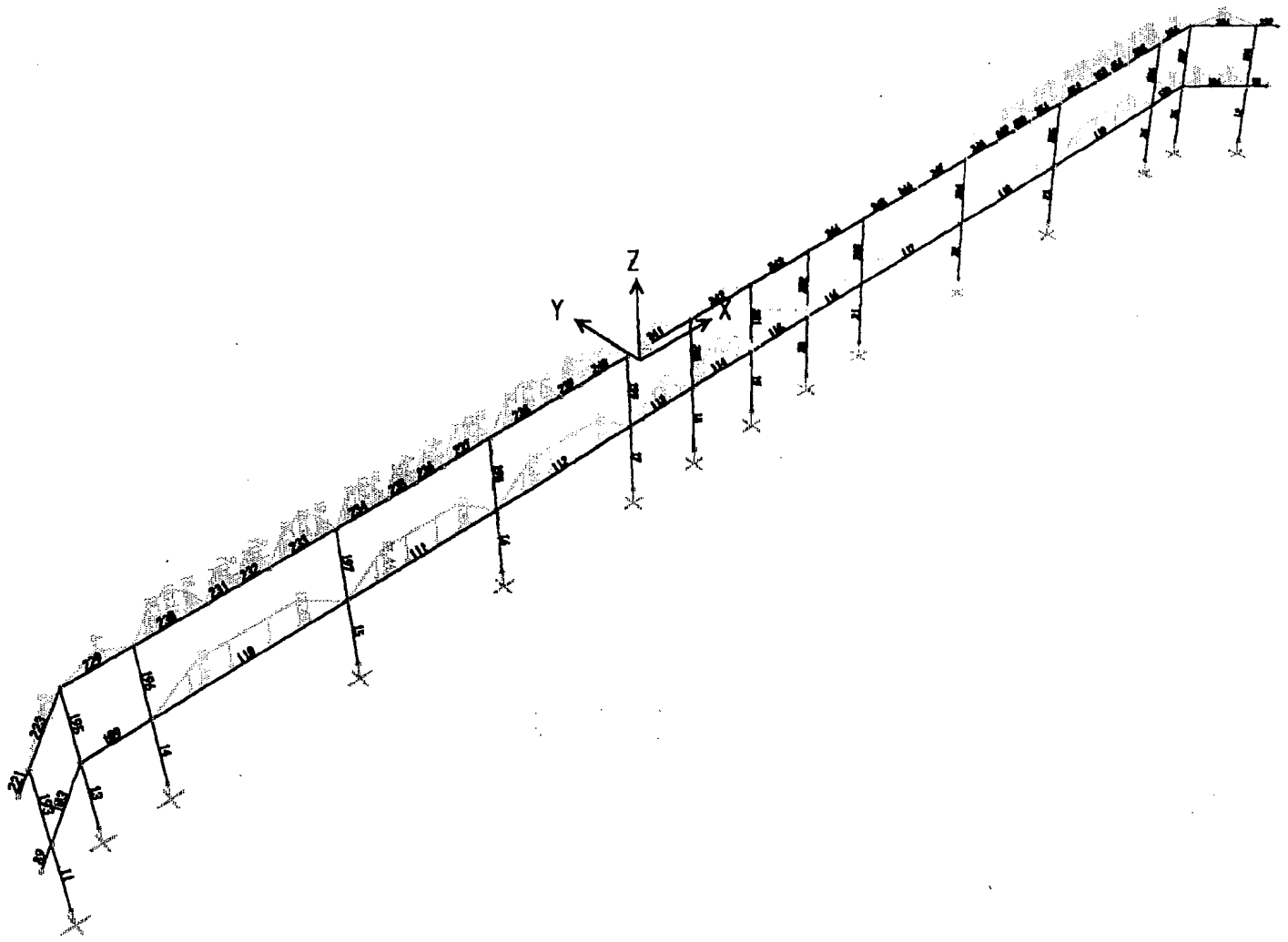
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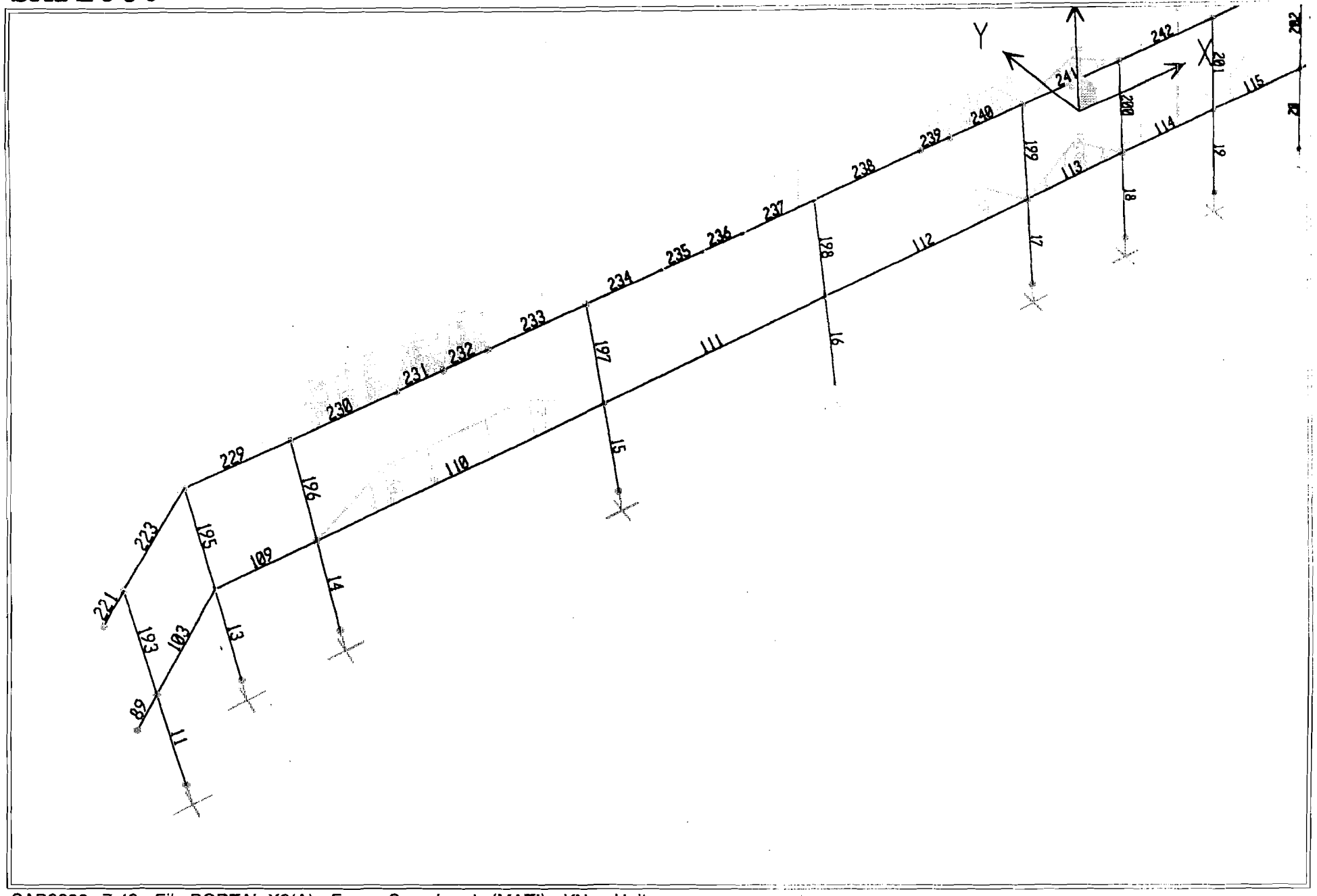

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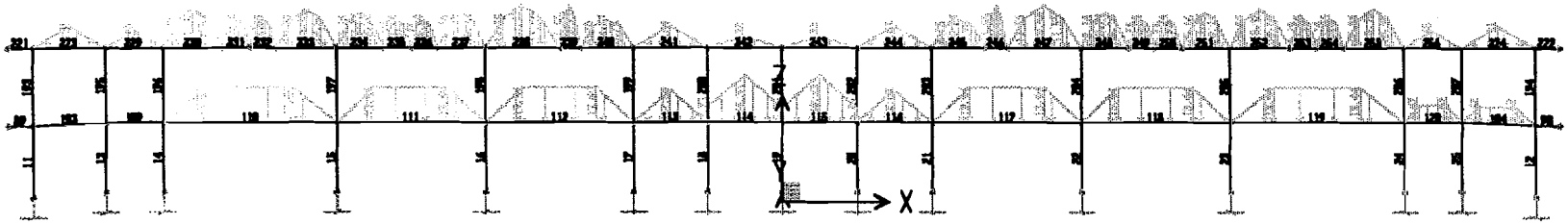
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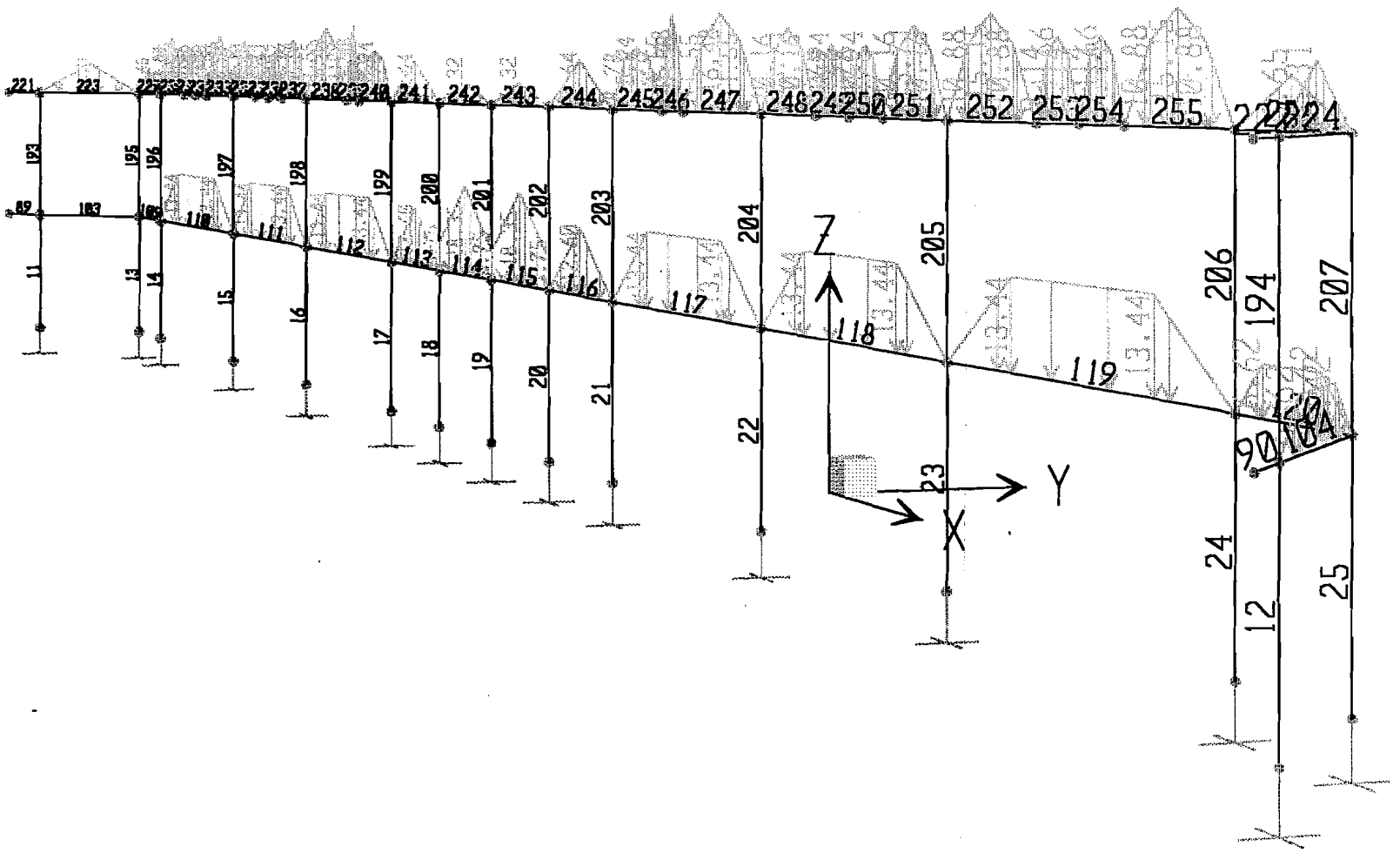
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13.44

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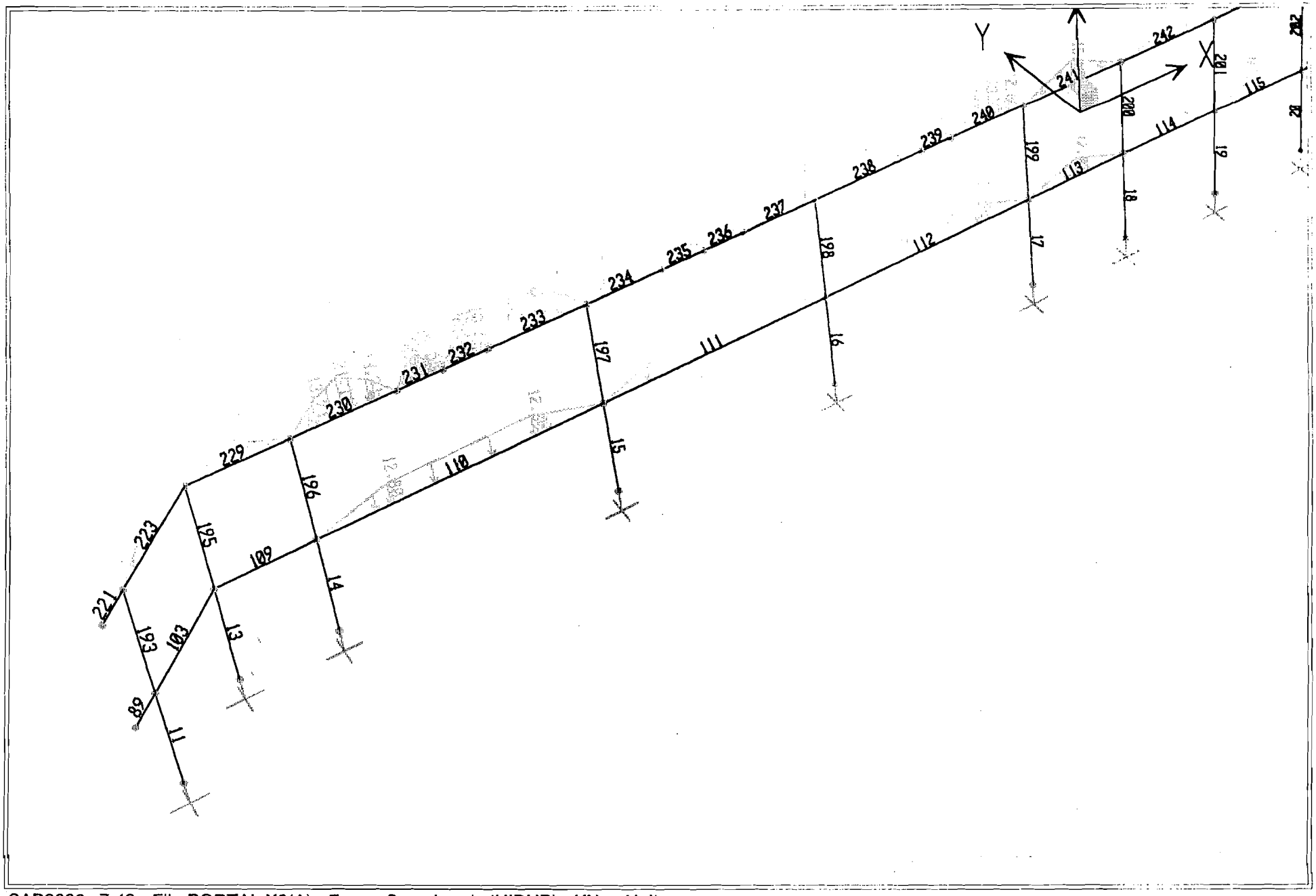
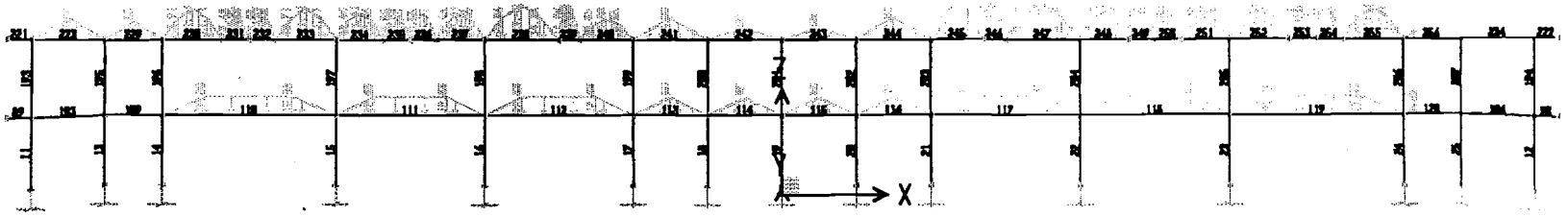


SAP2000 v7.42 - File:PORTAL X2(A) - Frame Span Loads (HIDUP) - KN-m Units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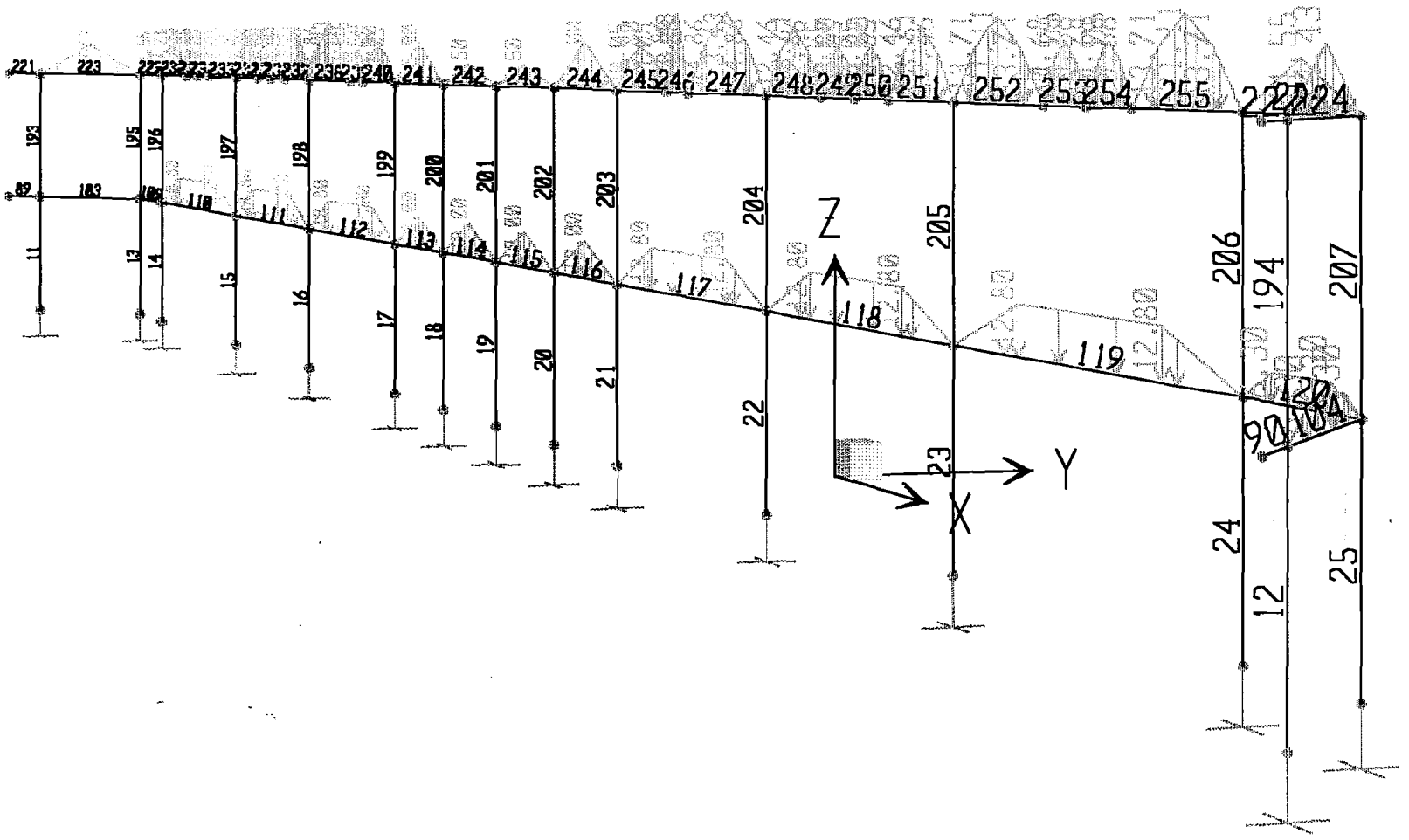
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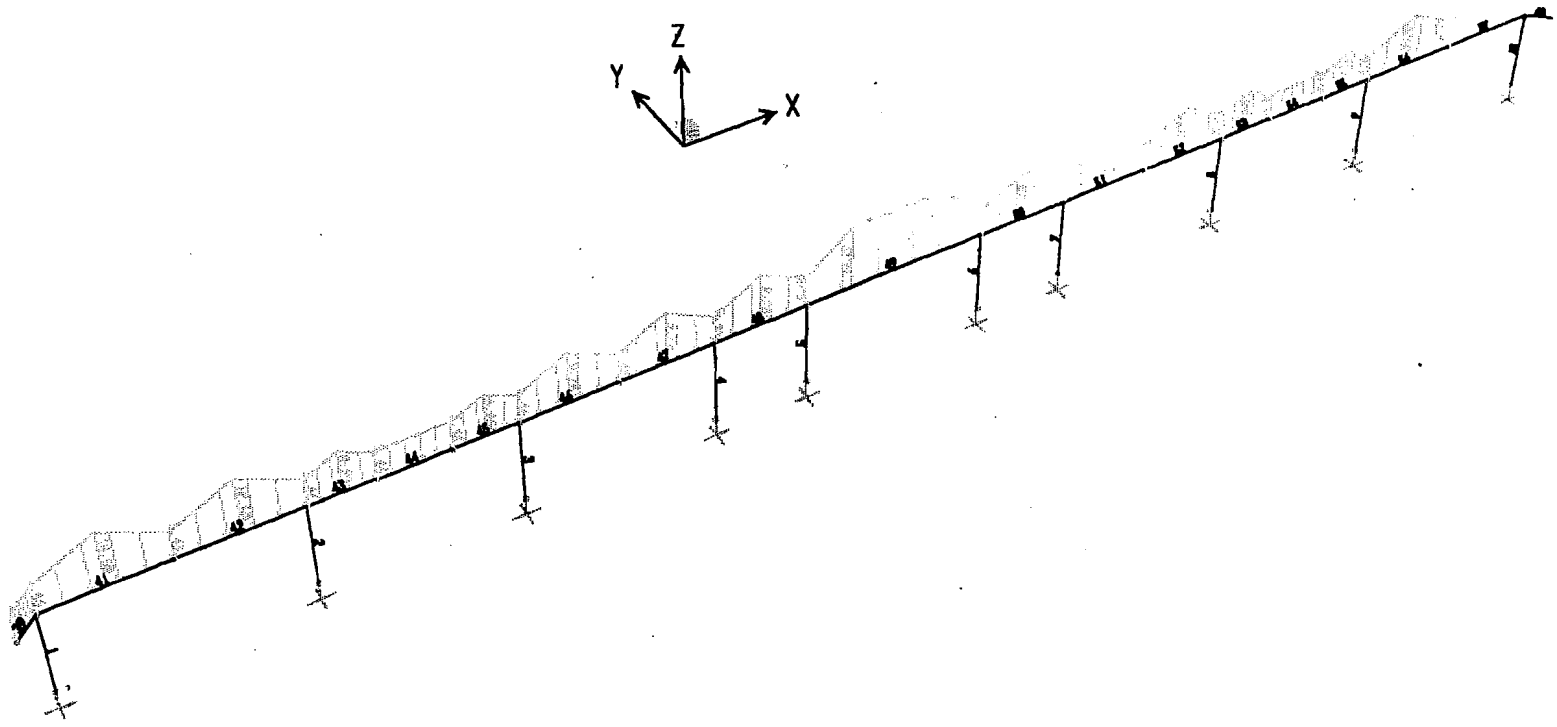
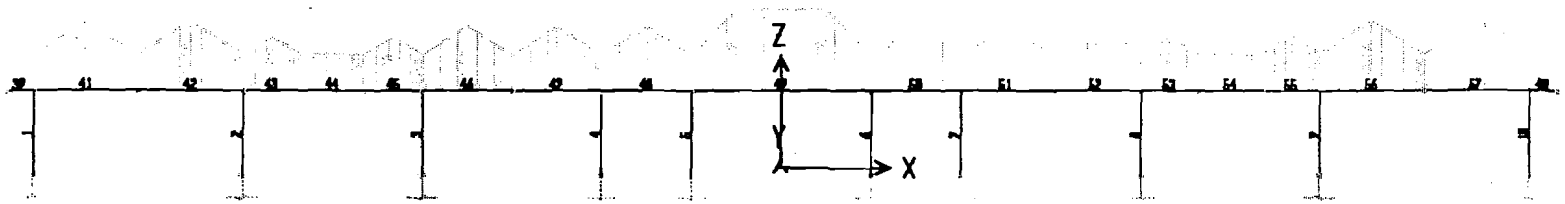


SAP2000 v7.42 - File:PORTAL X3 (A) - Frame Span Loads (MATI) - KN-m Units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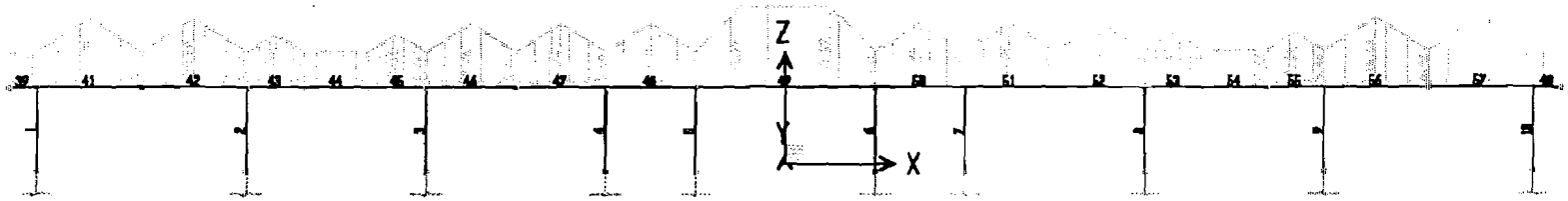
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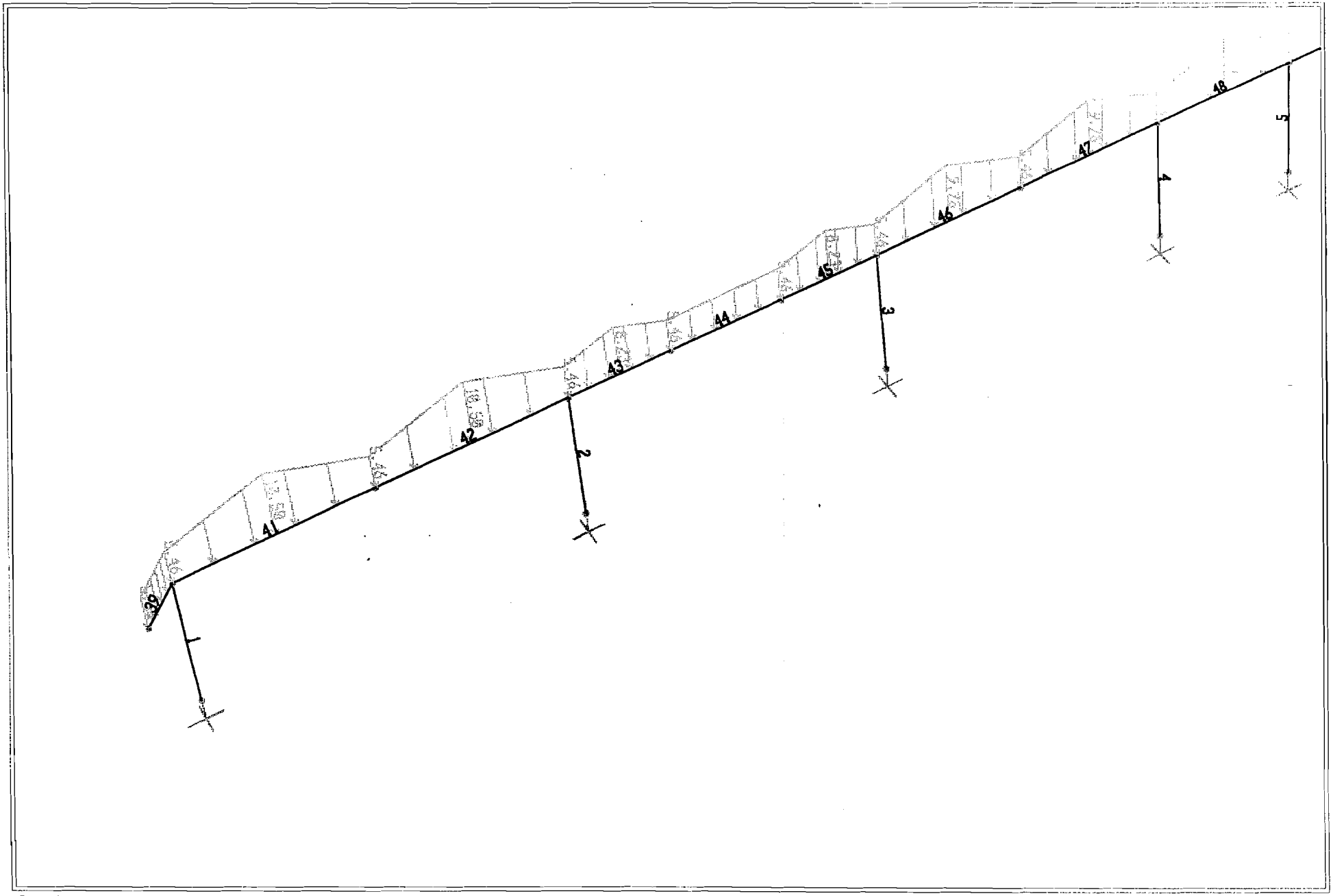
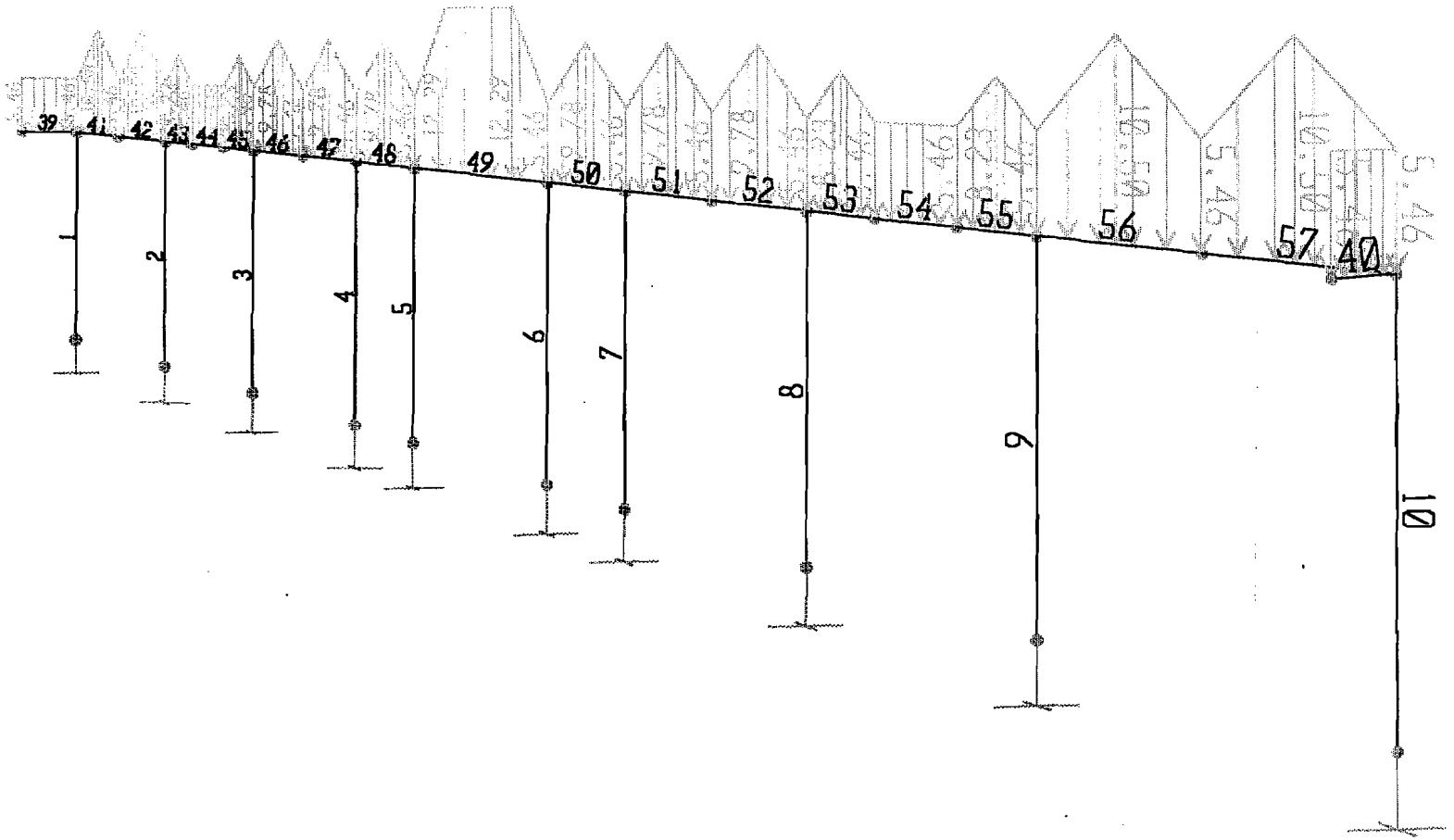
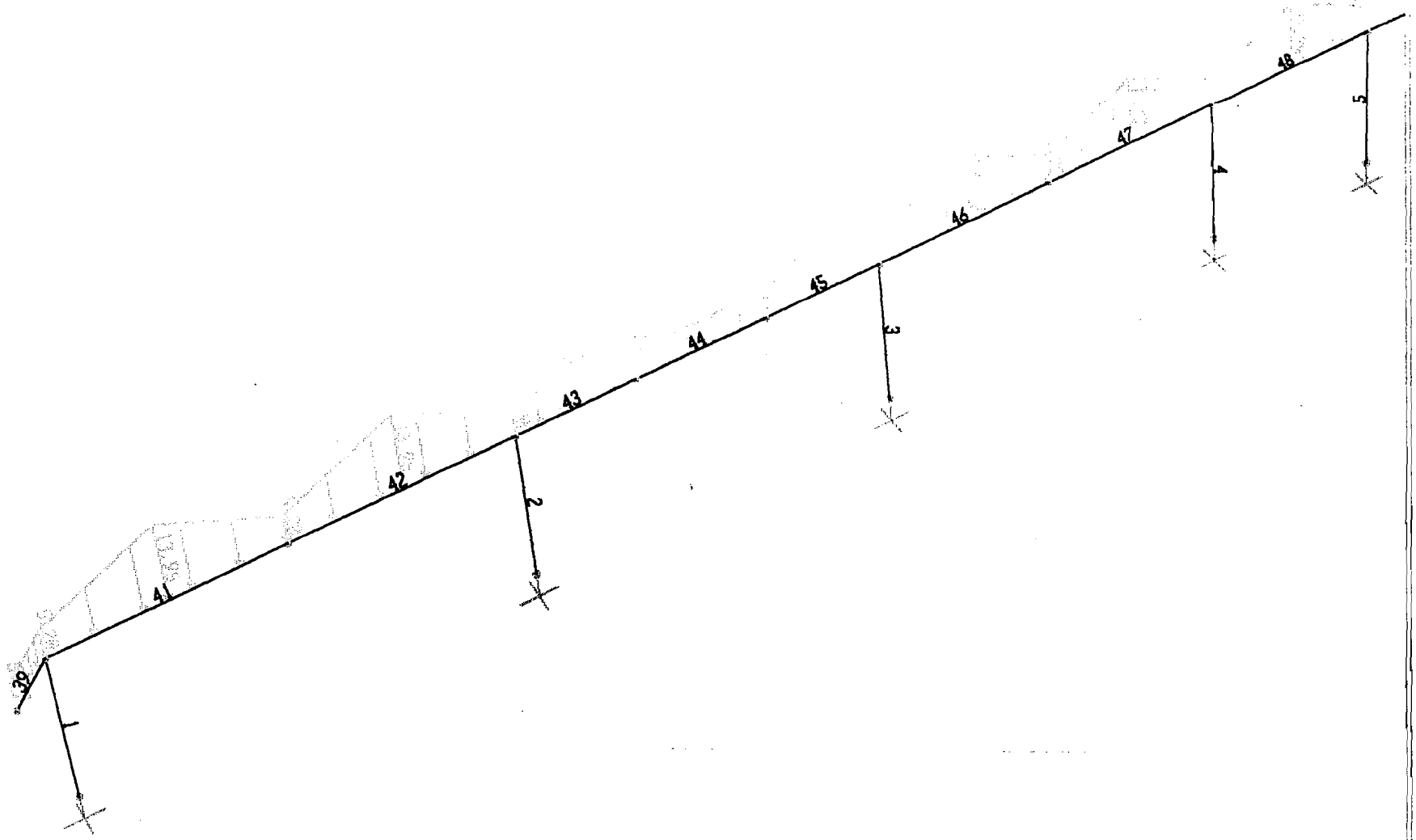


SAP2000 v7.42 - File:PORTAL X3 (A) - Frame Span Loads (MATI) - KN-m Units



SAP2000 v7.42 - File:PORTAL X3 (A) - Frame Span Loads (MATI) - KN-m Units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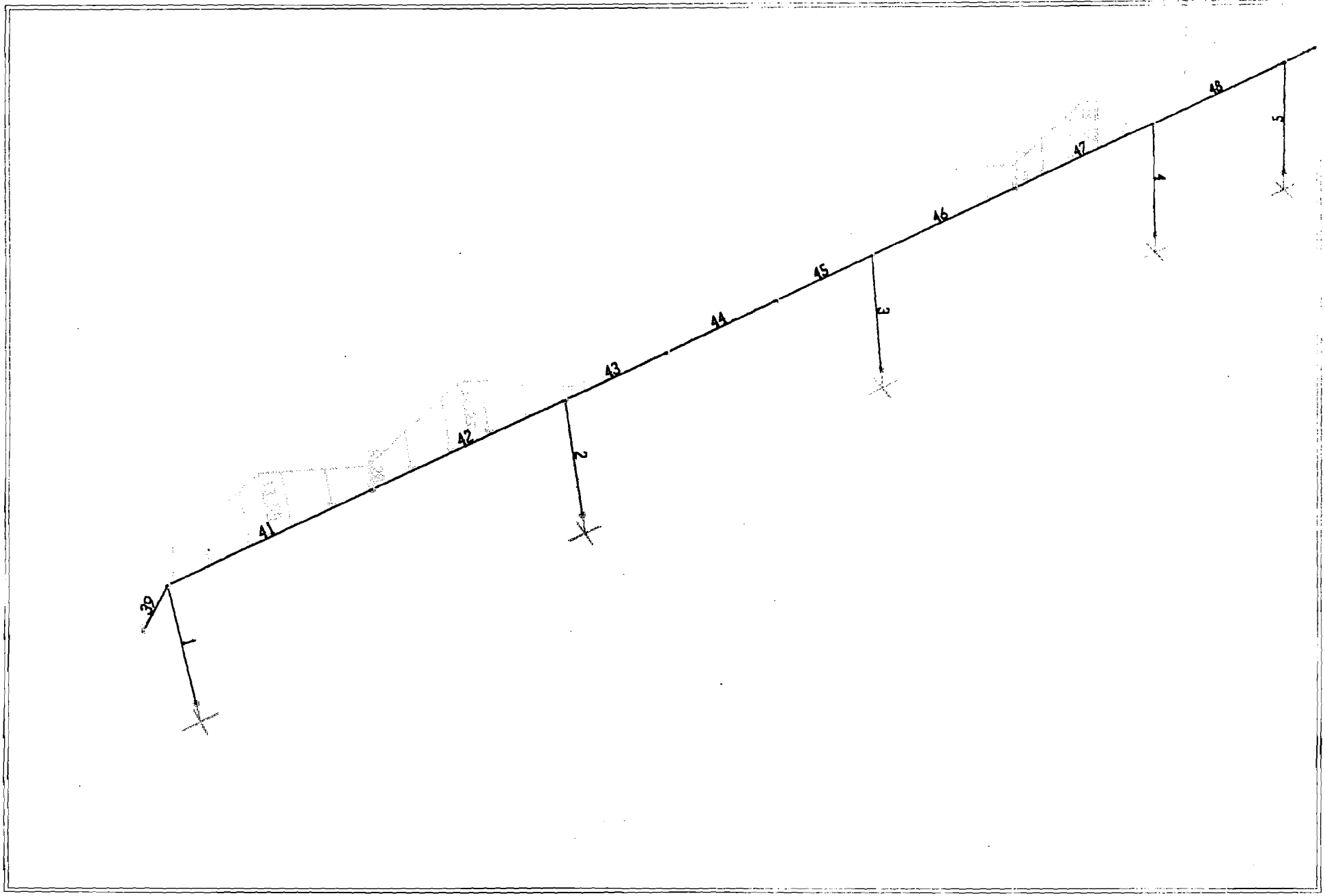
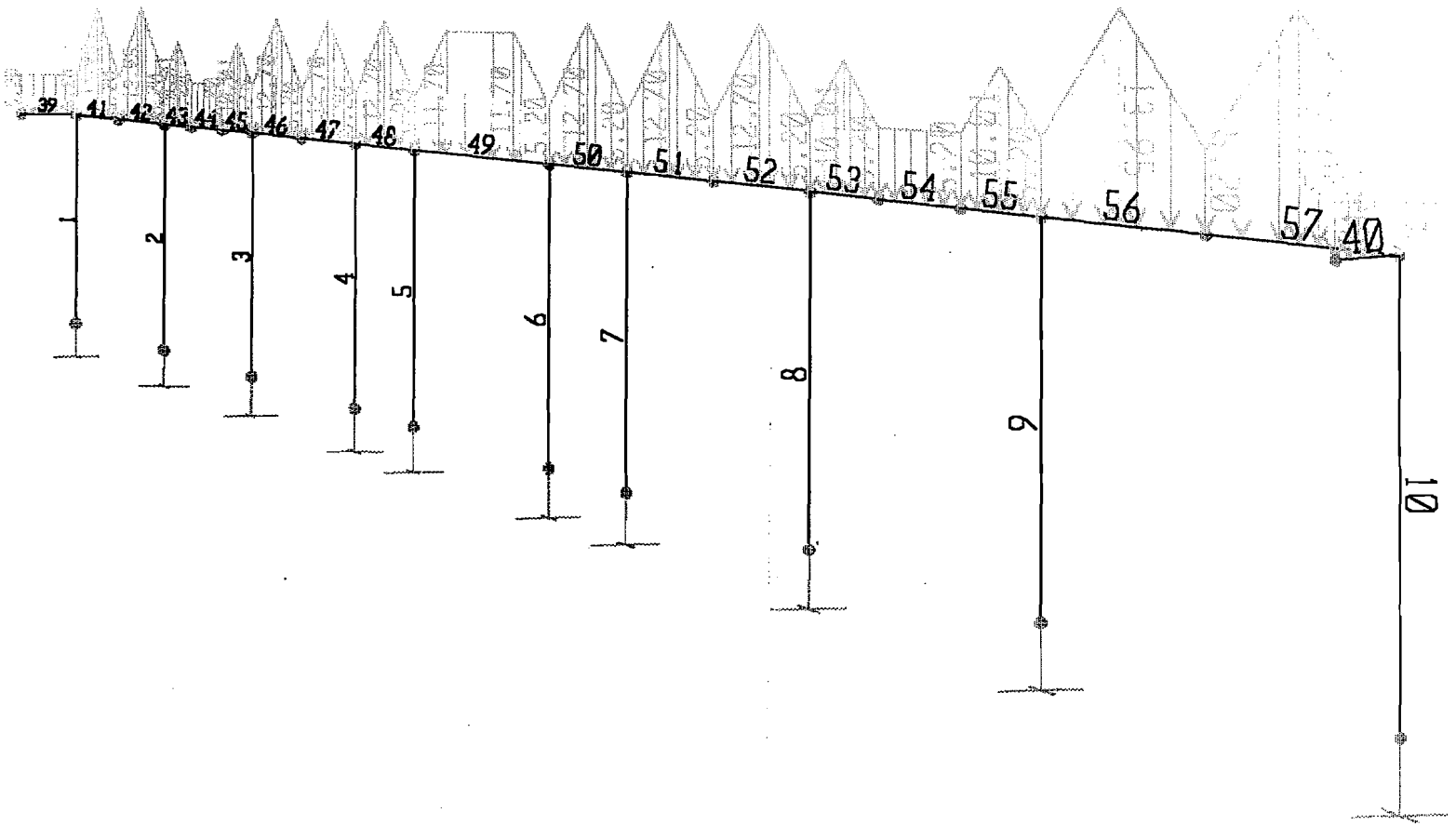
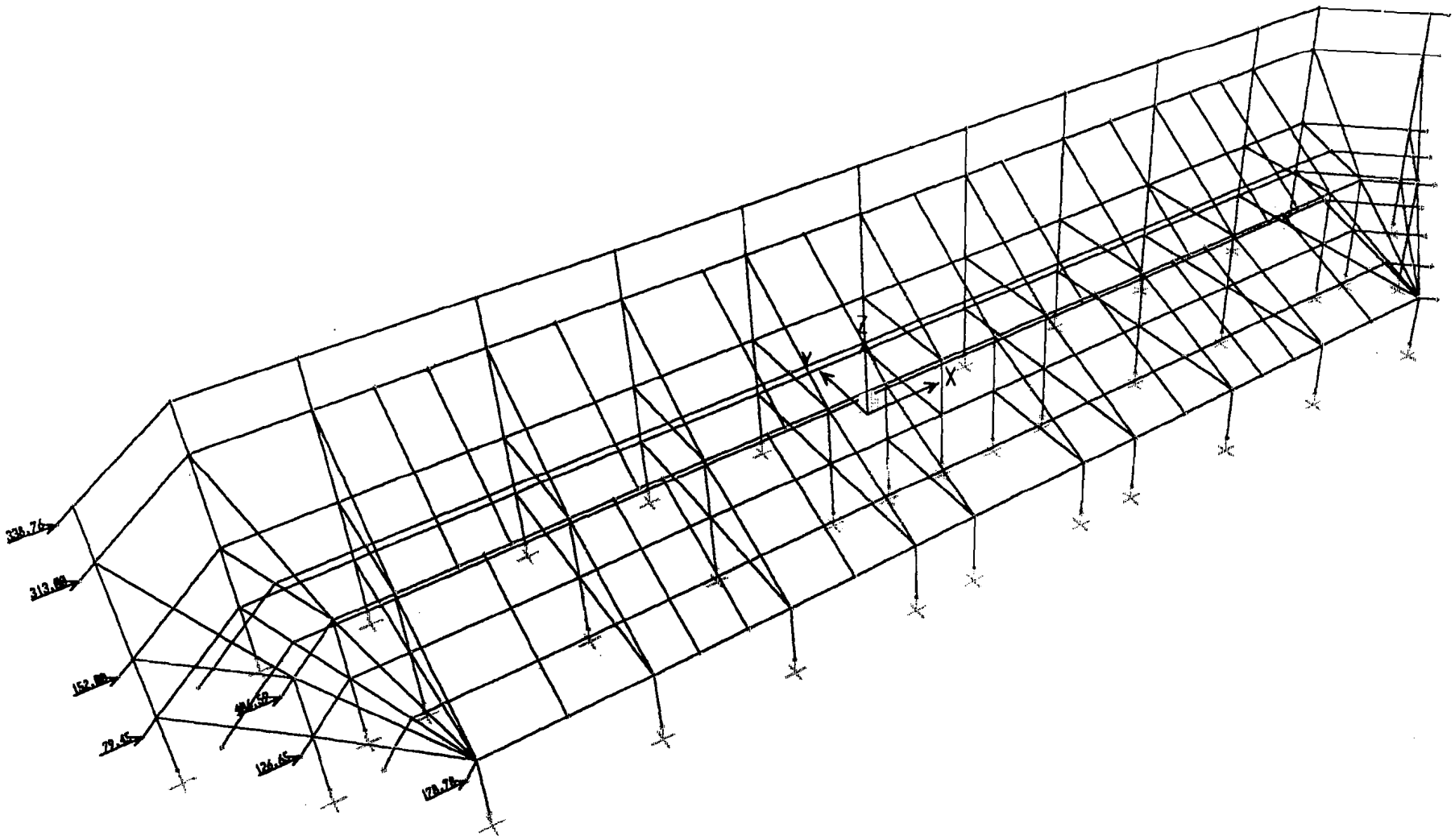
3
4
5



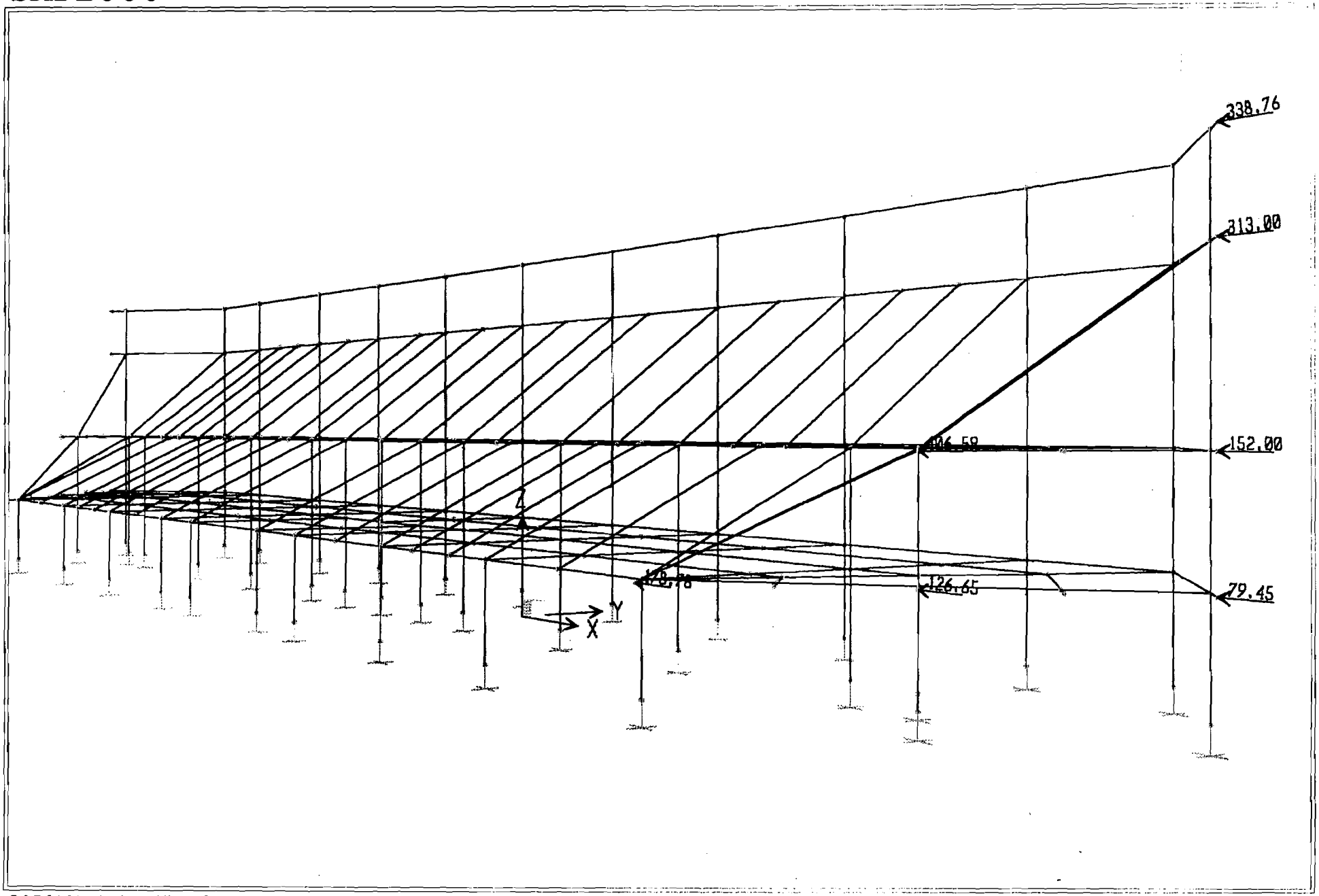
SAP2000 v7.42 - File:PORTAL X3 (A) - Frame Span Loads (HIDUP) - KN-m Units



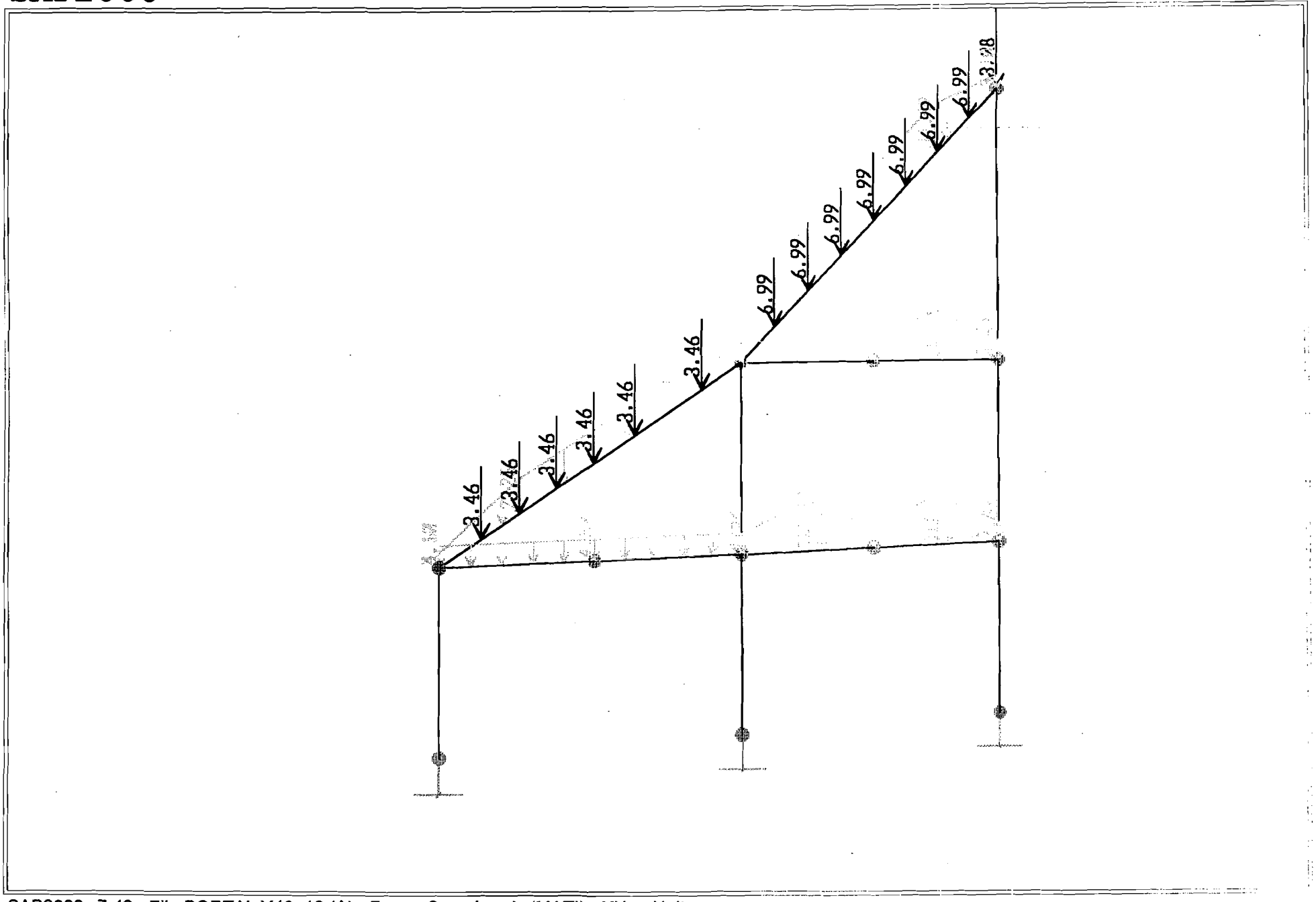
SAP2000 v7.42 - File:PORTAL X3 (A) - Frame Span Loads (HIDUP) - KN-m Units



SAP2000 v7.42 - File:PORTAL X.Beban Gempa (A) - Joint Loads (XQKIRI) - KN-m Units



SAP2000 v7.42 - File:PORTAL X.Beban Gempa (A) - Joint Loads (XQKANAN) - KN-m Units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3.46
3.46
3.46
3.46
3.46
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6.99
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6.99
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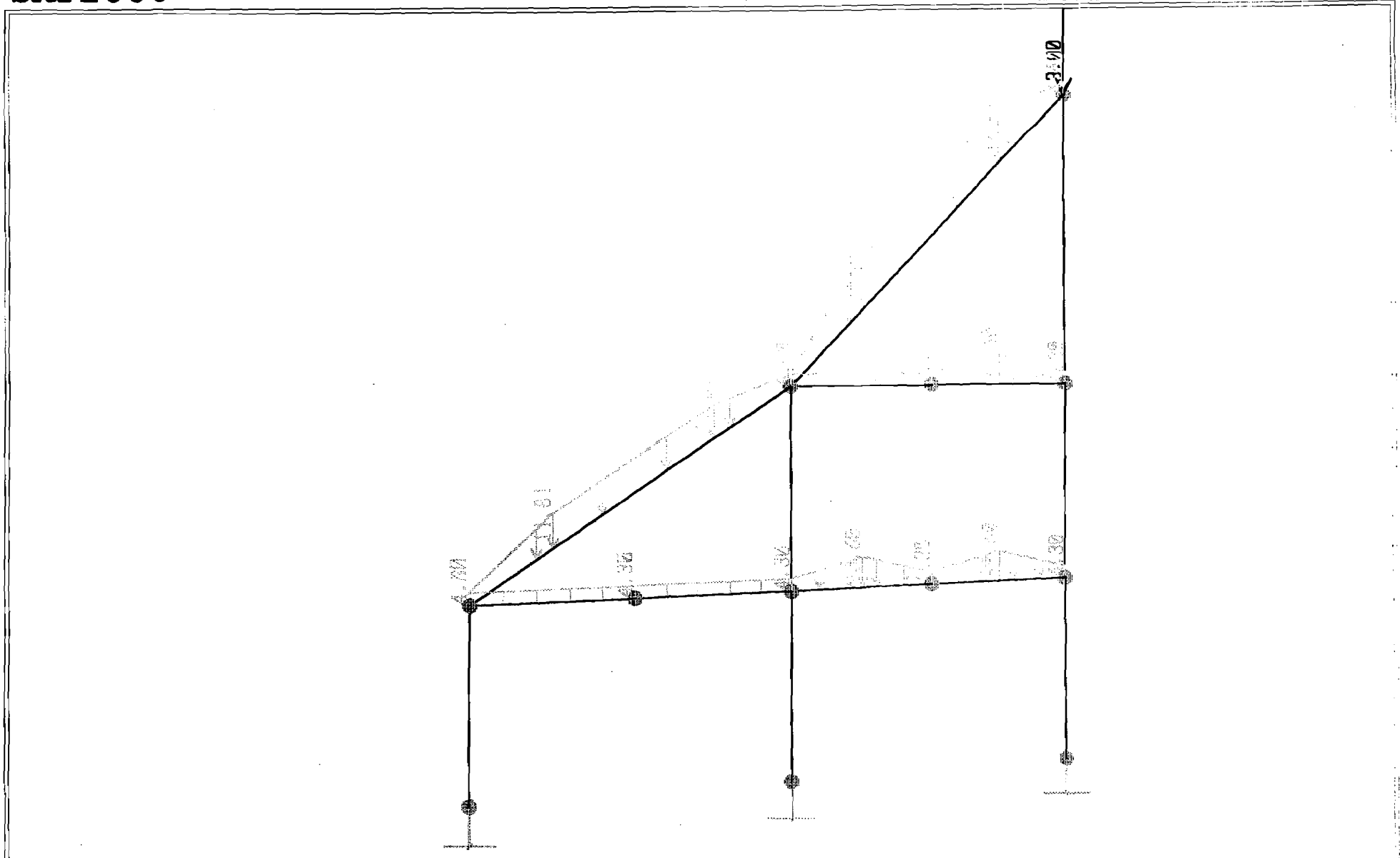
6.99
6.99
3.28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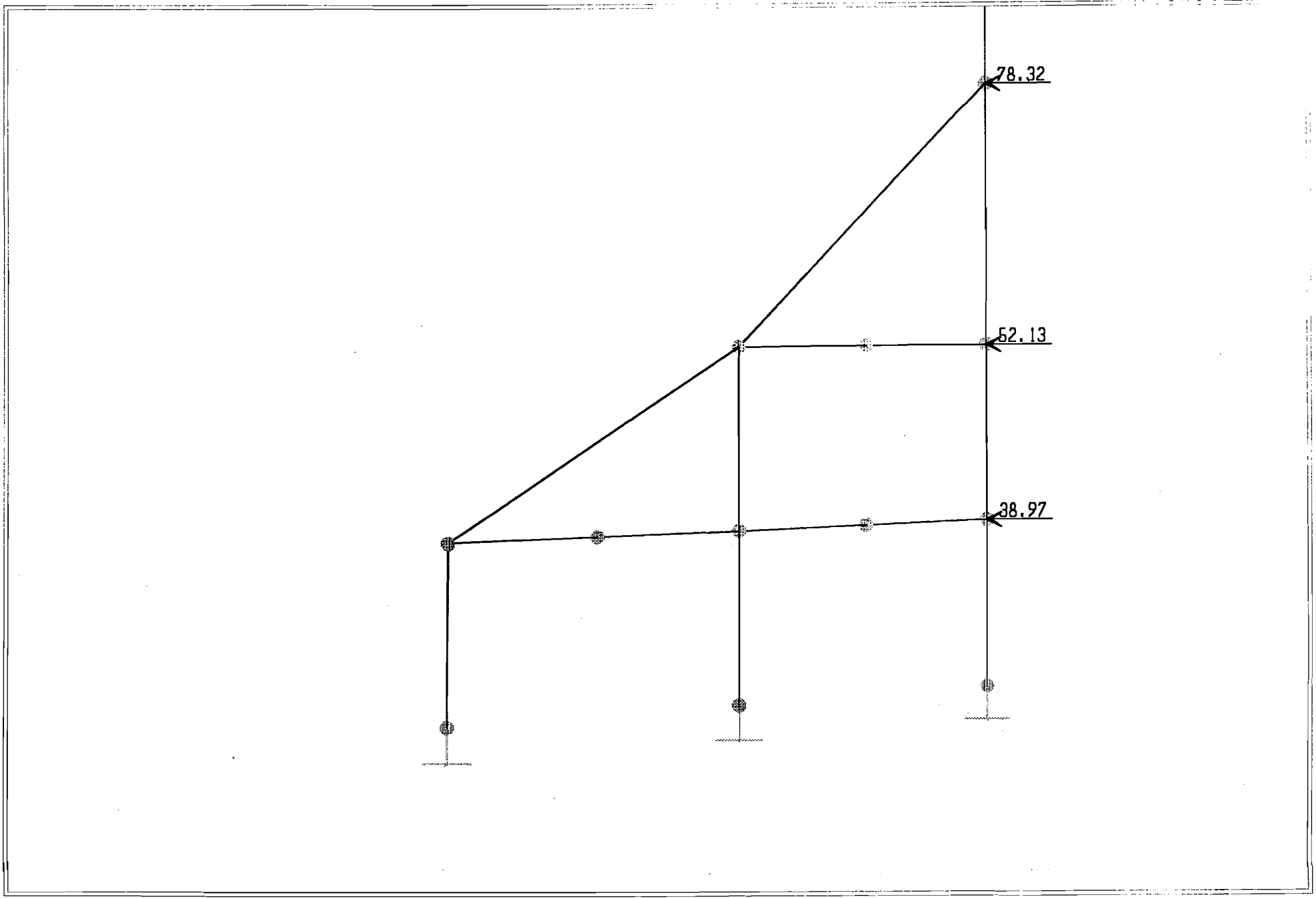
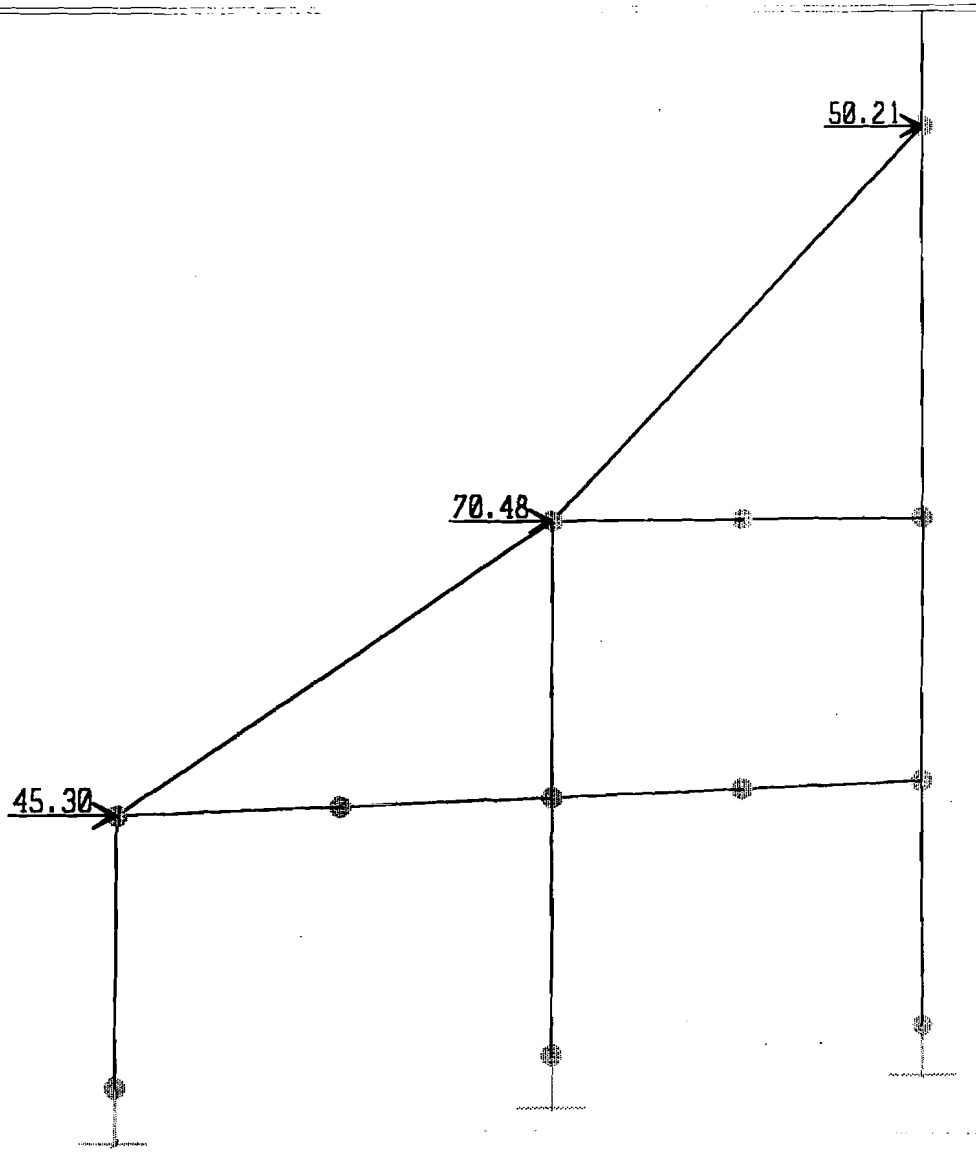


SAP2000 v7.42 - File:PORTAL Y4&y18 (A) - Joint Loads (YQKANAN) - KN-m Units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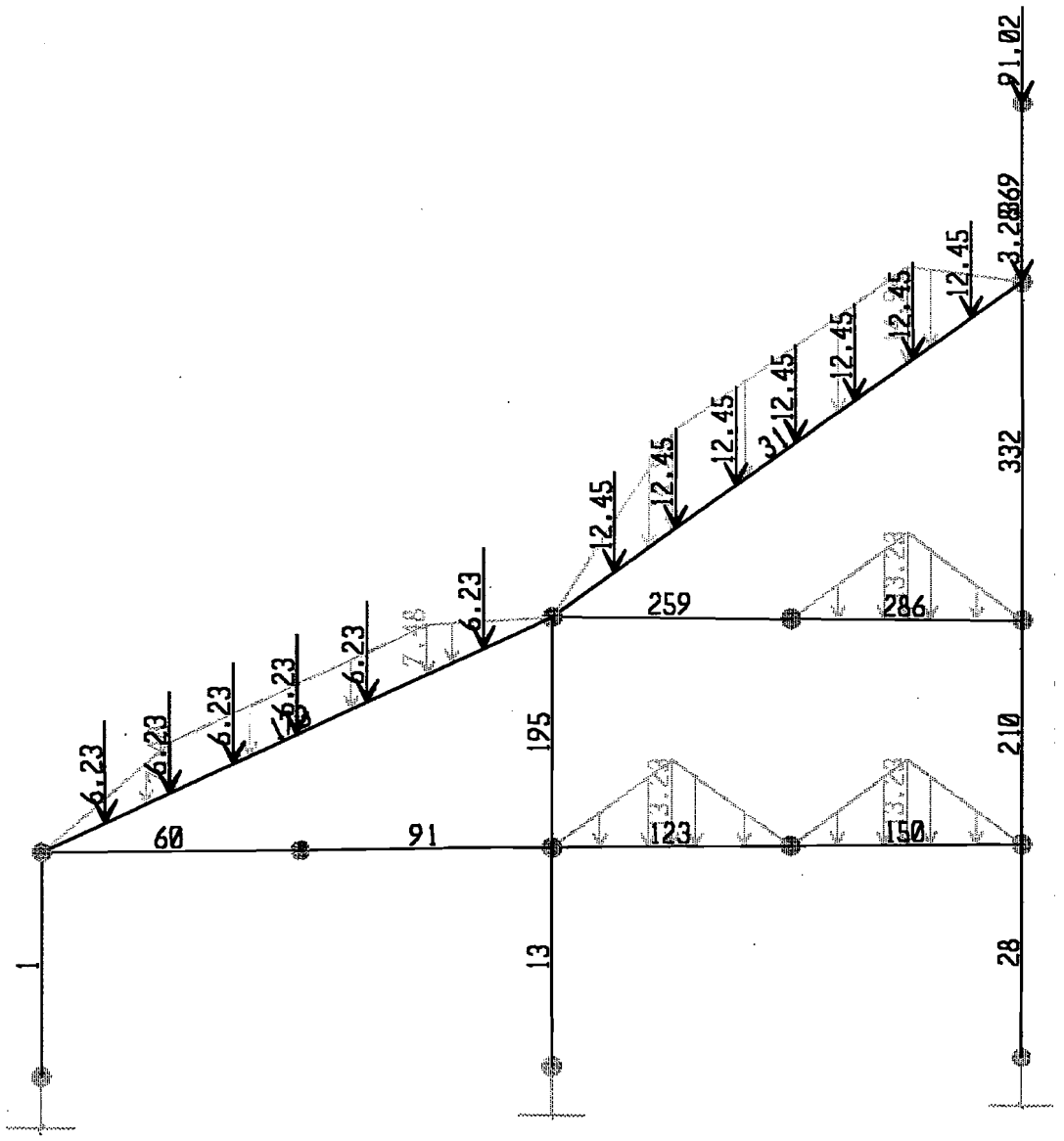
21.02
12.45
12.45
12.45
12.45
12.45
12.45
6.23
6.23
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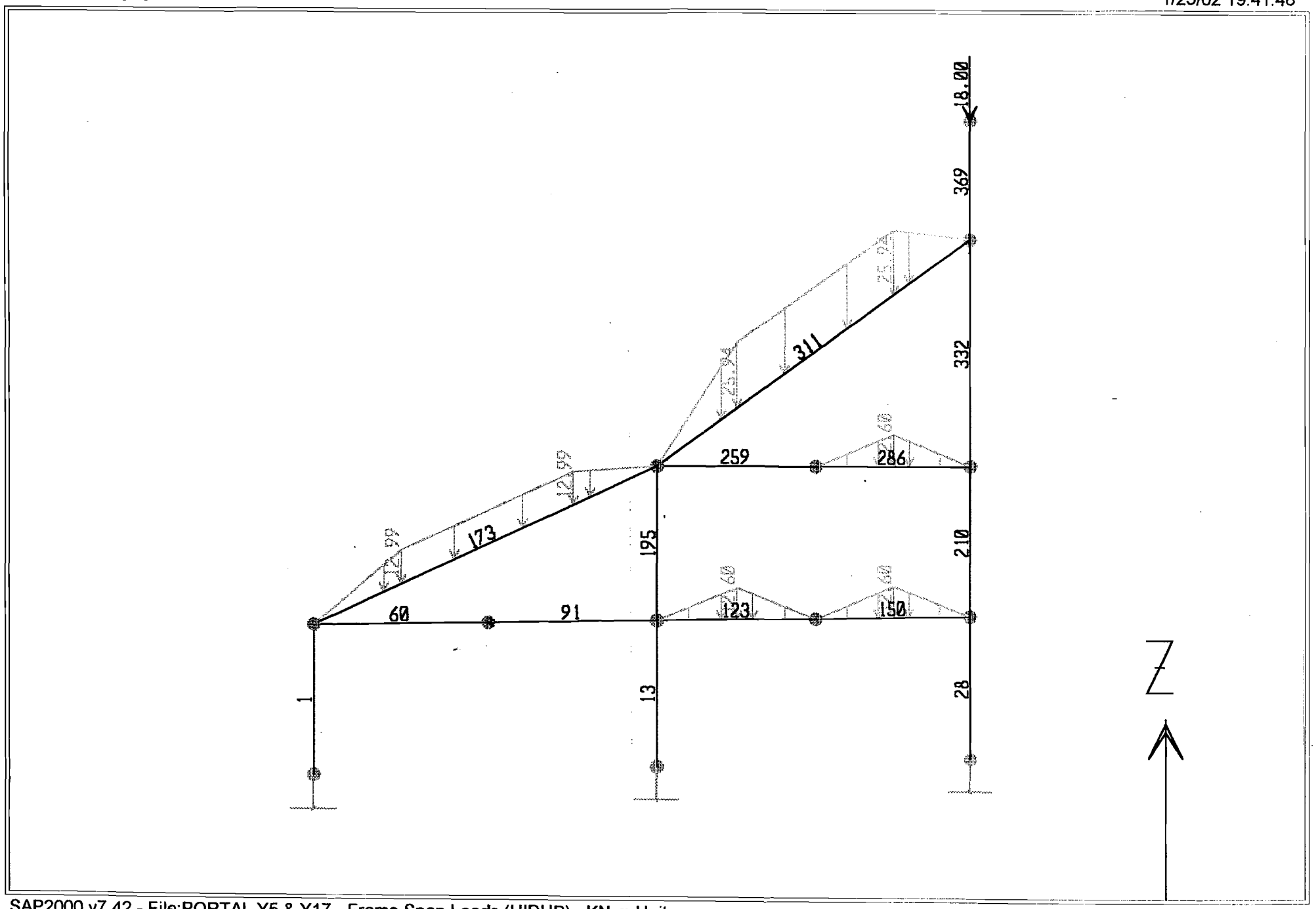
6.23
332
259
286
195
210
60
91
123
150
1
13
28
Z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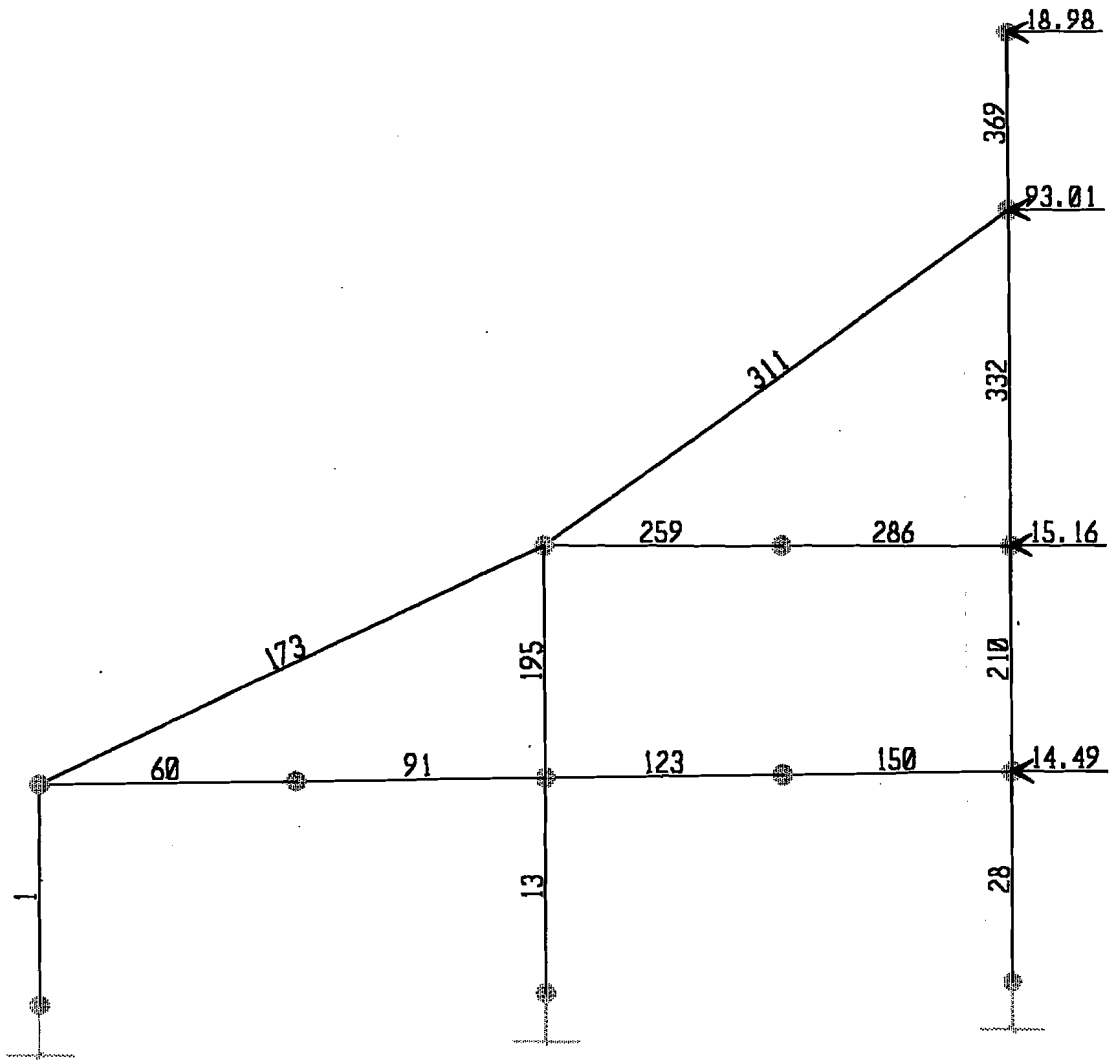
369
332
210
28
311
259
286
195
173
60
91
123
150
13
1
Z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93.01
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195
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1
13
28
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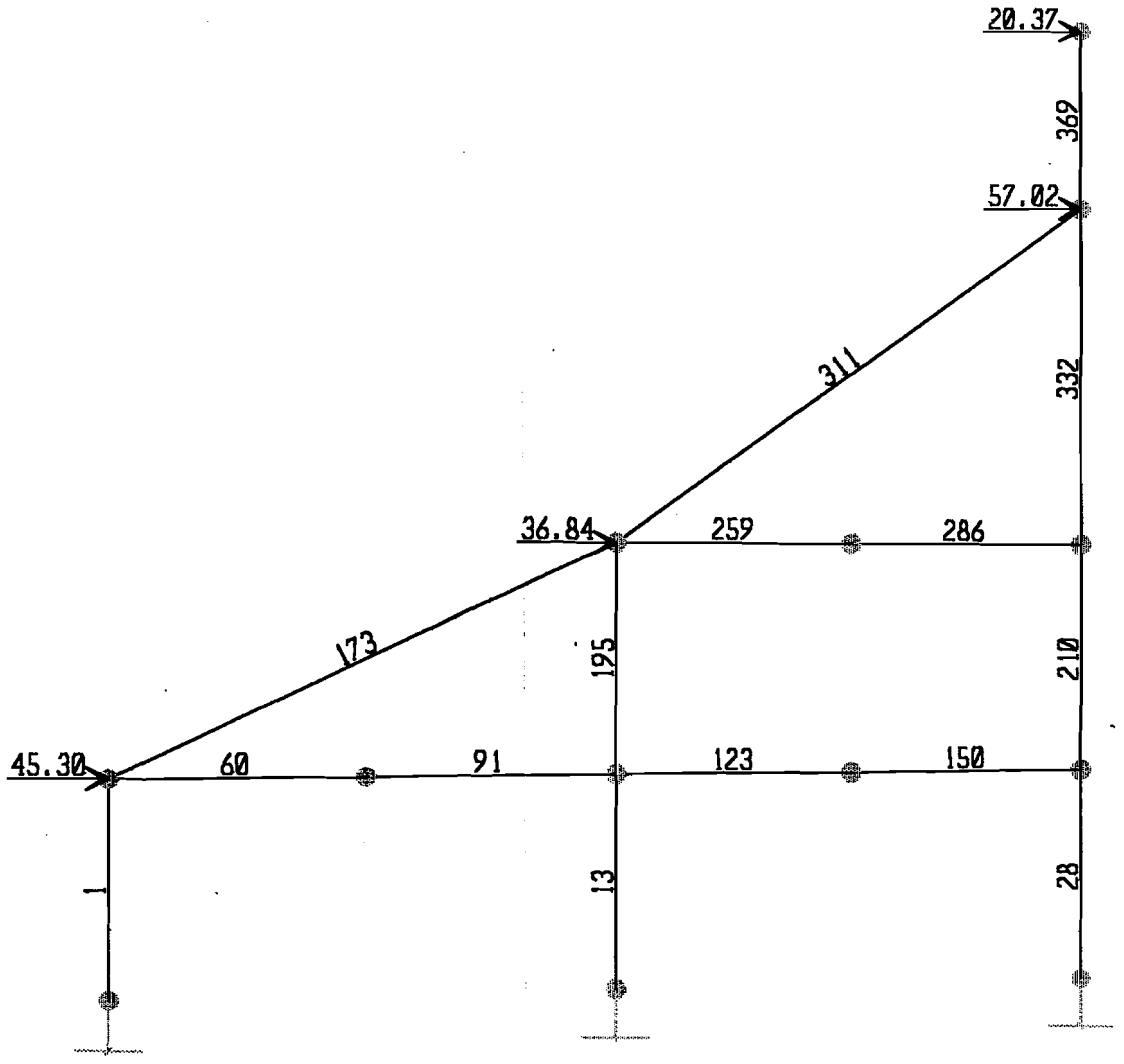
20.37
369
57.02
311
332
36.84
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286
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210
45.30
60
91
123
150
1
13
28
Z

1
6.97
6.97
6.97
6.97
6.97
6.97
61
92
14
196
8.37
8.37
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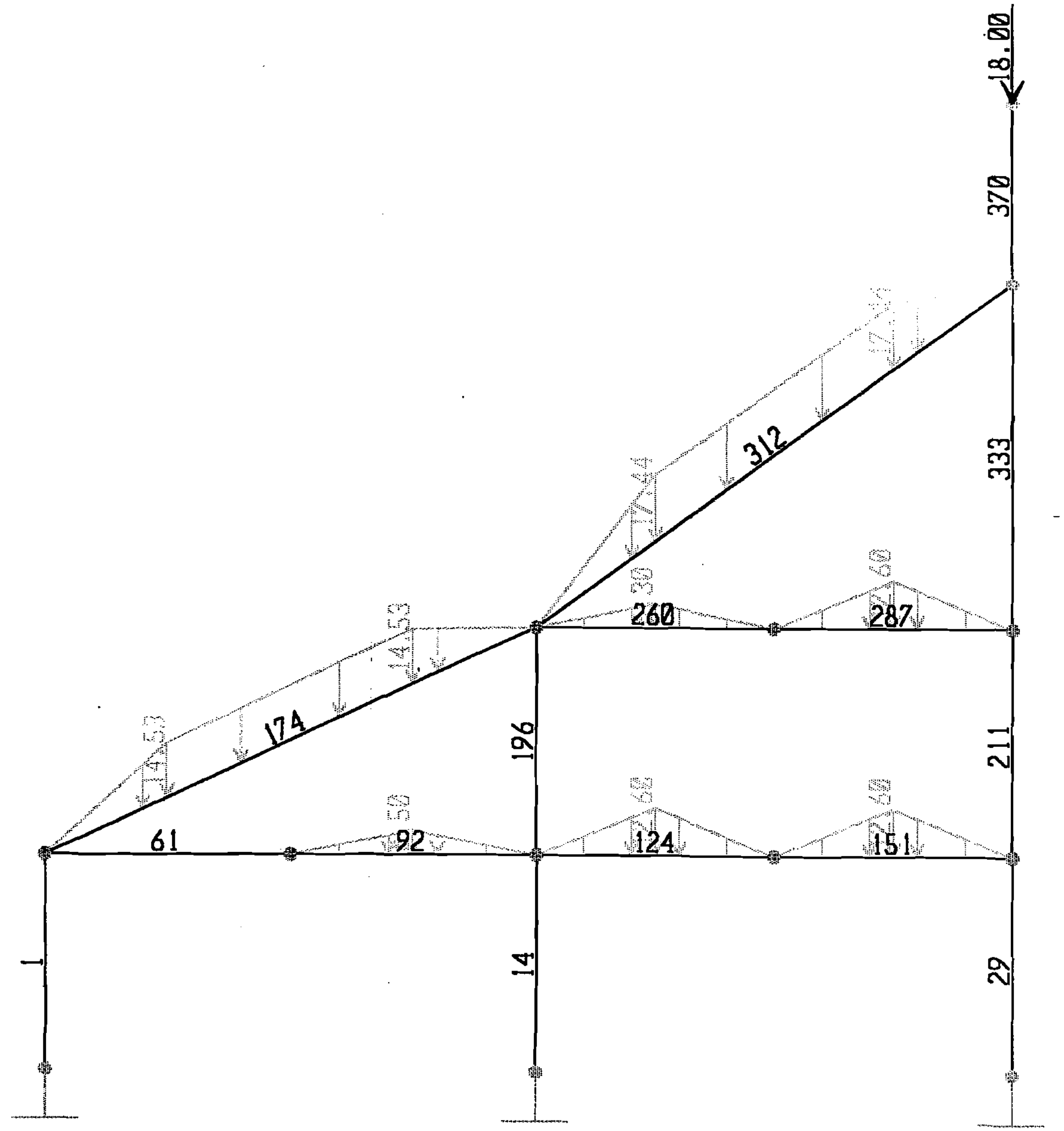
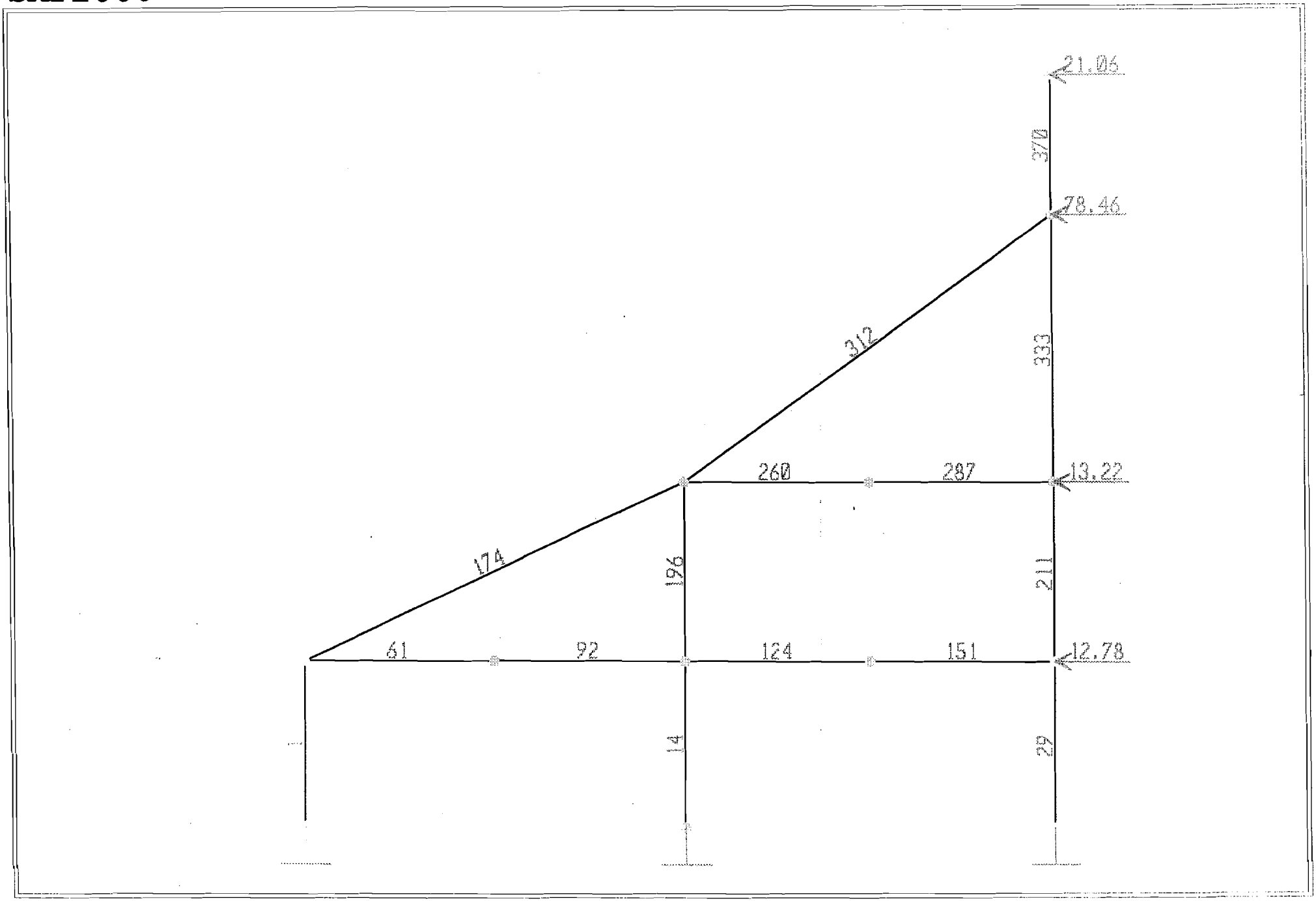
103.88



SAP2000 v7.42 - File:PORTAL Y6 (A) - Frame Span Loads (HIDUP) - KN-m Units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312
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260
287
13.22
174
196
211
61
92
124
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12.78
14
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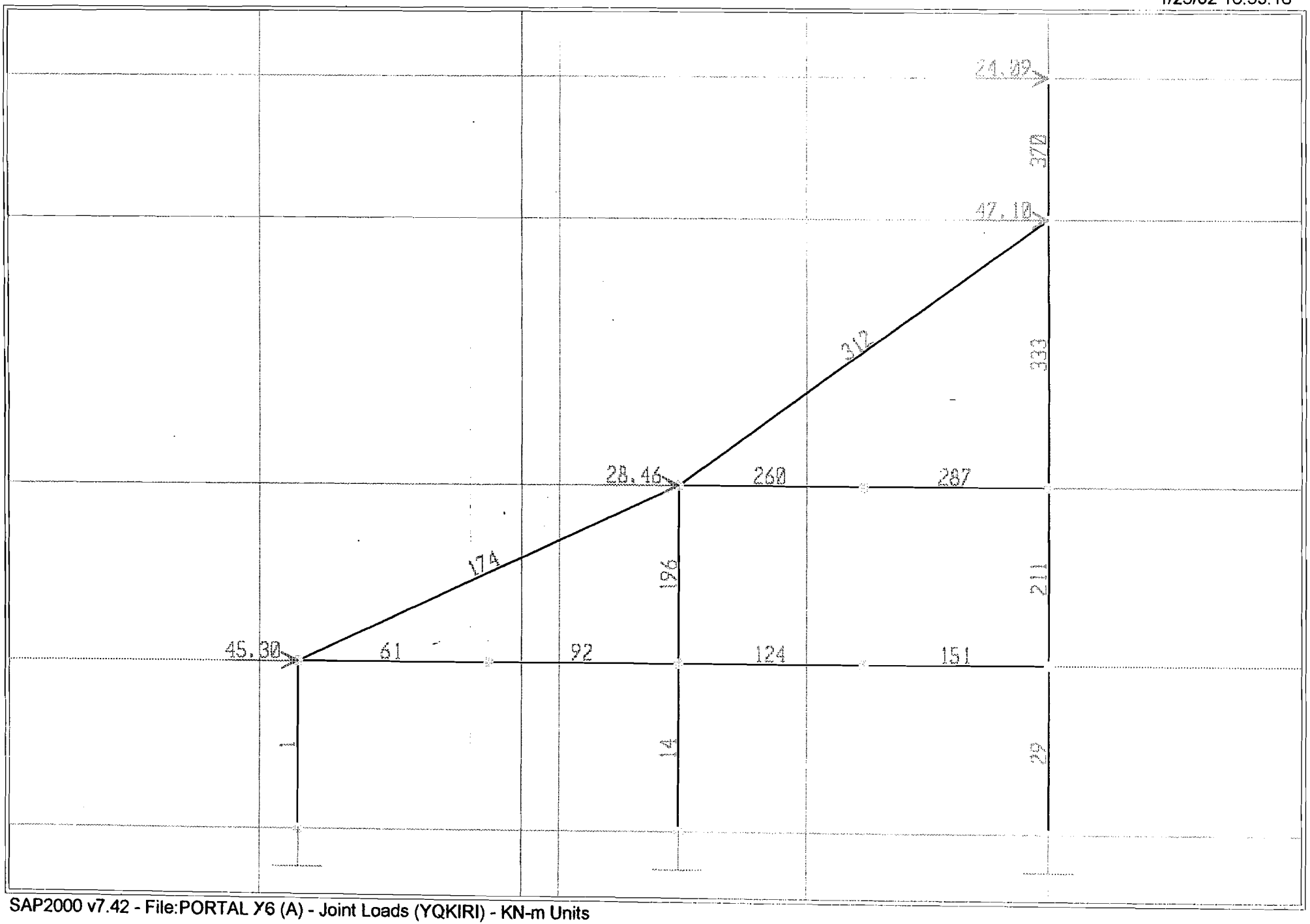
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45.30
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151
14
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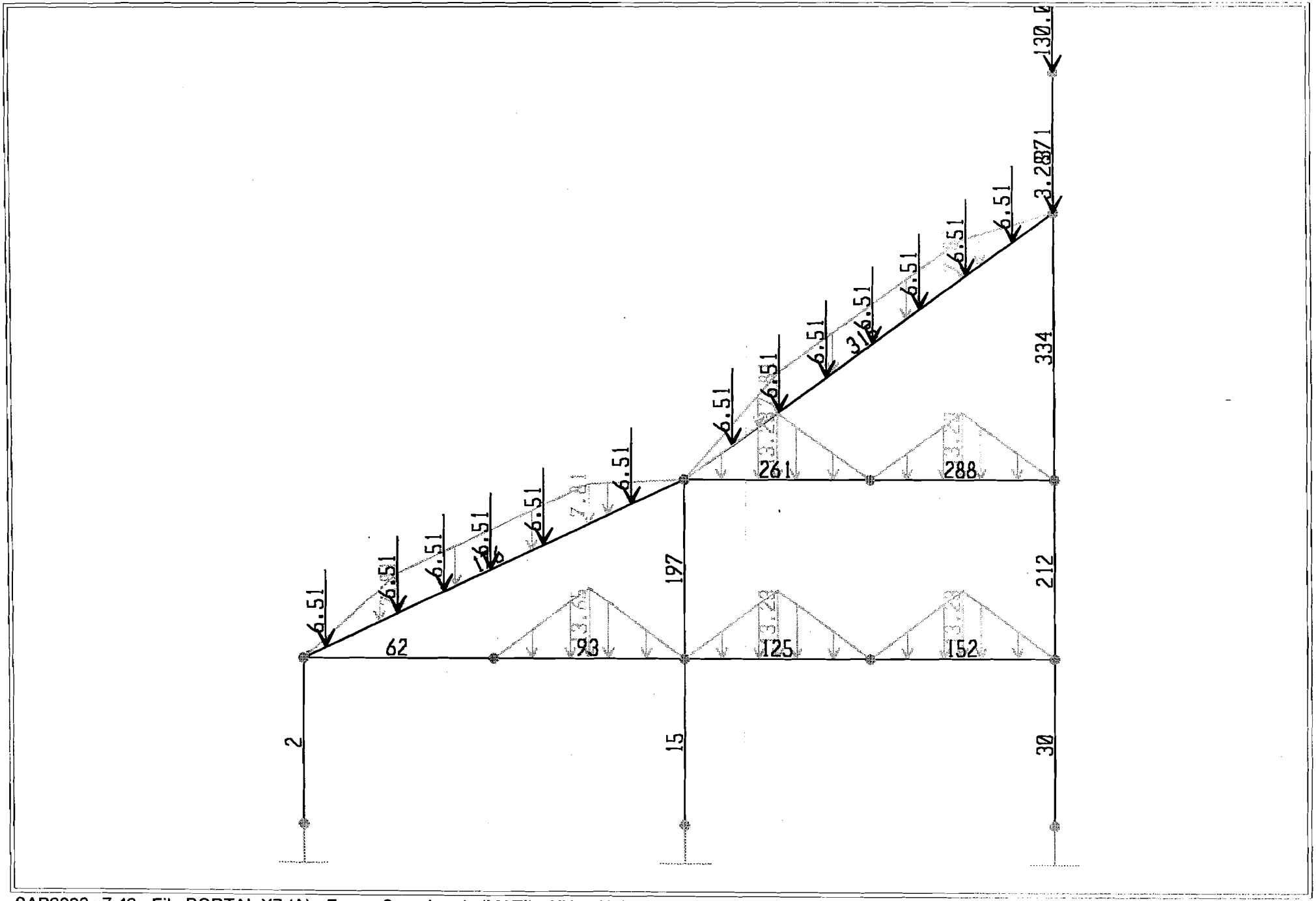

SAP2000 v7.42 - File:PORTAL Y7 (A) - Frame Span Loads (MATI) - KN-m Units

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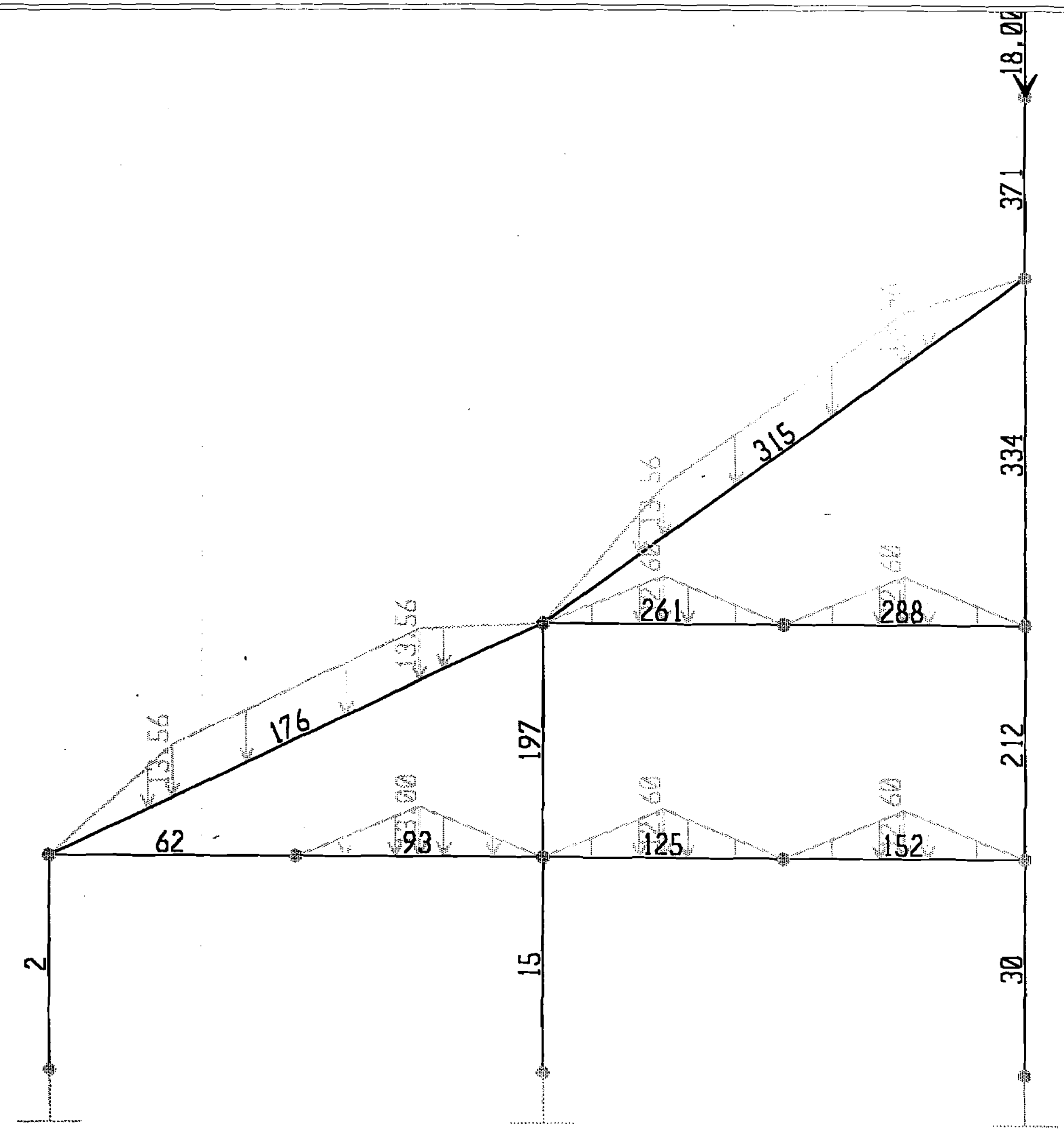
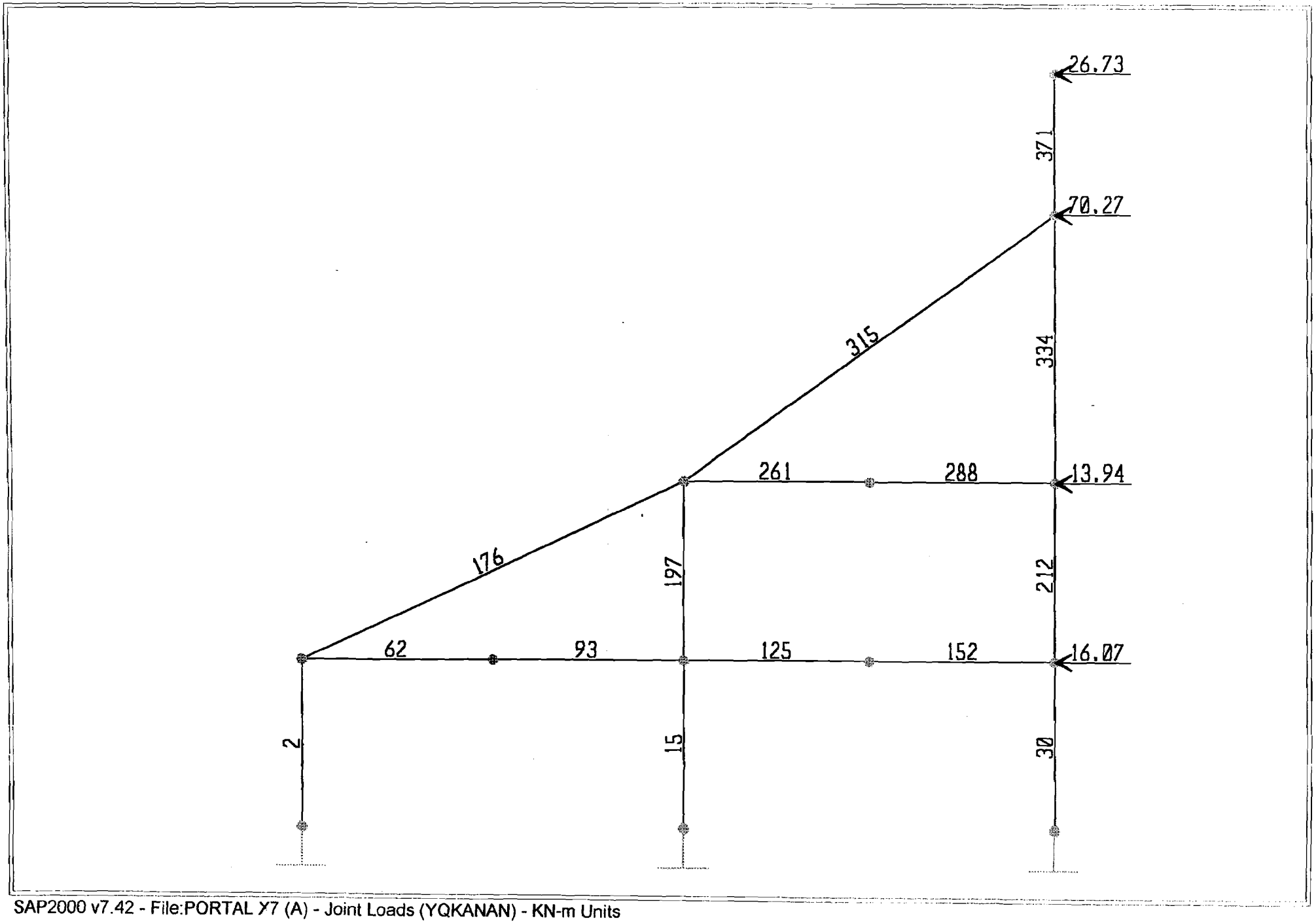
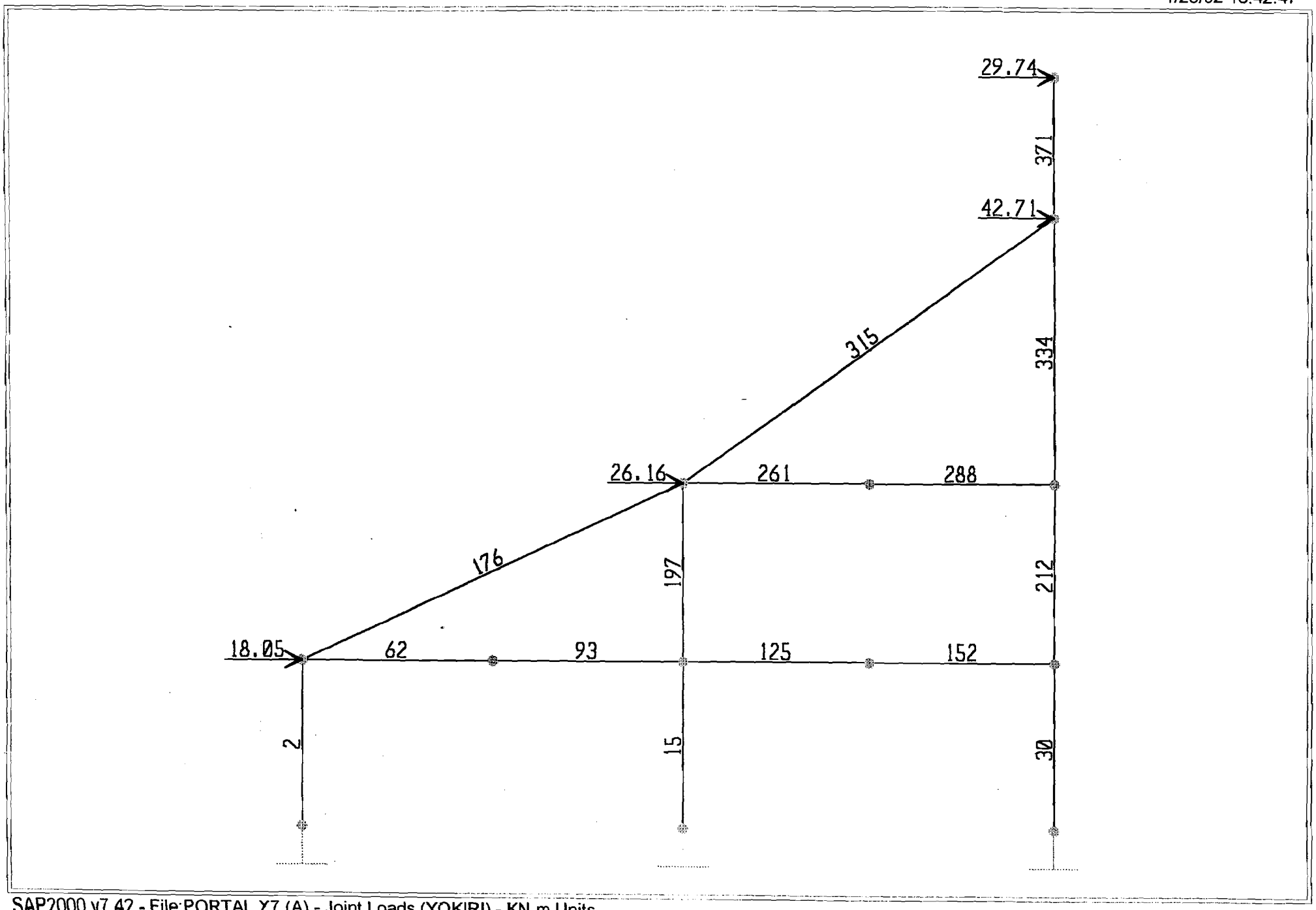


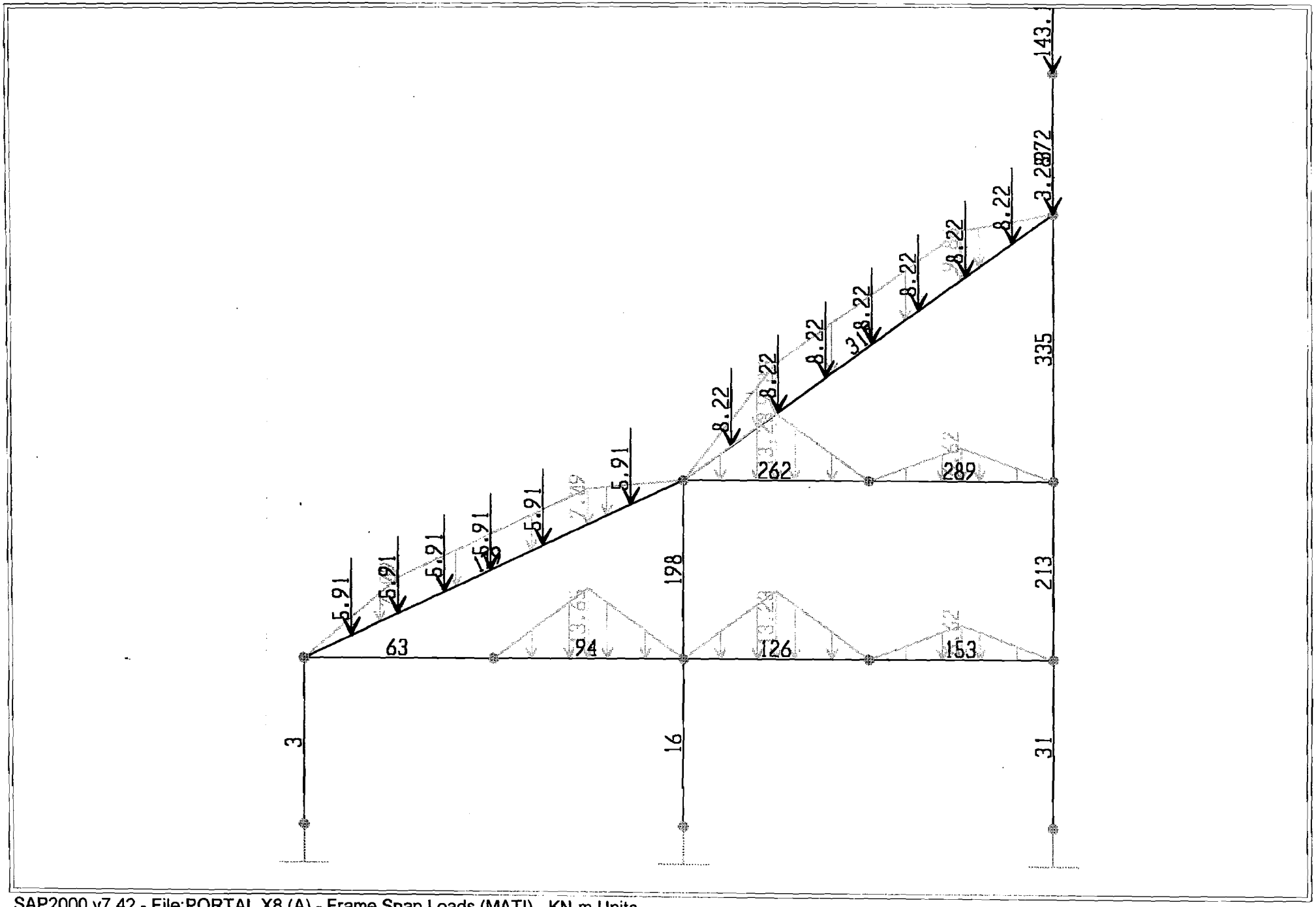
SAP2000 v7.42 - File:PORTAL Y7 (A) - Frame Span Loads (HIDUP) - KN-m Units



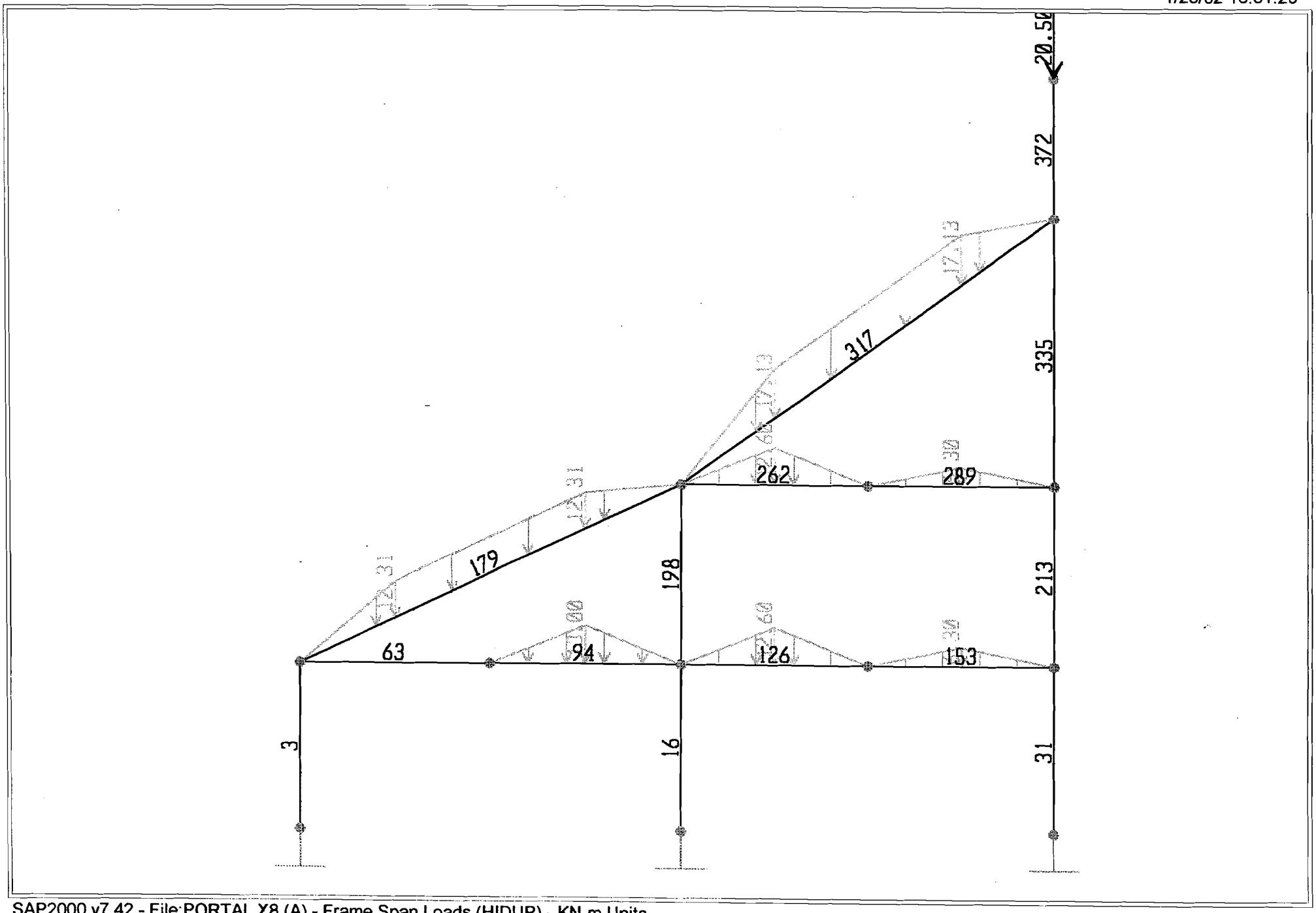
SAP2000 v7.42 - File:PORTAL X7 (A) - Joint Loads (YQKANAN) - KN-m Units



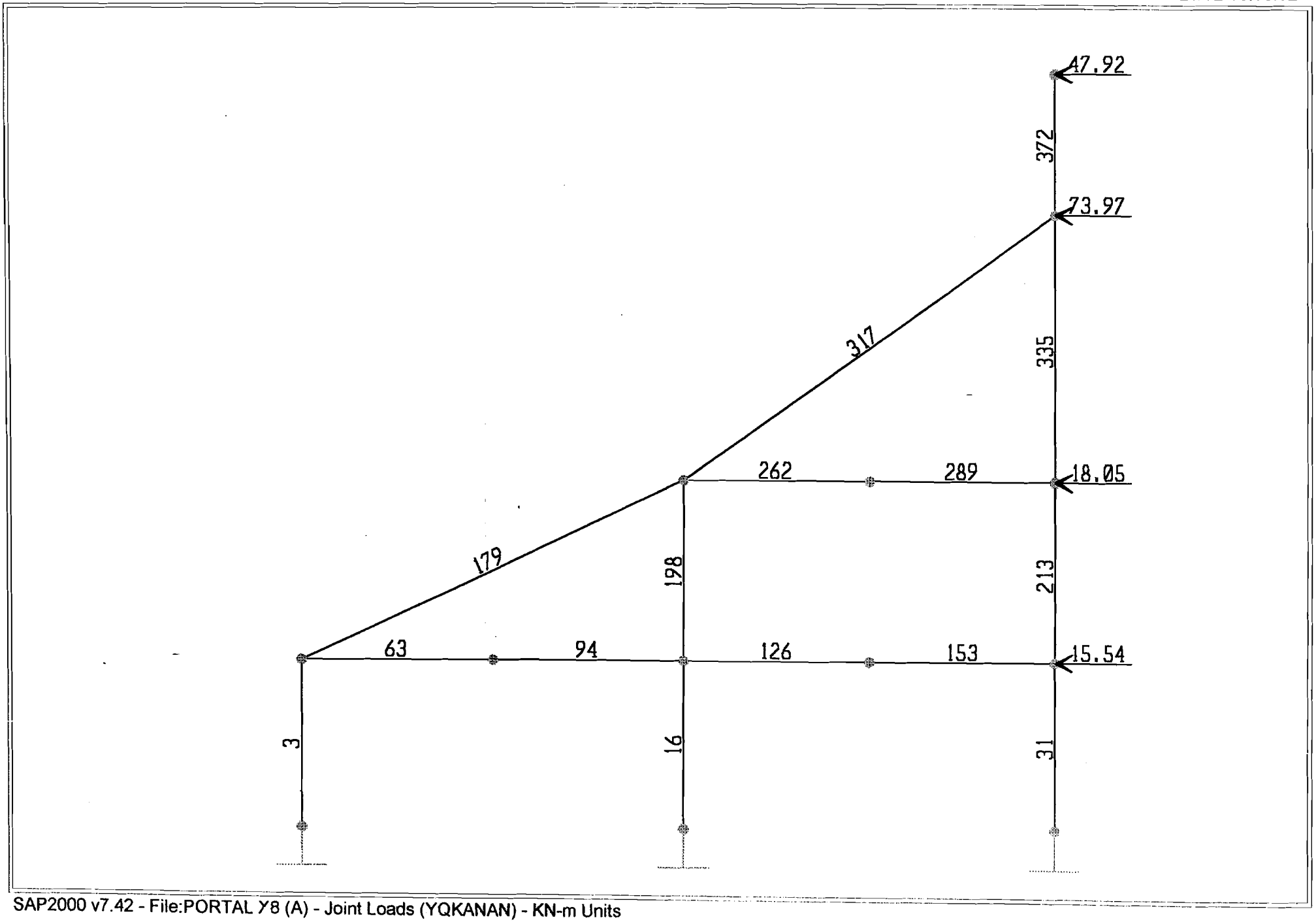
SAP2000 v7.42 - File:PORTAL Y7 (A) - Joint Loads (YQKIRI) - KN-m Units



SAP2000 v7.42 - File:PORTAL X8 (A) - Frame Span Loads (MATI) - KN-m Units



SAP2000 v7.42 - File:PORTAL Y8 (A) - Frame Span Loads (HIDUP) - KN-m Units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213
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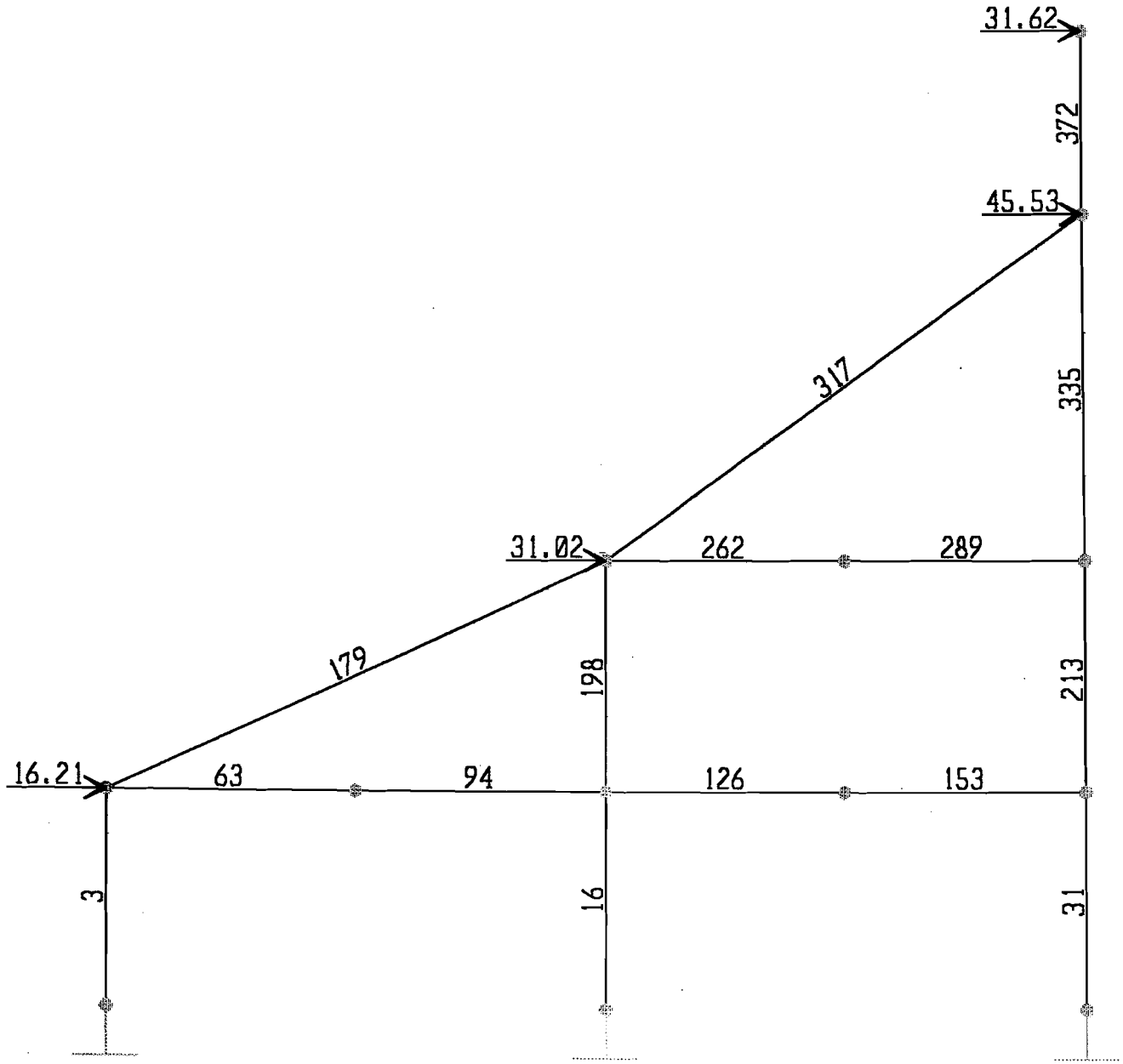
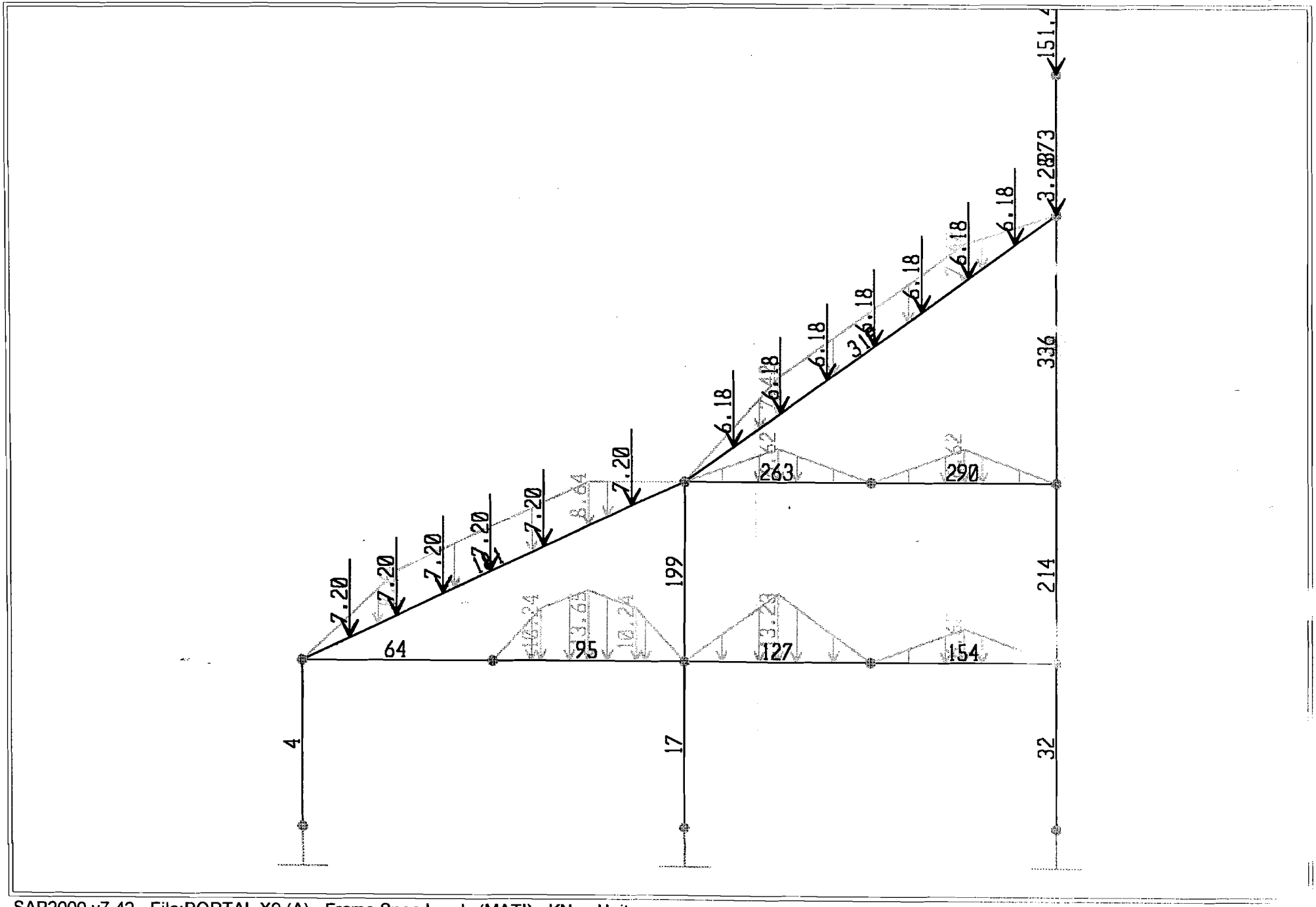
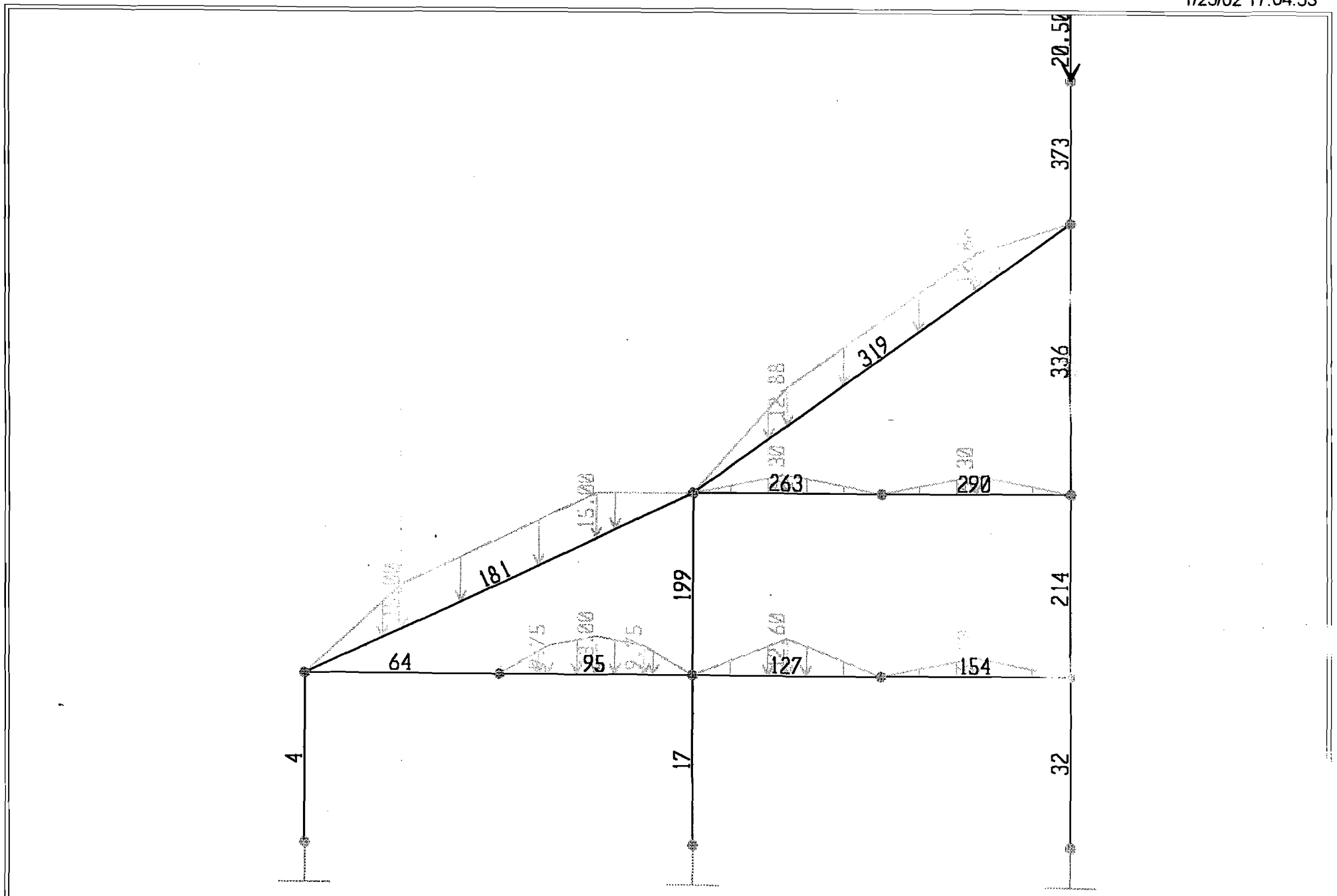
31



SAP2000 v7.42 - File:PORTAL Y8 (A) - Joint Loads (YQKIRI) - KN-m Units



SAP2000 v7.42 - File:PORTAL Y9 (A) - Frame Span Loads (MATI) - KN-m Units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214
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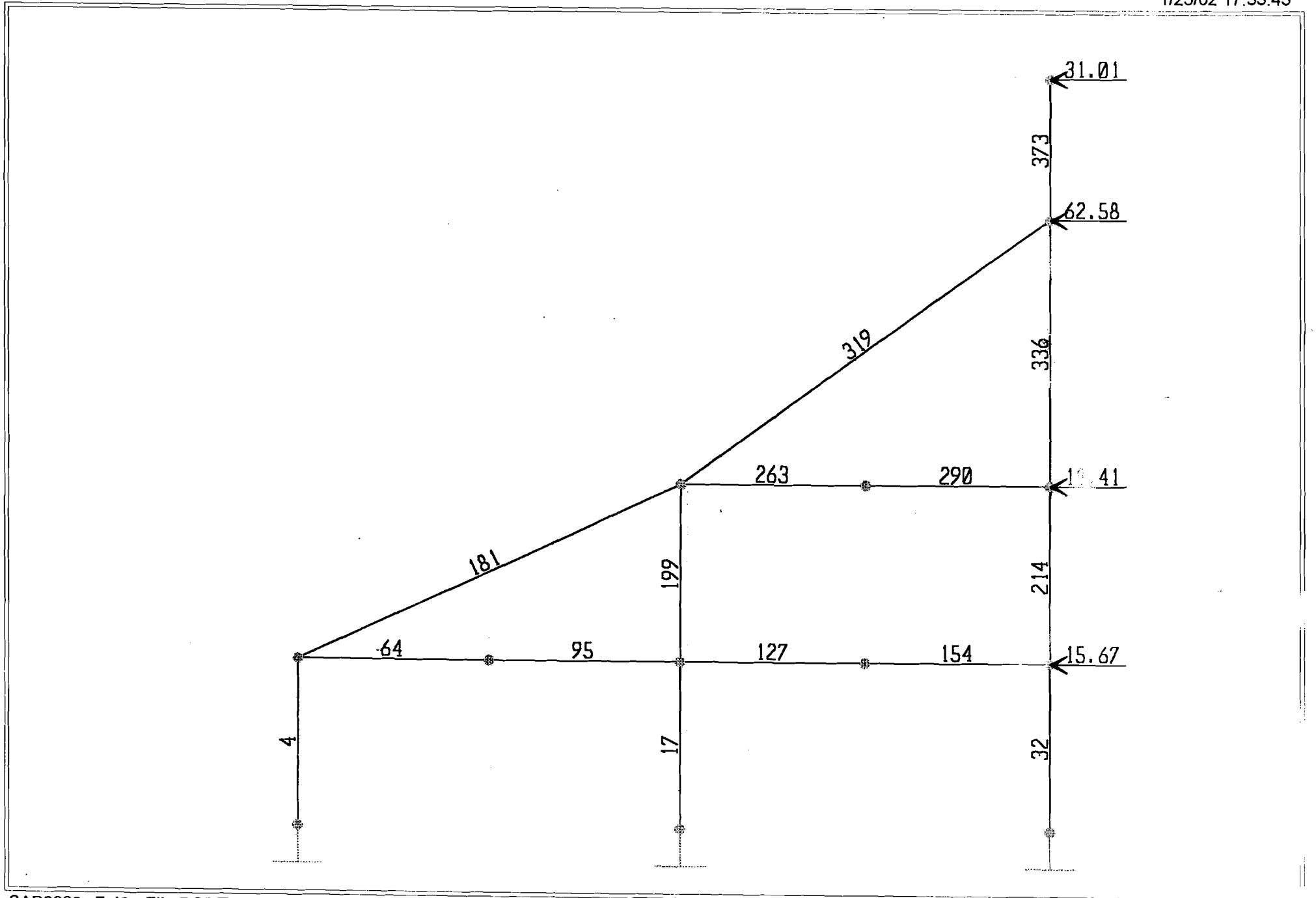
319
181
263
290
199
64
95
127
154
4
17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319
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263
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41
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199
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95
127
154
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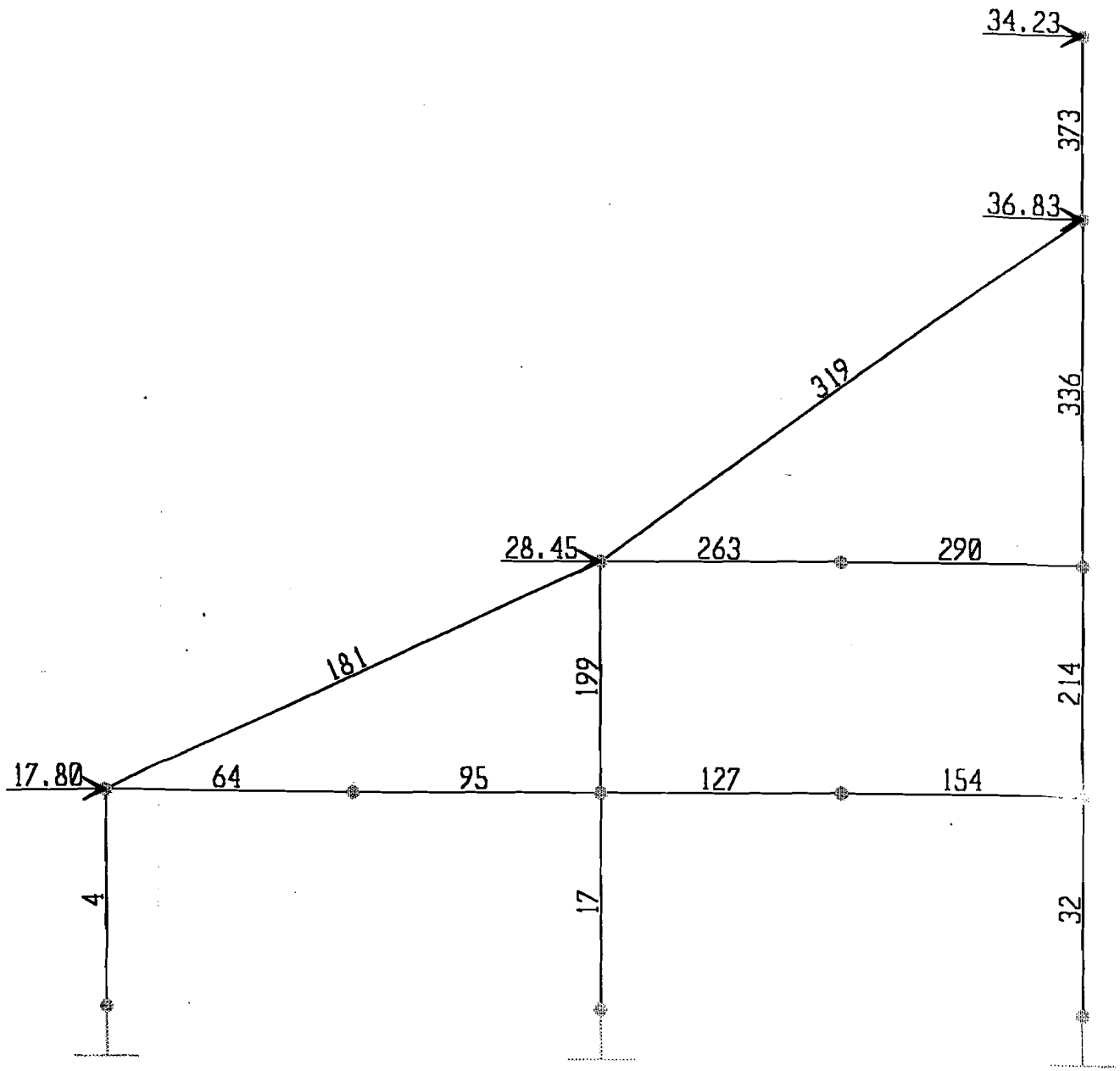
4
17
32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336
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290
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199
214
17.80
64
95
127
154
4
17
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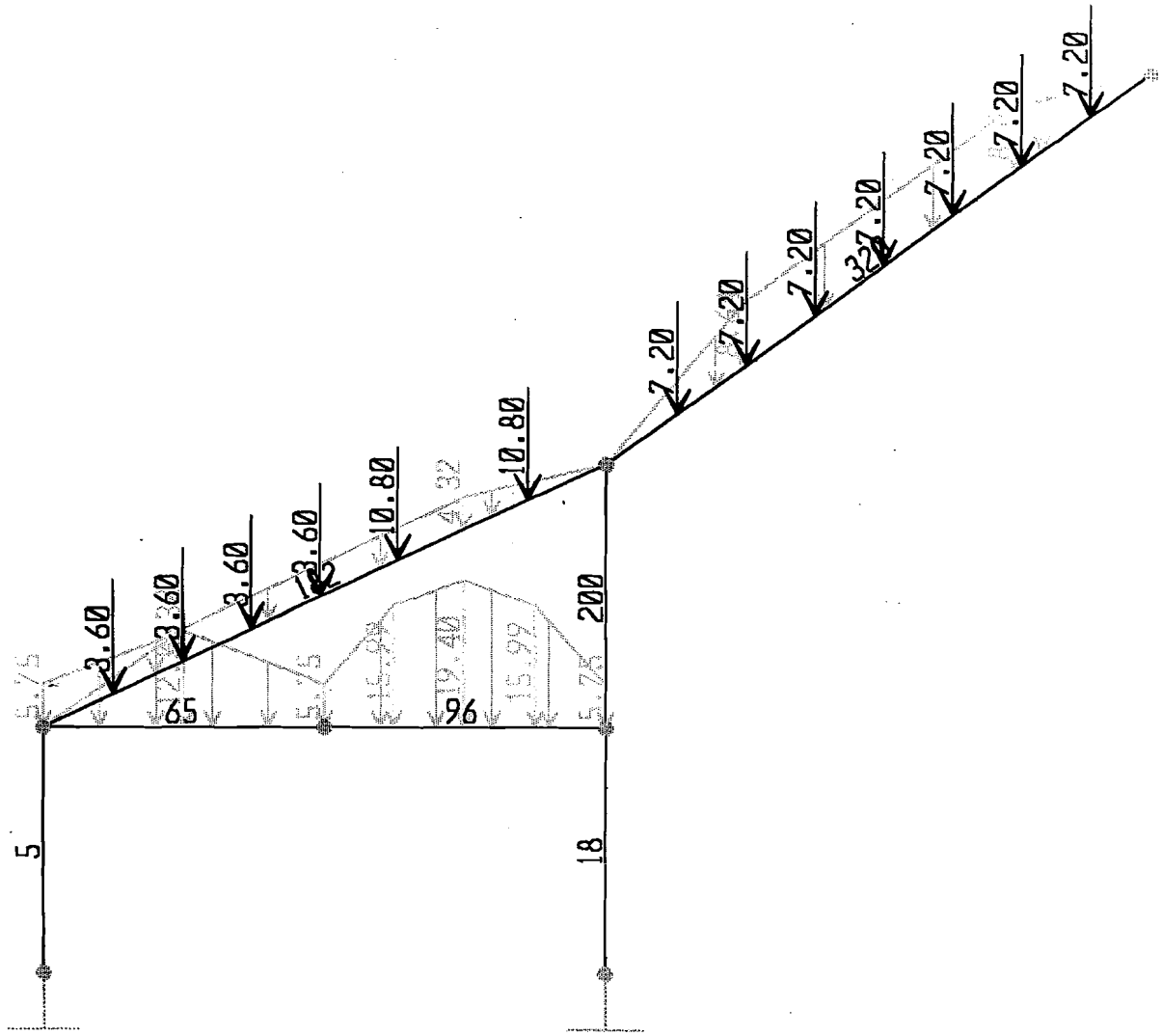
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2.20
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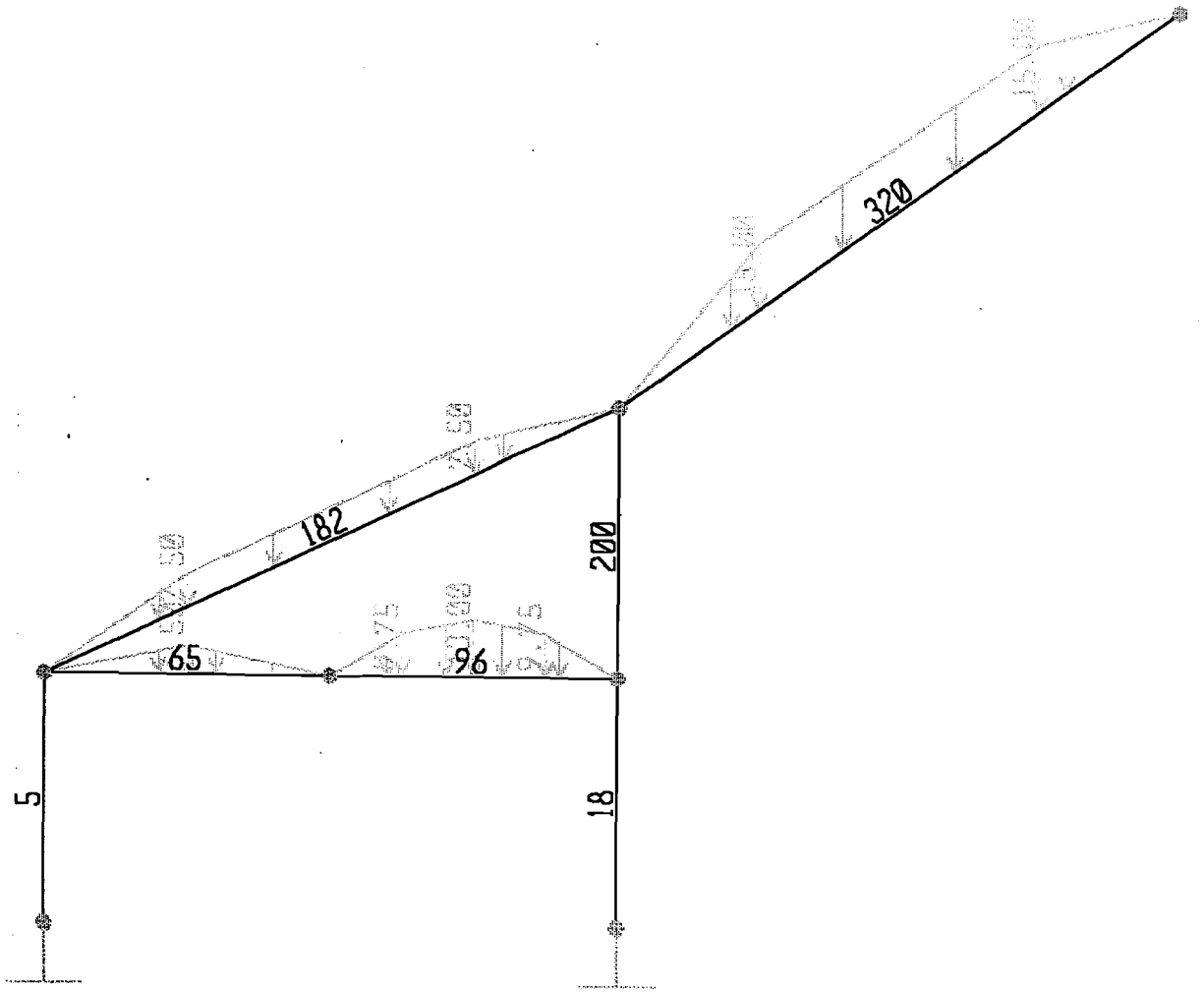
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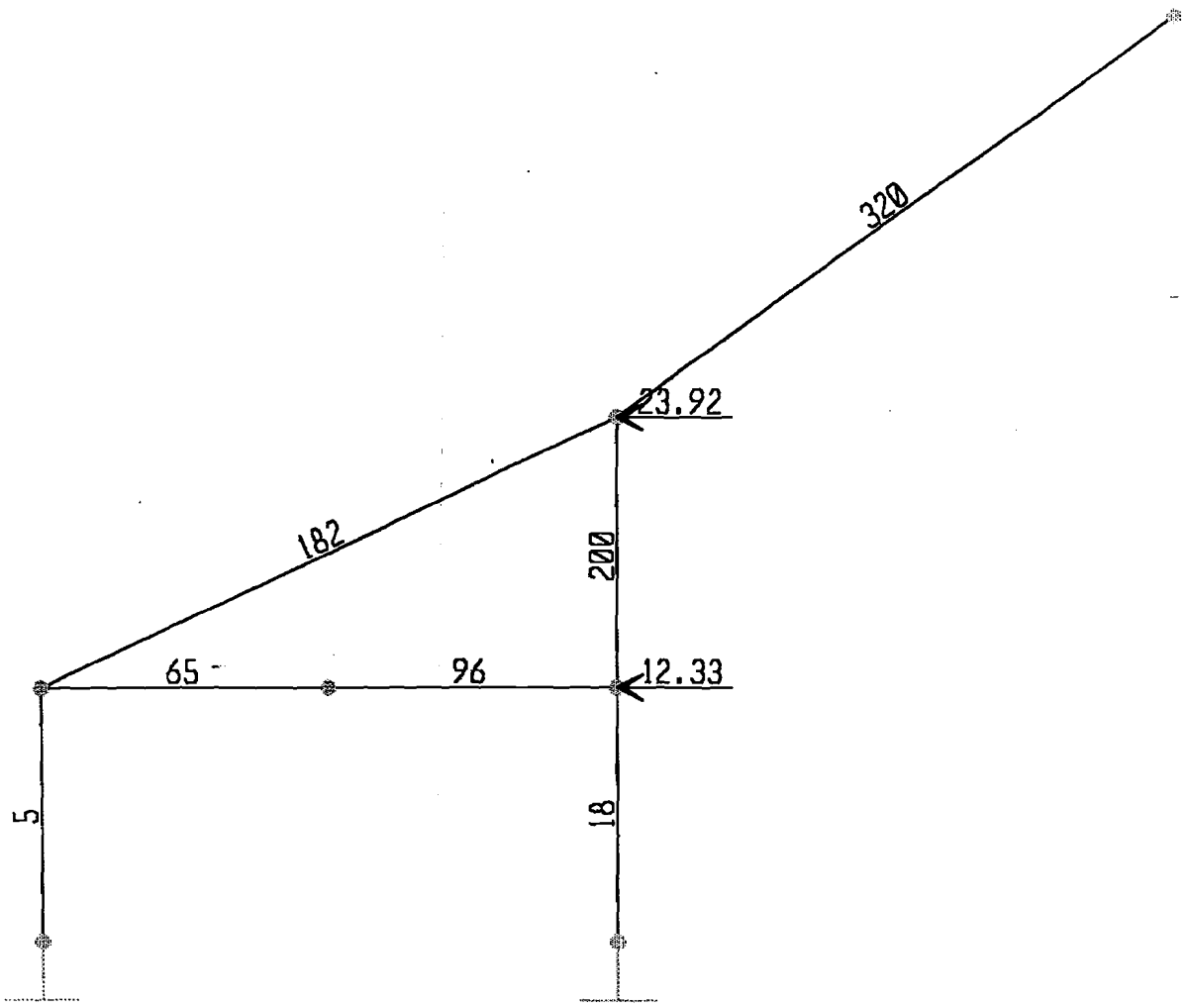
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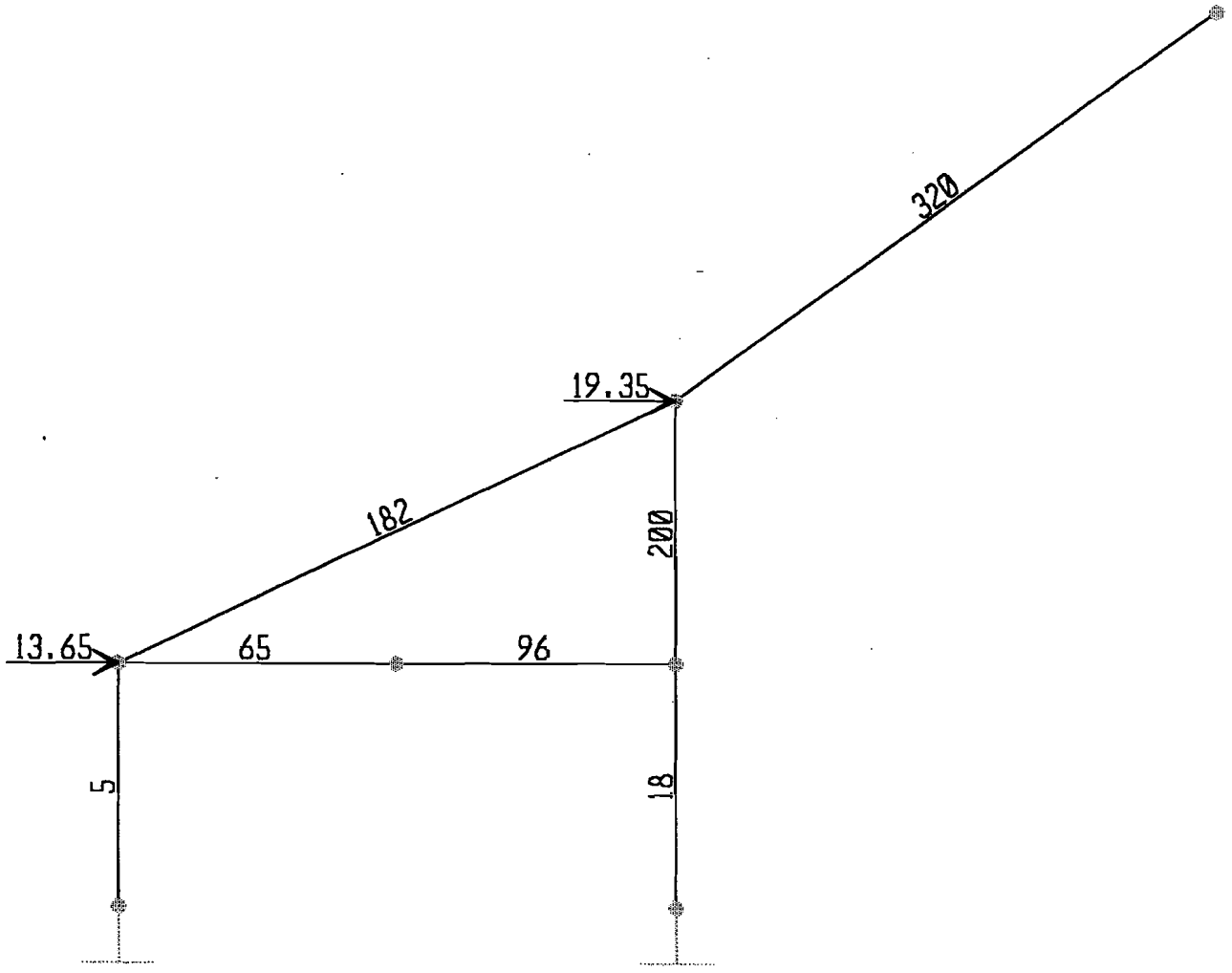
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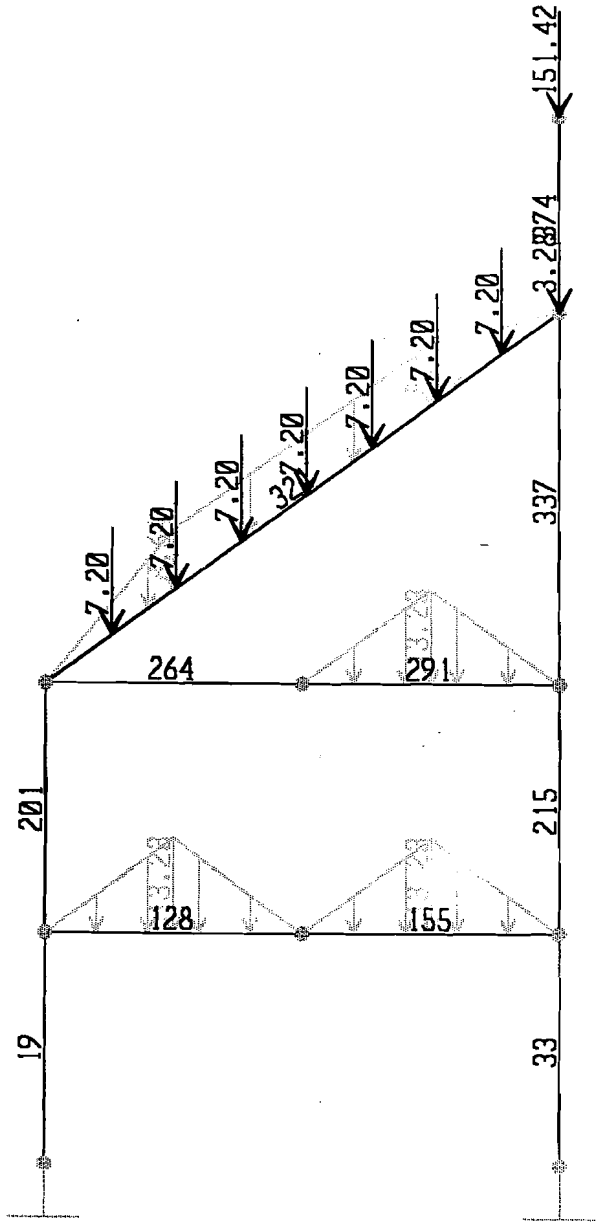
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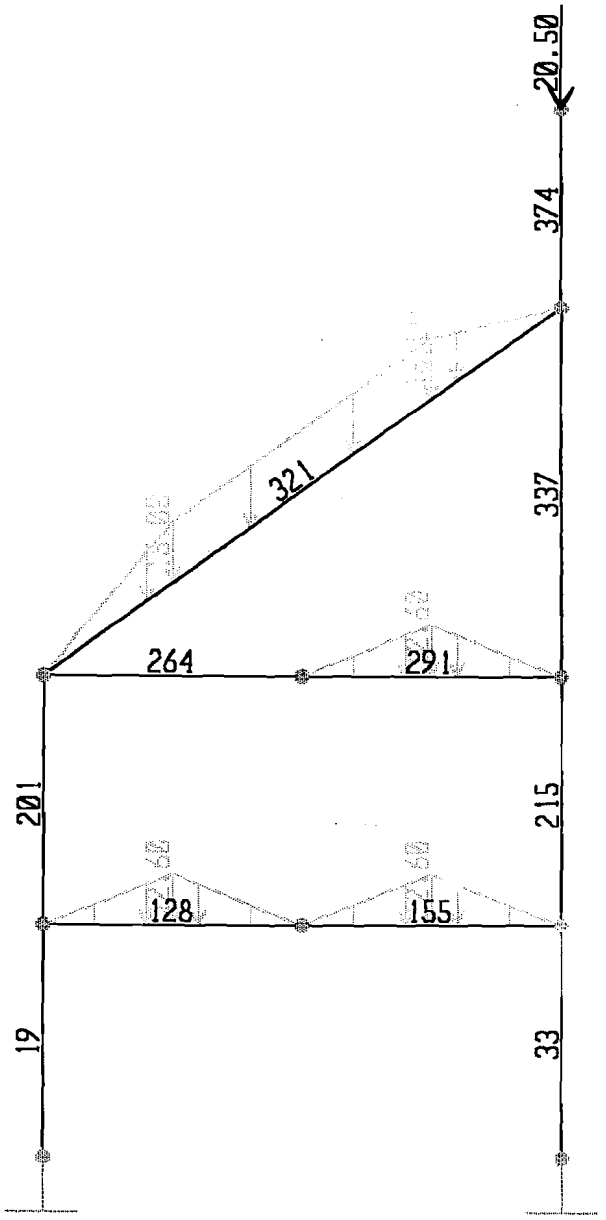
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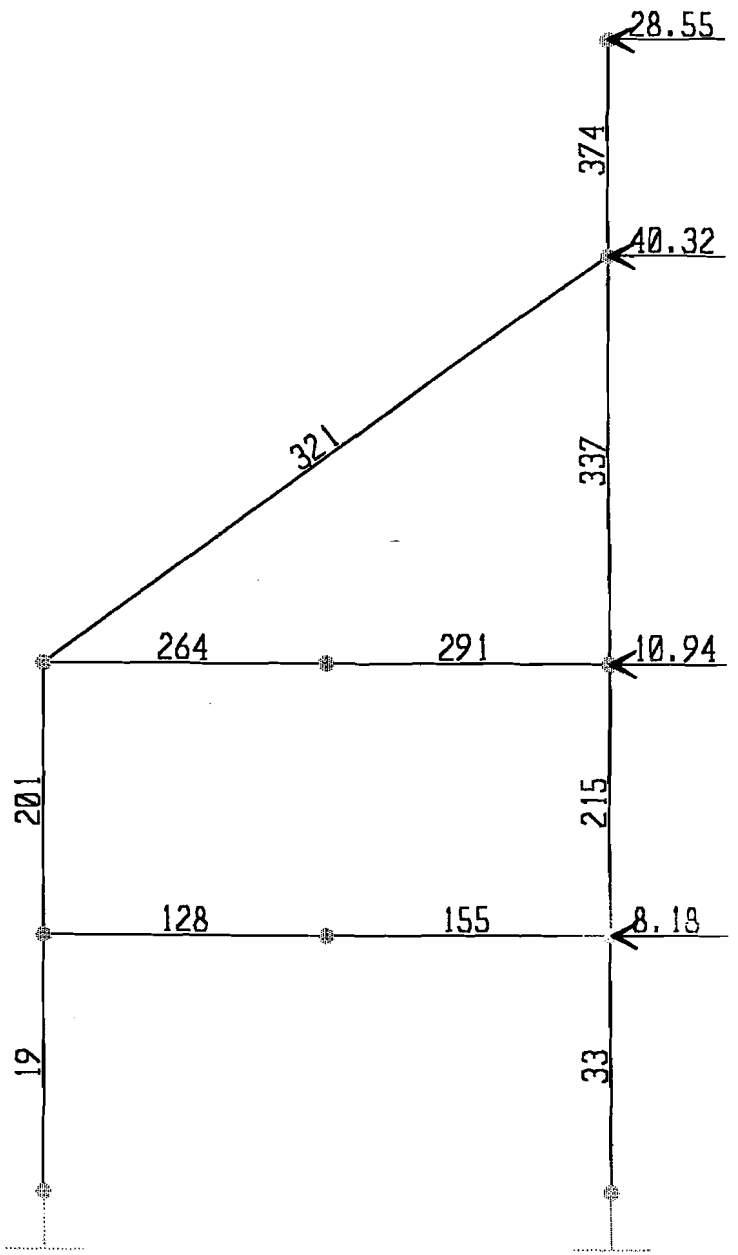
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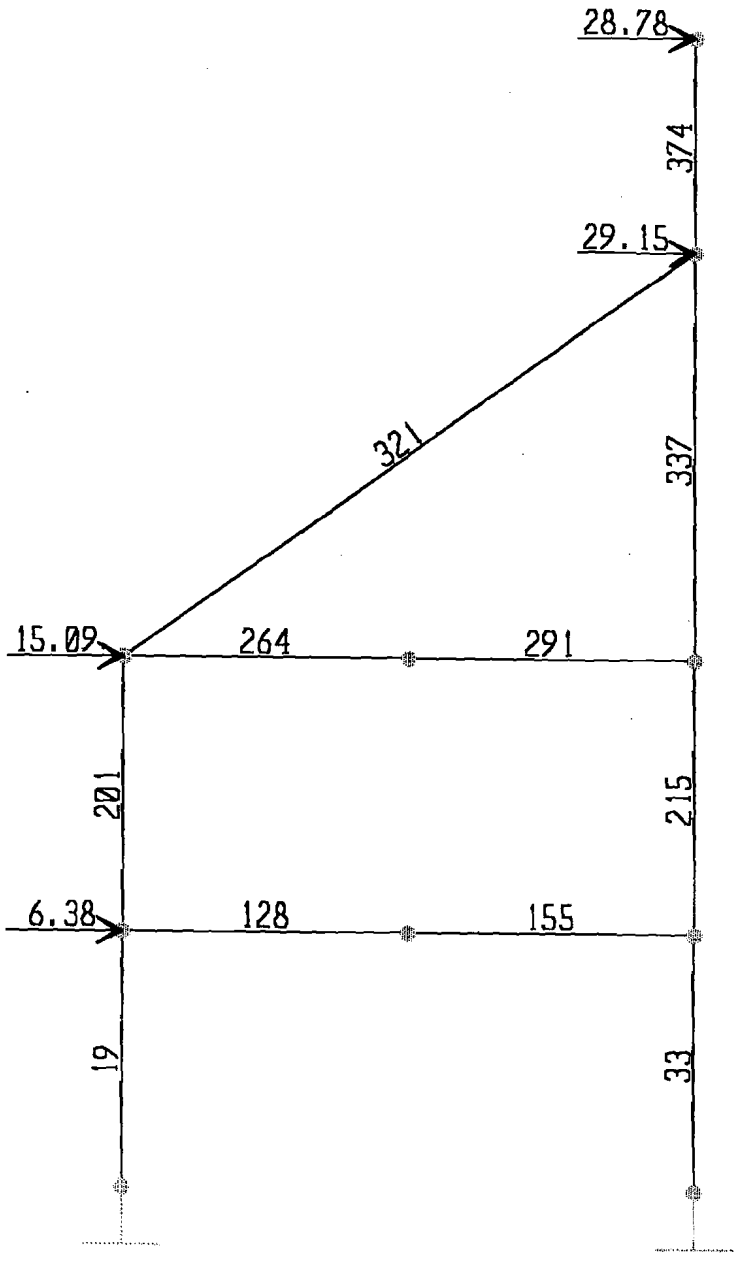
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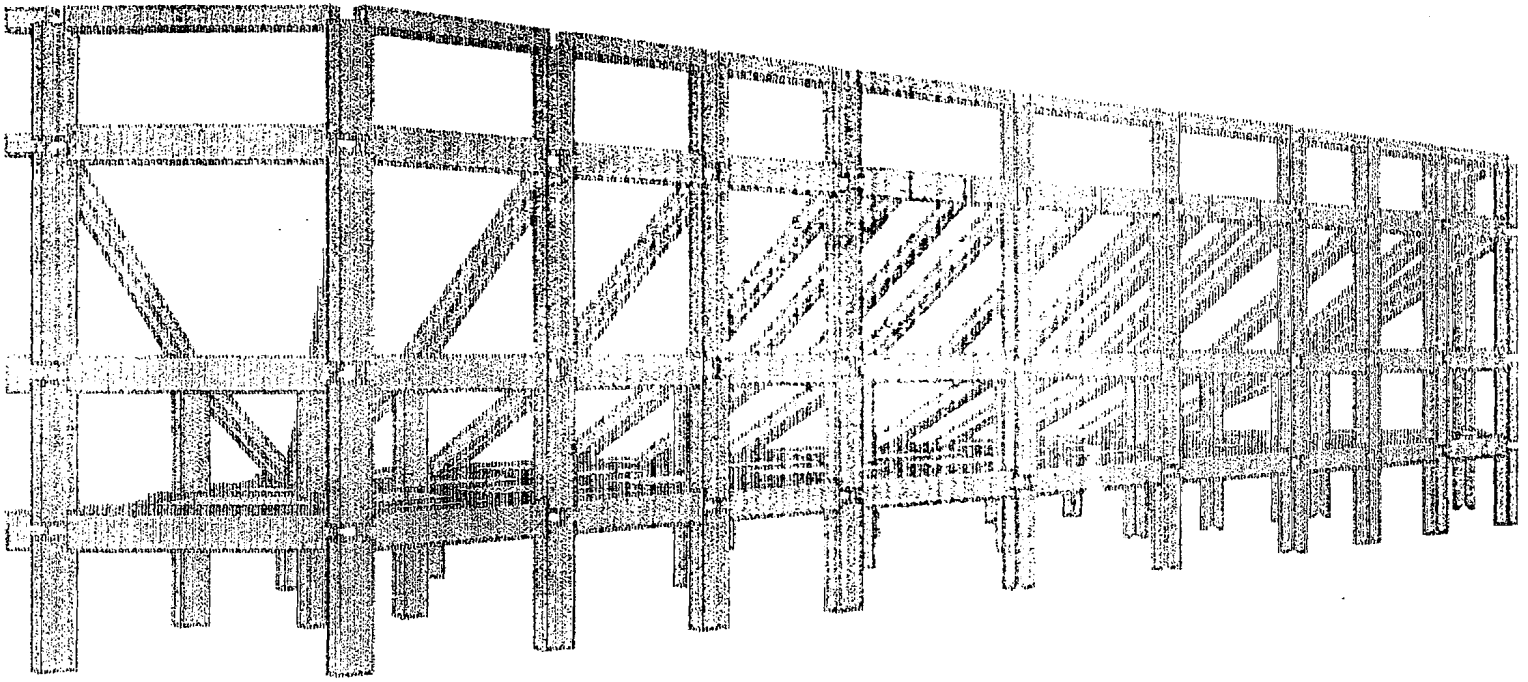
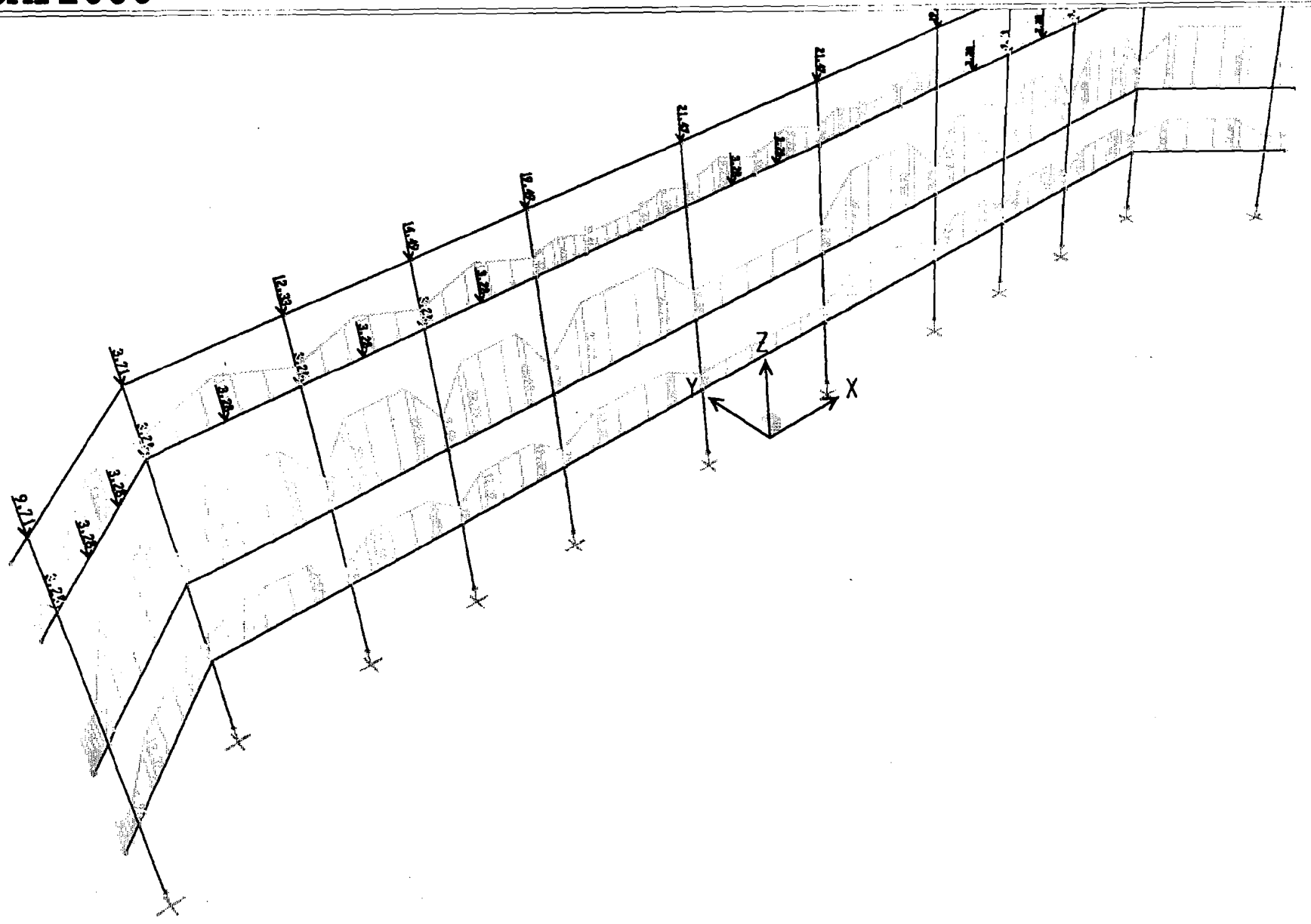
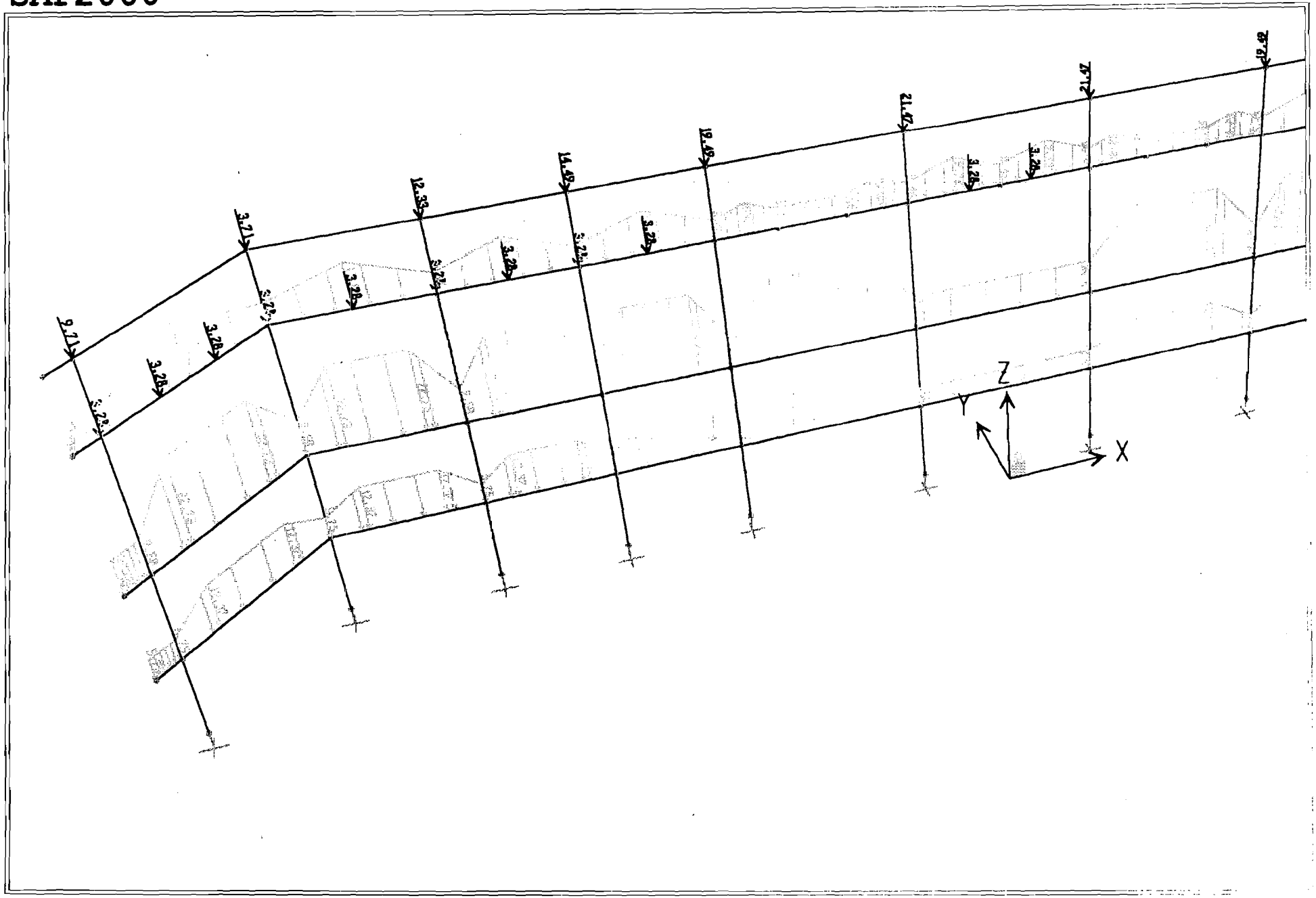
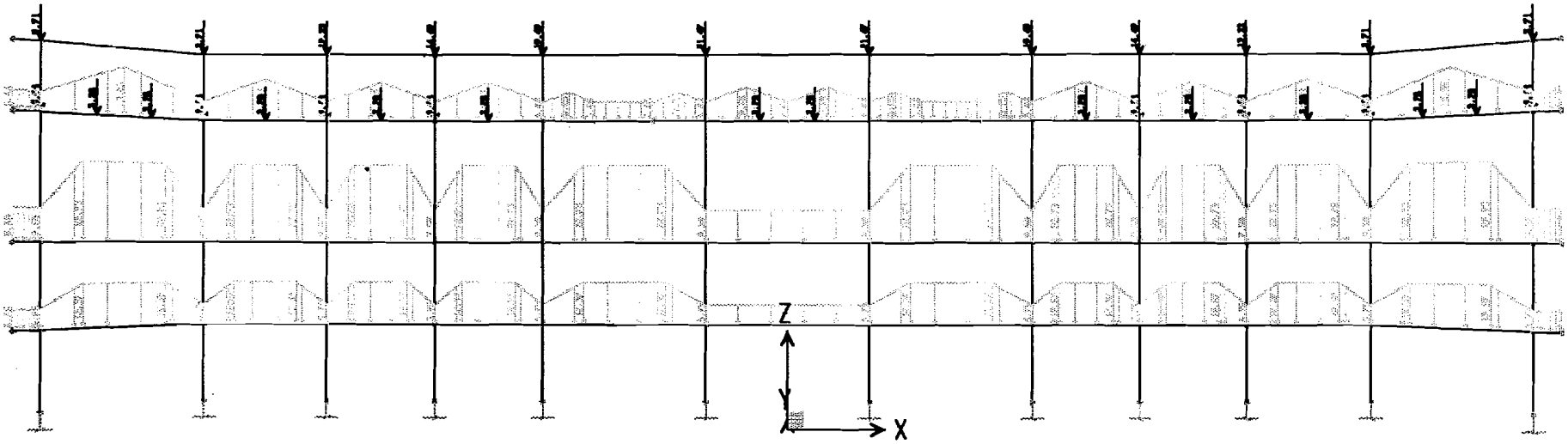




SAP2000 v7.42 - File:PORTAL Y1 (B) - Frame Span Loads (MATI) - KN-m Units



SAP2000 v7.42 - File:PORTAL Y1 (B) - Frame Span Loads (MATI) - KN-m Units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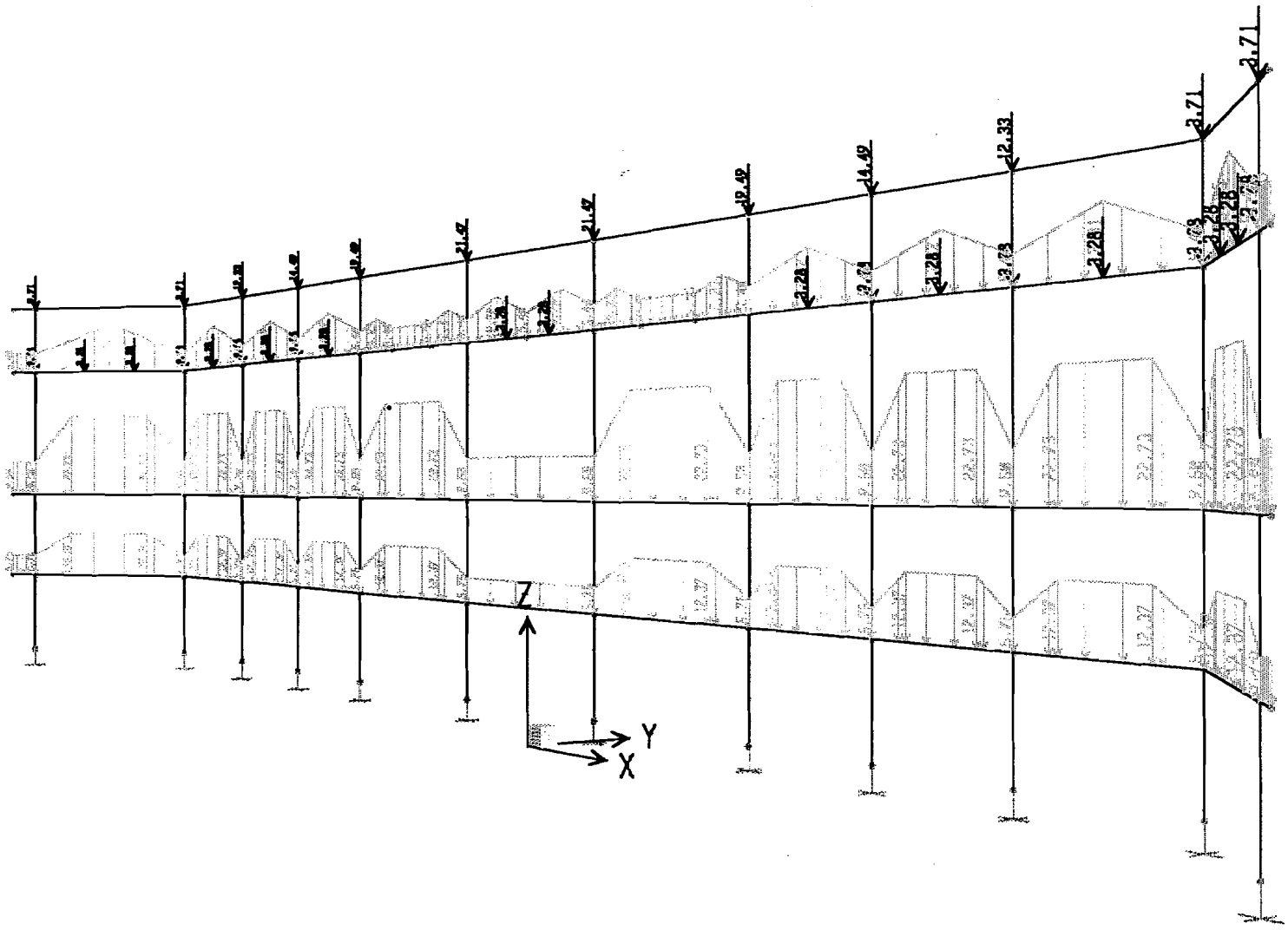
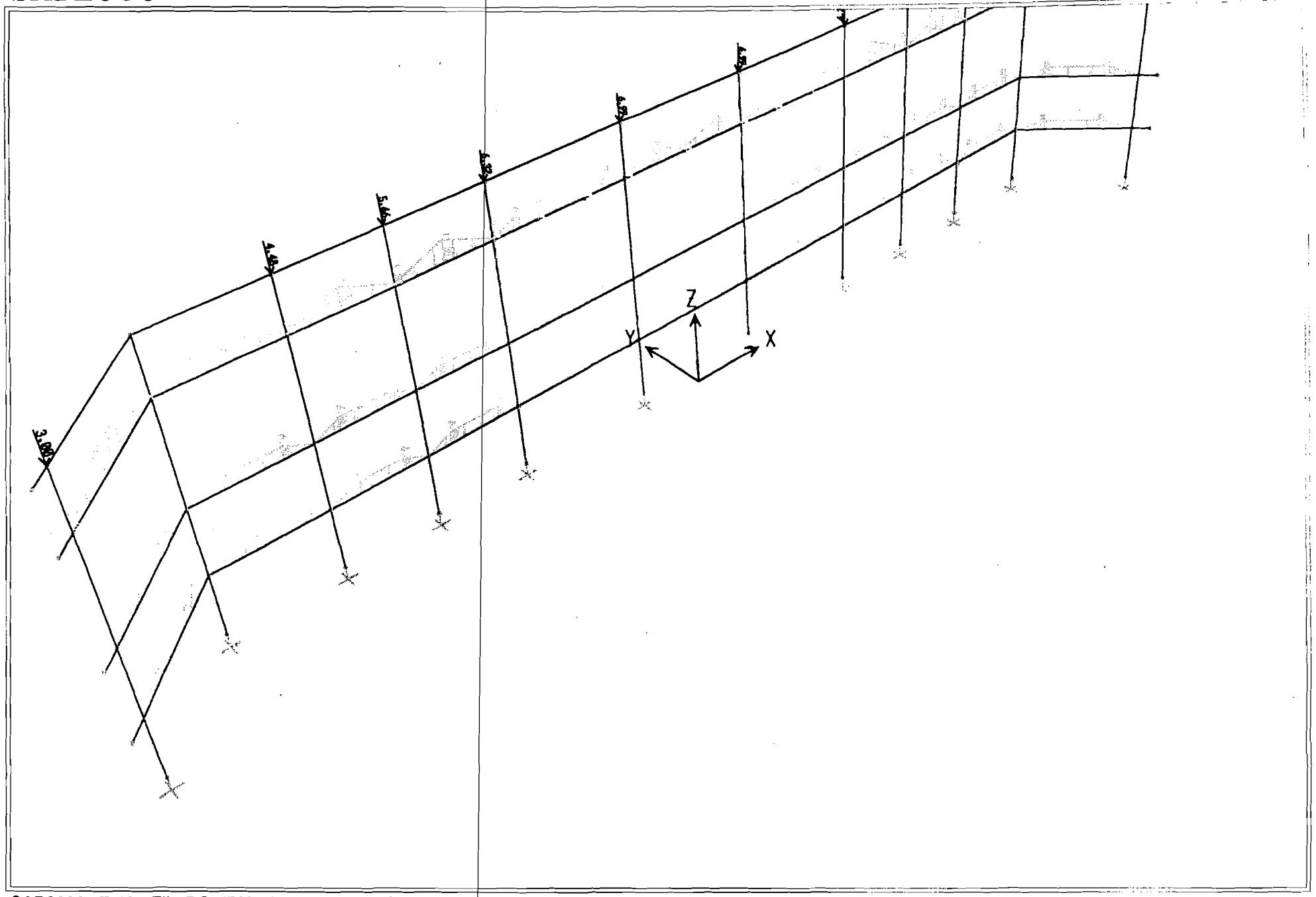


SAP2000 v7.42 - File:PORTAL Y1 (B) - Frame Span Loads (MATI) - KN-m Units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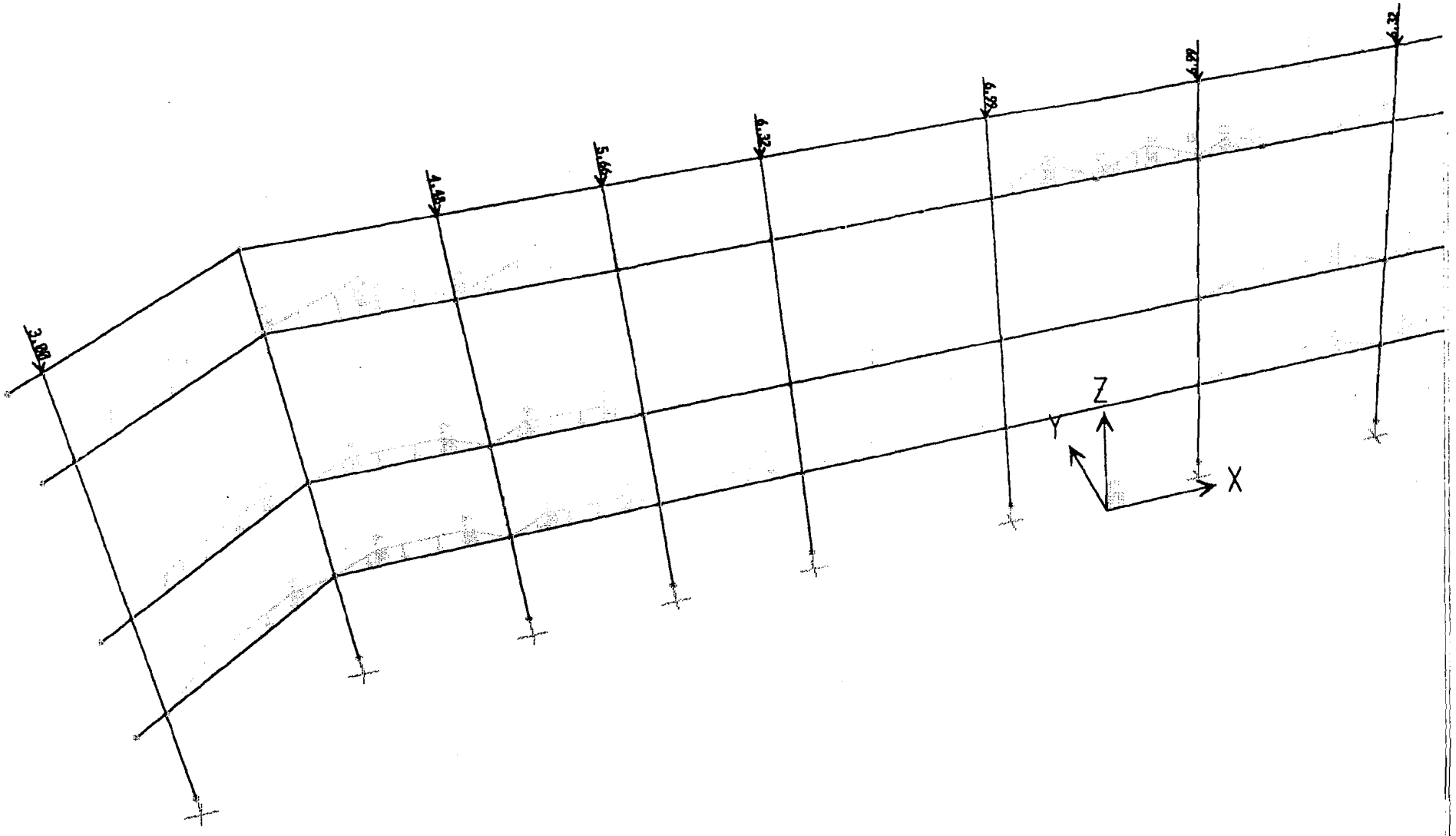
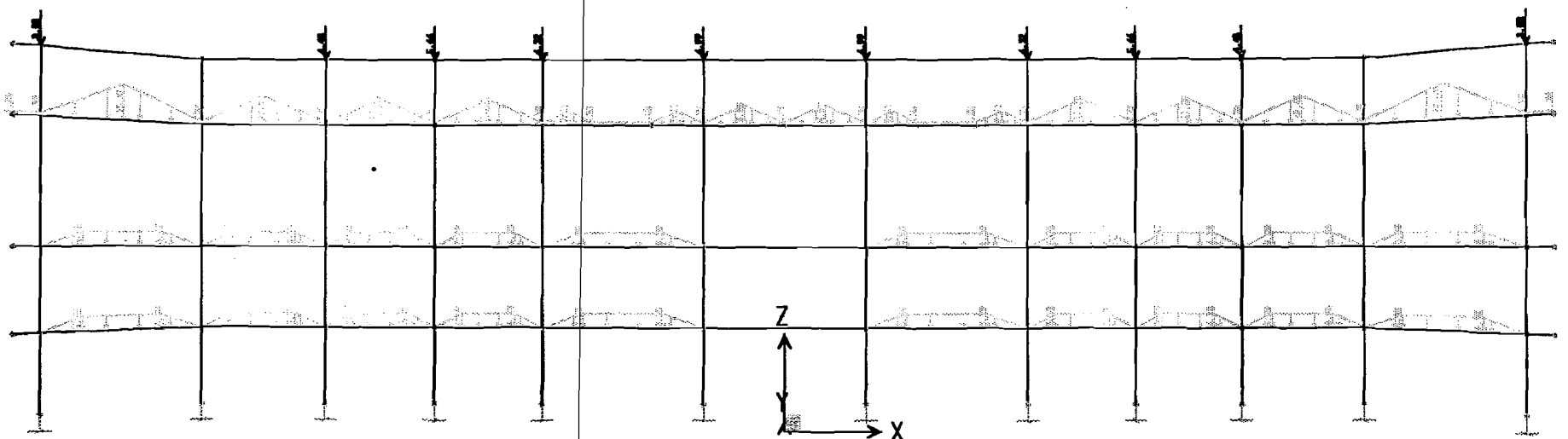


SAP2000 v7.42 - File:PORTAL Y1 (B) - Frame Span Loads (HIDUP) - KN-m Units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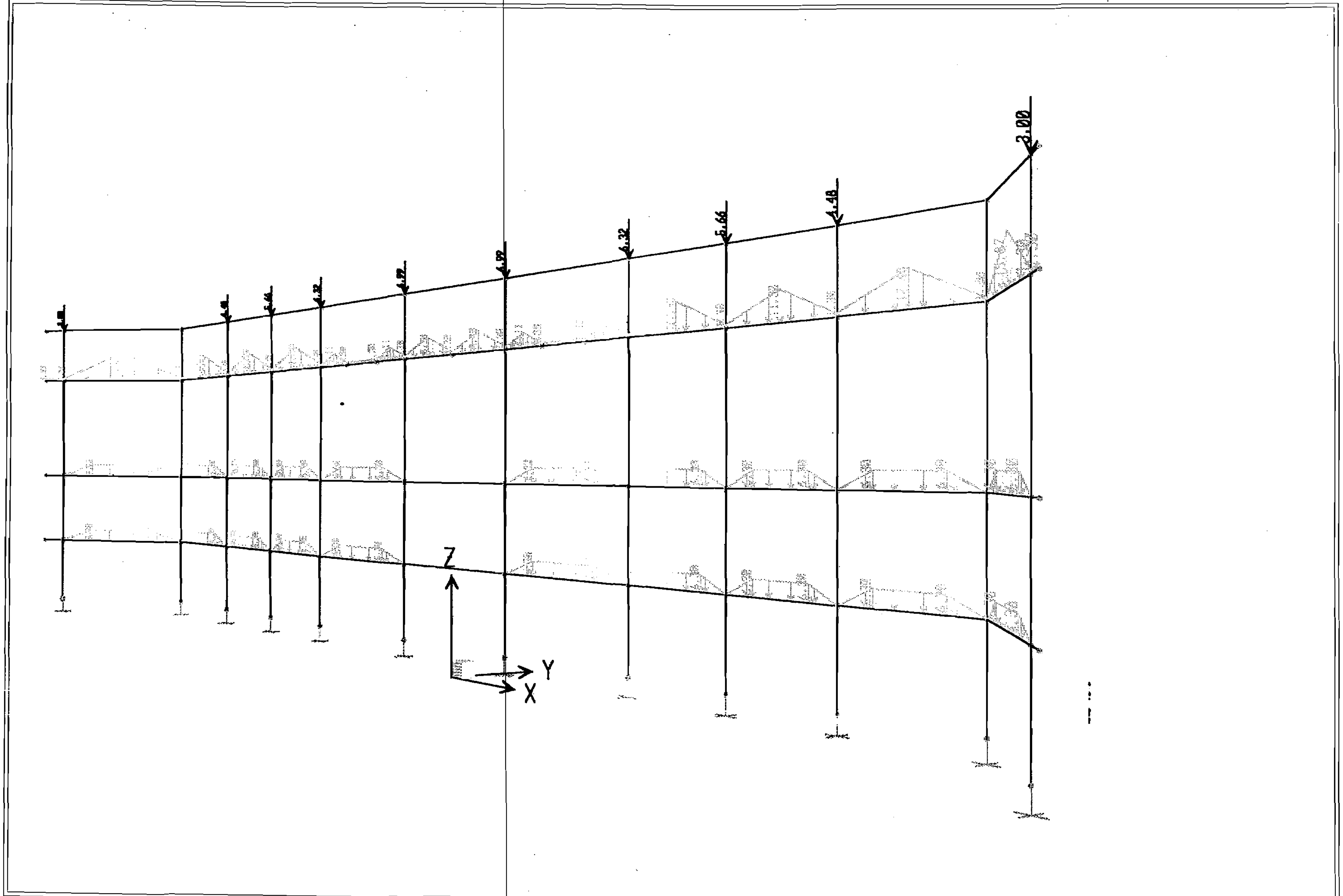
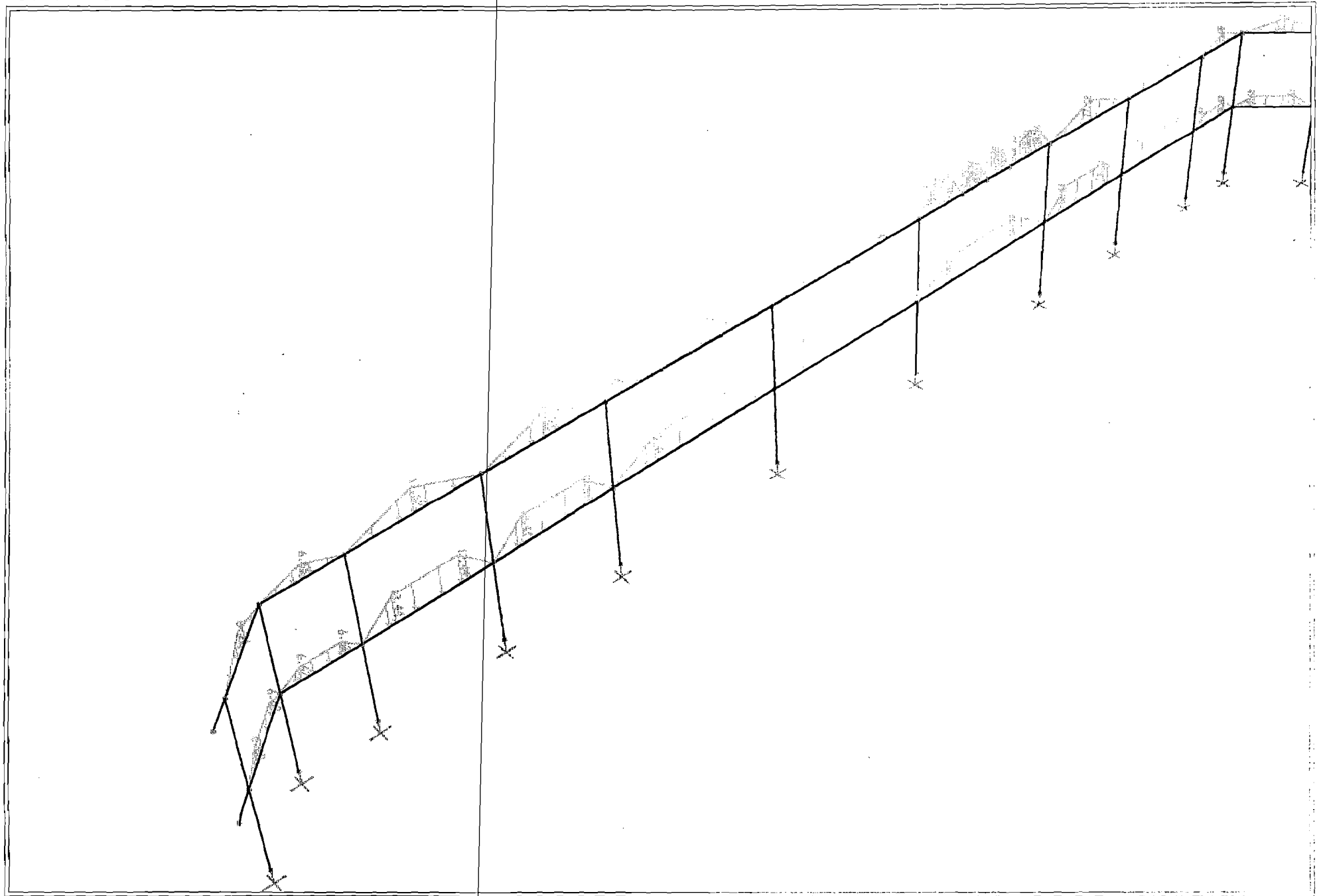
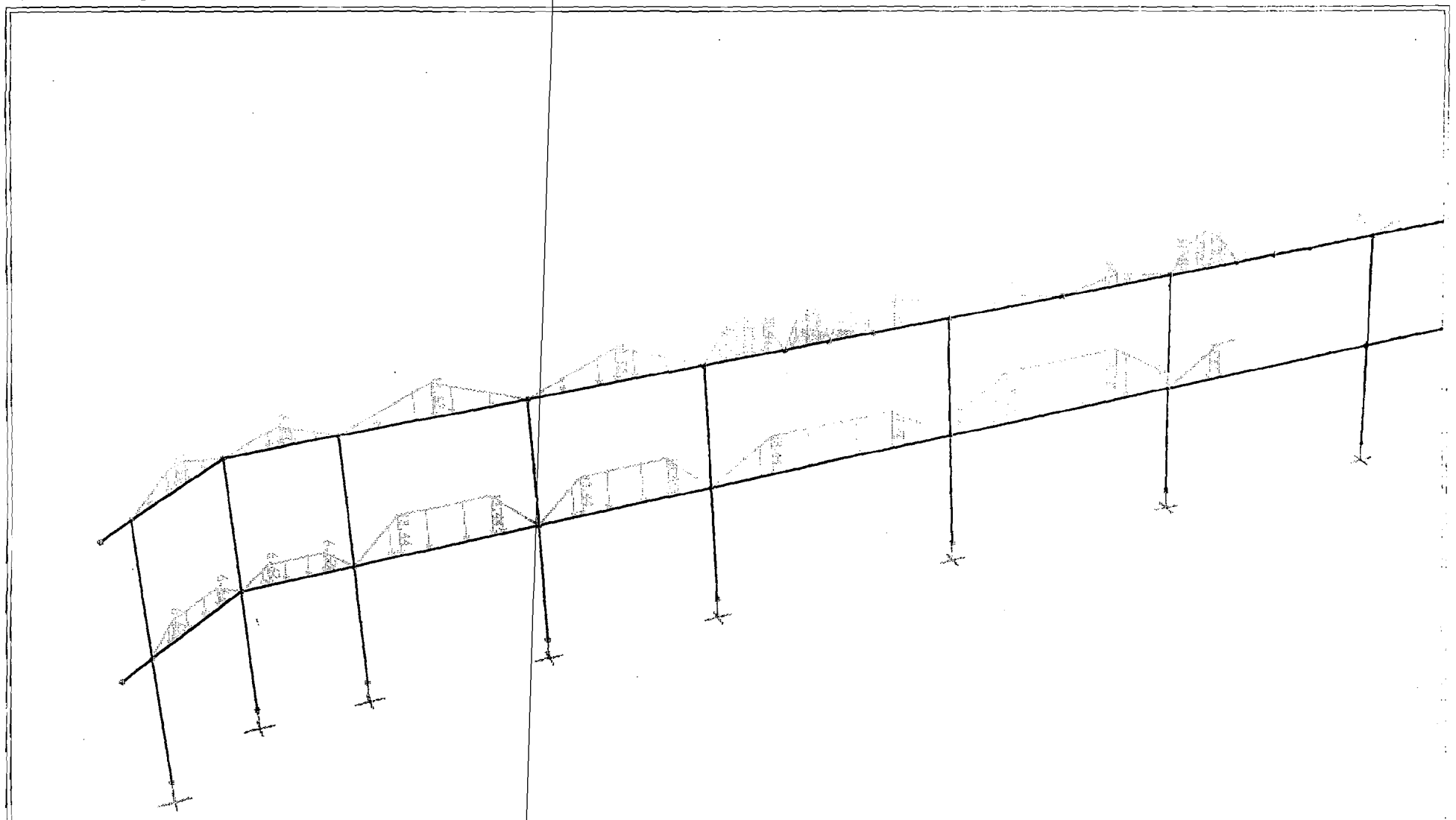
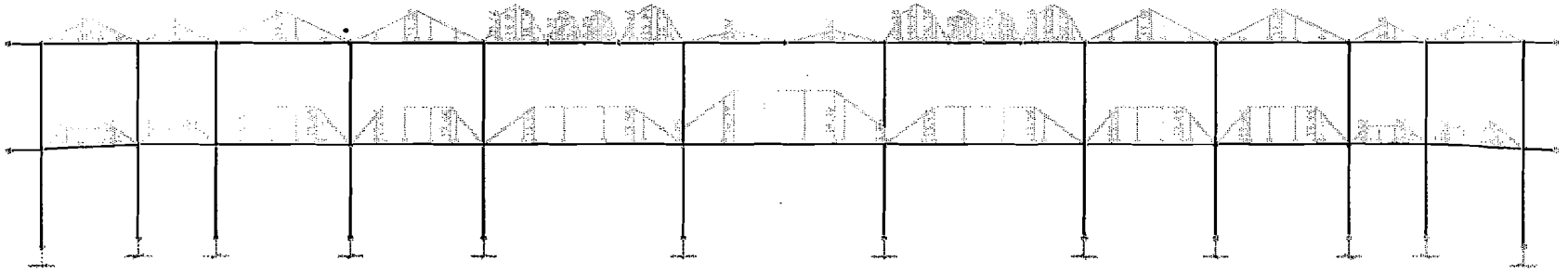


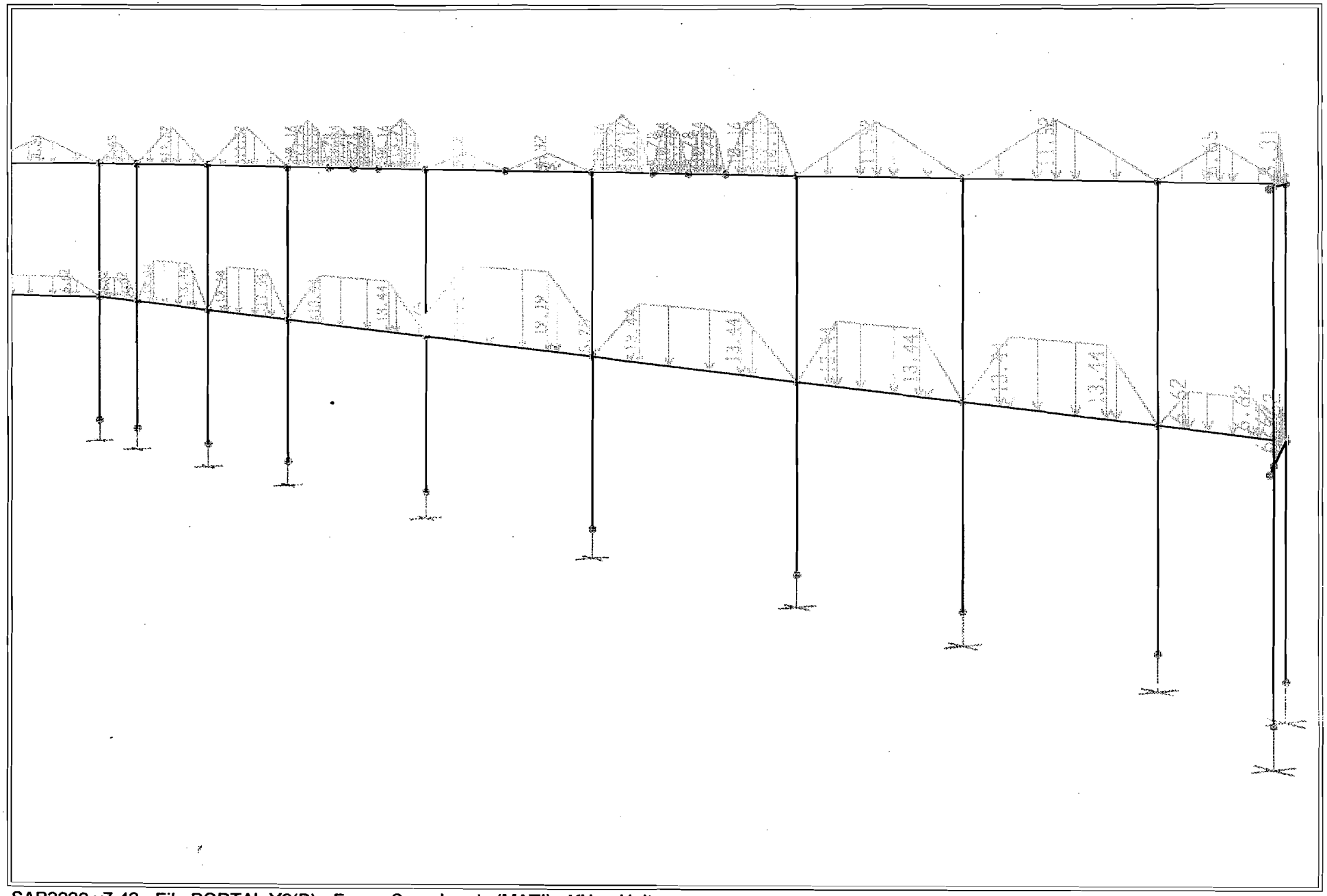
SAP2000 v7.42 - File:PORTAL Y1 (B) - Frame Span Loads (HIDUP) - KN-m Units



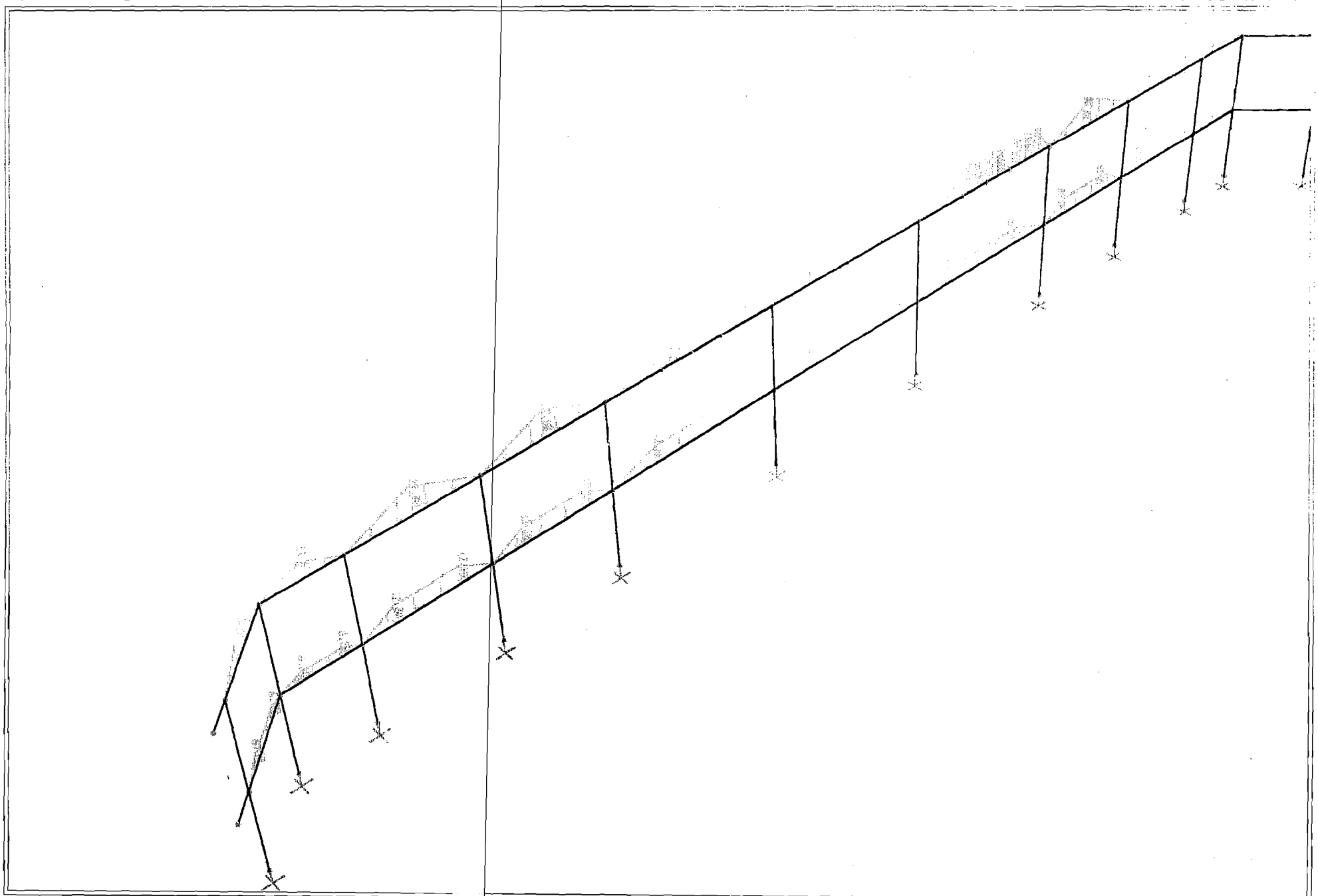
SAP2000 v7.42 - File:PORTAL Y2(B) - Frame Span Loads (MATI) - KN-m Units







SAP2000 v7.42 - File:PORTAL Y2(B) - Frame Span Loads (MATI) - KN-m Units



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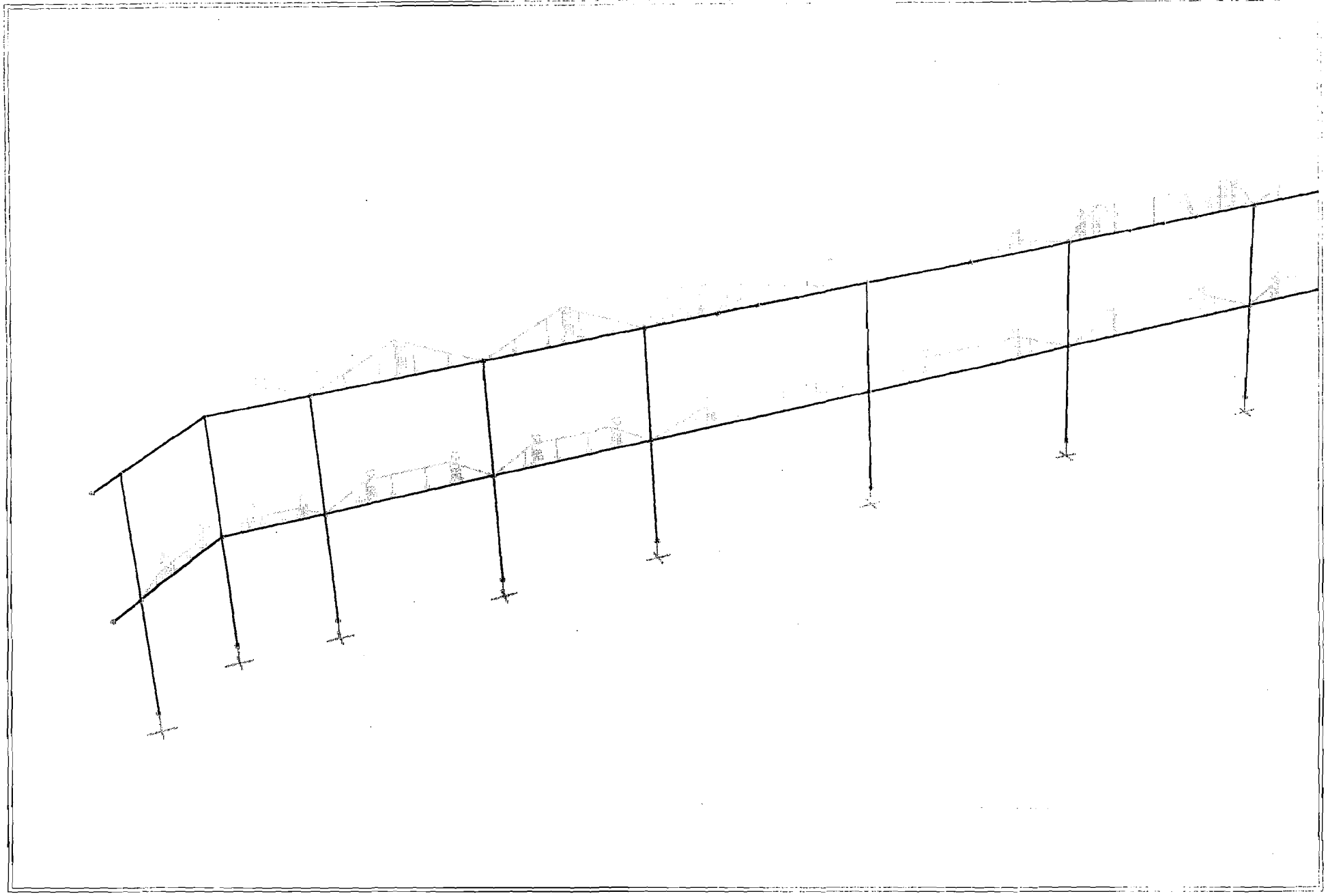

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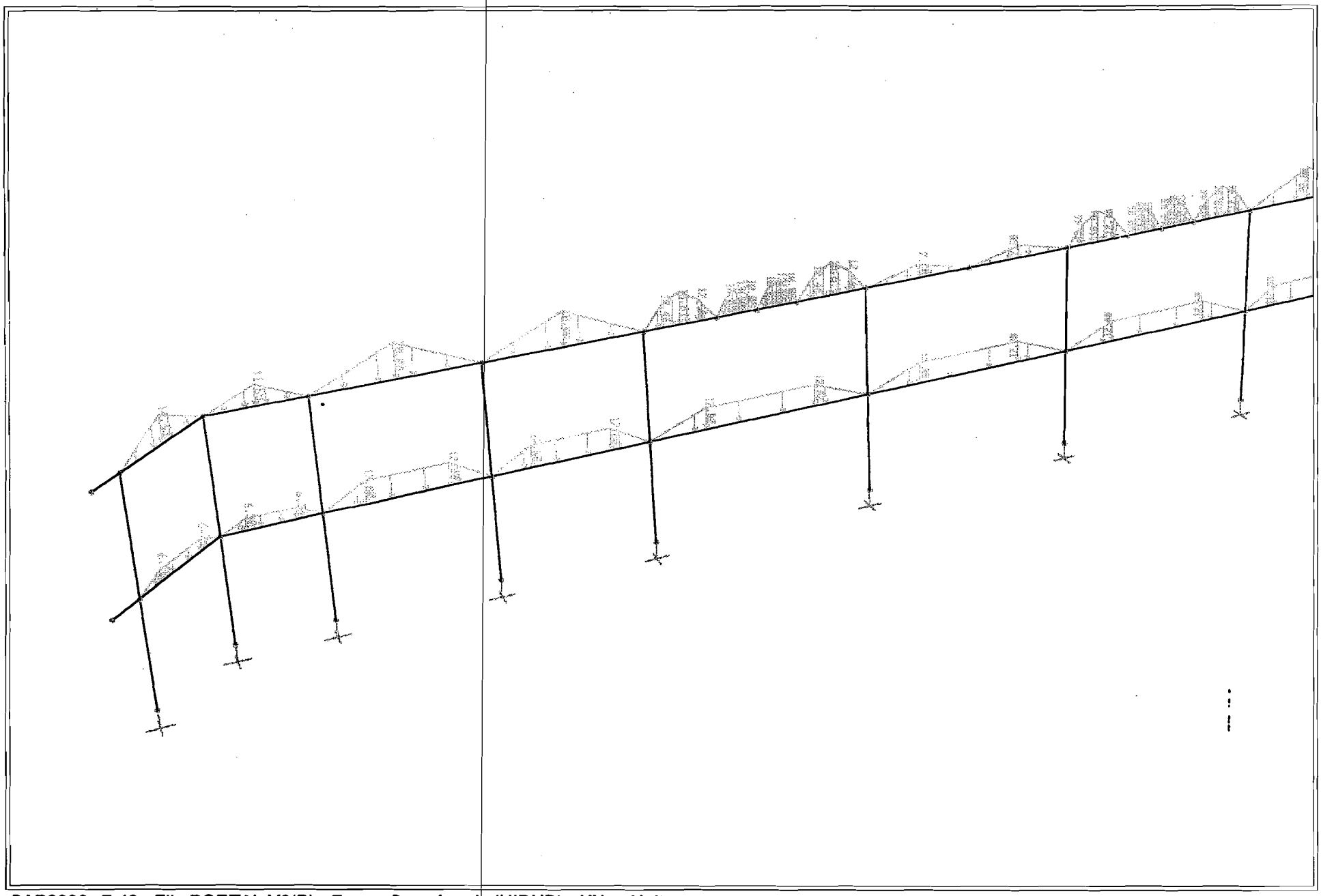

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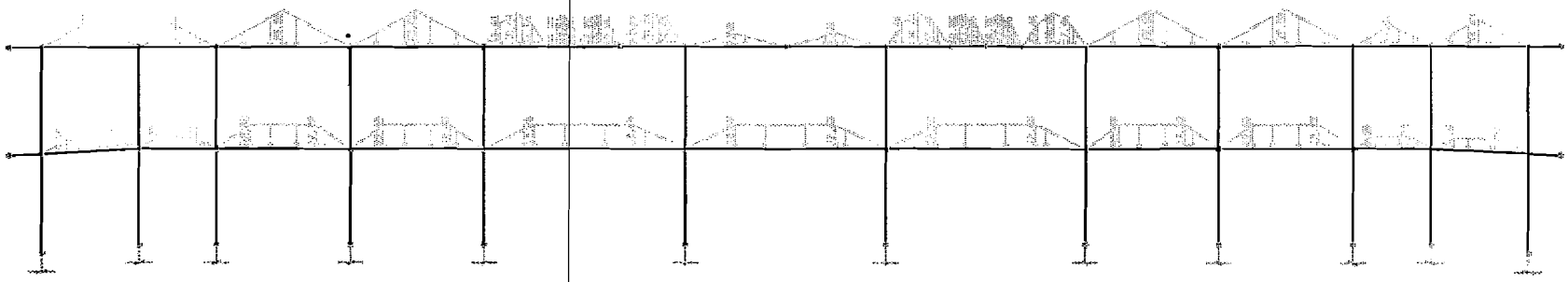

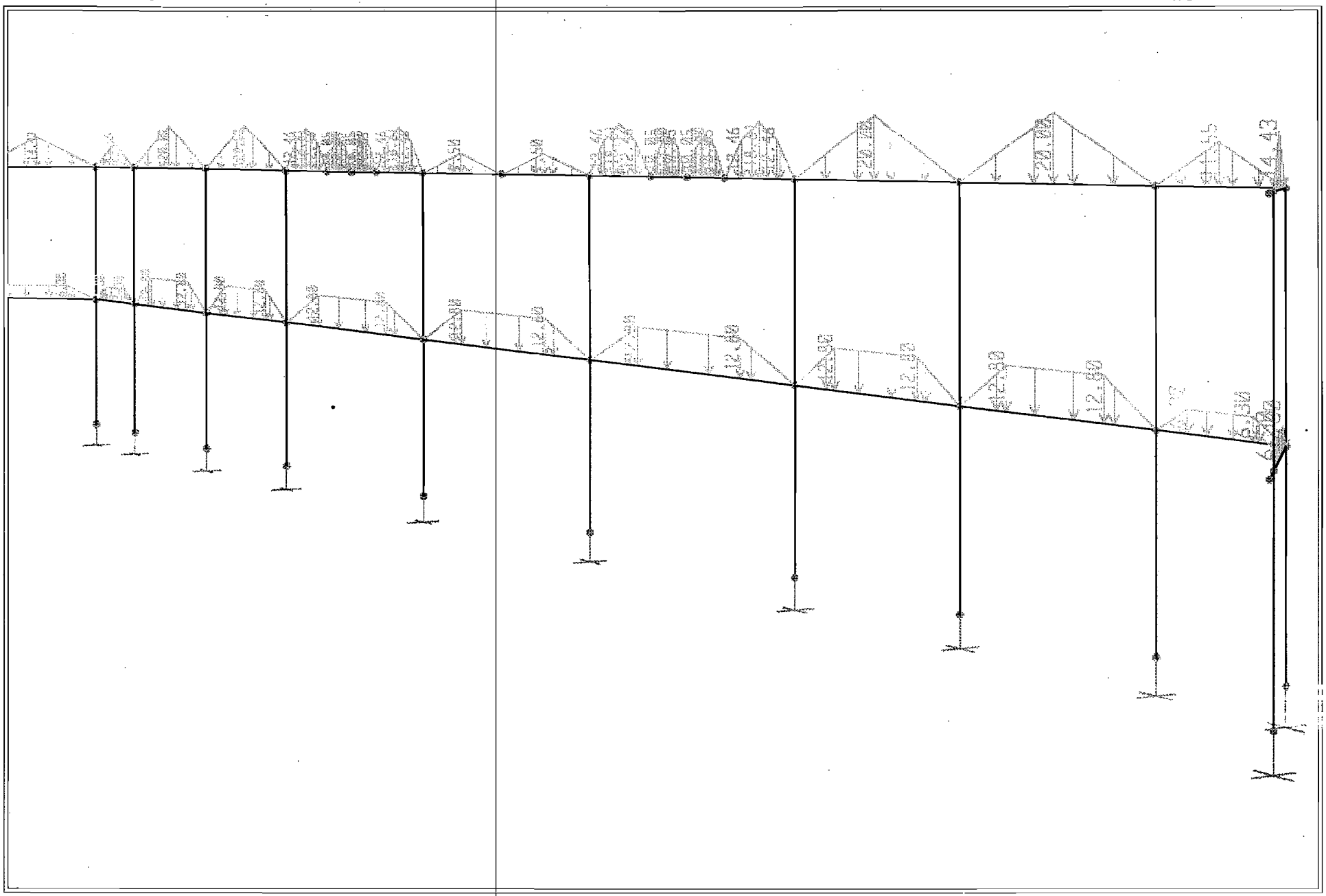

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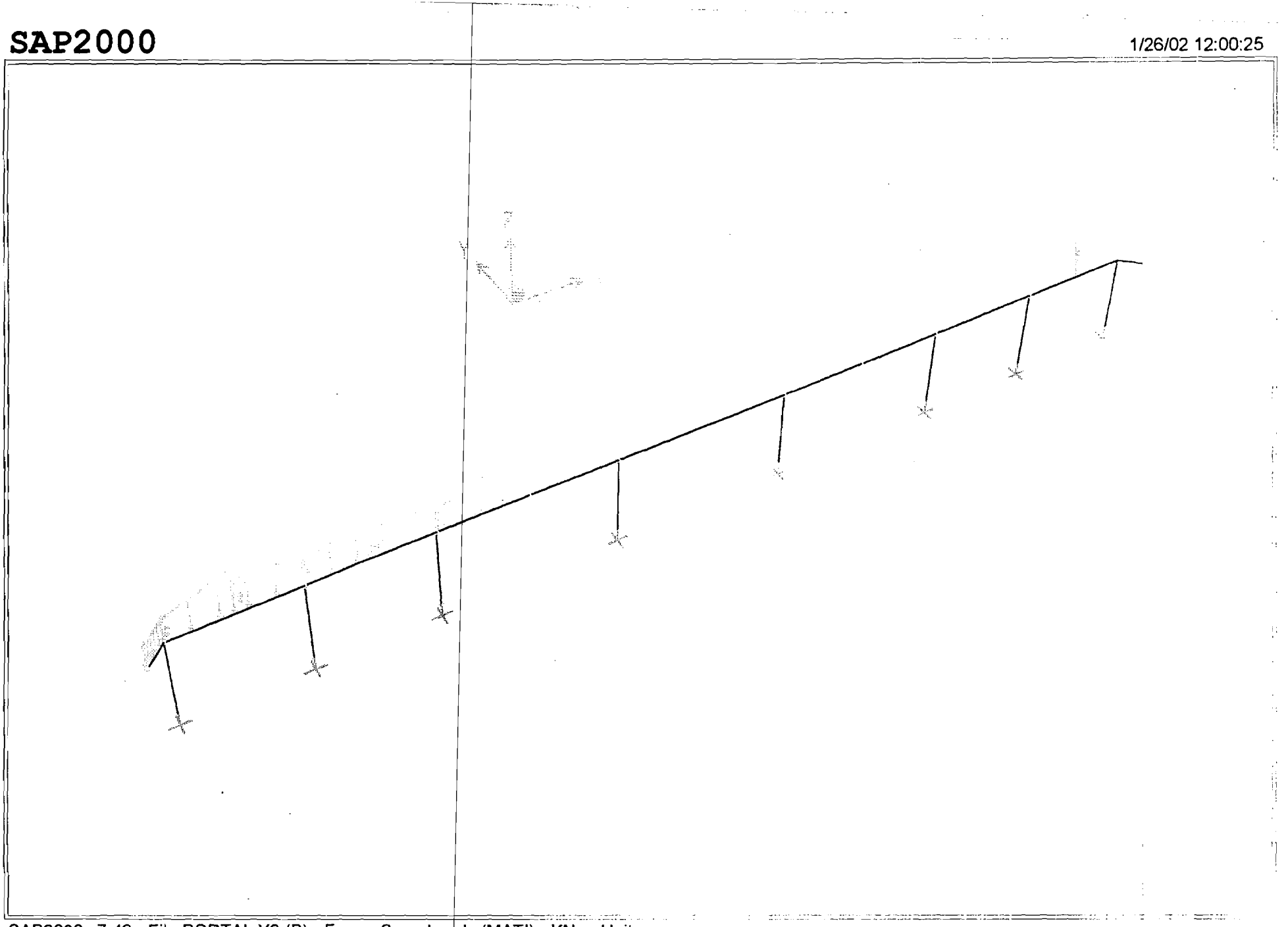
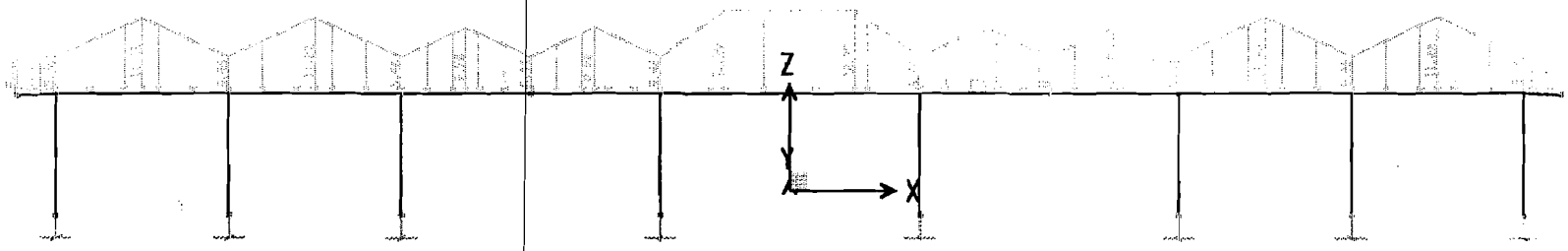


SAP2000 v7.42 - File:PORTAL Y3 (B) - Frame Span Loads (MATI) - KN-m Units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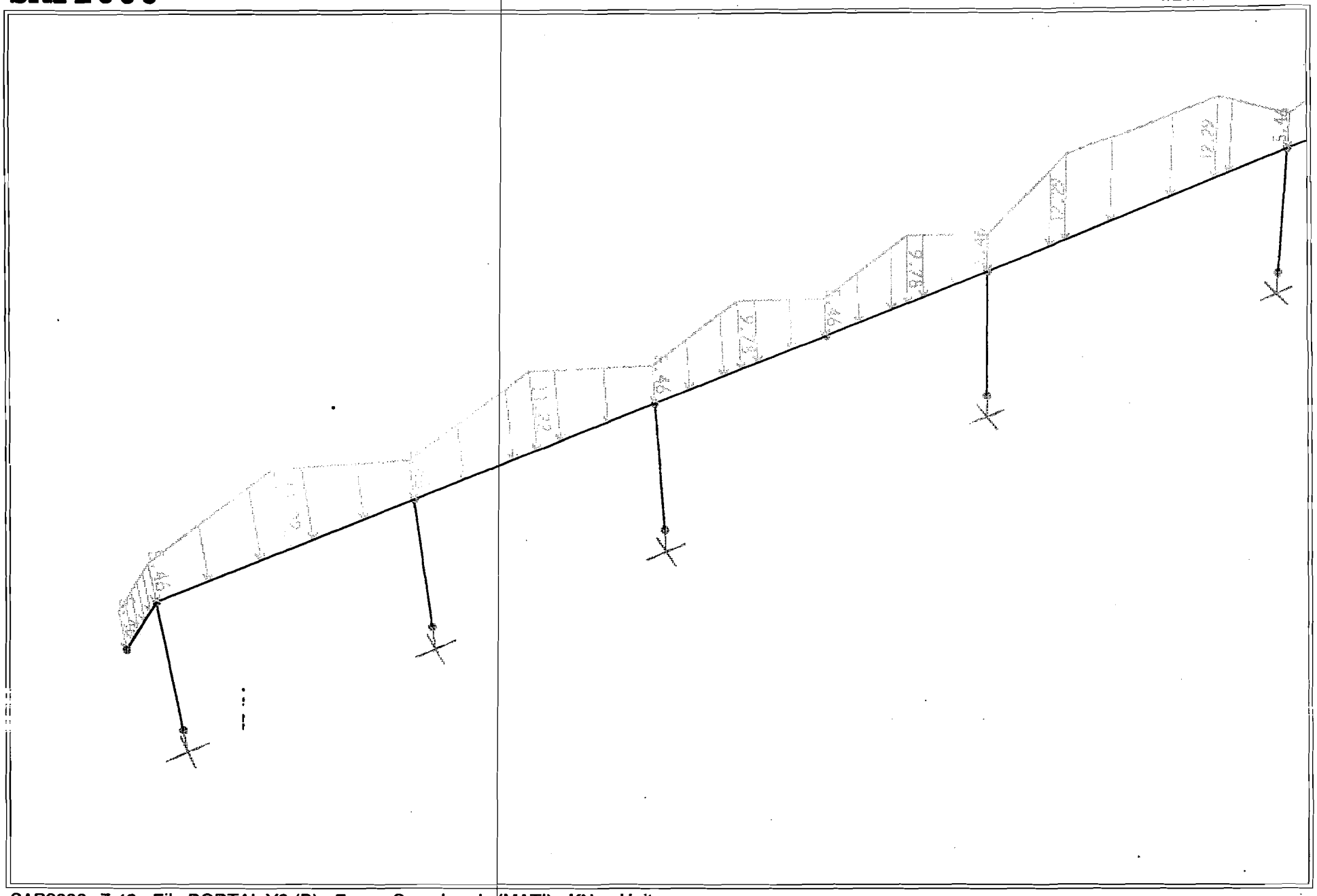

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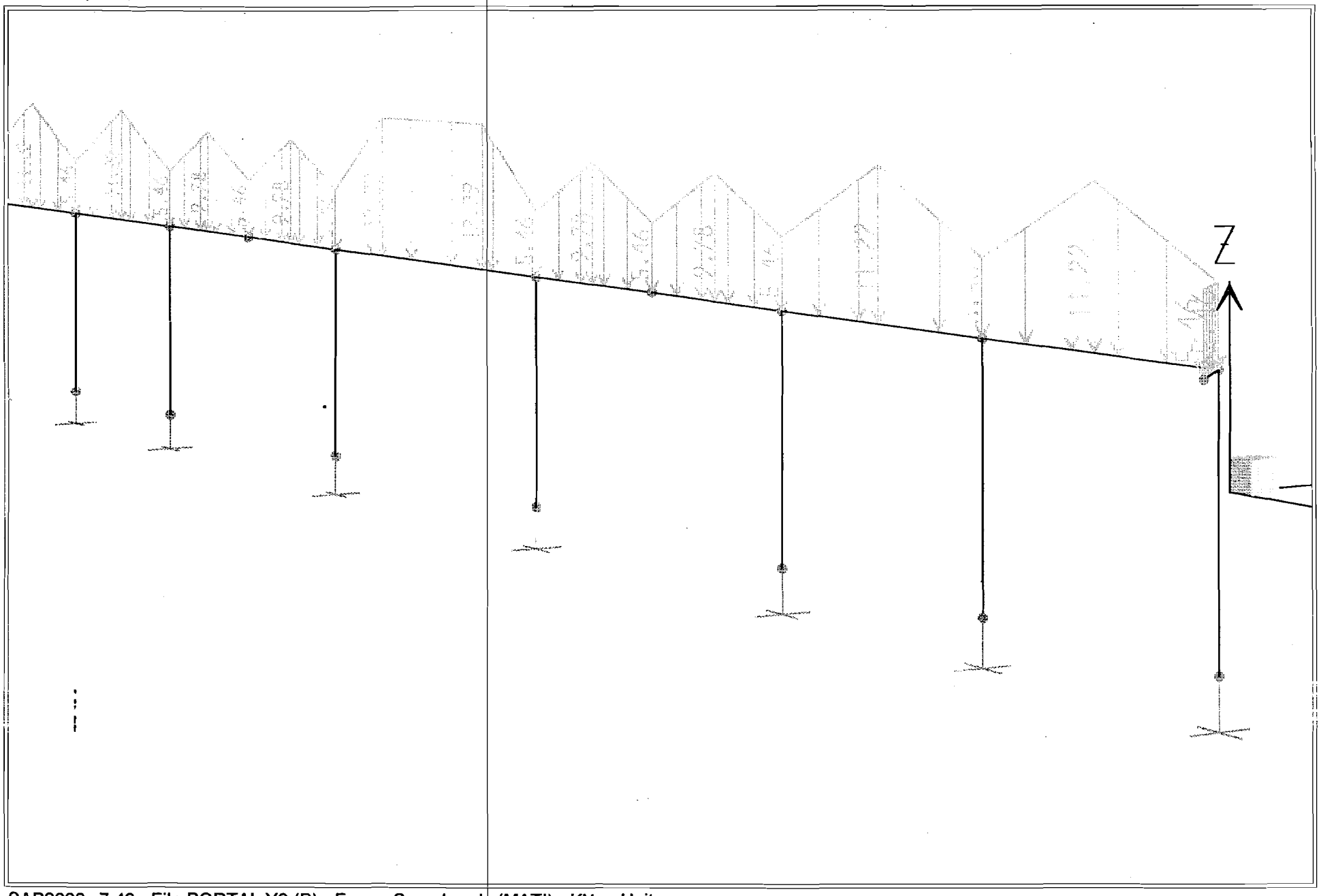
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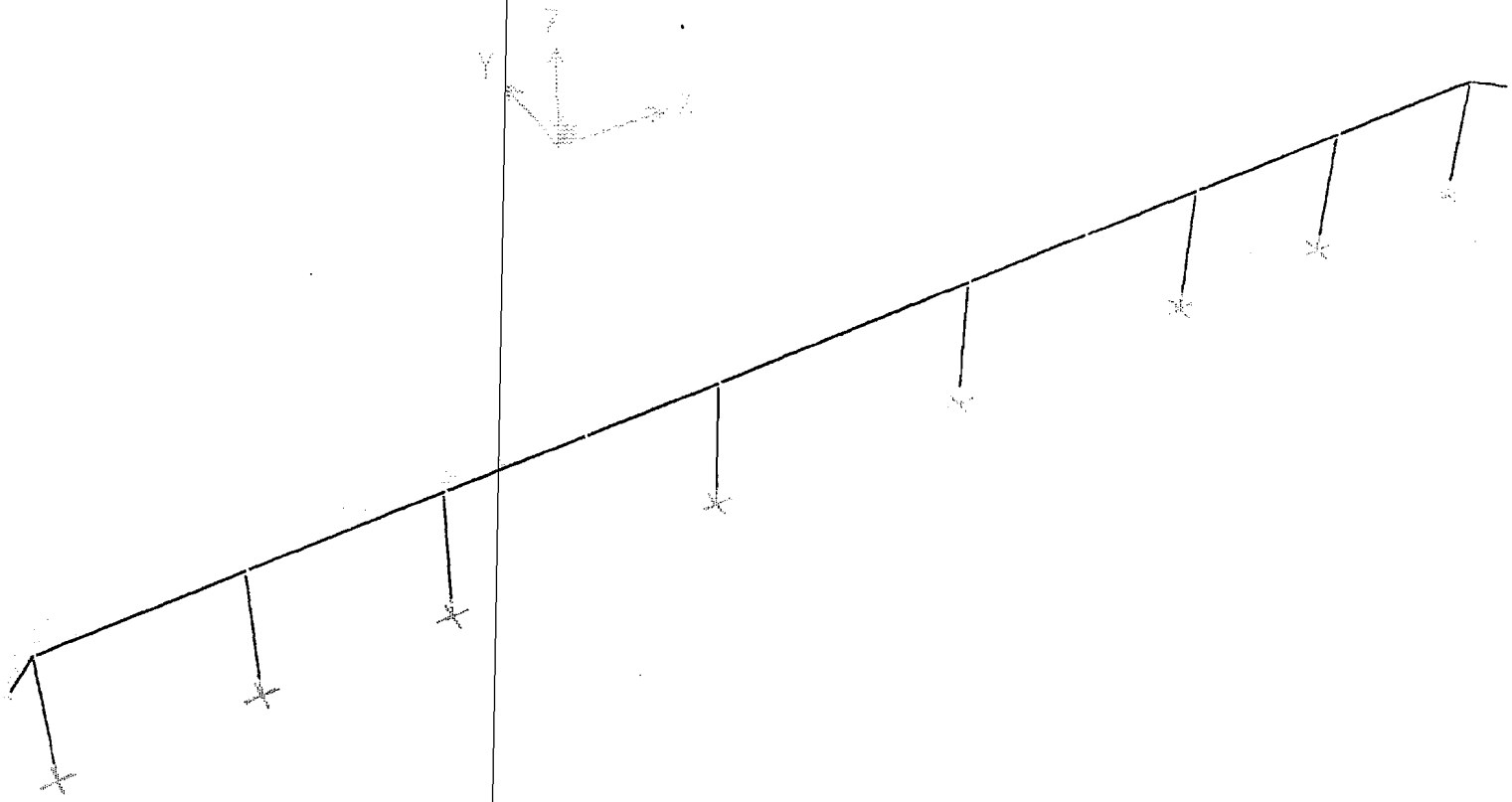
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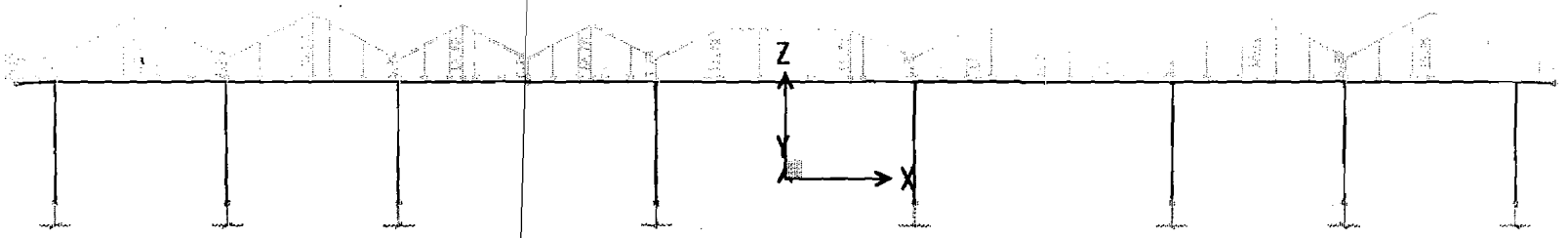
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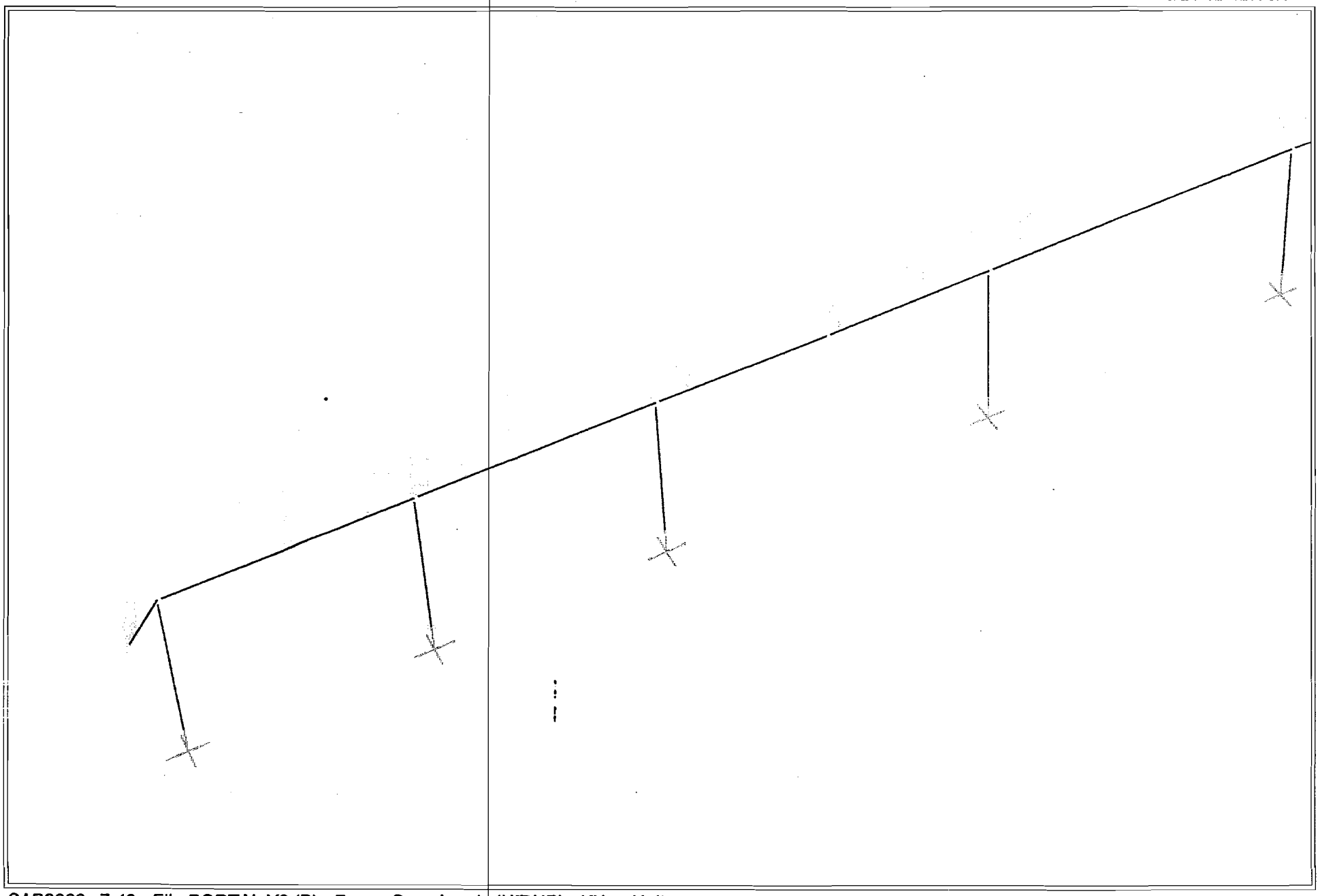

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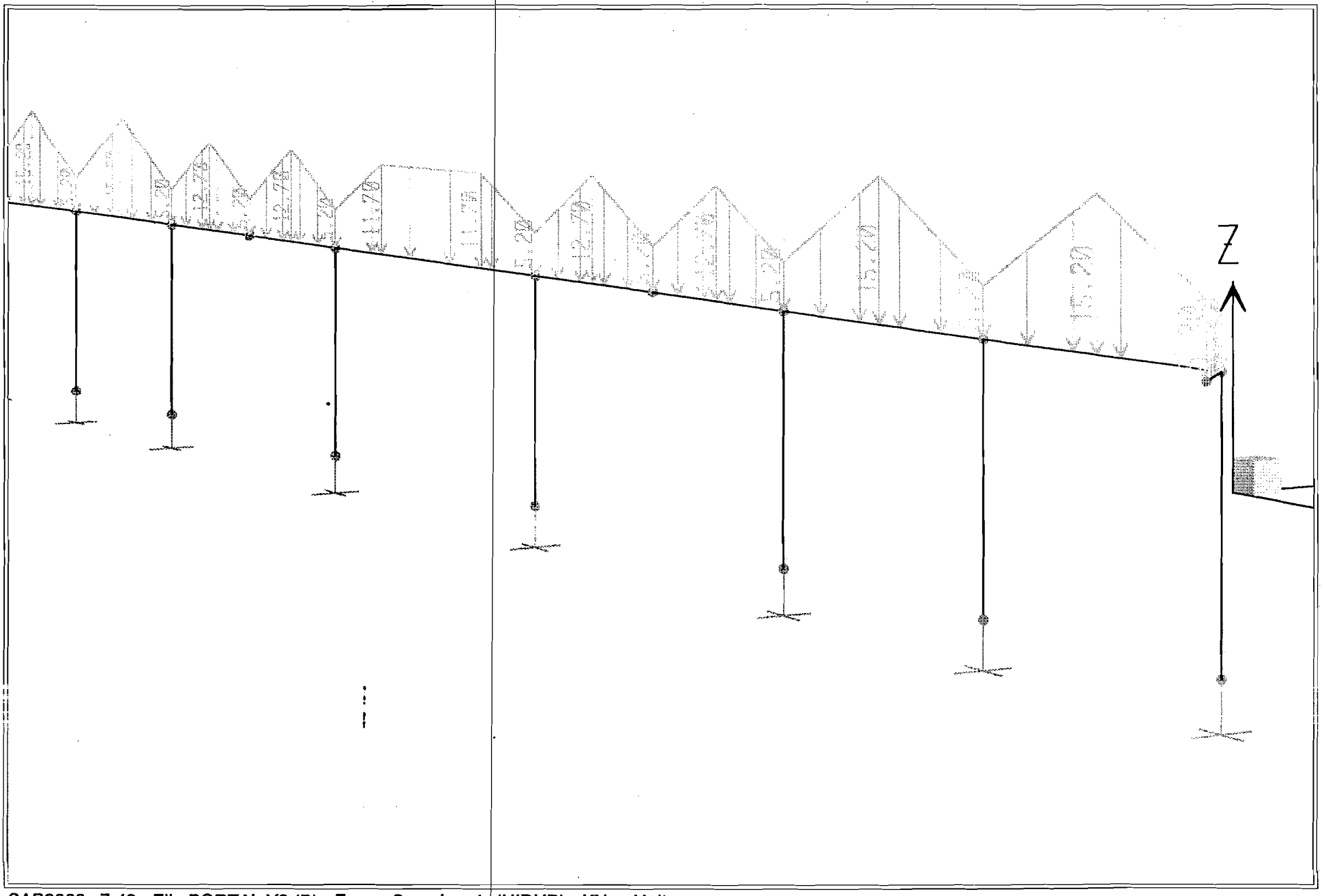

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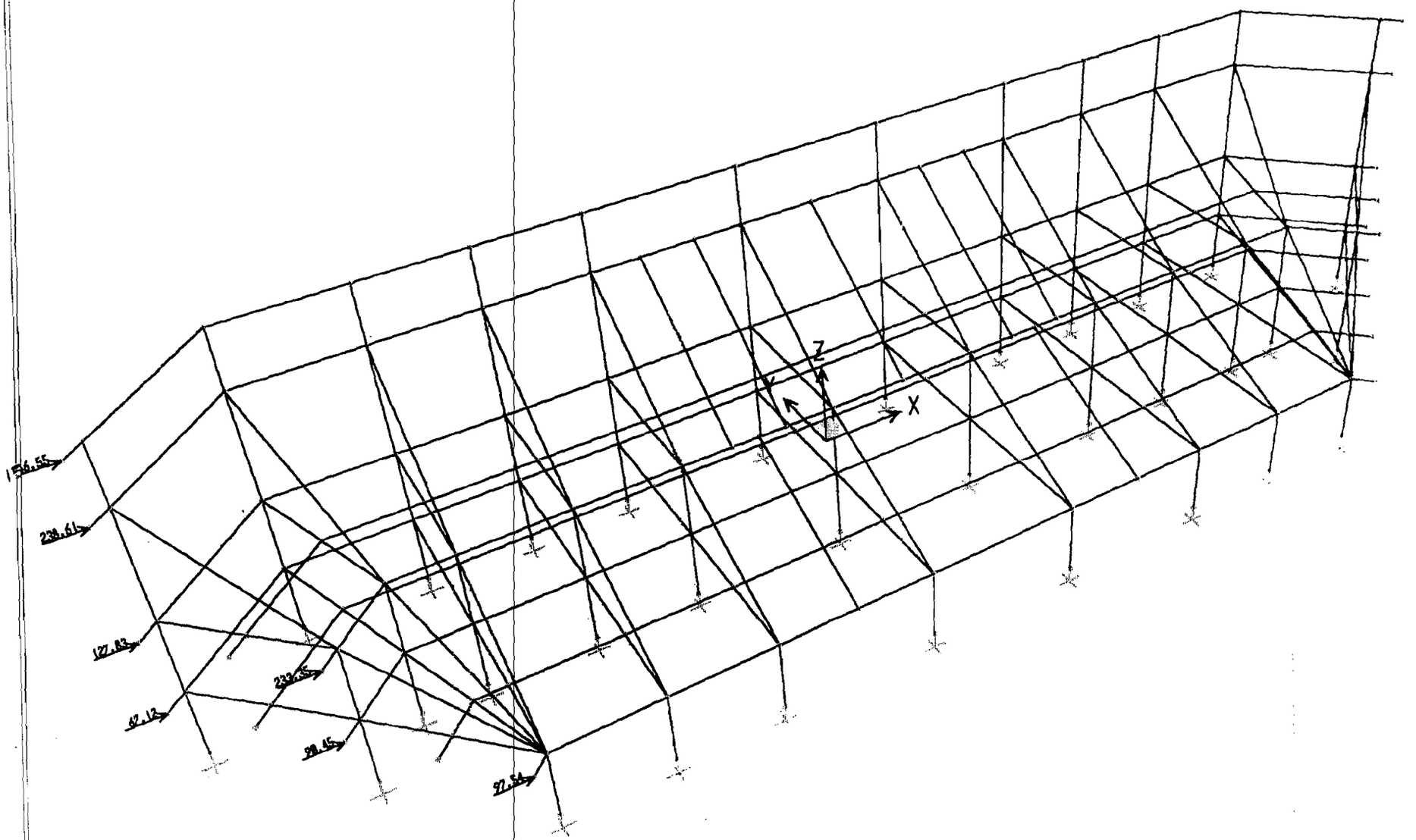
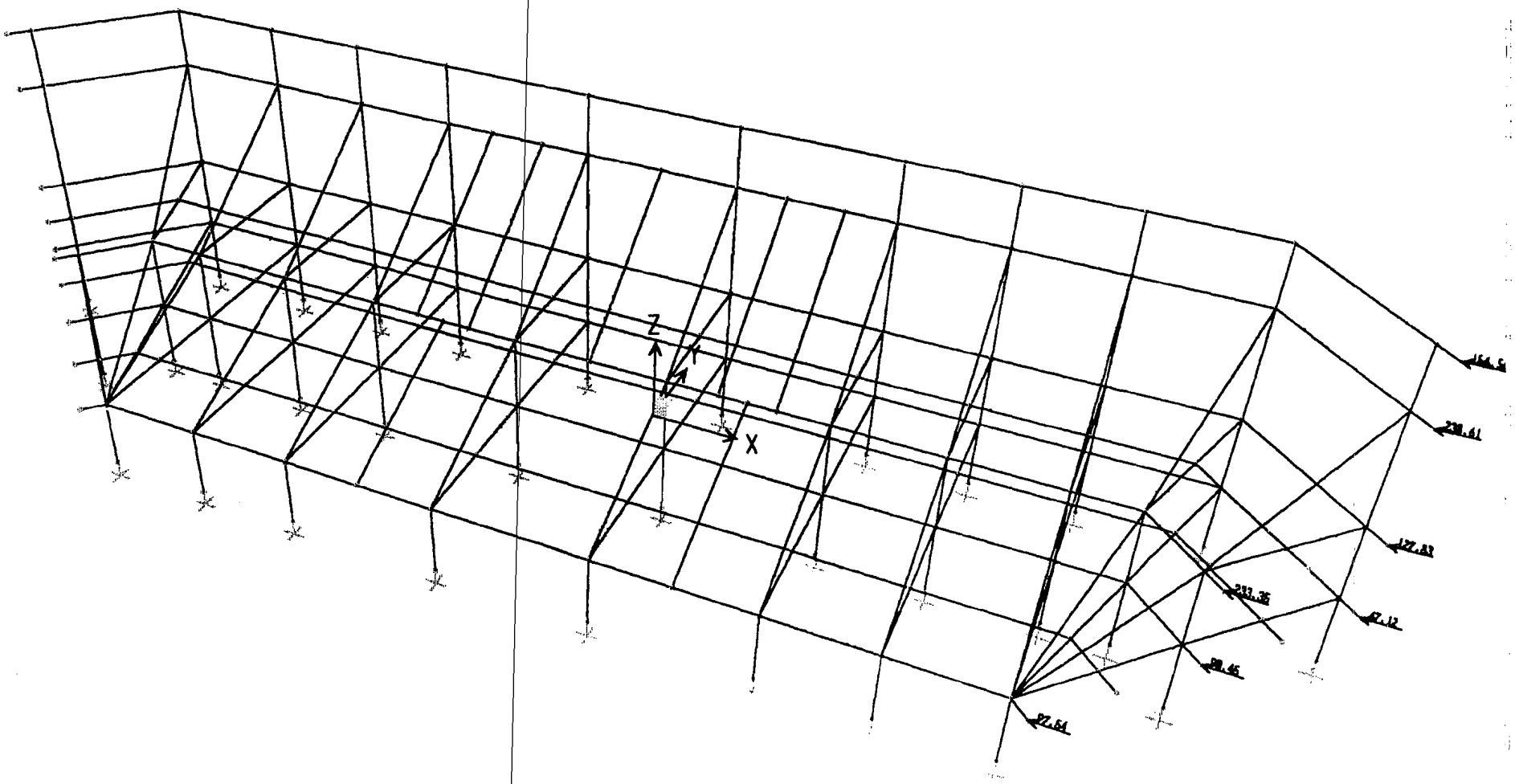


SAP2000 v7.42 - File:PORTAL Y.Beban Gempa (B) - Joint Loads (YQKIRI) - KN-m Units



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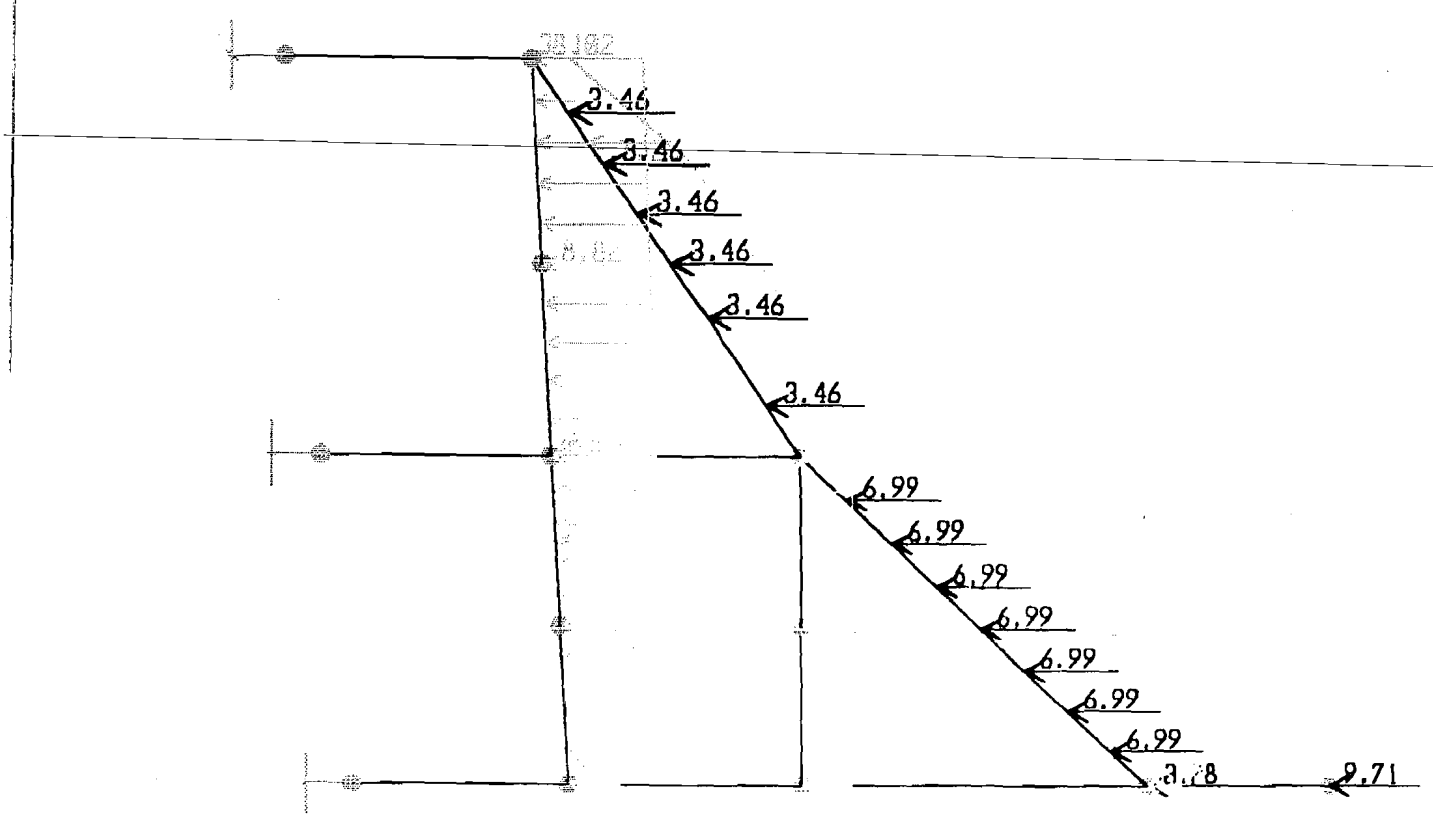

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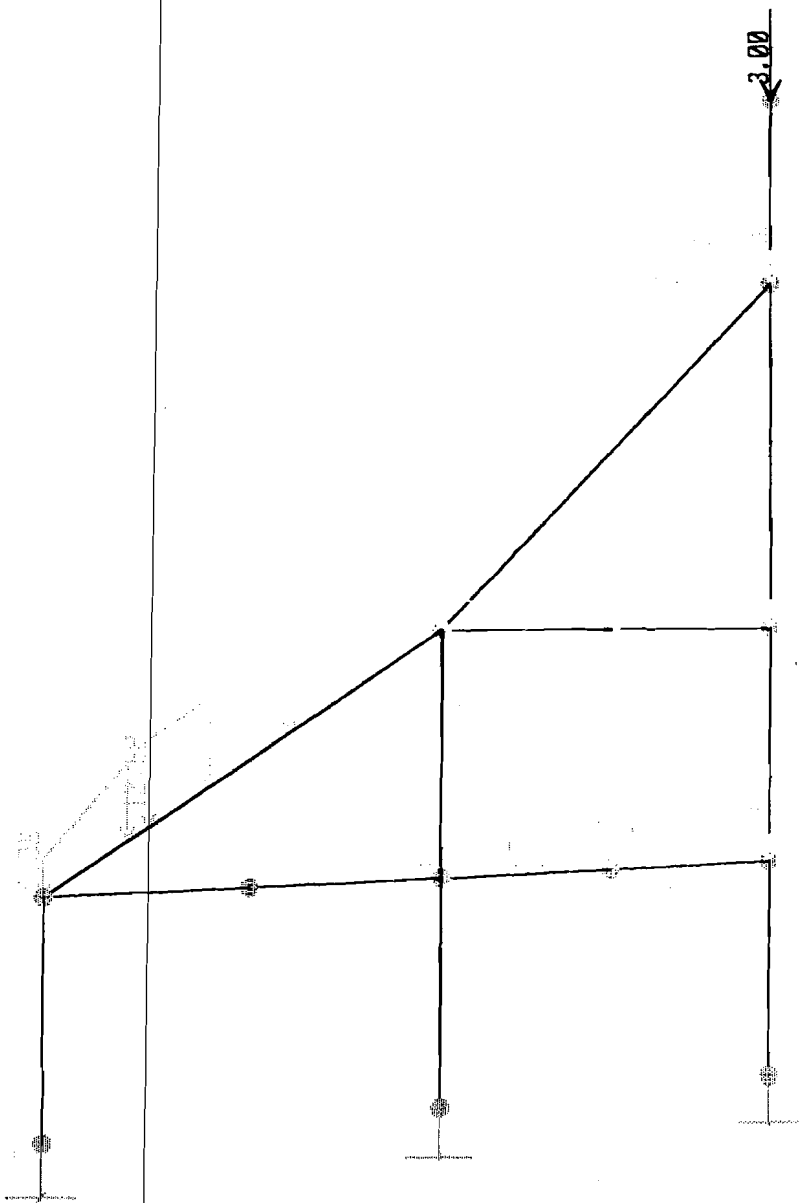
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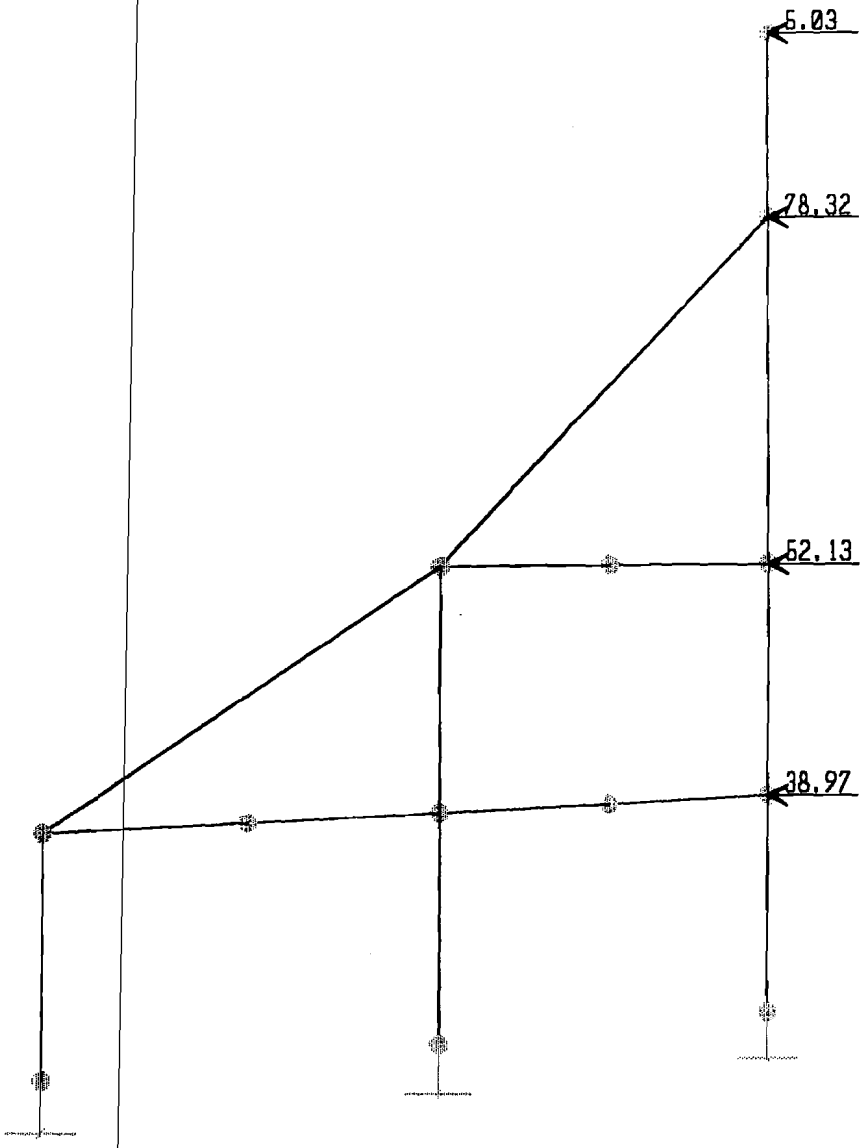

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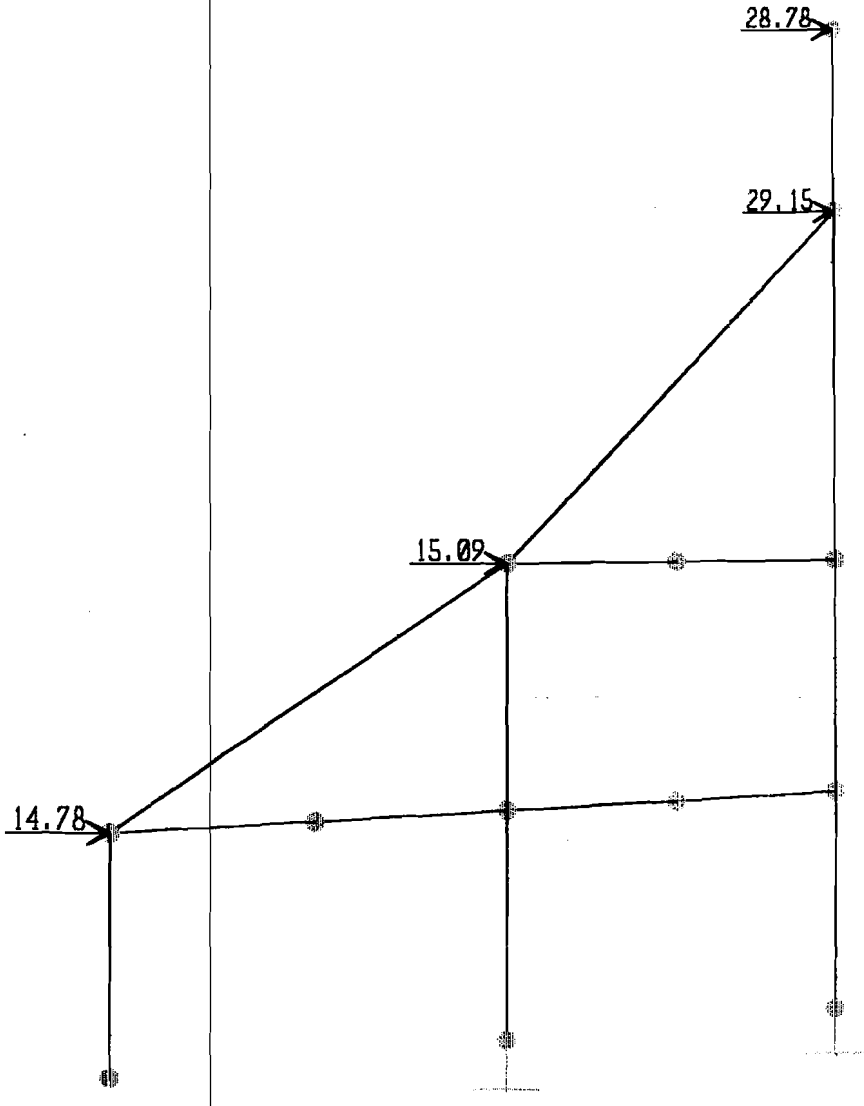

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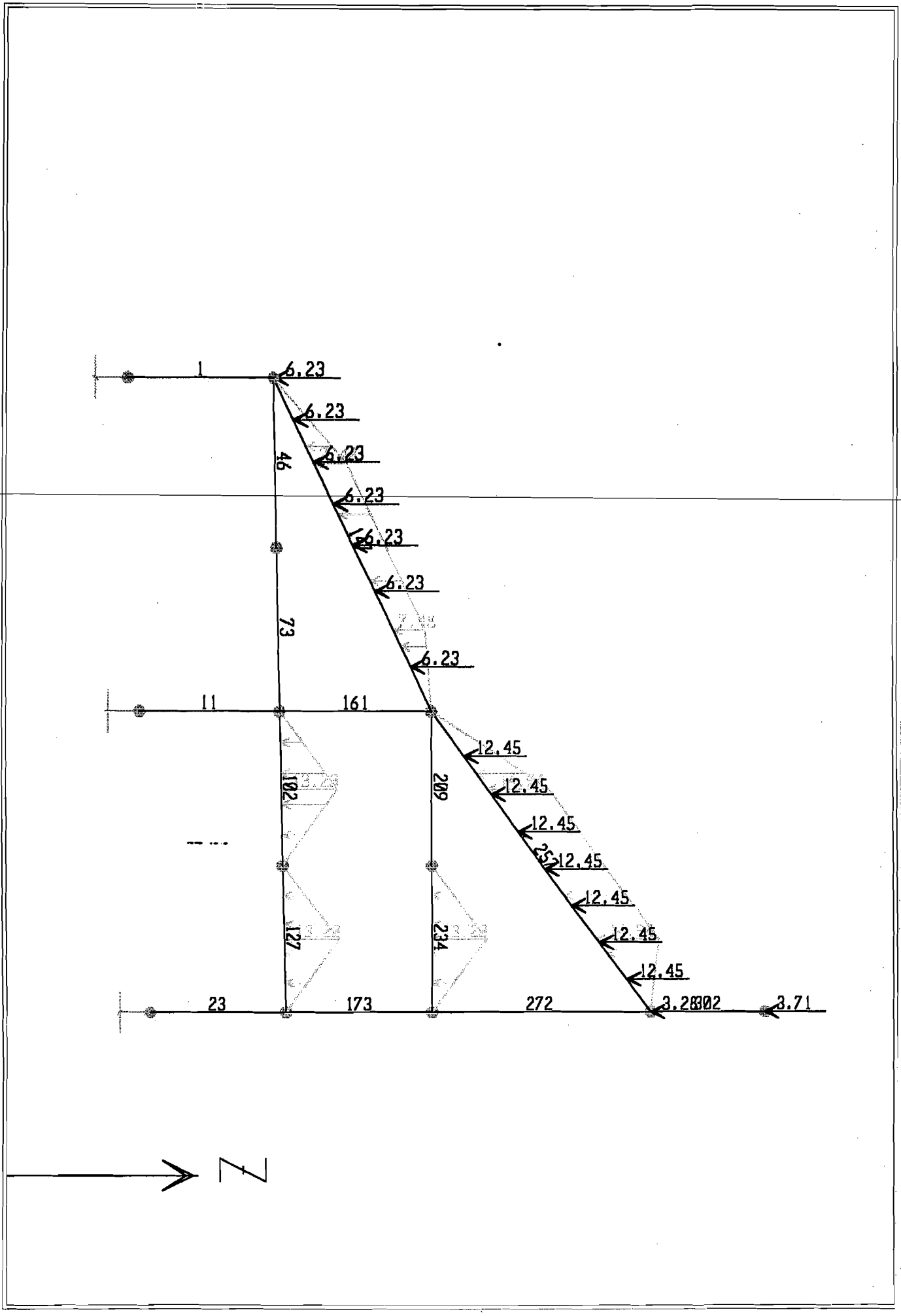
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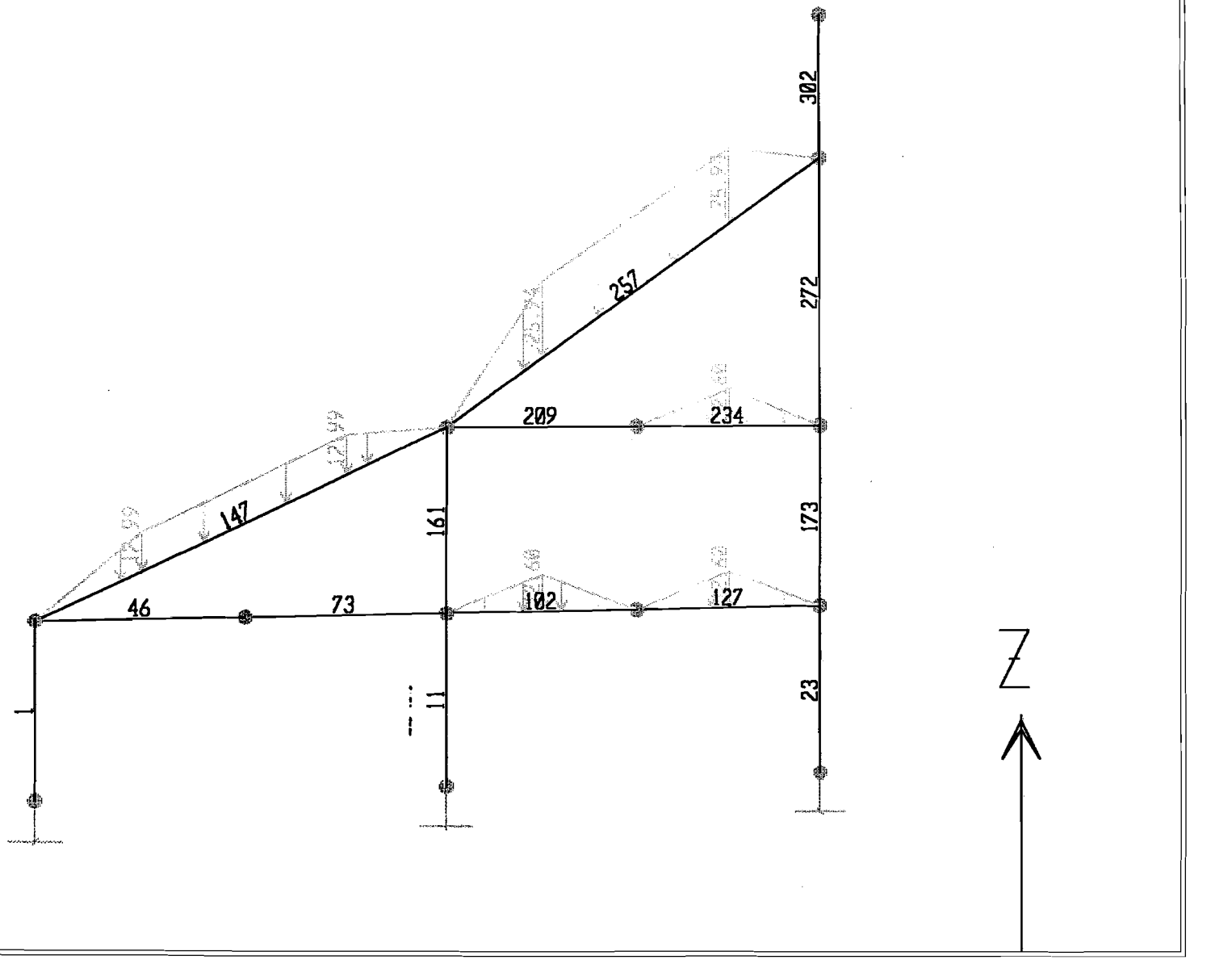
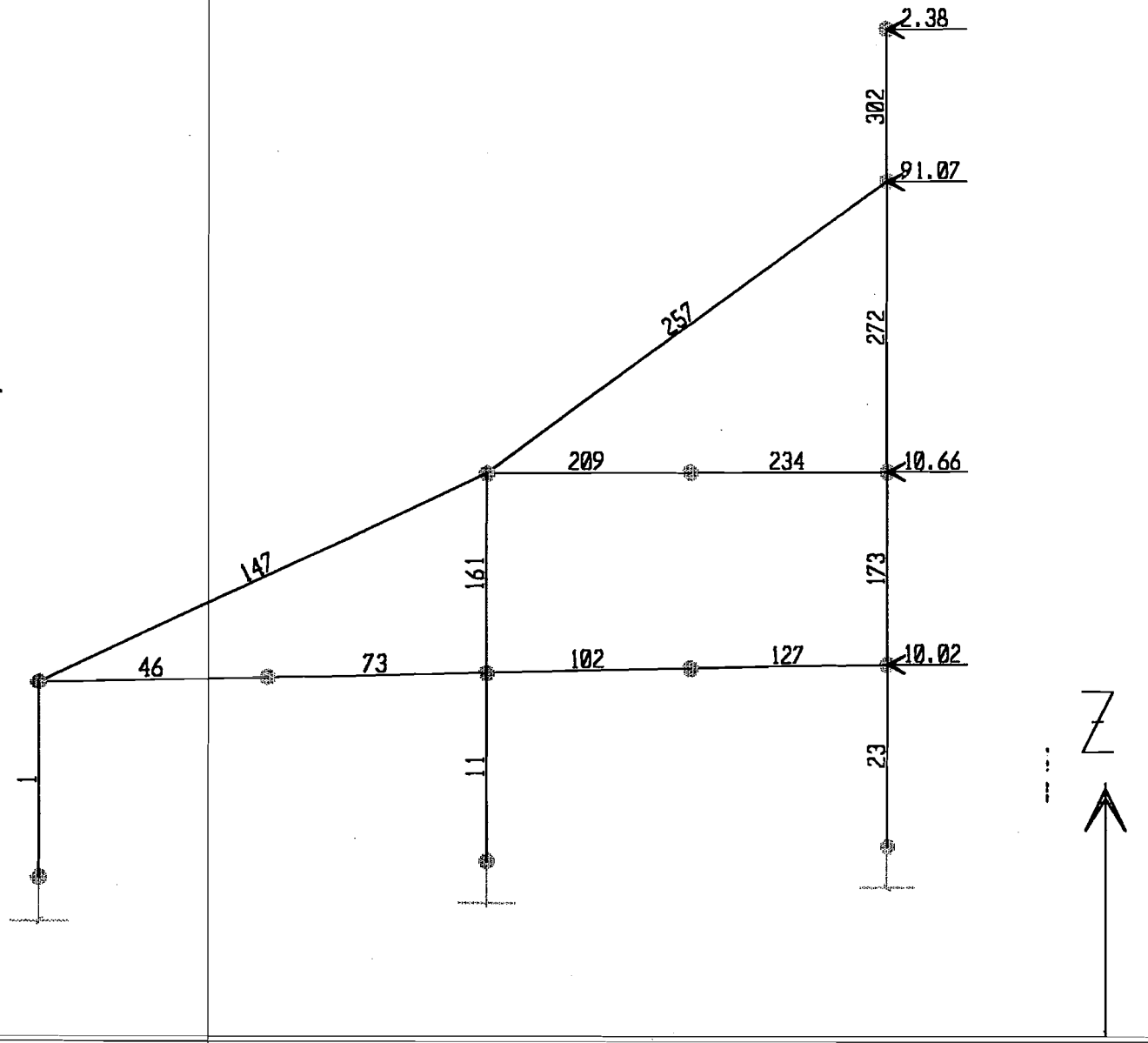
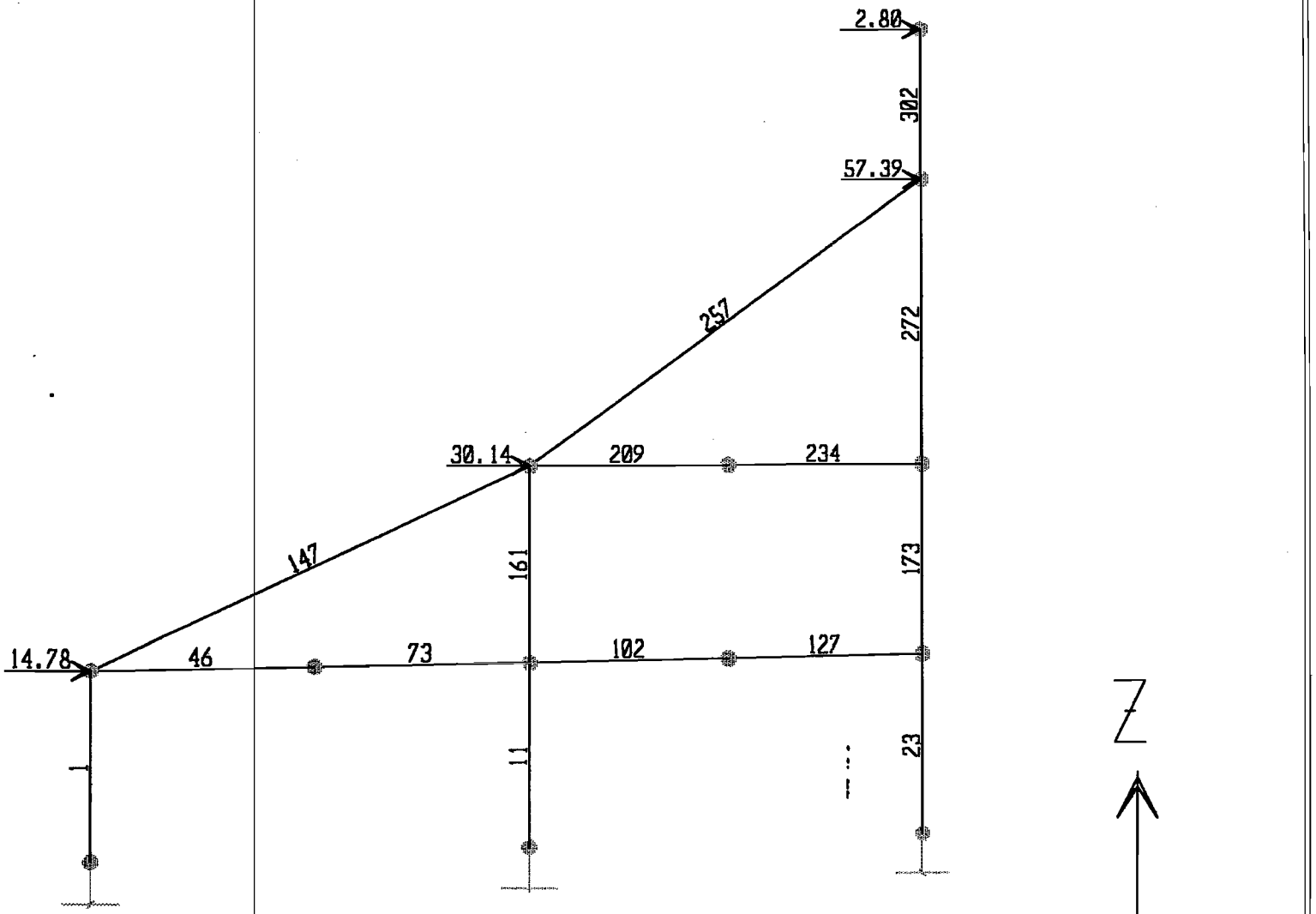


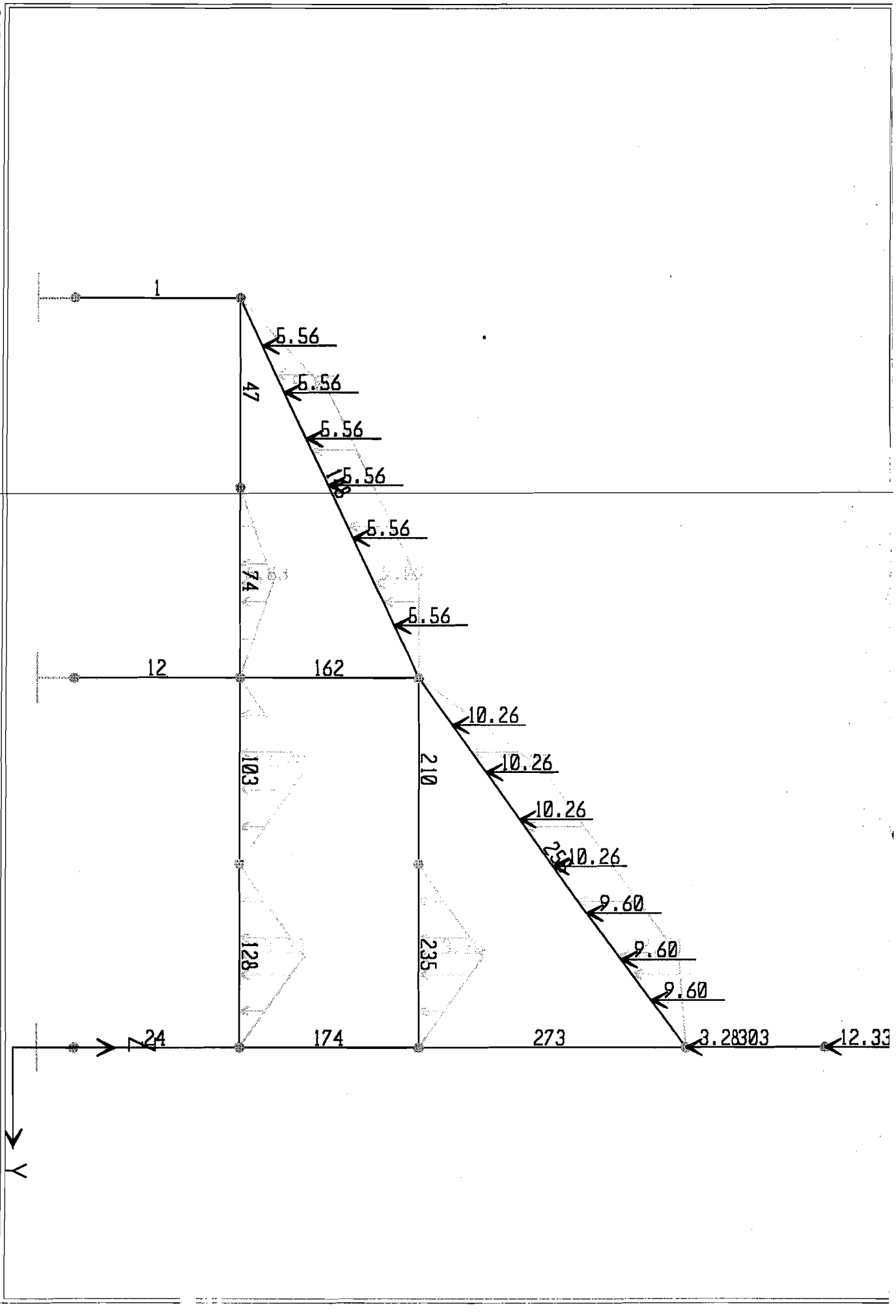
SAP2000 v7.42 - File:PORTAL X5 & X14 (B) - Frame Span Loads (HIDUP) - KN-m Units



SAP2000 v7.42 - File:PORTAL X5 & X14 (B) - Joint Loads (XQKANAN) - KN-m Units



SAP2000 v7.42 - File:PORTAL X5 & X14 (B) - Joint Loads (XQKIRI) - KN-m Units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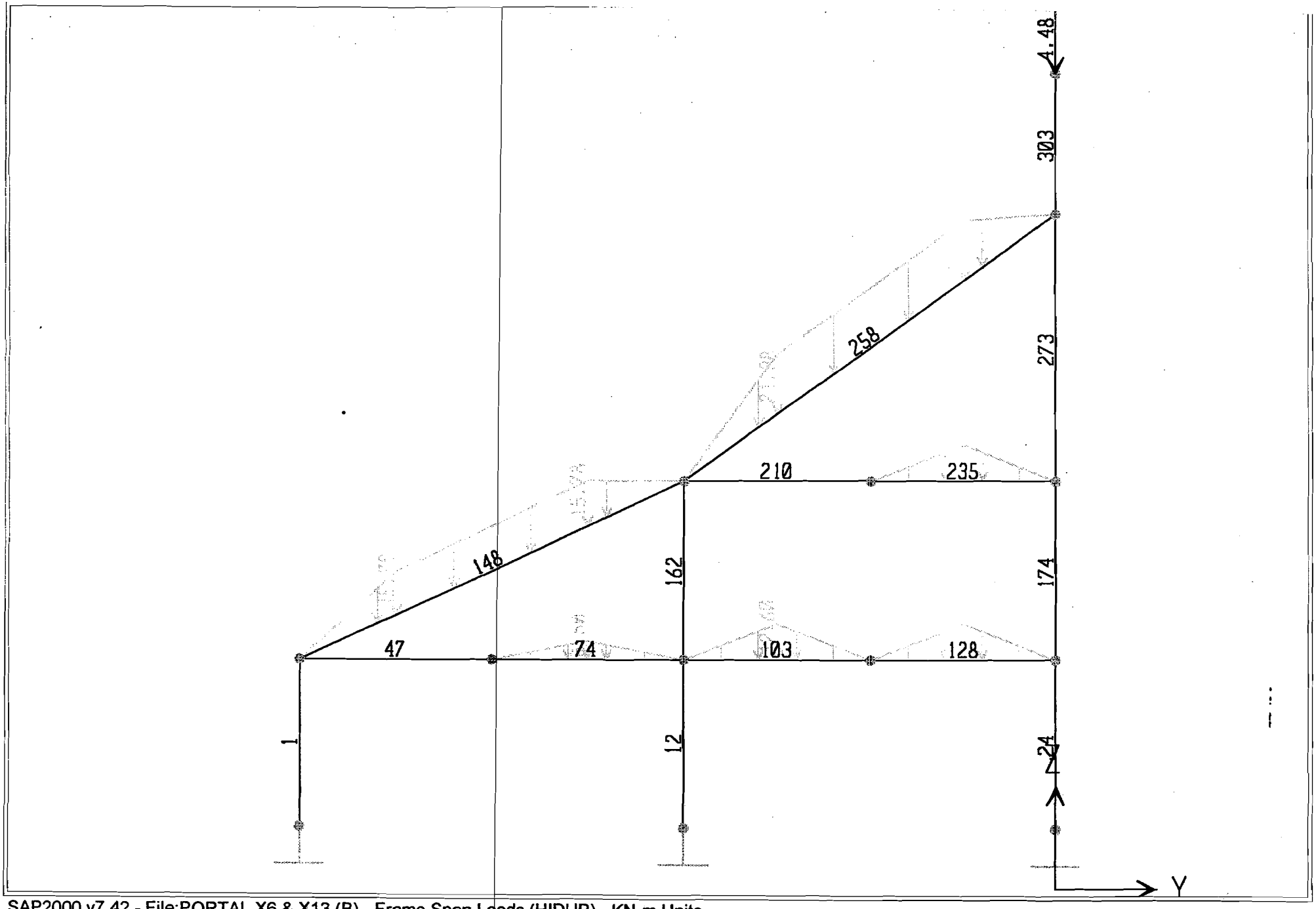
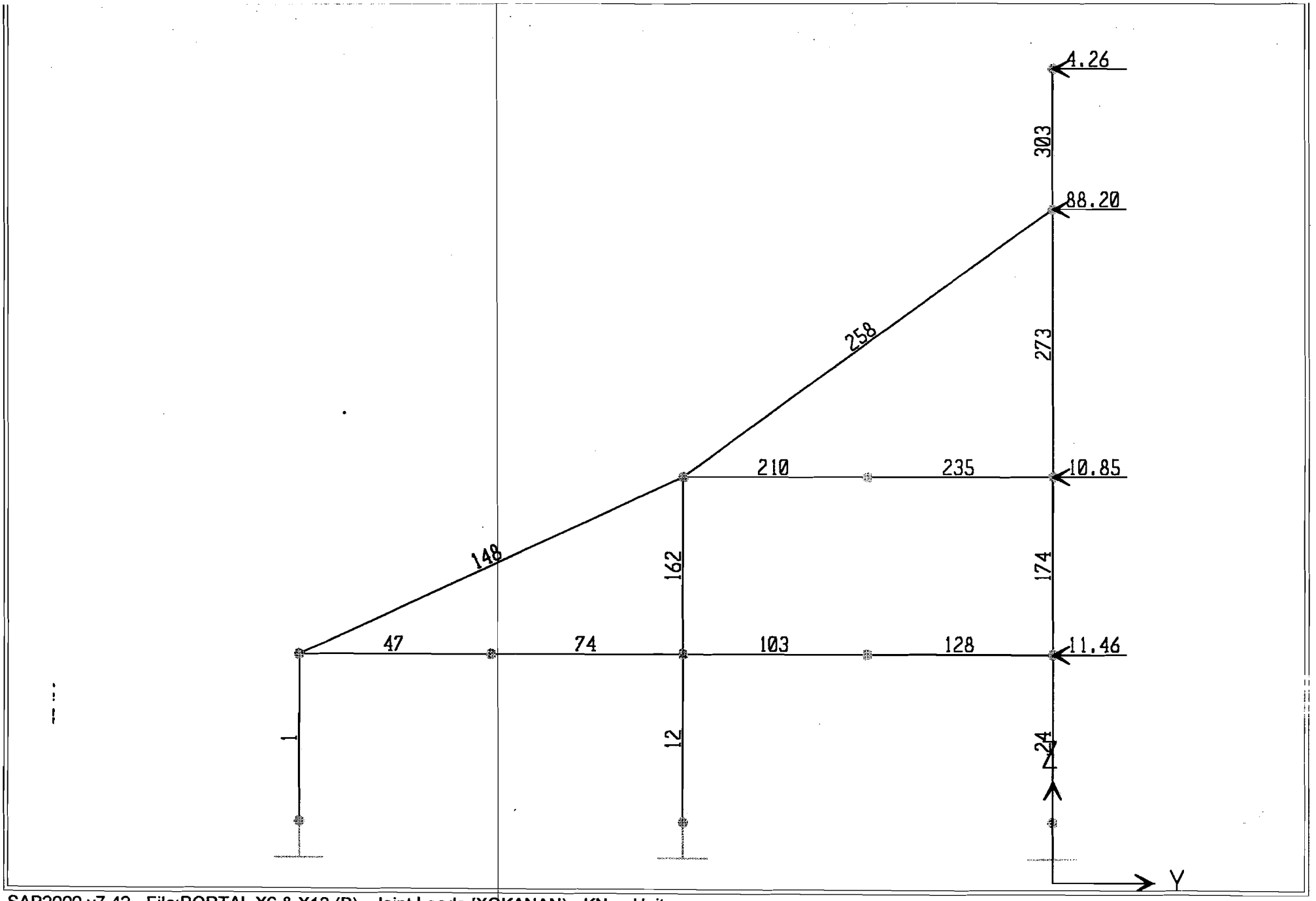
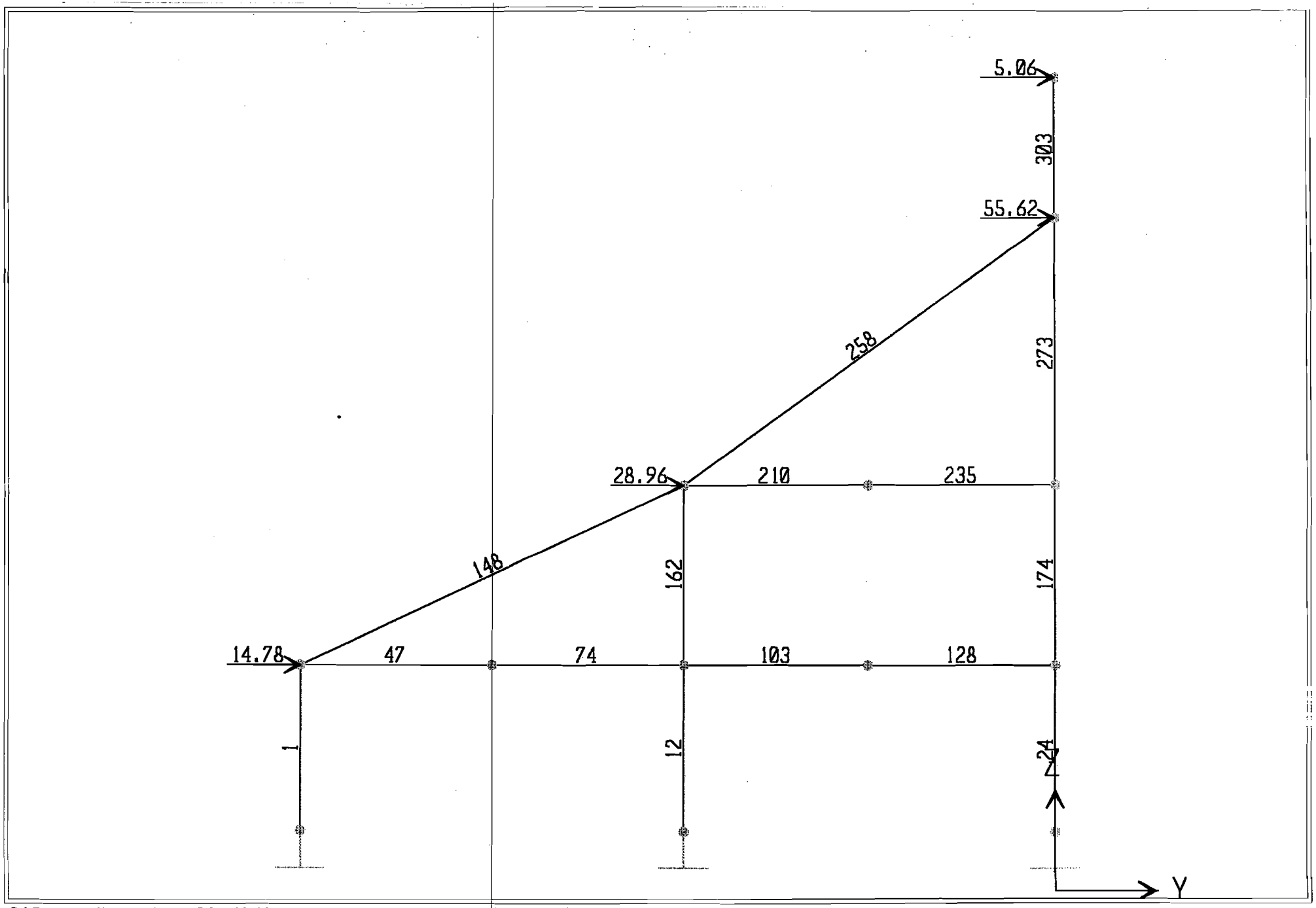


SAP2000 v7.42 - File:PORTAL X6 & X13 (B) - Frame Span Loads (HIDUP) - KN-m Units

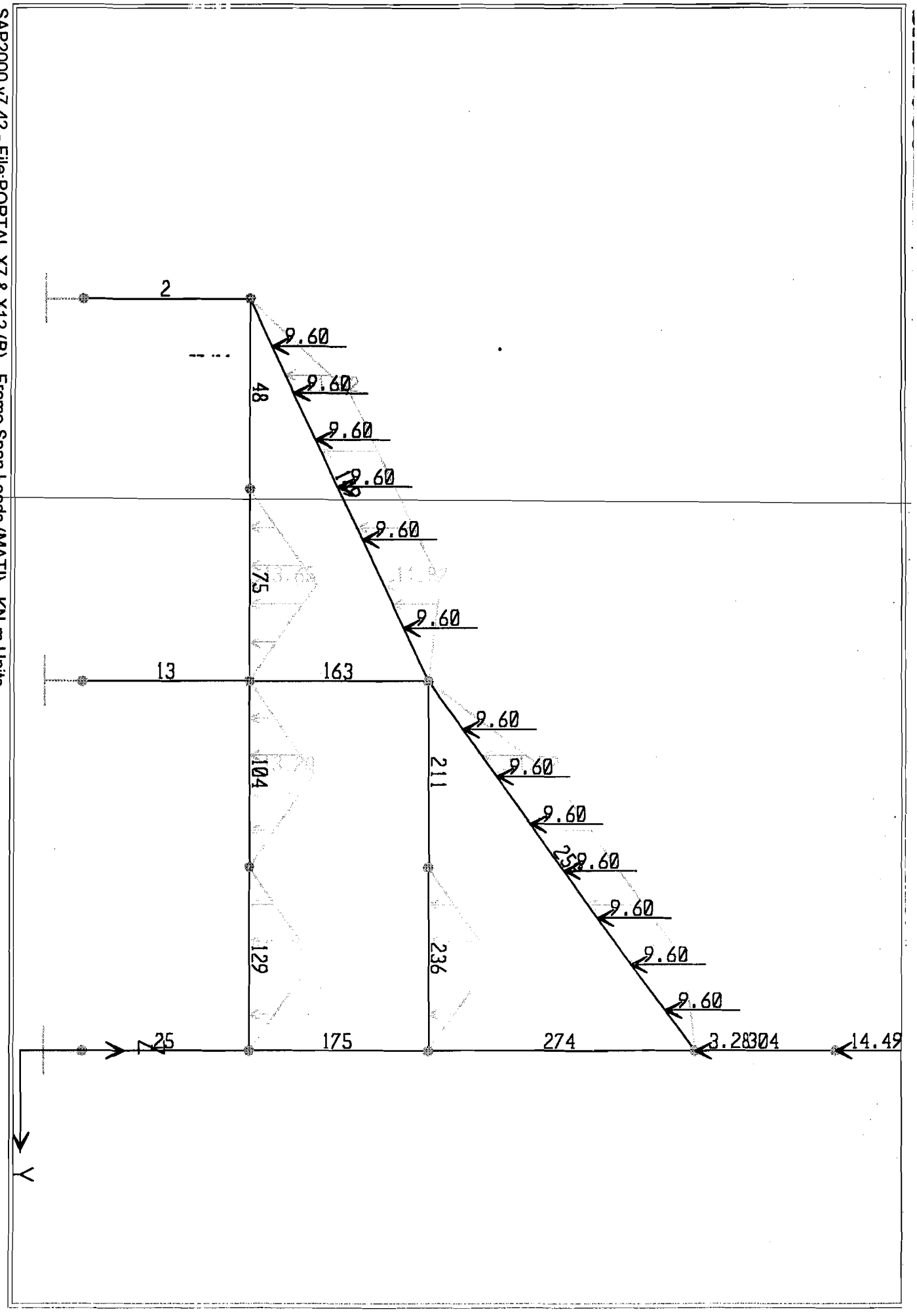


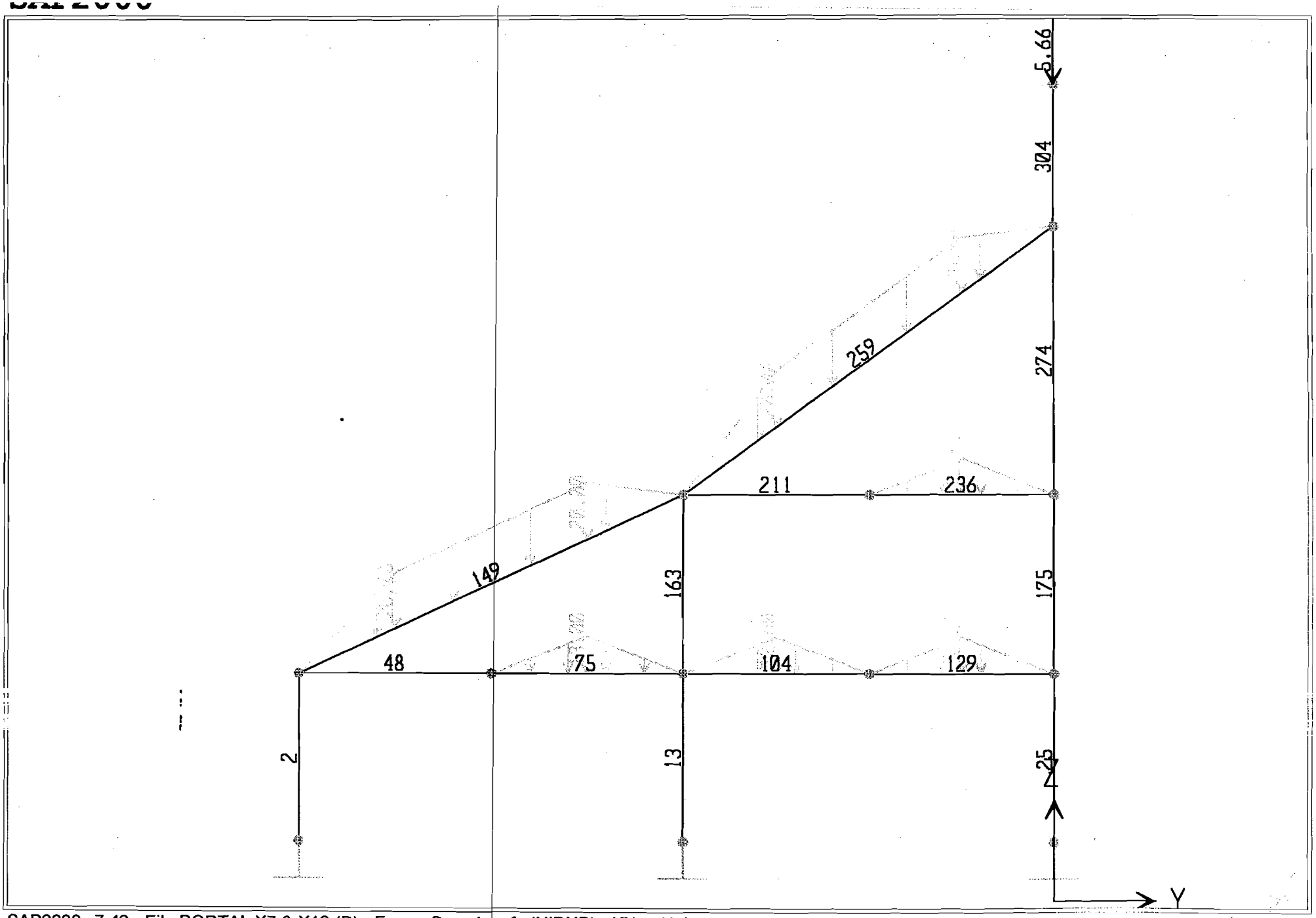
SAP2000 v7.42 - File:PORTAL X6 & X13 (B) - Joint Loads (XQKANAN) - KN-m Units



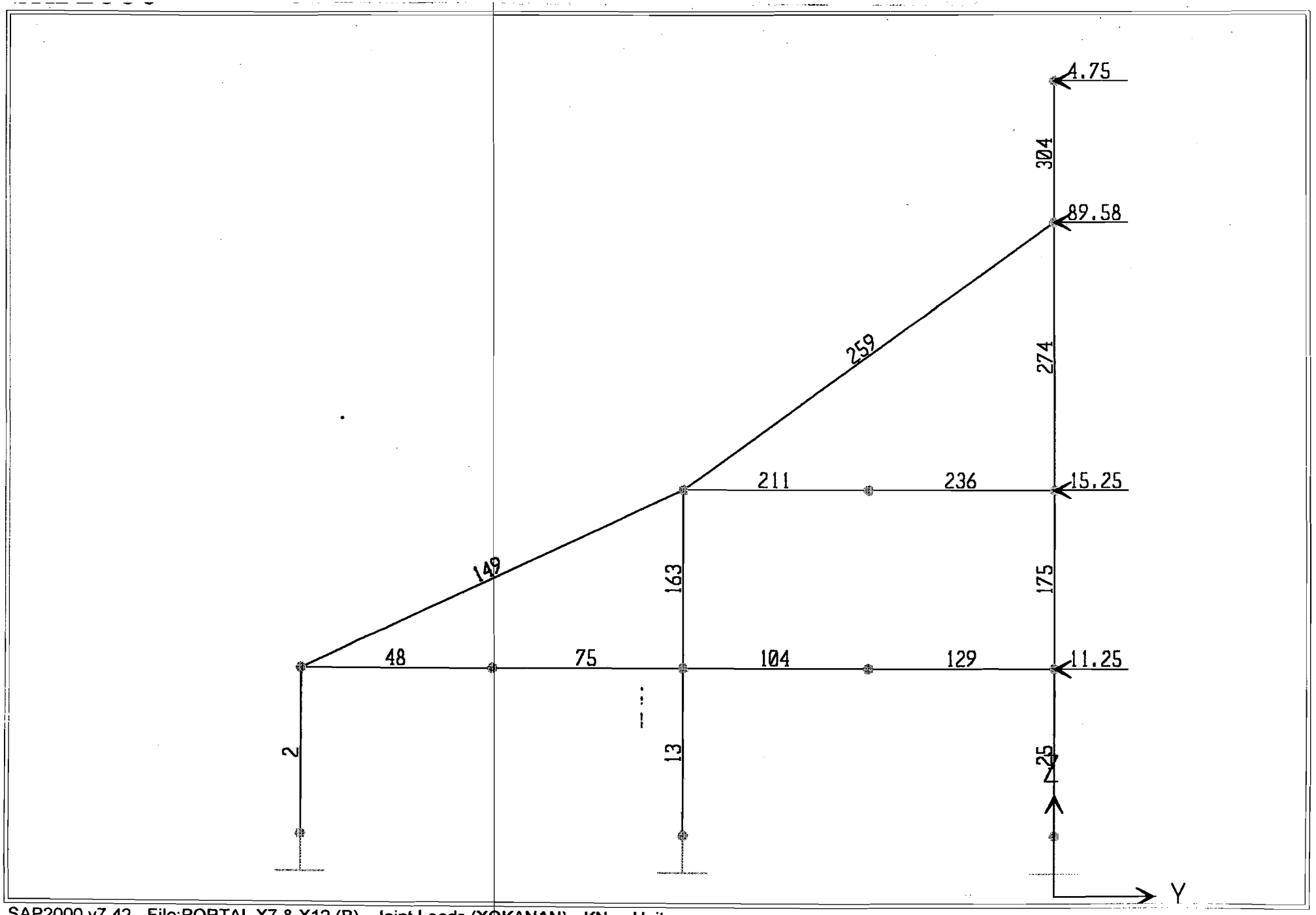
SAP2000 v7.42 - File:PORTAL X6 & X13 (B) - Joint Loads (XQKIRI) - KN-m Units

SAP2000 v7.42 - File:PORTAL X7 & X12 (B) - Frame Span Loads (MAT) - KN-m Units

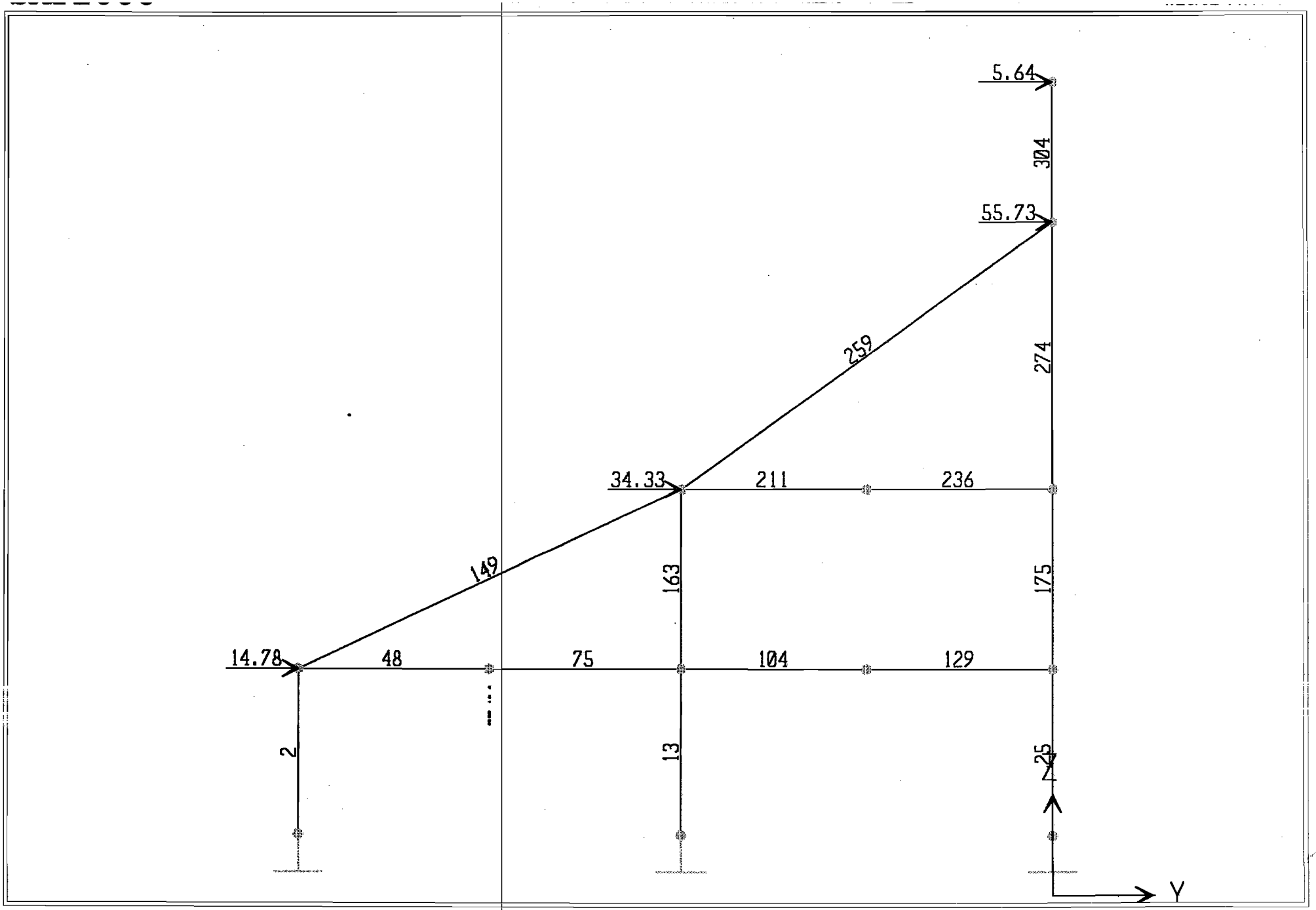




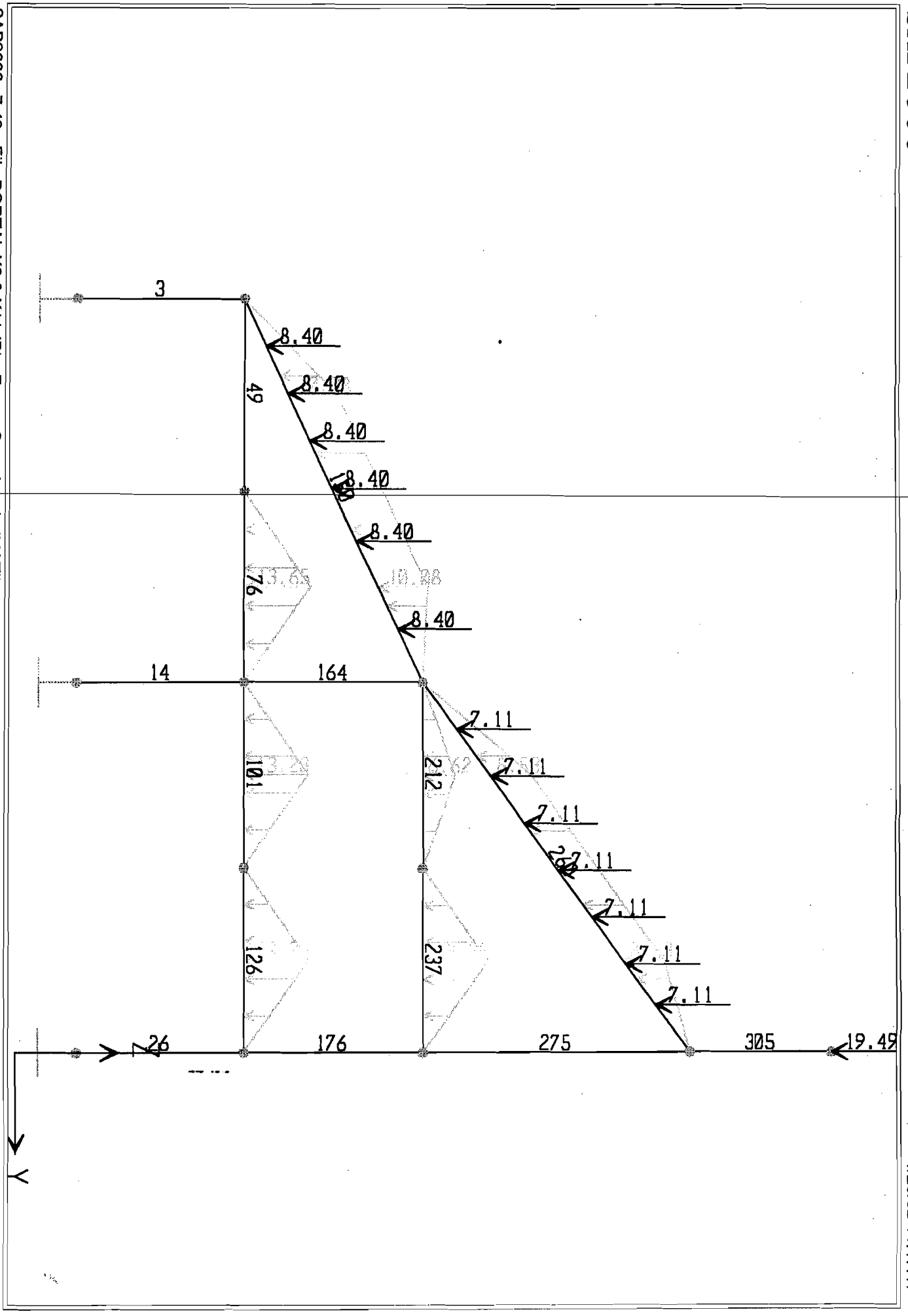
SAP2000 v7.42 - File:PORTAL X7 & X12 (B) - Frame Span Loads (HIDUP) - KN-m Units

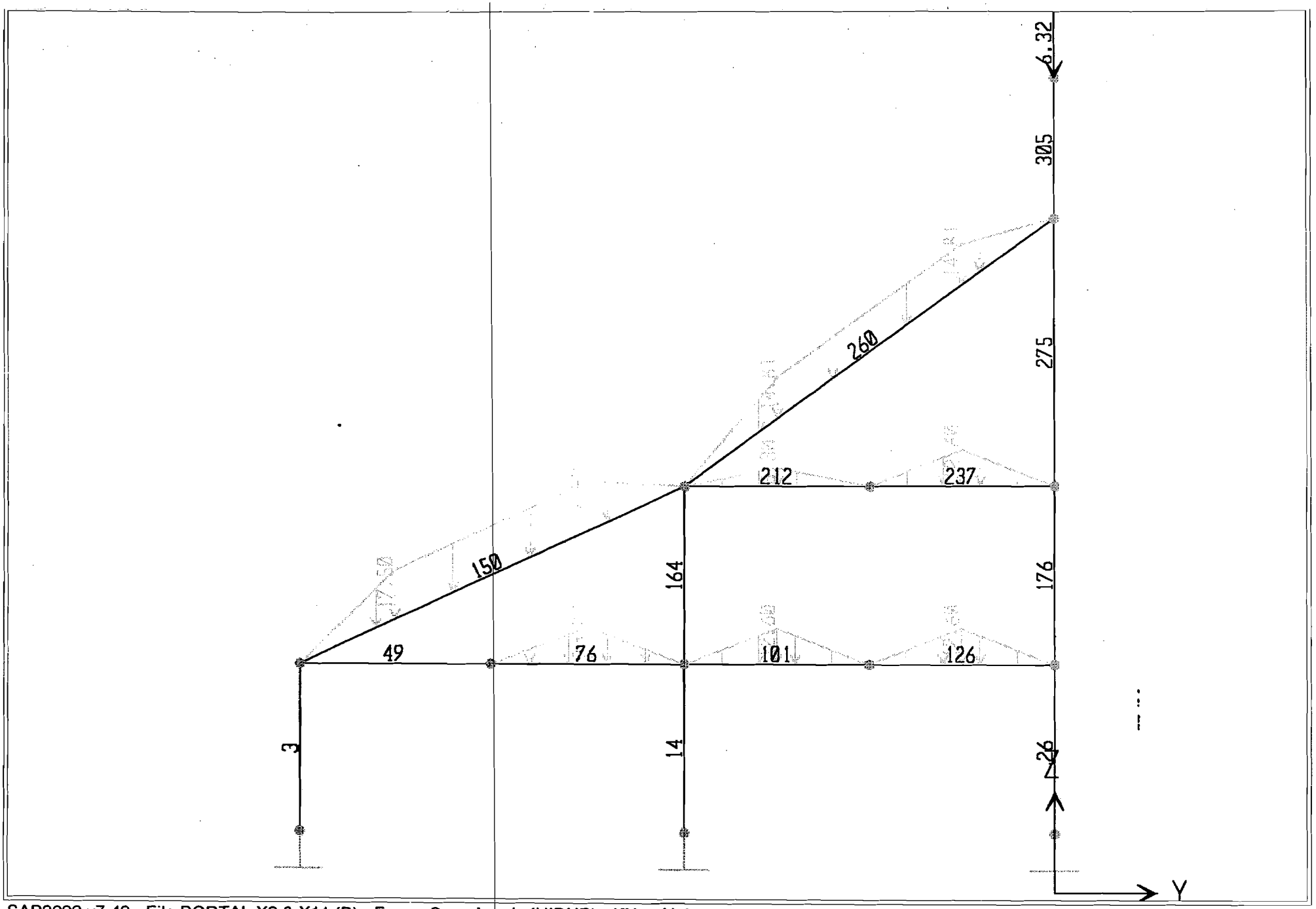


SAP2000 v7.42 - File:PORTAL X7 & X12 (B) - Joint Loads (XQKANAN) - KN-m Units

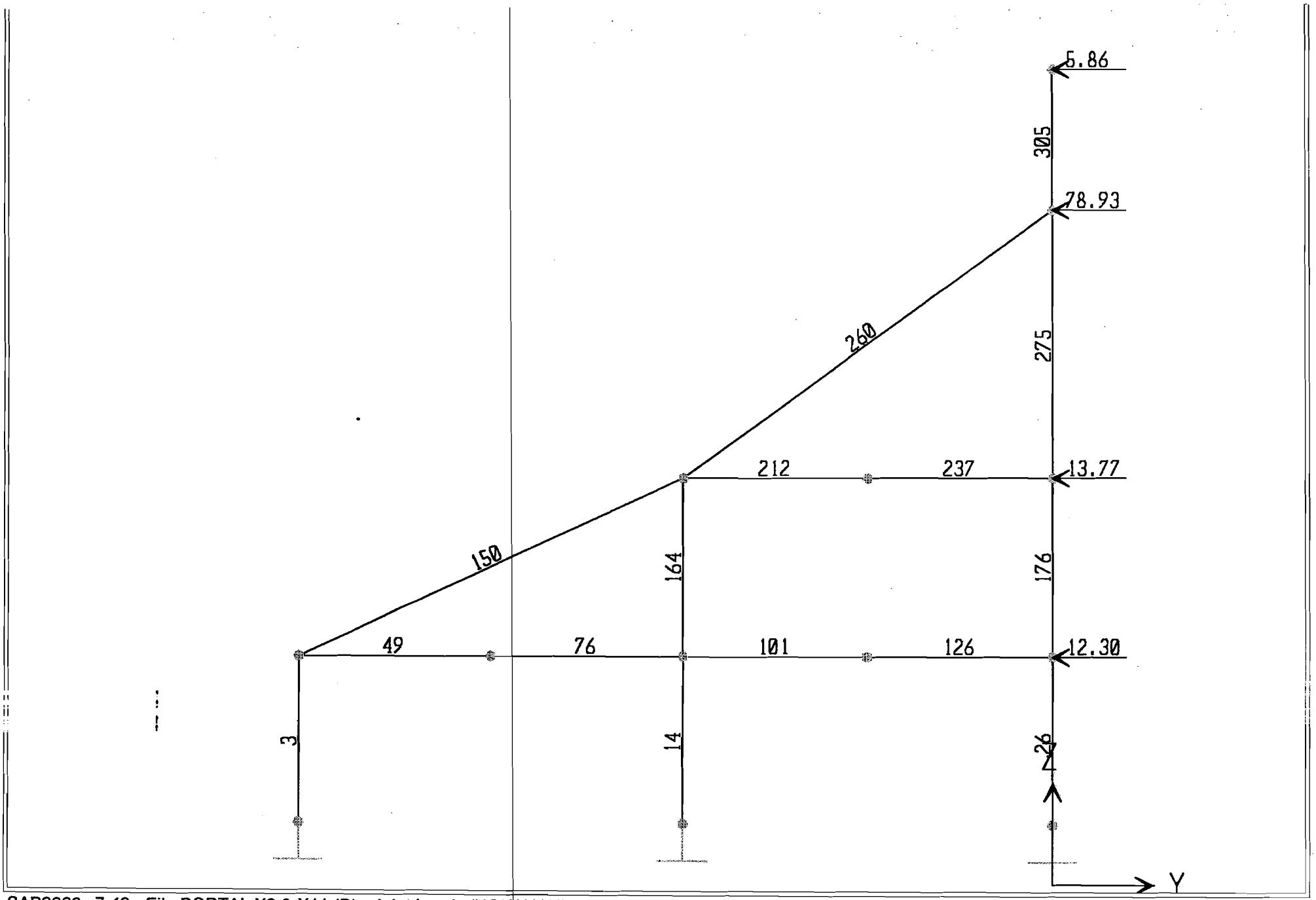


SAP2000 v7.42 - File:PORTAL X7 & X12 (B) - Joint Loads (XQKIRI) - KN-m Units

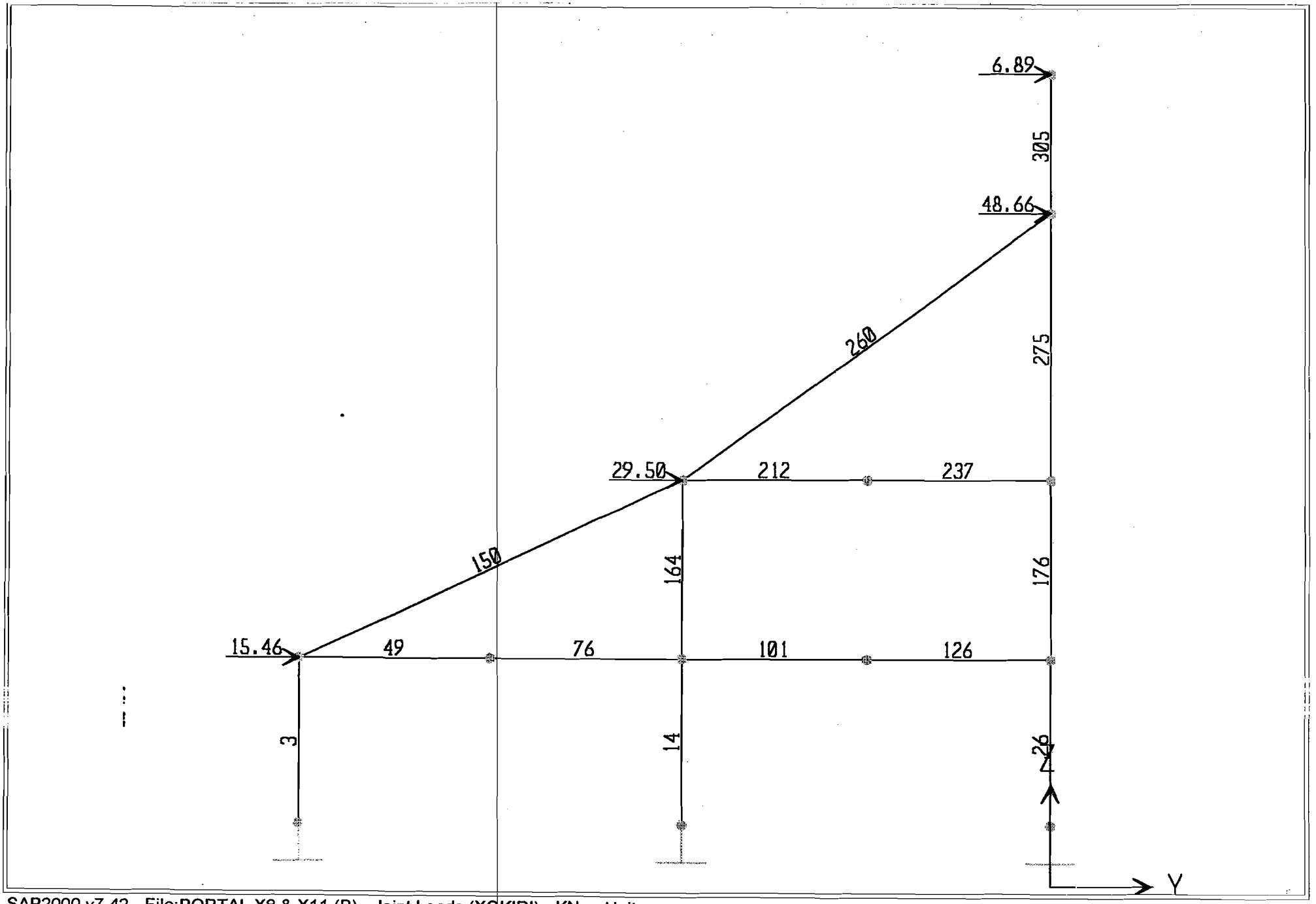

3
8.40
8.40
8.40
8.40
8.40
8.40
49
76
14
164
7.11
7.11
7.11
7.11
7.11
7.11
101
212
126
237
26
176
275
305
19.49
Y



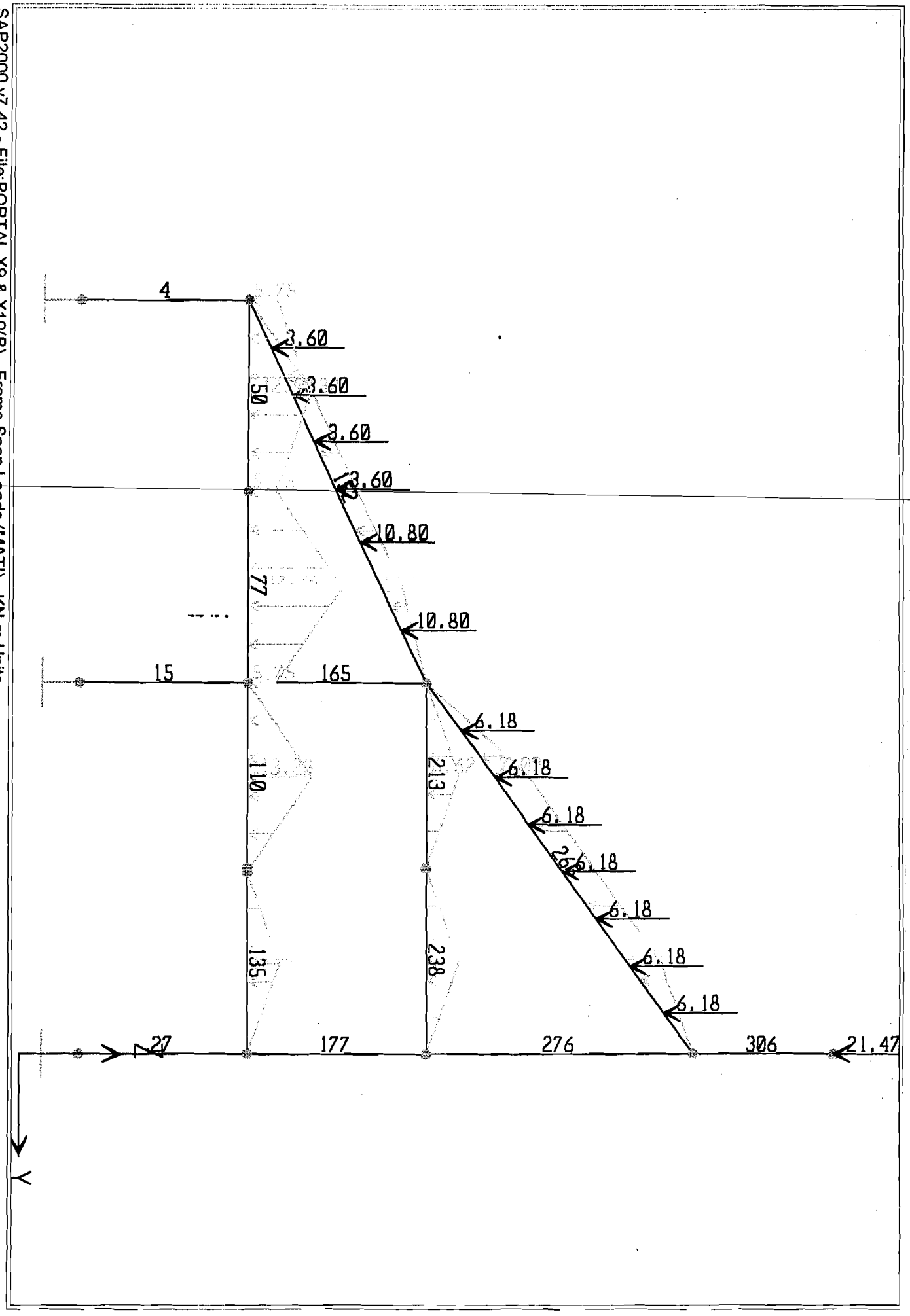
SAP2000 v7.42 - File:PORTAL X8 & X11 (B) - Frame Span Loads (HIDUP) - KN-m Units



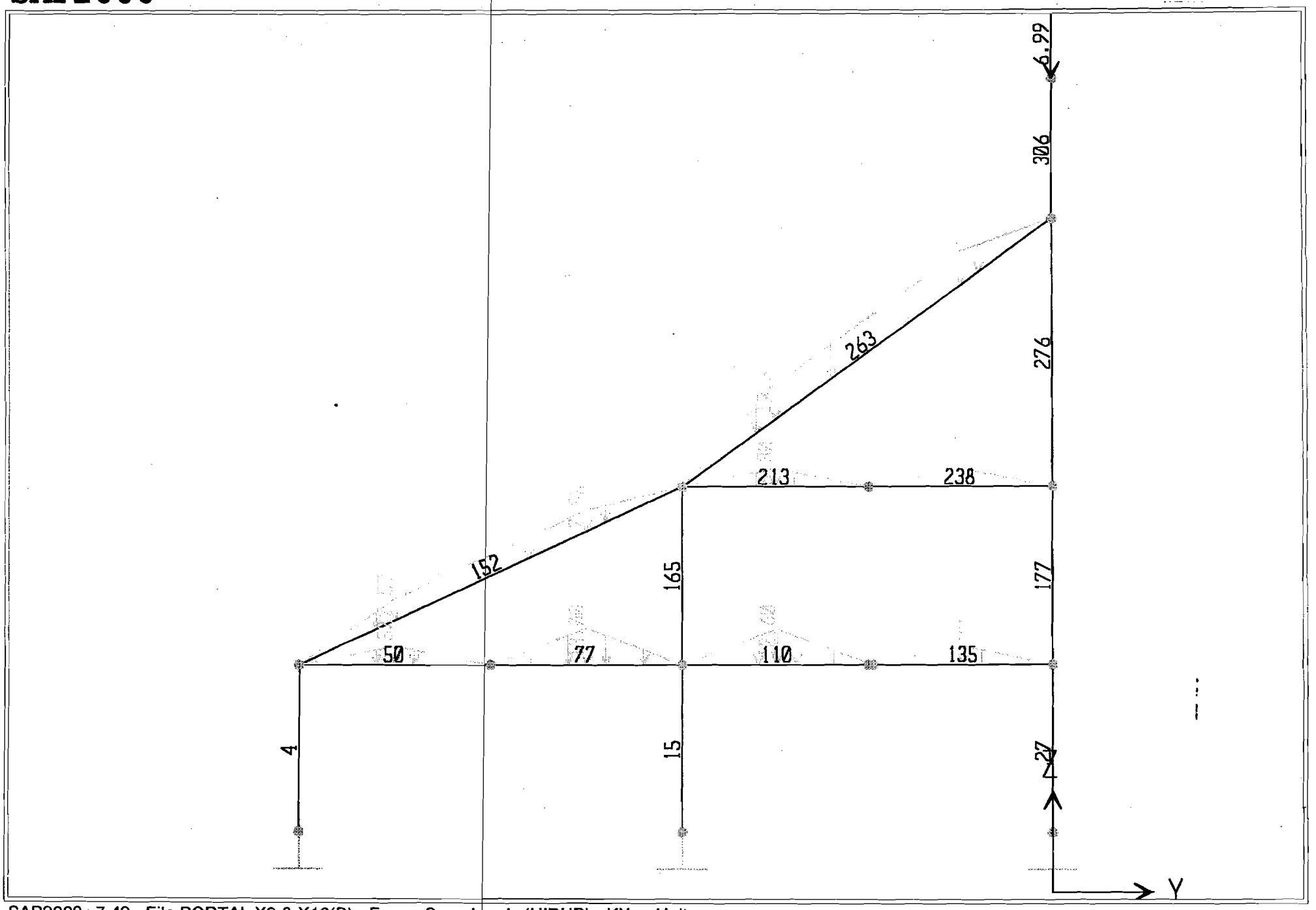
SAP2000 v7.42 - File:PORTAL X8 & X11 (B) - Joint Loads (XQKANAN) - KN-m Units



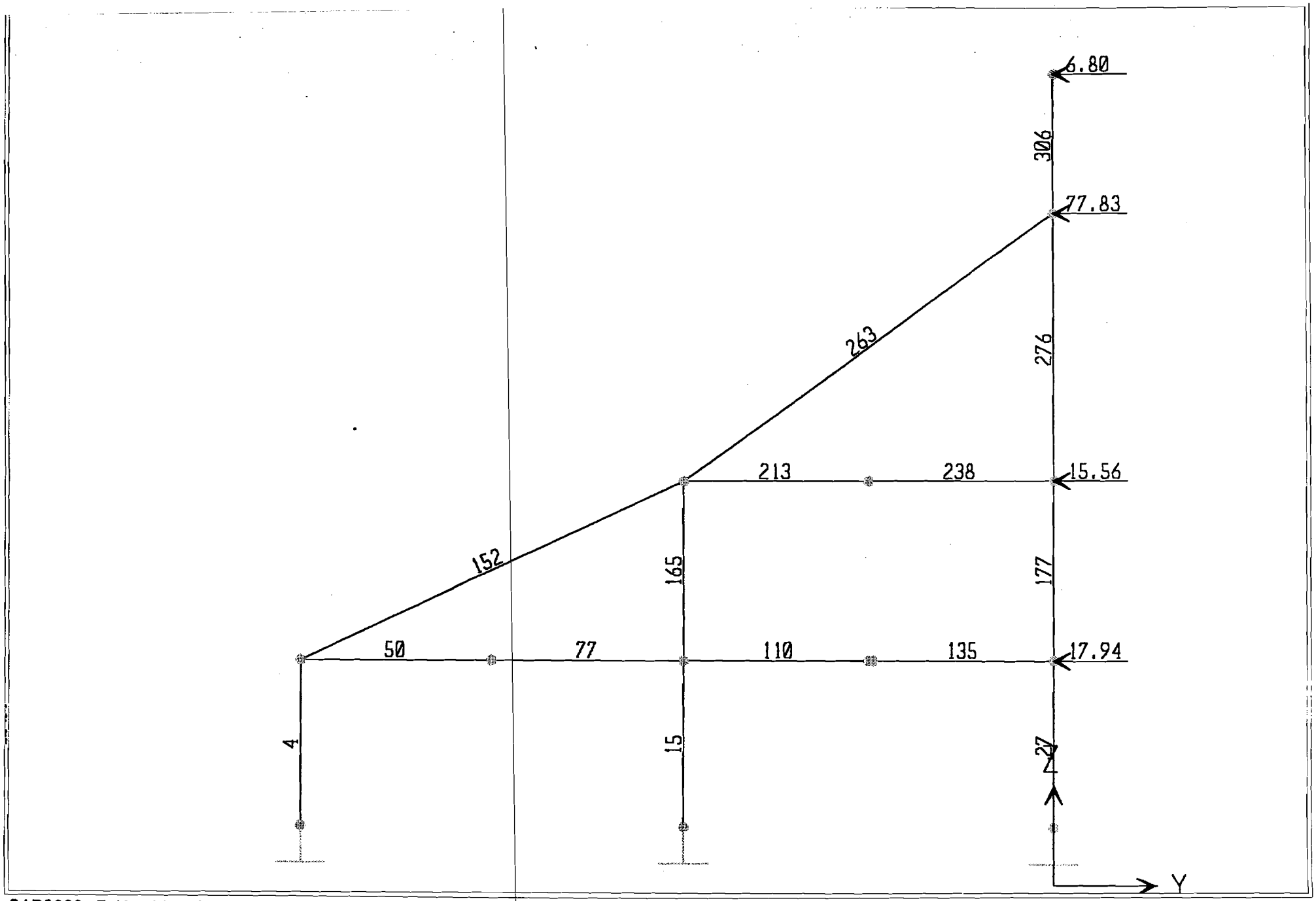
SAP2000 v7.42 - File:PORTAL X8 & X11 (B) - Joint Loads (XQKIRI) - KN-m Units


4
3.60
3.60
3.60
3.60
10.80
10.80
50
77
15
165
6.18
6.18
6.18
6.18
6.18
6.18
6.18
110
213
135
238
27
177
276
306
21.47
Y

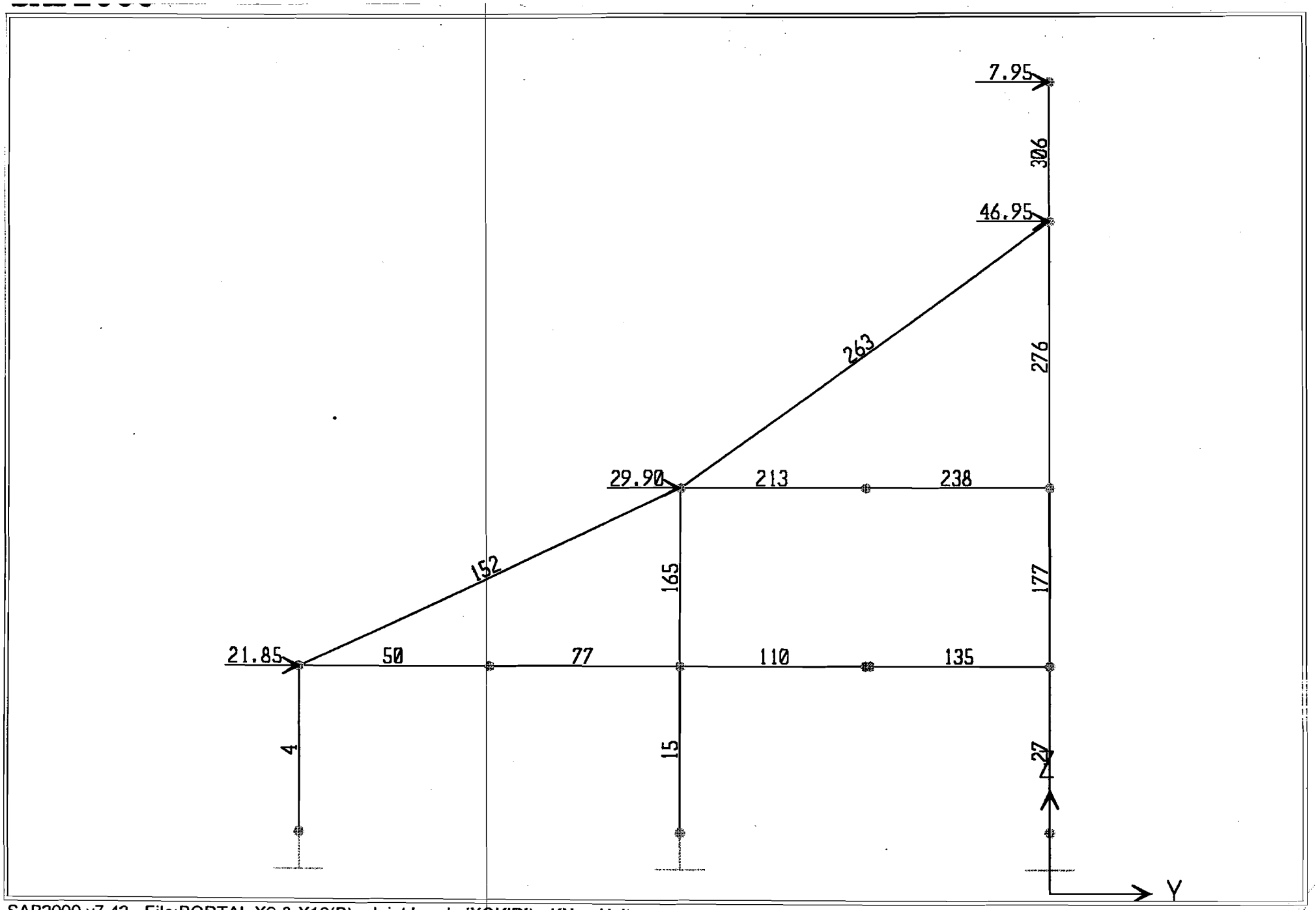
SAP2000



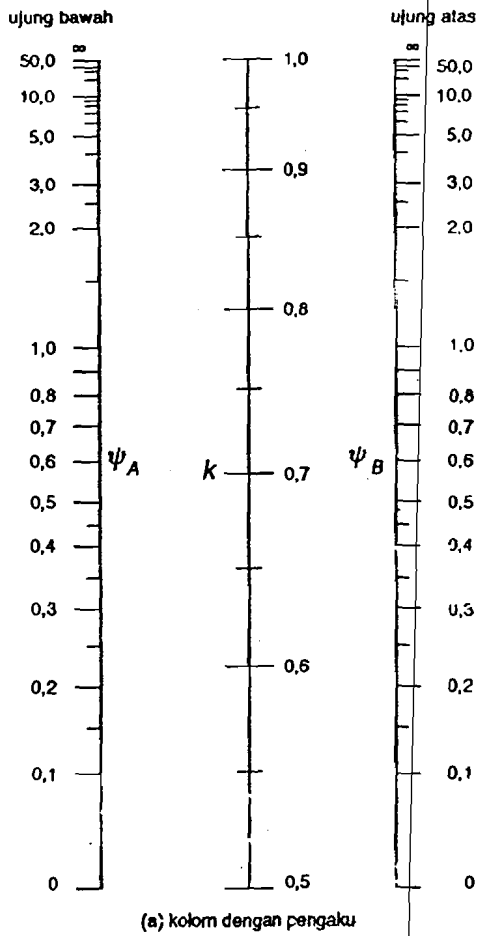
SAP2000 v7.42 - File:PORTAL X9 & X10(B) - Frame Span Loads (HIDUP) - KN-m Units



SAP2000 v7.42 - File:PORTAL X9 & X10(B) - Joint Loads (XQKANAN) - KN-m Units

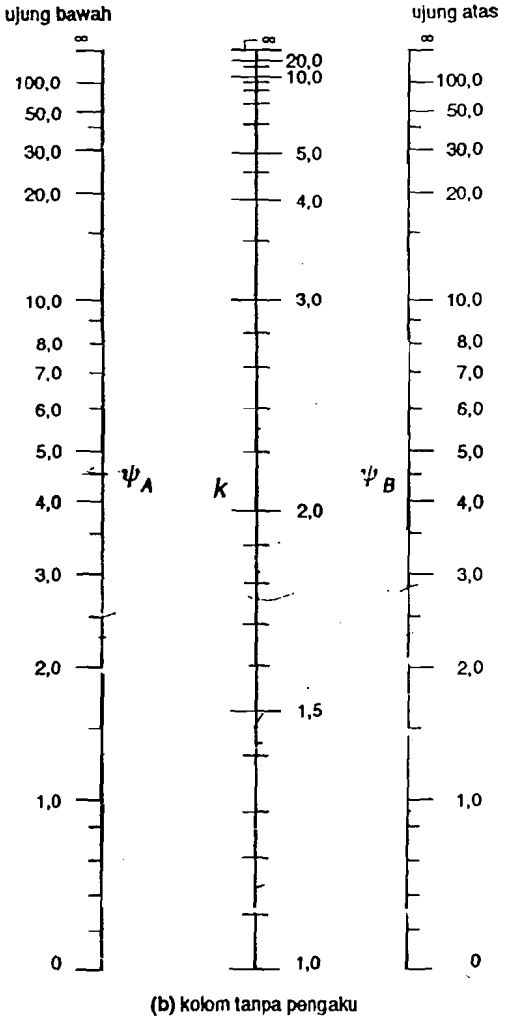


SAP2000 v7.42 - File:PORTAL X9 & X10(B) - Joint Loads (XQKIRI) - KN-m Units



(a) kolom dengan pengaku

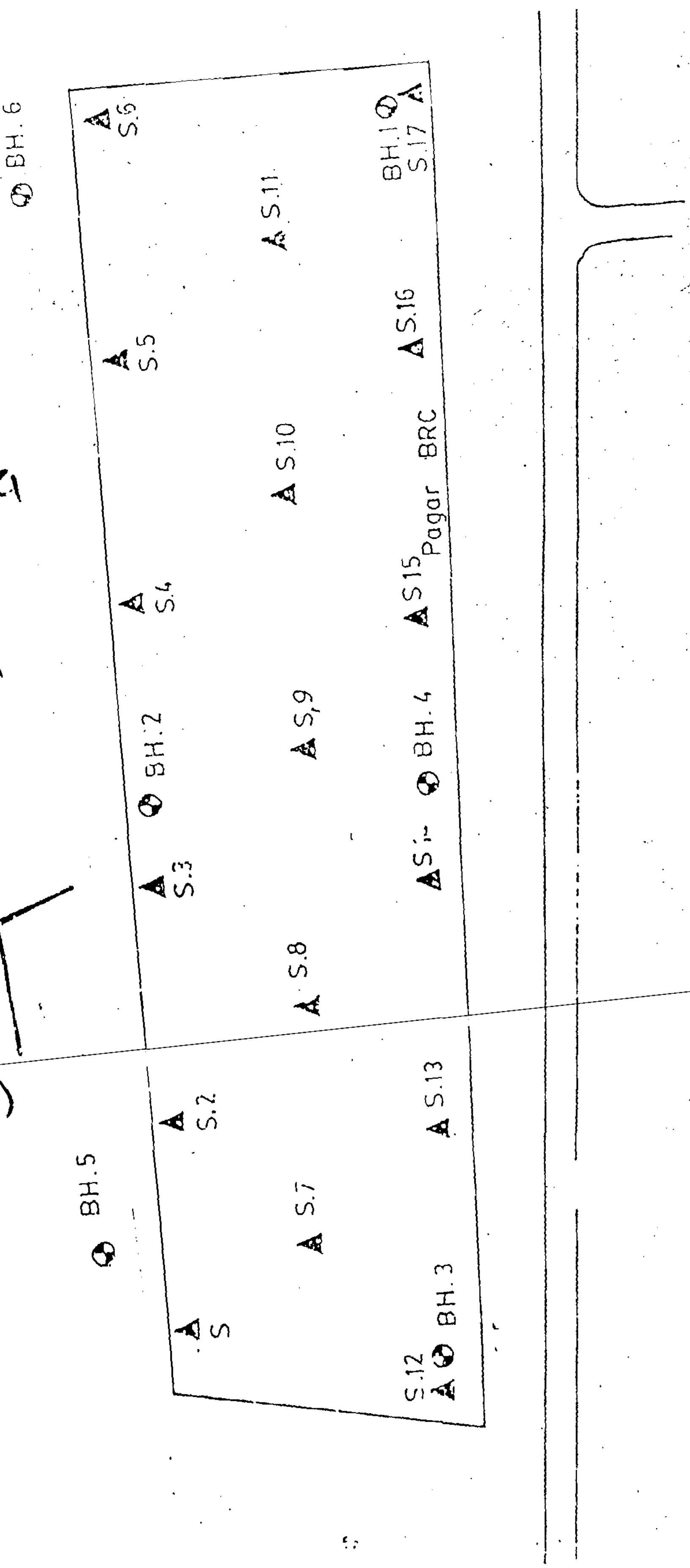
$$\psi = \frac{\Sigma\left(\frac{EI}{\ell_k}\right)_{kolom}}{\Sigma\left(\frac{EI}{\ell_b}\right)_{balok}}$$



(b) kolom tanpa pengaku

Gambar 9.23. Nomogram faktor panjang efektif kolom

Lampiran 8



12/11-01

ebab yg ada
275 ton
edalaman
18 m.

(ERI.SUSANTO)

Lampiran 9

DRILLING LOG

oject : Flour Factory
ient :
cation : Tj. Mas - Semarang
ring No. : : BH.6 Total Depth : 100 m
vation : Page : 1 of 2

RQD %	Depth (m)	Samples	Symbols	Classific	Description	Vane Shear kPa Cu	Vane Shear kPa Cr	SPT Blow Count 0/15	SPT Blow Count 15/30	SPT Blow Count 30/45	N Value
					SAND, clayey sand, loose, containing organic material (shell), Dark grey			.	.	1	1
								.	.	1	1
	5							.	.	1	1
								.	.	1	1
	10				CLAY, containing organic material, soft - very soft Light grey			0	1	1	2
								0	1	2	3
	15							1	1	2	3
								1	2	1	3
	18.5							1	2	3	5
	20							2	3	3	6
					CLAY, sandy clay, containing organic material, Stiff, Brownish grey.			6	9	9	18
	25							7	9	10	19
								8	9	9	18
								8	9	10	19
	30				CLAY, containing fine sand, Stiff - Very stiff, Greyish brown.			8	10	9	19
								7	10	10	20
								7	10	11	21
	35				SILT, Clayey silt containing sand, greyish brown			9	11	11	22
								8	10	8	18
	40				CLAY, containing fine sand, stiff, dark grey/black			7	9	12	21
								8	9	11	20
								9	10	10	20
	45							7	9	10	19
					SAND, silty clay, loose, Greyish brown.			6	8	11	19
	50							8	9	11	20

I:
- triple core barrel
- double core barrel
- single core barrel
- wash boring
- wash boring w. bentonite

Machine : YBM
: 68 m

Sample :
- thin walled tube
- denisson sampler
- SPT (automatic)
- pilcon vane shear

Starting date :
Completion date :

DIP

DRILLING LOG

roject : Flour Factory
lient :
ocation : Tj. Mas - Semarang
oring No. : : BH.6 Total Depth : 100 m
levation : Page : 2 of 2

RQD %	Depth (m)	Samples	Symbols	Classific	Description	Vane Sheer kPa Cu	Vane Sheer kPa Cr	SPT Blow Count 0 | 15	SPT Blow Count 15 | 30	SPT Blow Count 30 | 45	N value 0 30 60
	55				CLAY, silty clay containing organic material (shell and fine sand), Stiff, greyish brown			9	9	12	21
								7	10	12	22
								8	11	11	22
								9	11	11	22
	60							9	11	12	23
					CLAY, and fine sand, stiff, light grey			6	6	7	13
								6	4	5	9
	65							6	6	7	13
					SAND, silty sand containing gravel, very dense light grey			11	16	17	33
	70							7	9	10	19
					SAND, silty sand, very dense - hard, brownish grey.			10	14	17	31
								17	26	24	50
	75							15	15	17	32
								12	36	24/13	> 60
								20	33	27/11	> 60
								19	35	25/12	> 60
	80							15	28	22/12	> 60
								23	50/7	-	> 60
								14	23	24/12	> 60
					SILTstone and fine sand hard, yellowish brown			39	50/5	-	> 60
								33	50/5	-	> 60
	85							32	50/11	-	> 60
								29	50/12	-	> 60
								35	50/10	-	> 60
					SAND stone containing gravel, brownish grey			37	50/7	-	> 60
								34	50/8	-	> 60
	90							36	50/6	-	> 60
								25	50/11	-	> 60
								27	50/10	-	> 60
								31	50/13	-	> 60
					SAND and gravel, very dense, dark grey			43	50/7	-	> 60
	95							39	50/9	-	> 60
								40	50/9	-	> 60
					SILT and fine sand, Hard, Brownish white			41	50/7	-	> 60
								44	50/5	-	> 60
								47	50/5	-	> 60
								13	24	38	> 60

4:
- triple core barrel
- double core barrel
- single core barrel
) - wash boring
)b - wash boring & bentonite

Machine : BM
08 m

Sample :
- thin walled tube
- denisson sampler
- SPT (automatic)
- pitcon vane shear

Starting date
Completion date

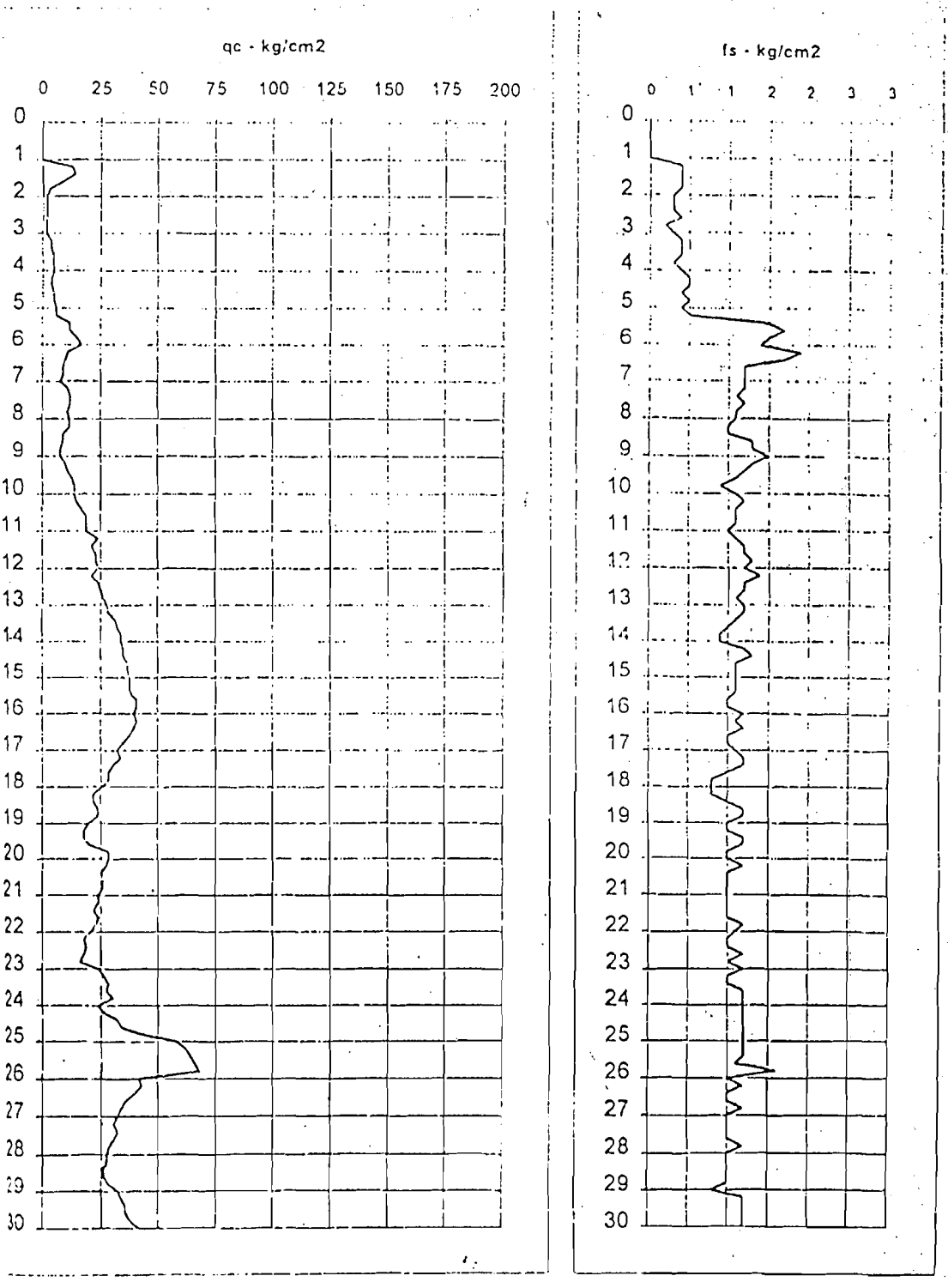
DIP

UTCH CONE PENETROMETER TEST

STM (2.5 TON CAPACITY)

OJECT : P. Tepung SOUNDING NO : 1

CATION : Semarang ELEVATION :



data inti padas

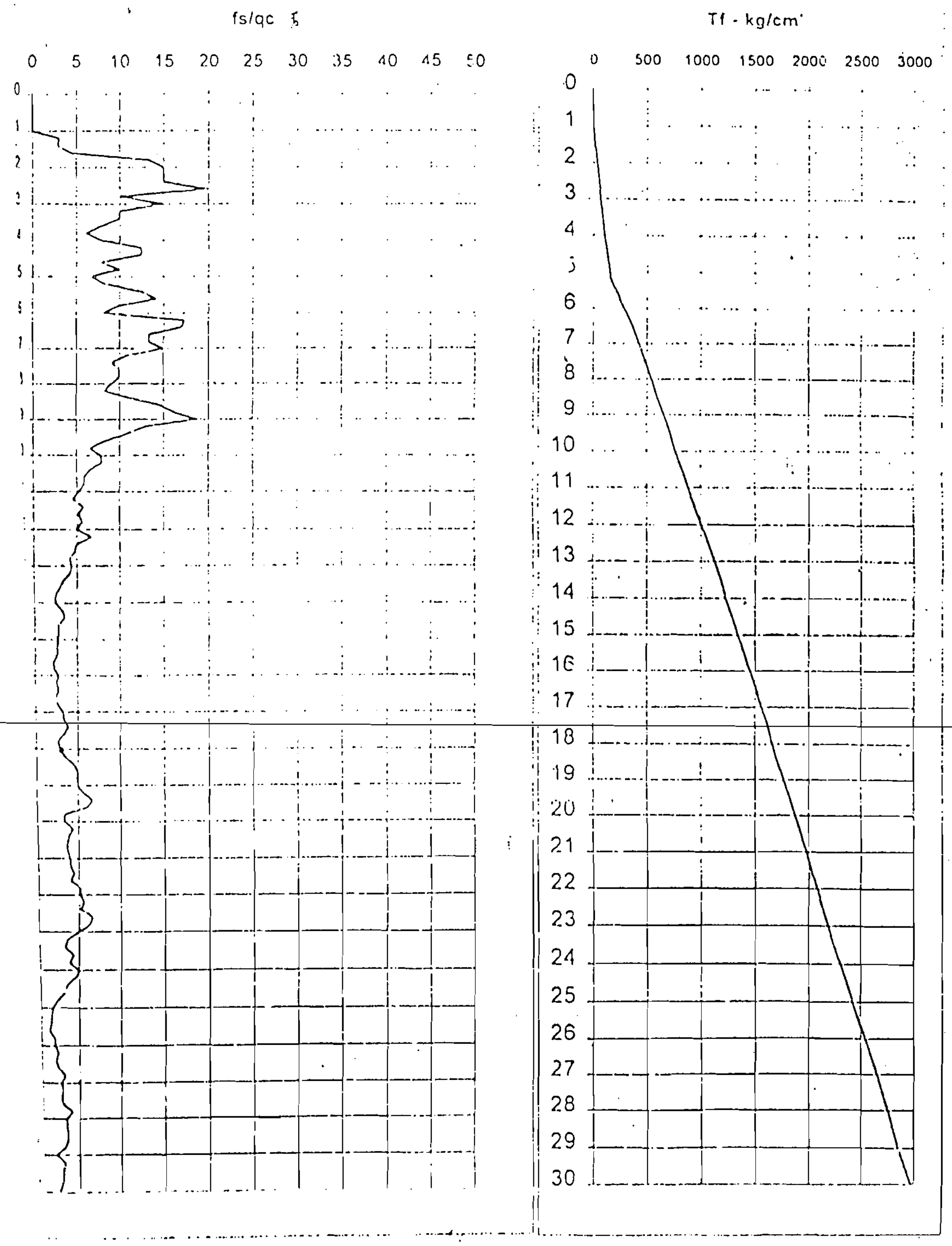
Lampiran 1

ITCH CONE PENETROMETER TEST

(2.5 TON CAPACITY)

JECT : P. Tepung SOUNDING NO : 1

ATION : Semarang ELEVATION :



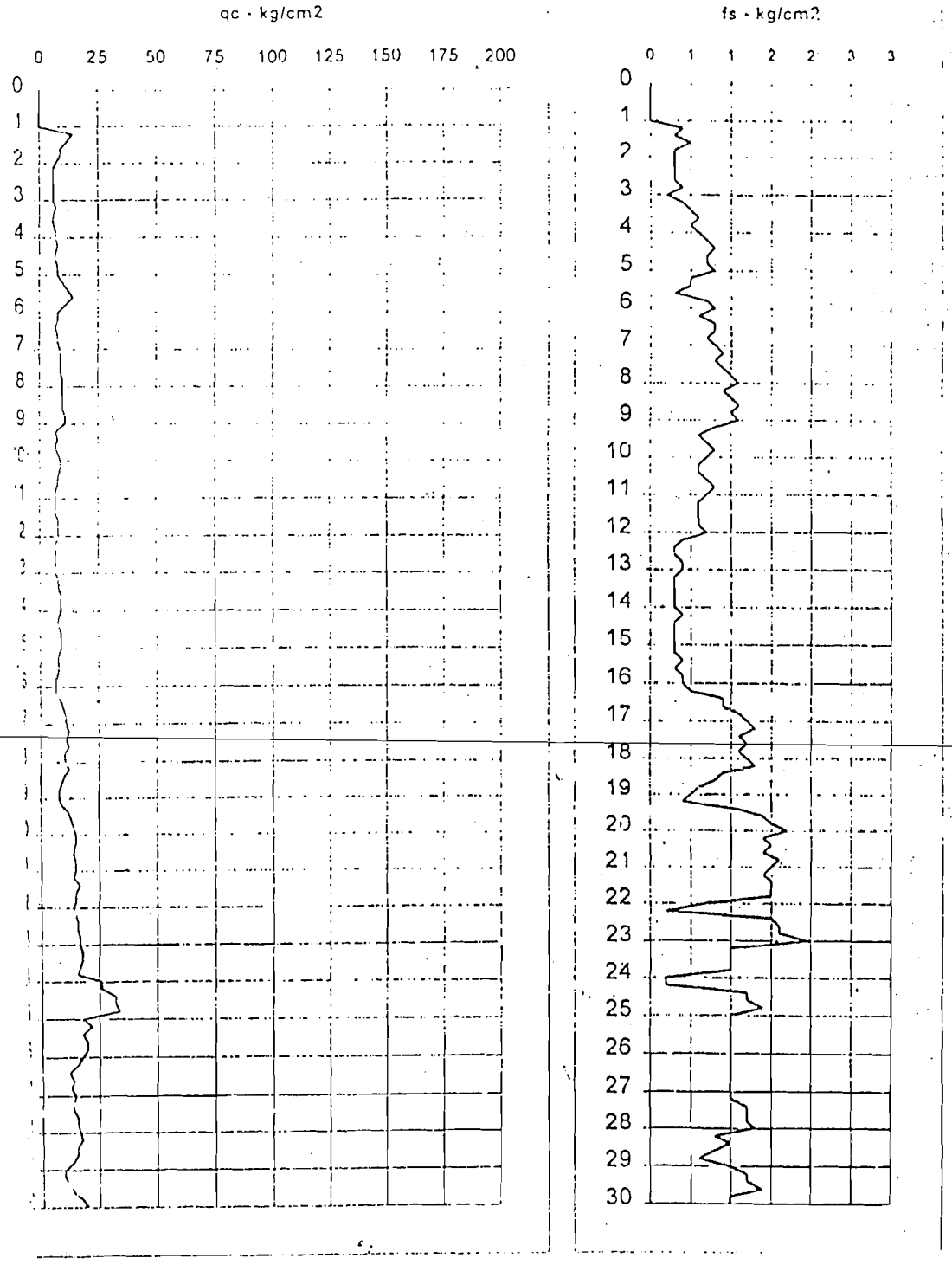
data titl padas

ITCH CONE PENETROMETER TEST

V (2.5 TON CAPACITY)

JECT : P. Tepung SOUNDING NO : 2

ATION : Semarang ELEVATION :

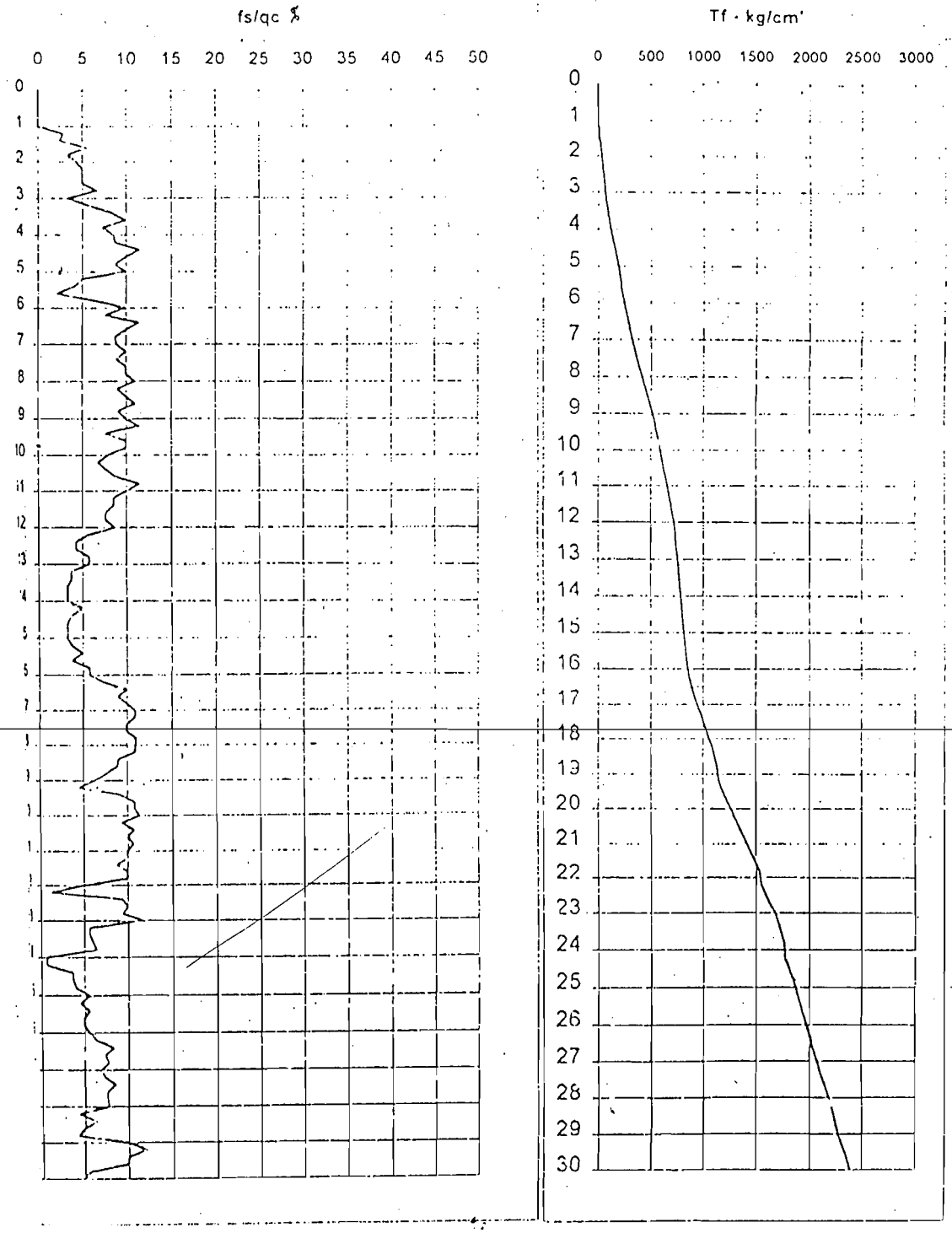


UTCH CONE PENETROMETER TEST

TW (2.5 TON CAPACITY)

OJECT : P. Tepung SOUNDING NO : 2

CATION : Semarang ELEVATION :



data inti padas

6. BH6 : 0.0 ∞ 22.0 m, N = 3
22.0 ∞ 61.0 m, N = 20
61.0 ∞ 70.0 m, N = 10
Setelah ini harga N naik terus sampai -77.0 m mencapai 60, 77.0 - 100.0 m harga N = 60

Hubungan N_{SPT} dan kedalaman (m) dapat dilihat pada gambar 1

0 ∞ 20 m, N_{SPT} = 0 ∞ 10

20 ∞ 70 m, N_{SPT} = 10 ∞ 30

walaupun ada kelompok N_{SPT} dengan harga 40, 50 dan 60.

Dari 70 m ∞ 100 m, N_{SPT} = 60

HASIL UJI LABORATORIUM

Berhubung percobaan-percobaan laboratorium jumlahnya banyak, maka agar dapat memperoleh gambaran yang lebih jelas hasilnya di plot terhadap kedalaman. Hasil-hasil itu adalah sebagai berikut :

a. Hubungan S_r ∞ kedalaman, gambar 2. Harga derajat kejenuhan S_r, mempunyai range antara 80% - 100%, pada umumnya mendekati 100%.

b. Hubungan Plasticity Index (Ip) ∞ kedalaman (m) gambar 3. Pada gambar 3 ini terlihat range harga Ip cukup besar yaitu antara 25% ∞ 90%, sehingga secara kasar dapat diketahui kandungan pasirnya kecil.

c. Hubungan Liquid Limit ∞ kedalaman (m) gambar 4. Dari hasil ini diketahui range liquid limit antara 50% ∞ 120%.

d. Hubungan Plastic Limit ∞ kedalaman (m) gambar 5. Range Plastic Limit tidak besar yaitu antara 30% ∞ 50%.

e. Hubungan Cohesi (C) ∞ kedalaman (m) gambar 6.

0 ∞ 12 m -> C antara 0 ∞ 0,3 kg/cm^2

12,0 ∞ 20 m -> C antara 0 ∞ 1,0 kg/cm^2

20,0 ∞ 70 m -> C antara 0,5 ∞ 1,5 kg/cm^2

f. Hubungan q_u ∞ kedalaman (m) gambar 7.

0	∞	10,0	-	range q_u	0,0	∞	0,5 kg/cm^2
10,0	∞	30,0	-	range q_u	0,0	∞	2,5 kg/cm^2
30,0	∞	70,0	-	range q_u	1,25	∞	3,5 kg/cm^2

g. Hubungan kadar air (w%) ∞ kedalaman (m). Dari data ini dapat diketahui sebagian kadar air aslinya mendekati range plastic limit, pada 0,0 ∞ 30,0 m, range kadar airnya antara 40% ∞ 80%.

h. Hubungan γt ∞ kedalaman (m) gambar 9.

0,0	∞	30,0	->	γt = 1,6 t/m^3
30,0	∞	70,0	->	γt = 1,75 t/m^3

i. Hubungan Gs ∞ kedalaman (m) gambar 10. Harga Gs rata-rata sama dengan 2,70.

j. Dari hasil grainsize analisis diperoleh kandungan-kandungan pasir pada gambar 11, silt pada gambar 12 dan clay pada gambar 13.
Dari hasil ini, dapat diketahui kandungan clay adalah yang dominan yaitu lebih besar dari 50% dan pasir adalah yang terkecil, umumnya antara 0 ∞ 5%.

k. Hubungan Io (void ratio) ∞ kedalaman (m) gambar 14. Dari data ini terlihat bahwa range dari Io pada kedalaman antara 30,0 ∞ 70,0 adalah 0,80 ∞ 1,50.

l. Hubungan Cc ∞ kedalaman (m) gambar 15. Dari gambar ini terlihat harga Cc makin kedalam makin kecil.

Tabel 4.5.a Gaya Batang Aksial Kuda-Kuda K1

BTG	(profil)	L(m)	ND	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
1	C	0,544	-1,523004	-0,9763894	1,372915E-03	1,059997	-2.1322	-3.3887	-2.5418	-2.3140	-0.9378	-3.3887
2	C	2	-2,813292	-1,567386	3,38587E-03	1,708614	-3.9386	-5.8811	-4.5169	-4.1552	-1.9384	-5.8811
3	C	2,370229	3,817415	1,811092	-7,313974E-03	-1,97287	5.3444	7.4728	5.9003	5.4769	2.9217	7.4728
4	C	2,128376	-0,3845318	4,700138E-02	3,085036E-03	0,3189596	-0.5383	-0.3838	-0.1311	-0.4339	-0.0233	-0.5383
5	C	1,272	-3,474414	-1,391769	-8,723375E-03	2,581968	-4.8642	-6.4031	-4.3306	-4.8765	-1.5086	-6.4031
6	C	2	-6,786986	-2,946467	-1,625642E-02	4,266304	-9.5018	-12.8717	-9.4457	-9.6388	-4.0714	-12.8717
7	C	2,828427	5,537468	1,89359	3,658182E-02	-3,529698	7.7525	9.7040	6.8509	7.6393	3.0031	9.7040
8	C	2,128376	3,362783	1,721491	-1,459017E-02	-0,7859792	4.7079	6.7781	6.1609	4.8771	3.8743	6.7781
9	B	2	-141,3329	-19,02327	4,925911	28,56367	-197.8661	-196.0960	-177.1858	-172.7074	-141.9783	-197.8661
10	A	2,234774	-5,1291	-2,844506	13,69773	-9,671895	-7.1807	0.2521	-18.4436	10.2299	-20.1506	-20.1506
11	B	2,436566	158,3371	20,07834	-5,752186	-29,00032	221.6719	217.5281	198.9296	192.5658	162.3433	221.6719
12	A	2,234761	-144,0066	-16,04068	5,553597	24,97647	-201.6092	-194.0301	-178.4918	-173.6086	-148.3588	-201.6092
13	B	2	-128,7148	-16,65378	4,771028	24,08344	-180.2007	-177.2869	-161.8371	-156.5822	-131.4762	-180.2007
14	A	2,128356	145,7524	16,26637	8,198467	-37,26139	204.0534	207.4878	171.1200	193.6941	134.5963	207.4878
15	B	2,370239	149,1967	18,69045	-5,641644	-26,23915	208.8754	204.4274	187.9494	181.0471	154.2704	208.8754
16	A	2,128357	-282,9998	-33,48033	10,84624	50,18345	-396.1997	-384.4913	-353.0215	-342.2398	-291.1014	-396.1997
17	B	2	-123,8842	-15,82631	4,79648	22,20793	-173.4379	-170.1460	-156.2168	-150.3388	-127.7039	-173.4379
18	A	2,128356	284,8206	33,70783	2,903142	-61,72035	398.7488	398.0398	346.3410	362.4127	278.4022	398.7488
19	B	2,370242	141,5345	17,46516	-5,620239	-23,63246	198.1483	193.2895	178.8797	171.2677	147.8518	198.1483
20	A	2,128357	-415,2922	-49,82873	16,12953	73,03957	-581.4091	-565.1730	-519.6450	-502.2966	-428.3136	-581.4091
21	B	2	-114,9545	-14,63976	4,74808	19,78415	-160.9363	-157.5706	-145.5417	-139.0928	-119.5459	-160.9363
22	A	2,128356	416,2706	49,95153	-2,360581	-83,6697	582.7788	577.5587	512.5114	521.4317	415.7299	582.7788
23	B	2,370245	131,6194	16,311	-5,616335	-21,13736	184.2672	179.5478	167.1310	158.7975	138.6202	184.2672
24	A	2,128357	-536,6835	-64,94745	21,37671	93,34153	-751.3569	-730.8348	-673.2629	-648.7042	-555.1499	-751.3569
25	B	2	-23,69016	-3,470332	2,427393	2,717784	-33.1662	-32.0388	-31.8065	-27.0077	-26.6302	-33.1662
26	H	2	245,7045	29,86941	-6,712073	-43,92718	343.9863	337.2668	307.4947	301.0544	252.6748	343.9863
27	A	2,128356	277,6258	33,40617	-0,489806	-56,66069	388.6761	386.2090	341.2723	349.2173	276.1951	388.6761
28	B	2,370247	25,35297	3,135755	-2,883634	-1,000506	35.4942	33.1339	34.6404	28.2427	30.6908	35.4942
29	A	2,128357	-561,498	-67,98792	24,11599	95,17966	-786.0972	-763.2855	-706.4345	-676.4408	-584.0580	-786.0972
30	D	0,72794	1,42678	-1,141627E-02	6,093737E-03	1,304814E-02	1.9975	1.6987	1.7043	1.7143	1.7234	1.9975
31	B	2	24,03227	2,426282	0,4435154	-5,367685	33.6452	33.0756	28.4266	30.6284	23.0739	33.6452
32	H	2	245,4886	29,84353	-6,743992	-43,84236	343.6840	336.9408	307.2621	300.7409	252.5130	343.6840
33	D	2,128356	63,33673	7,699906	-3,03042	-9.46459	88.6714	85.8996	80.7523	75.9145	67.5501	88.6714

Tabel 4.5.a Lanjutan

BTG	(profil)	L(m)	ND	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
34	A	2,128356	237,9151	28,6425	-0,1328583	-48,191	333.0811	331.2198	292.7733	299.6467	237.1711	333.0811
35	B	2,37025	-32,31061	-4,021047	-0,5389118	8,905666	-45.2349	-45.6375	-38.0819	-41.4838	-29.2059	-45.6375
36	A	2,128357	-532,0492	-64,35878	24,66391	87,80372	-744.8689	-721.7020	-671.1901	-638.5753	-556.4936	-744.8689
37	D	1,45588	-19,89482	-2,610052	1,038388	3,191155	-27.8527	-27.2192	-25.4969	-23.8289	-21.0303	-27.8527
38	B	2	31,06601	3,277118	-0,8594536	-4,842603	43.4924	41.8350	38.6485	37.8005	32.6224	43.4924
39	H	2	304,6975	37,05006	-9,591548	-52,68574	426.5765	417.2439	382.7685	371.6930	315.6706	426.5765
40	D	2,47378	3,338324	0,4857391	-1,377347	1,18159	4.6737	3.6813	5.7284	2.4583	5.7849	5.7849
41	D	2	48,51977	5,82829	-3,384254	-4,191292	67.9277	64.8416	64.1960	56.7383	55.6892	67.9277
42	A	2,128356	154,3717	18,38227	4,10111	-36,58994	216.1204	217.9386	185.3857	199.7686	146.8703	217.9386
43	B	2,370253	-43,43177	-5,200089	1,073059	8,494427	-60.8045	-59.5798	-53.6427	-53.3232	-43.6754	-60.8045
44	A	2,128357	-493,093	-59,64124	23,74233	80,77236	-690.3302	-668.1437	-622.5197	-590.6672	-516.5282	-690.3302
45	D	1,455884	-0,4032076	-0,3002363	0,8123291	-0,6699632	-0.5645	-0.3144	-1.5002	0.4221	-1.5049	-1.5049
46	D	0,7279356	-8,317973	-1,602831	0,7684854	1,961156	-11.6452	-11.9313	-10.9772	-9.7840	-8.2335	-11.9313
47	B	2	29,81141	2,751824	-0,1823787	-5,047935	41.7360	40.0307	36.1383	36.9125	30.5873	41.7360
48	H	2	307,0399	37,41016	-10,68921	-51,69765	429.8559	419.7528	386.9460	373.2570	319.9460	429.8559
49	D	2,473783	-14,64721	-2,190304	-0,0784582	4,432813	-20.5061	-21.1439	-17.5349	-18.7738	-12.9091	-21.1439
50	D	2	60,01739	7,561912	-3,408503	-7,556684	84.0243	81.3931	78.0746	71.3708	65.9781	84.0243
51	A	2,128356	115,3507	13,71063	5,129356	-29,08015	161.4910	164.4613	137.0937	151.9443	107.4720	164.4613
52	B	2,370255	-40,1888	-4,544504	0,3071666	8,617161	-56.2643	-55.2520	-48.6040	-50.0995	-39.2965	-56.2643
53	A	2,128357	-456,5615	-55,50573	23,51203	73,6107	-639.1861	-617.8733	-577.7944	-545.0610	-479.9328	-639.1861
54	D	1,455889	10,45885	1,302118	4,390126E-02	-2,629514	14.6424	14.6691	12.5304	13.2588	9.7833	14.6691
55	B	2	35,10245	3,741526	-0,1836605	-7,188299	49.1434	47.9625	42.3587	43.7549	34.6489	49.1434
56	H	2	294,9261	35,59266	-10,74054	-48,04718	412.8965	402.2671	372.4218	357.7449	309.2463	412.8965
57	D	2,473785	-18,75572	-2,215886	-8,321233E-02	4,489214	-26.2580	-26.1189	-22.4609	-23.7230	-17.7788	-26.2580
58	D	2	75,47081	9,402584	-3,352	-11,25971	105.6591	102.9275	96.6013	90.9087	80.6286	105.6591
59	A	2,128356	78,74607	9,570642	5,342778	-21,13864	110.2445	114.0825	92.8974	106.2262	71.8004	114.0825
60	B	2,370258	-45,94625	-5,630921	0,2701364	11,047	-64.3248	-63.9289	-55.3074	-57.5998	-43.5899	-64.3248
61	A	2,128357	-414,5634	-50,34736	23,32193	64,1572	-580.3888	-559.3743	-526.7061	-492.3313	-439.2454	-580.3888
62	D	1,455893	12,58667	1,28347	5,277834E-02	-2,610269	17.6213	17.1998	15.0693	15.8144	12.3524	17.6213
63	B	2	40,07605	4,531453	-0,1776353	-8,968156	56.1065	55.1995	48.1671	50.1261	38.6984	56.1065
64	H	2	279,4199	33,74865	-10,79538	-44,3409	391.1879	380.6654	353.8290	338.1442	294.5350	391.1879
65	D	2,473788	-22,22335	-2,164195	-9,024803E-02	4,405975	-31.1127	-30.2029	-26.6060	-27.8674	-22.0224	-31.1127
66	D	2	93,74453	11,20078	-3,290614	-14,89267	131.2423	127.7822	118.5005	113.8160	98.7334	131.2423
67	A	2,128356	37,095	4,454535	5,533741	-11,01915	51.9330	56.0682	42.8259	53.9351	32.4164	56.0682

Tabel 4.5.a Lanjutan

BTG	(profil)	L(m)	ND	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
68	B	2,370261	-53,77248	-6,63005	0,2615995	13,28916	-75.2815	-74.9258	-64.5037	-67.5019	-50.5661	-75.2815
69	A	2,128357	-365,7775	-44,32032	23,13765	52,73885	-512.0885	-491.3354	-467.6544	-431.0142	-392.5327	-512.0885
70	E	1,489853	-1,329011	-1,460509	8,321078E-04	1,114363	-1.8606	-3.9310	-3.0401	-2.3240	-0.8764	-3.9310
71	E	1,489849	1,338803	1,462158	-1,658484E-03	-0,8553516	1.8743	3.9447	3.2617	2.3355	1.2257	3.9447
72	D	1,455898	-34,51004	-4,592454	2,16715	4,859664	-48.3141	-47.0263	-44.8722	-40.8910	-37.3907	-48.3141
73	D	1,638042	-20,14925	-2,932872	1,874977	2,433717	-28.2090	-27.3717	-26.8847	-23.2081	-22.4167	-28.2090
74	D	1,2737	-31,4222	-4,431805	1,099391	6,494793	-43.9911	-43.9180	-39.6017	-38.4933	-31.4793	-43.9911
75	B	2	4,790342	-0,2566742	-4,760919E-02	-0,5586497	6.7065	5.2996	4.8908	5.5582	4.8938	6.7065
76	D	1,236895	84,89651	10,126	-3,629561	-12,89137	118.8551	115.1738	107.7643	102.2204	90.1800	118.8551
77	D	1,236895	23,38967	2,828299	-0,5043215	-4,040495	32.7455	32.1894	29.3605	28.8261	24.2291	32.7455
78	E	1,01913	-1,321121	-0,9932338	-1,952468E-03	1,481545	-1.8496	-3.1761	-1.9893	-2.0845	-0.1560	-3.1761
79	H	2	192,5063	23,7711	-7,920098	-30,30224	269.5088	262.7052	244.7995	232.5970	203.5002	269.5088
80	D	2	74,8564	8,906384	-2,88453	-11,6104	104.7990	101.7703	94.7896	90.5310	79.1874	104.7990
81	E	2,585182	-18,38746	-2,35002	-1,219064	6,293821	-25.7424	-26.8002	-20.7899	-24.8247	-15.0580	-26.8002
82	E	2	14,39131	1,825917	0,9261943	-4,854908	20.1478	20.9320	16.3071	19.3866	11.8712	20.9320
83	E	2,371141	-17,07024	-2,174479	-1,104082	5,787067	-23.8983	-24.8467	-19.3338	-23.0068	-14.0483	-24.8467
84	A	2,128356	2,941704	0,2934033	6,728069	-3,923112	4.1184	9.3819	0.8610	12.4232	-1.4233	-12.4232
85	B	2,370264	-12,41169	-1,263911	0,1806515	3,711711	-17.3764	-16.7718	-13.9469	-15.2911	-10.7008	-17.3764
86	A	2,128357	-354,4904	-43,23507	23,04588	50,08932	-496.2866	-476.1279	-454.4931	-417.0464	-381.8899	-496.2866
87	E	1,436015	-2,54845	-2,174758	-2,32106E-03	2,179783	-3.5678	-6.5396	-4.7939	-4.1485	-1.3118	-6.5396
88	E	2,025853	1,414532	0,9672425	0,0178334	-1,453328	1.9803	3.2593	2.0824	2.2042	0.2917	3.2593
89	E	1,43664	1,357417	1,477724	-5,920164E-03	-0,3661563	1.9004	3.9885	3.7003	2.3601	1.8918	3.9885
90	D	1,236895	23,29779	2,856153	-0,5121277	-4,080159	32.6169	32.1175	29.2631	28.7197	24.0812	32.6169
91	D	1,236898	85,15195	10,11626	-3,626276	-12,87851	119.2127	115.4673	108.0655	102.5263	90.4984	119.2127
92	D	1,455902	-11,98337	-1,691422	0,2984238	2,422454	-16.7767	-16.8476	-15.1484	-14.8378	-12.0766	-16.8476
93	D	1,638038	50,60455	5,317215	-1,675436	-7,734867	70.8464	67.8927	63.0451	61.2060	53.3287	70.8464
94	D	2,00164	60,45951	6,495554	-1,079361	-10,86643	84.6433	82.0808	74.2512	74.3960	61.6728	84.6433
95	B	2	50,41587	4,585179	-1,051792	-8,104108	70.5822	66.9939	61.3520	61.4243	52.2563	70.5822
96	E	2	-25,79022	-4,814042	1,540614	5,278512	-36.1063	-37.4182	-34.4279	-31.3525	-26.4932	-37.4182
97	D	2	211,2159	26,07162	-8,330033	-33,5922	295.7023	288.5096	268.2999	255.6658	222.8250	295.7023
98	E	2,473793	-0,2643099	-0,6782382	-1,053903	2,317349	-0.3700	-2.2455	0.4515	-2.0264	2.3563	2.3563
99	D	2	129,8153	15,82839	-5,923739	-19,02228	181.7414	176.3648	165.8860	155.9917	138.9636	-181.7414
100	D	2,197258	-24,19403	-3,039954	5,146779E-02	6,546102	-33.8716	-33.8556	-28.6599	-30.4859	-22.0429	-33.8716
101	A	2,128356	16,00524	2,196642	6,800704	-7,018251	22.4073	28.1615	17.1063	29.1455	11.1809	29.1455

Tabel 4.5.a Lanjutan

BTG	(profil)	L(m)	ND	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
102	B	2,370266	-93,6743	-12,36003	2,94197	17,02032	-131.1440	-129.8316	-118.5690	-114.7646	-96.4628	-131.1440
103	A	2,128357	-270,5609	-33,97857	20,32657	36,54903	-378.7853	-362.7775	-349.7996	-315.2378	-294.1486	-378.7853
104	E	2,370269	25,81331	3,926491	-1,828511	-3,208871	36.1386	35.7955	34.6913	30.5622	28.7677	36.1386
105	E	2,128353	-20,73791	-1,377113	1,655379	2,123534	-29.0331	-25.7646	-25.3900	-23.4221	-22.8135	-29.0331
106	E	1,455907	1,523869	0,4112352	0,6172471	-1,380195	2.1334	2.9804	1.3825	2.8367	0.2400	2.9804
107	E	1,637855	-1,124182	-0,3870621	-0,846412	1,243604	-1.5739	-2.6454	-0.9734	-2.6429	0.0741	2.6454
108	B	2,000015	55,14723	6,56319	-4,109726	-6,196252	77.2061	73.3900	71.7208	64.1156	61.4031	77.2061
109	E	2,000007	-7,046531	-1,974062	0,1207785	2,627473	-9.8651	-11.5177	-9.5124	-9.2859	-6.0272	-11.5177
110	D	2	210,6747	25,49012	-9,175175	-31,67209	294.9446	286.2537	268.2562	253.6270	224.3810	294.9446
111	E	2,473795	-3,652707	-0,7141439	-1,04908	2,371724	-5.1138	-6.3651	-3.6285	-6.1041	-1.6571	-6.3651
112	D	2	133,111	16,44133	-5,082614	-20,99031	186.3554	181.9732	169.2471	161.3465	140.6665	-186.3554
113	D	2,197258	-26,40336	-3,5689	-1,081329	8,225747	-36.9647	-38.2593	-30.8137	-34.8742	-22.7750	-38.2593
114	E	2,128374	2,154756	0,5076209	1,09537	-1,616913	3.0167	4.2742	2.1044	4.2635	0.7375	4.2742
115	D	2,197236	-36,75457	-5,063888	-1,173497	10,08267	-51.4564	-53.1465	-44.1416	-48.1630	-33.5300	-53.1465
116	A	2,128356	-35,17032	-4,328105	10,60682	-0,9793977	-49.2384	-40.6439	-49.9129	-30.5796	-45.6417	-49.9129
117	B	2,370269	-53,23896	-6,602181	3,314972	7,731488	-74.5345	-71.7983	-68.2651	-62.8784	-57.1369	-74.5345
118	A	2,128357	-198,4981	-24,37469	15,66953	26,51142	-277.8973	-264.6616	-255.9881	-230.0147	-215.9202	-277.8973
119	E	2,370262	5,625116	1,157971	-0,1444348	-0,5409791	7.8752	8.4873	8.1701	7.1414	6.6259	8.4873
120	E	2,128353	-25,90475	-2,422719	1,787398	3,358925	-36.2667	-33.5321	-32.2749	-29.9734	-27.9305	-36.2667
121	E	1,455911	3,393499	0,422426	0,6162789	-1,398022	4.7509	5.2411	3.6297	5.0846	2.4660	5.2411
122	E	1,63791	-2,29479	-0,3914376	-0,8467276	1,2502	-3.2127	-4.0574	-2.3799	-4.0502	-1.3242	-4.0574
123	B	2,00002	45,73854	5,458881	-2,790638	-6,307939	64.0340	61.3879	58.5741	53.9879	49.4154	64.0340
124	E	2	3,050621	-0,4400752	-0,2882869	0,562541	4.2709	2.7260	3.4067	3.0659	4.1720	4.2709
125	D	2	207,4004	24,88174	-10,01719	-29,71066	290.3606	280.6775	264.9227	248.2990	222.6975	290.3606
126	E	2,473798	-6,709478	-0,7133858	-1,047598	2,368802	-9.3933	-10.0309	-7.2977	-9.7699	-5.3286	-10.0309
127	D	2	138,8573	17,04902	-4,241887	-22,94914	194.4002	190.5137	175.5479	169.6388	145.3194	194.4002
128	D	2,197258	-30,09711	-4,092608	-2,219077	9,90221	-42.1360	-44.4400	-34.7429	-41.0476	-25.2900	-44.4400
129	E	2,128393	3,581432	0,5023251	1,099013	-1,612402	5.0140	5.9806	3.8115	5.9776	2.4528	5.9806
130	D	2,197236	-34,54601	-4,536211	-3,830703E-02	6,402721	-48.3644	-48.7438	-41.9910	-43.7731	-32.7998	-48.7438
131	A	2,128356	-83,98901	-10,39657	13,66136	6,101803	-117.5846	-106.4922	-112.5399	-88.2253	-98.0528	-117.5846
132	B	2,370272	-48,58153	-5,816222	2,864681	7,52731	-68.0141	-65.3120	-61.5819	-57.4819	-51.4204	-68.0141
133	A	2,128357	-148,5502	-17,95451	12,91612	19,05016	-207.9703	-196.6546	-191.7473	-170.4465	-162.4723	-207.9703
134	E	2,370255	-7,925952	-0,6641612	0,3426815	1,910366	-11.0963	-10.2997	-9.0455	-9.3977	-7.3597	-11.0963
135	E	2,128353	-18,87758	-1,828938	1,480737	2,389258	-26.4286	-24.3948	-23.6680	-21.6426	-20.4615	-26.4286

Tabel 4.5.a Lanjutan

BTG	(profil)	L(m)	ND	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
136	E	1,455916	5,085989	0,4128951	0,6195239	-1,385969	7.1204	7.2594	5.6550	7.1150	4.5079	7.2594
137	E	1,637965	-3,404749	-0,3905406	-0,8452708	1,247622	-4.7666	-5.3868	-3.7125	-5.3798	-2.6591	-5.3868
138	B	2,000025	43,69072	5,000308	-2,53717	-6,387959	61.1670	58.3996	55.3190	51.6307	46.6247	61.1670
139	E	1,999982	9,640224	0,3501157	-0,7264893	-0,2877129	13.4963	11.5473	11.8983	10.7989	11.3693	13.4963
140	D	2	201,6072	24,26984	-10,85625	-27,74664	282.2501	272.0754	258.5631	239.9504	217.9929	282.2501
141	E	2,473801	-9,43532	-0,6793834	-1,062126	2,328273	-13.2094	-13.2591	-10.5468	-13.0428	-8.6353	-13.2591
142	D	2	146,8366	17,63151	-3,390311	-24,87811	205.5712	201.7021	184.5118	180.6123	152.6781	205.5712
143	D	2,197258	-35,32271	-4,61868	-3,353313	11,57927	-49.4518	-52.4593	-40.5137	-49.0559	-29.6435	-52.4598
144	E	2,128412	5,089944	0,5063976	1,0956	-1,61585	7.1259	7.7946	5.6255	7.7854	4.2605	7.7946
145	D	2,197236	-30,86064	-4,012898	1,098894	6,727426	-43.2049	-42.5743	-38.0715	-37.6107	-30.2936	-43.2049
146	A	2,128356	-128,9617	-15,79123	16,30992	13,08882	-180.5464	-166.9721	-169.5490	-141.4468	-145.6342	-180.5464
147	B	2,370274	-51,79768	-6,307732	2,620319	9,240029	-72.5168	-70.1533	-64.8576	-61.9047	-53.2990	-72.5168
148	A	2,128357	-108,0634	-12,74826	10,82405	12,26065	-151.2888	-141.4141	-140.2648	-121.9789	-120.1114	-151.2888
149	E	2,370249	-14,18564	-1,599618	0,8613824	2,916883	-19.8599	-18.8931	-17.2487	-16.7028	-14.0306	-19.8599
150	E	2,128353	-6,215089	-0,3921781	0,7069928	0,5121791	-8.7011	-7.5200	-7.6758	-6.7351	-6.9884	-8.7011
151	E	1,45592	-19,65795	-2,818987	1,2322	3,109883	-27.5211	-27.1142	-25.6120	-23.3972	-20.9562	-27.5211
152	D	1,63802	16,7934	1,65892	-1,901266	-1,37912	23.5108	21.2853	21.7031	18.5099	19.1887	23.5108
153	D	1,5997	38,72666	4,265083	-4,380892	-3,447998	54.2173	49.7914	50.5377	42.9094	44.1221	54.2173
154	D	1,5997	34,82932	3,684153	-4,583752	-2,120848	48.7610	44.0228	45.9932	37.6784	40.8802	48.7610
155	D	1,714	42,60485	4,533739	-6,114038	-2,189888	59.6468	53.4886	56.6279	45.4444	50.5458	59.6468
156	B	2	51,75589	5,542573	-5,01843	-5,22405	72.4582	66.9604	66.7959	58.3544	58.0871	72.4582
157	E	2	11,55282	0,6753386	-1,050081	-0,6031962	16.1739	14.1039	14.4614	12.8359	13.4169	16.1739
158	E	1,236902	46,82177	5,555446	-1,06385	-7,718166	65.5505	64.2238	58.9003	57.5808	48.9302	65.5505
159	E	1,236902	46,71383	5,515955	-5,106252	-3,612231	65.3994	60.7971	61.9923	52.1764	54.1187	65.3994
160	E	1,292585	10,58873	1,111094	2,378899	-3,882013	14.8242	16.3873	11.3786	16.3546	8.2154	16.3873
161	E	1,292585	10,64547	1,080384	-2,993079	1,542297	14.9037	12.1087	15.7370	9.4238	15.3197	15.7370
162	E	1,280531	-0,304914	-0,1356225	0,8086673	-0,4764066	-0.4269	0.0640	-0.9640	0.6176	-1.0530	-1.0530
163	E	1,280531	3,532396E-02	-0,1232735	-0,4221597	0,7310356	0.0495	-0.4926	0.4300	-0.5681	0.9311	0.9311
164	E	1,280531	7,181997	0,8091229	-0,1000581	-1,39523	10.0548	9.8329	8.7968	8.8929	7.2092	10.0548
165	E	1,280531	7,383207	0,8120431	-1,320387	-0,1802165	10.3365	9.1023	10.0149	7.5494	9.0316	10.3365
166	E	1,316985	-3,714203	-0,5300748	1,085022	-0,0602683	-5.1999	-4.4371	-5.3534	-3.3116	-4.8004	-5.3534
167	E	1,316985	-3,68172	-0,555529	-0,1397628	1,212098	-5.1544	-5.4187	-4.3372	-4.8775	-3.1201	-5.4187
168	A	1,064178	-111,7855	-13,84763	12,50469	13,3301	-156.4997	-146.2951	-145.6347	-124.8103	-123.7373	-156.4997
169	B	1,91747	-44,78618	-5,256267	3,865963	6,069305	-62.7007	-59.0607	-57.2980	-51.3458	-48.4815	-62.7007

Tabel 4.5.a Lanjutan

BTG	(profil)	L(m)	ND	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
170	A	1,064178	-91,04059	-10,72931	9,028606	10,90769	-127.4568	-119.1927	-117.6895	-102.8762	-100.4334	-127.4568
171	E	1,917419	-12,60433	-1,607616	1,00759	2,140602	-17.6461	-16.8913	-15.9849	-14.6191	-13.1462	-17.6461
172	E	1,064188	0,8405902	0,5004398	0,1472362	-0,1212943	1.1768	1.9272	1.7124	1.4503	1.1012	1.9272
173	D	2	155,8576	19,20337	-10,84636	-19,58956	218.2006	209.0758	202.0829	182.5279	171.1644	218.2006
174	D	2	68,68696	8,096037	-4,151097	-8,397646	96.1617	92.0571	88.6599	81.0759	75.5554	96.1617
175	E	2	-30,97511	-3,872351	3,698345	3,738017	-43.3652	-40.4072	-40.3755	-34.2985	-34.2469	-43.3652
176	E	2	-5,601854	-0,5354885	0,4067061	0,5199189	-7.8426	-7.2536	-7.1631	-6.4613	-6.3141	-7.8426
177	E	2	-3,161294	-0,2469488	0,2167227	0,2057733	-4.4258	-4.0153	-4.0241	-3.6353	-3.6495	-4.4258
178	E	2	-55,02874	-6,496889	5,606194	6,511778	-77.0402	-71.9446	-71.2201	-61.9949	-60.8176	-77.0402
179	B	2	21,87377	1,85379	-1,443624	-2,224613	30.6233	28.0597	27.4349	25.2987	24.2834	30.6233
180	E	2	-3,267688	-1,341398	0,9871612	0,9194002	-4.5748	-5.2777	-5.3319	-3.3086	-3.3967	-5.3319
181	E	1,236902	46,82177	5,555446	-5,127366	-3,65465	65.5505	60.9729	62.1511	52.2983	54.2128	65.5505
182	E	1,236902	46,71383	5,515955	-1,037609	-7,680874	65.3994	64.0520	58.7374	57.4657	48.8294	65.3994
183	E	1,292585	10,68337	1,111094	-3,014433	1,511319	14.9567	12.1862	15.8068	9.4568	15.3403	15.8068
184	E	1,292585	10,55083	1,080384	2,400496	-3,851278	14.7712	16.3100	11.3086	16.3218	8.1945	16.3218
185	E	1,280531	-0,304914	-0,1356225	-0,4106674	0,7429281	-0.4269	-0.9114	0.0114	-0.9676	0.5321	-0.9676
186	E	1,280531	3,532396E-02	-0,1232735	0,7975371	-0,4886613	0.0495	0.4832	-0.5458	1.0176	-0.6545	1.0176
187	E	1,280531	7,089573	0,8091229	-1,316214	-0,1790736	9.9254	8.7491	9.6588	7.2010	8.6793	9.9254
188	E	1,280531	7,475631	0,8120431	-0,100369	-1,400234	10.4659	10.1897	9.1498	9.2463	7.5565	10.4659
189	E	1,316985	-3,714203	-0,5300748	-0,1606742	1,185428	-5.1999	-5.4337	-4.3568	-4.9310	-3.1810	-5.4337
190	E	1,316985	-3,68172	-0,555529	1,107787	-3,545161E-02	-5.1544	-4.4207	-5.3353	-3.2557	-4.7419	-5.3353
191	A	1,064178	-111,9851	-13,84763	11,7761	14,05869	-156.7791	-147.1174	-145.2914	-125.9970	-123.0296	-156.7791
192	B	1,91747	-44,40866	-5,256267	5,206599	4,72867	-62.1721	-57.5351	-57.9175	-49.1499	-49.7713	-62.1721
193	A	1,064178	-91,2402	-10,72931	8,585933	11,35036	-127.7363	-119.7864	-117.5748	-103.6912	-100.0974	-127.7363
194	E	1,917419	-12,60433	-1,607616	1,825304	1,322888	-17.6461	-16.2371	-16.6391	-13.5561	-14.2092	-17.6461
195	E	1,064188	0,7985293	0,5004398	-0,2241855	0,2501274	1.1179	1.5796	1.9590	0.9170	1.5336	1.9590
196	E	1,45592	-19,65795	-2,818987	1,621765	2,720319	-27.5211	-26.8025	-25.9237	-22.8907	-21.4626	-27.5211
197	D	1,63802	16,53409	1,65892	-1,559403	-1,720983	23.1477	21.2477	21.1184	18.6431	18.4331	23.1477
198	D	1,5997	38,72666	4,265083	-3,052116	-4,776773	54.2173	50.8544	49.4747	44.6368	42.3947	54.2173
199	D	1,5997	34,82932	3,684153	-1,732427	-4,972173	48.7610	46.3039	43.7121	41.3851	37.1734	48.7610
200	D	1,714	42,33351	4,533739	-1,686642	-6,617285	59.2669	56.7049	52.7604	50.8744	44.4646	59.2669
201	B	2	51,29438	5,542573	-4,131268	-6,111213	71.8121	67.1164	65.5324	58.9539	56.3800	71.8121
202	E	2	11,32172	0,6753386	-0,2730059	-1,380271	15.8504	14.4482	13.5624	13.5688	12.1294	15.8504
203	D	2	201,6072	24,26984	-16,87964	-21,72325	282.2501	267.2567	263.3818	232.1200	225.8233	282.2501

Tabel 4.5.a Lanjutan

BTG	(profil)	L(m)	ND	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
238	D	2,197236	-36,61053	-5,063888	9,299125	-0,3899503	-51.2547	-44.5956	-52.3468	-34.3757	-46.9715	-52.3468
239	A	2,128356	-35,17032	-4,328105	0,945033	8,682394	-49.2384	-48.3733	-42.1834	-43.1399	-33.0813	-49.2384
240	B	2,370269	-53,23896	-6,602181	5,785893	5,260567	-74.5345	-69.8215	-70.2418	-59.6662	-60.3491	-74.5345
241	A	2,128357	-198,8974	-24,37469	21,22405	20,9569	-278.4564	-260.6971	-260.9109	-223.2730	-223.6203	-278.4564
242	E	2,370262	5,772105	1,157971	-0,4100751	-0,2753388	8.0809	8.4512	8.5590	6.9724	7.1476	8.5590
243	E	2,128353	-25,98886	-2,422719	2,533082	2,613241	-36.3844	-33.0365	-32.9724	-29.1050	-29.0008	-36.3844
244	E	1,455907	1,692102	0,4112352	-1,360399	0,5974504	2.3689	1.6002	3.1665	0.4676	3.0128	3.1665
245	E	1,637855	-1,124182	-0,3870621	0,8696347	-0,4724422	-1.5739	-1.2726	-2.3463	-0.4120	-2.1567	-2.3463
246	B	2	55,14723	6,56319	-4,092895	-6,213084	77.2061	73.4035	71.7073	64.1375	61.3813	77.2061
247	E	2	-7,277634	-1,974062	2,51755	0,2307021	-10.1887	-9.8776	-11.7071	-6.4474	-9.4203	-11.7071
248	D	2	211,2159	26,07162	-22,60076	-19,32148	295.7023	277.0931	279.7165	237.1139	241.3770	295.7023
249	E	2,473793	-0,4325421	-0,6782382	2,292488	-1,029042	-0.6056	0.2298	-2.4275	2.1221	-2.1959	-2.4275
250	D	2	129,8153	15,82839	-11,41021	-13,53581	181.7414	171.9756	170.2751	148.8593	146.0960	181.7414
251	D	2,197258	-24,19403	-3,039954	7,260175	-0,6626049	-33.8716	-28.0885	-34.4268	-21.1146	-31.4142	-34.4268
252	A	2,128356	16,00524	2,196642	-2,601065	2,383517	22.4073	20.6401	24.6277	16.9232	23.4032	24.6277
253	B	2,370266	-93,6743	-12,36003	13,54093	6,421357	-131.1440	-121.3525	-127.0481	-100.9860	-110.2414	-131.1440
254	A	2,128357	-270,9601	-33,97857	28,75424	28,12136	-379.3441	-356.5144	-357.0207	-304.7609	-305.5836	-379.3441
255	E	2,370269	25,81331	3,926491	-2,428908	-2,608474	36.1386	35.3152	35.1716	29.7816	29.5482	36.1386
256	E	2,128353	-20,82202	-1,377113	1,416296	2,362617	-29.1508	-26.0568	-25.2997	-23.8338	-22.6036	-29.1508
257	D	1,455902	-11,75289	-1,691422	1,648767	1,07211	-16.4540	-15.4907	-15.9521	-12.8058	-13.5554	-16.4540
258	D	1,638038	50,60455	5,317215	-5,674608	-3,735696	70.8464	64.6933	66.2444	56.0071	58.5277	70.8464
259	D	2,00164	60,45951	6,495554	-8,594106	-3,351687	84.6433	76.0690	80.2629	64.6269	71.4420	84.6433
260	B	2	50,41587	4,585179	-5,699193	-3,456707	70.5822	63.2760	65.0700	55.3827	58.2979	70.5822
261	E	2	-26,02132	-4,814042	4,622005	2,197121	-36.4298	-35.2304	-37.1704	-27.6240	-30.7763	-37.1704
262	D	1,236895	23,18255	2,856153	-2,772849	-1,819437	32.4556	30.1706	30.9334	25.6424	26.8819	32.4556
263	D	1,236898	85,2672	10,11626	-8,455432	-8,049355	119.3741	111.7423	112.0672	96.3867	96.9146	119.3741
264	E	1,436015	-2,54845	-2,174758	2,180804	-3,341524E-03	-3.5678	-4.7931	-6.5404	-1.3105	-4.1499	-6.5404
265	E	2,025853	1,414532	0,9672425	-1,462108	2,661307E-02	1.9803	2.0753	3.2663	0.2803	2.2157	3.2663
266	E	1,43664	1,357417	1,477724	-0,3634146	-0,0086619	1.9004	3.7025	3.9863	1.8953	2.3565	3.9863
267	H	2	192,5063	23,7711	-20,36342	-17,85891	269.5088	252.7506	254.7542	216.4207	219.6765	269.5088
268	D	2	74,8564	8,906384	-7,285994	-7,20894	104.7990	98.2491	98.3107	84.8091	84.9093	-104.7990
269	E	2,585182	-18,38746	-2,35002	5,880769	-0,8060114	-25.7424	-21.1204	-26.4698	-15.5950	-24.2878	-26.4698
270	E	2	14,39131	1,825917	-4,525537	0,5968226	20.1478	16.5706	20.6685	12.2993	18.9584	20.6685
271	E	2,371141	-17,07024	-2,174479	5,398088	-0,7151031	-23.8983	-19.6450	-24.5355	-14.5540	-22.5012	-24.5355

abel 4.5.a Lanjutan

BTG	(profil)	L(m)	ND	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
272	A	2,128356	2,941704	0,2934033	0,9954478	1,808509	4.1184	4.7966	5.4463	4.9721	6.0278	6.0278
273	B	2,370264	-12,41169	-1,263911	3,878347	1,401515E-02	-17.3764	-13.8136	-16.9051	-10.4841	-15.5078	-17.3764
274	A	2,128357	-354,8896	-43,23507	39,06947	34,06573	-496.8454	-463.7881	-467.7910	-396.6947	-403.1996	-496.8454
275	E	1,01913	-1,321121	-0,9932338	1,482228	-2,635155E-03	-1.8496	-1.9887	-3.1766	-0.1551	-2.0854	-3.1766
276	D	1,236895	85,01176	10,126	-8,466384	-8,054552	119.0165	111.4426	111.7721	96.0708	96.6062	119.0165
277	D	1,236895	23,27443	2,828299	-2,742267	-1,802549	32.5842	30.2608	31.0126	25.7785	27.0002	32.5842
278	D	1,455898	-34,27955	-4,592454	2,758269	4,268545	-47.9914	-46.2768	-45.0686	-39.8459	-37.8826	-47.9914
279	D	1,638042	-20,14925	-2,932872	1,143382	3,215312	-28.2090	-27.9570	-26.2994	-24.1591	-21.4656	-28.2090
280	D	1,2737	-31,4222	-4,431805	4,889923	2,704262	-43.9911	-40.8856	-42.6341	-33.5656	-36.4070	-43.9911
281	B	2,000005	4,790342	-0,2566742	-0,7628074	0,1565485	6.7065	4.7275	5.4630	4.6284	5.8236	6.7065
282	E	1,489853	-1,329011	-1,460509	1,113983	1,212544E-03	-1.8606	-3.0404	-3.9307	-0.8769	-2.3235	-3.9307
283	E	1,489849	1,279922	1,462158	-0,8545496	-2,460485E-03	1.7919	3.1917	3.8734	1.1561	2.2638	3.8734
284	H	0	279,4199	33,74865	-30,17038	-24,9659	391.1879	365.1654	369.3290	312.9567	319.7225	391.1879
284	H	2	279,4199	33,74865	-30,17038	-24,9659	391.1879	365.1654	369.3290	312.9567	319.7225	391.1879
285	D	2,473788	-22,22335	-2,164195	3,61851	0,6972173	-31.1127	-27.2359	-29.5730	-23.0461	-26.8437	31.1127
286	D	2	93,74453	11,20078	-9,514298	-8,668989	131.2423	122.8032	123.4795	105.7252	106.8241	131.2423
287	A	2,128356	37,095	4,454535	-4,714497	-0,7709116	51.9330	47.8697	51.0245	40.6124	45.7391	51.9330
288	B	2,370261	-53,77248	-6,63005	11,43885	2,111907	-75.2815	-65.9840	-73.4455	-52.9715	-65.0965	-75.2815
289	A	2,128357	-365,7775	-44,32032	41,86092	34,01557	-512.0885	-476.3568	-482.6331	-406.6740	-416.8729	-512.0885
290	D	1,455893	12,58667	1,28347	-2,142803	-0,4146873	17.6213	15.4433	16.8258	12.9601	15.2066	17.6213
291	B	2	40,07605	4,531453	-7,428803	-1,716988	56.1065	49.3985	53.9680	40.6995	48.1249	56.1065
292	H	2	294,9261	35,59266	-33,20026	-25,58745	412.8965	384.2994	390.3896	328.5473	338.4440	412.8965
293	D	2,473785	-18,75572	-2,215886	3,680217	0,7257851	-26.2580	-23.1081	-25.4717	-18.8305	-22.6713	-26.2580
294	D	2	75,47081	9,402584	-6,538623	-8,073086	105.6591	100.3782	99.1506	86.7661	84.7713	105.6591
295	A	2,128356	78,74607	9,570642	-13,10232	-2,693534	110.2445	99.3265	107.6535	82.2476	95.7790	110.2445
296	B	2,370258	-45,94625	-5,630921	9,162425	2,154716	-64.3248	-56.8150	-62.4212	-46.0398	-55.1498	-64.3248
297	A	2,128357	-414,5634	-50,34736	51,58526	35,89386	-580.3888	-536.7636	-549.3168	-455.5889	-475.9877	-580.3888
298	D	1,455889	10,45885	1,302118	-2,153626	-0,4319863	14.6424	12.9111	14.2884	10.4020	12.6401	14.6424
299	B	1,999995	35,10245	3,741526	-5,594461	-1,777498	49.1434	43.6338	46.6874	36.7209	41.6830	49.1434
300	H	2	307,0399	37,41016	-36,18414	-26,20273	429.8559	399.3568	407.3420	340.1136	353.0894	429.8559
301	D	2,473783	-14,64721	-2,190304	3,633056	0,7212994	-20.5061	-18.1747	-20.5041	-13.9488	-17.7341	-20.5061
302	D	2	60,01739	7,561912	-3,510522	-7,454664	84.0243	81.3115	78.1562	71.2381	66.1108	84.0243
303	A	2,128356	115,3507	13,71063	-19,2889	-4,661902	161.4910	144.9267	156.6283	120.2006	139.2157	161.4910
304	B	2,370255	-40,1888	-4,544504	6,722744	2,201584	-56.2643	-50.1196	-53.7365	-41.7592	-47.6368	-56.2643

Tabel 4.5.a Lanjutan

TG	(profil)	L(m)	ND	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
305	A	2,128357	-456,5615	-55,50573	59,28827	37,83447	-639.1861	-589.2524	-606.4154	-498.5519	-526.4419	-639.1861
306	D	1,455884	-0,172727	-0,3002363	-0,573148	0,7155138	-0.2418	-1.1462	-0.1152	-1.1025	0.5728	-1.1462
307	D	0,7279356	-8,202734	-1,602831	1,582839	1,146802	-11.4838	-11.1415	-11.4904	-8.5870	-9.1539	-11.4904
308	B	1,99999	29,81141	2,751824	-3,464788	-1,765525	41.7360	37.4048	38.7642	32.6454	34.8544	41.7360
309	H	2	304,6975	37,05006	-37,01727	-25,26002	426.5765	395.3033	404.7091	336.0396	351.3240	426.5765
310	D	2,47378	3,107844	0,4857391	1,00935	-1,205107	4.3510	5.3141	3.5425	5.2844	2.4056	5.3141
311	D	2	48,51977	5,82829	-0,7825444	-6,793002	67.9277	66.9230	62.1146	60.1206	52.3070	67.9277
312	A	2,128356	154,3717	18,38227	-24,67782	-7,811008	216.1204	194.9154	208.4089	162.3560	184.2829	216.1204
313	B	2,370253	-43,43177	-5,200089	6,177937	3,389548	-60.8045	-55.4959	-57.7266	-46.6869	-50.3118	-60.8045
314	A	2,128357	-493,093	-59,64124	64,69399	39,82071	-690.3302	-635.3824	-655.2810	-537.4300	-569.7653	-690.3302
315	D	1,45588	-19,66434	-2,610052	2,243399	1,986144	-27.5301	-25.9786	-26.1844	-21.9858	-22.3202	-27.5301
316	B	1,999985	31,06601	3,277118	-2,916295	-2,785762	43.4924	40.1896	40.2940	35.1266	35.2963	43.4924
317	H	2	245,4886	29,84353	-30,79274	-19,79362	343.6840	317.7018	326.5011	269.4775	283.7764	343.6840
318	D	2,128356	63,22149	7,699906	-6,660389	-5,834621	88.5101	82.8573	83.5179	71.0572	72.1307	88.5101
319	A	2,128356	237,9151	28,6425	-30,84817	-17,47569	333.0811	306.6476	317.3456	259.7167	277.1010	333.0811
320	B	2,37025	-32,31061	-4,021047	6,789326	1,577429	-45.2349	-39.7749	-43.9445	-31.9571	-38.7326	-45.2349
321	A	2,128357	-532,4484	-64,35878	69,58579	42,88183	-745.4278	-686.2435	-707.6067	-580.6559	-615.3711	-745.4278
322	D	0,72794	1,42678	-1,141627E-02	0,0120025	7,139379E-03	1.9975	1.7035	1.6996	1.7220	1.7157	1.9975
323	B	1,99998	24,03227	2,426282	-3,558681	-1,365489	33.6452	29.8738	31.6284	25.4256	28.2767	33.6452
324	H	2	245,7045	29,86941	-30,84354	-19,79572	343.9863	317.9616	326.7999	269.6835	284.0457	343.9863
325	A	2,128356	277,6258	33,40617	-36,59855	-20,55195	388.6761	357.3220	370.1593	302.2759	323.1365	388.6761
326	B	2,370247	25,05945	3,135755	-0,9083431	-2,975797	35.0832	34.3619	32.7079	30.4584	27.7707	35.0832
327	A	2,128357	-561,498	-67,98792	75,00074	44,29491	-786.0972	-722.5777	-747.1423	-610.2906	-650.2082	-786.0972
328	B	1,999975	-23,22867	-3,470332	2,729311	2,415866	-32.5201	-31.2435	-31.4942	-26.0615	-26.4689	-32.5201
329	A	2,128356	416,2706	49,95153	-54,66323	-31,36705	582.7788	535.7166	554.3535	453.4383	483.7233	582.7788
330	B	2,370245	131,3259	16,311	-15,78131	-10,97239	183.8563	171.0636	174.9108	145.2309	151.4825	183.8563
331	A	2,128357	-537,0828	-64,94745	73,26678	41,45146	-751.9159	-689.8019	-715.2541	-581.7263	-623.0862	-751.9159
332	B	1,99997	-114,493	-14,63976	15,33793	9,1943	-160.2902	-148.5449	-153.4598	-124.7722	-132.7589	-160.2902
333	A	2,128356	284,8206	33,70783	-37,66918	-21,14803	398.7488	365.5819	378.7988	309.6687	331.1462	398.7488
334	B	2,370242	141,241	17,46516	-18,26299	-10,98971	197.7374	182.8231	188.6417	154.4799	163.9352	197.7374
335	A	2,128357	-415,2922	-49,82873	57,88089	31,28821	-581.4091	-531.7719	-553.0460	-448.0198	-482.5903	-581.4091
336	B	1,999965	-123,4227	-15,82631	17,65983	9,344582	-172.7918	-159.3015	-165.9537	-133.0626	-143.8724	-172.7918
337	A	2,128356	145,7524	16,26637	-18,22169	-10,84124	204.0534	186.3517	192.2561	159.3479	168.9425	204.0534
338	B	2,370239	148,9032	18,69045	-20,83886	-11,04193	208.4645	191.9175	199.7550	160.9385	173.6746	208.4645

abel 4.5.a Lanjutan

BTG	(profil)	L(m)	ND	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
339	A	2,128357	-282,9998	-33,48033	40,02084	21,00884	-396.1997	-361.1516	-376.3612	-304.3128	-329.0284	-396.1997
340	B	1,99996	-128,2533	-16,65378	19,5841	9,270422	-179.5546	-164.8827	-173.1337	-136.7715	-150.1793	-179.5546
341	A	2,234774	-4,709914	-2,844506	4,208744	-0,1829138	-6.5939	-6.8361	-10.3494	-1.6028	-7.3119	-10.3494
342	B	2,436566	158,052	20,07834	-23,54918	-11,20332	221.2728	202.9484	212.8251	169.0876	185.1373	221.2728
343	A	2,234761	-144,0066	-16,04068	19,81655	10,71352	-201.6092	-182.6198	-189.9022	-155.0667	-166.9007	-201.6092
344	B	2	-140,8714	-19,02327	23,94284	9,546731	-197.2200	-180.3286	-191.8455	-147.4316	-166.1466	-197.2200
345	C	2	-6,786986	-2,946467	4,273252	-2,320501E-02	-9.5018	-9.4401	-12.8773	-4.0624	-9.6478	-12.8773
346	C	2,828427	5,537468	1,89359	-3,548123	0,0550068	7.7525	6.8362	9.7187	2.9792	7.6633	9.7187
347	C	2,128376	3,211518	1,721491	-0,779389	-0,0211804	4.4961	5.9847	6.5913	3.7014	4.6870	6.5913
348	C	1,272	-3,474414	-1,391769	2,583569	-1,032473E-02	-4.8642	-4.3293	-6.4044	-1.5065	-4.8786	-6.4044
349	C	2	-2,813292	-1,567386	1,707134	4,865373E-03	-3.9386	-4.5181	-5.8799	-1.9404	-4.1533	-5.8799
350	C	2,370229	3,817415	1,811092	-1,96957	-1,061392E-02	5.3444	5.9030	7.4702	2.9260	5.4726	7.4702
351	C	2,128376	-0,3845318	4,700138E-02	0,3178014	4,243203E-03	-0.5383	-0.1320	-0.3828	-0.0248	-0.4324	-0.5383
352	C	0,544	-1,409971	-0,9763894	1,059732	1,638671E-03	-1.9740	-2.4064	-3.2529	-0.8025	-2.1780	-3.2529

eterangan :

1] Nomer batang

2] Jenis profil yang dipakai

3] Panjan g batang L (m)

4] ND = gaya aksial akibat beban mati (kN)

5] NL = gaya aksial akibat beban hidup (kN)

6] Nwki = gaya aksial akibat beban angin kiri (kN)

7] Nwka = gaya aksial akibat beban angin kanan (kN)

8] Gaya aksial

8] Nu 1 = 1,4.ND

9] Nu2 = 1,2ND+1,6NL+0,8Nwki

10] Nu3 = 1,2ND+1,6NL+0,8Nwka

11] Nu4 = 1,2ND+1,3Nwki+0,5NL

12] Nu5 = 1,2ND+1,3Nwka+0,5NL

13] Numaks = gayaaksial batang maksimum (kN)

Notasi Profil:

A = (H BEAM) 200x 200x8x12x13

B = (IWF) 200x100x5,5x8x11

C = 2L 80.80.8

D = 2L 70.70.7

E = 2L 60.60.6

F = 2L 50.50.5

H = 2L 90.90.9

H = 2L 90.90.9

Tabel 4.5.b Gaya Batang Aksial Kuda-Kuda K1"

BTG	(profil)	L(m)	ND	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
1	C	0,544	-1,537722	-0,9767901	1,177316E-03	1,060261	-2.1528	-3.4072	-2.5599	-2.3321	-0.9553	-3.4072
2	C	2	-2,84648	-1,56776	2,837043E-03	1,708396	-3.9851	-5.9219	-4.5575	-4.1960	-1.9787	-5.9219
3	C	2,370229	3,871294	1,812428	-6,120998E-03	-1,973063	5.4198	7.5405	5.9670	5.5438	2.9868	7.5405
4	C	2,128376	-0,3963231	4,613948E-02	2,600884E-03	0,3194451	-0.5549	-0.3997	-0.1462	-0.4491	-0.0372	-0.5549
5	C	1,272	-3,52563	-1,391595	-7,478756E-03	2,583133	-4.9359	-6.4633	-4.3908	-4.9363	-1.5685	-6.4633
6	C	2	-6,906344	-2,9457	-1,362524E-02	4,268354	-9.6689	-13.0116	-9.5860	-9.7782	-4.2116	-13.0116
7	C	2,828427	5,675235	1,891716	3,044428E-02	-3,534705	7.9453	9.8614	7.0093	7.7957	3.1610	9.8614
8	C	2,128376	3,39151	1,722213	-1,220264E-02	-0,7839864	4.7481	6.8156	6.1982	4.9151	3.9117	6.8156
9	B	2	-133,1547	-19,02225	3,852834	27,22815	-186.4166	-187.1390	-168.4387	-164.2881	-133.9002	-187.1390
10	A	2,234774	-5,394629	-2,844154	12,76984	-8,698419	-7.5525	-0.8083	-17.9829	8.7052	-19.2036	-19.2036
11	B	2,436566	148,6765	20,07773	-4,494918	-27,432	208.1471	206.9402	188.5906	182.6073	152.7891	208.1471
12	A	2,234761	-134,6622	-16,04063	4,347856	23,48097	-188.5271	-183.7814	-168.4749	-163.9627	-139.0897	-188.5271
13	B	2	-121,5706	-16,65368	3,73008	22,787	-170.1988	-169.5465	-154.3010	-149.3625	-124.5885	-170.1988
14	A	2,128356	136,3046	16,26632	8,468497	-34,798	190.8264	196.3664	161.7532	182.7077	126.4613	196.3664
15	B	2,370239	140,6517	18,69053	-4,404641	-24,69232	196.9124	195.1632	178.9330	172.4013	146.0273	196.9124
16	A	2,128357	-265,6899	-33,4803	8,484882	47,2479	-371.9659	-365.6085	-334.5980	-324.5377	-274.1458	-371.9659
17	B	2	-117,51	-15,82673	3,74813	20,90095	-164.5140	-163.3363	-149.6140	-144.0528	-121.7541	-164.5140
18	A	2,128356	267,4112	33,70795	4,329827	-57,81527	374.3757	378.2900	328.5739	343.3762	262.5876	378.2900
19	B	2,370242	134,0129	17,46483	-4,388644	-22,09275	187.6181	185.2483	171.0850	163.8427	140.8273	187.6181
20	A	2,128357	-390,9501	-49,82879	12,61442	68,66621	-547.3301	-538.7746	-493.9332	-477.6558	-404.7884	-547.3301
21	B	2	-109,4895	-14,63691	3,714283	18,49533	-153.2853	-151.8350	-140.0102	-133.8773	-114.6619	-153.2853
22	A	2,128356	391,8707	49,95041	0,2140084	-78,33409	548.6190	550.3367	487.4982	495.4983	393.3857	550.3367
23	B	2,370245	125,0845	16,31009	-4,386285	-19,59954	175.1183	172.6885	160.5179	152.5543	132.7770	175.1183
24	A	2,128357	-506,2805	-64,94486	16,71898	87,5442	-708.7927	-698.0732	-641.4130	-618.2744	-526.2016	-708.7927
25	B	2	-22,36733	-3,330954	2,058663	2,256997	-31.3143	-30.5234	-30.3647	-25.8300	-25.5722	-31.3143
26	H	2	235,8948	30,2742	-4,774085	-41,51419	330.2527	327.6932	298.3011	292.0045	244.2424	330.2527
27	A	2,128356	257,5724	32,97392	1,173322	-52,4587	360.6014	362.7838	319.8782	327.0992	257.3775	362.7838
28	B	2,370247	23,70792	2,973532	-2,437944	-0,4393478	33.1911	31.2568	32.8557	26.7669	29.3651	33.1911
29	A	2,128357	-529,5275	-67,83561	19,03402	88,85286	-741.3385	-728.7428	-672.8877	-644.6066	-553.8421	-741.3385
30	D	0,72794	0,592631	-1,135734E-02	5,219466E-03	1,199368E-02	0.8297	0.6972	0.7026	0.7123	0.7211	0.8297
31	B	2	22,8836	2,564554	0,492868	-5,293036	32.0370	31.9579	27.3292	29.3833	21.8617	32.0370
32	H	2	235,6832	30,24529	-4,803787	-41,42768	329.9565	327.3693	298.0702	291.6976	244.0865	329.9565
33	D	2,128356	60,72553	7,70321	-2,388285	-8,642712	85.0157	83.2851	78.2816	73.6175	65.4867	85.0157

Tabel 4.5.b Lanjutan

BTG	(profil)	L(m)	ND	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
34	A	2,128356	218,9524	28,05936	1,301131	-44,29454	306.5334	308.6788	272.2022	278.4640	219.1897	308.6788
35	B	2,37025	-30,97114	-4,187897	-0,593307	8,827928	-43.3596	-44.3406	-36.8037	-40.0306	-27.7830	-44.3406
36	A	2,128357	-501,2911	-64,05307	19,62541	81,54541	-701.8075	-688.3339	-638.7979	-608.0628	-527.5668	-701.8075
37	D	1,45588	-19,84283	-2,610515	0,8193212	2,910808	-27.7800	-27.3328	-25.6596	-24.0515	-21.3326	-27.7800
38	B	2	29,15003	3,304376	-0,5974586	-4,454583	40.8100	39.7891	36.7034	35.8555	30.8413	40.8100
39	H	2	292,4478	37,45424	-7,049092	-49,50075	409.4269	405.2249	371.2635	360.5007	305.3135	409.4269
40	D	2,47378	3,13146	0,3904144	-1,182001	1,425616	4.3840	3.4368	5.5229	2.4164	5.8063	5.8063
41	D	2	46,60663	5,733021	-2,62181	-3,079016	65.2493	63.0033	62.6376	55.3861	54.7917	65.2493
42	A	2,128356	138,8543	17,82842	4,513728	-34,15253	194.3960	198.7616	167.8286	181.4072	131.1411	198.7616
43	B	2,370253	-41,1376	-5,23561	0,7526031	8,027251	-57.5926	-57.1400	-51.3203	-51.0045	-41.5475	-57.5926
44	A	2,128357	-464,4426	-59,30213	18,9896	74,93742	-650.2196	-637.0228	-592.2646	-562.2957	-489.5635	-650.2196
45	D	1,455884	-1,117298	-0,2441357	0,6967516	-0,8143807	-1.5642	-1.1740	-2.3829	-0.5570	-2.5215	-2.5215
46	D	0,7279356	-9,330755	-1,591399	0,6308533	1,818824	-13.0631	-13.2385	-12.2881	-11.1725	-9.6281	-13.2385
47	B	2	26,9559	2,788727	-4,237776E-02	-4,784998	37.7383	36.7751	32.9810	33.6864	27.5209	37.7383
48	H	2	294,6283	37,7374	-7,992282	-48,31998	412.4796	407.5400	375.2778	362.0327	309.6067	412.4796
49	D	2,473783	-15,20853	-2,266183	-0,114755	4,437857	-21.2919	-21.9679	-18.3258	-19.5325	-13.6141	-21.9679
50	D	2	101,8914	13,12865	5,242105	-27,08165	142.6480	147.4692	121.6102	135.6487	93.6279	147.4692
51	A	2,128356	-36,51604	-4,587262	0,1266091	8,292105	-51.1225	-51.0576	-44.5252	-45.9483	-35.3331	-51.1225
52	B	2,370255	-431,0253	-55,1273	18,91873	68,07175	-603.4354	-590.2991	-550.9766	-520.1997	-456.3007	-603.4354
53	A	2,128357	-430,6261	-55,1273	18,91873	68,07175	-602.8765	-589.8200	-550.4976	-519.7206	-455.8217	-602.8765
54	D	1,455889	9,720737	1,346771	6,601966E-02	-2,6314	13.6090	13.8725	11.7146	12.4241	8.9174	13.8725
55	B	2	282,0806	35,85851	-8,076226	-44,67001	394.9128	389.4094	360.1343	345.9269	298.3550	394.9128
56	H	2	-17,94859	-2,292088	-0,1195973	4,49377	-25.1280	-25.3013	-21.6106	-22.8398	-16.8425	-25.3013
57	D	2,473785	-17,70911	-2,292088	-0,1195973	4,49377	-24.7928	-25.0140	-21.3233	-22.5525	-16.5551	-25.0140
58	D	2	68,02169	8,948809	5,298534	-19,43369	95.2304	100.1829	80.3972	92.9885	60.8366	100.1829
59	A	2,128356	68,42091	8,948809	5,298534	-19,43369	95.7893	100.6620	80.8762	93.4676	61.3157	100.6620
60	B	2,370258	-42,52927	-5,674949	9,571934E-02	10,72857	-59.5410	-60.0385	-51.5322	-53.7482	-39.9255	-60.0385
61	A	2,128357	-392,188	-49,92825	18,88194	58,90792	-549.0632	-535.4052	-503.3845	-471.0432	-419.0094	-549.0632
62	D	1,455893	11,29903	1,328332	7,293629E-02	-2,614873	15.8186	15.7425	13.5923	14.3178	10.8237	15.8186
63	B	2	37,25694	4,567141	-4,252453E-02	-8,711944	52.1597	51.9817	45.0462	46.9366	35.6664	52.1597
64	H	2	267,2581	33,95281	-8,163988	-40,96501	374.1613	368.5030	342.2622	327.0729	284.4316	374.1613
65	D	2,473788	-20,08976	-2,240171	-0,123853	4,414731	-28.1257	-27.7911	-24.1602	-25.3888	-19.4886	-28.1257
66	D	2	89,89336	11,28673	-2,423992	-13,77356	125.8507	123.9916	114.9120	110.3642	95.6098	125.8507
67	A	2,128356	29,91158	3,792508	5,337912	-9,601276	41.8762	46.2322	34.2809	44.7294	25.3085	46.2322

Tabel 4.5.b Lanjutan

BTG	(profil)	L(m)	ND	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
68	B	2,370261	-50,38692	-6,672194	9,108885E-02	12,97571	-70.5417	-71.0669	-60.7592	-63.6820	-46.9320	-71.0669
69	A	2,128357	-346,5082	-43,86254	18,84502	47,77095	-485.1115	-470.9139	-447.7731	-413.2426	-375.6389	-485.1115
70	E	1,489853	-1,339389	-1,460589	6,949304E-04	1,114236	-1.8751	-3.9437	-3.0528	-2.3367	-0.8891	-3.9437
71	E	1,489849	1,348861	1,462266	-1,382175E-03	-0,8550895	1.8884	3.9572	3.2742	2.3480	1.2381	3.9572
72	D	1,455898	-34,40757	-4,578695	1,713109	4,233888	-48.1706	-47.2445	-45.2279	-41.3514	-38.0744	-48.1706
73	D	1,638042	-20,32838	-2,874722	1,533089	1,969464	-28.4569	-27.7647	-27.4156	-23.8360	-23.2687	-28.4569
74	D	1,2737	-30,76841	-4,428381	0,8204352	6,088098	-43.0758	-43.3512	-39.1370	-38.0697	-31.2218	-43.3512
75	B	2	3,450672	-0,2820626	-9,279056E-02	-0,5460086	4.8309	3.6153	3.2527	3.8791	3.2900	4.8309
76	D	1,236895	81,08608	10,17866	-2,813517	-11,82119	113.5205	111.3383	104.1322	98.7351	87.0251	113.5205
77	D	1,236895	22,87517	2,902802	-0,3123313	-3,848315	32.0252	31.8448	29.0160	28.4956	23.8988	32.0252
78	E	1,01913	-1,329643	-0,9932305	-1,640334E-03	1,481991	-1.8615	-3.1861	-1.9991	-2.0943	-0.1656	-3.1861
79	H	2	185,172	23,87145	-5,978943	-27,78913	259.2408	255.6176	238.1694	226.3695	198.0163	259.2408
80	D	2	71,42823	8,93233	-2,17329	-10,64747	99.9995	98.2670	91.4876	87.3548	76.3383	99.9995
81	E	2,585182	-17,11728	-2,436229	-1,120026	6,463793	-23.9642	-25.3347	-19.2677	-23.2149	-13.3559	-25.3347
82	E	2	13,4097	1,891832	0,8526331	-4,982523	18.7736	19.8007	15.1326	18.1460	10.5603	19.8007
83	E	2,371141	-15,89725	-2,25311	-1,015949	5,939381	-22.2562	-23.4944	-17.9302	-21.5240	-12.4821	-23.4944
84	A	2,128356	-2,152085	-0,3355007	6,298742	-2,933243	-3.0129	1.9197	-5.4659	5.4381	-6.5635	-6.5635
85	B	2,370264	-10,77531	-1,240013	0,2129273	3,677917	-15.0854	-14.7441	-11.9721	-13.2736	-8.7691	-15.0854
86	A	2,128357	-336,7559	-42,80178	18,71517	45,14977	-471.4583	-457.6178	-436.4701	-401.1782	-366.8133	-471.4583
87	E	1,436015	-2,578774	-2,174707	-1,943984E-03	2,180179	-3.6103	-6.5756	-4.8299	-4.1844	-1.3476	-6.5756
88	E	2,025853	1,442224	0,9668346	1,486448E-02	-1,456619	2.0191	3.2895	2.1123	2.2334	0.3205	3.2895
89	E	1,43664	1,363999	1,47785	-4,938876E-03	-0,365004	1.9096	3.9974	3.7094	2.3693	1.9012	3.9974
90	D	1,236895	22,76095	2,931025	-0,3183469	-3,885814	31.8653	31.7481	28.8941	28.3648	23.7271	31.8653
91	D	1,236898	81,35606	10,16835	-2,810861	-11,80854	113.8985	111.6479	104.4498	99.0573	87.3603	113.8985
92	D	1,455902	-11,6419	-1,735399	0,1840788	2,307234	-16.2987	-16.5997	-14.9011	-14.5987	-11.8386	-16.5997
93	D	1,638038	48,02897	5,339386	-1,354155	-7,287568	67.2406	65.0945	60.3477	58.5441	50.8306	67.2406
94	D	2,00164	57,27255	6,560025	-0,8055116	-10,50064	80.1816	78.5787	70.8226	70.9599	58.3562	80.1816
95	B	2	45,9338	4,434566	-0,678138	-7,409381	64.3073	61.6734	56.2884	56.4563	47.7056	64.3073
96	E	2	-26,0828	-4,917416	1,301882	5,088351	-36.5159	-38.1257	-35.0965	-32.0656	-27.1432	-38.1257
97	D	2	203,4503	26,23289	-6,233245	-30,92364	284.8304	281.1264	261.3741	249.1536	217.0561	284.8304
98	E	2,473793	-0,1650001	-0,7111319	-1,017443	2,393394	-0.2310	-2.1498	0.5789	-1.8762	2.5578	2.5578
99	D	2	124,2173	15,85549	-4,50289	-17,12004	173.9042	170.8272	160.7335	151.1347	134.7325	-173.9042
100	D	2,197258	-24,44518	-3,303763	0,2866353	7,035649	-34.2233	-34.3909	-28.9917	-30.6135	-21.8398	-34.3909
101	A	2,128356	12,62867	1,845834	6,185065	-6,522616	17.6801	23.0558	12.8896	24.1179	7.5979	24.1179

Tabel 4.5.a Lanjutan

BTG	(profil)	L(m)	ND	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
204	E	2,473801	-9,603554	-0,6793834	2,303334	-1,037187	-13.4450	-10.7686	-13.4410	-8.8696	-13.2123	-13.4450
205	D	2	146,8366	17,63151	-17,14151	-11,12691	205.5712	190.7011	195.5128	162.7357	170.5547	205.5712
206	D	2,197258	-35,32271	-4,61868	10,77445	-2,548492	-49.4518	-41.1576	-51.8159	-30.6898	-48.0096	-51.8159
207	E	2,128412	5,089944	0,5063976	-1,125685	0.6054344	7.1259	6.0176	7.4025	4.8977	7.1482	7.4025
208	D	2,197236	-30,7166	-4,012898	6,956519	0.8698007	-43.0032	-37.7153	-42.5847	-29.8229	-37.7356	-43.0032
209	A	2,128356	-128,9617	-15,79123	11,77645	17,62229	-180.5464	-170.5988	-165.9222	-147.3403	-139.7407	-180.5464
210	B	2,370274	-51,79768	-6,307732	7,78063	4,079718	-72.5168	-66.0251	-68.9858	-55.1963	-60.0074	-72.5168
211	A	2,128357	-108,4626	-12,74826	9,67012	13,41458	-151.8476	-142.8162	-139.8207	-123.9581	-119.0903	-151.8476
212	E	2,370249	-14,03865	-1,599618	2,541562	1,236703	-19.6541	-17.3725	-18.4164	-14.3422	-16.0385	-19.6541
213	E	2,128353	-6,299202	-0,3921781	0,2330817	0.9860902	-8.8189	-8.0001	-7.3977	-7.4521	-6.4732	-8.8189
214	E	1,455916	5,254223	0,4128951	-1,366049	0,599604	7.3559	5.8729	7.4454	4.7357	7.2910	-7.4454
215	E	1,637965	-3,404749	-0,3905406	0,87117	-0,4688185	-4.7666	-4.0136	-5.0856	-3.1484	-4.8904	-5.0856
216	B	2	43,69072	5,000308	-5,0639	-3,861229	61.1670	56.3782	57.3404	48.3459	49.9094	61.1670
217	E	2	9,409122	0,3501157	2,877593E-02	-1,042978	13.1728	11.8742	11.0167	11.5034	10.1101	13.1728
218	D	2	207,4004	24,88174	-18,79762	-20,93023	290.3606	273.6532	271.9471	236.8844	234.1121	290.3606
219	E	2,473798	-6,877712	-0,7133858	2,329846	-1,008642	-9.6288	-7.5308	-10.2016	-5.5811	-9.9212	-10.2016
220	D	2	138,8573	17,04902	-15,24638	-11,94465	194.4002	181.7101	184.3515	155.3330	159.6252	194.4002
221	D	2,197258	-30,09711	-4,092608	9,60388	-1,920747	-42.1360	-34.9816	-44.2013	-25.6778	-40.6598	-44.2013
222	E	2,128393	3,581432	0,5023251	-1,123783	0,6103936	5.0140	4.2024	5.5898	3.0880	5.3424	5.5898
223	D	2,197236	-34,40197	-4,536211	8,126361	0,2380544	-48.1628	-42.0392	-48.3499	-32.9862	-43.2410	-48.3499
224	A	2,128356	-83,98901	-10,39657	6,229293	13,53387	-117.5846	-112.4379	-106.5942	-97.8870	-88.3911	-117.5846
225	B	2,370272	-48,58153	-5,816222	5,979215	4,412776	-68.0141	-62.8204	-64.0736	-53.4330	-55.4693	-68.0141
226	A	2,128357	-148,9494	-17,95451	15,32255	16,64373	-208.5292	-195.2085	-194.1515	-167.7972	-166.0797	-208.5292
227	E	2,370255	-7,778964	-0,6641612	1,676618	0,5764289	-10.8905	-9.0561	-9.9363	-7.4872	-8.9175	-10.8905
228	E	2,128353	-18,96169	-1,828938	1,772967	2,097028	-26.5464	-24.2620	-24.0027	-21.3636	-20.9424	-26.5464
229	E	1,455911	3,561733	0,422426	-1,373942	0,5921984	4.9864	3.8508	5.4237	2.6992	5.2552	5.4237
230	E	1,63791	-2,29479	-0,3914376	0,8729566	-0,4694846	-3.2127	-2.6817	-3.7556	-1.8146	-3.5598	-3.7556
231	B	2,00002	45,73854	5,458881	-4,68935	-4,409227	64.0340	59.8690	60.0931	51.5195	51.8837	64.0340
232	E	2	2,819518	-0,4400752	0,7595898	-0,4853356	3.9473	3.2870	2.2910	4.1509	2.5324	4.1509
233	D	2	210,6747	25,49012	-20,71453	-20,13274	294.9446	277.0222	277.4876	238.6258	239.3821	294.9446
234	E	2,473795	-3,82094	-0,7141439	2,332548	-1,009903	-5.3493	-3.8617	-6.5357	-1.9099	-6.2551	-6.5357
235	D	2	133,111	16,44133	-13,33189	-12,74103	186.3554	175.3738	175.8465	150.6224	151.3905	186.3554
236	D	2,197258	-26,40336	-3,5689	8,433206	-1,288788	-36.9647	-30.6477	-38.4253	-22.5053	-35.1439	-38.4253
237	E	2,128374	2,154756	0,5076209	-1,126665	0,6051214	3.0167	2.4966	3.8820	1.3749	3.6262	3.8820

Tabel 4.5.b Lanjutan

BTG	(profil)	L(m)	ND	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
102	B	2,370266	-88,8391	-12,30054	2,243078	16,00698	-124.3747	-124.4933	-113.4822	-109.8412	-91.9481	-124.4933
103	A	2,128357	-257,324	-33,60015	16,63916	32,5463	-360.2536	-349.2377	-336.5120	-303.9580	-283.2787	-360.2536
104	E	2,370269	26,12592	4,049037	-1,545107	-2,982879	36.5763	36.5935	35.4433	31.3670	29.4979	36.5935
105	E	2,128353	-20,98245	-1,48756	1,398644	1,918331	-29.3754	-26.4401	-26.0244	-24.1045	-23.4289	-29.3754
106	E	1,455907	1,481842	0,4304962	0,5967528	-1,423525	2.0746	2.9444	1.3282	2.7692	0.1429	2.9444
107	E	1,637855	-0,8362727	-0,3612345	-0,8899732	1,157614	-1.1708	-2.2935	-0.6554	-2.3411	0.3208	2.3411
108	B	2,000015	51,73708	6,430399	-3,557669	-5,388546	72.4319	69.5270	68.0623	60.6747	58.2946	72.4319
109	E	2,000007	-7,888512	-2,086143	8,161898E-02	2,691231	-11.0439	-12.7387	-10.6511	-10.4032	-7.0107	-12.7387
110	D	2	202,9993	25,62496	-7,051407	-28,94574	284.1990	278.9580	261.4425	247.2448	218.7822	284.1990
111	E	2,473795	-3,614968	-0,746872	-1,014974	2,444073	-5.0610	-6.3449	-3.5777	-6.0309	-1.5341	-6.3449
112	D	2	127,4715	16,49473	-3,686716	-19,14268	178.4601	176.4080	164.0432	156.4204	136.3277	-178.4601
113	D	2,197258	-26,29041	-3,79809	-0,905135	8,599113	-36.8066	-38.3495	-30.7461	-34.6242	-22.2687	-38.3495
114	E	2,128374	1,805094	0,4739887	1,152694	-1,504343	2.5271	3.8466	1.7210	3.9016	0.4475	3.9016
115	D	2,197236	-36,10363	-5,211437	-1,17692	10,10894	-50.5451	-52.6042	-43.5755	-47.4601	-32.7885	-52.6042
116	A	2,128356	-34,66791	-4,478771	9,351514	-1,44928	-48.5351	-41.2863	-49.9269	-31.6839	-45.7249	-49.9269
117	B	2,370269	-49,81535	-6,458246	2,868709	7,042235	-69.7415	-67.8166	-64.4778	-59.2782	-53.8526	-69.7415
118	A	2,128357	-188,1585	-24,02022	12,64284	23,34569	-263.4219	-254.1083	-245.5460	-221.3646	-207.4509	-263.4219
119	E	2,370262	6,597227	1,290642	-0,0977812	-0,6161786	9.2361	9.9035	9.4888	8.4349	7.7610	9.9035
120	E	2,128353	-27,02696	-2,652566	1,488403	3,221055	-37.8377	-35.4857	-34.0996	-31.8237	-29.5713	-37.8377
121	E	1,455911	3,391677	0,4416778	0,5964264	-1,440324	4.7483	5.2538	3.6244	5.0662	2.4184	5.2538
122	E	1,63791	-2,052111	-0,3655713	-0,8907716	1,163592	-2.8730	-3.7601	-2.1166	-3.8033	-1.1326	-3.8033
123	B	2,00002	42,86927	5,334835	-2,41796	-5,72954	60.0170	58.0445	55.3952	50.9672	46.6621	60.0170
124	E	2	1,61247	-0,5859427	-0,193935	0,7797773	2.2575	0.8423	1.6213	1.3899	2.6557	2.6557
125	D	2	199,7644	24,99027	-7,868156	-26,92923	279.6702	273.4072	258.1583	241.9838	217.2044	279.6702
126	E	2,473798	-6,749543	-0,7461051	-1,013519	2,44118	-9.4494	-10.1040	-7.3403	-9.7901	-5.2990	-10.1040
127	D	2	133,2415	17,12873	-2,871222	-21,1566	186.5381	184.9988	170.3705	164.7216	140.9506	186.5381
128	D	2,197258	-29,68459	-4,287027	-2,101935	10,15933	-41.5584	-44.1623	-34.3533	-40.4975	-24.5579	-44.1623
129	E	2,128393	3,29458	0,4686075	1,156216	-1,500003	4.6124	5.6282	3.5033	5.6909	2.2378	5.6909
130	D	2,197236	-34,25912	-4,718475	1,744146E-02	8,545403	-47.9628	-48.6466	-41.8242	-43.4475	-32.3612	-48.6466
131	A	2,128356	-80,33102	-10,41329	11,99886	4,997236	-112.4634	-103.4594	-109.0607	-86.0054	-95.1075	-112.4634
132	B	2,370272	-45,88603	-5,705052	2,572324	7,020178	-64.2404	-62.1335	-58.5752	-54.5717	-48.7895	-64.2404
133	A	2,128357	-139,8238	-17,58349	10,19709	16,28561	-195.7533	-187.7645	-182.8937	-163.3241	-155.4090	-195.7533
134	E	2,370255	-6,245206	-0,4910033	0,2303809	1,652753	-8.7433	-8.0955	-6.9577	-7.4403	-5.5912	-8.7433
135	E	2,128353	-21,51373	-2,214468	1,282342	2,482873	-30.1192	-28.3338	-27.3733	-25.2567	-23.6960	-30.1192

Tabel 4.5.b Lanjutan

BTG	(profil)	L(m)	ND	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
136	E	1,455916	5,133591	0,4322385	0,5988646	-1,429441	7.1870	7.3310	5.7083	7.1550	4.5182	7.3310
137	E	1,637965	-3,209249	-0,364709	-0,8893878	1,161098	-4.4929	-5.1461	-3.5058	-5.1897	-2.5240	-5.1897
138	B	2,000025	41,40756	4,908996	-2,293166	-5,957219	57.9706	55.7089	52.7777	49.1625	44.3992	57.9706
139	E	1,999982	9,497067	0,3060934	-0,6635672	-0,1358603	13.2959	11.3554	11.7775	10.6869	11.3729	13.2959
140	D	2	193,9492	24,35208	-8,682303	-24,91056	271.5289	264.7565	251.7739	233.6281	212.5314	271.5289
141	E	2,473801	-9,567071	-0,7123458	-1,025342	2,404479	-13.3939	-13.4405	-10.6967	-13.1696	-8.7108	-13.4405
142	D	2	141,3175	17,73772	-2,046926	-23,14356	197.8445	196.3238	179.4465	175.7889	148.3632	197.8445
143	D	2,197258	-34,67255	-4,778357	-3,295596	11,71987	-48.5416	-51.8889	-39.8765	-48.2805	-28.7604	-51.8889
144	E	2,128412	4,862516	0,4726809	1,153243	-1,503005	6.8075	7.5139	5.3889	7.5706	4.1175	7.5706
145	D	2,197236	-30,8732	-4,22991	1,213691	6,98629	-43.2225	-42.8447	-38.2267	-37.5850	-30.0806	-43.2225
146	A	2,128356	-122,8031	-15,70495	14,3832	11,51872	-171.9243	-160.9851	-163.2767	-136.5180	-140.2419	-171.9243
147	B	2,370274	-47,51785	-6,077353	2,273237	8,612795	-66.5250	-64.9266	-59.8549	-57.1049	-48.8635	-66.5250
148	A	2,128357	-101,7261	-12,4314	8,312479	9,826258	-142.4165	-135.3116	-134.1006	-117.4808	-115.5129	-142.4165
149	E	2,370249	-8,218976	-1,024244	0,4216486	2,139098	-11.5066	-11.1642	-9.7903	-9.8268	-7.5941	-11.5066
150	E	2,128353	-13,41059	-1,21775	0,8498682	1,204849	-18.7748	-17.3612	-17.0772	-15.5968	-15.1353	-18.7748
151	E	1,45592	-18,61281	-2,821379	0,9094586	2,691268	-26.0579	-26.1220	-24.6966	-22.5638	-20.2474	-26.1220
152	D	1,63802	16,97574	1,760496	-2,080377	-1,578116	23.7660	21.5234	21.9252	18.5466	19.1996	23.7660
153	D	1,5997	38,52491	4,434846	-4,485396	-3,576777	53.9349	49.7373	50.4642	42.6163	43.7975	53.9349
154	D	1,5997	34,70442	3,827451	-4,651845	-2,276027	48.5862	44.0477	45.9484	37.5116	40.6002	48.5862
155	D	1,714	42,29488	4,690707	-6,09859	-2,323615	59.2128	53.3801	56.4001	45.1710	50.0785	59.2128
156	B	2	49,40062	5,489117	-4,929419	-5,188114	69.1609	64.1198	63.9128	55.6171	55.2808	69.1609
157	E	2	9,600764	0,4099624	-0,9723519	-1,168331	13.4411	11.3990	11.2422	10.4618	10.2071	13.4411
158	E	1,236902	45,19913	5,591866	-0,5448802	-7,072699	63.2788	62.7500	57.5278	56.3265	47.8404	63.2788
159	E	1,236902	45,11594	5,552536	-4,625225	-2,93635	63.1623	59.3230	60.6741	50.9026	53.0981	63.1623
160	E	1,292585	10,08047	1,085203	2,563831	-3,689137	14.1127	15.8840	10.8816	15.9721	7.8433	15.9721
161	E	1,292585	10,16222	1,054329	-2,86509	1,78816	14.2271	11.5895	15.3121	8.9972	15.0464	15.3121
162	E	1,280531	-0,2646117	-0,1458034	0,7740606	-0,4494248	-0.3705	0.0684	-0.9104	0.6158	-0.9747	-0.9747
163	E	1,280531	8,429894E-02	-0,1330833	-0,4021844	0,7037904	0.1180	-0.4335	0.4513	-0.4882	0.9495	0.9495
164	E	1,280531	7,144837	0,841677	-0,138083	-1,380115	10.0028	9.8100	8.8164	8.8151	7.2005	10.0028
165	E	1,280531	7,352495	0,844495	-1,303641	-0,2191253	10.2935	9.1313	9.9989	7.5505	8.9604	10.2935
166	E	1,316985	-3,409295	-0,5199487	0,9726601	-0,1307631	-4.7730	-4.1449	-5.0277	-3.0867	-4.5211	-5.0277
167	E	1,316985	-3,356293	-0,5454499	-0,1970663	1,083827	-4.6988	-5.0579	-4.0332	-4.5565	-2.8913	-5.0579
168	A	1,064178	-103,5648	-13,42026	10,61793	11,66698	-144.9907	-137.2558	-136.4166	-117.1846	-115.8208	-144.9907
169	B	1,91747	-40,41283	-5,035726	3,565332	5,014672	-56.5780	-53.7003	-52.5408	-46.3783	-44.4942	-56.5780

Tabel 4.5.b Lanjutan

BTG	(profil)	L(m)	ND	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
170	A	1,064178	-82,35432	-10,04618	6,324447	8,453111	-115.2960	-109.8395	-108.1366	-95.6265	-92.8592	-115.2960
171	E	1,917419	-16,56229	-2,086749	1,436907	1,731394	-23.1872	-22.0640	-21.8284	-19.0501	-18.6673	-23.1872
172	E	1,064188	-1,080129	0,3282935	-0,2157249	-0,0806342	-1.5122	-0.9435	-0.8354	-1.4125	-1.2368	1.5122
173	D	2	149,4129	19,22968	-9,066311	-17,21675	209.1781	202.8099	196.2896	177.1241	166.5285	209.1781
174	D	2	65,45324	8,047462	-3,28812	-7,23219	91.6345	88.7893	85.6341	78.2931	73.1658	91.6345
175	E	2	-30,86611	-4,07294	3,786011	3,869678	-43.2126	-40.5272	-40.4603	-34.1540	-34.0452	-43.2126
176	E	2	-5,610297	-0,553369	0,420701	0,5293875	-7.8544	-7.2812	-7.1942	-6.4621	-6.3208	-7.8544
177	E	2	-3,365325	-0,2797302	0,2878452	0,288199	-4.7115	-4.2557	-4.2554	-3.8041	-3.8036	-4.7115
178	E	2	-53,6817	-6,630315	5,331462	6,179926	-75.1544	-70.7614	-70.0826	-60.8023	-59.6993	-75.1544
179	B	2	18,75753	1,728478	-1,447796	-2,051667	26.2605	24.1164	23.6333	21.4911	20.7061	26.2605
180	E	2	-2,487321	-1,012074	1,056224E-02	1,315715E-02	-3.4822	-4.5957	-4.5936	-3.4771	-3.4737	-4.5957
181	E	1,236902	45,19913	5,591866	-4,643188	-2,97439	63.2788	59.4714	60.8064	50.9987	53.1682	63.2788
182	E	1,236902	45,11594	5,552536	-0,5218214	-7,039754	63.1623	62.6057	57.3914	56.2370	47.7637	63.1623
183	E	1,292585	10,17945	1,085203	-2,884773	1,759466	14.2512	11.6438	15.3592	9.0077	15.0452	15.3592
184	E	1,292585	10,06324	1,054329	2.583746	-3,660676	14.0885	15.8298	10.8343	15.9619	7.8442	15.9619
185	E	1,280531	-0,2646117	-0,1458034	-0,3909569	0,7155927	-0.3705	-0.8636	0.0217	-0.8987	0.5398	-0.8987
186	E	1,280531	8,429894E-02	-0,1330833	0,7631032	-0,4614972	0.1180	0.4987	-0.4810	1.0267	-0.5653	1.0267
187	E	1,280531	7,048173	0,841677	-1,299839	-0,2183592	9.8674	8.7646	9.6298	7.1889	8.5948	9.8674
188	E	1,280531	7,449159	0,844495	-0,1381308	-1,384636	10.4288	10.1797	9.1825	9.1817	7.5612	10.4288
189	E	1,316985	-3,409295	-0,5199487	-0,21699	1,058887	-4.7730	-5.0967	-4.0760	-4.6332	-2.9746	-5.0967
190	E	1,316985	-3,356293	-0,5454499	0,9940416	-0,1072804	-4.6988	-4.1050	-4.9861	-3.0080	-4.4397	-4.9861
191	A	1,064178	-103,7644	-13,42026	10,25676	12,02815	-145.2702	-137.7843	-136.3672	-117.8936	-115.5908	-145.2702
192	B	1,91747	-40,03531	-5,035728	4,289756	4,290248	-56.0494	-52.6677	-52.6673	-44.9836	-44.9829	-56.0494
193	A	1,064178	-82,55393	-10,04618	6,414413	8,363145	-115.5755	-110.0071	-108.4481	-95.7491	-93.2157	-115.5755
194	E	1,917419	-16,67204	-2,086749	1,344219	1,824082	-23.3409	-22.2699	-21.8860	-19.3023	-18.6785	-23.3409
195	E	1,064188	-1,080129	0,3282935	-0,2165972	-7,976193E-02	-1.5122	-0.9442	-0.8347	-1.4136	-1.2357	1.5122
196	E	1,45592	-18,61281	-2,821379	1,299805	2,300921	-26.0579	-25.8097	-25.0088	-22.0563	-20.7549	-26.0579
197	D	1,63802	16,7063	1,760496	-1,721024	-1,937469	23.3888	21.4875	21.3144	18.6905	18.4091	23.3888
198	D	1,5997	38,52491	4,434846	-3,16671	-4,895464	53.9349	50.7923	49.4093	44.3306	42.0832	53.9349
199	D	1,5997	34,70442	3,827451	-1,378725	-5,049147	48.5862	46.2662	43.7299	41.1167	36.9951	48.5862
200	D	1,714	42,01294	4,690707	-1,319966	-6,602239	58.8181	56.4647	52.6389	50.3949	44.1780	58.8181
201	B	2	48,93911	5,489117	-4,199301	-5,918231	68.5148	64.1501	62.7749	56.0124	53.7778	68.5148
202	E	2	9,600764	0,4099624	-0,9067219	-1,233961	13.4411	11.4515	11.1897	10.5472	10.1217	13.4411
203	D	2	193,9492	24,35208	-14,76089	-18,83198	271.5289	259.8937	256.6368	225.7259	220.4335	271.5289

Tabel 4.5.b Lanjutan

BTG	(profil)	L(m)	ND	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
204	E	2,473801	-9,743022	-0,7123458	2,37376	-0,9946232	-13.6402	-10.9324	-13.6271	-8.9619	-13.3408	-13.6402
205	D	2	141,3175	17,73772	-15,89792	-9,292569	197.8445	185.2430	190.5273	157.7826	166.3695	197.8445
206	D	2,197258	-34,67255	-4,778357	10,92579	-2,501521	-48.5416	-40.5118	-51.2536	-29.7927	-47.2482	-51.2536
207	E	2,128412	4,862516	0,4726809	-1,055097	0,7053361	6.8075	5.7472	7.1556	4.6997	6.9883	7.1556
208	D	2,197236	-30,72353	-4,22991	7,151514	1,048468	-43.0129	-37.9149	-42.7973	-29.6862	-37.6202	-43.0129
209	A	2,128356	-122,8031	-15,70495	10,2516	15,65032	-171.9243	-164.2904	-159.9714	-141.8891	-134.8708	-171.9243
210	B	2,370274	-47,51785	-6,077353	7,344323	3,541709	-66.5250	-60.8697	-63.9118	-50.5125	-55.4559	-66.5250
211	A	2,128357	-102,1253	-12,4314	7,462195	10,67654	-142.9754	-136.4708	-133.8994	-119.0652	-114.8866	-142.9754
212	E	2,370249	-8,065247	-1,024244	1,938867	0,6218804	-11.2913	-9.7660	-10.8196	-7.6699	-9.3820	-11.2913
213	E	2,128353	-13,41059	-1,21775	0,7818569	1,272861	-18.7748	-17.4156	-17.0228	-15.6852	-15.0469	-18.7748
214	E	1,455916	5,309542	0,4322385	-1,406505	0,5759287	7.4334	5.9378	7.5238	4.7591	7.3363	-7.5238
215	E	1,637965	-3,209249	-0,364709	0,8170812	-0,5453709	-4.4929	-3.7810	-4.8709	-2.9712	-4.7424	-4.8709
216	B	2	41,40756	4,908996	-4,747956	-3,502429	57.9706	53.7451	54.7415	45.9712	47.5904	57.9706
217	E	2	9,255364	0,3060934	0,1864779	-0,9859054	12.9575	11.7454	10.8075	11.5019	9.9778	12.9575
218	D	2	199,7644	24,99027	-16,73078	-18,06661	279.6702	266.3171	265.2484	230.4624	228.7258	279.6702
219	E	2,473798	-6,925493	-0,7461051	2,397514	-0,9698524	-9.6957	-7.5863	-10.2802	-5.5669	-9.9445	-10.2802
220	D	2	133,2415	17,12873	-13,94846	-10,07936	186.5381	176.1370	179.2323	150.3212	155.3510	186.5381
221	D	2,197258	-29,68459	-4,287027	9,828097	-1,770707	-41.5584	-34.6183	-43.8973	-24.9885	-40.0669	-43.8973
222	E	2,128393	3,29458	0,4686075	-1,053544	0,7097573	4.6124	3.8604	5.2711	2.8182	5.1105	5.2711
223	D	2,197236	-34,10946	-4,718475	8,248755	0,3140909	-47.7532	-41.8819	-48.2296	-32.5672	-42.8823	-48.2296
224	A	2,128356	-80,33102	-10,41329	5,043208	11,95289	-112.4634	-109.0239	-103.4962	-95.0477	-86.0651	-112.4634
225	B	2,370272	-45,88603	-5,705052	5,608391	3,984111	-64.2404	-59.7046	-61.0040	-50.6249	-52.7364	-64.2404
226	A	2,128357	-140,223	-17,58349	12,91882	13,56388	-196.3122	-186.0661	-185.5501	-160.2649	-159.4263	-196.3122
227	E	2,370255	-6,091475	-0,4910033	1,464258	0,4188766	-8.5281	-6.9240	-7.7603	-5.6517	-7.0107	-8.5281
228	E	2,128353	-21,6017	-2,214468	1,853091	1,912123	-30.2424	-27.9827	-27.9355	-24.6203	-24.5435	-30.2424
229	E	1,455911	3,567628	0,4416778	-1,413553	0,5696557	4.9947	3.8570	5.4436	2.6644	5.2425	5.4436
230	E	1,63791	-2,052111	-0,3655713	0,8188525	-0,5460318	-2.8730	-2.3924	-3.4843	-1.5808	-3.3552	-3.4843
231	B	2,00002	42,86927	5,334835	-4,254588	-3,892913	60.0170	56.5752	56.8645	48.5796	49.0498	60.0170
232	E	2	1,370766	-0,5859427	0,9387508	-0,3529084	1.9191	1.4584	0.4251	2.5723	0.8932	2.5723
233	D	2	202,9993	25,62496	-18,69992	-17,29723	284.1990	269.6392	270.7613	232.1017	233.9252	284.1990
234	E	2,473795	-3,790918	-0,746872	2,400198	-0,9710985	-5.3073	-3.8239	-6.5210	-1.8023	-6.1850	-6.5210
235	D	2	127,4715	16,49473	-11,98174	-10,84766	178.4601	169.7720	170.6792	145.6369	147.1112	178.4601
236	D	2,197258	-26,29041	-3,79809	8,730061	-1,036082	-36.8066	-30.6414	-38.4543	-22.0985	-34.7944	-38.4543
237	E	2,128374	1,805094	0,4739887	-1,056323	0,7046744	2.5271	2.0794	3.4882	1.0299	3.3192	3.4882

Tabel 4.5.b Lanjutan

BTG	(profil)	L(m)	ND	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
238	D	2,197236	-35,95396	-5,211437	9,348788	-0,4167642	-50.3355	-44.0040	-51.8165	-33.5970	-46.2923	-51.8165
239	A	2,128356	-34,66791	-4,478771	0,2353035	7,66693	-48.5351	-48.5793	-42.6340	-43.5350	-33.8739	-48.5793
240	B	2,370269	-49,81535	-6,458246	5,267589	4,643356	-69.7415	-65.8975	-66.3969	-56.1597	-56.9712	-69.7415
241	A	2,128357	-188,5578	-24,02022	18,53654	17,45199	-263.9809	-249.8725	-250.7401	-214.1820	-215.5919	-263.9809
242	E	2,370262	6,750958	1,290642	-0,4747714	-0,2391884	9.4513	9.7864	9.9748	8.1293	8.4355	9.9748
243	E	2,128353	-27,11493	-2,652566	2,422333	2,287124	-37.9609	-34.8442	-34.9523	-30.7152	-30.8909	-37.9609
244	E	1,455907	1,657792	0,4304962	-1,400738	0,5739661	2.3209	1.5576	3.1373	0.3836	2.9508	3.1373
245	E	1,637855	-0,8362727	-0,3612345	0,8159111	-0,5482703	-1.1708	-0.9288	-2.0201	-0.1235	-1.8969	-2.0201
246	B	2	51,73708	6,430399	-3,466643	-5,479571	72.4319	69.5998	67.9895	60.7931	58.1763	72.4319
247	E	2	-8,130217	-2,086143	2,572376	0,2004733	-11.3823	-11.0362	-12.9337	-7.4552	-10.5387	-12.9337
248	D	2	203,4503	26,23289	-20,54031	-16,51658	284.8304	269.6007	272.8997	230.4244	235.7853	284.8304
249	E	2,473793	-0,3409494	-0,7111319	2,362776	-0,986825	-0.4773	0.3433	-2.3364	2.3069	-2.0476	-2.3364
250	D	2	124,2173	15,85549	-10,00816	-11,61476	173.9042	166.4230	165.1377	143.9779	141.8893	173.9042
251	D	2,197258	-24,44518	-3,303763	7,62961	-0,307325	-34.2233	-28.5165	-34.8661	-21.0676	-31.3856	-34.8661
252	A	2,128356	12,62867	1,845834	-2,569623	2,232073	17.6801	16.0520	19.8934	12.7368	18.9790	19.8934
253	B	2,370266	-88,8391	-12,30054	12,79158	5,458482	-124.3747	-116.0545	-121.9210	-96.1281	-105.6612	-124.3747
254	A	2,128357	-257,7233	-33,60015	25,42474	23,76071	-360.8126	-342.6884	-344.0196	-293.0159	-295.1791	-360.8126
255	E	2,370269	26,12592	4,049037	-2,243117	-2,284869	36.5763	36.0351	36.0017	30.4596	30.4053	36.5763
256	E	2,128353	-21,07043	-1,48756	1,247616	2,069358	-29.4986	-26.6665	-26.0091	-24.4064	-23.3381	-29.4986
257	D	1,455902	-11,40241	-1,735399	1,568905	0,9224069	-15.9634	-15.2044	-15.7216	-12.5110	-13.3515	-15.9634
258	D	1,638038	48,02897	5,339386	-5,359626	-3,282097	67.2406	61.8901	63.5521	53.3369	56.0377	67.2406
259	D	2,00164	57,27255	6,560025	-8,360458	-2,945688	80.1816	72.5347	76.8665	61.1385	68.1777	80.1816
260	B	2	45,9338	4,434566	-5,202029	-2,885489	64.3073	58.0542	59.9075	50.5752	53.5867	64.3073
261	E	2	-26,32451	-4,917416	4,465664	1,924569	-36.8543	-35.8847	-37.9176	-28.2428	-31.5462	-37.9176
262	D	1,236895	22,6412	2,931025	-2,638041	-1,56612	31.6977	29.7486	30.6062	25.2055	26.5990	31.6977
263	D	1,236898	81,47581	10,16835	-7,668459	-6,950941	114.0661	107.9056	108.4796	92.8862	93.8189	114.0661
264	E	1,436015	-2,578774	-2,174707	2,181137	-2,901605E-03	-3.6103	-4.8292	-6.5764	-1.3464	-4.1857	-6.5764
265	E	2,025853	1,442224	0,9668346	-1,464845	2,309039E-02	2.0191	2.1057	3.2961	0.3098	2.2441	3.2961
266	E	1,43664	1,363999	1,47785	-0,3624361	-7,506741E-03	1.9096	3.7114	3.9954	1.9046	2.3660	3.9954
267	H	2	185,172	23,87145	-18,51075	-15,25733	259.2408	245.5921	248.1949	210.0782	214.3076	259.2408
268	D	2	71,42823	8,93233	-6,596714	-6,224046	99.9995	94.7282	95.0264	81.6043	82.0888	-99.9995
269	E	2,585182	-17,11728	-2,436229	6,049094	-0,7053272	-23.9642	-19.5994	-25.0030	-13.8950	-22.6758	-25.0030
270	E	2	13,4097	1,891832	-4,65287	0,5229792	18.7736	15.3963	19.5370	10.9888	17.7174	19.5370
271	E	2,371141	-15,89725	-2,25311	5,549789	-0,6263579	-22.2562	-18.2418	-23.1828	-12.9885	-21.0175	-23.1828

Tabel 4.5.b Lanjutan

BTG	(profil)	L(m)	ND	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
272	A	2,128356	-2,152085	-0,3355007	1,41427	1,951229	-3.0129	-1.9879	-1.5583	-0.9117	-0.2137	3.0129
273	B	2,370264	-10,77531	-1,240013	3,837736	5,310875E-02	-15.0854	-11.8442	-14.8719	-8.5613	-13.4813	-15.0854
274	A	2,128357	-337,1551	-42,80178	35,04793	28,81701	-472.0171	-445.0306	-450.0154	-380.4247	-388.5249	-472.0171
275	E	1,01913	-1,329643	-0,9932305	1,482631	-2,280603E-03	-1.8615	-1.9986	-3.1866	-0.1648	-2.0952	-3.1866
276	D	1,236895	81,20583	10,17866	-7,679162	-6,955549	113.6882	107.5895	108.1684	92.5534	93.4941	113.6882
277	D	1,236895	22,75543	2,902802	-2,609106	-1,551541	31.8576	29.8637	30.7098	25.3661	26.7409	31.8576
278	D	1,455898	-34,16809	-4,578695	2,281718	3,665279	-47.8353	-46.5022	-45.3954	-40.3248	-38.5262	-47.8353
279	D	1,638042	-20,32638	-2,874722	0,7440217	2,758531	-28.4569	-28.3960	-26.7844	-24.8618	-22.2429	-28.4569
280	D	1,2737	-30,76841	-4,428381	4,597204	2,31133	-43.0758	-40.3297	-42.1584	-33.1599	-36.1316	-43.0758
281	B	2,000005	3,450672	-0,2820626	-0,7411562	0,102357	4.8309	3.0966	3.7714	3.0363	4.1328	4.8309
282	E	1,489853	-1,339389	-1,460589	1,113879	1,051527E-03	-1.8751	-3.0531	-3.9434	-0.8895	-2.3362	-3.9434
283	E	1,489849	1,28728	1,462266	-0,8543383	-2,133366E-03	1.8022	3.2009	3.8827	1.1652	2.2731	3.8827
284	H	2	267,2581	33,95281	-27,70502	-21,42397	374.1613	352.8702	357.8950	301.6696	309.8350	374.1613
285	D	2,473788	-20,08976	-2,240171	3,652059	0,6388188	-28.1257	-24.7703	-27.1809	-20.4801	-24.3973	28.1257
286	D	2	89,89336	11,28673	-8,716896	-7,480659	125.8507	118.9573	119.9463	102.1834	103.7905	125.8507
287	A	2,128356	29,91158	3,792508	-3,973809	-0,2895557	41.8762	38.7829	41.7303	32.6242	37.4137	41.8762
288	B	2,370261	-50,38692	-6,672194	11,23621	1,830595	-70.5417	-62.1508	-69.6753	-49.1933	-61.4206	-70.5417
289	A	2,128357	-346,5082	-43,86254	37,80604	28,80993	-485.1115	-455.7451	-462.9420	-388.5933	-400.2882	-485.1115
290	D	1,455893	11,29903	1,328332	-2,162211	-0,3797256	15.8186	13.9544	15.3804	11.4121	13.7294	15.8186
291	B	2	37,25694	4,567141	-7,264684	-1,489785	52.1597	46.2040	50.8239	37.5478	45.0552	52.1597
292	H	2	282,0806	35,85851	-30,75629	-21,98994	394.9128	371.2653	378.2784	316.4428	327.8391	394.9128
293	D	2,473785	-17,94859	-2,292088	3,710945	0,6632273	-25.1280	-22.2369	-24.6751	-17.8601	-21.8222	-25.1280
294	D	2	73,3737	9,427033	-5,7173	-6,936605	102.7232	98.5579	97.5824	85.3295	83.7444	102.7232
295	A	2,128356	68,42091	8,948809	-12,17815	-1,957	95.7893	86.6807	94.8576	70.7479	84.0354	95.7893
296	B	2,370258	-42,52927	-5,674949	8,956619	1,867674	-59.5410	-52.9497	-58.6209	-42.2290	-51.4446	-59.5410
297	A	2,128357	-392,188	-49,92825	47,35046	30,4394	-549.0632	-512.6304	-526.1593	-434.0341	-456.0185	-549.0632
298	D	1,455889	9,960222	1,346771	-2,170997	-0,3943827	13.9443	12.3703	13.7916	9.8034	12.1130	13.9443
299	B	1,999995	32,23772	3,778368	-5,425029	-1,540802	45.1328	40.3906	43.4980	33.5219	38.5714	45.1328
300	H	2	294,6283	37,7374	-33,76181	-22,55046	412.4796	386.9244	395.8934	328.5323	343.1071	412.4796
301	D	2,473783	-15,20853	-2,266183	3,663804	0,6592975	-21.2919	-18.9451	-21.3487	-14.6204	-18.5262	-21.3487
302	D	2	58,59396	7,524655	-2,667452	-6,373302	82.0315	80.2182	77.2536	70.6074	65.7898	82.0315
303	A	2,128356	101,8914	13,12865	-18,17673	-3,662822	142.6480	128.7341	140.3453	105.2043	124.0723	142.6480
304	B	2,370255	-36,80956	-4,587262	6,511832	1,906881	-51.5334	-46.3016	-49.9856	-37.9997	-43.9862	-51.5334
305	A	2,128357	-431,0253	-55,1273	54,86848	32,12199	-603.4354	-561.5393	-579.7364	-473.4650	-503.0354	-603.4354

Tabel 4.5.b Lanjutan

BTG	(profil)	L(m)	ND	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
306	D	1,455884	-0,8778139	-0,2441357	-0,6935117	0,5758826	-1.2289	-1.9988	-0.9833	-2.0770	-0.4268	-2.0770
307	D	0,7279356	-9,211015	-1,591399	1,479999	0,9696782	-12.8954	-12.4155	-12.8237	-9.9249	-10.5883	-12.8954
308	B	1,99999	26,9559	2,788727	-3,296534	-1,530842	37.7383	34.1718	35.5844	29.4559	31.7513	37.7383
309	H	2	292,4478	37,45424	-34,75616	-21,79368	409.4269	383.0592	393.4292	324.4815	341.3327	409.4269
310	D	2,47378	2,891977	0,3904144	1,213037	-0,9694226	4.0488	5.0655	3.3195	5.2425	2.4053	5.2425
311	D	2	46,60663	5,733021	7,390399E-02	-5,77473	65.2493	65.1599	60.4810	58.8905	51.2873	65.2493
312	A	2,128356	138,8543	17,82842	-23,27149	-6,36731	194.3960	176.5334	190.0568	145.2864	167.2619	194.3960
313	B	2,370253	-41,1376	-5,23561	5,866294	2,91356	-57.5926	-53.0491	-55.4112	-44.3567	-48.1953	-57.5926
314	A	2,128357	-464,4426	-59,30213	60,0842	33,84282	-650.2196	-604.1472	-625.1403	-508.8727	-542.9865	-650.2196
315	D	1,45588	-19,60335	-2,610515	2,032832	1,697297	-27.4447	-26.0746	-26.3430	-22.1866	-22.6228	-27.4447
316	B	1,999985	29,15003	3,304376	-2,658624	-2,393417	40.8100	38.1401	38.3523	33.1760	33.5208	40.8100
317	H	2	235,6832	30,24529	-29,10969	-17,12177	329.9565	307.9246	317.5149	260.0999	275.6842	329.9565
318	D	2,128356	60,60579	7,70321	-6,043917	-4,98708	84.8481	80.2170	81.0624	68.7215	70.0953	84.8481
319	A	2,128356	218,9524	28,05936	-28,37039	-14,62301	306.5334	284.9415	295.9394	239.8911	257.7626	306.5334
320	B	2,37025	-30,97114	-4,187897	6,798961	1,43566	-43.3596	-38.4268	-42.7175	-30.4207	-37.3930	-43.3596
321	A	2,128357	-501,6903	-64,05307	64,69608	36,47473	-702.3664	-652.7564	-675.3335	-549.9500	-586.6377	-702.3664
322	D	0,72794	0,592631	-1,135734E-02	1,112321E-02	6,089936E-03	0.8297	0.7019	0.6979	0.7199	0.7134	0.8297
323	B	1,99998	22,8836	2,564554	-3,560603	-1,239564	32.0370	28.7151	30.5720	24.1138	27.1312	32.0370
324	H	2	235,8948	30,2742	-29,16292	-17,12535	330.2527	308.1821	317.8122	260.2991	275.9479	330.2527
325	A	2,128356	257,5724	32,97392	-33,95446	-17,33092	360.6014	334.6816	347.9804	281.4330	303.0436	360.6014
326	B	2,370247	23,4144	2,973532	-0,4202993	-2,456992	32.7802	32.5187	30.8893	29.0377	26.3900	32.7802
327	A	2,128357	-529,5275	-67,83561	70,124	37,76288	-741.3385	-687.8708	-713.7597	-578.1896	-620.2591	-741.3385
328	B	1,999975	-21,90583	-3,330954	2,32502	1,99064	-30.6682	-29.7565	-30.0240	-24.9299	-25.3646	-30.6682
329	A	2,128356	391,8707	49,95041	-51,32247	-26,79762	548.6190	509.1075	528.7274	428.5008	460.3831	548.6190
330	B	2,370245	124,791	16,31009	-14,61214	-9,373691	174.7074	164.1556	168.3464	138.9085	145.7184	174.7074
331	A	2,128357	-506,6797	-64,94486	68,85081	35,41238	-709.3516	-656.8468	-683.5975	-550.9820	-594.4520	-709.3516
332	B	1,99997	-109,0281	-14,63691	14,35604	7,85358	-152.6393	-142.7679	-147.9699	-119.4893	-127.9425	-152.6393
333	A	2,128356	267,4112	33,70795	-35,41772	-18,06772	374.3757	346.4920	360.3720	291.7044	314.2594	374.3757
334	B	2,370242	133,7194	17,46483	-17,09259	-9,3888	187.2072	174.7329	180.8960	146.9753	156.9903	187.2072
335	A	2,128357	-390,9501	-49,82879	54,54976	26,73088	-547.3301	-505.2264	-527.4815	-423.1398	-459.3044	-547.3301
336	B	1,999965	-117,0486	-15,82673	16,66538	7,983701	-163.8680	-152.4488	-159.3941	-126.7067	-137.9929	-163.8680
337	A	2,128356	136,3046	16,26632	-17,0674	-9,262102	190.8264	175.9377	182.1820	149.5111	159.6579	190.8264
338	B	2,370239	140,3582	18,69053	-19,66333	-9,433636	196.5015	182.6040	190.7878	152.2128	165.5114	196.5015
339	A	2,128357	-265,6899	-33,4803	37,78405	17,94874	-371.9659	-342.1691	-358.0374	-286.4488	-312.2347	-371.9659

Tabel 4.5.b Lanjutan

BTG	(profil)	L(m)	ND	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
340	B	1,99996	-121,1091	-16,65368	18,59704	7,920043	-169.5527	-157.0992	-165.6408	-129.4816	-143.3617	-169.5527
341	A	2,234774	-4,975442	-2,844154	4,227889	-0,1564642	-6.9656	-7.1389	-10.6463	-1.8964	-7.5960	-10.6463
342	B	2,436566	148,3913	20,07773	-22,35577	-9,571153	207.7478	192.3093	202.5370	159.0459	175.6659	207.7478
343	A	2,234761	-134,6622	-16,04063	18,67584	9,152989	-188.5271	-172.3190	-179.9373	-145.3364	-157.7161	-188.5271
344	B	2	-132,6932	-19,02225	22,92528	8,155696	-185.7705	-171.3272	-183.1429	-138.9401	-158.1406	-185.7705
345	C	2	-6,906344	-2,9457	4,274957	-2,022783E-02	-9.6689	-9.5808	-13.0169	-4.2030	-9.7868	-13.0169
346	C	2,828427	5,675235	1,891716	-3,552214	4,795303E-02	7.9453	6.9953	9.8754	3.1383	7.8185	9.8754
347	C	2,128376	3,2351	1,722213	-0,7777227	-1.846639E-02	4.5291	6.0155	6.6229	3.7322	4.7192	6.6229
348	C	1,272	-3,52563	-1,391595	2,584656	-9,001703E-03	-4.9359	-4.3896	-6.4645	-1.5665	-4.9383	-6.4645
349	C	2	-2,84648	-1,56776	1,706989	4,244066E-03	-3.9851	-4.5586	-5.9208	-1.9806	-4.1941	-5.9208
350	C	2,370229	3,871294	1,812428	-1,969925	-9,259531E-03	5.4198	5.9695	7.5380	2.9909	5.5397	7.5380
351	C	2,128376	-0,3963231	4,613948E-02	0,3183429	3,70308E-03	-0.5549	-0.1471	-0.3988	-0.0387	-0.4477	-0.5549
352	C	0,544	-1,420844	-0,9767901	1,060008	1,430845E-03	-1.9892	-2.4199	-3.2667	-0.8154	-2.1915	-3.2667

Ket. :

[1] Nomer batang

[2] Jenis profil yang dipakai

[3] Panjang batang L(m)

[4] ND = gaya aksial akibat beban mati

[5] NL = gaya aksial akibat beban hidup (kN)

[6] Nwki = gaya aksial akibat beban angin kiri (kN)

[7] Nwka = gaya aksial akibat beban angin kanan (kN)

[8] Nu1 = 1,4ND

[9] Nu2 = 1,2ND+1,6NL+0,8Nwki

[10] Nu3 = 1,2ND+1,6NL+0,8Nwka

[11] Nu4 = 1,2ND+1,3Nwki+0,5NL

[12] Nu5 = 1,2ND+1,3Nwka+0,5NL

[13] Numaks = gaya aksial batang maksimum (kN)

Notasi Profil :

A = (H BEAM) 200x200x8x12x13

B = (IWF) 200x100x5,5x8x11

C = 2L 80.80.8

D = 2L 70.70.7

E = 2L 60.60.6

F = 2L 50.50.5

H = 2L 90.90.9

Tabel 4.5.c Gaya Batang Aksial Kuda-Kuda K2

BTG	(profil)	L(m)	ND	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
1	2L80X80	0,544	-1,778002	-0,9763607	6,6397E-04	1,23743	-2.4892	-3.6952	-2.7058	-2.6209	-1.0131	-3.6952
2	2L80X80	2	-3,414975	-1,566486	1,396853E-03	1,992366	-4.7810	-6.6032	-5.0105	-4.8794	-2.2911	-6.6032
3	2L80X80	2,370229	4,244724	1,809649	-2,987503E-03	-2,297846	5.9426	7.9867	6.1508	5.9946	3.0113	7.9867
4	2L80X80	2,128376	-0,2140855	4,725097E-02	1,328477E-03	0,3708505	-0.2997	-0.1802	0.1154	-0.2316	0.2488	-0.2997
5	2L80X80	1,272	-3,981523	-1,394297	-4,240136E-03	3,020125	-5.5741	-7.0121	-4.5926	-5.4805	-1.5488	-7.0121
6	2L80X80	2	-8,237504	-2,951772	-6,748051E-03	4,99699	-11.5325	-14.6132	-10.6102	-11.3697	-4.8648	-14.6132
7	2L80X80	2,828427	6,334475	1,90611	1,437459E-02	-4,159352	8.8683	10.6626	7.3237	8.5731	3.1473	10.6626
8	2L80X80	2,128376	3,983519	1,71667	-5,954047E-03	-0,9034501	5.5769	7.5221	6.8041	5.6308	4.4641	7.5221
9	IWF20X10	2	-119,4662	-16,57429	1,28656	25,44503	-167.2527	-168.8491	-149.5223	-149.9741	-118.5680	-168.8491
10	H20X20	2,234774	-6,625198	-2,891117	11,20222	-6,266478	-9.2753	-3.6142	-17.5892	5.1671	-17.5422	17.5892
11	IWF20X10	2,436566	131,6635	17,20492	-1,486603	-24,57791	184.3289	184.3348	165.8617	164.6661	134.6474	184.3348
12	H20X20	2,234761	-116,877	-13,29333	1,464765	20,30414	-163.6278	-160.3499	-145.2784	-144.9949	-120.5037	-163.6278
13	IWF20X10	0	-107,7517	-14,27644	1,239389	20,44287	-150.8524	-151.1528	-135.7900	-134.8291	-109.8645	-151.1528
14	H20X20	2,128356	118,7459	13,48626	9,766024	-29,65839	166.2443	171.8859	140.3464	161.9340	110.6823	171.8859
15	IWF20X10	2,370239	123,2534	15,859	-1,442784	-21,48098	172.5548	172.1243	156.0937	153.9580	127.9083	172.5548
16	H20X20	2,128357	-231,9835	-28,09293	2,836405	41,20922	-324.7769	-321.0598	-290.3615	-288.7393	-238.8547	-324.7769
17	IWF20X10	1,999965	-102,5764	-13,43049	1,238963	18,18988	-143.6070	-143.5893	-130.0286	-128.1963	-106.1601	-143.6070
18	H20X20	2,128356	233,8835	28,2849	8,395453	-49,68091	327.4369	332.6324	286.1713	305.7167	230.2175	332.6324
19	IWF20X10	2,370242	116,0494	14,64666	-1,440205	-18,48453	162.4692	161.5418	147.9063	144.7103	122.5527	162.4692
20	H20X20	2,128357	-340,7233	-41,80544	4,204976	59,38469	-477.0126	-472.3927	-428.2489	-424.3042	-352.5706	-477.0126
21	IWF20X10	1,99997	-94,18549	-12,27906	1,242321	15,49183	-131.8597	-131.6752	-120.2756	-117.5471	-99.0227	-131.8597
22	H20X20	2,128356	341,9128	41,90677	7,025655	-66,85094	478.6779	482.9667	423.8654	440.3821	344.3425	482.9667
23	IWF20X10	2,370245	106,341	13,49637	-1,441968	-15,58903	148.8774	148.0498	136.7322	132.4828	114.0916	148.8774
24	H20X20	2,128357	-439,3667	-54,31519	5.577179	74,68073	-615.1134	-609.6826	-554.3998	-547.1473	-457.3127	-615.1134
25	IWF20X10	1,999975	-17,96489	-2.698879	1,277984	1,385799	-25.1508	-24.8537	-24.7674	-21.2459	-21.1058	-25.1508
26	2L90X90	2	203,6277	25,23255	0,158565	-34,28127	285.0788	284.8522	257.3003	257.1756	212.4039	285.0788
27	H20X20	2,128356	224,7168	27,66672	5,489482	-44,93106	314.6035	318.3185	277.9821	290.6298	225.0831	318.3185
28	IWF20X10	2,370247	17,34415	2,193789	-1,487505	1,056545	24.2818	23.1330	25.1683	19.9761	23.2834	25.1683
29	H20X20	2,128357	-456,4564	-56,46192	6,985896	74,70257	-639.0390	-632.4980	-578.3247	-566.8970	-478.8653	-639.0390
30	2L70X70	0,72794	0,4876569	-9,139069E-03	0.002858073	9,614313E-03	0.6827	0.5729	0.5783	0.5843	0.5931	0.6827

Tabel 4.5.c Lanjutan

BTG	(profil)	L(m)	ND	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
31	IWF20X10	1,99998	21,81927	2,310462	0,7009928	-5,008377	30.5470	30.4407	25.8732	28.2496	20.8275	30.5470
32	2L90X90	2	203,4265	25,20681	0,1308701	-34,19425	284.7971	284.5474	257.0873	256.8853	212.2627	284.7971
33	2L70X70	2,128356	51,37721	6,320439	-0,8596266	-6,334144	71.9281	71.0777	66.6980	63.6954	56.5785	71.9281
34	H20X20	2,128356	189,789	23,40645	4,972178	-37,69456	265.7046	269.1749	235.0415	245.9139	190.4471	269.1749
35	IWF20X10	2,37025	-30,35215	-3,887109	-0,8340784	8,934947	-42.4930	-43.3092	-35.4940	-39.4504	-26.7507	-43.3092
36	H20X20	2,128357	-429,07	-52,93998	7,782248	67,40945	-600.6980	-593.3622	-545.6604	-531.2371	-453.7217	-600.6980
37	2L70X70	1,45588	-16,67198	-2,141972	0,2990347	2,123712	-23.3408	-23.1943	-21.7346	-20.6886	-18.3165	-23.3408
38	IWF20X10	1,999985	28,67006	3,123395	-0,1208428	-3,677848	40.1381	39.3048	36.4592	35.8087	31.1846	40.1381
39	2L90X90	2	251,4342	31,12092	-0,6815971	-40,1036	352.0079	350.9692	319.4316	316.3954	265.1468	352.0079
40	2L70X70	2,47378	1,588374	0,2067141	-0,8273581	2,103748	2.2237	1.5749	3.9198	0.9338	4.7443	4.7443
41	2L70X70	2	42,83565	5,082677	-1,24062	-7,509942E-02	59.9699	58.5426	59.4750	52.3313	53.8465	59.9699
42	H20X20	2,128356	115,2942	14,28837	6,205993	-31,21238	161.4119	166.1792	136.2445	153.5650	104.9211	166.1792
43	IWF20X10	2,370253	-40,30609	-4,99163	0,1600207	7,501592	-56.4285	-56.2259	-50.3526	-50.6551	-41.1111	-56.4285
44	H20X20	2,128357	-392,4759	-48,39705	7,671419	61,38485	-549.4663	-542.2692	-499.2985	-485.1968	-415.3693	-549.4663
45	2L70X70	1,455884	-0,3362191	-0,1338782	0,4863701	-1,214112	-0.4707	-0.2286	-1.5890	0.1619	-2.0487	2.0487
46	2L70X70	0,7279356	-7,743875	-1,373869	0,3385558	1,525173	-10.8414	-11.2200	-10.2707	-9.5395	-7.9969	-11.2200
47	IWF20X10	1,99999	27,79466	2,813378	0,1703975	-4,605076	38.9125	37.9913	34.1709	34.9818	28.7737	38.9125
48	2L90X90	2	252,5793	31,25878	-1,344591	-38,38629	353.6110	352.0335	322.4002	316.9766	268.8224	353.6110
49	2L70X70	2,473783	-13,82973	-2,087857	-0,2507511	4,620773	-19.3616	-20.1368	-16.2396	-17.9656	-11.6326	-20.1368
50	2L70X70	2	54,05719	6,751226	-1,103358	-3,540969	75.6801	74.7879	72.8378	66.8099	63.6410	75.6801
51	H20X20	2,128356	78,79623	9,771346	6,397637	-24,64426	110.3147	115.3077	90.4742	107.7581	67.4036	115.3077
52	IWF20X10	2,370255	-38,30025	-4,596238	-0,1556793	8,461114	-53.6204	-53.4388	-46.5454	-48.4608	-37.2590	-53.6204
53	H20X20	2,128357	-357,5684	-44,19814	7,843729	54,46801	-500.5958	-493.5241	-456.2247	-440.9843	-380.3727	-500.5958
54	2L70X70	1,455889	9,035318	1,23956	0,1479968	-2,736697	12.6494	12.9441	10.6363	11.6546	7.9045	12.9441
55	IWF20X10	1,999995	33,49471	3,79119	0,177427	-7,083378	46.8926	46.4015	40.5929	42.3199	32.6809	46.8926
56	2L90X90	2	240,9934	29,53044	-1,545828	-34,59856	337.3908	335.2041	308.7619	301.9477	258.9792	337.3908
57	2L70X70	2,473785	-16,52822	-2,107734	-0,2578564	4,676683	-23.1395	-23.4125	-19.4649	-21.2229	-14.8080	-23.4125
58	2L70X70	2	67,83659	8,497472	-0,8951001	-7,38138	94.9712	94.2838	89.0948	84.4890	76.0569	94.9712
59	H20X20	2,128356	43,84908	5,568692	6,213864	-16,81159	61.3887	66.4999	48.0795	63.4813	33.5482	66.4999
60	IWF20X10	2,370258	-44,57751	-5,677477	-0,1803235	11,31552	-62.4085	-62.7212	-53.5246	-56.5662	-41.6216	-62.7212
61	H20X20	2,128357	-316,7387	-38,9826	8,044638	44,86184	-443.4342	-436.0229	-406.5691	-389.1197	-341.2573	-443.4342

Tabel 4.5.c Lanjutan

BTG	(profil)	L(m)	ND	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
62	2L70X70	1,455893	10,39049	1,223727	0,1509971	-2,727216	14.5467	14.5473	12.2448	13.2767	9.5351	14.5473
63	IWF20X10	2	38,97375	4,653775	0,1337807	-9,263102	54.5633	54.3216	46.8041	49.2693	37.0534	54.5633
64	2L90X90	2	227,1754	27,78152	-1.753569	-30,75688	318.0456	315.6581	292.4554	284.2216	246.5173	318.0456
65	2L70X70	2,473788	-18,74465	-2,066995	-0,2537982	4,609422	-26.2425	-26.0038	-22.1132	-23.8570	-17.5348	-26.2425
66	2L70X70	2	83,41697	10,2101	-0,6906768	-11,16392	116.7838	115.8840	107.5054	104.3075	90.6923	116.7838
67	H20X20	2,128356	3,187313	0,3745204	6,028316	-6,396849	4.4622	9.2467	-0.6935	11.8488	-4.3039	11.8488
68	IWF20X10	2,370261	-52,57157	-6,807844	-0,1301581	14,06359	-73.6002	-74.0826	-62.7276	-66.6590	-48.2071	-74.0826
69	H20X20	2,128357	-268,9072	-32,77405	8,185408	32,81816	-376.4701	-368.5788	-348.8726	-328.4346	-296.4121	-376.4701
70	2L70X70	1,455898	-31,72821	-4,156502	0,8346196	2,789924	-44.4195	-44.0566	-42.4923	-39.0671	-36.5252	-44.4195
71	2L70X70	1,638042	-21,68202	-3,037518	1,040177	1,29148	-30.3548	-30.0463	-29.8453	-26.1850	-25.8583	-30.3548
72	2L70X70	1,2737	-22,33761	-3,235027	-6,936506E-02	4,849132	-31.2727	-32.0367	-28.1019	-28.5128	-22.1188	-32.0367
73	IWF20X10	2,000005	23,07988	2,34408	-1,094525	-3,187324	32.3118	30.5708	28.8965	27.4450	24.7244	32.3118
74	2L70X70	1,236895	75,61769	9,255489	-1,16238	-9,517661	105.8648	104.6201	97.9359	93.8579	82.9960	105.8648
75	2L70X70	1,236895	15,99797	1,912989	0,3433155	-2,547329	22.3972	22.5330	20.2205	20.6004	16.8425	22.5330
76	2L90X90	2	150,4325	18,59113	-1,015221	-19,29549	210.6055	209.4526	194.8284	188.4948	164.7304	210.6055
77	2L70X70	2	70,52953	8,65832	-0,9711098	-9,090821	98.7413	97.7119	91.2161	87.7022	77.1465	98.7413
78	2L60X60	2,585182	-1,651998	-0,3061142	-1,742936	5,582983	-2.3128	-3.8665	1.9942	-4.4013	5.1224	-5.1224
79	2L60X60	2	1,540736	0,2566199	1,334527	-4,301713	2.1570	3.3271	-1.1819	3.7121	-3.6150	3.7121
80	2L60X60	2,371141	-1,796668	-0,3101198	-1,586614	5,13245	-2.5153	-3.9215	1.4538	-4.3737	4.3611	-4.3737
81	H20X20	2,128356	-43,58802	-5,629417	7,291441	2,025958	-61.0232	-55.4795	-59.6919	-45.6415	-52.4866	-61.0232
82	IWF20X10	2,370264	-30,9575	-3,816181	1,184705	6,828588	-43.3405	-42.3071	-37.7920	-37.5170	-30.1799	-43.3405
83	H20X20	2,128357	-239,81	-29,17228	7,103494	27,26625	-335.7340	-328.7649	-312.6346	-293.1236	-266.9120	-335.7340
84	2L70X70	1,236895	15,81805	1,931948	0,3437411	-2,574194	22.1453	22.3478	20.0134	20.3945	16.6012	22.3478
85	2L70X70	1,236898	75,93314	9,251764	-1,163383	-9,512404	106.3064	104.9919	98.3127	94.2333	83.3795	106.3064
86	2L70X70	1,455902	-8,399943	-1,139415	-0,2086357	1,528732	-11.7599	-12.0699	-10.6800	-10.9209	-8.6623	-12.0699
87	2L70X70	1,638038	46,40528	5,242914	-0,7426684	-7,032683	64.9674	63.4809	58.4489	57.3423	49.1653	64.9674
88	2L70X70	2,00164	48,01692	5,411928	0,1154816	-9,807898	67.2237	66.3718	58.4331	60.4764	47.5760	67.2237
89	IWF20X10	2,00001	57,10025	6,270287	1,004962	-10,85682	79.9404	79.3567	69.8673	72.9619	57.5416	79.9404
90	2L70X70	2	163,0963	20,14492	-0,7356455	-21,37169	228.3348	227.3589	210.8501	204.8317	178.0048	228.3348
91	2L60X60	2,473793	13,51848	1,302771	-1,615285	0,9326164	18.9259	17.0144	19.0527	14.7737	18.0860	19.0527
92	2L70X70	2	119,9089	14,8695	-1,966122	-13,20552	167.8725	166.1090	157.1175	148.7695	134.1583	167.8725

Tabel 4.5.c Lanjutan

BTG	(profil)	L(m)	ND	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
93	2L70X70	2,197258	11,85695	1,673731	-1,40764	3,362032	16.5997	15.7802	19.5959	13.2353	19.4358	19.5959
94	H20X20	2	-77,73275	-10,0002	9,067848	4,758464	-108.8259	-102.0253	-105.4728	-86.4912	-92.0934	-108.8259
95	IWF20X10	2,828434	19,8446	3,048986	-4,395896	4,066115	27.7824	25.1752	31.9448	19.6233	30.6240	31.9448
96	H20X20	2	-240,7582	-29,71415	9,926533	23,07382	-337.0615	-328.5113	-317.9934	-290.8624	-273.7709	-337.0615
97	2L60X60	1,455907	-7,004149	-0,75835	0,9512759	-0,558888	-9.8058	-8.8573	-10.0654	-7.5475	-9.5107	-10.0654
98	2L60X60	0,909915	14,30217	1,724931	-1,766893	5,739996E-03	20.0230	18.5090	19.9271	15.7281	18.0325	20.0230
99	IWF20X10	2,00001	1,790972	-0,4938419	1,521215	-3,077804	2.5074	2.5760	-1.1032	3.8798	-2.0989	3.8798
100	2L70X70	2	173,788	21,1771	-2,045008	-20,58951	243.3032	240.7930	225.9574	216.4756	192.3678	243.3032
101	2L60X60	2,473795	10,86346	1,282282	-1,621597	0,9664745	15.2088	13.7905	15.8610	11.5692	14.9337	15.8610
102	2L70X70	2	111,369	13,85504	-0,6510128	-14,01761	155.9166	155.2901	144.5968	139.7240	122.3474	155.9166
103	2L70X70	2,197258	28,49166	3,766713	-3,555666	3,379771	39.8883	37.3722	42.9205	31.4510	40.4671	42.9205
104	2L60X60	2,197258	-16,43383	-2,076519	2,130481	-4,526112E-03	-23.0074	-21.3386	-23.0466	-17.9892	-20.7647	-23.0466
105	H20X20	2	-62,86855	-7,735417	5,787844	7,775982	-88.0160	-83.1887	-81.5981	-71.7858	-69.2012	-88.0160
106	IWF20X10	2,828434	-3,187572	-0,2671553	-2,450599	4,293811	-4.4626	-6.2130	-0.8175	-7.1444	1.6233	-7.1444
107	H20X20	2	-239,792	-29,69003	11,85769	19,91974	-335.7088	-325.7683	-319.3187	-287.1804	-276.6998	-335.7088
108	2L60X60	1,455911	-5,845524	-0,7524056	0,9537569	-0,5703626	-8.1837	-7.4555	-8.6748	-6.1509	-8.1323	-8.6748
109	2L60X60	1,81983	-0,6443772	-0,3141789	-0,9413059	0,6222485	-0.9021	-2.0290	-0.7781	-2.1540	-0.1214	-2.1540
110	IWF20X10	2,00001	0,2938122	-0,625631	0,4054479	-1,101703	0.4113	-0.3241	-1.5298	0.5668	-1.3925	1.5298
111	2L70X70	2	182,3388	22,19433	-3,359582	-19,78155	255.2743	251.6298	238.4922	225.5363	204.1877	255.2743
112	2L60X60	2,473798	8,941545	1,282357	-1,620158	0,9643108	12.5182	11.4855	13.5531	9.2648	12.6246	13.5531
113	2L70X70	2	104,374	12,83784	0,6622718	-14,82369	146.1236	146.3192	133.9304	132.5287	112.3969	146.3192
114	2L70X70	2,197258	26,79412	3,370265	-4,752927	4,169452	37.5118	33.7430	40.8809	27.6593	39.2584	40.8809
115	2L60X60	2,161198	1,742666	0,3922609	1,172741	-0,7736113	2.4397	3.6570	2.0999	3.8119	1.2816	3.8119
116	2L70X70	2,236435	7,595516	0,7381071	-2,932541	3,07049	10.6337	7.9496	12.7520	5.6714	13.4753	13.4753
117	H20X20	2	-85,85595	-10,36036	8,50008	8,099212	-120.1983	-112.8037	-113.1243	-97.1572	-97.6783	-120.1983
118	IWF20X10	2,828434	-5,35513	-0,6501222	-0,5956513	1,752985	-7.4972	-7.9429	-6.0640	-7.5256	-4.4723	-7.9429
119	H20X20	2	-236,9087	-29,33006	12,39043	18,64199	-331.6722	-321.3062	-316.3049	-282.8479	-274.7209	-331.6722
120	2L60X60	1,455916	-4,78738	-0,7600946	0,9542546	-0,5624241	-6.7023	-6.1976	-7.4109	-4.8844	-6.8561	-7.4109
121	2L60X60	1,728925	-1,948105	-0,3337077	-0,9880956	0,6554615	-2.7273	-3.6621	-2.3473	-3.7891	-1.6525	-3.7891
122	IWF20X10	2,00001	5,309763	0,4074095	0,3234705	-1,181438	7.4337	7.2823	6.0784	6.9959	5.0396	7.4337
123	2L70X70	2	189,3058	23,20893	-4,67271	-18,97245	265.0281	260.5631	249.1233	232.6969	214.1072	265.0281

Tabel 4.5.c Lanjutan

BTG	(profil)	L(m)	ND	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
124	2L60X60	2,473801	7,213225	1,304541	-1,622782	0,9407899	10.0985	9.4449	11.4958	7.1985	10.5312	11.4958
125	2L70X70	2	98,78842	11,80359	1,97775	-15,61224	138.3038	139.0140	124.9421	127.0190	104.1520	139.0140
126	2L70X70	2,197258	23,21544	2,920159	-6,079065	5,051264	32.5016	27.6675	36.5718	21.4158	35.8853	36.5718
127	2L60X60	2,128412	3,521218	0,4359812	1,28081	-0,8512008	4.9297	5.9477	4.2421	6.1085	3.3369	6.1085
128	2L70X70	2,236435	9,35585	1,145363	-1,715027	2,265442	13.0982	11.6876	14.8720	9.5702	14.7448	14.8720
129	H20X20	2	-88,84775	-10,74138	7,991059	9,329471	-124.3869	-117.4107	-116.3399	-101.5996	-99.8597	-124.3869
130	IWF20X10	2,828434	-13,23992	-1,912789	-0,4416947	1,644961	-18.5359	-19.3017	-17.6324	-17.4185	-14.7058	-19.3017
131	H20X20	2	-228,2497	-28,0448	12,77235	17,49221	-319.5496	-308.5534	-304.7776	-271.3180	-265.1822	-319.5496
132	2L60X60	1,45592	-29,89386	-3,990651	1,031612	2,649451	-41.8514	-41.4324	-40.1381	-36.5269	-34.4237	-41.8514
133	2L60X60	1,63802	-18,73771	-2,732316	0,2840351	1,213284	-26.2328	-26.6297	-25.8863	-23.4822	-22.2741	-26.6297
134	2L60X60	2,00164	-8,934845	-1,604209	-1,069626	1,029647	-12.5088	-14.1442	-12.4648	-12.9144	-10.1854	-14.1442
135	IWF20X10	2,00001	13,27184	1,105207	-1,40302	-0,8749309	18.5806	16.5721	16.9946	14.6549	15.3414	18.5806
136	2L60X60	1,236902	45,51741	5,54537	-0,1366782	-5,510331	63.7244	63.3841	59.0852	57.2159	50.2301	63.7244
137	2L60X60	1,236902	45,4997	5,515404	-3,201225	-2,414278	63.6996	60.8633	61.4929	53.1957	54.2188	63.6996
138	2L60X60	1,292585	11,0263	1,249199	2,180448	-3,302246	15.4368	16.9746	12.5885	16.6907	9.5632	16.9746
139	2L60X60	1,292585	11,24873	1,237833	-2,58634	1,483277	15.7482	13.4099	16.6656	10.7552	16.0457	16.6656
140	2L60X60	1,414793	-6,946566	-1,007814	1,30771	-0,2564171	-9.7252	-8.9022	-10.1535	-7.1398	-9.1731	-10.1535
141	2L60X60	1,414793	-6,712399	-1,008469	-0,3451984	1,394684	-9.3974	-9.9446	-8.5527	-9.0079	-6.7460	-9.9446
142	IWF20X10	1,414217	-23,79663	-3,089149	0,9242136	2,435941	-33.3153	-32.7592	-31.5498	-28.8991	-26.9338	-33.3153
143	IWF20X10	1,414217	-23,73523	-3,141459	1,961579	1,392223	-33.2293	-31.9393	-32.3948	-27.5030	-28.2431	-33.2293
144	2L70X70	2	158,1245	19,76116	-5,875135	-13,7351	221.3743	216.6671	210.3792	191.9923	181.7744	221.3743
145	2L70X70	2	74,47732	9,028596	-2,651675	-6,501346	104.2582	101.6972	98.6175	90.4399	85.4353	104.2682
146	2L60X60	2	7,769025	1,187576	0,747973	0,2507119	10.8766	11.8213	11.4235	10.8890	10.2425	11.8213
147	H20X20	2	-75,90258	-9,120346	7,189922	7,723834	-106.2636	-99.9237	-99.4966	-86.2964	-85.6023	-106.2636
148	H20X20	2	-210,9325	-25,75026	11,36071	16,46834	-295.3055	-285.2308	-281.1447	-251.2252	-244.5853	-295.3055
149	2L60X60	1,236902	45,51741	5,54537	-3,208758	-2,438251	63.7244	60.9265	61.5429	53.2222	54.2239	63.7244
150	2L60X60	1,236902	45,4997	5,515404	-0,125801	-5,489702	63.6996	63.3236	59.0325	57.1938	50.2207	63.6996
151	2L60X60	1,292585	11,12528	1,249199	-2,592111	1,470312	15.5754	13.2754	16.5253	10.6052	15.8863	16.5253
152	2L60X60	1,292585	11,14975	1,237833	2,187158	-3,290221	15.6097	17.1100	12.7281	16.8419	9.7213	17.1100
153	2L60X60	1,414793	-6,946566	-1,007814	-0,3444387	1,395732	-9.7252	-10.2239	-8.8318	-9.2876	-7.0253	-10.2239
154	2L60X60	1,414793	-6,712399	-1,008469	1,306818	-0,2573329	-9.3974	-8.6230	-9.8743	-6.8602	-8.8936	-9.8743

Tabel 4.5.c Lanjutan

BTG	(profil)	L(m)	ND	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
155	IWF20X10	1,414217	-23,79663	-3,089149	2,002316	1,357839	-33.3153	-31.8967	-32.4123	-27.4975	-28.3353	-33.3153
156	IWF20X10	1,414217	-23,73523	-3,141459	0,9302945	2,423508	-33.2293	-32.7644	-31.5698	-28.8436	-26.9024	-33.2293
157	2L60X60	1,45592	-29,89386	-3,990651	1,158148	2,522915	-41.8514	-41.3312	-40.2393	-36.3624	-34.5882	-41.8514
158	2L60X60	1,63802	-18,73771	-2,732316	0,4953971	1,001922	-26.2328	-26.4606	-26.0554	-23.2074	-22.5489	-26.4606
159	2L60X60	2,00164	-8,934845	-1,604209	0,6644106	-0,7043893	-12.5088	-12.7570	-13.8521	-10.6602	-12.4396	-13.8521
160	IWF20X10	2,00001	13,27184	1,105207	-0,5836594	-1,694291	18.5806	17.2276	16.3391	15.7201	14.2762	18.5806
161	2L70X70	2	189,3058	23,20893	-9,455396	-14,18976	265.0281	256.7369	252.9494	226.4794	220.3247	265.0281
162	2L60X60	2,473801	7,037274	1,304541	1,203615	-1,885607	9.8522	11.4949	9.0235	10.6617	6.6457	11.4949
163	2L70X70	2	98,78842	11,80359	-9,646152	-3,988342	138.3038	129.7149	134.2412	111.9079	119.2631	138.3038
164	2L70X70	2,197258	23,06577	2,920159	5,365747	-6,393548	32.2921	36.6438	27.2363	36.1145	20.8274	36.6438
165	2L60X60	2,128412	3,433224	0,4359812	-0,4390225	0,8686314	4.8065	4.4662	5.5123	3.7671	5.4671	5.5123
166	2L70X70	2,236435	9,191222	1,145363	2,926483	-2,376068	12.8677	15.2032	10.9612	15.4066	8.5133	15.4066
167	H20X20	2	-88,84775	-10,74138	8,838949	8,481582	-124.3869	-116.7323	-117.0182	-100.4974	-100.9619	-124.3869
168	IWF20X10	2,828434	-13,23992	-1,912789	1,062446	0,1408199	-18.5359	-18.0984	-18.8357	-15.4631	-16.6612	-18.8357
169	H20X20	2	-228,2497	-28,0448	12,03415	18,23041	-319.5496	-309.1440	-304.1870	-272.2776	-264.2225	-319.5496
170	2L60X60	1,455916	-4,611429	-0,7600946	-0,7133174	1,105148	-6.4560	-7.3205	-5.8657	-6.8411	-4.4771	-7.3205
171	2L60X60	1,728925	-1,948105	-0,3337077	0,3391896	-0,6718236	-2.7273	-2.6003	-3.4091	-2.0636	-3.3780	-3.4091
172	IWF20X10	2,00001	5,309763	0,4074095	-0,7660759	-0,0918913	7.4337	6.4107	6.9501	5.5795	6.4560	7.4337
173	2L70X70	2	182,3388	22,19433	-10,45753	-12,6836	255.2743	245.9515	244.1706	216.3089	213.4150	255.2743
174	2L60X60	2,473798	8,765594	1,282357	1,216585	-1,872432	12.2718	13.5438	11.0725	12.7415	8.7257	13.5438
175	2L70X70	2	104,374	12,83784	-8,655292	-5,506123	146.1236	138.8651	141.3844	120.4158	124.5098	146.1236
176	2L70X70	2,197258	26,64444	3,370265	4,909568	-5,493043	37.3022	41.2934	32.9713	40.0409	26.5175	41.2934
177	2L60X60	2,161198	1,643686	0,3922609	-0,399139	0,7982685	2.3012	2.2807	3.2387	1.6497	3.2063	3.2387
178	2L70X70	2,236435	7,430887	0,7381071	3,34321	-3,205262	10.4032	12.7726	7.5338	13.6323	5.1193	13.6323
179	H20X20	2	-85,85595	-10,36036	8,04079	8,558502	-120.1983	-113.1711	-112.7569	-97.7543	-97.0813	-120.1983
180	IWF20X10	2,828434	-5,35513	-0,6501222	1,153236	4,098584E-03	-7.4972	-6.5438	-7.4631	-5.2520	-6.7459	-7.4972
181	H20X20	2	-236,9087	-29,33006	12,76474	18,26769	-331.6722	-321.0067	-316.6044	-282.3613	-275.2075	-331.6722
182	2L60X60	1,455911	-5,669574	-0,7524056	-0,7178526	1,101247	-7.9374	-8.5816	-7.1263	-8.1129	-5.7481	-8.5816
183	2L60X60	1,81983	-0,6443772	-0,3141789	0,3219762	-0,6410336	-0.9021	-1.0184	-1.7888	-0.5118	-1.7637	-1.7888
184	IWF20X10	2,00001	0,2938122	-0,625631	-0,7035831	7,327619E-03	0.4113	-1.2113	-0.6426	-0.8749	0.0493	-1.2113
185	2L70X70	2	173,788	21,1771	-11,45973	-11,17479	243.3032	233.2612	233.4891	204.2365	204.6069	243.3032

Tabel 4.5.c Lanjutan

BTG	(profil)	L(m)	ND	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
186	2L60X60	2,473795	10,68751	1,282282	1,218651	-1,873773	14.9625	15.8516	13.3776	15.0504	11.0302	15.8516
187	2L70X70	2	111,369	13,85504	-7,654924	-7,013703	155.9166	149.6869	150.1999	130.6189	131.4525	155.9166
188	2L70X70	2,197258	28,34199	3,766713	4,500545	-4,676439	39.6788	43.6376	36.2960	41.7445	29.8144	43.6376
189	2L60X60	2,197258	-16,54379	-2,076519	-0,0845268	2,210482	-23.1613	-23.2426	-21.4066	-21.0007	-18.0172	-23.2426
190	H20X20	2	-62,86855	-7,735417	8,667174	4,896652	-88.0160	-80.8852	-83.9016	-68.0426	-72.9443	-88.0160
191	IWF20X10	2,828434	-3,187572	-0,2671553	3,416336	-1,573124	-4.4626	-1.5195	-5.5110	0.4826	-6.0037	6.0037
192	H20X20	2	-239,792	-29,69003	13,60527	18,17216	-335.7088	-324.3702	-320.7167	-284.9086	-278.9716	-335.7088
193	2L60X60	1,455907	-6,828199	-0,75835	-0,7093822	1,10177	-9.5595	-9.9747	-8.5258	-9.4952	-7.1407	-9.9747
194	2L60X60	0,909915	14,30217	1,724931	7,569607E-02	-1,836849	20.0230	19.9831	18.4530	18.1235	15.6372	20.0230
195	IWF20X10	2,00001	1,790972	-0,4938419	-2,438927	0,8823376	2.5074	-0.5921	2.0649	-1.2684	3.0493	3.0493
196	2L70X70	2	163,0963	20,14492	-12,44377	-9,663566	228.3348	217.9924	220.2166	189.6111	193.2254	228.3348
197	2L60X60	2,473793	13,34253	1,302771	1,195134	-1,877803	18.6795	19.0516	16.5932	18.2161	14.2213	19.0516
198	2L70X70	2	119,9089	14,8695	-6,649936	-8,521702	167.8725	162.3619	160.8645	142.6805	140.2472	167.8725
199	2L70X70	2,197258	11,70728	1,673731	4,3996	-2,445208	16.3902	20.2464	14.7705	20.6051	11.7068	20.6051
200	H20X20	2	-77,73275	-10,0002	6,170921	7,655391	-108.8259	-104.3429	-103.1553	-90.2572	-88.3274	-108.8259
201	IWF20X10	2,828434	19,8446	3,048986	3,385718	-3,715499	27.7824	31.4005	25.7195	29.7394	20.5079	31.4005
202	H20X20	2	-240,7582	-29,71415	16,11071	16,88965	-337.0615	-323.5639	-322.9408	-282.8230	-281.8104	-337.0615
203	2L70X70	1,455902	-8,160457	-1,139415	0,9130451	0,4070509	-11.4246	-10.8852	-11.2900	-9.1753	-9.8331	-11.4246
204	2L70X70	1,638038	46,40528	5,242914	-5,283636	-2,491715	64.9674	59.8481	62.0816	51.4391	55.0686	64.9674
205	2L70X70	2,00164	48,01692	5,411928	-8,044032	-1,648384	67.2237	59.8442	64.9607	49.8690	58.1834	67.2237
206	IWF20X10	2,00001	57,10025	6,270287	-7,723305	-2,128557	79.9404	72.3741	76.8499	61.6151	68.8883	79.9404
207	2L70X70	1,236895	15,69831	1,931948	-1,532301	-0,6981515	21.9776	20.7032	21.3706	17.8120	18.8963	21.9776
208	2L70X70	1,236898	76,05289	9,251764	-5,752362	-4,923426	106.4740	101.4644	102.1275	88.4113	89.4889	106.4740
209	2L90X90	2	150,4325	18,59113	-11,20631	-9,104404	210.6055	201.2998	202.9813	175.2464	177.9788	210.6055
210	2L70X70	2	70,52953	8,65832	-5,36181	-4,700122	98.7413	94.1993	94.7287	81.9942	82.8544	98.7413
211	2L60X60	2,585182	-1,651998	-0,3061142	5,56719	-1,727144	-2.3128	1.9816	-3.8539	5.1019	-4.3807	5.1019
212	2L60X60	2	1,540736	0,2566199	-4,278806	1,311619	2.1570	-1.1636	3.3088	-3.5853	3.6823	-3.6823
213	2L60X60	2,371141	-1,796668	-0,3101198	5,107621	-1,561785	-2.5153	1.4339	-3.9016	4.3288	-4.3414	-4.3414
214	H20X20	2,128356	-43,58802	-5,629417	4,819132	4,498267	-61.0232	-57.4574	-57.7141	-48.8555	-49.2726	-61.0232
215	IWF20X10	2,370264	-30,9575	-3,816181	6,521167	1,492126	-43.3405	-38.0380	-42.0612	-30.5796	-37.1173	-43.3405
216	H20X20	2,128357	-240,2093	-29,17228	19,3373	15,03244	-336.2930	-319.4570	-322.9009	-277.6988	-283.2951	-336.2930

Tabel 4.5.c Lanjutan

BTG	(profil)	L(m)	ND	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
217	2L70X70	1,236895	75,73743	9,255489	-5,7564	-4,923641	106.0324	101.0886	101.7548	88.0293	89.1119	106.0324
218	2L70X70	1,236895	15,87823	1,912989	-1,512355	-0,6916581	22.2295	20.9048	21.5613	18.0443	19.1112	22.2295
219	2L70X70	1,455898	-31,72821	-4,156502	0,9895578	2,634986	-44.4195	-43.9326	-42.6163	-38.8657	-36.7266	-44.4195
220	2L70X70	1,638042	-21,95147	-3,037518	9,749667E-02	2,234159	-30.7321	-31.1238	-29.4145	-27.7338	-24.9561	-31.1238
221	2L70X70	1,2737	-22,54712	-3,235027	3,64379	1,135977	-31.5660	-29.3176	-31.3238	-23.9371	-27.1973	-31.5660
222	IWF20X10	2,000005	23,07988	2,34408	-2,905867	-1,375981	32.3118	29.1217	30.3456	25.0903	27.0791	32.3118
223	2L90X90	2	227,1754	27,78152	-19,08799	-13,42246	318.0456	301.7905	306.3229	261.6869	269.0520	318.0456
224	2L70X70	2,473788	-18,98414	-2,066995	3,96109	0,3945345	-26.5778	-22.9193	-25.7725	-18.6650	-23.3016	-26.5778
225	2L70X70	2	83,41697	10,2101	-6,594957	-5,259643	116.7838	111.1606	112.2288	96.6320	98.3679	116.7838
226	H20X20	2,128356	3,187313	0,3745204	-2,07335	1,704818	4.4622	2.7653	5.7879	1.3167	6.2283	6.2283
227	IWF20X10	2,370261	-52,57157	-6,807844	12,41277	1,520669	-73.6002	-64.0482	-72.7619	-50.3532	-64.5129	-73.6002
228	H20X20	2,128357	-269,3064	-32,77405	24,56211	16,44145	-377.0290	-355.9565	-362.4530	-307.6240	-318.1808	-377.0290
229	2L70X70	1,455893	10,62997	1,223727	-2,342543	-0,2336759	14.8820	12.8399	14.5270	10.3225	13.0640	14.8820
230	IWF20X10	2	38,97375	4,653775	-7,898282	-1,23104	54.5633	47.8959	53.2297	38.8276	47.4950	54.5633
231	2L90X90	2	240,9934	29,53044	-22,37339	-13,771	337.3908	318.5421	325.4240	274.8719	286.0550	337.3908
232	2L70X70	2,473785	-16,7677	-2,107734	4,011284	0,4075432	-23.4748	-20.2846	-23.1676	-15.9604	-20.6453	-23.4748
233	2L70X70	2	67,83659	8,497472	-3,353514	-4,922966	94.9712	92.3171	91.0615	81.2931	79.2528	94.9712
234	H20X20	2,128356	43,84908	5,568692	-10,96013	0,3624069	61.3687	52.7607	61.8187	41.1551	55.8744	61.8187
235	IWF20X10	2,370258	-44,57751	-5,677477	9,655402	1,479793	-62.4085	-54.8527	-61.3931	-43.7797	-54.4080	-62.4085
236	H20X20	2,128357	-317,1379	-38,9826	35,09534	17,81113	-443.9931	-414.8614	-428.6887	-354.4328	-376.9023	-443.9931
237	2L70X70	1,455889	9,274803	1,23956	-2,344932	-0,2437678	12.9847	11.2371	12.9180	8.7011	11.4326	12.9847
238	IWF20X10	1,999995	33,49471	3,79119	-5,679682	-1,226269	46.8926	41.7158	45.2785	34.7057	40.4951	46.8926
239	2L90X90	2	252,5793	31,25878	-25,61215	-14,11874	353.6110	332.6195	341.8142	285.4288	300.3702	353.6110
240	2L70X70	2,473783	-14,06921	-2,087857	3,962164	0,4078589	-19.6969	-17.0539	-19.8973	-12.7762	-17.3968	-19.8973
241	2L70X70	2	54,05719	6,751226	-6,814674E-02	-4,576181	75.6801	75.6161	72.0096	68.1557	62.2952	75.6801
242	H20X20	2,128356	78,79623	9,771346	-17,24631	-1,000309	110.3147	96.3926	109.3894	77.0209	98.1407	110.3147
243	IWF20X10	2,370255	-38,30025	-4,596238	6,791595	1,513839	-53.6204	-47.8810	-52.1032	-39.4293	-46.2904	-53.6204
244	H20X20	2,128357	-357,9676	-44,19814	43,15963	19,15211	-501.1546	-465.7504	-484.9565	-395.5527	-426.7624	-501.1546
245	2L70X70	1,455884	-9,673535E-02	-0,1338782	-1,119106	0,3913637	-0.1354	-1.2256	-0.0172	-1.6379	0.3258	-1.6379
246	2L70X70	0,7279356	-7,743875	-1,373869	1,229119	0,6346105	-10.8414	-10.5075	-10.9832	-8.3817	-9.1546	-10.9832
247	IWF20X10	1,99999	27,79466	2,813378	-3,209025	-1,225654	38.9125	35.2878	36.8745	30.5885	33.1669	38.9125

Tabel 4.5.c Lanjutan

BTG	(profil)	L(m)	ND	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
248	2L90X90	2	251,4342	31,12092	-27,18062	-13,60458	352.0079	329.7700	340.6308	281.9467	299.5955	352.0079
249	2L70X70	2,47378	1,588374	0,2067141	1,936366	-0,6599755	2.2237	3.7859	1.7088	4.5267	1.1514	4.5267
250	2L70X70	2	42,83565	5,082677	2,867243	-4,182962	59.9699	61.8289	56.1887	57.6715	48.5063	61.8289
251	H20X20	2,128356	115,2942	14,28837	-21,97915	-3,027233	161.4119	143.6311	158.7926	116.9243	141.5618	161.4119
252	IWF20X10	2,370253	-40,30609	-4,99163	5,504517	2,157095	-56.4285	-51.9503	-54.6282	-43.7073	-48.0589	-56.4285
253	H20X20	2,128357	-392,8751	-48,39705	48,52881	20,52745	-550.0251	-510.0624	-532.4634	-432.5612	-468.9630	-550.0251
254	2L70X70	1,45588	-16,4325	-2,141972	1,349432	1,073315	-23.0055	-22.0666	-22.2875	-19.0357	-19.3947	-23.0055
255	IWF20X10	1,999985	28,67006	3,123395	-2,015749	-1,782942	40.1381	37.7889	37.9752	33.3453	33.6479	40.1381
256	2L90X90	2	203,4265	25,20681	-23,41022	-10,65316	284.7971	265.7145	275.9202	226.2819	242.8661	284.7971
257	2L70X70	2,128356	51,25747	6,320439	-4,043566	-3,150205	71.7605	68.3868	69.1015	59.4125	60.5739	71.7605
258	H20X20	2,128356	189,789	23,40645	-23,81886	-8,90352	265.7046	246.1420	258.0743	208.4855	227.8754	265.7046
259	IWF20X10	2,37025	-30,35215	-3,887109	7,139773	0,961095	-42.4930	-36.9301	-41.8731	-29.0844	-37.1167	-42.4930
260	H20X20	2,128357	-429,4692	-52,93998	52,70868	22,48302	-601.2569	-557.9001	-582.0806	-473.3117	-512.6051	-601.2569
261	2L70X70	0,72794	0,6073984	-9,139069E-03	8,924911E-03	3,547475E-03	0.8504	0.7214	0.7171	0.7359	0.7289	0.8504
262	IWF20X10	1,99998	21,81927	2,310462	-3,47443	-0,8329544	30.5470	27.1003	29.2135	22.8216	26.2555	30.5470
263	2L90X90	2	203,6277	25,23255	-23,4685	-10,65421	285.0788	265.9505	276.2020	226.4605	243.1190	285.0788
264	H20X20	2,128356	224,7168	27,66672	-28,77374	-10,66784	314.6035	290.9079	305.3926	246.0877	269.6253	314.6035
265	IWF20X10	2,370247	17,34415	2,193789	1,066167	-1,497127	24.2818	25.1760	23.1253	23.2959	19.9636	25.1760
266	H20X20	2,128357	-456,8557	-56,46192	58,33791	23,35056	-639.5980	-591.8956	-619.8855	-500.6185	-546.1021	-639.5980
267	IWF20X10	1,999975	-17,50339	-2,698879	1,450997	1,212786	-24.5047	-24.1615	-24.3520	-20.4672	-20.7769	-24.5047
268	H20X20	2,128356	341,9128	41,90677	-43,23976	-16,58552	478.6779	442.7544	464.0778	375.0371	409.6876	478.6779
269	IWF20X10	2,370245	106,341	13,49637	-11,2295	-5,801497	148.8774	140.2198	144.5622	119.7590	126.8154	148.8774
270	H20X20	2,128357	-439,766	-54,31519	58,34066	21,91724	-615.6724	-567.9510	-597.0897	-479.0339	-526.3844	-615.6724
271	IWF20X10	1,99997	-94,18549	-12,27906	11,87371	4,860439	-131.8597	-123.1701	-128.7807	-103.7263	-112.8435	-131.8597
272	H20X20	2,128356	233,8835	28,2849	-30,10291	-11,18255	327.4369	301.8337	316.9700	255.6689	280.2653	327.4369
273	IWF20X10	2,370242	116,0494	14,64666	-14,11384	-5,81089	162.4692	151.4029	158.0452	128.2346	139.0285	162.4692
274	H20X20	2,128357	-341,1225	-41,80544	47,04531	16,54435	-477.5715	-438.5995	-463.0002	-369.0908	-408.7421	-477.5715
275	IWF20X10	1,999965	-102,5764	-13,43049	14,4875	4,941347	-143.6070	-132.9905	-140.6274	-110.9732	-123.3832	-143.6070
276	H20X20	2,128356	118,7459	13,48626	-14,15985	-5,732526	166.2443	152.7452	159.4871	130.8304	141.7859	166.2443
277	IWF20X10	2,370239	123,2534	15,859	-17,08507	-5,838696	172.5548	159.6104	168.6075	133.6230	148.2433	172.5548
278	H20X20	2,128357	-232,3827	-28,09293	32,93674	11,10888	-325.3358	-297.4585	-314.9208	-250.0879	-278.4642	-325.3358

Tabel 4.5.c Lanjutan

BTG	(profil)	L(m)	ND	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
279	IWF20X10	1,99996	-107,2902	-14,27644	16,78037	4,90189	-150.2063	-138.1662	-147.6690	-114.0720	-129.5140	-150.2063
280	H20X20	2,234774	-6,625198	-2,891117	5,032578	-9,683944E-02	-9.2753	-8.5500	-12.6535	-2.8534	-9.5217	-12.6535
281	IWF20X10	2,436566	131,6635	17,20492	-20,14071	-5,923807	184.3289	169.4115	180.7850	140.4157	158.8977	-184.3289
282	H20X20	2,234761	-117,2962	-13,29333	16,10391	5,664997	-164.2147	-149.1416	-157.4928	-126.4670	-140.0376	-164.2147
283	IWF20X10	2	-119,4662	-16,57429	21,68384	5,047749	-167.2527	-152.5312	-165.8401	-123.4576	-145.0845	-167.2527
284	2L80X80	2	-8,237504	-2,951772	5,002762	-1,251946E-02	-11.5325	-10.6056	-14.6179	-4.8573	-11.3772	-14.6179
285	2L80X80	2,828427	6,764173	1,90611	-4,174656	2,967922E-02	9.4698	7.8271	11.1905	3.6430	9.1086	11.1905
286	2L80X80	2,128376	3,82711	1,71667	-0,8979749	-1,142927E-02	5.3580	6.6208	7.3301	4.2835	5.4360	7.3301
287	2L80X80	1,272	-4,25481	-1,394297	3,021456	-5,571364E-03	-5.9567	-4.9195	-7.3411	-1.8750	-5.8102	-7.3411
288	2L80X80	2	-3,414975	-1,566486	1,991136	2,62675E-03	-4.7810	-5.0114	-6.6022	-2.2927	-4.8778	-6.6022
289	2L80X80	2,370229	4,518012	1,809649	-2,295102	-5,730936E-03	6.3252	6.4810	8.3125	3.3428	6.3190	8.3125
290	2L80X80	2,128376	-0,3704955	4,725097E-02	0,3698871	2,291922E-03	-0.5187	-0.0731	-0.3672	0.0599	-0.4180	-0.5187
291	2L80X80	0,544	-1,778002	-0,9763607	1,237208	8,855833E-04	-2.4892	-2.7060	-3.6951	-1.0134	-2.6206	-3.6951

Keterangan :

[1] Nomer batang

[2] Jenis profil yang dipakai

[3] Panjan g batang L (m)

[4] ND = gaya aksial akibat beban mati (kN)

[5] NL = gaya aksial akibat beban hidup (kN)

[6] Nwki = gaya aksial akibat beban angin kiri (kN)

[7] Nwka = gaya aksial akibat beban angin kanan (kN)

[8] Nu 1 = 1,4.ND

[9] Nu2 = 1,2ND+1,6NL+0,8Nwki

[10] Nu3 = 1,2ND+1,6NL+0,8Nwka

[11] Nu4 = 1,2ND+1,3Nwki+0,5NL

[12] Nu5 = 1,2ND+1,3Nwka+0,5NL

[13] Numaks = gayaaksial batang maksimum (kN)

Notasi Profil:

A = (H BEAM) 200x 200x8x12x13

B = (IWF) 200x100x5,5x8x11

C = 2L 80.80.8

D = 2L 70.70.7

E = 2L 60.60.6

F = 2L 50.50.5

H = 2L 90.90.9

Tabel 4.5.d Gaya Batang Aksial Kuda-Kuda K3

BTG	(profil)	L(m)	ND	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
1	2L80X80	0.544	-1.890381	-0.9763607	1.74E-05	1.74E-05	-2.6465	-3.8306	-3.8306	-2.7566	-2.7566	-3.8306
2	2L80X80	2	-3.401635	-1.566486	-4.01E-04	-4.01E-04	-4.7623	-6.5887	-6.5887	-4.8657	-4.8657	-6.5887
3	2L80X80	2.370229	4.21562	1.809651	9.21E-04	9.21E-04	5.9019	7.9549	7.9549	5.9648	5.9648	7.9549
4	2L80X80	2.128376	-0.3588551	4.73E-02	-2.63E-04	-2.63E-04	-0.5024	-0.3552	-0.3552	-0.4073	-0.4073	-0.5024
5	2L80X80	1.272	-4.283113	-1.394297	-1.59E-04	-1.59E-04	-5.9964	-7.3707	-7.3707	-5.8371	-5.8371	-7.3707
6	2L80X80	2	-8.30107	-2.951766	1.84E-03	1.84E-03	-11.6215	-14.6826	-14.6826	-11.4348	-11.4348	-14.6826
7	2L80X80	2.828427	6.48517	1.906098	-5.64E-03	-5.64E-03	9.0792	10.8274	10.8274	8.7279	8.7279	10.8274
8	2L80X80	2.128376	3.769067	1.716673	1.84E-03	1.84E-03	5.2767	7.2710	7.2710	5.3836	5.3836	7.2710
9	IWF20X10	2	-93.82417	-16.57384	-1.872893	-1.872893	-131.3538	-140.6055	-140.6055	-123.3107	-123.3107	-140.6055
10	H20X20	2.234761	-7.117423	-2.891159	8.901049	8.901049	-9.9644	-6.0459	-6.0459	1.5849	1.5849	9.9644
11	IWF20X10	2.436587	101.5711	17.20432	2.216268	2.216268	142.1995	151.1852	151.1852	133.3686	133.3686	151.1852
12	H20X20	2.234761	-88.09782	-13.29252	-2.085369	-2.085369	-123.3369	-128.6537	-128.6537	-115.0746	-115.0746	-128.6537
13	IWF20X10	2	-82.8783	-14.28102	-1.828115	-1.828115	-116.0296	-123.7661	-123.7661	-108.9710	-108.9710	-123.7661
14	H20X20	2.12836	89.63155	13.48684	10.99261	10.99261	125.4842	137.9309	137.9309	128.5917	128.5917	137.9309
15	IWF20X10	2.370254	93.59382	15.85926	2.202926	2.202926	131.0313	139.4497	139.4497	123.1060	123.1060	139.4497
16	H20X20	2.12836	-175.5663	-28.09502	-4.119032	-4.119032	-245.7928	-258.9268	-258.9268	-230.0818	-230.0818	-258.9268
17	IWF20X10	2	-77.77486	-13.39988	-1.842119	-1.842119	-108.8848	-116.2433	-116.2433	-102.4245	-102.4245	-116.2433
18	H20X20	2.12836	177.0318	28.27606	13.02767	13.02767	247.8445	268.1020	268.1020	243.5122	243.5122	268.1020
19	IWF20X10	2.370254	86.70824	14.66861	2.192141	2.192141	121.3915	129.2734	129.2734	114.2340	114.2340	129.2734
20	H20X20	2.12836	-256.6912	-41.80021	-6.146379	-6.146379	-359.3677	-379.8269	-379.8269	-336.9198	-336.9198	-379.8269
21	IWF20X10	2	-71.76547	-12.48059	-1.853726	-1.853726	-100.4717	-107.5705	-107.5705	-94.7687	-94.7687	-107.5705
22	H20X20	2.12836	258.1714	41.98459	15.05878	15.05878	361.4400	389.0280	389.0280	350.3744	350.3744	389.0280
23	IWF20X10	2.370254	78.37532	13.51525	2.199278	2.199278	109.7254	117.4342	117.4342	103.6671	103.6671	117.4342
24	H20X20	2.12836	-330.2904	-54.46826	-8.186149	-8.186149	-462.4066	-490.0466	-490.0466	-434.2246	-434.2246	-490.0466
25	IWF20X10	2	-63.39603	-11.13476	-1.745282	-1.745282	-88.7544	-95.2871	-95.2871	-83.9115	-83.9115	-95.2871
26	H20X20	1.574971	330.6883	54.48333	17.06203	17.06203	462.9636	497.6489	497.6489	446.2483	446.2483	497.6489
27	IWF20X10	2.079897	63.5313	10.80484	1.849399	1.849399	88.9438	95.0048	95.0048	84.0442	84.0442	95.0048
28	H20X20	1.574971	-380.9448	-63.07273	-9.640543	-9.640543	-533.3227	-565.7626	-565.7626	-501.2028	-501.2028	-565.7626
29	IWF20X10	2	-20.96846	-4.023106	6.42E-02	6.42E-02	-29.3558	-31.5477	-31.5477	-27.0902	-27.0902	-31.5477
30	H20X20	2.226138	370.9182	61.35986	17.97859	17.97869	519.2855	557.6606	557.6606	499.1541	499.1541	557.6606

Tabel 4.5.d Lanjutan

BTG	(profil)	L(m)	No	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
31	IWF20X10	2.607928	73.82592	12.41116	0.783366	0.783366	103.3563	109.0757	109.0757	95.8151	95.8151	109.0757
32	H20X20	2.226138	-434.7622	-72.12199	-10.11994	-10.11994	-608.6671	-645.2058	-645.2058	-570.9316	-570.9316	645.2058
33	IWF20X10	2	-54.47141	-9.390748	-0.5512491	-0.5512491	-76.2600	-80.8319	-80.8319	-70.7777	-70.7777	80.8319
34	H20X20	2.061222	436.0988	72.30289	18.62584	18.62584	610.5383	653.9039	653.9039	583.6836	583.6836	653.9039
35	IWF20X10	2.50082	63.39176	10.64645	-0.1899197	-0.1899197	88.7485	92.9525	92.9525	81.1464	81.1464	92.9525
36	H20X20	2.061222	-489.4963	-81.29456	-10.12275	-10.12275	-685.2948	-725.5651	-725.5651	-641.2024	-641.2024	725.5651
37	IWF20X10	2	-50.16518	-8.63613	0.1182422	0.1182422	-70.2313	-73.9214	-73.9214	-64.3626	-64.3626	73.9214
38	H20X20	2.061222	491.0832	81.51482	18.44806	18.44806	687.5165	734.4820	734.4820	654.0397	654.0397	734.4820
39	IWF20X10	2.50082	55.86657	9.327074	-1.021669	-1.021669	78.2132	81.1459	81.1459	70.3753	70.3753	81.1459
40	H20X20	2.061222	-538.3896	-89.43703	-9.416059	-9.416059	-753.7454	-796.6996	-796.6996	-703.0269	-703.0269	796.6996
41	IWF20X10	2	-41.97696	-7.224295	0.9008075	0.9008075	-58.7677	-61.2106	-61.2106	-52.8134	-52.8134	61.2106
42	H20X20	2.061222	538.7135	89.44666	17.52464	17.52464	754.1989	803.5906	803.5906	713.9616	713.9616	803.5906
43	IWF20X10	2.50082	52.51316	8.705561	-1.957616	-1.957616	73.5184	75.3786	75.3786	64.8237	64.8237	75.3786
44	H20X20	2.061222	-581.7563	-96.60622	-7.866819	-7.866819	-814.4588	-858.9710	-858.9710	-756.6375	-756.6375	858.9710
45	IWF20X10	2	96.14361	15.7508	5.114904	5.114904	134.6011	144.6655	144.6655	129.8971	129.8971	144.6655
46	H20X20	2.36	566.3584	94.02577	15.25368	15.25368	792.9018	842.2743	842.2743	746.4727	746.4727	842.2743
47	IWF20X10	3.093477	53.13459	8.948291	-5.37719	-5.37719	74.3884	73.7770	73.7770	61.2453	61.2453	74.3884
48	H20X20	2.36	-606.5462	-100.8248	-3.450559	-3.450559	-849.1647	-891.9356	-891.9356	-782.7536	-782.7536	891.9356
49	IWF20X10	2	-29.6231	-5.284923	3.570883	3.570883	-41.4723	-41.1469	-41.1469	-33.5480	-33.5480	41.4723
50	H20X20	2	607.9416	101.0705	10.89041	10.89041	851.1182	899.9550	899.9550	794.2227	794.2227	899.9550
51	IWF20X10	2.828427	37.90531	6.490113	-5.106091	-5.106091	53.0674	51.7857	51.7857	42.0935	42.0935	53.0674
52	H20X20	2	-635.2574	-105.7208	0.436101	0.436101	-889.3604	-931.1133	-931.1133	-814.6023	-814.6023	931.1133
53	IWF20X10	2	-25.93224	-4.711713	3.543319	3.543319	-36.3051	-35.8228	-35.8228	-28.8682	-28.8682	36.3051
54	H20X20	2	636.6429	105.9605	7.027547	7.027547	891.3001	939.1303	939.1303	826.0875	826.0875	939.1303
55	IWF20X10	2.828427	30.51433	5.25812	-5.050992	-5.050992	42.7201	40.9894	40.9894	32.6800	32.6800	42.7201
56	H20X20	2	-658.5865	-109.7151	4.260518	4.260518	-922.0211	-962.4395	-962.4395	-839.6227	-839.6227	962.4395
57	IWF20X10	2	-19.87569	-3.707995	3.545562	3.545562	-27.8260	-26.9472	-26.9472	-21.0956	-21.0956	27.8260
58	H20X20	2	659.6411	109.9009	3.200456	3.200456	923.4975	969.9711	969.9711	850.6804	850.6804	969.9711
59	IWF20X10	2.828427	22.55934	3.943367	-5.054728	-5.054728	31.5831	29.3368	29.3368	22.4717	22.4717	31.5831
60	H20X20	2	-675.921	-112.7191	8.089767	8.089767	-946.2894	-984.9839	-984.9839	-856.9481	-856.9481	984.9839
61	IWF20X10	2	-14.74374	-2.798653	3.552541	3.552541	-20.6412	-19.3283	-19.3283	-14.4735	-14.4735	20.6412
62	H20X20	2	676.6848	112.8549	-0.627869	-0.627869	947.3587	992.0873	992.0873	867.6330	867.6330	992.0873

Tabel 4.5.d Lanjutan

BTG	(profil)	L(m)	ND	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
63	IWF20X10	2.828427	14.8963	2.593613	-5.063118	-5.063118	20.8548	17.9748	17.9748	12.5903	12.5903	20.8548
64	H20X20	2	-687.4917	-114.7093	11.92577	11.92577	-962.4884	-998.9843	-998.9843	-866.8412	-866.8412	-998.9843
65	IWF20X10	2	-9.685974	-1.901261	3.483114	3.483114	-13.5604	-11.8787	-11.8787	-8.0458	-8.0458	-13.5604
66	H20X20	2	687.891	114.7811	-4.466076	-4.466076	963.0474	1005.5461	1005.5461	877.0539	877.0539	1005.5461
67	IWF20X10	2.828427	8.943574	1.527072	-4.920513	-4.920513	12.5210	9.2392	9.2392	5.0992	5.0992	12.5210
68	H20X20	2	-694.4763	-115.8783	15.64875	15.64875	-972.2668	-1006.2578	-1006.2578	-870.9673	-870.9673	-1006.2578
69	IWF20X10	2	-3.190144	-0.7397795	1.313538	1.313538	-4.4662	-3.9610	-3.9610	-2.4905	-2.4905	-4.4662
70	IWF20X10	1.414214	2.315235	0.333315	3.301919	3.301919	3.2413	5.9531	5.9531	7.2374	7.2374	7.2374
71	IWF20X10	1.414214	-5.109766	-0.975821	-2.158224	-2.158224	-7.1537	-9.4196	-9.4196	-9.4253	-9.4253	-9.4253
72	H20X20	2	690.7067	115.3036	-10.40375	-10.40375	966.9894	1005.0108	1005.0108	872.9750	872.9750	1005.0108
73	H20X20	2	-688.8262	-114.8412	17.28291	17.28291	-964.3567	-996.5110	-996.5110	-861.5443	-861.5443	-996.5110
74	IWF20X10	1.414214	2.315235	0.333315	-2.368318	-2.368318	3.2413	1.4169	1.4169	-0.1339	-0.1339	3.2413
75	IWF20X10	1.414214	-5.109766	-0.975821	3.381933	3.381933	-7.1537	-4.9875	-4.9875	-2.2231	-2.2231	-7.1537
76	IWF20X10	2	-3.190144	-0.7397795	-2.050619	-2.050619	-4.4662	-6.6523	-6.6523	-6.8639	-6.8639	-6.8639
77	H20X20	2	687.891	114.7811	-15.74068	-15.74068	963.0474	996.5264	996.5264	862.3969	862.3969	996.5264
78	IWF20X10	2.828427	8.943574	1.527072	4.967302	4.967302	12.5210	17.1494	17.1494	17.9533	17.9533	17.9533
79	H20X20	2	-694.4763	-115.8783	19.88297	19.88297	-972.2668	-1002.8705	-1002.8705	-865.4628	-865.4628	-1002.8705
80	IWF20X10	2	-9.685974	-1.901261	-3.543668	-3.543668	-13.5604	-17.5001	-17.5001	-17.1806	-17.1806	-17.5001
81	H20X20	2	676.6848	112.8549	-19.58324	-19.58324	947.3587	976.9230	976.9230	842.9910	842.9910	976.9230
82	IWF20X10	2.828427	14.8963	2.593613	5.12817	5.12817	20.8548	26.1279	26.1279	25.8390	25.8390	26.1279
83	H20X20	2	-687.4917	-114.7093	23.60229	23.60229	-962.4884	-989.6431	-989.6431	-851.6617	-851.6617	-989.6431
84	IWF20X10	2	-14.74374	-2.798653	-3.587735	-3.587735	-20.6412	-25.0405	-25.0405	-23.7559	-23.7559	-25.0405
85	H20X20	2	659.6411	109.9009	-23.41106	-23.41106	923.4975	948.6819	948.6819	816.0854	816.0854	948.6819
86	IWF20X10	2.828427	22.55934	3.943367	5.115066	5.115066	31.5831	37.4726	37.4726	35.6925	35.6925	37.4726
87	H20X20	2	-675.921	-112.7191	27.44042	27.44042	-946.2894	-969.5034	-969.5034	-831.7922	-831.7922	-969.5034
88	IWF20X10	2	-19.87569	-3.707995	-3.589534	-3.589534	-27.8260	-32.6552	-32.6552	-30.3712	-30.3712	-32.6552
89	H20X20	2	636.6429	105.9605	-27.23958	-27.23958	891.3001	911.7166	911.7166	781.5403	781.5403	911.7166
90	IWF20X10	2.828427	30.51433	5.25812	5.113146	5.113146	42.7201	49.1207	49.1207	45.8933	45.8933	49.1207
91	H20X20	2	-658.5865	-109.7151	31.26905	31.26905	-922.0211	-940.8327	-940.8327	-804.5116	-804.5116	-940.8327
92	IWF20X10	2	-25.93224	-4.711713	-3.556211	-3.556211	-36.3051	-41.5024	-41.5024	-38.0976	-38.0976	-41.5024
93	H20X20	2	607.9416	101.0705	-31.10667	-31.10667	851.1182	866.3574	866.3574	739.6265	739.6265	866.3574
94	IWF20X10	2.828427	37.90531	6.490113	5.180472	5.180472	53.0674	60.0149	60.0149	55.4660	55.4660	60.0149

Tabel 4.5.d Lanjutan

BTG	(profil)	L(m)	ND	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
95	H20X20	2	-635.2574	-105.7208	35.09498	35.09498	-889.3604	-903.3862	-903.3862	-769.5458	-769.5458	-903.3862
96	IWF20X10	2	-29.6231	-5.284923	-3.731399	-3.731399	-41.4723	-46.9887	-46.9887	-43.0410	-43.0410	-46.9887
97	H20X20	2.36	566.3584	94.02577	-35.51266	-35.51266	792.9018	801.6612	801.6612	680.4765	680.4765	801.6612
98	IWF20X10	3.093477	53.13459	8.948291	5.446855	5.446855	74.3884	82.4363	82.4363	75.3166	75.3166	82.4363
99	H20X20	2.36	-606.5462	-100.8248	38.99485	38.99485	-849.1647	-857.9792	-857.9792	-727.5745	-727.5745	-857.9792
100	IWF20X10	2	96.14361	15.7508	-12.79031	-12.79031	134.6011	130.3414	130.3414	106.6203	106.6203	134.6011
101	H20X20	2.061222	538.44	89.44666	-41.27757	-41.27757	753.8160	756.2206	756.2206	637.1905	637.1905	756.2206
102	IWF20X10	2.50082	52.51316	8.705561	5.33149	5.33149	73.5184	81.2099	81.2099	74.2995	74.2995	81.2099
103	H20X20	2.061222	-581.7563	-96.60622	44.35077	44.35077	-814.4588	-817.1969	-817.1969	-688.7547	-688.7547	-817.1969
104	IWF20X10	2	-41.97696	-7.224295	-2.211105	-2.211105	-58.7677	-63.7001	-63.7001	-56.8589	-56.8589	-63.7001
105	H20X20	2.061222	490.8098	81.51482	-43.64985	-43.64985	687.1337	684.4756	684.4756	572.9844	572.9844	687.1337
106	IWF20X10	2.50082	55.86657	9.327074	2.707628	2.707628	78.2132	84.1293	84.1293	75.2233	75.2233	84.1293
107	H20X20	2.061222	-538.3896	-89.43703	48.44975	48.44975	-753.7454	-750.4070	-750.4070	-627.8014	-627.8014	-753.7454
108	IWF20X10	2	-50.16518	-8.63613	0.2393476	0.2393476	-70.2313	-73.8245	-73.8245	-64.2051	-64.2051	-73.8245
109	H20X20	2.061222	435.8254	72.30289	-43.493	-43.493	610.1556	603.8807	603.8807	502.6010	502.6010	610.1556
110	IWF20X10	2.50082	63.39176	10.64645	-0.1520596	-0.1520596	88.7485	92.9828	92.9828	81.1957	81.1957	92.9828
111	H20X20	2.061222	-489.4963	-81.29456	50.11985	50.11985	-685.2948	-677.3710	-677.3710	-562.8870	-562.8870	-685.2948
112	IWF20X10	2	-54.47141	-9.390748	2.443175	2.443175	-76.2600	-78.4363	-78.4363	-66.8849	-66.8849	-78.4363
113	H20X20	2.226138	370.9182	61.35986	-40.66645	-40.66645	519.2855	510.7445	510.7445	422.9154	422.9154	519.2855
114	IWF20X10	2.607928	73.82592	12.41116	-3.250471	-3.250471	103.3563	105.8486	105.8486	90.5711	90.5711	105.8486
115	H20X20	2.226138	-434.7622	-72.12199	49.35725	49.35725	-608.6671	-597.6240	-597.6240	-493.6112	-493.6112	-608.6671
116	IWF20X10	2	-20.96846	-4.023106	-0.1683326	-0.1683326	-29.3558	-31.7338	-31.7338	-27.3925	-27.3925	-31.7338
117	H20X20	1.574971	330.6883	54.48333	-38.51048	-38.51048	462.9636	453.1909	453.1909	374.0040	374.0040	462.9636
118	IWF20X10	2.079897	63.5313	10.80484	-4.208501	-4.208501	88.9438	90.1585	90.1585	76.1689	76.1689	90.1585
119	H20X20	1.574971	-381.2402	-63.07273	47.35705	47.35705	-533.7363	-520.5190	-520.5190	-427.4604	-427.4604	-533.7363
120	IWF20X10	2	-63.39603	-11.13476	5.995154	5.995154	-88.7544	-89.0947	-89.0947	-73.8489	-73.8489	-89.0947
121	H20X20	2.12836	258.1714	41.98459	-31.82027	-31.82027	361.4400	351.5248	351.5248	289.4316	289.4316	361.4400
122	IWF20X10	2.370254	78.37532	13.51525	-7.228163	-7.228163	109.7254	109.8923	109.8923	91.4114	91.4114	109.8923
123	H20X20	2.12836	-330.6896	-54.46826	43.28231	43.28231	-462.9654	-449.3509	-449.3509	-367.7946	-367.7946	-462.9654
124	IWF20X10	2	-71.76547	-12.48059	8.644496	8.644496	-100.4717	-99.1719	-99.1719	-81.1210	-81.1210	-100.4717
125	H20X20	2.12836	177.0318	28.27606	-22.36365	-22.36365	247.8445	239.7889	239.7889	197.5034	197.5034	247.8445
126	IWF20X10	2.370254	86.70824	14.66861	-10.10913	-10.10913	121.3915	119.4324	119.4324	98.2423	98.2423	121.3915

Tabel 4.5.e Lanjutan

BTG	(profil)	L(m)	ND	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
127	H20X20	2.12836	-218,6461	-40,44337	22,69892	-3,374318	-306.1045	-308.9256	-329.7842	-253.0884	-286.9836	-329.7842
128	IWF20X10	2	-67,23852	-13,29847	7,566078	-0,9223725	-94.1339	-95.9109	-102.7017	-77.4996	-88.5345	-102.7017
129	H20X20	2.12836	76,94717	13,12578	-6,276057	1,679803	107.7260	108.3170	114.6817	90.7406	101.0832	114.6817
130	IWF20X10	2.370254	86,23935	16,63447	-9,42789	1,137336	120.7351	122.5601	131.0122	99.5482	113.2830	131.0122
131	H20X20	2.12836	-149,5536	-27,15702	16,1624	-2,85445	-209.3750	-209.9856	-225.2071	-172.0317	-196.7666	-225.2071
132	IWF20X10	2	-71,61088	-14,15212	9,421081	-1,483488	-100.2552	-101.0396	-109.7632	-80.7617	-94.9377	-109.7632
133	H20X20	2.234761	-5,296871	-2,699042	4,196606	4,003589E-02	-7.4156	-7.3174	-10.6427	-2.2502	-7.6537	-10.6427
134	IWF20X10	2.436587	93,27982	17,96355	-11,88269	1,865237	130.5917	131.1713	142.1697	105.4701	123.3424	142.1697
135	H20X20	2.234761	-75,25336	-12,79253	7,498667	-1,725561	-105.3547	-104.7731	-112.1525	-86.9520	-98.9435	-112.1525
136	IWF20X10	2	-82,67841	-16,8186	12,74085	-1,32768	-115.7498	-115.9312	-127.5860	-91.0603	-109.9994	-127.5860
137	2L80X80	2	-7,004235	-2,946413	4,295162	4,722117E-03	-9.8059	-9.6832	-13.1156	-4.2946	-9.8721	-13.1156
138	2L80X80	2.828427	5,917346	1,895194	-3,602095	-1,113211E-02	8.2843	7.2514	10.1242	3.3657	8.0339	10.1242
139	2L80X80	2.128376	3,142625	1,720966	-0,7587103	4,279789E-03	4.3997	5.9177	6.5281	3.6453	4.6372	6.5281
140	2L80X80	1.272	-3,564253	-1,391096	2,592604	2.114506E-03	-4.9900	-4.4288	-6.5012	-1.6023	-4.9699	-6.5012
141	2L80X80	2	-2,825364	-1,567497	1,702647	-9,841997E-04	-3.9555	-4.5363	-5.8992	-1.9607	-4.1755	-5.8992
142	2L80X80	2.370229	3,824933	1,811805	-1,960393	2.146021E-03	5.3549	5.9205	7.4905	2.9473	5.4986	7.4905
143	2L80X80	2.128376	-0,3784268	4,627842E-02	0,3146628	-8,610545E-04	-0.5298	-0.1283	-0.3808	-0.0219	-0.4321	-0.5298
144	2L80X80	0.544	-1,414655	-0,9768609	1,058734	-3,35878E-04	-1.9805	-2.4136	-3.2608	-0.8097	-2.1865	-3.2608

Keterangan

[1] Nomer batang
[2] Jenis profil yang dipakai
[3] Panjang batang L(m)
[4] gaya aksial
[5] gaya aksial
[6] gaya aksial
[7] gaya aksial
[8] Nu1 = 1,4ND
[9] Nu2 = 1,2ND+1,6NL+0,8Nwki
[10] Nu3 = 1,2ND+1,6NL+0,8Nwka
[11] Nu4 = 1,2ND+1,3Nwki+0,5NL
[12] Nu5 = 1,2ND+1,3Nwka+0,5NL
[13] Numaks = gaya aksial batang maksimum (kN)

Notasi Profil :

A = (H BEAM) 200x200x8x12x13
B = (IWF) 200x100x5,5x8x11
C = 2L 80.80.8
D = 2L 70.70.7
E = 2L 60.60.6
F = 2L 50.50.5
H = 2L 90.90.9

Tabel 4.5.f Gaya Batang Aksial Kuda-Kuda K5

BTG	(profil)	L(m)	ND	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
1	E	0,544	-0,4531176	-0,9775763	0,3552973	0	-0.6344	-1.8236	-2.1079	-0.5706	-1.0325	-2.1079
2	E	1	-0,6480255	-1,094541	0,4003019	0	-0.9072	-2.2087	-2.5289	-0.8045	-1.3249	-2.5289
3	F	1,350727	0,9146919	1,438241	-0,5258821	0	1.2806	2.9781	3.3988	1.1331	1.8168	3.3988
4	E	1,064188	3,119135E-02	0,0357706	0,1110069	0	0.0437	0.1835	0.0947	0.1996	0.0553	0.1996
5	F	0,908	-1,651026	-1,582394	1,295042	0	-2.3114	-3.4770	-4.5131	-1.0889	-2.7724	-4.5131
6	E	2	-3,022541	-3,051328	1,990636	0	-4.2316	-6.9167	-8.5092	-2.5649	-5.1527	-8.5092
7	F	2,583892	3,155525	2,505619	-2,03996	0	4.4177	6.1637	7.7956	2.3875	5.0394	7.7956
8	E	2,128376	0,7150403	1,183629	5,636795E-02	0	1.0011	2.7969	2.7519	1.5231	1.4499	2.7969
9	F	1,636	-2,681086	-1,869099	2,153478	0	-3.7535	-4.4851	-6.2079	-1.3523	-4.1519	-6.2079
10	E	2	-5,759254	-4,651913	3,82811	0	-8.0630	-11.2917	-14.3542	-4.2605	-9.2371	-14.3542
11	F	3,09653	4,327788	2,471241	-2,8353	0	6.0589	6.8791	9.1473	2.7431	6.4290	9.1473
12	E	2,128376	3,273483	3,2574	-1,139842	0	4.5829	8.2281	9.1400	4.0751	5.5569	9.1400
13	C	0,364	-8,505857	-4,491258	5,124118	0	-11.9082	-13.2937	-17.3930	-5.7913	-12.4527	-17.3930
14	C	2	-8,050143	-4,341585	5,004814	0	-11.2702	-12.6029	-16.6067	-5.3247	-11.8310	-16.6067
15	E	2,128359	-0,5891224	-0,3913368	0,3083954	0	-0.8248	-1.0864	-1.3331	-0.5017	-0.9026	-1.3331
16	F	2,370255	4,296484	2,417807	-2,436032	0	6.0151	7.0754	9.0243	3.1978	6.3647	9.0243
17	E	2,128359	2,347118	2,826885	-0,4379431	0	3.2860	6.9892	7.3396	3.6607	4.2300	7.3396
18	F	2	-3,170576	-2,058245	2,071708	0	-4.4388	-5.4405	-7.0979	-2.1406	-4.8338	-7.0979
19	E	2,128359	3,330888	1,790729	-1,888861	0	4.6632	5.3511	6.8622	2.4369	4.8924	6.8622
20	F	2,370255	1,813232	1,25403	-0,7392315	0	2.5385	3.5909	4.1823	1.8419	2.8029	4.1823
21	E	2,128359	0,667998	1,697734	0,7242085	0	0.9352	4.0973	3.5180	2.5919	1.6505	4.0973
22	F	2	-1,048815	-1,056053	0,6229078	0	-1.4683	-2.4499	-2.9483	-0.9768	-1.7866	-2.9483
23	E	2,128359	5,006743	2,91646	-2,552289	0	7.0094	8.6326	10.6744	4.1483	7.4663	10.6744
24	F	2,370255	-0,7071515	6,878906E-02	0,9773541	0	-0.9900	0.0434	-0.7385	0.4564	-0.8142	0.9900
25	E	2,128359	1,256845	1,636242	0,3415164	0	1.7596	4.3994	4.1262	2.7703	2.3263	4.3994
26	F	2	1,081428	-5,748639E-02	-0,8263675	0	1.5140	0.5446	1.2057	0.1947	1.2690	1.5140
27	E	2,128359	4,417528	2,977622	-1,672748	0	6.1845	8.7270	10.0652	4.6153	6.7898	10.0652
28	F	2,370255	-3,246724	-1,114962	2,695141	0	-4.5454	-3.5239	-5.6800	-0.9499	-4.4535	-5.6800
29	E	2,128359	4,124405	2,639324	-1,58629	0	5.7742	7.9032	9.1722	4.2068	6.2689	9.1722
30	F	2	3,154184	0,925593	-2,24264	0	4.4159	3.4719	5.2660	1.3324	4.2478	5.2660

Tabel 4.5.f Lanjutan

BTG	(profil)	L(m)	ND	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
31	E	0,8513504	1,503615	1,978637	0,7425765	0	2.1051	5.5642	4.9702	3.7590	2.7937	5.5642
32	F	1,886796	-3,852816	-1,808469	3,059409	0	-5.3939	-5.0694	-7.5169	-1.5504	-5.5276	-7.5169
33	E	0,8513504	5,821373	3,463088	-2,633981	0	8.1499	10.4194	12.5266	5.2930	8.7172	12.5266
34	E	2	0,1208524	0	0	0	0.1692	0.1450	0.1450	0.1450	0.1450	0.1692

Keterangan

[1] Nomer batang
[2] Jenis profil yang dipakai
[3] Panjang batang L(m)
[4] ND = gaya aksial akibat beban mati
[5] NL = gaya aksial akibat beban hidup (kN)
[6] Nwki = gaya aksial akibat beban angin kiri (kN)
[7] Nwka = gaya aksial akibat beban angin kanan (kN)
[8] Nu1 = 1,4ND
[9] Nu2 = 1,2ND+1,6NL+0,8Nwki
[10] Nu3 = 1,2ND+1,6NL+0,8Nwka
[11] Nu4 = 1,2ND+1,3Nwki+0,5NL
[12] Nu5 = 1,2ND+1,3Nwka+0,5NL
[13] Numaks = gaya aksial batang maksimum (kN)

Notasi Profil :

A = (H BEAM) 200x200x8x12x13
B = (IWF) 200x100x5,5x8x11
C = 2L 80.80.8
D = 2L 70.70.7
E = 2L 60.60.6
F = 2L 50.50.5
H = 2L 90.90.9

Tabel 4.5.g Gaya Batang Aksial Kuda-Kuda K6

BTG	(profil)	L(m)	ND	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
1	E	0,544	-0,451258	-0,9764121	0,3543338	0	-0.6318	-1.8203	-2.1038	-0.5691	-1.0297	-2.1038
2	E	1	-0,6482708	-1,094706	0,4004053	0	-0.9076	-2.2091	-2.5295	-0.8048	-1.3253	-2.5295
3	F	1,350727	0,9157235	1,438912	-0,5263646	0	1.2820	2.9800	3.4011	1.1341	1.8183	3.4011
4	E	1,064188	3,188138E-02	3,619727E-02	0,1106381	0	0.0446	0.1847	0.0962	0.2002	0.0564	0.2002
5	F	0,908	-1,658028	-1,586789	1,298645	0	-2.3212	-3.4896	-4.5285	-1.0948	-2.7830	-4.5285
6	E	2	-3,020485	-3,050007	1,989642	0	-4.2287	-6.9129	-8.5046	-2.5631	-5.1496	-8.5046
7	F	2,583892	3,150147	2,502177	-2,03733	0	4.4102	6.1538	7.7837	2.3827	5.0313	7.7837
8	E	2,128376	0,7146683	1,183419	5,660917E-02	0	1.0005	2.7964	2.7511	1.5229	1.4493	2.7964
9	F	1,636	-2,656169	-1,853498	2,140573	0	-3.7186	-4.4405	-6.1530	-1.3314	-4.1142	-6.1530
10	E	2	-5,774002	-4,661244	3,835544	0	-8.0836	-11.3184	-14.3868	-4.2732	-9.2594	-14.3868
11	F	3,09653	4,366996	2,496051	-2,855058	0	6.1138	6.9500	9.2341	2.7768	6.4884	9.2341
12	E	2,128376	3,274069	3,25769	-1,140308	0	4.5837	8.2289	9.1412	4.0753	5.5577	9.1412
13	C	0,364	-10,71705	-5,707853	6,620955	0	-15.0039	-16.6963	-21.9930	-7.1071	-15.7144	-21.9930
14	C	2	-9,819138	-5,280802	6,273709	0	-13.7468	-15.2133	-20.2322	-6.2675	-14.4234	-20.2322
15	E	2,128359	-1,761615	-1,127421	0,9115201	0	-2.4663	-3.1886	-3.9178	-1.4927	-2.6776	-3.9178
16	F	2,370255	6,408532	3,54109	-3,946936	0	8.9719	10.1984	13.3560	4.3298	9.4608	13.3560
17	E	2,128359	0,6043314	1,915184	0,8406346	0	0.8461	4.4620	3.7895	2.7756	1.6828	4.4620
18	F	2	-5,001633	-3,036625	3,372104	0	-7.0023	-8.1629	-10.8606	-3.1365	-7.5203	-10.8606
19	E	2,128359	4,08288	2,080564	-2,657448	0	5.7160	6.1024	8.2284	2.4851	5.9397	8.2284
20	F	2,370255	3,969027	2,404476	-2,273418	0	5.5566	6.7913	8.6100	3.0096	5.9651	8.6100
21	E	2,128359	-3,019468	-0,252322	3,385486	0	-4.2273	-1.3187	-4.0271	0.6516	-3.7495	-4.2273
22	F	2	-2,860328	-2,022058	1,913446	0	-4.0045	-5.1369	-6.6677	-1.9559	-4.4434	-6.6677
23	E	2,128359	7,693398	4,238374	-4,698461	0	10.7708	12.2547	16.0135	5.2433	11.3513	16.0135
24	F	2,370255	1,442886	1,215389	-0,5535108	0	2.0200	3.2333	3.6761	1.6196	2.3392	3.6761
25	E	2,128359	-4,362932	-1,344299	4,378885	0	-6.1081	-3.8833	-7.3864	-0.2151	-5.9077	-7.3864
26	F	2	-0,7363008	-1,027266	0,4681031	0	-1.0308	-2.1527	-2.5272	-0.7887	-1.3972	-2.5272
27	E	2,128359	9,039134	5,331482	-5,156528	0	12.6548	15.2201	19.3773	6.7572	13.5127	19.3773
28	F	2,370255	-1,097429	3,291682E-02	1,163575	0	-1.5364	-0.3334	-1.2642	0.2122	-1.3005	-1.5364
29	E	2,128359	-3,430464	-1,374273	3,829709	0	-4.8026	-3.2516	-6.3154	0.1749	-4.8037	-6.3154
30	F	2	1,354739	-2,856858E-02	-0,9691862	0	1.8966	0.8046	1.5800	0.3515	1.6114	1.8966

Tabel 4.5.g Lanjutan

BTG	(profil)	L(m)	ND	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
31	E	0,8513504	8,053001	5,360429	-4,152518	0	11.2742	14.9183	18.2403	6.9455	12.3438	18.2403
32	F	1,886796	-2,132309	-0,9084913	1,851684	0	-2.9852	-2.5310	-4.0124	-0.6058	-3.0130	-4.0124
33	E	0,8513504	-2,504558	-0,9586811	3,32653	0	-3.5064	-1.8781	-4.5394	0.8397	-3.4848	-4.5394
34	F	2	2,510494	0,9608483	-1,971431	0	3.5147	2.9728	4.5500	0.9302	3.4930	4.5500
35	E	1,38341	7,145338	4,94754	-3,305765	0	10.0035	13.8459	16.4905	6.7507	11.0482	16.4905
36	F	2,005349	-3,420211	-1,969977	2,756368	0	-4.7883	-5.0511	-7.2562	-1.5060	-5.0892	-7.2562
37	E	1,38341	-0,1655335	0,4030755	1,683762	0	-0.2317	1.7933	0.4463	2.1918	0.0029	2.1918
38	F	2	3,82609	1,96663	-2,751081	0	5.3565	5.5371	7.7379	1.9982	5.5746	7.7379
39	E	2,128356	4,838269	3,582648	-1,396188	0	6.7736	10.4212	11.5332	5.7822	7.5972	11.5332
40	F	2,370261	-6,15248	-3,514586	4,675414	0	-8.6135	-9.2660	-13.0063	-3.0622	-9.1403	-13.0063
41	E	2,128356	5,324523	3,56357	-2,111774	0	7.4543	10.4017	12.0911	5.4259	8.1712	12.0911
42	F	2	5,694829	2,964653	-3,942862	0	7.9728	8.4230	11.5772	3.1904	8.3161	11.5772
43	E	2,128356	-0,6512287	0,421884	2,807626	0	-0.9117	2.1396	-0.1065	3.0794	-0.5705	3.0794
44	F	2,370261	-8,746671	-4,698647	6,391905	0	-12.2453	-12.9003	-18.0138	-4.5359	-12.8453	-18.0138
45	E	2,128356	13,12747	7,787469	-7,360889	0	18.3785	22.3242	28.2129	10.0775	19.6467	28.2129
46	F	2	-8,392531E-02	0	0	0	-0.1175	-0.1007	-0.1007	-0.1007	-0.1007	-0.1175

Keterangan

[1] Nomer batang

[2] Jenis profil yang dipakai

[3] Panjang batang L(m)

[4] gaya

[5] gaya

[6] gaya

[7] gaya

[8] Nu1 = 1,4ND

[9] Nu2 = 1,2ND+1,6NL+0,8Nwki

[10] Nu3 = 1,2ND+1,6NL+0,8Nwka

[11] Nu4 = 1,2ND+1,3Nwki+0,5NL

[12] Nu5 = 1,2ND+1,3Nwka+0,5NL

[13] Numaks = gaya aksial batang maksimum (kN)

Notasi Profil :

A = (H BEAM) 200x200x8x12x13

B = (IWF) 200x100x5,5x8x11

C = 2L 80.80.8

D = 2L 70.70.7

E = 2L 60.60.6

F = 2L 50.50.5

H = 2L 90.90.9

Tabel 4.5.h Gaya Batang Aksial Kuda-Kuda K7

BTG	(profil)	L(m)	Nd	Nl	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
1	E	0,544	-0,648133	-0,9748724	0,5297502	0	-0.9074	-1.9138	-2.3376	-0.5765	-1.2652	-2.3376
2	E	1	-0,8758068	-1,09499	0,6014047	0	-1.2261	-2.3218	-2.8030	-0.8166	-1.5985	-2.8030
3	F	1,350727	1,217037	1,439943	-0,7914926	0	1.7039	3.1312	3.7644	1.1515	2.1804	3.7644
4	E	1,064188	0,0406099	3,673027E-02	0,1662777	0	0.0569	0.2405	0.1075	0.2833	0.0671	0.2833
5	F	0,908	-2,264242	-1,59267	1,956398	0	-3.1699	-3.7002	-5.2654	-0.9701	-3.5134	-5.2654
6	E	2	-3,962911	-3,048062	2,982663	0	-5.5481	-7.2463	-9.6324	-2.4021	-6.2795	-9.6324
7	F	2,583892	4,060289	2,497192	-3,049741	0	5.6844	6.4281	8.8679	2.1563	6.1209	8.8679
8	E	2,128376	0,9609331	1,183276	8,624971E-02	0	1.3453	3.1154	3.0464	1.8569	1.7448	3.1154
9	F	1,636	-3,532853	-1,832856	3,182899	0	-4.9460	-4.6257	-7.1720	-1.0181	-5.1559	-7.1720
10	E	2	-7,569682	-4,674178	5,772124	0	-10.5976	-11.9446	-16.5623	-3.9169	-11.4207	-16.5623
11	F	3,09653	5,720927	2,530433	-4,330035	0	8.0093	7.4498	10.9138	2.5013	8.1303	10.9138
12	E	2,128376	4,288695	3,257624	-1,709649	0	6.0042	8.9909	10.3586	4.5527	6.7752	10.3586
13	C	0,364	-15,86453	-6,407952	10,65966	0	-22.2103	-20.7624	-29.2902	-8.3839	-22.2414	-29.2902
14	C	2	-13,71054	-5,610909	9,633179	0	-19.1948	-17.7236	-25.4301	-6.7350	-19.2581	-25.4301
15	E	2,128359	-5,101622	-2,113672	2,714743	0	-7.1423	-7.3320	-9.5038	-3.6496	-7.1788	-9.5038
16	F	2,370255	9,55335	3,948934	-6,206704	0	13.3747	12.8170	17.7823	5.3698	13.4385	17.7823
17	E	2,128359	9,248352E-02	1,681605	1,336981	0	0.1295	3.8711	2.8015	2.6899	0.9518	3.8711
18	F	2	-7,788699	-3,417789	5,353168	0	-10.9042	-10.5324	-14.8149	-4.0962	-11.0553	-14.8149
19	E	2,128359	3,641402	1,481621	-2,924694	0	5.0980	4.4005	6.7403	1.3084	5.1105	6.7403
20	F	2,370255	6,488365	2,840882	-3,740801	0	9.0837	9.3388	12.3314	4.3434	9.2065	12.3314
21	E	2,128359	-5,8147	-0,88384	5,458892	0	-8.1406	-4.0247	-8.3918	-0.3230	-7.4196	-8.3918
22	F	2	-4,990503	-2,402125	3,147485	0	-6.9867	-7.3140	-9.8320	-3.0979	-7.1897	-9.8320
23	E	2,128359	9,510563	4,031866	-6,260285	0	13.3148	12.8394	17.8637	5.2642	13.4286	17.8637
24	F	2,370255	3,24524	1,673561	-1,164782	0	4.5433	5.6402	6.5720	3.2169	4.7311	6.5720
25	E	2,128359	-8,778176	-2,388556	7,249161	0	-12.2894	-8.5562	-14.3555	-2.3042	-11.7281	-14.3555
26	F	2	-2,103126	-1,288208	0,9401135	0	-2.9444	-3.8328	-4.5849	-1.9457	-3.1679	-4.5849
27	E	1,168394	12,40478	5,50812	-7,318647	0	17.3667	17.8438	23.6987	8.1256	17.6398	23.6987
28	F	2,370255	-0,231009	0,3346088	1,458149	0	-0.3234	1.4327	0.2582	1.7987	-0.1099	1.7987
29	E	2,128359	-8,633866	-2,696355	6,577862	0	-12.0874	-9.3325	-14.6748	-3.0276	-11.7088	-14.6748
30	E	0,9599649	11,86123	4,839155	-7,103866	0	16.6057	16.2930	21.9761	7.4180	16.6531	21.9761

Tabel 4.5.h Lanjutan

BTG	(profil)	L(m)	ND	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
31	F	2	0,9789544	-8,609094E-02	-1,243722	0	1.3705	0.0420	1.0370	-0.4851	1.1317	1.3705
32	E	0,8513504	11,51006	5,05998	-5,774004	0	16.1141	17.2888	21.9080	8.8359	16.3421	21.9080
33	F	1,886796	-2,466432	-0,8437167	2,565699	0	-3.4530	-2.2571	-4.3097	-0.0462	-3.3816	-4.3097
34	E	0,8513504	-7.54129	-2,302953	6,015039	0	-10.5578	-7.9222	-12.7343	-2.3815	-10.2010	-12.7343
35	E	3,0023	0,6797959	0,709767	-0,2248001	0	0.9517	1.7715	1.9514	0.8784	1.1706	1.9514
36	F	2	2,870921	0,8606733	-2,318148	0	4.0193	2.5677	4.8222	0.2118	3.8754	4.8222
37	E	1,38341	10,46546	4,694592	-4,579986	0	14.6516	16.4059	20.0699	8.9519	14.9058	20.0699
38	F	2,005349	-4,139721	-1,883036	4,017079	0	-5.7956	-4.7669	-7.9805	-0.6870	-5.9092	-7.9805
39	E	1,38341	-4,699473	-1,00174	3,628159	0	-6.5793	-4.3412	-7.2422	-1.4262	-6.1402	-7.2422
40	F	1,092	0,3473712	5,973994E-03	-1,125297E-02	0	0.4863	0.4174	0.4264	0.4052	0.4198	0.4863
41	F	2	1,35245	0,1669687	-0,2944777	0	1.8934	1.6545	1.8901	1.3236	1.7064	1.8934
42	E	1,064188	11,3214	5,21835	-5,673002	0	15.8500	17.3966	21.9350	8.8200	16.1949	21.9350
43	E	2	0,5587729	0,6783554	-0,1478925	0	0.7823	1.6376	1.7559	0.8174	1.0097	1.7559
44	F	2,278698	-3,500804	-1,84655	3,856955	0	-4.9011	-4.0699	-7.1554	-0.1102	-5.1242	-7.1554
45	F	2,370261	-3,801122	-1,375484	2,457876	0	-5.3216	-4.7958	-6.7621	-2.0538	-5.2491	-6.7621
46	E	2,128356	-1,313876	0,2400781	2,017708	0	-1.8394	0.4216	-1.1925	1.1664	-1.4566	-1.8394
47	E	1	-4,533189	-1,236784	3,235615	0	-6.3465	-4.8302	-7.4187	-1.8519	-6.0582	-7.4187
48	E	1,064167	15,78179	6,421523	-8,830275	0	22.0945	22.1484	29.2126	10.6696	22.1489	29.2126
49	F	1,456	1,99406	0,8767349	-1,824919	0	2.7917	2.3357	3.7956	0.4588	2.8312	3.7956
50	F	2	3,234772	1,029423	-1,75792	0	4.5287	4.1225	5.5288	2.1111	4.3964	5.5288
51	E	2	-2,489749	-0,927456	3,192406	0	-3.4856	-1.9177	-4.4716	0.6987	-3.4514	-4.4716
52	F	2,47385	-3,164361	-1,244933	2,406776	0	-4.4301	-3.8637	-5.7891	-1.2909	-4.4197	-5.7891
53	E	2	-2,01883	-0,2527725	1,356524	0	-2.8264	-1.7418	-2.8270	-0.7855	-2.5490	-2.8270
54	E	2,128356	12,61865	5,244293	-6,765157	0	17.6661	18.1211	23.5332	8.9698	17.7645	23.5332
55	F	2,370261	-6,437013	-2,407478	4,667595	0	-9.0118	-7.8423	-11.5764	-2.8603	-8.9282	-11.5764
56	E	2,128356	4,491828	2,396482	-1,413712	0	6.2886	8.0936	9.2246	4.7506	6.5884	9.2246
57	F	1,456	2,263242	0,7377431	-1,431723	0	3.1685	2.7509	3.8963	1.2235	3.0848	3.8963
58	F	2	5,873718	2,044596	-3,97288	0	8.2232	7.1415	10.3198	2.9060	8.0708	10.3198
59	E	2	-5,110417	-1,937766	5,145332	0	-7.1546	-5.1167	-9.2329	-0.4125	-7.1014	-9.2329
60	F	2,47385	-4,694345	-1,283393	2,522265	0	-6.5721	-5.6688	-7.6866	-2.9960	-6.2749	-7.6866
61	E	2	1,855734	0,7931565	-0,702324	0	2.5980	2.9341	3.4959	1.7104	2.6235	3.4959
62	E	2,128356	6,752729	3,070371	-2,546436	0	9.4538	10.9787	13.0159	6.3281	9.6385	13.0159

Tabel 4.5.h Lanjutan

BTG	(profil)	L(m)	ND	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
63	F	2,370261	-9,840026	-3,603902	7,276332	0	-13.7760	-11.7532	-17.5743	-4.1508	-13.6100	-17.5743
64	E	2,128356	13,29292	5,637549	-7,213434	0	18.6101	19.2008	24.9716	9.3928	18.7703	24.9716
65	F	1,456	3,153399	0,7583497	-1,48963	0	4.4148	3.8057	4.9974	2.2267	4.1633	4.9974
66	E	1,81982	3,903398	0,7927671	-1,818424	0	5.4648	4.4978	5.9525	2.7165	5.0805	5.9525
67	F	2	-2,42634	-1,15471	2,141165	0	-3.3969	-3.0462	-4.7591	-0.7054	-3.4890	-4.7591
68	E	2	-8,94805	-2,97246	7,176868	0	-12.5273	-9.7521	-15.4936	-2.8939	-12.2239	-15.4936
69	F	2,47385	0,5269329	5,863425E-02	-0,5615188	0	0.7377	0.2769	0.7261	-0.0683	0.6616	0.7377
70	E	2	1,43095	0,7264724	-0,2081036	0	2.0033	2.7130	2.8795	1.8098	2.0804	2.8795
71	F	2,704024	-16,31083	-5,293851	10,71525	0	-22.8352	-19.4710	-28.0432	-8.2901	-22.2199	-28.0432
72	E	2,128356	10,91318	4,017817	-4,481345	0	15.2785	15.9392	19.5243	9.2790	15.1047	19.5243
73	F	2,370261	0,1733848	0,180161	4,672737E-02	0	0.2427	0.5337	0.4963	0.3589	0.2981	0.5337
74	E	2,128356	13,08414	5,475087	-6,509465	0	18.3178	19.2535	24.4611	9.9762	18.4385	24.4611
75	F	1,456	5,329448E-02	-4,122484E-02	0,3440191	0	0.0746	0.2732	-0.0020	0.4906	0.0433	0.4906
76	E	2,54776	3,555694	0,9639958	-1,90615	0	4.9780	4.2943	5.8092	2.2708	4.7488	5.8092
77	F	2	4,198036	0,8093065	-1,940292	0	5.8773	4.7803	6.3325	2.9199	5.4423	6.3325
78	E	2	-8,580996	-2,926627	6,724148	0	-12.0134	-9.6005	-14.9798	-3.0191	-11.7605	-14.9798
79	F	2,47385	-13,68117	-4,329808	8,397861	0	-19.1536	-16.6268	-23.3451	-7.6651	-18.5823	-23.3451
80	E	2	0,4001154	0,304107	0,9440333	0	0.5602	1.7219	0.9667	1.8594	0.6322	1.8594
81	E	2,128356	11,14298	4,187451	-4,454696	0	15.6002	16.5077	20.0715	9.6742	15.4653	20.0715
82	F	2,370261	-7,659794	-2,136864	4,862877	0	-10.7237	-8.7204	-12.6107	-3.9384	-10.2602	-12.6107
83	E	2,128356	19,92173	7,397468	-10,13904	0	27.8904	27.6308	35.7420	14.4241	27.6048	35.7420
84	F	1,456	8,370711	2,540091	-4,926115	0	11.7190	10.1681	14.1090	4.9109	11.3149	14.1090
85	F	2	6,8985	1,798436	-4,08942	0	9.6579	7.8842	11.1557	3.8612	9.1774	11.1557
86	E	1	-19,7331	-6,435555	13,52898	0	-27.6263	-23.1534	-33.9766	-9.3098	-26.8975	-33.9766
87	F	1,766334	-10,59587	-3,090982	5,994684	0	-14.8342	-12.8649	-17.6606	-6.4674	-14.2605	-17.6606
88	E	1	6,487534	2,066206	-2,472526	0	9.0825	9.1129	11.0910	5.6039	8.8181	11.0910
89	E	1,064188	4,261891	2,266009	-8,393772E-02	0	5.9666	8.6727	8.7399	6.1381	6.2473	8.7399
90	F	1,917419	-8,310993	-2,681465	5,481244	0	-11.6354	-9.8785	-14.2635	-4.1883	-11.3139	-14.2635
91	E	1,064188	24,49812	8,892573	-12,63793	0	34.2974	33.5155	43.6259	17.4147	33.8440	43.6259
92	F	1,456	-6,109762E-02	0	0	0	-0.0855	-0.0733	-0.0733	-0.0733	-0.0733	-0.0855
93	F	2	8,392531E-02	0	0	0	0.1175	0.1007	0.1007	0.1007	0.1007	0.1175

Keterangan

[1] Nomer batang

[2] Jenis profil yang dipakai

[3] Panjang batang L(m)

[4] ND = gaya aksial akibat beban mati

[5] NL = gaya aksial akibat beban hidup (kN)

[6] Nwki = gaya aksial akibat beban angin kiri (kN)

[7] Nwka = gaya aksial akibat beban angin kanan (kN)

[8] Nu1 = 1,4ND

[9] Nu2 = 1,2ND+1,6NL+0,8Nwki

[10] Nu3 = 1,2ND+1,6NL+0,8Nwka

[11] Nu4 = 1,2ND+1,3Nwki+0,5NL

[12] Nu5 = 1,2ND+1,3Nwka+0,5NL

[13] Numaks = gaya aksial batang maksimum (kN)

Notasi Profil :

A = (H BEAM) 200x200x8x12x13

B = (IWF) 200x100x5,5x8x11

C = 2L 80.80.8

D = 2L 70.70.7

E = 2L 60.60.6

F = 2L 50.50.5

H = 2L 90.90.9

Tabel 4.5.i Gaya Batang Aksial Kuda-Kuda K8

BTG	(profil)	L(m)	ND	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
1	E	0,544	-0,6443211	-0,9735642	0,5280308	0	-0.9020	-1.9085	-2.3309	-0.5735	-1.2600	-2.3309
2	E	1	-0,8764801	-1,095221	0,601701	0	-1.2271	-2.3228	-2.8041	-0.8172	-1.5994	-2.8041
3	F	1,350727	1,219526	1,440798	-0,7925992	0	1.7073	3.1346	3.7687	1.1535	2.1838	3.7687
4	E	1,064188	4,194323E-02	3,718768E-02	0,1656727	0	0.0587	0.2424	0.1098	0.2843	0.0689	0.2843
5	F	0,908	-2,278771	-1,597657	1,962944	0	-3.1903	-3.7204	-5.2908	-0.9815	-3.5334	-5.2908
6	E	2	-3,958183	-3,046438	2,980553	0	-5.5415	-7.2397	-9.6241	-2.3983	-6.2730	-9.6241
7	F	2,583892	4,048139	2,49302	-3,044309	0	5.6674	6.4112	8.8466	2.1467	6.1043	8.8466
8	E	2,128376	0,9605197	1,183135	8,645148E-02	0	1.3447	3.1148	3.0456	1.8566	1.7442	3.1148
9	F	1,636	-3,481754	-1,815319	3,15985	0	-4.8745	-4.5547	-7.0826	-0.9780	-5.0858	-7.0826
10	E	2	-7,601426	-4,685075	5,786382	0	-10.6420	-11.9887	-16.6178	-3.9420	-11.4642	-16.6178
11	F	3,09653	5,805332	2,559408	-4,367939	0	8.1275	7.5671	11.0615	2.5678	8.2461	11.0615
12	E	2,128376	4,28873	3,257634	-1,709716	0	6.0042	8.9909	10.3587	4.5527	6.7753	10.3587
13	E	0,364	-17,94798	-7,117055	11,72215	0	-25.1272	-23.5471	-32.9249	-9.8573	-25.0961	-32.9249
14	E	2	-14,87942	-6,006126	10,28347	0	-20.8312	-19.2383	-27.4651	-7.4899	-20.8584	-27.4651
15	E	2,128359	-7,536976	-2,949509	3,812096	0	-10.5518	-10.7139	-13.7636	-5.5634	-10.5191	-13.7636
16	F	2,370255	10,97803	4,430853	-6,994946	0	15.3692	14.6670	20.2630	6.2956	15.3891	20.2630
17	E	2,128359	-0,860566	1,360848	1,898048	0	-1.2048	2.6631	1.1447	2.1152	-0.3523	2.6631
18	F	2	-9,086143	-3,857154	6,06079	0	-12.7206	-12.2262	-17.0748	-4.9529	-12.8319	-17.0748
19	E	2,128359	2,538551	1,09678	-2,559244	0	3.5540	2.7537	4.8011	0.2676	3.5947	4.8011
20	F	2,370255	7,991201	3,349649	-4,563467	0	11.1877	11.2981	14.9489	5.3318	11.2643	14.9489
21	E	2,128359	-8,132365	-1,666632	6,765718	0	-11.3853	-7.0129	-12.4254	-1.7967	-10.5922	-12.4254
22	F	2	-6,26685	-2,834148	3,848585	0	-8.7736	-8.9760	-12.0549	-3.9341	-8.9373	-12.0549
23	E	2,128359	9,755335	4,103208	-6,653496	0	13.6575	12.9487	18.2715	5.1085	13.7580	18.2715
24	F	2,370255	4,770667	2,189924	-2,002261	0	6.6789	7.6269	9.2287	4.2168	6.8198	9.2287
25	E	2,128359	-12,46773	-3,635728	9,309454	0	-17.4548	-13.3309	-20.7784	-4.6768	-16.7791	-20.7784
26	F	2	-3,226322	-1,668414	1,550004	0	-4.5169	-5.3010	-6.5410	-2.6908	-4.7058	-6.5410
27	E	1,168394	13,98379	6,031111	-8,422695	0	19.5773	19.6922	26.4303	8.8466	19.7961	26.4303
28	F	2,370255	1,090765	0,782032	0,7506121	0	1.5271	3.1607	2.5602	2.6757	1.6999	3.1607
29	E	2,128359	-13,52042	-4,348717	9,388244	0	-18.9286	-15.6719	-23.1825	-6.1941	-18.3989	-23.1825
30	E	0,9599649	12,54182	5,057903	-7,679741	0	17.5585	16.9990	23.1428	7.5955	17.5791	23.1428

Tabel 4.5.i Lanjutan

BTG	(profil)	L(m)	ND	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
31	F	2	0,1532833	-0,3654006	-0,8083412	0	0.2146	-1.0474	-0.4007	-1.0496	0.0012	-1.0496
32	E	0,8513504	13,2655	5,642512	-6,92828	0	18.5717	19.4040	24.9466	9.7331	18.7399	24.9466
33	F	1,886796	-1,68836	-0,5805775	2,155131	0	-2.3637	-1.2309	-2.9550	0.4853	-2.3163	-2.9550
34	E	0,8513504	-12,77791	-4,073723	8,909718	0	-17.8891	-14.7237	-21.8514	-5.7877	-17.3704	21.8514
35	E	3,0023	1,634866	1,0332	-0,7362629	0	2.2888	2.9859	3.6150	1.4563	2.4784	3.6150
36	F	2	1,958333	0,5515604	-2,331072	0	2.7417	1.3676	3.2325	-0.4046	2.6258	3.2325
37	E	1,38341	12,61243	5,40967	-5,943131	0	17.6574	19.0359	23.7904	10.1137	17.8398	23.7904
38	F	2,005349	-3,221338	-1,571831	3,527109	0	-4.5099	-3.5588	-6.3805	-0.0663	-4.6515	-6.3805
39	E	1,38341	-10,56999	-2,987319	6,859097	0	-14.7980	-11.9764	-17.4637	-5.2608	-14.1776	-17.4637
40	F	1,092	0,3531576	7,949069E-03	-1,465268E-02	0	0.4944	0.4248	0.4365	0.4087	0.4278	0.4944
41	F	2	1,660048	0,299192	-0,4975267	0	2.3241	2.0727	2.4708	1.4949	2.1417	2.4708
42	E	1,064188	12,61953	5,614987	-6,536859	0	17.6673	18.8979	24.1274	9.4530	17.9509	24.1274
43	E	2	1,511745	1,001381	-0,7081125	0	2.1164	2.8498	3.4163	1.3942	2.3148	3.4163
44	F	2,278698	-1,891463	-1,269369	2,948296	0	-2.6480	-1.9421	-4.3007	0.9283	-2.9044	-4.3007
45	F	2,370261	-4,164699	-1,531941	2,59789	0	-5.8306	-5.2904	-7.4487	-2.2564	-5.7636	-7.4487
46	E	2,128356	-6,85662	-1,604586	5,034312	0	-9.5993	-6.7678	-10.7953	-2.4856	-9.0302	10.7953
47	E	1	-4,894086	-1,34657	3,436307	0	-6.8517	-5.2784	-8.0274	-2.0790	-6.5462	-8.0274
48	E	1,064167	17,43161	6,925249	-9,389656	0	24.4043	24.0866	31.9983	11.5240	24.3806	31.9983
49	F	1,456	1,219784	0,5991695	-1,387769	0	1.7077	1.3122	2.4224	-0.0408	1.7633	2.4224
50	F	2	3,503667	1,150171	-1,939282	0	4.9051	4.4932	6.0447	2.2584	4.7795	6.0447
51	E	2	-0,1160372	-9,515028E-02	1,830087	0	-0.1625	1.1726	-0.2915	2.1923	-0.1868	2.1923
52	F	2,47385	-1,778625	-0,7515742	1,625308	0	-2.4901	-2.0366	-3.3369	-0.3972	-2.5101	-3.3369
53	E	2	-3,510308	-0,7647314	2,194688	0	-4.9144	-3.6802	-5.4359	-1.7416	-4.5947	-5.4359
54	E	2,128356	13,95961	5,612742	-7,818795	0	19.5435	19.6369	25.7319	9.6535	19.5579	25.7319
55	F	2,370261	-6,757553	-2,551178	4,883585	0	-9.4606	-8.2841	-12.1909	-3.0360	-9.3847	-12.1909
56	E	2,128356	-0,7655809	0,6801403	1,410274	0	-1.0718	1.2977	0.1695	1.2547	-0.5786	1.2977
57	F	1,456	1,447717	0,447291	-0,9717465	0	2.0268	1.6755	2.4529	0.6976	1.9609	2.4529
58	F	2	6,143785	2,165618	-4,15486	0	8.6013	7.5136	10.8375	3.0540	8.4554	10.8375
59	E	2	-1,61474	-0,7060027	3,150327	0	-2.2606	-0.5470	-3.0673	1.8047	-2.2907	3.0673
60	F	2,47385	-3,310383	-0,7900649	1,741368	0	-4.6345	-3.8435	-5.2366	-2.1037	-4.3675	-5.2366
61	E	2	-0,7551703	-0,1179106	0,7674636	0	-1.0572	-0.4809	-1.0949	0.0325	-0.9652	-1.0949
62	E	2,128356	7,804626	3,309402	-3,205369	0	10.9265	12.0963	14.6606	6.8533	11.0203	14.6606

Tabel 4.5.i Lanjutan

BTG	(profil)	L(m)	ND	NL	Nwkl	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
63	F	2,370261	-10,16197	-3,747866	7,492854	0	-14.2268	-12.1967	-18.1909	-4.3276	-14.0683	-18.1909
64	E	2,128356	8,322679	4,049932	-4,582925	0	11.6518	12.8008	16.4671	6.0544	12.0122	16.4671
65	F	1,456	2,346947	0,4711108	-1,034846	0	3.2857	2.7422	3.5701	1.7066	3.0519	3.5701
66	E	1,81982	6,142648	1,551132	-3,108445	0	8.5997	7.3662	9.8530	4.1058	8.1467	9.8530
67	F	2	-5,855731	-2,236768	4,054674	0	-8.1980	-7.3620	-10.6057	-2.8742	-8.1453	-10.6057
68	E	2	-4,323885	-1,338475	4,545015	0	-6.0534	-3.6942	-7.3302	0.0506	-5.8579	-7.3302
69	F	2,47385	5,69958	1,833247	-3,524109	0	7.9794	6.9534	9.7727	3.1748	7.7561	9.7727
70	E	2	-5,384245	-1,626539	3,669575	0	-7.5379	-6.1279	-9.0636	-2.5039	-7.2744	-9.0636
71	F	2,704024	-22,61682	-7,3766	14,31021	0	-31.6635	-27.4946	-38.9427	-12.2252	-30.8285	-38.9427
72	E	2,128356	16,65761	5,772676	-7,785737	0	23.3207	22.9968	29.2254	12.7540	22.8755	29.2254
73	F	2,370261	4,236579	1,461767	-2,2195	0	5.9312	5.6471	7.4227	2.9294	5.8148	7.4227
74	E	2,128356	4,460834	2,735016	-1,841161	0	6.2452	8.2561	9.7290	4.3270	6.7205	9.7290
75	F	1,456	-2,990204	-1,087038	2,088142	0	-4.1863	-3.6570	-5.3275	-1.4172	-4.1318	-5.3275
76	E	2,54776	7,586178	1,957645	-4,154534	0	10.6206	8.9120	12.2356	4.6813	10.0822	12.2356
77	F	2	4,786736	0,7168995	-2,266832	0	6.7014	5.0777	6.8911	3.1557	6.1025	6.8911
78	F	1,487172	-1,209357	-1,459131	1,111513	0	-1.6931	-2.8966	-3.7858	-0.7358	-2.1808	-3.7858
79	F	1,487172	1,247768	1,458305	-0,8494947	0	1.7469	3.1510	3.8306	1.1221	2.2265	3.8306
80	E	2	0,2442849	0,1476928	1,686583	0	0.3420	1.8787	0.5295	2.5595	0.3670	2.5595
81	F	2,47385	-8,884942	-3,244677	5,72778	0	-12.4389	-11.2712	-15.8534	-4.8382	-12.2843	-15.8534
82	E	2	-14,99302	-4,478347	9,66005	0	-20.9902	-17.4289	-25.1570	-7.6727	-20.2308	-25.1570
83	E	2,128356	20,56015	7,101337	-9,808239	0	28.7842	28.1877	36.0343	15.4721	28.2228	36.0343
84	F	2,370261	-8,365368	-2,028432	5,249619	0	-11.7115	-9.0842	-13.2839	-4.2282	-11.0527	-13.2839
85	E	2,128356	11,92467	4,557852	-5,815314	0	16.6945	16.9499	21.6022	9.0286	16.5885	21.6022
86	F	1,0172	-1,391682	-0,9996893	1,491061	0	-1.9484	-2.0767	-3.2695	-0.2315	-2.1699	-3.2695
87	F	1,456	5,530168	1,90316	-3,358015	0	7.7422	6.9948	9.6813	3.2224	7.5878	9.6813
88	F	2	7,479989	1,715158	-4,431286	0	10.4720	8.1752	11.7202	4.0729	9.8336	11.7202
89	F	1,436654	-2,367768	-2,181298	2,188157	0	-3.3149	-4.5809	-6.3314	-1.0874	-3.9320	-6.3314
90	F	2,024444	1,591995	1,020593	-1,522047	0	2.2288	2.3257	3.5433	0.4420	2.4207	3.5433
91	F	1,436654	1,244646	1,459064	-0,3410853	0	1.7425	3.5552	3.8281	1.7797	2.2231	3.8281
92	E	1	-7,024218	-2,481545	6,326759	0	-9.8339	-7.3381	-12.3995	-1.4450	-9.6698	-12.3995
93	F	1,766334	-7,083551	-2,316046	4,085179	0	-9.9170	-8.9378	-12.2059	-4.3476	-9.6583	-12.2059
94	E	1	-10,90222	-3,156956	7,330515	0	-15.2631	-12.2694	-18.1338	-5.1315	-14.6611	-18.1338

Tabel 4.5.i Lanjutan

BTG	(profil)	L(m)	ND	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
95	E	1,064188	13,04237	5,273747	-5,083736	0	18.2593	20.0219	24.0888	11.6789	18.2877	24.0888
96	F	1,917419	-8,767856	-2,584313	4,218411	0	-12.2750	-11.2816	-14.6563	-6.3296	-11.8136	-14.6563
97	E	1,064188	16,80217	6,00825	-8,184812	0	23.5230	23.2279	29.7758	12.5263	23.1667	29.7758
98	F	1,456	6,132075	1,912115	-3,374035	0	8.5849	7.7186	10.4179	3.9283	8.3145	10.4179
99	F	2	9,498496	2,691918	-4,402933	0	13.2979	12.1829	15.7053	7.0203	12.7442	15.7053
100	F	2	5,327934	1,142828	-2,17053	0	7.4591	6.4856	8.2220	4.1432	6.9649	8.2220
101	E	2	-11,08321	-3,802849	8,656069	0	-15.5165	-12.4596	-19.3844	-3.9484	-15.2013	-19.3844
102	F	2,47385	-11,06209	-3,247258	5,733129	0	-15.4869	-13.8836	-18.4701	-7.4451	-14.8981	-18.4701
103	E	2	-1,904988	-0,5246468	2,684304	0	-2.6670	-0.9780	-3.1254	0.9413	-2.5483	-3.1254
104	E	2,128353	8,223578	3,832293	-2,727279	0	11.5130	13.8181	16.0000	8.2390	11.7844	16.0000
105	F	2,370265	-7,427957	-3,619213	4,449371	0	-10.3991	-11.1448	-14.7043	-4.9390	-10.7232	-14.7043
106	E	2,128353	21,0188	7,066583	-9,972552	0	29.4263	28.5511	36.5291	15.7915	28.7559	36.5291
107	F	2,370265	-9,620409	-3,140995	5,629729	0	-13.4686	-12.0663	-16.5701	-5.7963	-13.1150	-16.5701
108	F	2,128353	11,05926	5,008883	-5,862059	0	15.4830	16.5957	21.2853	8.1549	15.7756	21.2853
109	F	1,456	6,929646	1,919537	-3,38804	0	9.7015	8.6764	11.3868	4.8709	9.2753	11.3868
110	E	2,183817	7,211153	1,810213	-3,198374	0	10.0956	8.9910	11.5497	5.4006	9.5585	11.5497
111	E	2,183817	-10,43036	-4,335803	6,097631	0	-14.6025	-14.5756	-19.4537	-6.7574	-14.6843	-19.4537
112	F	2	-3,3815	-1,276528	2,338478	0	-4.7341	-4.2295	-6.1002	-1.6560	-4.6961	-6.1002
113	F	2	2,807336	0,396131	-0,8079053	0	3.9303	3.3563	4.0026	2.5166	3.5669	4.0026
114	E	2	-20,08324	-6,427679	13,28694	0	-28.1165	-23.7530	-34.3842	-10.0381	-27.3137	-34.3842
115	F	2,47385	-0,3234259	-0,2007019	0,3485023	0	-0.4528	-0.4304	-0.7092	-0.0354	-0.4885	-0.7092
116	E	2	-1,569132	-0,3663689	2,409518	0	-2.1968	-0.5415	-2.4691	1.0662	-2.0661	-2.4691
117	F	2,961259	-10,52985	-3,574655	5,408379	0	-14.7418	-14.0286	-18.3553	-7.3923	-14.4231	-18.3553
118	F	2	0,0042083	5,143593E-04	-1,032968E-03	0	0.0059	0.0050	0.0059	0.0040	0.0053	0.0059
119	F	3,532462	12,72783	4,249385	-6,425619	0	17.8190	16.9319	22.0724	9.0448	17.3981	22.0724
120	E	2,128353	1,593639	0,5908456	1,251752	0	2.2311	3.8591	2.8577	3.8351	2.2078	3.8591
121	F	2,370265	-2,935217	-1,16053	1,901625	0	-4.1093	-3.8578	-5.3791	-1.6304	-4.1025	-5.3791
122	E	2,128353	14,92936	5,286963	-6,621886	0	20.9011	21.0769	26.3744	11.9503	20.5587	26.3744
123	F	2,370265	-6,008074	-1,654055	3,533816	0	-8.4113	-7.0291	-9.8562	-3.4428	-8.0367	-9.8562
124	F	2,128353	16,50729	6,497118	-8,296294	0	23.1102	23.5671	30.2041	12.2721	23.0573	30.2041
125	F	1,456	0,5759144	0,1102236	-0,1918917	0	0.8063	0.7139	0.8675	0.4967	0.7462	0.8675
126	E	2,1838	-1,878809	-0,6892806	1,25135	0	-2.6303	-2.3563	-3.3574	-0.9725	-2.5992	-3.3574

Tabel 4.5.i Lanjutan

BTG	(profil)	L(m)	ND	NL	Nwki	Nwka	Nu1	Nu2	Nu3	Nu4	Nu5	Nu maks
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
127	E	2,911767	-1,500895	-0,6824108	1,240786	0	-2.1013	-1.9003	-2.8929	-0.5293	-2.1423	-2.8929
128	F	2	9,590823	2,919852	-4,329825	0	13.4272	12.7169	16.1808	7.3401	12.9689	16.1808
129	F	2	3,195664	0,5595951	-0,9761398	0	4.4739	3.9492	4.7301	2.8456	4.1146	4.7301
130	E	2	-20,39239	-6,59056	13,56959	0	-28.5493	-24.1601	-35.0158	-10.1257	-27.7661	-35.0158
131	F	2,47385	-18,48945	-5,83273	9,220474	0	-25.8852	-24.1433	-31.5197	-13.1171	-25.1037	-31.5197
132	E	2	6,247169	1,932135	-1,385837	0	8.7460	9.4793	10.5880	6.6611	8.4627	10.5880
133	E	2,128353	6,608799	2,113235	-0,9191262	0	9.2523	10.5764	11.3117	7.7923	8.9872	11.3117
134	F	2,370265	-14,39779	-4,455946	7,515553	0	-20.1569	-18.3944	-24.4069	-9.7351	-19.5053	-24.4069
135	E	2,128353	22,47125	7,801602	-10,19476	0	31.4598	31.2923	39.4481	17.6131	30.8663	39.4481
136	F	2,370265	-6,530558	-1,847435	3,733042	0	-9.1428	-7.8061	-10.7926	-3.9074	-8.7604	-10.7926
137	F	2,128353	22,40527	8,158835	-10,90898	0	31.3674	31.2133	39.9405	16.7841	30.9657	39.9405

Keterangan

[1] Nomer batang

[2] Jenis profil yang dipakai

[3] Panjang batang L(m)

[4] gaya

[5] gaya

[6] gaya

[7] gaya

[8] Nu1 = 1,4ND

[9] Nu2 = 1,2ND+1,6NL+0,8Nwki

[10] Nu3 = 1,2ND+1,6NL+0,8Nwka

[11] Nu4 = 1,2ND+1,3Nwki+0,5NL

[12] Nu5 = 1,2ND+1,3Nwka+0,5NL

[13] Numaks = gaya aksial batang maksimum (kN)

Notasi Profil :

A = (H BEAM) 200x200x8x12x13

B = (IWF) 200x100x5,5x8x11

C = 2L 80.80.8

D = 2L 70.70.7

E = 2L 60.60.6

F = 2L 50.50.5

H = 2L 90.90.9

Tabel 4.6.a Perencanaan Batang Tarik dan Batang Tekan Kuda-Kuda K1

BTG	Nu tarik	Nu tekan	L	Profil	Ag	ry	Analisis Batang Tekan				Analisis Batang Tarik		Ket
	(kN)	(kN)	(m)		(mm²)	(mm)	kLk/ry ≤ 200	λc	ω	φNn (kN)	kLk/ry ≤ 240	φNn (kN)	
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
1		-3.389	0.544	C	1230	24.25	22.44	0.2475	0.985	509.3776			aman
2		-5.881	2	C	1230	24.25	82.49	0.9101	1.357	369.8756			aman
3	7.473		2.370229	C	1230	24.2					97.943	531.3600	aman
4		-0.538	2.128376	C	1230	24.25	87.79	0.9685	1.403	357.5756			aman
5		-6.403	1.272	C	1230	24.25	52.46	0.5788	1.142	439.6266			aman
6		-12.872	2	C	1230	24.25	82.49	0.9101	1.357	369.8756			aman
7	9.704		2.628427	C	1230	24.2					116.877	531.3600	aman
8	6.778		2.128376	C	1230	24.2					87.949	531.3600	aman
9		-197.866	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
10		-20.151	2.234774	A	6353	50.2	44.52	0.4911	1.096	1183.0195			aman
11	221.672		2.436566	B	2716	22.2					109.755	1173.3120	aman
12		-201.609	2.234761	A	6353	50.2	44.52	0.4911	1.096	1183.0211			aman
13		-180.201	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
14	207.488		2.128356	A	6353	50.2					42.398	2744.4960	aman
15	208.875		2.370239	B	2716	22.2					106.768	1173.3120	aman
16		-396.120	2.128357	B	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
17		-173.438	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
18	398.075		2.128356	A	6353	50.2					42.398	2744.4960	aman
19	198.148		2.370242	B	2716	22.2					106.768	1173.3120	aman
20		-581.409	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
21		-160.936	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
22	582.779		2.128356	A	6353	50.2					42.398	2744.4960	aman
23		-184.267	2.370245	B	2716	22.2	106.77	1.1779	1.601	346.1047			aman
24		-751.357	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
25		-33.166	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
26	343.986		2	H	1550	27.4					72.993	669.6000	aman
27		-388.076	2.128356	A	6353	50.2	42.40	0.4677	1.084	1195.7369			aman
28		-35.494	2.370247	B	2716	22.2	106.77	1.1779	1.601	346.1044			aman
29		-786.097	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
30	1.998		0.72794	D	940	21.2					34.337	406.0800	aman
31	33.645		2	B	2716	22.2					90.090	1173.3120	aman
32	343.684		2	H	1550	27.4					72.993	669.6000	aman
33	88.671		2.128356	D	940	21.2					100.394	406.0800	aman
34	333.081		2.128356	A	6353	50.2					42.398	2744.4960	aman
35		-45.638	2.37025	B	2716	22.2	106.77	1.1779	1.601	346.1041			aman
36		-744.867	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
37		-27.853	1.45588	D	940	21.24	68.55	0.7563	1.248	307.4173			aman
38		-43.492	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
39		-426.577	2	H									aman
40	5.785		2.47378	D	940	21.2					116.688	406.0800	aman
41	67.928		2	D	940	21.2					94.340	406.0800	aman
42	21.939		2.128356	A	6353	50.2					42.398	2744.4960	aman
43		-60.805	2.370253	B	2716	22.2	106.77	1.1779	1.601	346.1038			aman
44		-690.331	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
45		-1.405	1.455884	D	940	21.24	68.55	0.7563	1.248	307.4170			aman
46		-11.931	0.7279356	D	940	21.24	34.28	0.3781	1.041	368.2657			aman
47	41.736		2	B	2716	22.2					90.090	1173.3120	aman

Tabel 4.6.a Lanjutan

BTG	Nu tarik	Nu tekan	L	Prf	Ag	rx	Analisis Batang Tekan				Analisis Batang Tarik		Ket.
	(KN)	(KN)	(m)		(mm²)	(mm)	kL/rx ≤ 200	λc	ω	φNn (KN)	kL/rx ≤ 240	φNn (KN)	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
48	429.856		2	H	1550	27.4					72.993	669.6000	aman
49		-21.144	2.473783	D	940	21.24	116.48	1.2850	2.064	185.8062			aman
50	84.024		2	D	940	21.2					94.340	406.0800	aman
51	164.461		2.128356	A	6353	50.2					42.398	2744.4960	aman
52		-56.264	2.370255	B	2716	22.2	106.77	1.1779	1.601	346.1035			aman
53		-639.186	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
54	14.699		1.455889	D	940	21.2					68.674	406.0800	aman
55	49.143		2	B	2716	22.2					90.090	1173.3120	aman
56	412.897		2	H	1550	27.4					72.993	669.6000	aman
57		-26.258	2.473785	D	940	21.24	116.48	1.2850	2.064	185.8058			aman
58	105.659		2	D	940	21.2					94.340	406.0800	aman
59	114.083		2.128356	A	6353	50.2					42.398	2744.4960	aman
60		-64.325	2.370258	B	2716	22.2	106.77	1.1779	1.601	346.1032			aman
61		-580.389	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
62	17.621		1.455893	D	940	21.2					68.674	406.0800	aman
63	56.107		2	B	2716	22.2					90.090	1173.3120	aman
64	391.188		2	H	1550	27.4					72.993	669.6000	aman
65		-31.113	2.473788	D	940	21.24	116.48	1.2850	2.064	185.8054			aman
66	131.242		2	D	940	21.2					94.340	406.0800	aman
67	56.068		2.128356	A	6353	50.2					42.398	2744.4960	aman
68		-75.282	2.370261	B	2716	22.2	106.77	1.1779	1.601	346.1028			aman
69		-512.089	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
70		-3.931	1.489853	E	691	18.17	82.02	0.9048	1.353	208.4098			aman
71	3.945		1.489849	E	691	18.2					81.860	298.5120	aman
72		-48.314	1.455898	D	940	21.24	68.55	0.7563	1.248	307.4158			aman
73		-28.209	1.638042	D	940	21.24	77.13	0.8509	1.313	292.1905			aman
74		-43.991	1.2737	D	940	21.24	59.97	0.6616	1.189	322.6456			aman
75	6.707		2	B	2716	22.2					90.090	1173.3120	aman
76	118.855		1.236895	D	940	21.2					58.344	406.0800	aman
77	32.745		1.236895	D	940	21.2					58.344	406.0800	aman
78		-3.176	1.01913	E	691	18.17	56.10	0.6189	1.164	242.2275			aman
79	269.509		2	H	1550	27.4					72.993	669.6000	aman
80	104.799		2	D	940	21.2					94.340	406.0800	aman
81		-26.800	2.585182	E	691	18.17	142.32	1.5701	3.081	91.4945			aman
82	20.932		2	E	691	18.2					109.890	298.5120	aman
83		-24.847	2.371141	E	691	18.17	130.53	1.4401	2.592	108.7583			aman
84		-12.423	2.128356	A	6353	50.2					42.398	2744.4960	aman
85		-17.376	2.370264	B	2716	22.2					106.769	1173.3120	aman
86		-496.287	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
87		-6.540	1.436015	E	691	18.17	79.05	0.8721	1.328	212.2776			aman
88	3.259		2.025853	E	691	18.2					111.311	298.5120	aman
89	3.989		1.43664	E	691	18.2					78.936	298.5120	aman
90	32.612		1.236895	D	940	21.2					58.344	406.0800	aman
91	119.213		1.236898	D	940	21.2					58.344	406.0800	aman
92		-16.848	1.455902	D	940	21.24	68.55	0.7563	1.248	307.4155			aman
93	70.846		1.638038	D	940	21.2					77.266	406.0800	aman
94	84.643		2	D	940	21.2					94.340	406.0800	aman
95	70.582		2	B	2716	22.2					90.090	1173.3120	aman
96		-37.418	2	E	691	18.17	110.10	1.2147	1.844	152.8682			aman

Tabel 4.6.a Lanjutan

BTG	Nu tarik (kN)	Nu tekan (kN)	L (m)	Pdt	Ag (mm²)	ry (mm)	Analisis Batang Tekan				Analisis Batang Tarik		Ket.
							K.Lr/ry < 200	λc	ω	ϕNn (kN)	K.Lr/ry < 240	ϕNn (kN)	
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
97	295.702		2	D	940	21.2					94.340	406.0800	aman
98	2.356		2.473793	E	691	18.2					135.923	298.5120	aman
99		-181.741	2	D	940	21.24	94.17	1.0389	1.464	261.9347			aman
100		-33.872	2.197258	D	940	21.24	103.46	1.1414	1.563	245.4461			aman
101	29.145		2.128356	A	6353	50.2					42.398	2744.4960	aman
102		-131.144	2.370266	B	2716	22.2	106.77	1.1779	1.601	346.1022			aman
103		-378.785	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
104	36.139		2.370269	E	691	18.2					130.235	298.5120	aman
105		-29.033	2.128353	E	691	18.17	117.17	1.2926	2.089	134.9863			aman
106	2.980		1.455907	E	691	18.2					79.995	298.5120	aman
107	2.645		1.637855	E	691	18.2					89.992	298.5120	aman
108	77.206		2	B	2716	22.2					90.090	1173.3120	aman
109		-11.518	2	E	691	18.17	110.10	1.2147	1.844	152.8682			aman
110	294.945		2	D	940	21.2					94.340	406.0800	aman
111		-6.365	2.473795	E	691	18.17	136.18	1.5024	2.822	99.9194			aman
112		-186.355	2	D	940	21.24	94.17	1.0389	1.464	261.9347			aman
113		-38.259	2.197258	D	940	21.24	103.46	1.1414	1.563	245.4461			aman
114	4.274		2.128374	E	691	18.2					116.944	298.5120	aman
115		-53.147	2.197236	D	940	21.24	103.46	1.1414	1.563	245.4479			aman
116		-49.913	2.128356	A	6353	50.2	42.40	0.4677	1.084	1195.7369			aman
117		-74.535	2.370269	B	2716	22.2	106.77	1.1779	1.601	346.1019			aman
118		-277.897	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
119	8.487		2.370262	E	691	18.2					130.234	298.5120	aman
120		-36.267	2.128353	E	691	18.17	117.17	1.2926	2.089	134.9863			aman
121	5.241		1.455911	E	691	18.2					79.995	298.5120	aman
122		-4.057	1.63791	E	691	18.17	90.17	0.9948	1.426	197.7730			aman
123	64.034		2	B	2716	22.2					90.090	1173.3120	aman
124	4.271		2	E	691	18.2					109.890	298.5120	aman
125	290.361		2	D	940	21.2					94.340	406.0800	aman
126		-10.031	2.473798	E	691	18.17	136.18	1.5024	2.822	99.9191			aman
127	194.400		2	D	940	21.2					94.340	406.0800	aman
128		-44.440	2.197258	D	940	21.24	103.46	1.1414	1.563	245.4461			aman
129	5.981		2.128393	E	691	18.2					116.945	298.5120	aman
130		-48.744	2.197236	D	940	21.24	103.46	1.1414	1.563	245.4479			aman
131		-117.585	2.128356	A	6353	50.2	42.40	0.4677	1.084	1195.7369			aman
132		-68.014	2.370272	B	2716	22.2	106.77	1.1779	1.601	346.1016			aman
133		-207.970	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
134		-11.096	2.370255	E	691	18.17	130.48	1.4395	2.590	108.8396			aman
135		-26.429	2.128353	E	691	18.17	117.17	1.2926	2.089	134.9863			aman
136	7.259		1.455916	E	691	18.2					79.995	298.5120	aman
137		-5.387	1.637965	E	691	18.17	90.17	0.9948	1.426	197.7691			aman
138	61.17		2	B	2716	22.2					90.090	1173.3120	aman
139	13.50		2	E	691	18.2					109.890	298.5120	aman
140	282.25		2	D	940	21.2					94.340	406.0800	aman
141		-13.259	2.473801	E	691	18.17	136.19	1.5024	2.822	99.9189			aman
142	205.571		2	D	940	21.2					94.340	406.0800	aman
143		-52.460	2.197258	D	940	21.24	103.46	1.1414	1.563	245.4461			aman
144	7.795		2.128412	E	691	18.2					116.946	298.5120	aman
145		-43.205	2.197236	D	940	21.24	103.46	1.1414	1.563	245.4479			aman

Tabel 4.6.a Lanjutan

BTG	Nu tarik	Nu tekan	L	Prf	Ag	rx	Analisis Batang Tekan				Analisis Batang Tarik		Ket
							Lk/rx ≤200	λc	ω	φNn (KN)	Lk/rx ≤ 240	φNn (KN)	
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
146		-180.546	2.128356	A	6353	50.2	42.40	0.4677	1.084	1195.7369			aman
147		-72.517	2.370274	B	2716	22.2	106.77	1.1779	1.601	346.1013			aman
148		-151.289	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
149		-19.860	2.370249	E	691	18.17	130.48	1.4395	2.590	108.8401			aman
150		-8.701	2.128353	E	691	18.17	117.17	1.2926	2.089	134.9863			aman
151		-27.521	1.45592	E	691	18.17	80.15	0.8842	1.337	210.8476			aman
152	23.511		1.63802	D	940	21.2					77.265	406.0800	aman
153	54.217		1.5997	D	940	21.2					75.458	406.0800	aman
154	48.761		1.5997	D	940	21.2					75.458	406.0800	aman
155	59.647		1.714	D	940	21.2					80.849	406.0800	aman
156	72.458		2	B	2716	22.2					90.090	1173.3120	aman
157	16.174		2	E	691	18.2					109.890	298.5120	aman
158	65.551		1.236902	E	691	18.2					67.962	298.5120	aman
159	65.399		1.236902	E	691	18.2					67.962	298.5120	aman
160	16.387		1.292585	E	691	18.2					71.021	298.5120	aman
161	15.737		1.292585	E	691	18.2					71.021	298.5120	aman
162		-1.053	1.280531	E	691	18.17	70.49	0.7777	1.262	223.4479			aman
163	0.931		1.280531	E	691	18.2					70.359	298.5120	aman
164	10.055		1.280531	E	691	18.2					70.359	298.5120	aman
165	10.336		1.280531	E	691	18.2					70.359	298.5120	aman
166		-5.353	1.316985	E	691	18.17	72.50	0.7998	1.277	220.8290			aman
167		-5.419	1.316985	E	691	18.17	72.50	0.7998	1.277	220.8290			aman
168		-156.500	1.064178	A	6353	50.2	21.20	0.2339	0.980	1322.9101			aman
169		-62.701	1.91747	B	2716	22.2	86.37	0.9529	1.391	398.4124			aman
170		-127.457	1.064178	A	6353	50.2	21.20	0.2339	0.980	1322.9101			aman
171		-17.646	1.917419	E	691	18.17	105.56	1.1645	1.587	177.6925			aman
172	1.927		1.064188	E	691	18.2					58.472	298.5120	aman
173	218.201		2	D	940	21.2					94.340	406.0800	aman
174	96.162		2	D	940	21.2					94.340	406.0800	aman
175		-43.365	2	E	691	18.17	110.10	1.2147	1.844	152.8682			aman
176		-7.843	2	E	691	18.17	110.10	1.2147	1.844	152.8682			aman
177		-4.426	2	E	691	18.17	110.10	1.2147	1.844	152.8682			aman
178		-77.040	2	E	691	18.17	110.10	1.2147	1.844	152.8682			aman
179	30.623		2	B	2716	22.2					90.090	1173.3120	aman
180		-5.332	2	E	691	18.17	110.10	1.2147	1.844	152.8682			aman
181	65.550		1.236902	E	691	18.2					67.962	298.5120	aman
182	65.399		1.236902	E	691	18.2					67.962	298.5120	aman
183	15.807		1.292585	E	691	18.2					71.021	298.5120	aman
184	16.322		1.292585	E	691	18.2					71.021	298.5120	aman
185		-0.968	1.280531	E	691	18.17	70.49	0.7777	1.262	223.4479			aman
186	1.018		1.280531	E	691	18.2					70.359	298.5120	aman
187	9.925		1.280531	E	691	18.2					70.359	298.5120	aman
188	10.466		1.280531	E	691	18.2					70.359	298.5120	aman
189		-5.434	1.316985	E	691	18.2					72.362	298.5120	aman
190		-5.335	1.316985	E	691	18.2					72.362	298.5120	aman
191		-156.779	1.064178	A	6353	50.2	21.20	0.2339	0.980	1322.9101			aman
192		-62.172	1.91747	B	2716	22.2	86.37	0.9529	1.391	398.4124			aman
193		-127.736	1.064178	A	6353	50.2	21.20	0.2339	0.980	1322.9101			aman
194		-17.646	1.917419	E	691	18.17	105.56	1.1645	1.587	177.6925			aman

Tabel 4.6.a Lanjutan

BTG	Nu tarik (kN)	Nu tekan (kN)	L (m)	Pnt	Ag (mm²)	ix (mm)	Analisis Batang Tekan				Analisis Batang Tarik		Ket
							k.Lix/ix < 200	λc	ω	φNn (kN)	k.Lix < 240	φNn (kN)	
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
195	1.959		1.064188	E	691	18.2					58.472	298.5120	aman
196		-27.521	1.45592	E	691	18.17	80.15	0.8842	1.337	210.8476			aman
197	23.148		1.63802	D	940	21.2					77.265	406.0800	aman
198	54.217		1.5997	D	940	21.2					75.458	406.0800	aman
199	48.761		1.5997	D	940	21.2					75.458	406.0800	aman
200	59.267		1.714	D	940	21.2					80.849	406.0800	aman
201	71.812		2	B	2716	22.2					90.090	1173.3120	aman
202	15.850		2	E	691	18.2					109.890	298.5120	aman
203	282.250		2	D	940	21.2					94.340	406.0800	aman
204		-13.445	2.473801	E	691	18.17	136.19	1.5024	2.822	99.9189			aman
205	205.571		2	D	940	21.2					94.340	406.0800	aman
206		-51.816	2.197258	D	940	21.24	103.46	1.1414	1.563	245.4461			aman
207	7.403		2.128412	E	691	18.2					116.946	298.5120	aman
208		-43.003	2.197236	D	940	21.24	103.46	1.1414	1.563	245.4479			aman
209		-180.546	2.128356	A	6353	50.2	42.40	0.4677	1.084	1195.7369			aman
210		-72.517	2.370274	B	2716	22.2	106.77	1.1779	1.601	346.1013			aman
211		-151.848	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
212		-19.654	2.370249	E	691	18.17	130.48	1.4395	2.590	108.8401			aman
213		-8.819	2.128353	E	691	18.17	117.17	1.2926	2.089	134.9863			aman
214		-7.445	1.455916	E	691	18.17	80.15	0.8842	1.337	210.8479			aman
215		-5.086	1.637965	E	691	18.17	90.17	0.9948	1.426	197.7691			aman
216	61.167		2	B	2716	22.2					90.090	1173.3120	aman
217	13.173		2	E	691	18.2					109.890	298.5120	aman
218	290.361		2	D	940	21.2					94.340	406.0800	aman
219		-10.202	2.473798	E	691	18.17	136.18	1.5024	2.822	99.9191			aman
220	194.400		2	D	940	21.2					94.340	406.0800	aman
221		-44.201	2.197258	D	940	21.24	103.46	1.1414	1.563	245.4461			aman
222	5.590		2.128393	E	691	18.2					116.945	298.5120	aman
223		-48.350	2.197236	D	940	21.24	103.46	1.1414	1.563	245.4479			aman
224		-117.585	2.128356	A	6353	50.2	42.40	0.4677	1.084	1195.7369			aman
225		-68.014	2.370272	B	2716	22.2	106.77	1.1779	1.601	346.1016			aman
226		-208.529	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
227		-10.891	2.370255	E	691	18.17	130.48	1.4395	2.590	108.8396			aman
228		-26.546	2.128353	E	691	18.17	117.17	1.2926	2.089	134.9863			aman
229	5.424		1.455911	E	691	18.2					79.995	298.5120	aman
230		-3.756	1.63791	E	691	18.17	90.17	0.9948	1.426	197.7730			aman
231	64.034		2	B	2716	22.2					90.090	1173.3120	aman
232	4.151		2	E	691	18.2					109.890	298.5120	aman
233	294.945		2	D	940	21.2					94.340	406.0800	aman
234		-6.536	2.473795	E	691	18.17	136.18	1.5024	2.822	99.9194			aman
235	186.355		2	D	940	21.2					94.340	406.0800	aman
236		-38.425	2.197258	D	940	21.24	103.46	1.1414	1.563	245.4461			aman
237	3.882		2.128374	E	691	18.2					116.944	298.5120	aman
238		-52.347	2.197236	D	940	21.24	103.46	1.1414	1.563	245.4479			aman
239		-49.238	2.128356	A	6353	50.2	42.40	0.4677	1.084	1195.7369			aman
240		-74.535	2.370269	B	2716	22.2	106.77	1.1779	1.601	346.1019			aman
241		-278.456	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
242	8.559		2.370262	E	691	18.2					130.234	298.5120	aman
243		-36.384	2.128353	E	691	18.17	117.17	1.2926	2.089	134.9863			aman

Tabel 4.6.a Lanjutan

BTG	Nu tarik (kN)	Nu tekan (kN)	L (m)	Pnf	Ag (mm²)	rx (mm)	Analisis Batang Tekan				Analisis Batang Tarik		Ket
							KLjrx ≤ 200	λc	ω	φNn (kN)	KLjrx < 240	φNn (kN)	
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
244	3.166		1.455907	E	691	18.2					79.995	298.5120	aman
245		-2.346	1.637855	E	691	18.17	90.17	0.9947	1.425	197.7770			aman
246	77.206		2	B	2716	22.2					90.090	1173.3120	aman
247		-11.707	2	E	691	18.17	110.10	1.2147	1.844	152.8682			aman
248	295.702		2	D	940	21.2					94.340	406.0800	aman
249		-2.427	2.473793	E	691	18.17	136.18	1.5024	2.822	99.9195			aman
250	181.741		2	D	940	21.2					94.340	406.0800	aman
251		-34.427	2.197258	D	940	21.24	103.46	1.1414	1.563	245.4461			aman
252	24.628		2.128356	A	6353	50.2					42.398	2744.4960	aman
253		-131.144	2.370266	B	2716	22.2	106.77	1.1779	1.601	346.1022			aman
254		-379.344	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
255	36.139		2.370269	F	691	18.2					130.235	298.5120	aman
256		-29.151	2.128353	E	691	18.17	117.17	1.2926	2.089	134.9863			aman
257		-16.454	1.455902	D	940	18.17	80.15	0.8842	1.337	286.8277			aman
258	70.846		1.638038	D	940	21.2					77.266	406.0800	aman
259	84.643		2	D	940	21.2					94.340	406.0800	aman
260	70.582		2	B	2716	22.2					90.090	1173.3120	aman
261		-37.170	2	E	691	18.17	110.10	1.2147	1.844	152.8682			aman
262		-32.456	1.236895	D	940	21.24	58.24	0.6425	1.177	325.7221			aman
263	119.374		1.236898	D	940	21.2					58.344	406.0800	aman
264		-6.540	1.436015	E	691	18.17	79.05	0.8721	1.328	212.2776			aman
265	3.266		2.025853	E	691	18.2					111.311	298.5120	aman
266	3.986		1.43664	E	691	18.2					78.936	298.5120	aman
267	269.509		2	H	1550	27.4					72.993	669.6000	aman
268		-104.799	2	D	940	21.24	94.17	1.0389	1.464	261.9347			aman
269		-26.470	2.585182	E	691	18.17	142.32	1.5701	3.081	91.4945			aman
270	20.668		2	E	691	18.2					109.890	298.5120	aman
271		-24.536	2.371141	E	691	18.17	130.53	1.4401	2.592	108.7583			aman
272	6.028		2.128356	A	6353	50.2					42.398	2744.4960	aman
273		-17.376	2.370264	B	2716	22.2	106.77	1.1779	1.601	346.1025			aman
274		-496.845	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
275		-3.177	1.01913	E	691	18.17	56.10	0.6189	1.164	242.2275			aman
276	119.016		1.236895	D	940	21.2					58.344	406.0800	aman
277	32.584		1.236895	D	940	21.2					58.344	406.0800	aman
278		-47.991	1.455898	D	940	21.24	68.55	0.7563	1.248	307.4158			aman
279		-28.209	1.638042	D	940	21.24	77.13	0.8509	1.313	292.1905			aman
280		-43.991	1.2737	D	940	21.24	59.97	0.6616	1.189	322.6456			aman
281	6.706		2	B	2716	22.2					90.090	1173.3120	aman
282		-3.931	1.489853	E	691	18.17	82.02	0.9048	1.353	208.4098			aman
283	3.873		1.489849	E	691	18.2					81.860	298.5120	aman
284	391.188		2	H	1550	27.4					72.993	669.6000	aman
285	31.113		2.473788	D	940	21.2					116.688	406.0800	aman
286	131.242		2	D	940	21.2					94.340	406.0800	aman
287	51.933		2.128356	A	6353	50.2					42.398	2744.4960	aman
288		-75.281	2.370261	B	2716	22.2	106.77	1.1779	1.601	346.1028			aman
289		-512.089	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
290	17.621		1.455893	D	940	21.2					68.674	406.0800	aman
291	56.106		2	B	2716	22.2					90.090	1173.3120	aman
292	412.897		2	H	1550	27.4					72.993	669.6000	aman

Tabel 4.6.a Lanjutan

BTG	Nu tarik (kN)	Nu tekan (kN)	L (m)	Prf	Ag (mm²)	rx (mm)	Analisis Batang Tekan				Analisis Batang Tarik		Ket
							kL/rx ≤ 200	λc	ω	φNn (kN)	kL/rx ≤ 240	φNn (kN)	
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
293		-26.258	2.473785	D	940	21.24	116.48	1.2850	2.064	185.8058			aman
294	105.659		2	D	940	21.2					94.340	406.0800	aman
295	110.244		2.128356	A	6353	50.2					42.398	2744.4960	aman
296		-64.325	2.370258	B	2716	22.2	106.77	1.1779	1.601	346.1032			aman
297		-580.389	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
298	14.642		1.455889	D	940	21.2					68.674	406.0800	aman
299	49.143		2	B	2716	22.2					90.090	1173.3120	aman
300	429.856		2	H	1550	27.4					72.993	669.6000	aman
301		-20.506	2.473783	D	940	21.24	116.48	1.2850	2.064	185.8062			aman
302	84.024		2	D	940	21.2					94.340	406.0800	aman
303		-161.491	2.128356	A	6353	50.2	42.40	0.4677	1.084	1195.7369			aman
304		-56.264	2.370255	B	2716	22.2	106.77	1.1779	1.601	346.1035			aman
305		-639.186	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
306		-1.146	1.455884	D	940	21.24	68.55	0.7563	1.248	307.4170			aman
307		-11.490	0.7279356	D	940	21.24	34.28	0.3781	1.041	368.2657			aman
308	41.736		2	B	2716	22.2					90.090	1173.3120	aman
309	426.577		2	H	1550	27.4					72.993	669.6000	aman
310	5.314		2.47378	D	940	21.2					116.688	406.0800	aman
311	67.928		2	D	940	21.2					94.340	406.0800	aman
312	216.120		2.128356	A	6353	50.2					42.398	2744.4960	aman
313		-60.805	2.370253	B	2716	22.2	106.77	1.1779	1.601	346.1038			aman
314		-690.330	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
315		-27.530	1.45588	D	940	21.24	68.55	0.7563	1.248	307.4173			aman
316	43.492		2	B	2716	22.2					90.090	1173.3120	aman
317	343.684		2	H	1550	27.4					72.993	669.6000	aman
318	88.510		2	D	940	21.2					100.394	406.0800	aman
319	333.081		2.128356	A	6353	50.2					42.398	2744.4960	aman
320		-45.235	2.37025	B	2716	22.2	106.77	1.1779	1.601	346.1041			aman
321		-745.428	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
322	1.997		0.72794	D	940	21.2					34.337	406.0800	aman
323	33.645		2	B	2716	22.2					90.090	1173.3120	aman
324	343.986		2	H	1550	27.4					72.993	669.6000	aman
325	388.676		2.128356	A	6353	50.2					42.398	2744.4960	aman
326	35.083		2.370247	B	2716	22.2					106.768	1173.3120	aman
327		-786.097	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
328		-32.520	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
329	582.779		2.128356	A	6353	50.2					42.398	2744.4960	aman
330	183.856		2.370245	B	2716	22.2					106.768	1173.3120	aman
331		-751.916	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
332		-160.290	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
333	398.749		2.128356	A	6353	50.2					42.398	2744.4960	aman
334	197.737		2.370242	B	2716	22.2					106.768	1173.3120	aman
335		-581.409	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
336		-172.792	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
337	204.053		2.128356	A	6353	50.2					42.398	2744.4960	aman
338	208.464		2.370239	B	2716	22.2					106.768	1173.3120	aman
339		-396.200	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
340		-179.555	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
341		-10.349	2.234774	A	6353	50.2	44.52	0.4911	1.096	1183.0195			aman

Tabel 4.6.a Lanjutan

BTG	Nu tarik	Nu tekan	L	Prf	Ag	rx	Analisis Batang Tekan				Analisis Batang Tarik		Ket.
	(kN)	(kN)	(m)		(mm^2)	(mm)	k.L/rx ≤ 200	λc	ω	ΦNn (kN)	k.L/rx ≤ 240	ΦNn (kN)	
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
342	221.273		2.436566	B	2716	22.2					109.755	1173.3120	aman
343		-201.609	2.234761	A	6353	50.2	44.52	0.4911	1.096	1183.0211			aman
344		-197.220	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
345		-12.877	2	C	1230	24.25	82.49	0.9101	1.357	369.8756			aman
346	9.719		2.828427	C	1230	24.2					116.877	531.3600	aman
347	6.591		2.128376	C	1230	24.2					87.949	531.3600	aman
348		-6.404	1.272	C	1230	24.25	52.46	0.5788	1.142	439.6266			aman
349		-5.880	2	C	1230	24.25	82.49	0.9101	1.357	369.8756			aman
350	7.470		2.370229	C	1230	24.2					97.943	531.3600	aman
351		-0.538	2.128376	C	1230	24.25	87.79	0.9685	1.403	357.5756			aman
352		-3.253	0.544	C	1230	24.25	22.44	0.2475	0.985	509.3776			aman

Keterangan:

[1] Nomer batang

[2] Nu tarik = gaya batang tarik

[3] Nu tekan = gaya batang tekan

[4] Panjang batang

[5] Profil terpasang

[6] Ag = Luas penampang profil (mm^2)

[7] rx = Jari-jari girasi profil terkecil (mm)

[8] k.L/rx < 200 (syarat angka perbandingan kelangsingan batang tekan)

[9] λc =(1/3,14).(kL/r).(fy/E)^0,5 (parameter kelangsingan batang tekan)

[10] ω =m koefisien tekuk

λc ≤ 0,25 ; ω = 1

0,25 < λc < 1,2 ; ω = 1,3/(1,6 - 0,6 λc)

λc ≥ 1,2 ; ω = 1,25 λc^2

[11] ΦNn = 0,85.Ag.(fy/ω) ; Kuat tekan nominal

[12] k.L/rx < 240 (syarat angka perbandingan kelangsingan batang tarik)

[13] ΦNn = 0,9.Ag.fy ; kuat tarik nominal

[14] Nu ≤ ΦNn ; profil aman dipakai

'abel 4.6.b Perencanaan Batang Tarik dan Batang Tekan Kuda-Kuda K1"

BTG	Nu tarik (kN)	Nu tekan (kN)	L (m)	Pmi	Ag (mm²)	rx (mm)	Analisis Batang Tekan				Analisis Batang Tarik		Ket.
							lk/rx ≤ 240	λc	ω	ϕNn (kN)	lk/rx ≤ 240	ϕNn (kN)	
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
1		-3.4072	0.544	C	1230	24.245	22.44	0.2475	0.985	509.3776			aman
2		-5.9219	2	C	1230	24.245	82.49	0.9101	1.357	369.8756			aman
3	7.5405		2.370229	C	1230	24.2					97.943	531.3600	aman
4		-0.5549	2.128376	C	1230	24.245	87.79	0.9685	1.403	357.5756			aman
5		-6.4633	1.272	C	1230	24.245	52.46	0.5788	1.142	439.6266			aman
6		-13.0116	2	C	1230	24.245	82.49	0.9101	1.357	369.8756			aman
7	9.8614		2.828427	C	1230	24.2					116.877	531.3600	aman
8	6.8156		2.128376	C	1230	24.2					87.949	531.3600	aman
9		-187.139	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
10		-19.2036	2.234774	A	6353	50.2	44.52	0.4911	1.096	1183.0195			aman
11	208.1471		2.436566	B	2716	22.2					109.755	1173.3120	aman
12		-188.5271	2.234761	A	6353	50.2	44.52	0.4911	1.096	1183.0211			aman
13		-170.1988	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
14	196.3664		2.128356	A	6353	50.2					42.398	2744.4960	aman
15	196.9124		2.370239	B	2716	22.2					106.768	1173.3120	aman
16		-371.9659	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
17		-164.514	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
18	378.29		2.128356	A	6353	50.2					42.398	2744.4960	aman
19	187.6181		2.370242	B	2716	22.2					106.768	1173.3120	aman
20		-547.3301	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
21		-153.2853	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
22	550.3367		2.128356	A	6353	50.2					42.398	2744.4960	aman
23	175.1183		2.370245	B	2716	22.2					106.768	1173.3120	aman
24		-708.7927	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
25		-31.3143	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
26	330.2527		2	H	1550	27.4					72.993	669.6000	aman
27	362.7838		2.128356	A	6353	50.2					42.398	2744.4960	aman
28	33.1911		2.370247	B	2716	22.2					106.768	1173.3120	aman
29		-741.3385	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
30	0.8297		0.72794	D	940	21.2					34.337	406.0800	aman
31	32.037		2	B	2716	22.2					90.090	1173.3120	aman
32	329.9565		2	H	1550	27.4					72.993	669.6000	aman
33	85.0157		2.128356	D	940	21.2					100.394	406.0800	aman
34	308.6788		2.128356	A	6353	50.2					42.398	2744.4960	aman
35		-44.3406	2.37025	B	2716	22.2	106.77	1.1779	1.601	346.1041			aman
36		-701.8075	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
37		-27.78	1.45588	D	940	21.238	68.55	0.7563	1.248	307.4173			aman
38	40.81		2	B	2716	22.2					90.090	1173.3120	aman
39	409.4269		2	H	1550	27.4					72.993	669.6000	aman
40	5.8063		2.47378	D	940	21.2					116.688	406.0800	aman
41	65.2493		2	D	940	21.2					94.340	406.0800	aman
42	198.7616		2.128356	A	6353	50.2					42.398	2744.4960	aman
43		-57.5926	2.370253	B	2716	22.2	106.77	1.1779	1.601	346.1038			aman
44		-650.2196	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
45		-2.5215	1.455884	D	940	21.238	68.55	0.7563	1.248	307.4170			aman
46		-13.2385	0.7279356	D	940	21.238	34.28	0.3781	1.041	368.2657			aman
47	37.7383		2	B	2716	22.2					90.090	1173.3120	aman
48	412.4796		2	H	1550	27.4					72.993	669.6000	aman

Tabel 4.6.b Lanjutan

BTG	Nu tarik (kN)	Nu tekan (kN)	L (m)	Prfl	Ag (mm^2)	rx (mm)	Analisis Batang Tekan: kL/rx <200	Analisis Batang Tekan: λ_c	Analisis Batang Tekan: ω	Analisis Batang Tekan: ϕNn (kN)	Analisis Batang Tarik: kL/rx <240	Analisis Batang Tarik: ϕNn (kN)	Ket
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
49		-21.9679	2.473783	D	940	21.238	116.48	1.2850	2.064	185.8062			aman
50	147.4692		2	D	940	21.2					94.340	406.0800	aman
51		-51.1225	2.128356	A	6353	50.2	42.40	0.4677	1.084	1195.7369			aman
52		-603.4354	2.370255	B	2716	22.2	106.77	1.1779	1.601	346.1035			aman
53		-602.8765	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
54	13.8725		1.455889	D	940	21.2					68.674	406.0800	aman
55	394.9128		2	B	2716	22.2					90.090	1173.3120	aman
56		-25.3013	2	H	1550	27.4	72.99	0.8053	1.280	493.9085			aman
57		-25.014	2.473785	D	940	21.238	116.48	1.2850	2.064	185.8058			aman
58	100.1829		2	D	940	21.2					94.340	406.0800	aman
59	100.662		2.128356	A	6353	50.2					42.398	2744.4960	aman
60		-60.0385	2.370258	B	2716	22.2	106.77	1.1779	1.601	346.1032			aman
61		-549.0632	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
62	15.8186		1.455893	D	940	21.2					68.674	406.0800	aman
63	52.1597		2	B	2716	22.2					90.090	1173.3120	aman
64	374.1613		2	H	1550	27.4					72.993	669.6000	aman
65		-28.1257	2.473788	D	940	21.238	116.48	1.2850	2.064	185.8054			aman
66	125.8507		2	D	940	21.2					94.340	406.0800	aman
67	46.2322		2.128356	A	6353	50.2					42.398	2744.4960	aman
68		-71.0669	2.370261	B	2716	22.2	106.77	1.1779	1.601	346.1028			aman
69		-485.1115	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
70		-3.9437	1.489853	E	691	18.165	82.02	0.9048	1.353	208.4098			aman
71	3.9572		1.489849	E	691	18.2					81.860	298.5120	aman
72		-48.1706	1.455898	D	940	21.238	68.55	0.7563	1.248	307.4158			aman
73		-28.4569	1.638042	D	940	21.238	77.13	0.8509	1.313	292.1905			aman
74		-43.3512	1.2737	D	940	21.238	59.97	0.6616	1.189	322.6456			aman
75	4.8309		2	B	2716	22.2					90.090	1173.3120	aman
76	113.5205		1.236895	D	940	21.2					58.344	406.0800	aman
77	32.0252		1.236895	D	940	21.2					58.344	406.0800	aman
78		-3.1861	1.01913	E	691	18.165	56.10	0.6189	1.164	242.2275			aman
79	259.2408		2	H	1550	27.4					72.993	669.6000	aman
80	99.9995		2	D	940	21.2					94.340	406.0800	aman
81		-25.3347	2.585182	E	691	18.165	142.32	1.5701	3.081	91.4945			aman
82	19.8007		2	E	691	18.2					109.890	298.5120	aman
83		-23.4944	2.371141	E	691	18.165	130.53	1.4401	2.592	108.7583			aman
84		-6.5635	2.128356	A	6353	50.2	42.40	0.4677	1.084	1195.7369			aman
85		-15.0854	2.370264	B	2716	22.2	106.77	1.1779	1.601	346.1025			aman
86		-471.4583	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
87		-6.5756	1.436015	E	691	18.165	79.05	0.8721	1.328	212.2776			aman
88	3.2895		2.025853	E	691	18.2					111.311	298.5120	aman
89	3.9974		1.43664	E	691	18.2					78.936	298.5120	aman
90	31.8653		1.236895	D	940	21.2					58.344	406.0800	aman
91	113.8985		1.236898	D	940	21.2					58.344	406.0800	aman
92		-16.5997	1.455902	D	940	21.238	68.55	0.7563	1.248	307.4155			aman
93	67.2406		1.638038	D	940	21.2					77.266	406.0800	aman
94	80.1816		2	D	940	21.2					94.340	406.0800	aman
95	64.3073		2	B	2716	22.2					90.090	1173.3120	aman
96		-38.1257	2	E	691	18.165	110.10	1.2147	1.844	152.8682			aman

Tabel 4.6.b Lanjutan

BTG	Nu tarik	Nu tekan	L	Prfl	Ag	rx	Analisa Batang Tekan				Analisa Batang Tarik		Ket
	(kN)	(kN)	(m)		(mm²)	(mm)	KL/rx < 200	λc	ω	φNn (kN)	KL/rx < 240	φNn (kN)	
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
97	284.8304		2	D	940	21.2					94.340	406.0800	aman
98	2.5578		2.473793	E	691	18.2					135.923	298.5120	aman
99		-173.9042	2	D	940	21.238	94.17	1.0389	1.464	261.9347			aman
100		-34.3909	2.197258	D	940	21.238	103.46	1.1414	1.563	245.4461			aman
101	24.1179		2.128356	A	6353	50.2					42.398	2744.4960	aman
102		-124.4933	2.370266	B	2716	22.2	106.77	1.1779	1.601	346.1022			aman
103		-360.2536	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
104	36.5935		2.370269	E	691	18.2					130.235	298.5120	aman
105		-29.3754	2.128353	E	691	18.165	117.17	1.2926	2.089	134.9863			aman
106	2.9444		1.455907	E	691	18.2					79.995	298.5120	aman
107	2.3411		1.637855	E	691	18.2					89.992	298.5120	aman
108	72.4319		2	B	2716	22.2					90.090	1173.3120	aman
109		-12.7387	2	E	691	18.165	110.10	1.2147	1.844	152.8682			aman
110	284.199		2	D	940	21.2					94.340	406.0800	aman
111		-6.3449	2.473795	E	691	18.165	136.18	1.5024	2.822	99.9194			aman
112		-178.4601	2	D	940	21.238	94.17	1.0389	1.464	261.9347			aman
113		-38.3495	2.197258	D	940	21.238	103.46	1.1414	1.563	245.4461			aman
114	3.9016		2.128374	E	691	18.2					116.944	298.5120	aman
115		-52.6042	2.197236	D	940	21.238	103.46	1.1414	1.563	245.4479			aman
116		-49.9269	2.128356	A	6353	50.2	42.40	0.4677	1.084	1195.7369			aman
117		-69.7415	2.370269	B	2716	22.2	106.77	1.1779	1.601	346.1019			aman
118		-263.4219	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
119	9.9035		2.370262	E	691	18.2					130.234	298.5120	aman
120		-37.8377	2.128353	E	691	18.165	117.17	1.2926	2.089	134.9863			aman
121	5.2538		1.455911	E	691	18.2					79.995	298.5120	aman
122		-3.8033	1.63791	E	691	18.165	90.17	0.9948	1.426	197.7730			aman
123	60.017		2	B	2716	22.2					90.090	1173.3120	aman
124	2.6557		2	E	691	18.2					109.890	298.5120	aman
125	279.6702		2	D	940	21.2					94.340	406.0800	aman
126		-10.104	2.473798	E	691	18.165	136.18	1.5024	2.822	99.9191			aman
127	186.5381		2	D	940	21.2					94.340	406.0800	aman
128		-44.1623	2.197258	D	940	21.238	103.46	1.1414	1.563	245.4461			aman
129	5.6909		2.128393	E	691	18.2					116.945	298.5120	aman
130		-48.6466	2.197236	D	940	21.238	103.46	1.1414	1.563	245.4479			aman
131		-112.4634	2.128356	A	6353	50.2	42.40	0.4677	1.084	1195.7369			aman
132		-64.2404	2.370272	B	2716	22.2	106.77	1.1779	1.601	346.1016			aman
133		-195.7533	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
134		-8.7433	2.370255	E	691	18.165	130.48	1.4395	2.590	108.8396			aman
135		-30.1192	2.128353	E	691	18.165	117.17	1.2926	2.089	134.9063			aman
136	7.331		1.455916	E	691	18.2					79.995	298.5120	aman
137		-5.1897	1.637965	E	691	18.165	90.17	0.9948	1.426	197.7691			aman
138	57.9706		2	B	2716	22.2					90.090	1173.3120	aman
139	13.2959		2	E	691	18.2					109.890	298.5120	aman
140	271.5289		2	D	940	21.2					94.340	406.0800	aman
141		-13.4405	2.473801	E	691	18.165	136.19	1.5024	2.822	99.9189			aman
142	197.8445		2	D	940	21.2					94.340	406.0800	aman
143		-51.8889	2.197258	D	940	21.238	103.46	1.1414	1.563	245.4461			aman
144	7.5706		2.128412	E	691	18.2					116.946	298.5120	aman
145		-43.2225	2.197236	D	940	21.238	103.46	1.1414	1.563	245.4479			aman

Tabel 4.6.b Lanjutan

BTG	Nu tarik (kN)	Nu tekan (kN)	L (m)	Pot	Ag (mm²)	rx (mm)	Analisis Batang Tekan				Analisis Batang Tarik		Ket
							k.Lr/x <200	λc	ω	φNn (kN)	k.Lr/x <240	φNn (kN)	
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
146		-171.9243	2.128356	A	6353	50.2	42.40	0.4677	1.084	1195.7369			aman
147		-66.525	2.370274	B	2716	22.2	106.77	1.1779	1.601	346.1013			aman
148		-142.4165	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
149		-11.5066	2.370249	E	691	18.165	130.48	1.4395	2.590	108.8401			aman
150		-18.7748	2	E	691	18.165	110.10	1.2147	1.844	152.8682			aman
151		-26.122	1.45592	E	691	18.165	80.15	0.8842	1.337	210.8476			aman
152	23.766		1.63802	D	940	21.2					77.265	406.0800	aman
153	53.9349		1.5997	D	940	21.2					75.458	406.0800	aman
154	48.5862		1.5997	D	940	21.2					75.458	406.0800	aman
155	59.2128		1.714	D	940	21.2					80.849	406.0800	aman
156	69.1609		2	B	2716	22.2					90.090	1173.3120	aman
157	13.4411		1.272038	E	691	18.2					69.892	298.5120	aman
158	63.2788		1.236902	E	691	18.2					67.962	298.5120	aman
159	63.1623		1.236902	E	691	18.2					67.962	298.5120	aman
160	15.9721		1.292585	E	691	18.2					71.021	298.5120	aman
161	15.3121		1.292585	E	691	18.2					71.021	298.5120	aman
162		-0.9747	1.280531	E	691	18.165	70.49	0.7777	1.262	223.4479			aman
163	0.9495		1.280531	E	691	18.2					70.359	298.5120	aman
164	10.0028		1.280531	E	691	18.2					70.359	298.5120	aman
165	10.2935		1.280531	E	691	18.2					70.359	298.5120	aman
166		-5.0277	1.316985	E	691	18.165	72.50	0.7998	1.277	220.8290			aman
167		-5.0579	1.316985	E	691	18.165	72.50	0.7998	1.277	220.8290			aman
168		-144.9907	1.064178	A	6353	50.2	21.20	0.2339	0.980	1322.9101			aman
169		-56.5780	1.91747	B	2716	22.2	86.37	0.9529	1.391	398.4124			aman
170		-115.2960	1.064178	A	6353	50.2	21.20	0.2339	0.980	1322.9101			aman
171		-23.1872	1.350773	E	691	18.165	74.36	0.8204	1.291	218.4016			aman
172	1.5122		1	E	691	18.2					54.945	298.5120	aman
173	209.1781		2	D	940	21.2					94.340	406.0800	aman
174	91.6345		2	D	940	21.2					94.340	406.0800	aman
175		-43.2126	2	E	691	18.165	110.10	1.2147	1.844	152.8682			aman
176		-7.8544	2	E	691	18.165	110.10	1.2147	1.844	152.8682			aman
177		-4.7115	2	E	691	18.165	110.10	1.2147	1.844	152.8682			aman
178		-75.1544	2	E	691	18.165	110.10	1.2147	1.844	152.8682			aman
179	26.2605		2	B	2716	22.2					90.090	1173.3120	aman
180		-4.5957	0.9080675	E	691	18.165	49.99	0.5515	1.127	250.2064			aman
181	63.2788		1.236902	E	691	18.2					67.962	298.5120	aman
182	63.1623		1.236902	E	691	18.2					67.962	298.5120	aman
183	15.3592		1.292585	E	691	18.2					71.021	298.5120	aman
184	15.9619		1.292585	E	691	18.2					71.021	298.5120	aman
185		-0.8987	1.280531	E	691	18.165	70.49	0.7777	1.262	223.4479			aman
186	1.0267		1.280531	E	691	18.2					70.359	298.5120	aman
187	9.8674		1.280531	E	691	18.2					70.359	298.5120	aman
188	10.4288		1.280531	E	691	18.2					70.359	298.5120	aman
189		-5.0967	1.316985	E	691	18.2					72.362	298.5120	aman
190		-4.9861	1.316985	E	691	18.2					72.362	298.5120	aman
191		-145.2702	1.064178	A	6353	50.2	21.20	0.2339	0.980	1322.9101			aman
192		-56.0494	1.91747	B	2716	22.2	86.37	0.9529	1.391	398.4124			aman
193		-115.5755	1.064178	A	6353	50.2	21.20	0.2339	0.980	1322.9101			aman
194		-23.3409	1.350773	E	691	18.165	74.36	0.8204	1.291	218.4016			aman

Tabel 4.6.b Lanjutan

BTG	Nu tarik (kN)	Nu tekan (kN)	L (m)	Prf	Ag (mm²)	rx (mm)	Analisa Batang Tekan				Analisa Batang Tarik		Ket
							k.Lj/rx < 200	ω	α	ϕNn (kN)	k.Lj/rx < 240	ϕNn (kN)	
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
195	1.5122		1	E	691	18.2					54.945	298.5120	aman
196		-26.0579	1.45592	E	691	18.165	80.15	0.8842	1.337	210.8476			aman
197	23.3888		1.63802	D	940	21.2					77.265	406.0800	aman
198	53.9349		1.5997	D	940	21.2					75.458	406.0800	aman
199	48.5862		1.5997	D	940	21.2					75.458	406.0800	aman
200	58.8181		1.714	D	940	21.2					80.849	406.0800	aman
201	68.5148		2	B	2716	22.2					90.090	1173.3120	aman
202	13.4411		1.272038	E	691	18.2					69.892	298.5120	aman
203	271.5289		2	D	940	21.2					94.340	406.0800	aman
204		-13.6402	2.473801	E	691	18.165	136.19	1.5024	2.822	99.9189			aman
205	197.8445		2	D	940	21.2					94.340	406.0800	aman
206		-51.2536	2.197258	D	940	21.238	103.46	1.1414	1.563	245.4461			aman
207	7.1556		2.128412	E	691	18.2					116.946	298.5120	aman
208		-43.0129	2.197236	D	940	21.238	103.46	1.1414	1.563	245.4479			aman
209		-171.9243	2.128356	A	6353	50.2	42.40	0.4677	1.084	1195.7369			aman
210		-66.5250	2.370274	B	2716	22.2	106.77	1.1779	1.601	346.1013			aman
211		-142.9754	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
212		-11.2913	2.370249	E	691	18.165	130.48	1.4395	2.590	108.8401			aman
213		-18.7748	2	E	691	18.165	110.10	1.2147	1.844	152.8682			aman
214		-7.5238	1.455916	E	691	18.165	80.15	0.8842	1.337	210.8479			aman
215		-4.8709	1.637965	E	691	18.165	90.17	0.9948	1.426	197.7691			aman
216	57.9706		2	B	2716	22.2					90.090	1173.3120	aman
217	12.9575		2	E	691	18.2					109.890	298.5120	aman
218	279.6702		2	D	940	21.2					94.340	406.0800	aman
219		-10.2802	2.473798	E	691	18.165	136.18	1.5024	2.822	99.9191			aman
220	186.5381		2	D	940	21.2					94.340	406.0800	aman
221		-43.8973	2.197258	D	940	21.238	103.46	1.1414	1.563	245.4461			aman
222	5.2711		2.128393	E	691	18.2					116.945	298.5120	aman
223		-48.2296	2.197236	D	940	21.238	103.46	1.1414	1.563	245.4479			aman
224		-112.4634	2.128356	A	6353	50.2	42.40	0.4677	1.084	1195.7369			aman
225		-64.2404	2.370272	B	2716	22.2	106.77	1.1779	1.601	346.1016			aman
226		-196.3122	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
227		-8.5281	2.370255	E	691	18.165	130.48	1.4395	2.590	108.8396			aman
228		-30.2424	2.128353	E	691	18.165	117.17	1.2926	2.089	134.9863			aman
229	5.4436		1.455911	E	691	18.2					79.995	298.5120	aman
230		-3.4843	1.63791	E	691	18.165	90.17	0.9948	1.426	197.7730			aman
231	60.0170		2	B	2716	22.2					90.090	1173.3120	aman
232	2.5723		2	F	691	18.2					109.890	298.5120	aman
233	284.1990		2	D	940	21.2					94.340	406.0800	aman
234		-6.5210	2.473795	E	691	18.165	136.18	1.5024	2.822	99.9194			aman
235	178.4601		2	D	940	21.2					94.340	406.0800	aman
236		-38.4543	2.197258	D	940	21.238	103.46	1.1414	1.563	245.4461			aman
237	3.4882		2.128374	E	691	18.2					116.944	298.5120	aman
238		-51.8165	2.197236	D	940	21.238	103.46	1.1414	1.563	245.4479			aman
239		-48.5793	2.128356	A	6353	50.2	42.40	0.4677	1.084	1195.7369			aman
240		-69.7415	2.370269	B	2716	22.2	106.77	1.1779	1.601	346.1019			aman
241		-263.9809	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
242	9.9748		2.370262	E	691	18.2					130.234	298.5120	aman
243		-37.9609	2.128353	E	691	18.165	117.17	1.2926	2.089	134.9863			aman

Tabel 4.6.b Lanjutan

BTG	Nu tarik (kN)	Nu tekan (kN)	L (m)	Pnm	Ag (mm²)	rx (mm)	Analisis Batang Tekan				Analisis Batang Tarik		Ket.
							kLi/rx < 200	λc	ω	φNn (kN)	kLi/rx < 240	φNn (kN)	
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
244	3.1373		1.455907	E	691	18.2					79.995	298.5120	aman
245		-2.0201	1.637855	E	691	18.165	90.17	0.9947	1.425	197.7770			aman
246	72.4319		2	B	2716	22.2					90.090	1173.3120	aman
247		-12.9337	2	E	691	18.165	110.10	1.2147	1.844	152.8682			aman
248	284.8304		2	D	940	21.2					94.340	406.0800	aman
249		-2.3364	2.473793	E	691	18.165	136.18	1.5024	2.822	99.9195			aman
250	173.9042		2	D	940	21.2					94.340	406.0800	aman
251		-34.8661	2.197258	D	940	21.238	103.46	1.1414	1.563	245.4461			aman
252	19.8934		2.128356	A	6353	50.2					42.398	2744.4960	aman
253		-124.3747	2.370266	B	2716	22.2	106.77	1.1779	1.601	346.1022			aman
254		-360.8126	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
255	36.5763		2.370269	E	691	18.2					130.235	298.5120	aman
256		-29.4986	2.128353	E	691	18.165	117.17	1.2926	2.089	134.9863			aman
257		-15.9634	1.455902	D	940	18.165	80.15	0.8842	1.337	286.8277			aman
258	67.2406		1.638038	D	940	21.2					77.266	406.0800	aman
259	80.1816		2	D	940	21.2					94.340	406.0800	aman
260	64.3073		2	B	2716	22.2					90.090	1173.3120	aman
261		-37.9176	2	E	691	18.165	110.10	1.2147	1.844	152.8682			aman
262		-31.6977	1.236895	D	940	21.238	58.24	0.6425	1.177	325.7221			aman
263	114.0661		1.236898	D	940	21.2					58.344	406.0800	aman
264		-6.5764	1.436015	E	691	18.165	79.05	0.8721	1.328	212.2776			aman
265	3.2961		2.025853	E	691	18.2					111.311	298.5120	aman
266	3.9954		1.43664	E	691	18.2					78.936	298.5120	aman
267	259.2408		2	H	1550	27.4					72.993	669.6000	aman
268		-99.9995	2	D	940	21.238	94.17	1.0389	1.464	261.9347			aman
269		-25.0030	2.585182	E	691	18.165	142.32	1.5701	3.081	91.4945			aman
270	19.5370		2	E	691	18.2					109.890	298.5120	aman
271		-23.1828	2.371141	E	691	18.165	130.53	1.4401	2.592	108.7583			aman
272	3.0129		2.128356	A	6353	50.2					42.398	2744.4960	aman
273		-15.0854	2.370264	B	2716	22.2	106.77	1.1779	1.601	346.1025			aman
274		-472.0171	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
275		-3.1866	1.01913	E	691	18.165	56.10	0.6189	1.164	242.2275			aman
276	113.6882		1.236895	D	940	21.2					58.344	406.0800	aman
277	31.8576		1.236895	D	940	21.2					58.344	406.0800	aman
278		-47.8353	1.455898	D	940	21.238	68.55	0.7563	1.248	307.4158			aman
279		-28.4569	1.638042	D	940	21.238	77.13	0.8509	1.313	292.1905			aman
280		-43.0758	1.2737	D	940	21.238	59.97	0.6616	1.189	322.6456			aman
281	4.8309		2	B	2716	22.2					90.090	1173.3120	aman
282		-3.9434	1.489853	E	691	18.165	82.02	0.9048	1.353	208.4098			aman
283	3.8827		1.489849	E	691	18.2					81.860	298.5120	aman
284	374.1613		2	H	1550	27.4					72.993	669.6000	aman
285	28.1257		2.473788	D	940	21.2					116.688	406.0800	aman
286	125.8507		2	D	940	21.2					94.340	406.0800	aman
287	41.8762		2.128356	A	6353	50.2					42.398	2744.4960	aman
288		-70.5417	2.370261	B	2716	22.2	106.77	1.1779	1.601	346.1028			aman
289		-485.1115	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
290	15.8186		1.455893	D	940	21.2					68.674	406.0800	aman
291	52.1597		2	B	2716	22.2					90.090	1173.3120	aman
292	394.9128		2	H	1550	27.4					72.993	669.6000	aman

Tabel 4.6.b Lanjutan

BTG	Nu tarik (kN)	Nu tekan (kN)	L (m)	Prfl	Ag (mm²)	rx (mm)	Analisa Batang Tekan				Analisa Batang Tarik		Ket.
							KL/rx < 200	ω	ω²	ϕNn (kN)	KL/rx < 240	ϕNn (kN)	
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
293		-25.1280	2.473785	D	940	21.238	116.48	1.2850	2.064	185.8058			aman
294	102.7232		2	D	940	21.2					94.340	406.0800	aman
295	95.7893		2.128356	A	6353	50.2					42.398	2744.4960	aman
296		-59.5410	2.370258	B	2716	22.2	106.77	1.1779	1.601	346.1032			aman
297		-549.0632	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
298	13.9443		1.455889	D	940	21.2					68.674	406.0800	aman
299	45.1328		2	B	2716	22.2					90.090	1173.3120	aman
300	412.4796		2	H	1550	27.4					72.993	669.6000	aman
301		-21.3487	2.473783	D	940	21.238	116.48	1.2850	2.064	185.8062			aman
302	82.0315		2	D	940	21.2					94.340	406.0800	aman
303		-142.6480	2.128356	A	6353	50.2	42.40	0.4677	1.084	1195.7369			aman
304		-51.5334	2.370255	B	2716	22.2	106.77	1.1779	1.601	346.1035			aman
305		-603.4354	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
306		-2.0770	1.455884	D	940	21.238	68.55	0.7563	1.248	307.4170			aman
307		-12.8954	0.7279356	D	940	21.238	34.28	0.3781	1.041	368.2657			aman
308	37.7383		2	B	2716	22.2					90.090	1173.3120	aman
309	409.4269		2	H	1550	27.4					72.993	669.6000	aman
310	5.2425		2.47378	D	940	21.2					116.688	406.0800	aman
311	65.2493		2	D	940	21.2					94.340	406.0800	aman
312	194.3960		2.128356	A	6353	50.2					42.398	2744.4960	aman
313		-57.5926	2.370253	B	2716	22.2	106.77	1.1779	1.601	346.1038			aman
314		-650.2196	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
315		-27.4447	1.45588	D	940	21.238	68.55	0.7563	1.248	307.4173			aman
316	40.8100		2	B	2716	22.2					90.090	1173.3120	aman
317	329.9565		2	H	1550	27.4					72.993	669.6000	aman
318	84.8481		2.128356	D	940	21.2					100.394	406.0800	aman
319	306.5334		2.128356	A	6353	50.2					42.398	2744.4960	aman
320		-43.3596	2.37025	B	2716	22.2	106.77	1.1779	1.601	346.1041			aman
321		-702.3664	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
322	0.8297		0.72794	D	940	21.2					34.337	406.0800	aman
323	32.0370		2	B	2716	22.2					90.090	1173.3120	aman
324	330.2527		2	H	1550	27.4					72.993	669.6000	aman
325	360.6014		2.128356	A	6353	50.2					42.398	2744.4960	aman
326	32.7802		2.370247	B	2716	22.2					106.768	1173.3120	aman
327		-741.3385	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
328		-30.6682	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
329	548.6190		2.128356	A	6353	50.2					42.398	2744.4960	aman
330	174.7074		2.370245	B	2716	22.2					106.768	1173.3120	aman
331		-709.3516	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
332		-152.6393	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
333	374.3757		2.128356	A	6353	50.2					42.398	2744.4960	aman
334	187.2072		2.370242	B	2716	22.2					106.768	1173.3120	aman
335		-547.3301	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
336		-163.8680	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
337	190.8264		2.128356	A	6353	50.2					42.398	2744.4960	aman
338	196.5015		2.370239	B	2716	22.2					106.768	1173.3120	aman
339		-371.9659	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
340		-169.5527	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
341		-10.6463	2.234774	A	6353	50.2	44.52	0.4911	1.096	1183.0195			aman

Tabel 4.6.b Lanjutan

BTG	Nu tarik (kN)	Nu tekan (kN)	L (m)	Profil	Ag (mm²)	rx (mm)	Analisa Batang Tekan				Analisa Batang Tarik		Ket
							k.L/rx < 200	λc	ω	ΦNn (kN)	k.L/rx < 240	ΦNn (kN)	
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
342	207.7478		2.436566	B	2716	22.2					109.755	1173.3120	aman
343		-188.5271	2.234761	A	6353	50.2	44.52	0.4911	1.096	1183.0211			aman
344		-185.7705	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
345		-13.0169	2	C	1230	24.245	82.49	0.9101	1.357	369.8756			aman
346	9.8754		2.828427	C	1230	24.2					116.877	531.3600	aman
347	6.6229		2.128376	C	1230	24.2					87.949	531.3600	aman
348		-6.4645	1.272	C	1230	24.245	52.46	0.5788	1.142	439.6266			aman
349		-5.9208	2	C	1230	24.245	82.49	0.9101	1.357	369.8756			aman
350	7.5380		2.370229	C	1230	24.2					97.943	531.3600	aman
351		-0.5549	2.128376	C	1230	24.245	87.79	0.9685	1.403	357.5756			aman
352		-3.2667	0.544	C	1230	24.245	22.44	0.2475	0.985	509.3776			aman

Keterangan:

[1] Nomer batang

[2] Nu tarik = gaya batang tarik

[3] Nu tekan = gaya batang tekan

[4] Panjang batang

[5] Profil terpasang

[6] Ag = Luas penampang profil (mm^2)

[7] rx = Jari-jari girasi profil terkecil (mm)

[8] k.L/rx < 200 (syarat angka perbandingan kelangsingan batang tekan)

[9] λc =(1/3,14).(kL/r).(fy/E)^0,5 (parameter kelangsingan batang tekan)

[10] ω =m koefisien tekuk

λc ≤ 0,25 ; ω = 1

0,25 < λc < 1,2 ; ω = 1,3/(1,6 - 0,6 λc)

λc ≥ 1,2 ; ω = 1,25 λc^2

[11] ΦNn = 0,85.Ag.(fy/ω) ; Kuat tekan nominal

[12] k.L/rx < 240 (syarat angka perbandingan kelangsingan batang tarik)

[13] ΦNn = 0,9.Ag.fy ; kuat tarik nominal

[14] Nu ≤ ΦNn ; profil aman dipakai

Tabel 4.6.c Perencanaan Batang Tarik dan Batang Tekan Kuda-Kuda K2

BTG	Nu tarik (kN)	Nu tekan (kN)	L (m)	Dim	Ag (mm²)	ix (mm)	Analisis Batang Tekan				Analisis Batang Tarik		Ket.
							λ=Lk/ix ≤200	ω	σ	φNn (kN)	λ=Lk/ix ≤240	φNn (kN)	
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
1		-3.6952	0.544	C	1230	24.245	22.44	0.2475	0.985	509.3776			aman
2		-6.6032	2	C	1230	24.245	82.49	0.9101	1.357	369.8756			aman
3	7.9867		2.370229	C	1230	24.2					97.943	531.3600	aman
4		-0.2997	2.128376	C	1230	24.245	87.79	0.9685	1.403	357.5756			aman
5		-7.0121	1.272	C	1230	24.245	52.46	0.5788	1.142	439.6266			aman
6		-14.6132	2	C	1230	24.245	82.49	0.9101	1.357	369.8756			aman
7	10.6626		2.828427	C	1230	24.2					116.877	531.3600	aman
8	7.5221		2.128376	C	1230	24.2					87.949	531.3600	aman
9		-168.8491	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
10	17.5892		2.234774	A	6353	50.2					44.517	2744.4960	aman
11	184.3348		2.436566	B	2716	22.2					109.755	1173.3120	aman
12		-163.6278	2.234761	A	6353	50.2	44.52	0.4911	1.096	1183.0211			aman
13		-151.1528	0	B	2716	22.2	0.00	0.0000	0.894	619.9317			aman
14	171.8859		2.128356	A	6353	50.2					42.398	2744.4960	aman
15	172.5548		2.370239	B	2716	22.2					106.768	1173.3120	aman
16		-324.7769	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
17		-143.6070	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
18	332.6324		2.128356	A	6353	50.2					42.398	2744.4960	aman
19	162.4692		2.370242	B	2716	22.2					106.768	1173.3120	aman
20		-477.0126	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
21		-131.8597	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
22	482.9667		2.128356	A	6353	50.2					42.398	2744.4960	aman
23	148.8774		2.370245	B	2716	22.2					106.768	1173.3120	aman
24		-615.1134	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
25		-25.1508	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
26	285.0788		2	H	1550	27.4					72.993	669.6000	aman
27	318.3185		2.128356	A	6353	50.2					42.398	2744.4960	aman
28	25.1683		2.370247	B	2716	22.2					106.768	1173.3120	aman
29		-639.0390	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
30	0.6827		0.72794	D	940	21.2					34.337	406.0800	aman
31	30.5470		2	B	2716	22.2					90.090	1173.3120	aman
32	204.7971		2	H	1550	27.4					72.993	669.6000	aman
33	71.9281		2.128356	D	940	21.2					100.394	406.0800	aman
34	269.1749		2.128356	A	6353	50.2					42.398	2744.4960	aman
35		43.3092	2.37025	B	2716	22.2	106.77	1.1779	1.601	346.1041			aman
36		-600.6980	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
37		-23.3408	1.45588	D	940	21.238	68.55	0.7563	1.248	307.4173			aman
38	40.1381		2	B	2716	22.2					90.090	1173.3120	aman
39	352.0079		2	H	1550	27.4					72.993	669.6000	aman
40	4.7443		2.47378	D	940	21.2					116.688	406.0800	aman
41	59.9699		2	D	940	21.2					94.340	406.0800	aman
42	166.1792		2.128356	A	6353	50.2					42.398	2744.4960	aman
43		-56.4285	2.370253	B	2716	22.2	106.77	1.1779	1.601	346.1038			aman
44		-549.4663	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
45	2.0487		1.455884	D	940	21.2					68.674	406.0800	aman
46		-11.2200	6	D	940	21.238	34.28	0.3781	1.041	368.2657			aman
47	38.9125		2	B	2716	22.2					90.090	1173.3120	aman
48	353.6110		2	H	1550	27.4					72.993	669.6000	aman

Tabel 4.6.c Lanjutan

BTG	Nu tarik (kN)	Nu tekan (kN)	L (m)	Pfil	Ag (mm²)	ry (mm)	Analisis Batang Tekan: KL/rx ≤ 200	λc	ω	φNn (kN)	Analisis Batang Tarik: KL/rx ≤ 240	φNn (kN)	Ket.
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
49		-20.1368	2.473783	D	940	21.238	116.48	1.2850	2.064	185.8062			aman
50	75.6801		2	D	940	21.2					94.340	406.0800	aman
51	115.3077		2.28356	A	6353	50.2					45.489	2744.4960	aman
52		-53.6204	2.370255	B	2716	22.2	106.77	1.1779	1.601	346.1035			aman
53		-500.5958	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
54	12.9441		1.455889	D	940	21.2					68.674	406.0800	aman
55	46.8926		2	B	2716	22.2					90.090	1173.3120	aman
56	337.3908		2	H	1550	27.4					72.993	669.6000	aman
57		-23.4125	2.473785	D	940	21.238	116.48	1.2850	2.064	185.8058			aman
58	94.9712		2	D	940	21.2					94.340	406.0800	aman
59	66.4999		2.128356	A	6353	50.2					42.398	2744.4960	aman
60		-62.7212	2.370258	B	2716	22.2	106.77	1.1779	1.601	346.1032			aman
61		-443.4342	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
62	14.5473		1.455893	D	940	21.2					68.674	406.0800	aman
63	54.5633		2	B	2716	22.2					90.090	1173.3120	aman
64	318.0456		2	H	1550	27.4					72.993	669.6000	aman
65		-26.2425	2.473788	D	940	21.238	116.48	1.2850	2.064	185.8054			aman
66	116.7838		2	D	940	21.2					94.340	406.0800	aman
67	11.8488		2.128356	A	6353	50.2					42.398	2744.4960	aman
68		-74.0826	2.370261	B	2716	22.2	106.77	1.1779	1.601	346.1028			aman
69		-376.4701	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
70		-44.4195	1.455898	D	940	21.238	68.55	0.7563	1.248	307.4158			aman
71		-30.3548	1.638042	D	940	21.238	77.13	0.8509	1.313	292.1905			aman
72		-32.0367	1.2737	D	940	21.238	59.97	0.6616	1.189	322.6456			aman
73	32.3118		2	B	2716	22.2					90.090	1173.3120	aman
74	105.8648		1.236895	D	940	21.2					58.344	406.0800	aman
75	22.5330		1.236895	D	940	21.2					58.344	406.0800	aman
76	210.6055		2	H	1550	27.4					72.993	669.6000	aman
77	98.7413		2	D	940	21.2					94.340	406.0800	aman
78		-5.1224	2.585182	E	691	18.165	142.32	1.5701	3.081	91.4945			aman
79	3.7121		2	E	691	18.2					109.890	298.5120	aman
80		-4.3737	2.371141	E	691	18.165	130.53	1.4401	2.592	108.7583			aman
81		-61.0232	2.128356	A	6353	50.2	42.40	0.4677	1.084	1195.7369			aman
82		-43.3405	2.370264	B	2716	22.2	106.77	1.1779	1.601	346.1025			aman
83		-335.7340	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
84	22.3478		1.236895	D	940	21.2					58.344	406.0800	aman
85	106.3064		1.236898	D	940	21.2					58.344	406.0800	aman
86		-12.0699	1.455902	D	940	21.238	68.55	0.7563	1.248	153.7077			aman
87	64.9674		1.638038	D	940	21.2					77.266	406.0800	aman
88	67.2237		2	D	940	21.2					94.340	406.0800	aman
89	79.9404		2	B	2716	22.2					90.090	1173.3120	aman
90	228.3348		2	D	940	21.2					94.340	406.0800	aman
91	19.0527		2.473793	E	691	18.2					135.923	298.5120	aman
92	167.8725		2	D	940	21.2					94.340	406.0800	aman
93	19.5959		2.197258	D	940	21.2					103.644	406.0800	aman
94		-108.8259	2	A	6353	50.2	39.84	0.4395	1.070	1211.0759	39.841	2744.4960	aman
95	31.9448		2.828434	B	2716	22.2					127.407	1173.3120	aman

Tabel 4.6.c Lanjutan

BTG	Nu tarik (kN)	Nu tekan (kN)	L (m)	Grp	Ag (mm²)	ix (mm)	Analisis Batang Tekan: kL/ix < 200	λc	ω	ϕNn (kN)	Analisis Batang Tarik: kL/ix < 240	ϕNn (kN)	Ket
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
96		-337.0615	2	A	6353	50.2	39.84	0.4395	1.070	1211.0759			aman
97		-10.0654	1.455907	E	691	18.165	80.15	0.8842	1.337	105.4243			aman
98	20.0230		0.909915	E	691	18.2					49.995	298.5120	aman
99	3.8798		2	B	2716	22.2					90.090	1173.3120	aman
100	243.3032		2	D	940	21.2					94.340	406.0800	aman
101	15.8610		2.473795	E	691	18.2					135.923	298.5120	aman
102	155.9166		2	D	940	21.2					94.340	406.0800	aman
103	42.9205		2.197258	D	940	21.2					103.644	406.0800	aman
104		-23.0466	2.197258	E	691	18.165	120.96	1.3345	2.226	63.3264			aman
105		-88.0160	2	A	6353	50.2	39.84	0.4395	1.070	1211.0759			aman
106		-7.1444	2.828434	B	2716	22.2	127.41	1.4056	2.470	224.3581			aman
107		-335.7088	2	A	6353	50.2	39.84	0.4395	1.070	1211.0759			aman
108		-8.6748	1.455911	E	691	18.165	80.15	0.8842	1.337	105.4241			aman
109		-2.1540	1.81983	E	691	18.165	100.18	1.1052	1.526	184.7035			aman
110	1.5298		2	B	2716	22.2					90.090	1173.3120	aman
111	255.2743		2	D	940	21.2					94.340	406.0800	aman
112	13.5531		2.473798	E	691	18.2					135.923	298.5120	aman
113	146.3192		2	D	940	21.2					94.340	406.0800	aman
114	40.8809		2.197258	D	940	21.2					103.644	406.0800	aman
115	3.8119		2.161198	E	691	18.2					118.747	298.5120	aman
116	13.4753		2.236435	D	940	21.2					105.492	406.0800	aman
117		-120.1983	2	A	6353	50.2	39.84	0.4395	1.070	1211.0759			aman
118		-7.9429	2.828434	B	2716	22.2	127.41	1.4056	2.470	224.3581			aman
119		-331.6722	2	A	6353	50.2	39.84	0.4395	1.070	1211.0759			aman
120		-7.4109	1.455916	E	691	18.165	80.15	0.8842	1.337	210.8479			aman
121		-3.7891	1.728925	E	691	18.165	95.18	1.0500	1.474	191.2343			aman
122	7.4337		2	B	2716	22.2					90.090	1173.3120	aman
123	265.0281		2	D	940	21.2					94.340	406.0800	aman
124	11.4958		2.473801	E	691	18.2					135.923	298.5120	aman
125	139.0140		2	D	940	21.2					94.340	406.0800	aman
126	36.5718		2.197258	D	691	18.2					120.728	298.5120	aman
127	6.1085		2.128412	E	940	21.2					100.397	406.0800	aman
128	14.8720		2.236435	D	940	21.2					105.492	406.0800	aman
129		-124.3869	2	A	6353	50.2	39.84	0.4395	1.070	2422.1518			aman
130		-19.3017	2.828434	B	2716	22.2	127.41	1.4056	2.470	448.7163			aman
131		-319.5496	2	A	6353	50.2	39.84	0.4395	1.070	1211.0759			aman
132		-41.8514	1.45592	E	691	18.165	80.15	0.8842	1.337	105.4238			aman
133		-26.6297	1.63802	E	691	18.165	90.17	0.9948	1.426	98.8826			aman
134		-14.1442	2	E	691	18.165	110.10	1.2147	1.844	152.8682			aman
135	18.5806		2	B	2716	22.2					90.090	1173.3120	aman
136	63.7244		1.236902	E	691	18.2					67.962	298.5120	aman
137	63.6996		1.236902	E	691	18.2					67.962	298.5120	aman
138	16.9746		1.292585	E	691	18.2					71.021	298.5120	aman
139	16.6656		1.292585	E	691	18.2					71.021	298.5120	aman
140		-10.1535	1.414793	E	691	18.165	77.89	0.8592	1.319	213.8022			aman
141		-9.9446	1.414793	E	691	18.165	77.89	0.8592	1.319	213.8022			aman
142		-33.3153	1.414217	B	2716	22.2	63.70	0.7028	1.214	456.5516			aman
143		-33.2293	1.414217	B	2716	22.2	63.70	0.7028	1.214	456.5516			aman

Tabel 4.6.c Lanjutan

BTG	Nu tarik	Nu teken	L	Pnh	Ag	ix	Analisis Batang Tekan				Analisis Batang Tarik		Ket
	(kN)	(kN)	(m)		(mm²)	(mm)	K.Lix < 200	λx	ω	ΦNn (kN)	K.Lix < 240	ΦNn (kN)	
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
144	221.3743		2	D	940	21.2					94.340	406.0800	aman
145	104.2682		2	D	940	21.2					94.340	406.0800	aman
146	11.8213		2	E	691	18.2					109.890	298.5120	aman
147		-106.2636	2	A	6353	50.2	39.84	0.4395	1.070	1211.0759			aman
148		-295.3055	2	A	6353	50.2	39.84	0.4395	1.070	1211.0759			aman
149	63.7244		1.236902	E	691	18.2					67.962	298.5120	aman
150	63.6996		1.236902	E	691	18.2					67.962	298.5120	aman
151	16.5253		1.292585	E	691	18.2					71.021	298.5120	aman
152	17.1100		1.292585	E	691	18.2					71.021	298.5120	aman
153		-10.2239	1.414793	E	691	18.165	77.89	0.8592	1.319	213.8022			aman
154		-9.8743	1.414793	E	691	18.165	77.89	0.8592	1.319	213.8022			aman
155		-33.3153	1.414217	B	2716	22.2	63.70	0.7028	1.214	456.5516			aman
156		-33.2293	1.414217	B	2716	22.2	63.70	0.7028	1.214	456.5516			aman
157		-41.8514	1.45592	E	691	18.165	80.15	0.8842	1.337	210.8476			aman
158		-26.4606	1.63802	E	691	18.165	90.17	0.9948	1.426	197.7651			aman
159		-13.8521	2	E	691	18.165	110.10	1.2147	1.844	152.8682			aman
160	18.5806		2	B	2716	22.2					90.090	1173.3120	aman
161	265.0281		2	D	940	21.2					94.340	406.0800	aman
162	11.4949		2.473801	E	691	18.2					135.923	298.5120	aman
163	138.3038		2	D	940	21.2					94.340	406.0800	aman
164	36.6438		2.197258	D	940	21.2					103.644	406.0800	aman
165	5.5123		2.128412	E	691	18.2					116.946	298.5120	aman
166	15.4066		2.236435	D	940	21.2					105.492	406.0800	aman
167		-124.3869	2	A	6353	50.2	39.84	0.4395	1.070	1211.0759			aman
168		-18.8357	2.828434	B	2716	22.2	127.41	1.4056	2.470	224.3581			aman
169		-319.5496	2	A	6353	50.2	39.84	0.4395	1.070	1211.0759			aman
170		-7.3205	1.455916	E	691	18.165	80.15	0.8842	1.337	105.4239			aman
171		-3.4091	1.728925	E	691	18.165	95.18	1.0500	1.474	191.2343			aman
172	7.4337		2	B	2716	22.2					90.090	1173.3120	aman
173	255.2743		2	D	940	21.2					94.340	406.0800	aman
174	13.5438		2.473798	E	691	18.2					135.923	298.5120	aman
175	146.1236		2	D	940	21.2					94.340	406.0800	aman
176	41.2934		2.197258	D	940	21.2					103.644	406.0800	aman
177	3.2387		2.161198	E	691	18.2					118.747	298.5120	aman
178	13.6323		2.236435	D	940	21.2					105.492	406.0800	aman
179		-120.1983	2	A	6353	50.2	39.84	0.4395	1.070	1211.0759			aman
180		-7.4972	2.828434	B	2716	22.2	127.41	1.4056	2.470	448.7163			aman
181		-331.6722	2	A	6353	50.2	39.84	0.4395	1.070	1211.0759			aman
182		-8.5816	1.455911	E	691	18.165	80.15	0.8842	1.337	210.8482			aman
183		-1.7888	1.81983	E	691	18.165	100.18	1.1052	1.526	184.7035			aman
184		-1.2113	2	B	2716	22.2	90.09	0.9939	1.425	777.7559			aman
185	243.3032		2	D	940	21.2					94.340	406.0800	aman
186	15.8516		2.473795	E	691	18.2					135.923	298.5120	aman
187	155.9166		2	D	940	21.2					94.340	406.0800	aman
188	43.6376		2.197258	D	940	21.2					103.644	406.0800	aman
189		-23.2426	2.197258	E	691	18.165	120.96	1.3345	2.226	126.6528			aman
190		-88.0160	2	A	691	18.165	110.10	1.2147	1.844	152.8682			aman

Tabel 4.6.c Lanjutan

BTG	Nu tarik (kN)	Nu tekan (kN)	Lc (m)	Cm	Ag (mm²)	λ	Analisis Batang Tekan				Analisis Batang Tarik		Ket.
							KL/ix < 200	λc	ω	φNn (kN)	KL/ix < 240	φNn (kN)	
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
191	6.0037		2.828434	B	2716	22.2					127.407	1173.3120	aman
192		-335.7088	2	A	6353	50.2	39.84	0.4395	1.070	1211.0759			aman
193		-9.9747	1.455907	E	691	18.165	80.15	0.8842	1.337	105.4243			aman
194	20.0230		1	E	691	18.2					54.945	298.5120	aman
195	3.0493		2	B	2716	22.2					90.090	1173.3120	aman
196	228.3348		2	D	940	21.2					94.340	406.0800	aman
197	19.0516		2.473793	E	691	18.2					135.923	298.5120	aman
198	167.8725		2	D	940	21.2					94.340	406.0800	aman
199	20.6051		2.197258	D	940	21.2					103.644	406.0800	aman
200		-108.8259	2	A	6353	50.2	39.84	0.4395	1.070	1211.0759			aman
201	31.4005		2.828434	B	2716	22.2					127.407	1173.3120	aman
202		-337.0615	2	A	6353	50.2	39.84	0.4395	1.070	1211.0759			aman
203		-11.4246	1.455902	D	940	21.238	68.55	0.7563	1.248	153.7077			aman
204	64.9674		1.638038	D	940	21.2					77.266	406.0800	aman
205	67.2237		2	D	940	21.2					94.340	406.0800	aman
206	79.9404		2	B	2716	22.2					90.090	1173.3120	aman
207	21.9776		1.236895	D	940	21.2					58.344	406.0800	aman
208	106.4740		1.236898	D	940	21.2					58.344	406.0800	aman
209	210.6055		2	H	1550	27.4					72.993	669.6000	aman
210	98.7413		2	D	940	21.2					94.340	406.0800	aman
211	5.1019		2.585182	E	691	18.2					142.043	298.5120	aman
212		-3.6823	2	E	691	18.165	110.10	1.2147	1.844	152.8682			aman
213		-4.3414	2.371141	E	691	18.165	130.53	1.4401	2.592	108.7583			aman
214		-61.0232	2.128356	A	6353	50.2	42.40	0.4677	1.084	1195.7369			aman
215		-43.3405	2.370264	B	2716	22.2	106.77	1.1779	1.601	692.2050			aman
216		-336.2930	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
217	106.0324		1.236895	D	940	21.2					58.344	406.0800	aman
218	22.2295		1.236895	D	940	21.2					58.344	406.0800	aman
219		-44.4195	1.455898	D	940	21.238	68.55	0.7563	1.248	307.4158			aman
220		-31.1238	1.638042	D	940	21.238	77.13	0.8509	1.313	292.1905			aman
221		-31.5660	1.2737	D	940	21.238	59.97	0.6616	1.189	322.6456			aman
222	32.3118		2	B	2716	22.2					90.090	1173.3120	aman
223	318.0456		2	H	1550	27.4					72.993	669.6000	aman
224		-26.5778	2.473788	D	940	21.238	116.48	1.2850	2.064	92.9027			aman
225	116.7838		2	D	940	21.2					94.340	406.0800	aman
226	6.2283		2.128356	A	6353	50.2					42.398	2744.4960	aman
227		-73.6002	2.370261	B	2716	22.2	106.77	1.1779	1.601	692.2057			aman
228		-377.0290	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
229	14.8820		1.455893	D	940	21.2					68.674	406.0800	aman
230	54.5633		2	B	2716	22.2					90.090	1173.3120	aman
231	337.3908		2	H	1550	27.4					72.993	669.6000	aman
232		-23.4748	2.473785	D	940	21.238	116.48	1.2850	2.064	92.9029			aman
233	94.8712		2	D	940	21.2					94.340	406.0800	aman
234	61.8187		2.128356	A	6353	50.2					42.398	2744.4960	aman
235		-62.4085	2.370258	B	2716	22.2	106.77	1.1779	1.601	346.1032	106.768	1173.3120	aman
236		-443.9931	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
237	12.9847		1.455889	D	940	21.2					68.674	406.0800	aman
238	46.8926		2	B	2716	22.2					90.090	1173.3120	aman

Tabel 4.8.c Lanjutan

BTG	Nu tarik (kN)	Nu tekan (kN)	L (m)	Pth	Ag (mm²)	rx (mm)	Analisis Batang Tekan				Analisis Batang Tarik		Ket.
							kL/rx ≤ 200	λc	ω	ϕNn (kN)	kL/rx ≤ 240	ϕNn (kN)	
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
239	353.6110		2	H	1550	27.4					72.993	669.6000	aman
240		-19.8973	2.473783	D	940	21.238	116.48	1.2850	2.064	92.9031			aman
241	75.6801		2	D	940	21.2					94.340	406.0800	aman
242	110.3147		2.128356	A	6353	50.2					42.398	2744.4960	aman
243		-53.6204	2.370255	B	2716	22.2	106.77	1.1779	1.601	346.1035			aman
244		-501.1546	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
245		-1.6379	1.455884	D	940	21.238	68.55	0.7563	1.248	307.4170			aman
246		-10.9832	6	D	940	21.238	34.28	0.3781	1.041	368.2657			aman
247	38.9125		2	B	2716	22.2					90.090	1173.3120	aman
248	352.0079		2	H	1550	27.4					72.993	669.6000	aman
249	4.5267		2.47378	D	940	21.2					116.688	406.0800	aman
250	61.8289		2	D	940	21.2					94.340	406.0800	aman
251	161.4119		2.128356	A	6353	50.2					42.398	2744.4960	aman
252		-56.4285	2.370253	B	2716	22.2	106.77	1.1779	1.601	346.1038			aman
253		-550.0251	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
254		-23.0055	1.45588	D	940	21.238	68.55	0.7563	1.248	153.7087			aman
255	40.1381		2	B	2716	22.2					90.090	1173.3120	aman
256	284.7971		2	H	1550	27.4					72.993	669.6000	aman
257	71.7605		2.128356	D	940	21.2					100.394	406.0800	aman
258	265.7046		2.128356	A	6353	50.2					42.398	2744.4960	aman
259		-42.4930	2.37025	B	2716	22.2	106.77	1.1779	1.601	346.1041			aman
260		-601.2569	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
261	0.8504		0.72794	D	940	21.2					34.337	406.0800	aman
262	30.5470		2	B	2716	22.2					90.090	1173.3120	aman
263	285.0788		2	H	1550	27.4					72.993	669.6000	aman
264	314.6035		2.128356	A	6353	50.2					42.398	2744.4960	aman
265	25.1760		2.370247	B	2716	22.2					106.768	1173.3120	aman
266		-639.5980	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
267		-24.5047	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
268	478.6779		2.128356	A	6353	50.2					42.398	2744.4960	aman
269	148.8774		2.370245	B	2716	22.2					106.768	1173.3120	aman
270		-615.6724	2.128357	A	691	18.2							aman
271		-131.8597	2	B	2716	22.2	90.09	0.9939	1.425	777.7559			aman
272	327.4369		2.128356	A	6353	50.2					42.398	2744.4960	aman
273	162.4692		2.370242	B	2716	22.2					106.768	1173.3120	aman
274		-477.5715	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
275		-143.6070	2	B	2716	22.2	90.09	0.9939	1.425	777.7559			aman
276	166.2443		2.128356	A	6353	50.2					42.398	2744.4960	aman
277	172.5548		2.370239	B	2716	22.2					106.768	1173.3120	aman
278		-325.3358	2.128357	A	6353	50.2	42.40	0.4677	1.084	1195.7367			aman
279		-150.2063	2	B	2716	22.2	90.09	0.9939	1.425	777.7559			aman
280		-12.6535	2.234774	A	6353	50.2	44.52	0.4911	1.096	1183.0195			aman
281		-184.3289	2.436566	B	2716	22.2	109.76	1.2108	1.833	302.3274	109.755	1173.3120	aman
282		-164.2147	2.234761	A	6353	50.2	44.52	0.4911	1.096	1183.0211			aman
283		-167.2527	2	B	2716	22.22	90.01	0.9930	1.424	389.0859	90.009	1173.3120	aman
284		-14.6179	2	C	1230	24.245	82.49	0.9101	1.357	369.8756			aman
285	11.1905		2.828427	C	1230	24.2					116.877	531.3600	aman
286	7.3301		2.128376	C	1230	24.2					87.949	531.3600	aman
287		-7.3411	1.272	C	1230	24.245	52.46	0.5788	1.142	439.6266			aman

Tabel 4.6.c Lanjutan

Btg	Nu tarik	Nu tekan		Profil	Ag	rx	Batang Tekan				Batang Tarik		Ket
	(kN)	(kN)	(m)		(mm^2)	(mm)	k.L/rx < 200	λc	ω	ΦNn (kN)	k.L/rx < 240	ΦNn (kN)	
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
288		-6.6022	2	C	1230	24.245	82.49	0.9101	1.357	184.9378			aman
289	8.3125		2.370229	C	1230	24.2					97.943	531.3600	aman
290		-0.5187	2.128376	C	1230	24.245	87.79	0.9685	1.403	357.5756			aman
291		-3.6951	0.544	C	1230	24.245	22.44	0.2475	0.985	509.3776			aman

Keterangan:

[1] Nomer batang

[2] Nu tarik = gaya batang tarik

[3] Nu tekan = gaya batang tekan

[4] Panjang batang

[5] Profil terpasang

[6] Ag = Luas penampang profil (mm^2)

[7] rx = Jari-jari girasi profil terkecil (mm)

[8] k.L/rx < 200 (syarat angka perbandingan kelangsingan batang tekan)

[9] λc =(1/3,14).(kL/r).(fy/E)^0,5 (parameter kelangsingan batang tekan)

[10] ω =m koefisien tekuk

λc ≤ 0,25 ; ω = 1

0,25 < λc < 1,2 ; ω = 1,3/(1,6 - 0,6 λc)

λc ≥ 1,2 ; ω = 1,25 λc^2

[11] ΦNn = 0,85.Ag.(fy/ω) ; Kuat tekan nominal

[12] k.L/rx < 240 (syarat angka perbandingan kelangsingan batang tarik)

[13] ΦNn = 0,9.Ag.fy ; kuat tarik nominal

[14] Nu ≤ ΦNn ; profil aman dipakai

Tabel 4.6.d Perencanaan Batang Tarik dan Batang Tekan Kuda-Kuda K3

BTG	Nu tarik (kN)	Nu tekan (kN)	L (m)	Prfl	Ag (mm^2)	rx (mm)	Analisis Batang Tekan K.L/rx < 200	λ_c	ω	ϕNn (kN)	Analisis Batang Tarik K.L/rx < 240	ϕNn (kN)	Ket
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
1		-3.8306	0.544	C	1230	24.25	22.44	0.2475	0.985	509.3776			aman
2		-6.5887	2	C	1230	24.25	82.49	0.9101	1.357	369.8756			aman
3	7.9549		2.37023	C	1230	24.2					97.943	531.3600	aman
4		-0.5024	2.12838	C	1230	24.25	87.79	0.9685	1.403	357.5756			aman
5		-7.3707	1.272	C	1230	24.25	52.46	0.5788	1.142	439.6266			aman
6		-14.6826	2	C	1230	24.25	82.49	0.9101	1.357	369.8756			aman
7	10.8274		2.82843	C	1230	24.2					116.877	531.3600	aman
8	7.2710		2.12838	C	1230	24.2					87.949	531.3600	aman
9		-140.6055	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
10	9.9644		2.23476	A	6353	50.2					44.517	2744.4960	aman
11	151.1852		2.43659	B	2716	22.2					109.756	1173.3120	aman
12		-128.6537	2.23476	A	6353	50.2	44.52	0.4911	1.096	1183.0211			aman
13		-123.7661	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
14	137.9309		2.12836	A	6353	50.2					42.398	2744.4960	aman
15	139.4497		2.37025	B	2716	22.2					106.768	1173.3120	aman
16		-258.9268	2.12836	A	6353	50.2					42.398	2744.4960	aman
17		-116.2433	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
18	268.1020		2.12836	A	6353	50.2					42.398	2744.4960	aman
19	129.2734		2.37025	B	2716	22.2					106.768	1173.3120	aman
20		-379.8269	2.12836	A	6353	50.2	42.40	0.4677	1.084	1195.7364			aman
21		-107.5705	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
22	389.0280		2.12836	A	6353	50.2					42.398	2744.4960	aman
23	117.4342		2.37025	B	2716	22.2					106.768	1173.3120	aman
24		-490.0466	2.12836	A	6353	50.2	42.40	0.4677	1.084	1195.7364			aman
25		-95.2871	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
26	497.6489		107	A	6353	50.2					2131.474	2744.4960	aman
27	95.0048		2.0799	B	2716	22.2					93.689	1173.3120	aman
28		-565.7626	1.57497	A	6353	50.2	31.37	0.3461	1.027	1261.8684			aman
29		-31.5477	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
30	557.6606		2.22614	A	6353	50.2					44.345	2744.4960	aman
31	109.0757		2.60793	B	2716	22.2					117.474	1173.3120	aman
32		-645.2058	2.22614	A	6353	50.2	44.35	0.4892	1.095	1184.0515			aman
33		-80.8319	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
34	653.9039		2.06122	A	6353	50.2					41.060	2744.4960	aman
35	92.9525		2.50082	B	2716	22.2					112.650	1173.3120	aman
36		-725.5651	2.06122	A	6353	50.2	41.06	0.4530	1.077	1203.7596			aman
37		-73.9214	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
38	734.4820		2.06122	A	6353	50.2					41.060	2744.4960	aman
39	81.1459		2.50082	B	2716	22.2					112.650	1173.3120	aman
40		-796.6996	2.06122	A	6353	50.2	41.06	0.4530	1.077	1203.7596			aman
41		-61.2106	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
42	803.5906		2.06122	A	6353	50.2					41.060	2744.4960	aman
43	75.3786		2.50082	B	2716	22.2					112.650	1173.3120	aman
44		-858.9710	2.06122	A	6353	50.2	41.06	0.4530	1.077	1203.7596			aman
45	144.6655		2	B	2716	22.2					90.090	1173.3120	aman
46	842.2743		2.36	A	6353	50.2					47.012	2744.4960	aman
47	74.3884		3.09348	B	2716	22.2					139.346	1173.3120	aman
48	891.9356		2.36	A	6353	50.2					47.012	2744.4960	aman

Tabel 4.6.d Lanjutan

BTG	Nu tarik	Nu tekan	L	Prf	Ag	r min	Analisa Batang Tekan				Analisa Batang Tarik		Ket
							K L/rx	λc	ω	φ Nn	K L/rx	φ Nn	
	(kN)	(kN)	(m)		(mm²)	(mm)	< 200			(kN)	< 240	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
49		-41.4723	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
50	899.9550		2	A	6353	50.2					39.841	2744.4960	aman
51	53.0674		2.82843	B	2716	22.2					127.407	1173.3120	aman
52		-931.1133	2	A	6353	50.2	39.84	0.4395	1.070	1211.0759			aman
53		-36.3051	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
54	939.1303		2	A	6353	50.2					39.841	2744.4960	aman
55	42.7201		2.82843	B	2716	22.2					127.407	1173.3120	aman
56		-962.4395	2	A	6353	50.2	39.84	0.4395	1.070	1211.0759			aman
57		-27.8260	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
58	969.9711		2	A	6353	50.2					39.841	2744.4960	aman
59	31.5831		2.82843	B	2716	22.2					127.407	1173.3120	aman
60		-984.9839	2	A	6353	50.2	39.84	0.4395	1.070	1211.0759			aman
61		-20.6412	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
62	992.0873		2	A	6353	50.2					39.841	2744.4960	aman
63	20.8548		2.82843	B	2716	22.2					127.407	1173.3120	aman
64		-998.9843	2	A	6353	50.2	39.84	0.4395	1.070	1211.0759			aman
65		-13.5604	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
66	1005.5461		2	A	6353	50.2					39.841	2744.4960	aman
67	12.5210		2.82843	B	2716	22.2					127.407	1173.3120	aman
68		-1006.2578	2	A	6353	50.2	39.84	0.4395	1.070	1211.0759			aman
69		-4.4662	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
70	7.2374		1.41421	B	2716	22.2					63.703	1173.3120	aman
71		-9.4253	1.41421	B	2716	22.2	63.70	0.7028	1.214	456.5520			aman
72	1005.0108		2	A	6353	50.2					39.841	2744.4960	aman
73		-996.5110	2	A	6353	50.2	39.84	0.4395	1.070	1211.0759			aman
74	3.2413		1.41421	B	2716	22.2					63.703	1173.3120	aman
75		-7.1537	1.41421	B	2716	22.2	63.70	0.7028	1.214	456.5520			aman
76		-6.8639	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
77	996.5264		2	A	6353	50.2					39.841	2744.4960	aman
78	17.9533		2.82843	B	2716	22.2					127.407	1173.3120	aman
79		-1002.8705	2	A	6353	50.2	39.84	0.4395	1.070	1211.0759			aman
80		-17.5001	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
81	976.9230		2	A	6353	50.2					39.841	2744.4960	aman
82	26.1279		2.82843	B	2716	22.2					127.407	1173.3120	aman
83		-989.6431	2	A	6353	50.2	39.84	0.4395	1.070	1211.0759			aman
84		-25.0405	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
85	948.6819		2	A	6353	50.2					39.841	2744.4960	aman
86	37.4726		2.82843	B	2716	22.2					127.407	1173.3120	aman
87		-969.5034	2	A	6353	50.2	39.84	0.4395	1.070	1211.0759			aman
88		-32.6552	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
89	911.7166		2	A	6353	50.2					39.841	2744.4960	aman
90	49.1207		2.82843	B	2716	22.2					127.407	1173.3120	aman
91		-940.8327	2	A	6353	22.2	90.09	0.9939	1.425	909.6250			aman
92		-41.5024	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
93	866.3574		2	A	6353	50.2					39.841	2744.4960	aman
94	60.0149		2.82843	B	2716	22.2					127.407	1173.3120	aman
95		-903.3862	2	A	6353	50.2	39.84	0.4395	1.070	1211.0759			aman
96		-46.9887	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
97	801.6612		2.36	A	6353	50.2					47.012	2744.4960	aman

Tabel 4.6.d Lanjutan

BTG	Nu tarik (kN)	Nu tekan (kN)	L (m)	Pil	Ag (mm^2)	r (mm)	Analisis Batang Tekan: K.L/rx ≤ 200	λc	ω	φNn (kN)	Analisis Batang Tarik: K.L/rx ≤ 240	φNn (kN)	Ket
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
98	82.4363		3.09348	B	2716	22.2					139.346	1173.3120	aman
99		-857.9792	2.36	A	6353	50.2	47.01	0.5186	1.110	1168.0545			aman
100	134.6011		2	B	2716	22.2					90.090	1173.3120	aman
101	756.2206		2.06122	A	6353	50.2					41.060	2744.4960	aman
102	81.2099		2.50082	B	2716	22.2					112.650	1173.3120	aman
103		-817.1969	2.06122	A	6353	50.2	41.06	0.4530	1.077	1203.7596			aman
104		-63.7001	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
105	687.1337		2.06122	A	6353	50.2					41.060	2744.4960	aman
106	84.1293		2.50082	B	2716	22.2					112.650	1173.3120	aman
107		-753.7454	2.06122	A	6353	50.2	41.06	0.4530	1.077	1203.7596			aman
108		-73.8245	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
109	610.1556		2.06122	A	6353	50.2					41.060	2744.4960	aman
110	92.9828		2.50082	B	2716	22.2					112.650	1173.3120	aman
111		-685.2948	2.06122	A	6353	50.2	41.06	0.4530	1.077	1203.7596			aman
112		-78.4363	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
113	519.2855		2.22614	A	6353	50.2					44.345	2744.4960	aman
114	105.8486		2.60793	B	2716	22.2					117.474	1173.3120	aman
115		-608.6671	2.22614	A	6353	50.2	44.35	0.4892	1.095	1184.0515			aman
116		-31.7338	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
117	462.9636		1.57497	A	6353	50.2					31.374	2744.4960	aman
118	90.1585		2.0799	B	2716	22.2					93.689	1173.3120	aman
119		-533.7363	1.57497	A	6353	50.2	31.37	0.3461	1.027	1261.8684			aman
120		-89.0947	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
121	361.4400		2.12836	A	6353	50.2					42.398	2744.4960	aman
122	109.8923		2.37025	B	2716	22.2					106.768	1173.3120	aman
123		-462.9654	2.12836	A	6353	50.2	42.40	0.4677	1.084	1195.7364			aman
124		-100.4717	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
125	247.8445		2.12836	A	6353	50.2					42.398	2744.4960	aman
126	121.3915		2.37025	B	2716	22.2					106.768	1173.3120	aman
127		-359.9266	2.12836	A	6353	50.2	42.40	0.4677	1.084	1195.7364			aman
128		-108.8848	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
129	125.4842		2.12836	A	6353	50.2					42.398	2744.4960	aman
130	131.0313		2.37025	B	2716	22.2					106.768	1173.3120	aman
131		-246.3518	2.12836	A	6353	50.2	42.40	0.4677	1.084	1195.7364			aman
132		-116.0296	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
133		-9.9644	2.23476	A	6353	50.2	44.52	0.4911	1.096	1183.0211			aman
134	142.1995		2.43659	B	2716	22.2					109.756	1173.3120	aman
135		-123.3369	2.23476	A	6353	50.2	44.52	0.4911	1.096	1183.0211			aman
136		-131.9999	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
137		-11.6215	2	C	1230	24.25	82.49	0.9101	1.357	369.8756			aman
138	9.0792		2.82843	C	1230	24.2					116.877	531.3600	aman
139	6.7452		2.12838	C	1230	24.2					87.949	531.3600	aman
140		-5.9964	1.272	C	1230	24.25	52.46	0.5788	1.142	439.6266			aman
141		-4.9969	2	C	1230	24.25	82.49	0.9101	1.357	369.8756			aman
142	6.1213		2.37023	C	1230	24.2					97.943	531.3600	aman
143		-0.2834	2.12838	C	1230	24.25	87.79	0.9685	1.403	357.5756			aman
144		-2.7011	0.544	C	1230	24.25	22.44	0.2475	0.985	509.3776			aman

Keterangan:

[1] Nomer batang

[2] Nu tarik = gaya batang tarik

[3] Nu tekan = gaya batang tekan

[4] Panjang batang

[5] Profil terpasang

[6] Ag = Luas penampang profil (mm^2)

[7] rx = Jari-jari girasi profil terkecil (mm)

[8] k.L/rx < 200 (syarat angka perbandingan kelangsingan batang tekan)

[9] λc =(1/3,14).(kL/r).(fy/E)^0,5 (parameter kelangsingan batang tekan)

[10] ω =m koefisien tekuk

λc ≤ 0,25 ; ω = 1

0,25 < λc < 1,2 ; ω = 1,3/(1,6 - 0,6 λc)

λc ≥ 1,2 ; ω = 1,25 λc^2

[11] ΦNn = 0,85.Ag.(fy/ω) ; Kuat tekan nominal

[12] k.L/rx < 240 (syarat angka perbandingan kelangsingan batang tarik)

[13] ΦNn = 0,9.Ag.fy ; kuat tarik nominal

[14] Nu ≤ ΦNn ; profil aman dipakai

Tabel 4.6.e Perencanaan Batang Tarik dan Batang Tekan Kuda-Kuda K4

BTG	*Nu* tarik (kN)	*Nu* tekan (kN)	L (m)	Prf	Ag (mm^2)	rx (mm)	Analisis Batang Tekan				Analisis Batang Tarik		Ket
							K.L/rx < 200	λ_c	ω	ϕNn (kN)	K.L/rx < 240	ϕNn (kN)	
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
1		-3.2503	0.544	C	1230	24.245	22.44	0.2475	0.985	509.3776			aman
2		-5.8851	2	C	1230	24.245	82.49	0.9101	1.357	369.8756			aman
3	7.1337		2.37023	C	1230	24.2					97.943	531.3600	aman
4		-0.2962	2.12838	C	1230	24.245	87.79	0.9685	1.403	357.5756			aman
5		-6.2410	1.272	C	1230	24.245	52.46	0.5788	1.142	439.6266			aman
6		-13.1727	2	C	1230	24.245	82.49	0.9101	1.357	369.8756			aman
7	9.7079		2.82843	C	1230	24.2					116.877	531.3600	aman
8	6.6583		2.12838	C	1230	24.2					87.949	531.3600	aman
9		-127.3913	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
10		-12.4890	2.23476	A	6353	50.2	44.52	0.4911	1.096	1183.0211			aman
11	144.4143		2.43659	B	2716	22.2					109.756	1173.3120	aman
12		-112.5236	2.23476	A	6353	50.2	44.52	0.4911	1.096	1183.0211			aman
13		-112.8838	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
14	120.7907		2.12836	A	6353	50.2					42.398	2744.4960	aman
15	126.6774		2.37025	B	2716	22.2					106.768	1173.3120	aman
16		-224.6712	2.12836	A	6353	50.2	42.40	0.4677	1.084	1195.7364			aman
17		-104.5530	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
18	228.9697		2.12836	A	6353	50.2					42.398	2744.4960	aman
19	169.8820		2.37025	B	2716	22.2					106.768	1173.3120	aman
20		-358.7006	2.12836	A	6353	50.2	42.40	0.4677	1.084	1195.7364			aman
21		-117.9177	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
22	391.7779		2.12836	A	6353	50.2					42.398	2744.4960	aman
23	11.7148		2.37025	B	2716	22.2					106.768	1173.3120	aman
24		-414.0895	2.12836	A	6353	50.2	42.40	0.4677	1.084	1195.7364			aman
25		-10.4190	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
26	392.1060		1.57497	A	6353	50.2					31.374	2744.4960	aman
27	139.9364		2.0799	B	2716	22.2					93.689	1173.3120	aman
28		-510.0303	1.57497	A	6353	50.2	31.37	0.3461	1.027	1261.8684			aman
29		-121.9774	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
30	527.2634		2.22614	A	6353	50.2					44.345	2744.4960	aman
31	92.7432		2.60793	B	2716	22.2					117.474	1173.3120	aman
32		-600.3551	2.22614	A	6353	50.2	44.35	0.4892	1.095	1184.0515			aman
33		-63.7464	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
34	603.4630		2.06122	A	6353	50.2					41.060	2744.4960	aman
35	87.9839		2.50082	B	2716	22.2					112.650	1173.3120	aman
36		-671.6305	2.06122	A	6353	50.2	41.06	0.4530	1.077	1203.7596			aman
37	90.3278		2	B	2716	22.2					90.090	1173.3120	aman
38	657.9908		2.06122	A	6353	50.2					41.060	2744.4960	aman
39	87.1161		2.50082	B	2716	22.2					112.650	1173.3120	aman
40		-713.1813	2.06122	A	6353	50.2	41.06	0.4530	1.077	1203.7596			aman
41		-54.9663	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
42	719.3016		2.06122	A	6353	50.2					41.060	2744.4960	aman
43	74.1313		2.50082	B	2716	22.2					112.650	1173.3120	aman
44		-765.6687	2.06122	A	6353	50.2	41.06	0.4530	1.077	1203.7596			aman
45		-51.2822	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
46	771.8740		2.36	A	6353	50.2					47.012	2744.4960	aman
47	64.8168		3.09348	B	2716	22.2					139.346	1173.3120	aman
48		-811.5144	2.36	A	6353	50.2	47.01	0.5186	1.110	1168.0545			aman

Tabel 4.6.e Lanjutan

BTG	Nu tarik (kN)	Nu tekan (kN)	L (m)	Prfl	Ag (mm^2)	r (mm)	Analisis Batang Tekan: kL/rx < 200	λc	ω	φNn (kN)	Analisis Batang Tarik: kL/rx < 240	φNn (kN)	Ket.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
49		-43.5246	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
50	817.2928		2	A	6353	50.2					39.841	2744.4960	aman
51	54.5972		2.82843	B	2716	22.2					127.407	1173.3120	aman
52		-849.6520	2	A	6353	50.2	39.84	0.4395	1.070	1211.0759			aman
53		-36.0466	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
54	855.0194		2	A	6353	50.2					39.841	2744.4960	aman
55	43.8069		2.82843	B	2716	22.2					127.407	1173.3120	aman
56		-879.6715	2	A	6353	50.2	39.84	0.4395	1.070	1211.0759			aman
57		-28.4686	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
58	884.6158		2	A	6353	50.2					39.841	2744.4960	aman
59	33.0462		2.82843	B	2716	22.2					127.407	1173.3120	aman
60		-901.5882	2	A	6353	50.2	39.84	0.4395	1.070	1211.0759			aman
61		-21.3550	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
62	906.1382		2	A	6353	50.2					39.841	2744.4960	aman
63	22.6041		2.82843	B	2716	22.2					127.407	1173.3120	aman
64		-915.6452	2	A	6353	50.2	39.84	0.4395	1.070	1211.0759			aman
65		-14.4204	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
66	919.6972		2	A	6353	50.2					39.841	2744.4960	aman
67	14.3273		2.82843	B	2716	22.2					127.407	1173.3120	aman
68		-923.4599	2	A	6353	50.2	39.84	0.4395	1.070	1211.0759			aman
69		-4.6843	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
70	5.0575		1.41421	B	2716	22.2					63.703	1173.3120	aman
71		-7.9216	1.41421	B	2716	22.2	63.70	0.7028	1.214	456.5520			aman
72	920.9957		2	A	6353	50.2					39.841	2744.4960	aman
73		-915.0800	2	A	6353	50.2	39.84	0.4395	1.070	1211.0759			aman
74	4.4723		1.41421	B	2716	22.2					63.703	1173.3120	aman
75		-8.1867	1.41421	B	2716	22.2	63.70	0.7028	1.214	456.5520			aman
76		-4.8862	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
77	914.7045		2	A	6353	50.2					39.841	2744.4960	aman
78	14.3441		2.82843	B	2716	22.2					127.407	1173.3120	aman
79		-921.5850	2	A	6353	50.2	39.84	0.4395	1.070	1211.0759			aman
80		-14.4201	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
81	897.7444		2	A	6353	50.2					39.841	2744.4960	aman
82	22.5843		2.82843	B	2716	22.2					127.407	1173.3120	aman
83		-910.4746	2	A	6353	50.2	39.84	0.4395	1.070	1211.0759			aman
84		-21.3413	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
85	872.8379		2	A	6353	50.2					39.841	2744.4960	aman
86	33.0304		2.82843	B	2716	22.2					127.407	1173.3120	aman
87		-893.9784	2	A	6353	50.2	39.84	0.4395	1.070	1211.0759			aman
88		-28.4563	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
89	843.0608		2	A	6353	50.2					39.841	2744.4960	aman
90	43.7906		2.82843	B	2716	22.2					127.407	1173.3120	aman
91		-872.0856	2	A	6353	22.2	90.09	0.9939	1.425	909.6250			aman
92		-36.0343	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
93	805.3605		2	A	6353	50.2					39.841	2744.4960	aman
94	54.5801		2.82843	B	2716	22.2					127.407	1173.3120	aman
95		-842.0915	2	A	6353	50.2	39.84	0.4395	1.070	1211.0759			aman
96		-43.5121	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
97	759.9641		2.36	A	6353	50.2					47.012	2744.4960	aman

Tabel 4.6.e Lanjutan

BTG	Nu tarik	Nu tekan	L	Pnt	Ag	rx	Analisis Batang Tekan				Analisis Batang Tarik		Ket.
	(kN)	(kN)	(m)		(mm²)	(mm)	KLrx/rx ≤ 200	λc	ω	ΦNn (kN)	KLrx/rx ≤ 240	ΦNn (kN)	
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
98	64.8070		3.09348	B	2716	22.2					139.346	1173.3120	aman
99		-803.9802	2.36	A	6353	50.2	47.01	0.5186	1.110	1168.0545			aman
100	51.2643		2	B	2716	22.2					90.090	1173.3120	aman
101	707.4303		2.06122	A	6353	50.2					41.060	2744.4960	aman
102	74.0645		2.50082	B	2716	22.2					112.650	1173.3120	aman
103		-758.1556	2.06122	A	6353	50.2	41.06	0.4530	1.077	1203.7596			aman
104		-55.0339	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
105	646.0577		2.06122	A	6353	50.2					41.060	2744.4960	aman
106	87.3625		2.50082	B	2716	22.2					112.650	1173.3120	aman
107		-705.7111	2.06122	A	6353	50.2	41.06	0.4530	1.077	1203.7596			aman
108		-89.4057	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
109	593.0013		2.06122	A	6353	50.2					41.060	2744.4960	aman
110	88.7436		2.50082	B	2716	22.2					112.650	1173.3120	aman
111		-663.6936	2.06122	A	6353	50.2	41.06	0.4530	1.077	1203.7596			aman
112		69.9299	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
113	515.5608		2.22614	A	6353	50.2					44.345	2744.4960	aman
114	92.2072		2.60793	B	2716	22.2					117.474	1173.3120	aman
115		-592.8115	2.22614	A	6353	50.2	44.35	0.4892	1.095	1184.0515			aman
116		-79.6478	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
117	427.9158		1.57497	A	6353	50.2					31.374	2744.4960	aman
118	101.3088		2.0799	B	2716	22.2					93.689	1173.3120	aman
119		-513.7677	1.57497	A	6353	50.2	31.37	0.3461	1.027	1261.8684			aman
120		-86.8921	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
121	332.0309		2.12836	A	6353	50.2					42.398	2744.4960	aman
122	111.0248		2.37025	B	2716	22.2					106.768	1173.3120	aman
123		-426.0002	2.12836	A	6353	50.2	42.40	0.4677	1.084	1195.7364			aman
124		-94.8040	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
125	227.7443		2.12836	A	6353	50.2					42.398	2744.4960	aman
126	120.7168		2.37025	B	2716	22.2					106.768	1173.3120	aman
127		-329.7842	2.12836	A	6353	50.2	42.40	0.4677	1.084	1195.7364			aman
128		-102.7017	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
129	114.6817		2.12836	A	6353	50.2					42.398	2744.4960	aman
130	131.0122		2.37025	B	2716	22.2					106.768	1173.3120	aman
131		-225.2071	2.12836	A	6353	50.2	42.40	0.4677	1.084	1195.7364			aman
132		-109.7632	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
133		-10.6427	2.23476	A	6353	50.2	44.52	0.4911	1.096	1183.0211			aman
134	142.1697		2.43659	B	2716	22.2					109.756	1173.3120	aman
135		-112.1525	2.23476	A	6353	50.2	44.52	0.4911	1.096	1183.0211			aman
136		-127.5860	2	B	2716	22.2	90.09	0.9939	1.425	388.8779			aman
137		-13.1156	2	C	1230	24.245	82.49	0.9101	1.357	369.8756			aman
138	10.1242		2.82843	C	1230	24.2					116.877	531.3600	aman
139	6.5281		2.12838	C	1230	24.2					87.949	531.3600	aman
140		-6.5012	1.272	C	1230	24.245	52.46	0.5788	1.142	439.6266			aman
141		-5.8992	2	C	1230	24.245	82.49	0.9101	1.357	369.8756			aman
142	7.4905		2.37023	C	1230	24.2					97.943	531.3600	aman
143		-0.5298	2.12838	C	1230	24.245	87.79	0.9685	1.403	357.5756			aman
144		-3.2608	0.544	C	1230	24.245	22.44	0.2475	0.985	509.3776			aman

Keterangan:

[1] Nomer batang

[2] Nu tarik = gaya batang tarik

[3] Nu tekan = gaya batang tekan

[4] Panjang batang

[5] Profil terpasang

[6] Ag = Luas penampang profil (mm^2)

[7] rx = Jari-jari girasi profil terkecil (mm)

[8] k.L/rx < 200 (syarat angka perbandingan kelangsingan batang tekan)

[9] λc =(1/3,14).(kL/r).(fy/E)^0,5 (parameter kelangsingan batang tekan)

[10] ω =m koefisien tekuk

λc ≤ 0,25 ; ω = 1

0,25 < λc < 1,2 ; ω = 1,3/(1,6 - 0,6 λc)

λc ≥ 1,2 ; ω = 1,25 λc^2

[11] ΦNn = 0,85.Ag.(fy/ω) ; Kuat tekan nominal

[12] k.L/rx < 240 (syarat angka perbandingan kelangsingan batang tarik)

[13] ΦNn = 0,9.Ag.fy ; kuat tarik nominal

[14] Nu ≤ ΦNn ; profil aman dipakai

Tabel 4.6.f Perencanaan Batang Tarik dan Batang Tekan Kuda-Kuda K5

BTG	Nu tarik (kN)	Nu tekan (kN)	L (m)	Prfl	Ag (mm^2)	rx (mm)	Analisis Batang Tekan				Analisis Batang Tarik		Ket.
							k.L/rx < 200	ω	λc	ΦNn (kN)	k.L/rx < 240	ΦNn (kN)	
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
1		-2.1079	0.544	E	691	18.165	29.95	0.3304	1.020	276.3618			aman
2		-2.5289	1	E	691	18.165	55.05	0.6073	1.157	243.6018			aman
3	3.3988		1.350727	F	480	15.1					89.452	207.3600	aman
4	0.1996		1.064188	E	691	18.2					58.472	298.5120	aman
5		-4.5131	0.908	F	480	15.1	60.13	0.6634	1.190	164.6104			aman
6		-8.5092	2	E	691	18.165	110.10	1.2147	1.844	152.8682			aman
7	7.7956		2.583892	F	480	15.1					171.119	207.3600	aman
8	2.7969		2.128376	E	691	18.2					116.944	298.5120	aman
9		-6.2079	1.636	F	480	15.1	108.34	1.1953	1.620	120.9053			aman
10		-14.3542	2	E	691	18.165	110.10	1.2147	1.844	152.8682			aman
11	9.1473		3.09653	F	480	15.1					205.068	207.3600	aman
12	9.1400		2.128376	E	691	18.2					116.944	298.5120	aman
13		-17.3930	0.364	C	1230	24.2	15.04	0.1659	0.953	526.5589			aman
14		-16.6067	2	C	1230	24.2	82.64	0.9117	1.358	369.5193			aman
15		-1.3331	2.128359	E	691	18.165	117.17	1.2926	2.089	134.9856			aman
16	9.0243		2.370255	F	480	15.1					156.971	207.3600	aman
17	7.3396		2.128359	E	691	18.2					116.943	298.5120	aman
18		-7.0979	2	F	480	15.1	132.45	1.4612	2.669	73.3776			aman
19	6.8622		2.128359	E	691	18.2					116.943	298.5120	aman
20	4.1823		2.370255	F	480	15.1					156.971	207.3600	aman
21	4.0973		2.128359	E	691	18.165					117.168	298.5120	aman
22		-2.9483	2	F	480	15.1	132.45	1.4612	2.669	73.3776			aman
23	10.6744		2.128359	E	691	18.2					116.943	298.5120	aman
24		-0.9900	2.370255	F	480	15.1	156.97	1.7317	3.749	52.2436			aman
25	4.3994		2.128359	E	691	18.165					117.168	298.5120	aman
26	1.514		2	F	480	15.1					132.450	207.3600	aman
27	10.0652		2.128359	E	691	18.2					116.943	298.5120	aman
28		-5.6800	2.370255	F	480	15.1	156.97	1.7317	3.749	52.2436			aman
29	9.1722		2.128359	E	691	18.165					117.168	298.5120	aman
30	5.2660		2	F	480	15.1					132.450	207.3600	aman
31	5.5642		0.85135	E	691	18.2					46.777	298.5120	aman
32		-7.5169	1.886796	F	480	15.1	124.95	1.3785	2.375	82.4467			aman
33	12.5266		0.85135	E	691	18.2					46.777	298.5120	aman
34	0.1692		2	E	691	18.165					110.102	298.5120	aman

Keterangan:

[1] Nomer batang

[2] Nu tarik = gaya batang tarik

[3] Nu tekan = gaya batang tekan

[4] Panjang batang

[5] Profil terpasang

[6] Ag = Luas penampang profil (mm^2)

[7] rx = Jari-jari girasi profil terkecil (mm)

[8] k.L/rx < 200 (syarat angka perbandingan kelangsingan batang tekan)

[9] λc =(1/3,14).(kL/r).(fy/E)^0,5 (parameter kelangsingan batang tekan)

[10] ω =m koefisien tekuk

λc ≤ 0,25 ; ω = 1

0,25 < λc < 1,2 ; ω = 1,3/(1,6 - 0,6 λc)

Keterangan:

$\lambda c \geq 1,2$; $\omega = 1,25\ \lambda c^2$

[11] $\Phi Nn = 0,85.Ag.(fy/\omega)$; Kuat tekan nominal

[12] $k.L/rx < 240$ (syarat angka perbandingan kelangsingan batang tarik)

[13] $\Phi Nn = 0,9.Ag.fy$; kuat tarik nominal

[14] $Nu \leq \Phi Nn$; profil aman dipakai

Tabel 4.6.g Perencanaan Batang Tarik dan Batang Tekan Kuda-Kuda K6

BTG	Nu tarik (kN)	Nu tekan (KN)	L (m)	Prf	Ag (mm²)	ix (mm)	Analisa Batang Tekan				Analisa Batang Tarik		Ket
							K.Lk/ix ≤ 200	λc	ω	φNn (kN)	K.Lk/ix ≤ 240	φNn (kN)	
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
1		-2.1038	0.544	E	691	18.165	29.95	0.3304	1.020	276.3618			aman
2		-2.5295	1	E	691	18.165	55.05	0.6073	1.157	243.6018			aman
3	3.4011		1.350727	F	480	15.1					89.452	207.3600	aman
4	0.2002		1.064188	E	691	18.2					58.472	298.5120	aman
5		-4.5285	0.908	F	480	15.1	60.13	0.6634	1.190	164.6104			aman
6		-8.5046	2	E	691	18.165	110.10	1.2147	1.844	152.8682			aman
7	7.7837		2.583892	F	480	15.1					171.119	207.3600	aman
8	2.7964		2.128376	E	691	18.2					116.944	298.5120	aman
9		-6.1530	1.636	F	480	15.1	108.34	1.1953	1.620	120.9053			aman
10		-14.3868	2	E	691	18.165	110.10	1.2147	1.844	152.8682			aman
11	9.2341		3.09653	F	480	15.1					205.068	207.3600	aman
12	9.1412		2.128376	E	691	18.2					116.944	298.5120	aman
13		-21.9930	0,364	C	1230	24.2	15.04	0.1659	0.953	526.5589			aman
14		-20.2322	2	C	1230	24.2	82.64	0.9117	1.358	369.5193			aman
15		-3.9178	2.128359	E	691	18.165	117.17	1.2926	2.089	134.9856			aman
16	13.3560		2.370255	F	480	15.1					156.971	207.3600	aman
17	4.4620		2.128359	E	691	18.2					116.943	298.5120	aman
18		-10.8606	2	F	480	15.1	132.45	1.4612	2.669	73.3776			aman
19	8.2284		2.128359	E	691	18.2					116.943	298.5120	aman
20	8.6100		2.370255	F	480	15.1					156.971	207.3600	aman
21		-4.2273	2.128359	E	691	18.165	117.17	1.2926	2.089	134.9856			aman
22		-6.6677	2	F	480	15.1	132.45	1.4612	2.669	73.3776			aman
23	16.0135		2.128359	E	691	18.2					116.943	298.5120	aman
24	3.6761		2.370255	F	480	15.1					156.971	207.3600	aman
25		-7.3864	2.128359	E	691	18.165	117.17	1.2926	2.089	134.9856			aman
26		-2.5272	2	F	480	15.1	132.45	1.4612	2.669	73.3776			aman
27	19.3773		2.128359	E	691	18.2					116.943	298.5120	aman
28		-1.5364	2.370255	F	480	15.1	156.97	1.7317	3.749	52.2436	156.971	207.3600	aman
29		-6.3154	2.128359	E	691	18.165	117.17	1.2926	2.089	134.9856			aman
30	1.8966		2	F	480	15.1					132.450	207.3600	aman
31	18.2403		3	E	691	18.2					164.835	298.5120	aman
32		-4.0124	1.886796	F	480	15.1	124.95	1.3785	2.375	82.4467	124.953	207.3600	aman
33		-4.5394	0.85135	E	691	18.2	46.78	0.5161	1.108	254.3987			aman
34	4.55		2	F	480	18.165					110.102	207.3600	aman
35	16.4905		1.38341	E	691	18.165					76.158	298.5120	aman
36		-7.2562	2	F	480	15.1	132.45	1.4612	2.669	73.3776			aman
37	2.1918		1.38341	E	691	18.2					76.012	298.5120	aman
38	7.7379		2	F	480	15.1					132.450	207.3600	aman
39	11.5382		2.128356	E	691	18.165					117.168	298.5120	aman
40		-13.0063	2.370261	F	480	15.1	156.97	1.7317	3.749	52.2433			aman
41	12.0911		2.128356	E	691	18.2					116.943	298.5120	aman
42	11.5772		2	F	480	15.1					132.450	207.3600	aman
43	3.0794		2.128356	E	691	18.2					116.943	298.5120	aman
44		-18.0138	2.370261	F	480	15.1	156.97	1.7317	3.749	52.2433			aman
45	28.2129		2.128356	E	691	18.2					116.943	298.5120	aman
46		-0.1175	2	F	480	18.165	110.10	1.2147	1.844	106.1892			aman

Keterangan:

[1] Nomer batang

[2] Nu tarik = gaya batang tarik

[3] Nu tekan = gaya batang tekan

[4] Panjang batang

[5] Profil terpasang

[6] Ag = Luas penampang profil (mm^2)

[7] rx = Jari-jari girasi profil terkecil (mm)

[8] k.L/rx < 200 (syarat angka perbandingan kelangsingan batang tekan)

[9] λc =(1/3,14).(kL/r).(fy/E)^0,5 (parameter kelangsingan batang tekan)

[10] ω =m koefisien tekuk

λc ≤ 0,25 ; ω = 1

0,25 < λc < 1,2 ; ω = 1,3/(1,6 - 0,6 λc)

λc ≥ 1,2 ; ω = 1,25 λc^2

[11] ΦNn = 0,85.Ag.(fy/ω) ; Kuat tekan nominal

[12] k.L/rx < 240 (syarat angka perbandingan kelangsingan batang tarik)

[13] ΦNn = 0,9.Ag.fy ; kuat tarik nominal

[14] Nu ≤ ΦNn ; profil aman dipakai

Tabel 4.6.h Perencanaan Batang Tarik dan Batang Tekan Kuda-Kuda K7

Btg	Nx tarik (kN)	Nx tekan (kN)	L (m)	Profil	Ag (mm²)	ix (mm)	Analisis Batang Tekan				Analisa Batang Tarik		Ket
							Lk/ix < 200	ω	ω.N (kN)		Lk/ix < 240	ø.Nn (kN)	
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
1		-2.3376	0.544	E	691	18.165	29.95	0.3304	1.020	276.3618			aman
2		-2.8030	1	E	691	18.165	55.05	0.6073	1.157	243.6018			aman
3	3.7644		1.350727	F	480	15.1					89.452	207.3600	aman
4	0.2833		1.064188	E	691	18.2					58.472	298.5120	aman
5		-5.2654	0.908	F	480	15.1	60.13	0.6634	1.190	164.6104			aman
6		-9.6324	2	E	691	18.165	110.10	1.2147	1.844	152.8682			aman
7	8.8679		2.583892	F	480	15.1					171.119	207.3600	aman
8	3.1154		2.128376	E	691	18.2					116.944	298.5120	aman
9		-7.1720	1.636	F	480	15.1	108.34	1.1953	1.620	120.9053			aman
10		-16.5623	2	E	691	18.165	110.10	1.2147	1.844	152.8682			aman
11	10.9138		3.09653	F	480	15.1					205.068	207.3600	aman
12	10.3586		2.128376	E	691	18.2					116.944	298.5120	aman
13		-29.2902	0.364	C	1230	24.2	15.04	0.1659	0.953	526.5589			aman
14		-25.4301	2	C	1230	24.2	82.64	0.9117	1.358	369.5193			aman
15		-9.5038	2.128359	E	691	18.165	117.17	1.2926	2.089	134.9856			aman
16	17.7823		2.370255	F	480	15.1					156.971	207.3600	aman
17	3.8711		2.128359	E	691	18.2					116.943	298.5120	aman
18		-14.8149	2	F	480	15.1	132.45	1.4612	2.669	73.3776			aman
19	6.7403		2.128359	E	691	18.2					116.943	298.5120	aman
20	12.3314		2.370255	F	480	15.1					156.971	207.3600	aman
21		-8.3918	2.128359	E	691	18.165	117.17	1.2926	2.089	134.9856			aman
22		-9.8320	2	F	480	15.1	132.45	1.4612	2.669	73.3776			aman
23	17.8637		2.128359	E	691	18.2					116.943	298.5120	aman
24	6.5720		2.370255	F	480	15.1					156.971	207.3600	aman
25		-14.3555	2.128359	E	691	18.165	117.17	1.2926	2.089	134.9856			aman
26		-4.5849	2	F	480	15.1	132.45	1.4612	2.669	73.3776			aman
27	23.6987		1.168394	E	691	18.2					64.197	298.5120	aman
28	1.7987		2.370255	F	480	15.1					156.971	207.3600	aman
29		-14.6748	2.128359	E	691	18.165	117.17	1.2926	2.089	134.9856			aman
30	21.9761		0.9599649	E	691	18.2					52.745	298.5120	aman
31	1.3705		2	F	480	15.1					132.450	207.3600	aman
32	21.9080		0.8513504	E	691	18.2					46.777	298.5120	aman
33		-4.3097	1.886796	F	480	15.1	124.95	1.3785	2.375	82.4467			aman
34		-12.7343	0.8513504	E	691	18.165	46.87	0.5171	1.109	254.2811			aman
35	1.9514		3.0023	E	691	18.165					165.279	298.5120	aman
36	4.8222		2	F	480	15.1					132.450	207.3600	aman
37	20.0699		1.38341	E	691	18.2					76.012	298.5120	aman
38		-7.8805	2.005349	F	480	15.1	132.80	1.4651	2.683	72.9866			aman
39		-7.2422	1.38341	E	691	18.165	76.16	0.8402	1.305	216.0568			aman
40	0.4863		1.092	F	480	15.1					72.318	207.3600	aman
41	1.8934		2	F	480	15.1					132.450	207.3600	aman
42	21.9350		1.064188	E	691	18.2					58.472	298.5120	aman
43	1.7559		2	E	691	18.2					109.890	298.5120	aman
44		-7.1554	2.278698	F	480	15.1	150.91	1.6648	3.465	56.5262			aman
45		-6.7621	2.370261	F	480	15.1	156.97	1.7317	3.749	52.2433			aman
46		-1.8394	2.128356	E	691	18.165	117.17	1.2926	2.089	134.9859			aman
47		-7.4187	1	E	691	18.165	55.05	0.6073	1.157	243.6018			aman
48	29.2126		1.064167	E	691	18.2					58.471	298.5120	aman

Tabel 4.6.h Lanjutan

BTG	N_U tarik (kN)	N_U tekan (kN)	L (m)	Fy	Ag (mm²)	rx (mm)	Analisis Batang Tekan				Analisis Batang Tarik		Ket
							kL/rx < 200	λc	ω	φNn (kN)	kL/rx < 240	φNn (kN)	
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
49	3.7956		1.456	F	480	15.1					96.424	207.3600	aman
50	5.5288		2	F	480	15.1					132.450	207.3600	aman
51		-4.4716	2	E	691	18.2	109.89	1.2123	1.837	153.4578			aman
52		-5.7891	2	F	480	15.1	163.83	1.8074	4.083	47.9597			aman
53		-2.8270	2	E	691	18.165	110.10	1.2147	1.844	152.8682			aman
54	23.5332		2.128356	E	691	18.2					116.943	298.5120	aman
55		-11.5764	2.370261	F	480	15.1	156.97	1.7317	3.749	52.2433			aman
56	9.2246		2.128356	E	691	18.2					116.943	298.5120	aman
57	3.8963		1.456	F	480	15.1					96.424	207.3600	aman
58	10.3198		2	F	480	15.1					132.450	207.3600	aman
59		-9.2329	2	E	691	18.165	110.10	1.2147	1.844	152.8682			aman
60		-7.6866	2.47385	F	480	15.1	163.83	1.8074	4.083	47.9597			aman
61	3.4959		2	E	691	18.165					110.102	298.5120	aman
62	13.0159		2.128356	E	691	18.2					116.943	298.5120	aman
63		-17.5743	2.370261	F	480	15.1	156.97	1.7317	3.749	52.2433			aman
64	24.9716		2.128356	E	691	18.2					116.943	298.5120	aman
65	4.9974		1.456	F	480	15.1					96.424	207.3600	aman
66	5.9525		1.81982	E	691	18.2					99.990	298.5120	aman
67		-4.7591	2	F	480	15.1	132.45	1.4612	2.669	73.3776			aman
68		-15.4936	2	E	691	18.165	110.10	1.2147	1.844	152.8682			aman
69	0.7377		2.47385	F	480	15.1					163.831	207.3600	aman
70	2.8795		2	E	691	18.165					110.102	298.5120	aman
71		-28.0432	2.704024	F	480	15.1	179.07	1.9756	4.879	40.1423			aman
72	19.5243		2.128356	E	691	18.2					116.943	298.5120	aman
73	0.5337		2.370261	F	480	15.1					156.971	207.3600	aman
74	24.4611		2.128356	E	691	18.2					116.943	298.5120	aman
75	0.4906		1.456	F	480	15.1					96.424	207.3600	aman
76	5.8092		2.54776	E	691	18.2					139.987	298.5120	aman
77	6.3325		2	F	480	15.1					132.450	207.3600	aman
78		-14.9798	2	E	691	18.2	109.89	1.2123	1.837	153.4578			aman
79		-23.3451	2.47385	F	480	15.1	163.83	1.8074	4.083	47.9597			aman
80	1.8594		2	E	691	18.2					109.890	298.5120	aman
81	20.0715		2.128356	E	691	18.2					116.943	298.5120	aman
82		-12.6107	2.370261	F	480	18.165	130.49	1.4395	2.590	75.6045			aman
83	35.7420		2.128356	E	691	18.2					116.943	298.5120	aman
84	14.109		1.456	F	480	15.1					96.424	207.3600	aman
85	11.1557		2	F	480	15.1					132.450	207.3600	aman
86		-33.9766	1	E	691	18.2	54.95	0.6062	1.157	243.7400			aman
87		-17.6606	1.766334	F	480	15.1	116.98	1.2905	2.082	91.0757			aman
88	11.0910		1	E	691	18.2					54.945	298.5120	aman
89	8.7399		1.064188	E	691	18.2					58.472	298.5120	aman
90		-14.2635	1.917419	F	480	15.1	126.98	1.4009	2.453	79.8343			aman
91	43.6259		1.064188	E	691	18.2					58.472	298.5120	aman
92		-0.0855	1.456	F	480	18.165	80.15	0.8843	1.337	146.4603			aman
93	0.1175		2	F	480	15.1					132.450	207.3600	aman

Keterangan:

[1] Nomer batang

[2] Nu tarik = gaya batang tarik

[3] Nu tekan = gaya batang tekan

[4] Panjang batang

[5] Profil terpasang

[6] Ag = Luas penampang profil (mm^2)

[7] rx = Jari-jari girasi profil terkecil (mm)

[8] k.L/rx < 200 (syarat angka perbandingan kelangsingan batang tekan)

[9] λc =(1/3,14).(kL/r).(fy/E)^0,5 (parameter kelangsingan batang tekan)

[10] ω =m koefisien tekuk

λc ≤ 0,25 ; ω = 1

0,25 < λc < 1,2 ; ω = 1,3/(1,6 - 0,6 λc)

λc ≥ 1,2 ; ω = 1,25 λc^2

[11] ΦNn = 0,85.Ag.(fy/ω) ; Kuat tekan nominal

[12] k.L/rx < 240 (syarat angka perbandingan kelangsingan batang tarik)

[13] ΦNn = 0,9.Ag.fy ; kuat tarik nominal

[14] Nu ≤ ΦNn ; profil aman dipakai

Tabel 4.6.I Perencanaan Batang Tarik dan Batang Tekan Kuda-Kuda K8

BTG	Nu tarik	Nu tekan	L	prfl	Ag	rx	Analisa Batang Tekan				Analisa Batang Tarik		Ket
	(KN)	(KN)	(m)		(mm²)	(mm)	K.L/rx < 200	λc	ω	φ.Nn (KN)	K.L/rx < 240	φ.Nn (KN)	
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
1		-2.3309	0.544	E	691	18.165	29.95	0.3304	1.020	276.3618			aman
2		-2.8041	1	E	691	18.165	55.05	0.6073	1.157	243.6018			aman
3	3.7687		1.350727	F	691	18.2					74.216	298.5120	aman
4	0.2843		1.064188	E	691	18.2					58.472	298.5120	aman
5		-5.2908	0.908	F	691	18.2	49.89	0.5504	1.126	250.3367			aman
6		-9.6241	2	E	691	18.165	110.10	1.2147	1.844	152.8682			aman
7	8.8466		2.583892	F	691	18.2					141.972	298.5120	aman
8	3.1148		2.128376	E	691	18.2					116.944	298.5120	aman
9		-7.0826	1.636	F	691	18.2	89.89	0.9917	1.423	198.1363			aman
10		-16.6178	2	E	691	18.165	110.10	1.2147	1.844	152.8682			aman
11	11.0615		3.09653	F	691	18.2					170.139	298.5120	aman
12	10.3587		2.128376	E	691	18.2					116.944	298.5120	aman
13		-32.9249	0.364	C	691	18.165	20.04	0.2211	0.975	289.2934			aman
14		-27.4651	2	C	691	18.165	110.10	1.2147	1.844	152.8682			aman
15		-13.7636	2.128359	E	691	18.165	117.17	1.2926	2.089	134.9856			aman
16	20.2630		2.370255	F	691	18.2					130.234	298.5120	aman
17	2.6631		2.128359	E	691	18.2					116.943	298.5120	aman
18		-17.0748	2	F	691	18.2	109.89	1.2123	1.837	153.4578			aman
19	4.8011		2.128359	E	691	18.2					116.943	298.5120	aman
20	14.9489		2.370255	F	691	18.2					130.234	298.5120	aman
21		-12.4254	2.128359	E	691	18.165	117.17	1.2926	2.089	134.9856			aman
22		-12.0549	2	F	691	18.2	109.89	1.2123	1.837	153.4578			aman
23	18.2715		2.128359	E	691	18.2					116.943	298.5120	aman
24	9.2287		2.370255	F	691	18.2					130.234	298.5120	aman
25		-20.7784	2.128359	E	691	18.165	117.17	1.2926	2.089	134.9856			aman
26		-6.5410	2	F	691	18.2	109.89	1.2123	1.837	153.4578			aman
27	26.4303		1.168394	E	691	18.2					64.197	298.5120	aman
28	3.1607		2.370255	F	691	18.2					130.234	298.5120	aman
29		-23.1825	2.128359	E	691	18.165	117.17	1.2926	2.089	134.9856			aman
30	23.1428		0.959965	E	691	18.2					52.745	298.5120	aman
31		-1.0496	2	F	691	18.2	109.89	1.2123	1.837	153.4578			aman
32	24.9466		0.85135	E	691	18.2					46.777	298.5120	aman
33		-2.9550	1.886796	F	691	18.2	103.67	1.1437	1.565	180.1532			aman
34		-21.8514	0.85135	E	691	18.165	46.87	0.5171	1.109	254.2811			aman
35		-3.6150	3.0023	E	691	18.165	165.28	1.8234	4.156	67.8374			aman
36	3.2325		2	F	691	18.2					109.890	298.5120	aman
37	23.7904		1.38341	E	691	18.2					76.012	298.5120	aman
38		-6.3805	2.005349	F	691	18.2	110.18	1.2156	1.847	152.6403			aman
39		-17.4637	1.38341	E	691	18.165	76.16	0.8402	1.305	216.0568			aman
40	0.4944		1.092	F	691	18.2					60.000	298.5120	aman
41	2.4708		2	F	691	18.2					109.890	298.5120	aman
42	24.1274		1.064188	E	691	18.2					58.472	298.5120	aman
43	3.4163		2	E	691	18.2					109.890	298.5120	aman
44		-4.3007	2.278698	F	691	18.2	125.20	1.3813	2.385	118.2158			aman
45		-7.4487	2.370261	F	691	18.2	130.23	1.4368	2.580	109.2589			aman
46		-10.7953	2.128356	E	691	18.165	117.17	1.2926	2.089	134.9859			aman
47		-8.0274	1	E	691	18.165	55.05	0.6073	1.157	243.6018			aman
48	31.9983		1.064167	E	691	18.2					58.471	298.5120	aman

Tabel 4.6.i Lanjutan

BTG	Nu tarik	Nu tekan	L	Prfl	Ag	rx	Analisa Batang Tekan				Analisa Batang Tarik		Ket.
							kL/rx ≤ 200	λc	ω	ϕNn (KN)	kL/rx ≤ 240	ϕNn (KN)	
	(KN)	(KN)	(m)		(mm²)	(mm)							
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
49	2.4224		1.456	F	691	18.2					80.000	298.5120	aman
50	6.0447		2	F	691	18.2					109.890	298.5120	aman
51	2.1923		2	E	691	18.2					109.890	298.5120	aman
52		-3.3369	2.47385	F	691	18.2	135.93	1.4996	2.811	100.3003			aman
53		-5.4359	2	E	691	18.165	110.10	1.2147	1.844	152.8682			aman
54	25.7319		2.128356	E	691	18.2					116.943	298.5120	aman
55		-12.1909	2.370261	F	691	18.2	130.23	1.4368	2.580	109.2589			aman
56	1.2977		2.128356	E	691	18.2					116.943	298.5120	aman
57	2.4529		1.456	F	691	18.2					80.000	298.5120	aman
58	10.8375		2	F	691	18.2					109.890	298.5120	aman
59		-3.0673	2	E	691	18.165	110.10	1.2147	1.844	152.8682			aman
60		-5.2366	2.47385	F	691	18.2	135.93	1.4996	2.811	100.3003			aman
61		-1.0949	2	E	691	18.165	110.10	1.2147	1.844	152.8682			aman
62	14.6606		2.128356	E	691	18.2					116.943	298.5120	aman
63		-18.1909	2.370261	F	691	18.2	130.23	1.4368	2.580	109.2589			aman
64	16.4671		2.128356	E	691	18.2					116.943	298.5120	aman
65	3.5701		1.456	F	691	18.2					80.000	298.5120	aman
66	9.8530		1.81982	E	691	18.2					99.990	298.5120	aman
67		-10.6057	2	F	691	18.2	109.89	1.2123	1.837	153.4578			aman
68		-7.3302	2	E	691	18.165	110.10	1.2147	1.844	152.8682			aman
69	9.7727		2.47385	F	691	18.2					135.926	298.5120	aman
70		-9.0636	2	E	691	18.165	110.10	1.2147	1.844	152.8682			aman
71		-38.9427	2.704024	F	691	18.2	148.57	1.6391	3.358	83.9514			aman
72	29.2254		2.128356	E	691	18.2					116.943	298.5120	aman
73	7.4227		2.370261	F	691	18.2					130.234	298.5120	aman
74	9.7290		2.128356	E	691	18.2					116.943	298.5120	aman
75		-5.3275	1.456	F	691	18.2	80.00	0.8826	1.336	211.0430			aman
76	12.2356		2.54776	E	691	18.2					139.987	298.5120	aman
77	6.8911		2	F	691	18.2					109.890	298.5120	aman
78		-3.7858	1.487172	F	691	18.2	81.71	0.9015	1.350	208.8078			aman
79	3.8306		1.487172	F	691	18.2					81.713	298.5120	aman
80	2.5595		2	E	691	18.2					109.890	298.5120	aman
81		-15.8534	2.47385	F	691	18.2	135.93	1.4996	2.811	100.3003			aman
82		-25.1570	2	E	691	18.165	110.10	1.2147	1.844	152.8682			aman
83	36.0343		2.128356	E	691	18.2					116.943	298.5120	aman
84		-13.2839	2.370261	F	691	18.2	130.23	1.4368	2.580	109.2589			aman
85	21.6022		2.128356	E	691	18.2					116.943	298.5120	aman
86		-3.2695	1.0172	F	691	18.2	55.89	0.6166	1.163	242.5067			aman
87	9.6813		1.456	F	691	18.2					80.000	298.5120	aman
88	11.7202		2	F	691	18.2					109.890	298.5120	aman
89		-6.3314	1.436654	F	691	18.2	78.94	0.8708	1.327	212.4302			aman
90	3.5433		2.024444	F	691	18.2					111.233	298.5120	aman
91	3.8281		1.436654	F	691	18.2					78.937	298.5120	aman
92		-12.3995	1	E	691	18.165	55.05	0.6073	1.157	243.6018			aman
93		-12.2059	1.766334	F	691	18.2	97.05	1.0707	1.493	188.7908			aman
94		-18.1338	1	E	691	18.165	55.05	0.6073	1.157	243.6018			aman
95	24.0888		1.064188	E	691	18.2					58.472	298.5120	aman
96		-14.6563	1.917419	F	691	18.2	105.35	1.1623	1.584	177.9574			aman
97	29.7758		1.064188	E	691	18.2					58.472	298.5120	aman

Tabel 4.6.i Lanjutan

BTG	Nu tarik (KN)	Nu tekan (KN)	L (m)	Prfl	Ag (mm^2)	rx (mm)	Analisis Batang Tekan				Analisis Batang Tarik		Ket.
							KL/rx ≤ 200	λc	ω	φNn (KN)	KL/rx ≤ 240	φNn (KN)	
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
98	10.4179		1.456	F	691	18.2					80.000	298.5120	aman
99	15.7053		2	F	691	18.2					109.890	298.5120	aman
100	8.2220		2	F	691	18.2					109.890	298.5120	aman
101		-19.3844	2	E	691	18.165	110.10	1.2147	1.844	152.8682			aman
102		-18.4701	2.47385	F	691	18.2	135.93	1.4996	2.811	100.3003			aman
103		-3.1254	2	E	691	18.165	110.10	1.2147	1.844	152.8682			aman
104	16.0000		2.128353	E	691	18.2					116.942	298.5120	aman
105		-14.7043	2.370265	F	691	18.2	130.23	1.4368	2.580	109.2585			aman
106	36.5291		2.128353	E	691	18.2					116.942	298.5120	aman
107		-16.5701	2.370265	F	691	18.2	130.23	1.4368	2.580	109.2585			aman
108	21.2853		2.128353	F	691	18.2					116.942	298.5120	aman
109	11.3868		1.456	F	691	18.2					80.000	298.5120	aman
110	11.5497		2.183817	E	691	18.2					119.990	298.5120	aman
111		-19.4537	2.183817	E	691	18.165	120.22	1.3263	2.199	128.2167			aman
112		-6.1002	2	F	691	18.2	109.89	1.2123	1.837	153.4578			aman
113	4.0026		2	F	691	18.2					109.890	298.5120	aman
114		-34.3842	2	E	691	18.165	110.10	1.2147	1.844	152.8682			aman
115		-0.7092	2.47385	F	691	18.2	135.93	1.4996	2.811	100.3003			aman
116		-2.4691	2	E	691	18.165	110.10	1.2147	1.844	152.8682			aman
117		-18.3553	2.961259	F	691	18.2	162.71	1.7950	4.028	69.9997			aman
118	0.0059		2	F	691	18.2					109.890	298.5120	aman
119	22.0724		3.532462	F	691	18.2					194.091	298.5120	aman
120	3.8591		2.128353	E	691	18.2					116.942	298.5120	aman
121		-5.3791	2.370265	F	691	18.2	130.23	1.4368	2.580	109.2585			aman
122	26.3744		2.128353	E	691	18.2					116.942	298.5120	aman
123		-9.8562	2.370265	F	691	18.2	130.23	1.4368	2.580	109.2585			aman
124	30.2041		2.128353	F	691	18.2					116.942	298.5120	aman
125	0.8675		1.456	F	691	18.2					80.000	298.5120	aman
126		-3.3574	2.1838	E	691	18.165	120.22	1.3263	2.199	128.2187			aman
127		-2.8929	2.911767	E	691	18.165	160.30	1.7684	3.909	72.1213			aman
128	16.1808		2	F	691	18.2					109.890	298.5120	aman
129	4.7301		2	F	691	18.2					109.890	298.5120	aman
130		-35.0158	2	E	691	18.165	110.10	1.2147	1.844	152.8682			aman
131		-31.5197	2.47385	F	691	18.2	135.93	1.4996	2.811	100.3003			aman
132	10.5880		2	E	691	18.2					109.890	298.5120	aman
133	11.3117		2.128353	E	691	18.2					116.942	298.5120	aman
134		-24.4069	2.370265	F	691	18.2	130.23	1.4368	2.580	109.2585			aman
135	39.4481		2.128353	E	691	18.2					116.942	298.5120	aman
136		-10.7926	2.370265	F	691	18.2	130.23	1.4368	2.580	109.2585			aman
137	39.9405		2.128353	F	691	18.2					116.942	298.5120	aman

Keterangan:

[1] Nomer batang

[2] Nu tarik = gaya batang tarik

[3] Nu tekan = gaya batang tekan

[4] Panjang batang

[5] Profil terpasang

[6] Ag = Luas penampang profil (mm^2)

[7] rx = Jari-jari girasi profil terkecil (mm)

Keterangan:

[8] k.L/rx < 200 (syarat angka perbandingan kelangsingan batang tekan)

[9] λc =(1/3,14).(kL/r).(fy/E)^0,5 (parameter kelangsingan batang tekan)

[10] ω =m koefisien tekuk

λc ≤ 0,25 ; ω = 1

0,25 < λc < 1,2 ; ω = 1,3/(1,6 - 0,6 λc)

λc ≥ 1,2 ; ω = 1,25 λc^2

[11] ΦNn = 0,85.Ag.(fy/ω) ; Kuat tekan nominal

[12] k.L/rx < 240 (syarat angka perbandingan kelangsingan batang tarik)

[13] ΦNn = 0,9.Ag.fy ; kuat tarik nominal

[14] Nu ≤ ΦNn ; profil aman dipakai

Tabel 4.7.a Perencanaan Sambungan Baut Kuda-Kuda K1

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,jmlh,jrk baut				ϕTn trk	ϕRn tump.	*n*	*n/2*	*np*	*s*	*s'*	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								*Avg*	*Ant*	*ϕTn1*	*Ans*	*Atg*	*ϕTn2*	*An*	*ϕNn*	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
1	1	C	9.455	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.68	0.34	2	60	40	800	268	321.54	608	320	317.66	2066	573.32	ok
	2	C	5.881	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.42	0.21	2	60	40	800	268	321.54	608	320	317.66	2066	573.32	ok
	3	C	7.473	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.54	0.27	2	60	40	800	268	321.54	608	320	317.66	2066	573.32	ok
2	1	C	3.389	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.24	0.12	2	60	40	800	268	321.54	608	320	317.66	2066	573.32	ok
	4	C	0.538	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.04	0.02	2	60	40	800	268	321.54	608	320	317.66	2066	573.32	ok
3	2	C	5.881	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.42	0.21	2	60	40	800	268	321.54	608	320	317.66	2066	573.32	ok
	5	C	6.403	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.46	0.23	2	60	40	800	268	321.54	608	320	317.66	2066	573.32	ok
	6	C	12.872	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.93	0.46	2	60	40	800	268	321.54	608	320	317.66	2066	573.32	ok
	7	C	9.704	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.70	0.35	2	60	40	800	268	321.54	608	320	317.66	2066	573.32	ok
4	3	C	7.473	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.54	0.27	2	60	40	800	268	321.54	608	320	317.66	2066	573.32	ok
	4	C	0.538	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.04	0.02	2	60	40	800	268	321.54	608	320	317.66	2066	573.32	ok
	5	C	6.403	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.46	0.23	2	60	40	800	268	321.54	608	320	317.66	2066	573.32	ok
	8	C	6.778	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.49	0.24	2	60	40	800	268	321.54	608	320	317.66	2066	573.32	ok
5	6	C	12.872	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.93	0.46	2	60	40	800	268	321.54	608	320	317.66	2066	573.32	ok
	9	B	197.866	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.98	1.99	3	70	40	1440	332	247.65	1056	400	247.82			ok
	10	A	20.151	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	0.29	0.14	2	110	40	1800	1080	494.1	1344	1200	439.78			ok
6	7	C	9.704	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.70	0.35	2	60	40	800	268	321.54	608	320	317.66	2066	573.32	ok
	8	C	6.778	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.49	0.24	2	60	40	800	268	321.54	608	320	317.66	2066	573.32	ok
	9	B	197.866	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.98	1.99	3	70	40	1440	332	247.65	1056	400	247.82			ok
	11	B	221.672	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	4.46	2.23	3	70	40	1440	332	247.65	1056	400	247.82			ok
	12	A	201.609	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	2.87	1.44	2	110	40	1800	1080	494.1	1344	1200	439.78			ok
7	10	A	20.151	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	0.29	0.14	2	110	40	1800	1080	494.1	1344	1200	439.78			ok
	11	B	221.672	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	4.46	2.23	3	70	40	1440	332	247.65	1056	400	247.82			ok
	13	B	180.201	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.62	1.81	2	70	40	880	332	187.17	624	400	175.9			ok
	14	A	207.488	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	2.96	1.48	2	110	40	1800	1080	494.1	1344	1200	439.78			ok
8	12	A	201.609	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	2.87	1.44	2	110	40	1800	1080	494.1	1344	1200	439.78			ok
	13	B	180.201	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.62	1.81	3	70	40	1440	332	247.65	1056	400	247.82			ok
	15	B	208.875	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	4.20	2.10	3	70	40	1440	332	247.65	1056	400	247.82			ok
	16	B	396.120	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	7.96	3.98	6	70	40	3120	332	429.09	2352	400	463.61			ok

Tabel 4.7.a Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
9	14	A	207.488	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	2.96	1.48	2	110	40	1800	1080	494.1	1344	1200	439.78			ok
	15	B	208.875	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	4.20	2.10	3	70	40	1440	332	247.65	1056	400	247.82			ok
	17	B	173.438	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.49	1.74	2	70	40	880	332	187.17	624	400	175.9			ok
	18	A	398.075	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	5.68	2.84	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
10	16	B	396.120	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	7.96	3.98	6	70	40	3120	332	429.09	2352	400	463.61			ok
	17	B	173.438	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.49	1.74	3	70	40	1440	332	247.65	1056	400	247.82			ok
	19	B	198.148	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.98	1.99	3	70	40	1440	332	247.65	1056	400	247.82			ok
	20	A	581.409	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	8.29	4.14	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
11	18	A	398.075	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	5.68	2.84	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
	19	B	198.148	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.98	1.99	3	70	40	1440	332	247.65	1056	400	247.82			ok
	21	B	160.936	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.24	1.62	2	70	40	880	332	187.17	624	400	175.9			ok
	22	A	582.779	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	8.31	4.15	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
12	20	A	581.409	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	8.29	4.14	4	110	40	4440	1080	779.22	3528	1200	803.41			ok
	21	B	160.936	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.24	1.62	2	70	40	880	332	187.17	624	400	175.9			ok
	23	B	184.267	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.70	1.85	2	70	40	880	332	187.17	624	400	175.9			ok
	24	A	751.357	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	10.71	5.36	6	110	40	7080	1080	1064.34	5712	1200	1167			ok
13	22	A	582.779	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	8.31	4.15	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
	23	B	184.267	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.70	1.85	3	70	40	1440	332	247.65	1056	400	247.82			ok
	25	B	33.166	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.67	0.33	2	70	40	880	332	187.17	624	400	175.9			ok
	26	H	343.986	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	6.92	3.46	3	100	40	2160	329	648.878	1728	405	721.22	2605	722.86	ok
	27	A	388.076	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	5.53	2.77	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
14	24	A	751.357	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	10.71	5.36	6	110	40	7080	1080	1064.34	5712	1200	1167			ok
	25	B	33.166	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.67	0.33	2	70	40	880	332	187.17	624	400	175.9			ok
	28	B	35.494	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.71	0.36	2	70	40	880	332	187.17	624	400	175.9			ok
	29	A	786.097	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	11.21	5.60	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
15	26	H	343.986	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	6.92	3.46	3	100	40	2160	329	648.878	1728	405	721.22	2605	722.86	ok
	30	D	1.998	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.04	0.02	1		40	280	186	163.433	168	245	144.14	1386	384.62	ok
	32	H	343.684	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	6.91	3.45	3	100	40	2160	329	648.878	1728	405	721.22	2605	722.86	ok
16	27	A	388.076	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	5.53	2.77	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
	28	B	35.494	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.71	0.36	1		40	320	332	126.69	192	400	103.97			ok

Tabel 4.7.a Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Prncn mutu,diameter,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	*n*	*n/2*	*np*	*s*	*s'*	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								*Avg*	*Ant*	*ϕTn1*	*Ans*	*Atg*	*ϕTn2*	*An*	*ϕNn*	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	30	D	1.998	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.04	0.02	1		40	280	186	163.433	168	245	144.14	1386	384.62	ok
	31	B	33.645	940	12	8	370	A-325	825	16	49.738	93.258	85.248	0.68	0.34	1		40	320	332	126.69	192	400	103.97			ok
	33	D	88.671	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.78	0.89	1		40	280	186	163.433	168	245	144.14	1386	384.62	ok
	34	A	333.081	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	4.75	2.37	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
17	29	A	786.097	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	11.21	5.60	6	110	40	7080	1080	1064.34	5712	1200	1167			ok
	31	B	33.645	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.68	0.34	1		40	320	332	126.69	192	400	103.97			ok
	35	B	45.638	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.92	0.46	1		40	320	332	126.69	192	400	103.97			ok
	36	A	744.867	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	10.62	5.31	6	110	40	7080	1080	1064.34	5712	1200	1167			ok
18	32	H	343.684	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	6.91	3.45	4	100	40	3060	329	843.278	2484	405	972.97	2605	722.86	ok
	33	D	88.671	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.78	0.89	1		40	280	186	163.433	168	245	144.14	1386	384.62	ok
	37	D	27.853	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.56	0.28	1		40	280	186	163.433	168	245	144.14	1386	384.62	ok
	39	H	426.577	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	8.58	4.29	4	100	40	3060	329	843.278	2484	405	972.97	2605	722.86	ok
19	34	A	333.081	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	4.75	2.37	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
	35	B	45.638	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.92	0.46	1		40	320	332	126.69	192	400	103.97			ok
	37	D	27.853	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.56	0.28	1		40	280	186	163.433	168	245	144.14	1386	384.62	ok
	38	B	43.492	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.87	0.44	1		40	320	332	126.69	192	400	103.97			ok
	40	D	5.785	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.12	0.06	1		40	280	186	163.433	168	245	144.14	1386	384.62	ok
	41	D	67.928	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.37	0.68	1		40	280	186	163.433	168	245	144.14	1386	384.62	ok
	42	A	21.939	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	0.31	0.16	1		40	480	1080	351.54	252	1200	257.96			ok
20	36	A	744.867	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	10.62	5.31	6	110	40	7080	1080	1064.34	5712	1200	1167			ok
	38	B	43.492	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.87	0.44	2	70	40	880	332	187.17	624	400	175.9			ok
	43	B	60.805	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.22	0.61	2	70	40	880	332	187.17	624	400	175.9			ok
	44	A	690.331	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	9.84	4.92	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
21	39	H	426.577	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	8.58	4.29	5	100	40	3960	329	1037.68	3240	405	1224.7	2605	722.86	ok
	40	D	5.785	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.12	0.06	1		40	280	186	163.433	168	245	144.14	1386	384.62	ok
	45	D	1.405	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.03	0.01	1		40	280	186	163.433	168	245	144.14	1386	384.62	ok
	48	H	429.856	2716	12	9	370	A-325	825	16	49.738	93.258	95.904	8.64	4.32	5	100	40	3960	374	1062.65	3240	450	1240.9	2590	718.62	ok
22	41	D	67.928	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.37	0.68	1		40	280	186	163.433	168	245	144.14	1386	384.62	ok
	45	D	1.405	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.03	0.01	1		40	280	186	163.433	168	245	144.14	1386	384.62	ok
	46	D	11.931	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.24	0.12	1		40	280	186	163.433	168	245	144.14	1386	384.62	ok

Tabel 4.7.a Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,jmlh, jrk baut				ϕTn trk	ϕRn tumpu	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	49	D	21.144	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.43	0.21	1		40	280	186	163.433	168	245	144.14	1386	384.62	ok
	50	D	84.024	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.69	0.84	1		40	280	186	163.433	168	245	144.14	1386	384.62	ok
23	42	A	21.939	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	0.31	0.16	1		40	480	1080	351.54	252	1200	257.96			ok
	43	B	60.805	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.22	0.61	1		40	320	332	126.69	192	400	103.97			ok
	46	D	11.931	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.24	0.12	1		40	280	186	163.433	168	245	144.14	1386	384.62	ok
	47	B	41.736	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.84	0.42	1		40	320	332	126.69	192	400	103.97			ok
	51	A	164.461	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	2.34	1.17	2	110	40	1800	1080	494.1	1344	1200	439.78			ok
24	44	A	690.331	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	9.84	4.92	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
	47	B	41.736	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.84	0.42	1		40	320	332	253.38	192	400	103.97			ok
	52	B	56.264	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.13	0.57	1		40	320	332	253.38	192	400	103.97			ok
	53	A	639.186	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	9.11	4.56	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
25	48	H	429.856	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	8.64	4.32	5	100	40	3960	329	1037.68	3240	405	1224.7	2605	722.86	ok
	49	D	21.144	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.43	0.21	1		40	280	186	163.433	168	245	144.14	1386	384.62	ok
	54	D	14.699	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.30	0.15	1		40	280	186	163.433	168	245	144.14	1386	384.62	ok
	56	H	412.897	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	8.30	4.15	5	100	40	3960	329	1037.68	3240	405	1224.7	2605	722.86	ok
26	50	D	84.024	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.69	0.84	1		40	280	186	163.433	168	245	144.14	1386	384.62	ok
	54	D	14.699	540	12	7	370	A-325	825	16	49.738	93.258	74.592	0.30	0.15	1		40	280	186	163.433	168	245	144.14	1386	384.62	ok
	57	D	26.258	540	12	7	370	A-325	825	16	49.738	93.258	74.592	0.53	0.26	1		40	280	186	163.433	168	245	144.14	1386	384.62	ok
	58	D	105.659	540	12	7	370	A-325	825	16	49.738	93.258	74.592	2.12	1.06	2	60	40	700	186	254.153	476	245	246.71	1436	398.49	ok
27	51	A	164.461	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	2.34	1.17	2	110	40	1800	1080	494.1	1344	1200	439.78			ok
	52	B	56.264	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.13	0.57	1		40	320	332	126.69	192	400	103.97			ok
	55	B	49.143	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.99	0.49	1		40	320	332	126.69	192	400	103.97			ok
	59	A	114.083	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.63	0.81	1		40	480	1080	351.54	252	1200	257.96			ok
28	53	A	639.186	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	9.11	4.56	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
	55	B	49.143	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.99	0.49	1		40	320	332	126.69	192	400	103.97			ok
	61	A	580.389	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	8.27	4.14	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
	68	B	75.282	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.51	0.76	1		40	320	332	126.69	192	400	103.97			ok
29	56	H	412.897	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	8.30	4.15	5	100	40	3960	329	1037.68	3240	405	1224.7	2605	722.86	ok
	57	D	26.258	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.53	0.26	1		40	280	186	163.433	168	245	144.14	1386	384.62	ok
	62	D	17.621	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.35	0.18	1		40	280	186	163.433	168	245	144.14	1386	384.62	ok

Tabel 4.7.a Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Prncn mutu,diameter,jmlh,jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	64	H	391.188	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	7.87	3.93	4	100	40	3060	329	843.278	2484	405	972.97	2605	722.86	ok
30	58	D	105.659	940	12	7	370	A-325	825	16	49.738	93.258	74.592	2.12	1.06	2	60	40	700	186	254.153	476	245	246.71	1436	398.49	ok
	62	D	17.621	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.35	0.18	1		40	280	186	163.433	168	245	144.14	1386	384.62	ok
	65	D	31.113	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.63	0.31	1		40	280	186	163.433	168	245	144.14	1386	384.62	ok
	66	D	131.242	940	12	7	370	A-325	825	16	49.738	93.258	74.592	2.64	1.32	2	60	40	700	186	254.153	476	245	246.71	1436	398.49	ok
31	59	A	114.083	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.63	0.81	1		40	480	1080	351.54	252	1200	257.96			ok
	60	B	64.325	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.29	0.65	1		40	320	332	126.69	192	400	103.97			ok
	63	B	56.107	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.13	0.56	1		40	320	332	126.69	192	400	103.97			ok
	67	A	56.068	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	0.80	0.40	1		40	480	1080	351.54	252	1200	257.96			ok
32	61	A	580.389	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	8.27	4.14	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
	63	B	56.107	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.13	0.56	1		40	320	332	126.69	192	400	103.97			ok
	68	B	75.282	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.51	0.76	1		40	320	332	126.69	192	400	103.97			ok
	69	A	512.089	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	7.30	3.65	4	110	40	4440	1080	779.22	3528	1200	803.41			ok
33	70	E	3.931	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.08	0.04	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	71	E	3.945	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.08	0.04	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
34	64	H	391.188	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	7.87	3.93	4	100	40	3060	329	843.278	2484	405	972.97	2605	722.86	ok
	65	D	31.113	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.63	0.31	1		40	280	186	163.433	168	245	144.14	1386	384.62	ok
	72	D	48.314	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.97	0.49	1		40	280	186	163.433	168	245	144.14	1386	384.62	ok
	76	D	118.855	940	12	7	370	A-325	825	16	49.738	93.258	74.592	2.39	1.19	2	60	40	700	186	254.153	476	245	246.71	1436	398.49	ok
	79	H	269.509	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	5.42	2.71	3	100	40	2160	329	648.878	1728	405	721.22	2605	722.86	ok
35	66	D	131.242	940	12	7	370	A-325	825	16	49.738	93.258	74.592	2.64	1.32	2	60	40	700	186	254.153	476	245	246.71	1436	398.49	ok
	72	D	48.314	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.97	0.49	1		40	280	186	163.433	168	245	144.14	1386	384.62	ok
	73	D	28.209	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.57	0.28	1		40	280	186	163.433	168	245	144.14	1386	384.62	ok
	77	D	32.745	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.66	0.33	1		40	280	186	163.433	168	245	144.14	1386	384.62	ok
	80	D	104.799	940	12	7	370	A-325	825	16	49.738	93.258	74.592	2.11	1.05	2	60	40	700	186	254.153	476	245	246.71	1436	398.49	ok
36	73	D	28.209	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.57	0.28	1		40	280	186	163.433	168	245	144.14	1386	384.62	ok
	74	D	43.991	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.88	0.44	1		40	280	186	163.433	168	245	144.14	1386	384.62	ok
	81	E	26.800	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.54	0.27	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	82	E	20.932	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.42	0.21	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
37	67	A	56.068	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	0.80	0.40	1		40	480	1080	351.54	214.2	1200	251.66			ok

Tabel 4.7.a Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,jmlh, jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	68	B	75.282	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.51	0.76	1		40	320	332	126.69	71.01	400	83.824			ok
	74	D	43.991	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.88	0.44	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	75	B	6.707	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.13	0.07	1		40	320	332	126.69	71.01	400	83.824			ok
	83	E	24.847	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.50	0.25	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	84	A	12.423	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	0.18	0.09	1		40	480	1080	351.54	214.2	1200	251.66			ok
38	69	A	512.089	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	7.30	3.65	4	110	40	4440	1080	779.22	332.9	1200	271.42			ok
	75	B	6.707	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.13	0.07	1		40	320	332	126.69	71.01	400	83.824			ok
	85	B	17.376	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.35	0.17	1		40	320	332	126.69	71.01	400	83.824			ok
	86	A	496.287	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	7.08	3.54	4	110	40	4440	1080	779.22	332.9	1200	271.42			ok
39	70	E	3.931	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.08	0.04	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	78	E	3.1761	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.06	0.03	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	87	E	6.540	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.13	0.07	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	88	E	3.259	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.07	0.03	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
40	71	E	3.945	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.08	0.04	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	78	E	3.176	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.06	0.03	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	89	E	3.989	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.08	0.04	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
41	76	D	118.855	940	12	7	370	A-325	825	16	49.738	93.258	74.592	2.39	1.19	2	60	40	700	186	254.153	90.56	245	118.36	1436	398.49	ok
	77	D	32.745	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.66	0.33	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	90	D	32.612	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.66	0.33	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	91	D	119.213	940	12	7	370	A-325	825	16	49.738	93.258	74.592	2.40	1.20	2	60	40	700	186	254.153	90.56	245	118.36	1436	398.49	ok
42	79	H	269.509	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	5.42	2.71	3	100	40	2160	329	648.878	215.5	405	217.58	2605	722.86	ok
	90	D	32.612	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.66	0.33	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	92	D	16.848	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.34	0.17	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	97	D	295.702	940	12	7	370	A-325	825	16	49.738	93.258	74.592	5.95	2.97	3	60	40	1120	186	344.873	115.7	245	126.74	1436	398.49	ok
43	80	D	104.799	940	12	7	370	A-325	825	16	49.738	93.258	74.592	2.11	1.05	2	60	40	700	186	254.153	90.56	245	118.36	1436	398.49	ok
	81	E	26.800	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.54	0.27	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	91	D	119.213	940	12	7	370	A-325	825	16	49.738	93.258	74.592	2.40	1.20	2		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	92	D	16.848	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.34	0.17	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	93	D	70.846	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.42	0.71	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	98	E	2.356	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.05	0.02	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok

Tabel 4.7.a Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Prncn mutu,diameter,jmlh, jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	99	D	181.741	940	12	7	370	A-325	825	16	49.738	93.258	74.592	3.65	1.83	2	60	40	700	186	254.153	90.56	245	118.36	1436	398.49	ok
44	82	E	20.932	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.42	0.21	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	83	E	24.847	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.50	0.25	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	93	D	70.846	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.42	0.71	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	94	D	84.643	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.70	0.85	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
45	84	A	12.423	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	0.18	0.09	1		40	480	1080	351.54	214.2	1200	251.66			ok
	85	B	17.376	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.35	0.17	1		40	320	332	126.69	71.01	400	83.824			ok
	94	D	84.643	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.70	0.85	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	95	B	70.582	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.42	0.71	1		40	320	332	126.69	71.01	400	83.824			ok
	100	D	33.872	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.68	0.34	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	101	A	29.145	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	0.42	0.21	1		40	480	1080	351.54	214.2	1200	251.66			ok
46	86	A	496.287	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	7.08	3.54	4	110	40	4440	1080	779.22	332.9	1200	271.42			ok
	87	E	6.540	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.13	0.07	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	95	B	70.582	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.42	0.71	1		40	320	332	126.69	71.01	400	83.824			ok
	96	E	37.418	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.75	0.38	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	102	B	131.144	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.64	1.32	2	70	40	880	332	187.17	87.8	400	86.618			ok
	103	A	378.785	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	5.40	2.70	3	110	40	3120	1080	636.66	293.3	1200	264.84			ok
47	88	E	3.259	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.07	0.03	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	89	E	3.989	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.08	0.04	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	96	E	37.418	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.75	0.38	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	104	E	36.139	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.73	0.36	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	105	E	29.033	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.58	0.29	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
48	97	D	295.702	940	12	7	370	A-325	825	16	49.738	93.258	74.592	5.95	2.97	3	60	40	1120	186	344.873	115.7	245	126.74	1436	398.49	ok
	98	E	2.356	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.05	0.02	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	106	E	2.980	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.06	0.03	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	110	D	294.945	940	12	7	370	A-325	825	16	49.738	93.258	74.592	5.93	2.97	3	60	40	1120	186	344.873	115.7	245	126.74	1436	398.49	ok
49	99	D	181.741	940	12	7	370	A-325	825	16	49.738	93.258	74.592	3.65	1.83	2	60	40	700	186	254.153	90.56	245	118.36	1436	398.49	ok
	106	E	2.980	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.06	0.03	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	111	E	6.365	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.13	0.06	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	112	D	186.355	940	12	7	370	A-325	825	16	49.738	93.258	74.592	3.75	1.87	2	60	40	700	186	254.153	90.56	245	118.36	1436	398.49	ok

Tabel 4.7.a Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Prncn mutu,diameter,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
50	100	D	33.872	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.68	0.34	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	107	E	2.645	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.05	0.03	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	113	D	38.259	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.77	0.38	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	114	E	4.274	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.09	0.04	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
51	101	A	29.145	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	0.42	0.21	1		40	480	1080	351.54	214.2	1200	251.66			ok
	102	B	131.144	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.64	1.32	2	70	40	880	332	187.17	87.8	400	86.618			ok
	107	E	2.645	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.05	0.03	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	108	B	77.206	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.55	0.78	1		40	320	332	126.69	71.01	400	83.824			ok
	115	D	53.147	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.07	0.53	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	116	A	49.913	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	0.71	0.36	1		40	480	1080	351.54	214.2	1200	251.66			ok
52	103	A	378.785	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	5.40	2.70	3	110	40	3120	1080	636.66	293.3	1200	264.84			ok
	104	E	36.139	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.73	0.36	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	108	B	77.206	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.55	0.78	1		40	320	332	126.69	71.01	400	83.824			ok
	109	E	11.518	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.23	0.12	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	117	B	74.535	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.50	0.75	1		40	320	332	126.69	71.01	400	83.824			ok
	118	A	277.897	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	3.96	1.98	2	110	40	1800	1080	494.1	253.8	1200	258.25			ok
53	105	E	29.033	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.58	0.29	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	109	E	11.518	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.23	0.12	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	119	E	8.487	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.17	0.09	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	120	E	36.267	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.73	0.36	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
54	110	D	294.945	940	12	7	370	A-325	825	16	49.738	93.258	74.592	5.93	2.97	3	60	40	1120	186	344.873	115.7	245	126.74	1436	398.49	ok
	111	E	6.365	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.13	0.06	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	121	E	5.241	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.11	0.05	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	125	D	290.361	940	12	7	370	A-325	825	16	49.738	93.258	74.592	5.84	2.92	3	60	40	1120	186	344.873	115.7	245	126.74	1436	398.49	ok
55	112	D	186.355	940	12	7	370	A-325	825	16	49.738	93.258	74.592	3.75	1.87	2	60	40	700	186	254.153	90.56	245	118.36	1436	398.49	ok
	121	E	5.241	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.11	0.05	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	126	E	10.031	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.20	0.10	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	127	D	194.400	940	12	7	370	A-325	825	16	49.738	93.258	74.592	3.91	1.95	2	60	40	700	186	254.153	90.56	245	118.36	1436	398.49	ok
56	113	D	38.259	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.77	0.38	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	122	E	4.057	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.08	0.04	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok

Tabel 4.7.a Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,jmlh,jrk baut				φTn trk	φRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	¢Vn geser								Avg	Ant	φTn1	Ans	Atg	φTn2	An	φNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	128	D	44.440	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.89	0.45	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	129	E	5.981	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.12	0.06	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
57	114	E	4.274	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.09	0.04	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	115	D	53.147	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.07	0.53	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	122	E	4.057	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.08	0.04	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	130	D	48.744	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.98	0.49	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
58	116	A	49.913	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	0.71	0.36	1		40	480	1080	351.54	214.2	1200	251.66			ok
	117	B	74.535	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.50	0.75	1		40	320	332	126.69	71.01	400	83.824			ok
	123	B	64.034	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.29	0.64	1		40	320	332	126.69	71.01	400	83.824			ok
	131	A	117.585	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.68	0.84	1		40	480	1080	351.54	214.2	1200	251.66			ok
59	118	A	277.897	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	3.96	1.98	2	110	40	1800	1080	494.1	253.8	1200	258.25			ok
	119	E	8.487	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.17	0.09	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	123	B	64.034	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.29	0.64	1		40	320	332	126.69	71.01	400	83.824			ok
	124	E	4.271	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.09	0.04	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	132	B	68.014	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.37	0.68	1		40	320	332	126.69	71.01	400	83.824			ok
	133	A	207.970	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	2.97	1.48	2	110	40	1800	1080	494.1	253.8	1200	258.25			ok
60	120	E	36.267	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.73	0.36	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	124	E	4.271	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.09	0.04	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	134	E	11.096	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.22	0.11	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	135	E	26.429	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.53	0.27	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
61	125	D	290.361	940	12	7	370	A-325	825	16	49.738	93.258	74.592	5.84	2.92	3	60	40	1120	186	344.873	115.7	245	126.74	1436	398.49	ok
	126	E	10.031	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.20	0.10	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	136	E	7.259	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.15	0.07	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	140	D	282.250	940	12	7	370	A-325	825	16	49.738	93.258	74.592	5.67	2.84	3	60	40	1120	186	344.873	115.7	245	126.74	1436	398.49	ok
62	127	D	194.400	940	12	7	370	A-325	825	16	49.738	93.258	74.592	3.91	1.95	2	60	40	700	186	254.153	90.56	245	118.36	1436	398.49	ok
	136	E	7.259	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.15	0.07	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	141	E	13.259	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.27	0.13	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	142	D	205.571	940	12	7	370	A-325	825	16	49.738	93.258	74.592	4.13	2.07	3	60	40	1120	186	344.873	115.7	245	126.74	1436	398.49	ok
63	128	D	44.440	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.89	0.45	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	137	E	5.387	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.11	0.05	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok

Tabel 4.7.a Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,jmlh, jrk baut				ϕTn trk	ϕRn tump.	*n*	*n/2*	*np*	*s*	*s'*	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								*Avg*	*Ant*	*ϕTn1*	*Ans*	*Atg*	*ϕTn2*	*An*	*ϕNn*	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	143	D	52.460	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.05	0.53	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	144	E	7.795	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.16	0.08	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
64	129	E	5.981	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.12	0.06	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	130	D	48.744	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.98	0.49	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	137	E	5.387	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.11	0.05	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	145	D	43.205	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.87	0.43	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
65	131	A	117.585	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.68	0.84	1		40	480	1080	351.54	214.2	1200	251.66			ok
	132	B	68.014	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.37	0.68	1		40	320	332	126.69	71.01	400	83.824			ok
	138	B	61.167	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.23	0.61	1		40	320	332	126.69	71.01	400	83.824			ok
	146	A	180.546	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	2.57	1.29	2	110	40	1800	1080	494.1	253.8	1200	258.25			ok
66	133	A	207.970	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	2.97	1.48	2	110	40	1800	1080	494.1	253.8	1200	258.25			ok
	134	E	11.096	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.22	0.11	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	138	B	61.167	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.23	0.61	1		40	320	332	126.69	71.01	400	83.824			ok
	139	E	13.496	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.27	0.14	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	147	B	72.517	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.46	0.73	1		40	320	332	126.69	71.01	400	83.824			ok
	148	A	151.289	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	2.16	1.08	2	110	40	1800	1080	494.1	253.8	1200	258.25			ok
67	135	E	26.429	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.53	0.27	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	139	E	13.496	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.27	0.14	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	149	E	19.860	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.40	0.20	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	150	E	8.701	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.17	0.09	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
68	140	D	282.250	940	12	7	370	A-325	825	16	49.738	93.258	74.592	5.67	2.84	3	60	40	1120	186	344.873	115.7	245	126.74	1436	398.49	ok
	141	E	13.259	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.27	0.13	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	151	E	27.521	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.55	0.28	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	158	E	65.551	691	12	6	370	A-325	825	16	49.738	93.258	63.936	1.32	0.66	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	173	D	218.201	940	12	7	370	A-325	825	16	49.738	93.258	74.592	4.39	2.19	3	60	40	1120	186	344.873	115.7	245	126.74	1436	398.49	ok
69	142	D	205.571	940	12	7	370	A-325	825	16	49.738	93.258	74.592	4.13	2.07	3	60	40	1120	186	344.873	115.7	245	126.74	1436	398.49	ok
	143	D	52.460	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.05	0.53	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	151	E	27.521	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.55	0.28	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	152	D	23.511	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.47	0.24	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	159	E	65.399	691	12	6	370	A-325	825	16	49.738	93.258	63.936	1.31	0.66	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok

Tabel 4.7.a Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	*n*	*n/2*	*np*	*s*	*s'*	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								*Avg*	*Ant*	*ϕTn1*	*Ans*	*Atg*	*ϕTn2*	*An*	*ϕNn*	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	160	E	16.387	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.33	0.16	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	174	D	96.162	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.93	0.97	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
70	144	E	7.795	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.16	0.08	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	145	D	43.205	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.87	0.43	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	152	D	23.511	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.47	0.24	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	153	D	54.217	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.09	0.55	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	161	E	15.737	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.32	0.16	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	162	E	1.053	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.02	0.01	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	175	E	43.365	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.87	0.44	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
71	153	D	54.217	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.09	0.55	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	154	D	48.761	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.98	0.49	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	163	E	0.931	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.02	0.01	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	164	E	10.055	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.20	0.10	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	176	E	7.843	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.16	0.08	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
72	154	D	48.761	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.98	0.49	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	155	D	59.647	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.20	0.60	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	165	E	10.336	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.21	0.10	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	166	E	5.353	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.11	0.05	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	177	E	4.426	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.09	0.04	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
73	146	A	180.546	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	2.57	1.29	2	110	40	1800	1080	494.1	253.8	1200	258.25			ok
	147	B	72.517	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.46	0.73	1		40	320	332	126.69	71.01	400	83.824			ok
	155	D	59.647	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.20	0.60	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	156	B	72.458	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.46	0.73	1		40	320	332	126.69	71.01	400	83.824			ok
	167	E	5.419	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.11	0.05	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	168	A	156.500	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	2.23	1.12	2	110	40	1800	1080	494.1	253.8	1200	258.25			ok
74	148	A	151.289	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	2.16	1.08	2	110	40	1800	1080	494.1	253.8	1200	258.25			ok
	149	E	19.860	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.40	0.20	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	156	B	72.458	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.46	0.73	1		40	320	332	126.69	71.01	400	83.824			ok
	157	E	16.174	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.33	0.16	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	169	B	62.701	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.26	0.63	1		40	320	332	126.69	71.01	400	83.824			ok

Tabel 4.7.a Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,jmlh, jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	170	A	127.457	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.82	0.91	1		40	480	1080	351.54	214.2	1200	251.66			ok
75	150	E	8.701	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.17	0.09	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	157	E	16.174	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.33	0.16	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	171	E	17.646	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.35	0.18	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	172	E	1.927	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.04	0.02	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
76	158	E	65.551	691	12	6	370	A-325	825	16	49.738	93.258	63.936	1.32	0.66	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	159	E	65.399	691	12	6	370	A-325	825	16	49.738	93.258	63.936	1.31	0.66	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	181	E	65.550	691	12	6	370	A-325	825	16	49.738	93.258	63.936	1.32	0.66	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	182	E	65.399	691	12	6	370	A-325	825	16	49.738	93.258	63.936	1.31	0.66	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
77	160	E	16.387	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.33	0.16	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	161	E	15.737	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.32	0.16	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	183	E	15.807	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.32	0.16	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	184	E	16.322	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.33	0.16	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
78	162	E	1.053	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.02	0.01	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	163	E	0.931	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.02	0.01	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	185	E	0.968	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.02	0.01	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	186	E	1.018	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.02	0.01	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
79	164	E	10.055	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.20	0.10	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	165	E	10.336	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.21	0.10	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	187	E	9.925	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.20	0.10	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	188	E	10.466	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.21	0.11	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
80	166	E	5.353	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.11	0.05	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	167	E	5.419	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.11	0.05	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	189	E	5.434	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.11	0.05	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	190	E	5.335	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.11	0.05	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
81	168	A	156.500	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	2.23	1.12	2	110	40	1800	1080	494.1	253.8	1200	258.25			ok
	169	B	62.701	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.26	0.63	1		40	320	332	126.69	71.01	400	83.824			ok
	179	B	30.623	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.62	0.31	1		40	320	332	126.69	71.01	400	83.824			ok
	191	A	156.779	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	2.24	1.12	2	110	40	1800	1080	494.1	253.8	1200	258.25			ok
	192	B	62.172	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.25	0.63	1		40	320	332	126.69	71.01	400	83.824			ok

Tabel 4.7.a Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Prncn mutu,diameter,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Aut	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
82	170	A	127.457	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.82	0.91	1		40	480	1080	351.54	214.2	1200	251.66			ok
	171	E	17.646	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.35	0.18	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	179	B	30.623	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.62	0.31	1		40	320	332	126.69	71.01	400	83.824			ok
	180	E	5.332	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.11	0.05	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	193	A	127.736	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.82	0.91	1		40	480	1080	351.54	214.2	1200	251.66			ok
	194	E	17.646	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.35	0.18	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
83	172	E	1.927	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.04	0.02	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	180	E	5.332	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.11	0.05	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	195	E	1.959	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.04	0.02	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
84	173	D	218.201	940	12	7	370	A-325	825	16	49.738	93.258	74.592	4.39	2.19	3	60	40	1120	186	344.873	115.7	245	126.74	1436	398.49	ok
	181	E	65.550	691	12	6	370	A-325	825	16	49.738	93.258	63.936	1.32	0.66	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	196	E	27.521	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.55	0.28	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	203	D	282.250	940	12	7	370	A-325	825	16	49.738	93.258	74.592	5.67	2.84	3	60	40	1120	186	344.873	115.7	245	126.74	1436	398.49	ok
	204	E	13.445	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.27	0.14	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
85	174	D	96.162	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.93	0.97	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	182	E	65.399	691	12	6	370	A-325	825	16	49.738	93.258	63.936	1.31	0.66	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	183	E	15.807	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.32	0.16	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	196	E	27.521	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.55	0.28	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	197	D	23.148	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.47	0.23	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	205	D	205.571	940	12	7	370	A-325	825	16	49.738	93.258	74.592	4.13	2.07	3	60	40	1120	186	344.873	115.7	245	126.74	1436	398.49	ok
	206	D	51.816	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.04	0.52	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
86	175	E	43.365	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.87	0.44	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	184	E	16.322	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.33	0.16	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	185	E	0.968	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.02	0.01	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	197	D	23.148	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.47	0.23	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	198	D	54.217	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.09	0.55	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	207	E	7.403	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.15	0.07	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	208	D	43.003	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.86	0.43	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
87	176	E	7.843	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.16	0.08	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	186	E	1.018	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.02	0.01	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok

Tabel 4.7.a Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,jmlh,jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Anl	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	187	E	9.925	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.20	0.10	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	198	D	54.217	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.09	0.55	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	199	D	48.761	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.98	0.49	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
88	177	E	4.426	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.09	0.04	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	188	E	10.466	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.21	0.11	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	189	E	5.434	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.11	0.05	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	199	D	48.761	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.98	0.49	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	200	D	59.267	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.19	0.60	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
89	190	E	5.335	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.11	0.05	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	191	A	156.779	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	2.24	1.12	2	110	40	1800	1080	494.1	253.8	1200	258.25			ok
	200	D	59.267	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.19	0.60	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	201	B	71.812	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.44	0.72	1		40	320	332	126.69	71.01	400	83.824			ok
	209	A	180.546	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	2.57	1.29	2	110	40	1800	1080	494.1	253.8	1200	258.25			ok
	210	B	72.517	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.46	0.73	1		40	320	332	126.69	71.01	400	83.824			ok
90	192	B	62.172	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.25	0.63	1		40	320	332	126.69	71.01	400	83.824			ok
	193	A	127.736	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.82	0.91	1		40	480	1080	351.54	214.2	1200	251.66			ok
	201	B	71.812	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.44	0.72	1		40	320	332	126.69	71.01	400	83.824			ok
	202	E	15.850	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.32	0.16	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	211	A	151.848	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	2.16	1.08	2	110	40	1800	1080	494.1	253.8	1200	258.25			ok
	212	E	19.654	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.40	0.20	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
91	194	E	17.646	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.35	0.18	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	195	E	1.959	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.04	0.02	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	202	E	15.850	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.32	0.16	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	213	E	8.819	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.18	0.09	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
92	203	D	282.250	940	12	7	370	A-325	825	16	49.738	93.258	74.592	5.67	2.84	3	60	40	1120	186	344.873	115.7	245	126.74	1436	398.49	ok
	214	E	7.445	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.15	0.07	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	218	D	290.361	940	12	7	370	A-325	825	16	49.738	93.258	74.592	5.84	2.92	3	60	40	1120	186	344.873	115.7	245	126.74	1436	398.49	ok
	219	E	10.202	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.21	0.10	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
93	204	E	13.445	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.27	0.14	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	205	D	205.571	940	12	7	370	A-325	825	16	49.738	93.258	74.592	4.13	2.07	3	60	40	1120	186	344.873	115.7	245	126.74	1436	398.49	ok

Tabel 4.7.a Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	214	E	7.445	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.15	0.07	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	220	D	194.400	940	12	7	370	A-325	825	16	49.738	93.258	74.592	3.91	1.95	2	60	40	700	186	254.153	90.56	245	118.36	1436	398.49	ok
94	206	D	51.816	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.04	0.52	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	207	E	7.403	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.15	0.07	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	215	E	5.086	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.10	0.05	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	221	D	44.201	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.89	0.44	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
95	208	D	43.003	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.86	0.43	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	215	E	5.086	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.10	0.05	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	222	E	5.590	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.11	0.06	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	223	D	48.350	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.97	0.49	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
96	209	A	180.546	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	2.57	1.29	2	110	40	1800	1080	494.1	253.8	1200	258.25			ok
	216	B	61.167	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.23	0.61	1		40	320	332	126.69	71.01	400	83.824			ok
	224	A	117.585	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.68	0.84	1		40	480	1080	351.54	214.2	1200	251.66			ok
	225	B	68.014	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.37	0.68	1		40	320	332	126.69	71.01	400	83.824			ok
97	210	B	72.517	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.46	0.73	1		40	320	332	126.69	71.01	400	83.824			ok
	211	A	151.848	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	2.16	1.08	2	110	40	1800	1080	494.1	253.8	1200	258.25			ok
	216	B	61.167	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.23	0.61	1		40	320	332	126.69	71.01	400	83.824			ok
	217	E	13.173	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.26	0.13	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	226	A	208.529	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	2.97	1.49	2	110	40	1800	1080	494.1	253.8	1200	258.25			ok
	227	E	10.891	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.22	0.11	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
98	212	E	19.654	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.40	0.20	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	213	E	8.819	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.18	0.09	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	217	E	13.173	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.26	0.13	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	228	E	26.546	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.53	0.27	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
99	218	D	290.361	940	12	7	370	A-325	825	16	49.738	93.258	74.592	5.84	2.92	3	60	40	1120	186	344.873	115.7	245	126.74	1436	398.49	ok
	229	E	5.424	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.11	0.05	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	233	D	294.945	940	12	7	370	A-325	825	16	49.738	93.258	74.592	5.93	2.97	3	60	40	1120	186	344.873	115.7	245	126.74	1436	398.49	ok
	234	E	6.536	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.13	0.07	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
100	219	E	10.202	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.21	0.10	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	220	D	194.400	940	12	7	370	A-325	825	16	49.738	93.258	74.592	3.91	1.95	2	60	40	700	186	254.153	90.56	245	118.36	1436	398.49	ok

Tabel 4.7.a Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,jmlh, jrk baut				ϕTn trk	ϕRn tumpu	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	229	E	5.424	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.11	0.05	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	235	D	186.355	940	12	7	370	A-325	825	16	49.738	93.258	74.592	3.75	1.87	2	60	40	700	186	254.153	90.56	245	118.36	1436	398.49	ok
101	221	D	44.201	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.89	0.44	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	222	E	5.590	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.11	0.06	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	231	B	64.034	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.29	0.64	1		40	320	332	126.69	71.01	400	83.824			ok
	236	D	38.425	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.77	0.39	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
102	223	D	48.350	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.97	0.49	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	230	E	3.756	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.08	0.04	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	237	E	3.882	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.08	0.04	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	238	D	52.347	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.05	0.53	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
103	224	A	117.585	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.68	0.84	1		40	480	1080	351.54	214.2	1200	251.66			ok
	231	B	64.034	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.29	0.64	1		40	320	332	126.69	71.01	400	83.824			ok
	239	A	49.238	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	0.70	0.35	1		40	480	1080	351.54	214.2	1200	251.66			ok
	240	B	74.535	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.50	0.75	1		40	320	332	126.69	71.01	400	83.824			ok
104	225	B	68.014	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.37	0.68	1		40	320	332	126.69	71.01	400	83.824			ok
	226	A	208.529	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	2.97	1.49	2		40	480	1080	351.54	214.2	1200	251.66			ok
	231	B	64.034	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.29	0.64	1		40	320	332	126.69	71.01	400	83.824			ok
	232	E	4.151	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.08	0.04	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	241	A	278.456	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	3.97	1.99	2		40	480	1080	351.54	214.2	1200	251.66			ok
	242	E	8.559	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.17	0.09	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
105	227	E	10.891	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.22	0.11	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	228	E	26.546	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.53	0.27	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	232	E	4.151	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.08	0.04	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	243	E	36.384	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.73	0.37	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
106	233	D	294.945	940	12	7	370	A-325	825	16	49.738	93.258	74.592	5.93	2.97	3	60	40	1120	186	344.873	115.7	245	126.74	1436	398.49	ok
	244	E	3.166	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.06	0.03	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	248	D	295.702	940	12	7	370	A-325	825	16	49.738	93.258	74.592	5.95	2.97	3	60	40	1120	186	344.873	115.7	245	126.74	1436	398.49	ok
	249	E	2.427	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.05	0.02	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
107	234	E	6.536	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.13	0.07	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	235	D	186.355	940	12	7	370	A-325	825	16	49.738	93.258	74.592	3.75	1.87	2	60	40	700	186	254.153	90.56	245	118.36	1436	398.49	ok

Tabel 4.7.a Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,jmlh,jrk baut				ϕTn trk	ϕRn tump	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	244	E	3.166	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.06	0.03	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	250	D	181.741	940	12	7	370	A-325	825	16	49.738	93.258	74.592	3.65	1.83	2	60	40	700	186	254.153	90.56	245	118.36	1436	398.49	ok
108	236	D	38.425	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.77	0.39	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	237	E	3.882	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.08	0.04	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	245	E	2.346	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.05	0.02	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	251	D	34.427	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.69	0.35	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
109	238	D	52.347	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.05	0.53	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	239	A	49.238	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	0.70	0.35	1		40	480	1080	351.54	214.2	1200	251.66			ok
	245	E	2.346	60	12	6	370	A-325	825	16	49.738	93.258	63.936	0.05	0.02	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	246	B	77.206	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.55	0.78	1		40	320	332	126.69	71.01	400	83.824			ok
	252	A	24.628	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	0.35	0.18	1		40	480	1080	351.54	214.2	1200	251.66			ok
	253	B	131.144	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.64	1.32	2	70	40	880	332	187.17	87.8	400	86.618			ok
110	240	B	74.535	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.50	0.75	1		40	320	332	126.69	71.01	400	83.824			ok
	241	A	278.456	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	3.97	1.99	2	110	40	1800	1080	494.1	253.8	1200	258.25			ok
	246	B	77.206	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.55	0.78	1		40	320	332	126.69	71.01	400	83.824			ok
	247	E	11.707	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.24	0.12	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	254	A	379.344	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	5.41	2.70	3	110	40	3120	1080	636.66	293.3	1200	264.84			ok
	255	E	36.139	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.73	0.36	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
111	242	E	8.559	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.17	0.09	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	243	E	36.384	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.73	0.37	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	247	E	11.707	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.24	0.12	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	256	E	29.151	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.59	0.29	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
112	248	D	295.702	940	12	7	370	A-325	825	16	49.738	93.258	74.592	5.95	2.97	3	60	40	1120	186	344.873	115.7	245	126.74	1436	398.49	ok
	257	D	16.454	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.33	0.17	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	262	D	32.456	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.65	0.33	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	267	H	269.509	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	5.42	2.71	3	100	40	2160	329	648.878	215.5	405	217.58	2605	722.86	ok
113	249	E	2.427	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.05	0.02	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	250	D	181.741	940	12	7	370	A-325	825	16	49.738	93.258	74.592	3.65	1.83	2	60	40	700	186	254.153	90.56	245	118.36	1436	398.49	ok
	257	D	16.454	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.33	0.17	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	258	D	70.846	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.42	0.71	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok

Tabel 4.7.a Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,jmlh,jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	263	D	119.374	940	12	7	370	A-325	825	16	49.738	93.258	74.592	2.40	1.20	2	60	40	700	186	254.153	90.56	245	118.36	1436	398.49	ok
	268	D	104.799	940	12	7	370	A-325	825	16	49.738	93.258	74.592	2.11	1.05	2	60	40	700	186	254.153	90.56	245	118.36	1436	398.49	ok
	269	E	26.470	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.53	0.27	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
114	258	D	70.846	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.42	0.71	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	259	D	84.643	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.70	0.85	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	270	E	20.668	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.42	0.21	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	271	E	24.536	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.49	0.25	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
115	251	D	34.427	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.69	0.35	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	252	A	24.628	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	0.35	0.18	1		40	480	1080	351.54	214.2	1200	251.66			ok
	259	D	84.643	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.70	0.85	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	260	B	70.582	2716	12	8	370.	A-325	825	16	49.738	93.258	85.248	1.42	0.71	1		40	320	332	126.69	71.01	400	83.824			ok
	272	A	6.028	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	0.09	0.04	1		40	480	1080	351.54	214.2	1200	251.66			ok
	273	B	17.376	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.35	0.17	1		40	320	332	126.69	71.01	400	83.824			ok
116	253	B	131.144	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.64	1.32	2	70	40	880	332	187.17	87.8	400	86.618			ok
	254	A	379.344	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	5.41	2.70	3	110	40	3120	1080	636.66	293.3	1200	264.84			ok
	260	B	70.582	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.42	0.71	1		40	320	332	126.69	71.01	400	83.824			ok
	261	E	37.170	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.75	0.37	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	264	E	6.540	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.13	0.07	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	274	A	496.845	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	7.08	3.54	4	110	40	4440	1080	779.22	332.9	1200	271.42			ok
117	255	E	36.139	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.73	0.36	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	256	E	29.151	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.59	0.29	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	261	E	37.170	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.75	0.37	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	265	E	3.266	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.07	0.03	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	266	E	3.986	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.08	0.04	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
118	262	D	32.456	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.65	0.33	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	263	D	119.374	940	12	7	370	A-325	825	16	49.738	93.258	74.592	2.40	1.20	2	60	40	700	186	254.153	90.56	245	118.36	1436	398.49	ok
	276	D	119.016	940	12	7	370	A-325	825	16	49.738	93.258	74.592	2.39	1.20	2	60	40	700	186	254.153	90.56	245	118.36	1436	398.49	ok
	277	D	32.584	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.66	0.33	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
119	264	E	6.540	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.13	0.07	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	265	E	3.266	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.07	0.03	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok

Tabel 4.7.a Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,jmlh,jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	275	E	3.177	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.06	0.03	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	282	E	3.931	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.08	0.04	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
120	266	E	3.986	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.08	0.04	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	275	E	3.177	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.06	0.03	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	283	E	3.873	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.08	0.04	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
121	267	H	269.509	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	5.42	2.71	3	100	40	2160	329	648.878	215.5	405	217.58	2605	722.86	ok
	276	D	119.016	940	12	7	370	A-325	825	16	49.738	93.258	74.592	2.39	1.20	2	60	40	700	186	254.153	90.56	245	118.36	1436	398.49	ok
	278	D	47.991	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.96	0.48	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	284	H	391.188	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	7.87	3.93	4	100	40	3060	329	843.278	269.5	405	235.54	2605	722.86	ok
	285	D	31.113	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.63	0.31	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
122	268	D	104.799	940	12	7	370	A-325	825	16	49.738	93.258	74.592	2.11	1.05	2	60	40	700	186	254.153	90.56	245	118.36	1436	398.49	ok
	277	D	32.584	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.66	0.33	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	278	D	47.991	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.96	0.48	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	279	D	28.209	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.57	0.28	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	286	D	131.242	940	12	7	370	A-325	825	16	49.738	93.258	74.592	2.64	1.32	2	60	40	700	186	254.153	90.56	245	118.36	1436	398.49	ok
123	269	E	26.470	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.53	0.27	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	270	E	20.668	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.42	0.21	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	279	D	28.209	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.57	0.28	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	280	D	43.991	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.88	0.44	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
124	271	E	24.536	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.49	0.25	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
	272	A	6.028	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	0.09	0.04	1		40	480	1080	351.54	214.2	1200	251.66			ok
	280	D	43.991	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.88	0.44	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	281	B	6.706	2715	12	8	370	A-325	825	16	49.738	93.258	85.248	0.13	0.07	1		40	320	332	126.69	71.01	400	83.824			ok
	287	A	51.933	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	0.74	0.37	1		40	480	1080	351.54	214.2	1200	251.66			ok
	288	B	75.281	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.51	0.76	1		40	320	332	126.69	71.01	400	83.824			ok
125	273	B	17.376	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.35	0.17	1		40	320	332	126.69	71.01	400	83.824			ok
	274	A	496.845	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	7.08	3.54	4	110	40	4440	1080	779.22	332.9	1200	271.42			ok
	281	B	6.706	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.13	0.07	1		40	320	332	126.69	71.01	400	83.824			ok
	289	A	512.089	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	7.30	3.65	4	110	40	4440	1080	779.22	332.9	1200	271.42			ok
126	282	E	3.931	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.08	0.04	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok

Tabel 4.7.a Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,jmlh,jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	283	E	3.873	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.08	0.04	1		40	240	129	123.435	48.19	180	80.846	960	266.4	ok
127	284	H	391.188	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	7.87	3.93	4	100	40	3060	329	843.278	269.5	405	235.54	2605	722.86	ok
	290	D	17.621	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.35	0.18	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	292	H	412.897	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	8.30	4.15	5	100	40	3960	329	1037.68	323.4	405	253.5	2605	722.86	ok
	293	D	26.258	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.53	0.26	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
128	285	D	31.113	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.63	0.31	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	286	D	131.242	940	12	7	370	A-325	825	16	49.738	93.258	74.592	2.64	1.32	2	60	40	700	186	254.153	90.56	245	118.36	1436	398.49	ok
	290	D	17.621	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.35	0.18	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	294	D	105.659	940	12	7	370	A-325	825	16	49.738	93.258	74.592	2.12	1.06	2	60	40	700	186	254.153	90.56	245	118.36	1436	398.49	ok
129	287	A	51.933	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	0.74	0.37	1		40	480	1080	351.54	214.2	1200	251.66			ok
	291	B	56.106	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.13	0.56	1		40	320	332	126.69	71.01	400	83.824			ok
	295	A	110.244	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.57	0.79	1		40	480	1080	351.54	214.2	1200	251.66			ok
	296	B	64.325	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.29	0.65	1		40	320	332	126.69	71.01	400	83.824			ok
130	288	B	75.281	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.51	0.76	1		40	320	332	126.69	71.01	400	83.824			ok
	289	A	512.089	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	7.30	3.65	4	110	40	4440	1080	779.22	332.9	1200	271.42			ok
	291	B	56.106	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.13	0.56	1		40	320	332	126.69	71.01	400	83.824			ok
	297	A	580.389	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	8.27	4.14	5	110	40	5760	1080	921.78	372.4	1200	278.01			ok
131	292	H	412.897	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	8.30	4.15	5	100	40	3960	329	1037.68	323.4	405	253.5	2605	722.86	ok
	298	D	14.642	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.29	0.15	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	300	H	429.856	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	8.64	4.32	5	100	40	3960	329	1037.68	323.4	405	253.5	2605	722.86	ok
	301	D	20.506	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.41	0.21	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
132	293	D	26.258	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.53	0.26	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	294	D	105.659	940	12	7	370	A-325	825	16	49.738	93.258	74.592	2.12	1.06	2	60	40	700	186	254.153	90.56	245	118.36	1436	398.49	ok
	298	D	14.642	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.29	0.15	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	302	D	84.024	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.69	0.84	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
133	295	A	110.244	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.57	0.79	1		40	480	1080	351.54	214.2	1200	251.66			ok
	299	B	49.143	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.99	0.49	1		40	320	332	126.69	71.01	400	83.824			ok
	303	A	161.491	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	2.30	1.15	2	110	40	1800	1080	494.1	253.8	1200	258.25			ok
	304	B	56.264	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.13	0.57	1		40	320	332	126.69	71.01	400	83.824			ok
134	296	B	64.325	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.29	0.65	1		40	320	332	126.69	71.01	400	83.824			ok

Tabel 4.7.a Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,jmlh,jrk baut				ϕTn trk	ϕRn tump	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	297	A	580.389	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	8.27	4.14	5	110	40	5760	1080	921.78	372.4	1200	278.01			ok
	299	B	49.143	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.99	0.49	1		40	320	332	126.69	71.01	400	83.824			ok
	305	A	639.186	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	9.11	4.56	5	110	40	5760	1080	921.78	372.4	1200	278.01			ok
135	300	H	429.856	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	8.64	4.32	5	100	40	3960	329	1037.68	323.4	405	253.5	2605	722.86	ok
	306	D	1.146	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.02	0.01	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	309	H	426.577	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	8.58	4.29	5	100	40	3960	329	1037.68	323.4	405	253.5	2605	722.86	ok
	310	D	5.314	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.11	0.05	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
136	301	D	20.506	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.41	0.21	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	302	D	84.024	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.69	0.84	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	306	D	1.146	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.02	0.01	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	307	D	11.490	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.23	0.12	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	311	D	67.928	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.37	0.68	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
137	303	A	161.491	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	2.30	1.15	2	110	40	1800	1080	494.1	253.8	1200	258.25			ok
	307	D	11.490	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.23	0.12	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	308	B	41.736	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.84	0.42	1		40	320	332	126.69	71.01	400	83.824			ok
	312	A	216.120	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	3.08	1.54	2	110	40	1800	1080	494.1	253.8	1200	258.25			ok
	313	B	60.805	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.22	0.61	1		40	320	332	126.69	71.01	400	83.824			ok
138	304	B	56.264	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.13	0.57	1		40	320	332	126.69	71.01	400	83.824			ok
	305	A	639.186	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	9.11	4.56	5	110	40	5760	1080	921.78	372.4	1200	278.01			ok
	308	B	41.736	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.84	0.42	1		40	320	332	126.69	71.01	400	83.824			ok
	314	A	690.330	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	9.84	4.92	5	110	40	5760	1080	921.78	372.4	1200	278.01			ok
139	309	H	426.577	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	8.58	4.29	5	100	40	3960	329	1037.68	323.4	405	253.5	2605	722.86	ok
	315	D	27.530	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.55	0.28	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	317	H	343.684	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	6.91	3.45	4	100	40	3060	329	843.278	269.5	405	235.54	2605	722.86	ok
	318	D	88.510	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.78	0.89	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
140	310	D	5.314	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.11	0.05	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	311	D	67.928	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.37	0.68	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	312	A	216.120	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	3.08	1.54	2	110	40	1800	1080	494.1	253.8	1200	258.25			ok
	315	D	27.530	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.55	0.28	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	316	B	43.492	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.87	0.44	1		40	320	332	126.69	71.01	400	83.824			ok

Tabel 4.7.a Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Prncn mutu,diameter,jmlh, jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	319	A	333.081	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	4.75	2.37	3	110	40	3120	1080	636.66	293.3	1200	264.84			ok
	320	B	45.235	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.91	0.45	1		40	320	332	126.69	71.01	400	83.824			ok
141	313	B	60.805	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.22	0.61	1		40	320	332	126.69	71.01	400	83.824			ok
	314	A	690.330	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	9.84	4.92	5	110	40	5760	1080	921.78	372.4	1200	278.01			ok
	316	B	43.492	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.87	0.44	1		40	320	332	126.69	71.01	400	83.824			ok
	321	A	745.428	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	10.63	5.31	6	110	40	7080	1080	1064.34	412	1200	284.6			ok
142	317	H	343.684	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	6.91	3.45	4	100	40	3060	329	843.278	269.5	405	235.54	2605	722.86	ok
	322	D	1.997	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.04	0.02	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	324	H	343.986	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	6.92	3.46	4	100	40	3060	329	843.278	269.5	405	235.54	2605	722.86	ok
143	318	D	88.510	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.78	0.89	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	319	A	333.081	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	4.75	2.37	3	110	40	3120	1080	636.66	293.3	1200	264.84			ok
	322	D	1.997	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.04	0.02	1		40	280	186	163.433	65.39	245	109.97	1386	384.62	ok
	323	B	33.645	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.68	0.34	1		40	320	332	126.69	71.01	400	83.824			ok
	325	A	388.676	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	5.54	2.77	3	110	40	3120	1080	636.66	293.3	1200	264.84			ok
	326	B	35.083	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.71	0.35	1		40	320	332	126.69	71.01	400	83.824			ok
144	320	B	45.235	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.91	0.45	1		40	320	332	126.69	71.01	400	83.824			ok
	321	A	745.428	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	10.63	5.31	6	110	40	7080	1080	1064.34	412	1200	284.6			ok
	323	B	33.645	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.68	0.34	1		40	320	332	126.69	71.01	400	83.824			ok
	327	A	786.097	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	11.21	5.60	6	110	40	7080	1080	1064.34	412	1200	284.6			ok
145	324	H	343.986	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	6.92	3.46	4	100	40	3060	329	843.278	269.5	405	235.54	2605	722.86	ok
	325	A	388.676	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	5.54	2.77	3	110	40	3120	1080	636.66	293.3	1200	264.84			ok
	328	B	32.520	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.65	0.33	1		40	320	332	126.69	71.01	400	83.824			ok
	329	A	582.779	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	8.31	4.15	5	110	40	5760	1080	921.78	372.4	1200	278.01			ok
	330	B	183.856	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.70	1.85	2	70	40	880	332	187.17	87.8	400	86.618			ok
146	326	B	35.083	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.71	0.35	1		40	320	332	126.69	71.01	400	83.824			ok
	327	A	786.097	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	11.21	5.60	6	110	40	7080	1080	1064.34	412	1200	284.6			ok
	328	B	32.520	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.65	0.33	1		40	320	332	126.69	71.01	400	83.824			ok
	331	A	751.916	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	10.72	5.36	6	110	40	7080	1080	1064.34	412	1200	284.6			ok
147	329	A	582.779	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	8.31	4.15	5	110	40	5760	1080	921.78	372.4	1200	278.01			ok
	332	B	160.290	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.22	1.61	2	70	40	880	332	187.17	87.8	400	86.618			ok

Tabel 4.7.a Lanjutan

Join	Btg	Prf	Nu (kN)	Ag (mm2)	tp (mm)	tf (mm)	Fu p (Mpa)	Pmcn mutu,diameter,jmlh,jrk baut				ϕTn trk (kN)	ϕRn tump. (kN)	n	n/2	np	s (mm)	s' (mm)	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub (Mpa)	d (mm)	ϕVn geser (kN)								Avg (mm2)	Ant (mm2)	ϕTn1 (kN)	Ans (mm2)	Atg (mm2)	ϕTn2 (kN)	An (mm2)	ϕNn (kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	333	A	398.749	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	5.69	2.84	3	110	40	3120	1080	636.66	293.3	1200	264.84			ok
	334	B	197.737	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.98	1.99	3	70	40	1440	332	247.65	104.6	400	89.412			ok
148	330	B	183.856	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.70	1.85	2	70	40	880	332	187.17	87.8	400	86.618			ok
	331	A	751.916	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	10.72	5.36	6	110	40	7080	1080	1064.34	412	1200	284.6			ok
	332	B	160.290	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.22	1.61	2	70	40	880	332	187.17	87.8	400	86.618			ok
	335	A	581.409	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	8.29	4.14	5	110	40	5760	1080	921.78	372.4	1200	278.01			ok
149	333	A	398.749	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	5.69	2.84	3	110	40	3120	1080	636.66	293.3	1200	264.84			ok
	336	B	172.792	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.47	1.74	2	70	40	880	332	187.17	87.8	400	86.618			ok
	337	A	204.053	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	2.91	1.45	2	110	40	1800	1080	494.1	253.8	1200	258.25			ok
	338	B	208.464	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	4.19	2.10	3	70	40	1440	332	247.65	104.6	400	89.412			ok
150	334	B	197.737	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.98	1.99	3	70	40	1440	332	247.65	104.6	400	89.412			ok
	335	A	581.409	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	8.29	4.14	5	110	40	5760	1080	921.78	372.4	1200	278.01			ok
	336	B	172.792	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.47	1.74	2	70	40	880	332	187.17	87.8	400	86.618			ok
	339	A	396.200	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	5.65	2.82	3	110	40	3120	1080	636.66	293.3	1200	264.84			ok
151	337	A	204.053	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	2.91	1.45	2	110	40	1800	1080	494.1	253.8	1200	258.25			ok
	340	B	179.555	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.61	1.81	2	70	40	880	332	187.17	87.8	400	86.618			ok
	341	A	10.349	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	0.15	0.07	1		40	480	1080	351.54	214.2	1200	251.66			ok
	342	B	221.273	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	4.45	2.22	3	70	40	1440	332	247.65	104.6	400	89.412			ok
152	338	B	208.464	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	4.19	2.10	3	70	40	1440	332	247.65	104.6	400	89.412			ok
	339	A	396.200	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	5.65	2.82	3	110	40	3120	1080	636.66	293.3	1200	264.84			ok
	340	B	179.555	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.61	1.81	2	70	40	880	332	187.17	87.8	400	86.618			ok
	343	A	201.609	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	2.87	1.44	2	110	40	1800	1080	494.1	253.8	1200	258.25			ok
153	341	A	10.349	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	0.15	0.07	1		40	480	1080	351.54	214.2	1200	251.66			ok
	344	B	197.220	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.97	1.98	3	70	40	1440	332	247.65	104.6	400	89.412			ok
	345	C	12.877	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.93	0.46	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
154	342	B	221.273	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	4.45	2.22	3	70	40	1440	332	247.65	104.6	400	89.412			ok
	343	A	201.609	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	2.87	1.44	2	110	40	1800	1080	494.1	253.8	1200	258.25			ok
	344	B	197.220	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.97	1.98	3	70	40	1440	332	247.65	104.6	400	89.412			ok
	346	C	9.719	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.70	0.35	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	347	C	6.591	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.47	0.24	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok

Tabel 4.7.a Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,jmlh,,jrk baut				ϕTn trk	ϕRn tump	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
155	345	C	12.877	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.93	0.46	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	346	C	9.719	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.70	0.35	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	348	C	6.4044	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.46	0.23	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	349	C	5.8799	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.42	0.21	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
156	347	C	6.5913	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.47	0.24	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	348	C	6.404	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.46	0.23	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	350	C	7.470	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.54	0.27	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	351	C	0.538	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.04	0.02	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
157	349	C	5.880	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.42	0.21	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	350	C	7.470	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.54	0.27	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	352	C	3.253	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.23	0.12	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
158	351	C	0.538	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.04	0.02	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	352	C	3.253	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.23	0.12	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok

Keterangan:

[1] Titik buhul

[2] Nomer batang

[3] Profil terpasang

[4] Nu = gaya batang

[5] Ag = luas penampang profil (mm^2)

[6] tp = tebal pelat buhul

[7] tf = tebal profil

[8] Fu p = tegangan putus minimum baja profil

[9] Mutu baut

[10] Fu b = tegangan tarik putus baut

[11] d = diameter baut

[12] ΦRn geser = 0,75.0,4.Fub.Ab (kuat geser rencana baut)

[13] ΦRn tarik = 0,75.0,75.Fub.Ab (kuat tarik rencana baut)

[14] ΦRn tumpu = 2,4.0,75.db.tp.Fu (kuat tumpu rencana baut)

[15] n = jumlah baut

[16] n/2

[17] np = baut terpasang

[18] s = jarak antar baut

[19] s' = jarak lubang baut dengan tepi pelat profil

[20] Avg = luas bruto pelelehan geser

[21] Ant = luas bersih retakan tarik

[22] ΦTn1 = kekuatan nominal tarik pelat profil pelelehan geser-retakan tarik

[23] Ans = luas bersih retakan geser

[24] Atg = luas kotor pelelehan tarik

[25] ΦTn2 = kekuatan nominal tarik pelat profil retakan geser-pelelehan tarik

[26] An = luas netto profil

[27] ΦNn = kuat tarik profil

[28] Nu ≤ Φ Nn ; profil aman dipakai

Tabel 4.7.b Perencanaan Sambungan Baut Kuda-Kuda K1"

Join	Btg	Prf	Nu (kN)	tp (mm)	tf (mm)	Fu p (Mpa)	Prncn mutu,diameter,,jmlh,,jrk baut				ϕTn trk (kN)	ϕRn tump. (kN)	n	n/2	np	s (mm)	s' (mm)	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
							Mutu baut	Fub (Mpa)	d (mm)	ϕVn geser (kN)								Avg (mm2)	Ant (mm2)	ϕTn1 (kN)	Ans (mm2)	Atg (mm2)	ϕTn2 (kN)	An (mm2)	ϕNn (kN)	
[1]	[2]	[3]	[4]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
1	1	C	3.407	12	8	370	A-325	410	12	13.9039	26.070	63.936	0.25	0.12	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
	2	C	5.922	12	8	370	A-325	410	12	13.9039	26.070	63.936	0.43	0.21	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
	3	C	7.541	12	8	370	A-325	410	12	13.9039	26.070	63.936	0.54	0.27	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
2	1	C	3.407	12	8	370	A-325	410	12	13.9039	26.070	63.936	0.25	0.12	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
	4	C	0.555	12	8	370	A-325	410	12	13.9039	26.070	63.936	0.04	0.02	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
3	2	C	5.922	12	8	370	A-325	410	12	13.9039	26.070	63.936	0.43	0.21	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
	5	C	6.463	12	8	370	A-325	410	12	13.9039	26.070	63.936	0.46	0.23	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
	6	C	13.012	12	8	370	A-325	410	12	13.9039	26.070	63.936	0.94	0.47	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
	7	C	9.861	12	8	370	A-325	410	12	13.9039	26.070	63.936	0.71	0.35	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
4	3	C	7.541	12	8	370	A-325	410	12	13.9039	26.070	63.936	0.54	0.27	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
	4	C	0.555	12	8	370	A-325	410	12	13.9039	26.070	63.936	0.04	0.02	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
	5	C	6.463	12	8	370	A-325	410	12	13.9039	26.070	63.936	0.46	0.23	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
	8	C	6.816	12	8	370	A-325	410	12	13.9039	26.070	63.936	0.49	0.25	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
5	6	C	13.012	12	8	370	A-325	410	12	13.9039	26.070	63.936	0.94	0.47	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
	9	B	187.139	12	8	370	A-325	825	16	49.7376	93.258	85.248	3.76	1.88	2	70	40	880	332	187.17	624	400	175.896			ok
	10	A	19.204	12	12	370	A-325	825	19	70.1378	131.508	151.848	0.27	0.14	1		40	480	1080	351.54	252	1200	257.958			ok
6	7	C	9.861	12	8	370	A-325	410	12	13.9039	26.070	63.936	0.71	0.35	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
	8	C	6.816	12	8	370	A-325	410	12	13.9039	26.070	63.936	0.49	0.25	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
	9	B	187.139	12	8	370	A-325	825	16	49.7376	93.258	85.248	3.76	1.88	2	70	40	880	332	187.17	624	400	175.896			ok
	11	B	208.147	12	8	370	A-325	825	16	49.7376	93.258	85.248	4.18	2.09	3	70	40	1440	332	247.65	1056	400	247.824			ok
	12	A	188.527	12	12	370	A-325	825	19	70.1378	131.508	151.848	2.69	1.34	2	110	40	1800	1080	494.1	1344	1200	439.776			ok
7	10	A	19.204	12	12	370	A-325	825	19	70.1378	131.508	151.848	0.27	0.14	2	110	40	1800	1080	494.1	1344	1200	439.776			ok
	11	B	208.147	12	8	370	A-325	825	16	49.7376	93.258	85.248	4.18	2.09	3	70	40	1440	332	247.65	1056	400	247.824			ok
	13	B	170.199	12	8	370	A-325	825	16	49.7376	93.258	85.248	3.42	1.71	2	70	40	880	332	187.17	624	400	175.896			ok
	14	A	196.366	12	12	370	A-325	825	19	70.1378	131.508	151.848	2.80	1.40	2	110	40	1800	1080	494.1	1344	1200	439.776			ok
8	12	A	188.527	12	12	370	A-325	825	19	70.1378	131.508	151.848	2.69	1.34	2	110	40	1800	1080	494.1	1344	1200	439.776			ok
	13	B	170.199	12	8	370	A-325	825	16	49.7376	93.258	85.248	3.42	1.71	2	70	40	880	332	187.17	624	400	175.896			ok
	15	B	196.912	12	8	370	A-325	825	16	49.7376	93.258	85.248	3.96	1.98	3	70	40	1440	332	247.65	1056	400	247.824			ok
	16	B	371.966	12	8	370	A-325	825	16	49.7376	93.258	85.248	7.48	3.74	6	70	40	3120	332	429.09	2352	400	463.608			ok

Tabel 4.7.b Lanjutan

Join	Btg	Prf	Nu	tp	tf	Fu p	Prncn mutu,diameter,,jmlh, jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
							Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
9	14	A	196.366	12	12	370	A-325	825	19	70.1378	131.508	151.848	2.80	1.40	2	110	40	1800	1080	494.1	1344	1200	439.776			ok
	15	B	196.912	12	8	370	A-325	825	16	49.7376	93.258	85.248	3.96	1.98	3	70	40	1440	332	247.65	1056	400	247.824			ok
	17	B	164.514	12	8	370	A-325	825	16	49.7376	93.258	85.248	3.31	1.65	2	70	40	880	332	187.17	624	400	175.896			ok
	18	A	378.290	12	12	370	A-325	825	19	70.1378	131.508	151.848	5.39	2.70	3	110	40	3120	1080	636.66	2436	1200	621.594			ok
10	16	B	371.966	12	8	370	A-325	825	16	49.7376	93.258	85.248	7.48	3.74	6	70	40	3120	332	429.09	2352	400	463.608			ok
	17	B	164.514	12	8	370	A-325	825	16	49.7376	93.258	85.248	3.31	1.65	2	70	40	880	332	187.17	624	400	175.896			ok
	19	B	187.618	12	8	370	A-325	825	16	49.7376	93.258	85.248	3.77	1.89	3	70	40	1440	332	247.65	1056	400	247.824			ok
	20	A	547.330	12	12	370	A-325	825	19	70.1378	131.508	151.848	7.80	3.90	4	110	40	4440	1080	779.22	3528	1200	803.412			ok
11	18	A	378.290	12	12	370	A-325	825	19	70.1378	131.508	151.848	5.39	2.70	3	110	40	3120	1080	636.66	2436	1200	621.594			ok
	19	B	187.618	12	8	370	A-325	825	16	49.7376	93.258	85.248	3.77	1.89	3	70	40	1440	332	247.65	1056	400	247.824			ok
	21	B	153.285	12	8	370	A-325	825	16	49.7376	93.258	85.248	3.08	1.54	2	70	40	880	332	187.17	624	400	175.896			ok
	22	A	550.337	12	12	370	A-325	825	19	70.1378	131.508	151.848	7.85	3.92	4	110	40	4440	1080	779.22	3528	1200	803.412			ok
12	20	A	547.330	12	12	370	A-325	825	19	70.1378	131.508	151.848	7.80	3.90	4	110	40	4440	1080	779.22	3528	1200	803.412			ok
	21	B	153.285	12	8	370	A-325	825	16	49.7376	93.258	85.248	3.08	1.54	2	70	40	880	332	187.17	624	400	175.896			ok
	23	B	175.118	12	8	370	A-325	825	16	49.7376	93.258	85.248	3.52	1.76	2	70	40	880	332	187.17	624	400	175.896			ok
	24	A	708.793	12	12	370	A-325	825	19	70.1378	131.508	151.848	10.11	5.05	6	110	40	7080	1080	1064.3	5712	1200	1167.05			ok
13	22	A	550.337	12	12	370	A-325	825	19	70.1378	131.508	151.848	7.85	3.92	4	110	40	4440	1080	779.22	3528	1200	803.412			ok
	23	B	175.118	12	8	370	A-325	825	16	49.7376	93.258	85.248	3.52	1.76	2	70	40	880	332	187.17	624	400	175.896			ok
	25	B	31.314	12	8	370	A-325	825	16	49.7376	93.258	85.248	0.63	0.31	1		40	320	332	126.69	192	400	103.968			ok
	26	H	330.253	12	9	370	A-325	825	16	49.7376	93.258	95.904	6.64	3.32	4	100	40	3060	329	843.28	2484	405	972.972	2605	722.857	ok
	27	A	362.784	12	12	370	A-325	825	19	70.1378	131.508	151.848	5.17	2.59	3	110	40	3120	1080	636.66	2436	1200	621.594			ok
14	24	A	708.793	12	12	370	A-325	825	19	70.1378	131.508	151.848	10.11	5.05	6	110	40	7080	1080	1064.3	5712	1200	1167.05			ok
	25	B	31.314	12	8	370	A-325	825	16	49.7376	93.258	85.248	0.63	0.31	1		40	320	332	126.69	192	400	103.968			ok
	28	B	33.191	12	8	370	A-325	825	16	49.7376	93.258	85.248	0.67	0.33	1		40	320	332	126.69	192	400	103.968			ok
	29	A	741.339	12	12	370	A-325	825	19	70.1378	131.508	151.848	10.57	5.28	6	110	40	7080	1080	1064.3	5712	1200	1167.05			ok
15	26	H	330.253	12	9	370	A-325	825	16	49.7376	93.258	95.904	6.64	3.32	4	100	40	3060	329	843.28	2484	405	972.972	2605	722.857	ok
	30	D	0.830	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.02	0.01	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	32	H	329.957	12	9	370	A-325	825	16	49.7376	93.258	95.904	6.63	3.32	4	100	40	3060	329	843.28	2484	405	972.972	2605	722.857	ok
16	27	A	362.784	12	12	370	A-325	825	19	70.1378	131.508	151.848	5.17	2.59	3	110	40	3120	1080	636.66	2436	1200	621.594			ok
	28	B	33.191	12	8	370	A-325	825	16	49.7376	93.258	85.248	0.67	0.33	1		40	320	332	126.69	192	400	103.968			ok

Tabel 4.7.b Lanjutan

Join	Btg	Prf	Nu	tp	tf	Fu p	Prncn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	*n*	*n/2*	*np*	*s*	*s'*	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
							Mutu baut	Fub	d	ϕVn geser								*Avg*	*Ant*	*ϕTn1*	*Ans*	*Atg*	*ϕTn2*	*An*	*ϕNn*	
			(kN)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	30	D	0.830	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.02	0.01	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	31	B	32.037	12	8	370	A-325	825	16	49.7376	93.258	85.248	0.64	0.32	1		40	320	332	126.69	192	400	103.968			ok
	33	D	85.016	12	7	370	A-325	825	16	49.7376	93.258	74.592	1.71	0.85	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	34	A	308.679	12	12	370	A-325	825	19	70.1378	131.508	151.848	4.40	2.20	3	110	40	3120	1080	636.66	2436	1200	621.594			ok
17	29	A	741.339	12	12	370	A-325	825	19	70.1378	131.508	151.848	10.57	5.28	6	110	40	7080	1080	1064.3	5712	1200	1167.05			ok
	31	B	32.037	12	8	370	A-325	825	16	49.7376	93.258	85.248	0.64	0.32	1		40	320	332	126.69	192	400	103.968			ok
	35	B	44.341	12	8	370	A-325	825	16	49.7376	93.258	85.248	0.89	0.45	1		40	320	332	126.69	192	400	103.968			ok
	36	A	701.808	12	12	370	A-325	825	19	70.1378	131.508	151.848	10.01	5.00	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
18	32	H	329.957	12	9	370	A-325	825	16	49.7376	93.258	95.904	6.63	3.32	4	100	40	3060	329	843.28	2484	405	972.972	2605	722.857	ok
	33	D	85.016	12	7	370	A-325	825	16	49.7376	93.258	74.592	1.71	0.85	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	37	D	27.780	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.56	0.28	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	39	H	409.427	12	9	370	A-325	825	16	49.7376	93.258	95.904	8.23	4.12	5	100	40	3960	329	1037.7	3240	405	1224.72	2605	722.857	ok
19	34	A	308.679	12	12	370	A-325	825	19	70.1378	131.508	151.848	4.40	2.20	3	110	40	3120	1080	636.66	2436	1200	621.594			ok
	35	B	44.341	12	8	370	A-325	825	16	49.7376	93.258	85.248	0.89	0.45	1		40	320	332	126.69	192	400	103.968			ok
	37	D	27.780	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.56	0.28	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	38	B	40.810	12	8	370	A-325	825	16	49.7376	93.258	85.248	0.82	0.41	1		40	320	332	126.69	192	400	103.968			ok
	40	D	5.806	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.12	0.06	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	41	D	65.249	12	7	370	A-325	825	16	49.7376	93.258	74.592	1.31	0.66	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	42	A	198.762	12	12	370	A-325	825	19	70.1378	131.508	151.848	2.83	1.42	2		40	480	1080	351.54	24	1200	219.996			ok
20	36	A	701.808	12	12	370	A-325	825	19	70.1378	131.508	151.848	10.01	5.00	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
	38	B	40.810	12	8	370	A-325	825	16	49.7376	93.258	85.248	0.82	0.41	1		40	320	332	126.69	192	400	103.968			ok
	43	B	57.593	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.16	0.58	1		40	320	332	126.69	192	400	103.968			ok
	44	A	650.220	12	12	370	A-325	825	19	70.1378	131.508	151.848	9.27	4.64	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
21	39	H	409.427	12	9	370	A-325	825	16	49.7376	93.258	95.904	8.23	4.12	5	100	40	3960	329	1037.7	3240	405	1224.72	2605	722.857	ok
	40	D	5.806	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.12	0.06	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	45	D	2.522	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.05	0.03	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	48	H	412.480	12	9	370	A-325	825	16	49.7376	93.258	95.904	8.29	4.15	5	100	40	3960	374	1062.7	3240	450	1240.92	2590	718.621	ok
22	41	D	65.249	12	7	370	A-325	825	16	49.7376	93.258	74.592	1.31	0.66	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	45	D	2.522	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.05	0.03	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	46	D	13.239	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.27	0.13	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok

Tabel 4.7.b Lanjutan

Join	Btg	Prf	Nu	tp	tf	Fu p	Pmcn mutu,diameter,,jmlh,,jrk baut				ϕTn tek	ϕRn tump	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
							Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	49	D	21.968	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.44	0.22	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	50	D	147.469	12	7	370	A-325	825	16	49.7376	93.258	74.592	2.96	1.48	2	60	40	700	186	254.15	476	245	246.708	1436	398.49	ok
23	42	A	198.762	12	12	370	A-325	825	19	70.1378	131.508	151.848	2.83	1.42	2	110	40	1800	1080	494.1	1344	1200	439.776			ok
	43	B	57.593	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.16	0.58	1		40	320	332	126.69	192	400	103.968			ok
	46	D	13.239	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.27	0.13	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	47	B	37.738	12	8	370	A-325	825	16	49.7376	93.258	85.248	0.76	0.38	1		40	320	332	126.69	192	400	103.968			ok
	51	A	51.123	12	12	370	A-325	825	19	70.1378	131.508	151.848	0.73	0.36	1		40	480	1080	351.54	252	1200	257.958			ok
24	44	A	650.220	12	12	370	A-325	825	19	70.1378	131.508	151.848	9.27	4.64	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
	47	B	37.738	12	8	370	A-325	825	16	49.7376	93.258	85.248	0.76	0.38	1		40	320	332	253.38	192	400	103.968			ok
	52	B	603.435	12	8	370	A-325	825	16	49.7376	93.258	85.248	12.13	6.07	6	70	40	3120	332	858.18	2352	400	463.608			ok
	53	A	602.877	12	12	370	A-325	825	19	70.1378	131.508	151.848	8.60	4.30	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
25	48	H	412.480	12	9	370	A-325	825	16	49.7376	93.258	95.904	8.29	4.15	5	100	40	3960	329	1037.7	3240	405	1224.72	2605	722.857	ok
	49	D	21.968	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.44	0.22	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	54	D	13.873	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.28	0.14	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	56	H	25.301	12	9	370	A-325	825	16	49.7376	93.258	95.904	0.51	0.25	1		40	360	329	260.08	216	405	217.728	2466	684.315	ok
26	50	D	147.469	12	7	370	A-325	825	16	49.7376	93.258	74.592	2.96	1.48	2	60	40	700	186	254.15	476	245	246.708	1436	398.49	ok
	54	D	13.873	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.28	0.14	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	57	D	25.014	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.50	0.25	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	58	D	100.183	12	7	370	A-325	825	16	49.7376	93.258	74.592	2.01	1.01	2	60	40	700	186	254.15	476	245	246.708	1436	398.49	ok
27	51	A	51.123	12	12	370	A-325	825	19	70.1378	131.508	151.848	0.73	0.36	1		40	480	1080	351.54	252	1200	257.958			ok
	52	B	603.435	12	8	370	A-325	825	16	49.7376	93.258	85.248	12.13	6.07	9	70	40	4800	332	610.53	3648	400	679.392			ok
	55	B	394.913	12	8	370	A-325	825	16	49.7376	93.258	85.248	7.94	3.97	6	70	40	3120	332	429.09	2352	400	463.608			ok
	59	A	100.662	12	12	370	A-325	825	19	70.1378	131.508	151.848	1.44	0.72	1		40	480	1080	351.54	252	1200	257.958			ok
28	53	A	602.877	12	12	370	A-325	825	19	70.1378	131.508	151.848	8.60	4.30	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
	55	B	394.913	12	8	370	A-325	825	16	49.7376	93.258	85.248	7.94	3.97	6	70	40	3120	332	429.09	2352	400	463.608			ok
	61	A	549.063	12	12	370	A-325	825	19	70.1378	131.508	151.848	7.83	3.91	4	110	40	4440	1080	779.22	3528	1200	803.412			ok
	68	B	71.067	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.43	0.71	1		40	320	332	126.69	192	400	103.968			ok
29	56	H	25.301	12	9	370	A-325	825	16	49.7376	93.258	95.904	0.51	0.25	1		40	360	329	260.08	216	405	217.728	2466	684.315	ok
	57	D	25.014	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.50	0.25	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	62	D	15.819	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.32	0.16	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok

Tabel 4.7.b Lanjutan

Join	Btg	Prf	Nu	tp	tf	Fu p	Prncn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	*n*	*n/2*	*np*	*s*	*s'*	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
							Mutu baut	Fub	d	ϕVn geser								*Avg*	*Ant*	*ϕTn1*	*Ans*	*Atg*	*ϕTn2*	*An*	*ϕNn*	
			(kN)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	64	H	374.161	12	9	370	A-325	825	16	49.7376	93.258	95.904	7.52	3.76	4	100	40	3060	329	843.28	2484	405	972.972	2605	722.857	ok
30	58	D	100.183	12	7	370	A-325	825	16	49.7376	93.258	74.592	2.01	1.01	2	60	40	700	186	254.15	476	245	246.708	1436	398.49	ok
	62	D	15.819	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.32	0.16	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	65	D	28.126	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.57	0.28	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	66	D	125.851	12	7	370	A-325	825	16	49.7376	93.258	74.592	2.53	1.27	2	60	40	700	186	254.15	476	245	246.708	1436	398.49	ok
31	59	A	100.662	12	12	370	A-325	825	19	70.1378	131.508	151.848	1.44	0.72	1		40	480	1080	351.54	252	1200	257.958			ok
	60	B	60.039	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.21	0.60	1		40	320	332	126.69	192	400	103.968			ok
	63	B	52.160	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.05	0.52	1		40	320	332	126.69	192	400	103.968			ok
	67	A	46.232	12	12	370	A-325	825	19	70.1378	131.508	151.848	0.66	0.33	1		40	480	1080	351.54	252	1200	257.958			ok
32	61	A	549.063	12	12	370	A-325	825	19	70.1378	131.508	151.848	7.83	3.91	4	110	40	4440	1080	779.22	3528	1200	803.412			ok
	63	B	52.160	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.05	0.52	1		40	320	332	126.69	192	400	103.968			ok
	68	B	71.067	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.43	0.71	1		40	320	332	126.69	192	400	103.968			ok
	69	A	485.112	12	12	370	A-325	825	19	70.1378	131.508	151.848	6.92	3.46	4	110	40	4440	1080	779.22	3528	1200	803.412			ok
33	70	E	3.944	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.08	0.04	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	71	E	3.957	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.08	0.04	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
34	64	H	374.161	12	9	370	A-325	825	16	49.7376	93.258	95.904	7.52	3.76	4	100	40	3060	329	843.28	2484	405	972.972	2605	722.857	ok
	65	D	28.126	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.57	0.28	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	72	D	48.171	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.97	0.48	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	76	D	113.521	12	7	370	A-325	825	16	49.7376	93.258	74.592	2.28	1.14	2	60	40	700	186	254.15	476	245	246.708	1436	398.49	ok
	79	H	259.241	12	9	370	A-325	825	16	49.7376	93.258	95.904	5.21	2.61	3	100	40	2160	329	648.88	1728	405	721.224	2605	722.857	ok
35	66	D	125.851	12	7	370	A-325	825	16	49.7376	93.258	74.592	2.53	1.27	2	60	40	700	186	254.15	476	245	246.708	1436	398.49	ok
	72	D	48.171	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.97	0.48	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	73	D	28.457	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.57	0.29	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	77	D	32.025	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.64	0.32	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	80	D	100.000	12	7	370	A-325	825	16	49.7376	93.258	74.592	2.01	1.01	2	60	40	700	186	254.15	476	245	246.708	1436	398.49	ok
36	73	D	28.457	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.57	0.29	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	74	D	43.351	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.87	0.44	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	81	E	25.335	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.51	0.25	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	82	E	19.801	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.40	0.20	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
37	67	A	46.232	12	12	370	A-325	825	19	70.1378	131.508	151.848	0.66	0.33	1		40	480	1080	351.54	252	1200	257.958			ok

Tabel 4.7.b Lanjutan

Join	Btg	Prf	Nu	tp	tf	Fu p	Prncn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
							Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	68	B	71.067	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.43	0.71	1		40	320	332	126.69	192	400	103.968			ok
	74	D	43.351	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.87	0.44	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	75	B	4.831	12	8	370	A-325	825	16	49.7376	93.258	85.248	0.10	0.05	1		40	320	332	126.69	192	400	103.968			ok
	83	E	23.494	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.47	0.24	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	84	A	6.564	12	12	370	A-325	825	19	70.1378	131.508	151.848	0.09	0.05	1		40	480	1080	351.54	252	1200	257.958			ok
38	69	A	485.112	12	12	370	A-325	825	19	70.1378	131.508	151.848	6.92	3.46	4	110	40	4440	1080	779.22	3528	1200	803.412			ok
	75	B	4.831	12	8	370	A-325	825	16	49.7376	93.258	85.248	0.10	0.05	1		40	320	332	126.69	192	400	103.968			ok
	85	B	15.085	12	8	370	A-325	825	16	49.7376	93.258	85.248	0.30	0.15	1		40	320	332	126.69	192	400	103.968			ok
	86	A	471.458	12	12	370	A-325	825	19	70.1378	131.508	151.848	6.72	3.36	4	110	40	4440	1080	779.22	3528	1200	803.412			ok
39	70	E	3.944	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.08	0.04	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	78	E	3.186	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.06	0.03	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	87	E	6.576	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.13	0.07	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	88	E	3.290	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.07	0.03	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
40	71	E	3.957	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.08	0.04	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	78	E	3.186	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.06	0.03	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	89	E	3.997	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.08	0.04	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
41	76	D	113.521	12	7	370	A-325	825	16	49.7376	93.258	74.592	2.28	1.14	2	60	40	700	186	254.15	476	245	246.708	1436	398.49	ok
	77	D	32.025	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.64	0.32	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	90	D	31.865	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.64	0.32	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	91	D	113.899	12	7	370	A-325	825	16	49.7376	93.258	74.592	2.29	1.14	2	60	40	700	186	254.15	476	245	246.708	1436	398.49	ok
42	79	H	259.241	12	9	370	A-325	825	16	49.7376	93.258	95.904	5.21	2.61	3	100	40	2160	329	648.88	1728	405	721.224	2605	722.857	ok
	90	D	31.865	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.64	0.32	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	92	D	16.600	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.33	0.17	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	97	D	284.830	12	7	370	A-325	825	16	49.7376	93.258	74.592	5.73	2.86	3	60	40	1120	186	344.87	784	245	349.272	1436	398.49	ok
43	80	D	100.000	12	7	370	A-325	825	16	49.7376	93.258	74.592	2.01	1.01	2	60	40	700	186	254.15	476	245	246.708	1436	398.49	ok
	81	E	25.335	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.51	0.25	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	91	D	113.899	12	7	370	A-325	825	16	49.7376	93.258	74.592	2.29	1.14	2	60	40	700	186	254.15	476	245	246.708	1436	398.49	ok
	92	D	16.600	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.33	0.17	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	93	D	67.241	12	7	370	A-325	825	16	49.7376	93.258	74.592	1.35	0.68	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	98	E	2.558	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.05	0.03	1		40	240	129	123.44	144	180	112.752	960	266.4	ok

Tabel 4.7.b Lanjutan

Join	Btg	Prf	Nu	tp	tf	Fu p	Pmcn mutu,diameter,,jmlh,,jrk baut				ϕTr. trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
							Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	99	D	173.904	12	7	370	A-325	825	16	49.7376	93.258	74.592	3.50	1.75	2	60	40	700	186	254.15	476	245	246.708	1436	398.49	ok
44	82	E	19.801	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.40	0.20	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	83	E	23.494	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.47	0.24	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	93	D	67.241	12	7	370	A-325	825	16	49.7376	93.258	74.592	1.35	0.68	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	94	D	80.182	12	7	370	A-325	825	16	49.7376	93.258	74.592	1.61	0.81	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
45	84	A	6.564	12	12	370	A-325	825	19	70.1378	131.508	151.848	0.09	0.05	1		40	480	1080	351.54	252	1200	257.958			ok
	85	B	15.085	12	8	370	A-325	825	16	49.7376	93.258	85.248	0.30	0.15	1		40	320	332	126.69	192	400	103.968			ok
	94	D	80.182	12	7	370	A-325	825	16	49.7376	93.258	74.592	1.61	0.81	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	95	B	64.307	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.29	0.65	1		40	320	332	126.69	192	400	103.968			ok
	100	D	34.391	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.69	0.35	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	101	A	24.118	12	12	370	A-325	825	19	70.1378	131.508	151.848	0.34	0.17	1		40	480	1080	351.54	252	1200	257.958			ok
46	86	A	471.458	12	12	370	A-325	825	19	70.1378	131.508	151.848	6.72	3.36	4	110	40	4440	1080	779.22	3528	1200	803.412			ok
	87	E	6.576	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.13	0.07	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	95	B	64.307	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.29	0.65	1		40	320	332	126.69	192	400	103.968			ok
	96	E	38.126	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.77	0.38	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	102	B	124.493	12	8	370	A-325	825	16	49.7376	93.258	85.248	2.50	1.25	2	70	40	880	332	187.17	624	400	175.896			ok
	103	A	360.254	12	12	370	A-325	825	19	70.1378	131.508	151.848	5.14	2.57	3	110	40	3120	1080	636.66	2436	1200	621.594			ok
47	88	E	3.290	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.07	0.03	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	89	E	3.997	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.08	0.04	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	96	E	38.126	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.77	0.38	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	104	E	36.594	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.74	0.37	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	105	E	29.375	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.59	0.30	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
48	97	D	284.830	12	7	370	A-325	825	16	49.7376	93.258	74.592	5.73	2.86	3	60	40	1120	186	344.87	784	245	349.272	1436	398.49	ok
	98	E	2.558	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.05	0.03	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	106	E	2.944	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.06	0.03	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	110	D	284.199	12	7	370	A-325	825	16	49.7376	93.258	74.592	5.71	2.86	3	60	40	1120	186	344.87	784	245	349.272	1436	398.49	ok
49	99	D	173.904	12	7	370	A-325	825	16	49.7376	93.258	74.592	3.50	1.75	2	60	40	700	186	254.15	476	245	246.708	1436	398.49	ok
	106	E	2.944	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.06	0.03	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	111	E	6.345	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.13	0.06	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	112	D	178.460	12	7	370	A-325	825	16	49.7376	93.258	74.592	3.59	1.79	2	60	40	700	186	254.15	476	245	246.708	1436	398.49	ok

Tabel 4.7.b Lanjutan

Join	Btg	Prf	Nu	tp	tf	Fu p	Prncn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
							Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
50	100	D	34.391	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.69	0.35	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	107	E	2.341	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.05	0.02	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	113	D	38.350	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.77	0.39	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	114	E	3.902	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.08	0.04	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
51	101	A	24.118	12	12	370	A-325	825	19	70.1378	131.508	151.848	0.34	0.17	1		40	480	1080	351.54	252	1200	257.958			ok
	102	B	124.493	12	8	370	A-325	825	16	49.7376	93.258	85.248	2.50	1.25	2	70	40	880	332	187.17	624	400	175.896			ok
	107	E	2.341	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.05	0.02	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	108	B	72.432	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.46	0.73	1		40	320	332	126.69	192	400	103.968			ok
	115	D	52.604	12	7	370	A-325	825	16	49.7376	93.258	74.592	1.06	0.53	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	116	A	49.927	12	12	370	A-325	825	19	70.1378	131.508	151.848	0.71	0.36	1		40	480	1080	351.54	252	1200	257.958			ok
52	103	A	360.254	12	12	370	A-325	825	19	70.1378	131.508	151.848	5.14	2.57	3	110	40	3120	1080	636.66	2436	1200	621.594			ok
	104	E	36.594	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.74	0.37	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	108	B	72.432	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.46	0.73	1		40	320	332	126.69	192	400	103.968			ok
	109	E	12.739	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.26	0.13	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	117	B	69.742	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.40	0.70	1		40	320	332	126.69	192	400	103.968			ok
	118	A	263.422	12	12	370	A-325	825	19	70.1378	131.508	151.848	3.76	1.88	2	110	40	1800	1080	494.1	1344	1200	439.776			ok
53	105	E	29.375	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.59	0.30	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	109	E	12.739	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.26	0.13	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	119	E	9.904	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.20	0.10	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	120	E	37.838	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.76	0.38	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
54	110	D	284.199	12	7	370	A-325	825	16	49.7376	93.258	74.592	5.71	2.86	3	60	40	1120	186	344.87	784	245	349.272	1436	398.49	ok
	111	E	6.345	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.13	0.06	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	121	E	5.254	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.11	0.05	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	125	D	279.670	12	7	370	A-325	825	16	49.7376	93.258	74.592	5.62	2.81	3	60	40	1120	186	344.87	784	245	349.272	1436	398.49	ok
55	112	D	178.460	12	7	370	A-325	825	16	49.7376	93.258	74.592	3.59	1.79	2	60	40	700	186	254.15	476	245	246.708	1436	398.49	ok
	121	E	5.254	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.11	0.05	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	126	E	10.104	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.20	0.10	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	127	D	194.400	12	7	370	A-325	825	16	49.7376	93.258	74.592	3.91	1.95	2	60	40	700	186	254.15	476	245	246.708	1436	398.49	ok
56	113	D	38.350	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.77	0.39	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	122	E	3.803	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.08	0.04	1		40	240	129	123.44	144	180	112.752	960	266.4	ok

Tabel 4.7.b Lanjutan

Join	Btg	Prf	Nu	tp	tf	Fu p	Pmcn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
							Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	128	D	44.162	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.89	0.44	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	129	E	5.691	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.11	0.06	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
57	114	E	3.902	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.08	0.04	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	115	D	52.604	12	7	370	A-325	825	16	49.7376	93.258	74.592	1.06	0.53	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	122	E	3.803	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.08	0.04	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	130	D	48.647	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.98	0.49	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
58	116	A	49.927	12	12	370	A-325	825	19	70.1378	131.508	151.848	0.71	0.36	1		40	480	1080	351.54	252	1200	257.958			ok
	117	B	69.742	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.40	0.70	1		40	320	332	126.69	192	400	103.968			ok
	123	B	60.017	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.21	0.60	1		40	320	332	126.69	192	400	103.968			ok
	131	A	117.585	12	12	370	A-325	825	19	70.1378	131.508	151.848	1.68	0.84	1		40	480	1080	351.54	252	1200	257.958			ok
59	118	A	263.422	12	12	370	A-325	825	19	70.1378	131.508	151.848	3.76	1.88	2	110	40	1800	1080	494.1	1344	1200	439.776			ok
	119	E	9.904	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.20	0.10	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	123	B	60.017	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.21	0.60	1		40	320	332	126.69	192	400	103.968			ok
	124	E	2.656	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.05	0.03	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	132	B	64.240	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.29	0.65	1		40	320	332	126.69	192	400	103.968			ok
	133	A	195.753	12	12	370	A-325	825	19	70.1378	131.508	151.848	2.79	1.40	2	110	40	1800	1080	494.1	1344	1200	439.776			ok
60	120	E	37.838	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.76	0.38	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	124	E	2.656	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.05	0.03	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	134	E	8.743	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.18	0.09	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	135	E	30.119	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.61	0.30	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
61	125	D	279.670	12	7	370	A-325	825	16	49.7376	93.258	74.592	5.62	2.81	3	60	40	1120	186	344.87	784	245	349.272	1436	398.49	ok
	126	E	10.104	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.20	0.10	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	136	E	7.331	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.15	0.07	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	140	D	271.529	12	7	370	A-325	825	16	49.7376	93.258	74.592	5.46	2.73	3	60	40	1120	186	344.87	784	245	349.272	1436	398.49	ok
62	127	D	186.538	12	7	370	A-325	825	16	49.7376	93.258	74.592	3.75	1.88	2	60	40	700	186	254.15	476	245	246.708	1436	398.49	ok
	136	E	7.331	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.15	0.07	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	141	E	13.441	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.27	0.14	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	142	D	197.845	12	7	370	A-325	825	16	49.7376	93.258	74.592	3.98	1.99	2	60	40	700	186	254.15	476	245	246.708	1436	398.49	ok
63	128	D	44.162	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.89	0.44	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	137	E	5.190	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.10	0.05	1		40	240	129	123.44	144	180	112.752	960	266.4	ok

Tabel 4.7.b Lanjutan

Join	Btg	Prf	Nu	tp	tf	Fu p	Prncn mutu,diameter,,jmlh,,jrk baut			ϕVn geser	ϕTn trk	ϕRn tump	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
							Mutu baut	Fub	d									Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	143	D	51.889	12	7	370	A-325	825	16	49.7376	93.258	74.592	1.04	0.52	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	144	E	7.571	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.15	0.08	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
64	129	E	5.691	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.11	0.06	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	130	D	48.647	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.98	0.49	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	137	E	5.190	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.10	0.05	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	145	D	43.223	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.87	0.43	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
65	131	A	112.463	12	12	370	A-325	825	19	70.1378	131.508	151.848	1.60	0.80	1		40	480	1080	351.54	252	1200	257.958			ok
	132	B	64.240	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.29	0.65	1		40	320	332	126.69	192	400	103.968			ok
	138	B	57.971	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.17	0.58	1		40	320	332	126.69	192	400	103.968			ok
	146	A	171.924	12	12	370	A-325	825	19	70.1378	131.508	151.848	2.45	1.23	2	110	40	1800	1080	494.1	1344	1200	439.776			ok
66	133	A	195.753	12	12	370	A-325	825	19	70.1378	131.508	151.848	2.79	1.40	2	110	40	1800	1080	494.1	1344	1200	439.776			ok
	134	E	8.743	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.18	0.09	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	138	B	57.971	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.17	0.58	1		40	320	332	126.69	192	400	103.968			ok
	139	E	13.296	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.27	0.13	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	147	B	66.525	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.34	0.67	1		40	320	332	126.69	192	400	103.968			ok
	148	A	142.417	12	12	370	A-325	825	19	70.1378	131.508	151.848	2.03	1.02	2	110	40	1800	1080	494.1	1344	1200	439.776			ok
67	135	E	30.119	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.61	0.30	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	139	E	13.296	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.27	0.13	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	149	E	11.507	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.23	0.12	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	150	E	18.775	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.38	0.19	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
68	140	D	271.529	12	7	370	A-325	825	16	49.7376	93.258	74.592	5.46	2.73	3	60	40	1120	186	344.87	784	245	349.272	1436	398.49	ok
	141	E	13.441	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.27	0.14	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	151	E	26.122	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.53	0.26	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	158	E	63.279	12	6	370	A-325	825	16	49.7376	93.258	63.936	1.27	0.64	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	173	D	209.178	12	7	370	A-325	825	16	49.7376	93.258	74.592	4.21	2.10	3	60	40	1120	186	344.87	784	245	349.272	1436	398.49	ok
69	142	D	197.845	12	7	370	A-325	825	16	49.7376	93.258	74.592	3.98	1.99	2	60	40	700	186	254.15	476	245	246.708	1436	398.49	ok
	143	D	51.889	12	7	370	A-325	825	16	49.7376	93.258	74.592	1.04	0.52	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	151	E	26.122	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.53	0.26	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	152	D	23.766	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.48	0.24	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	159	E	63.162	12	6	370	A-325	825	16	49.7376	93.258	63.936	1.27	0.63	1		40	240	129	123.44	144	180	112.752	960	266.4	ok

Tabel 4.7.b Lanjutan

Join	Btg	Prf	Nu	tp	tf	Fu p	Pmcn mutu,diameter,,jmlh,,jrk baut				ϕTn tk	ϕRn tump.	*n*	*n/2*	*np*	*s*	*s'*	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
							Mutu baut	Fub	d	ϕVn geser								*Avg*	*Ant*	*ϕTn1*	*Ans*	*Atg*	*ϕTn2*	*An*	*ϕNn*	
			(kN)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	160	E	15.972	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.32	0.16	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	174	D	91.635	12	7	370	A-325	825	16	49.7376	93.258	74.592	1.84	0.92	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
70	144	E	7.571	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.15	0.08	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	145	D	43.223	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.87	0.43	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	152	D	23.766	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.48	0.24	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	153	D	53.935	12	7	370	A-325	825	16	49.7376	93.258	74.592	1.08	0.54	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	161	E	15.312	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.31	0.15	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	162	E	0.975	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.02	0.01	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	175	E	43.213	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.87	0.43	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
71	153	D	53.935	12	7	370	A-325	825	16	49.7376	93.258	74.592	1.08	0.54	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	154	D	48.586	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.98	0.49	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	163	E	0.950	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.02	0.01	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	164	E	10.003	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.20	0.10	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	176	E	7.854	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.16	0.08	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
72	154	D	48.586	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.98	0.49	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	155	D	59.213	12	7	370	A-325	825	16	49.7376	93.258	74.592	1.19	0.60	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	165	E	10.294	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.21	0.10	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	166	E	5.028	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.10	0.05	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	177	E	4.712	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.09	0.05	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
73	146	A	171.924	12	12	370	A-325	825	19	70.1378	131.508	151.848	2.45	1.23	2	110	40	1800	1080	494.1	1344	1200	439.776			ok
	147	B	66.525	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.34	0.67	1		40	320	332	126.69	192	400	103.968			ok
	155	D	59.213	12	7	370	A-325	825	16	49.7376	93.258	74.592	1.19	0.60	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	156	B	69.161	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.39	0.70	1		40	320	332	126.69	192	400	103.968			ok
	167	E	5.058	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.10	0.05	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	168	A	144.991	12	12	370	A-325	825	19	70.1378	131.508	151.848	2.07	1.03	2	110	40	1800	1080	494.1	1344	1200	439.776			ok
	178	E	75.154	12	6	370	A-325	825	16	49.7376	93.258	63.936	1.51	0.76	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
74	148	A	142.417	12	12	370	A-325	825	19	70.1378	131.508	151.848	2.03	1.02	2	110	40	1800	1080	494.1	1344	1200	439.776			ok
	149	E	11.507	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.23	0.12	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	156	B	69.161	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.39	0.70	1		40	320	332	126.69	192	400	103.968			ok
	157	E	13.441	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.27	0.14	1		40	240	129	123.44	144	180	112.752	960	266.4	ok

Tabel 4.7.b Lanjutan

Join	Btg	Prf	Nu	tp	tf	Fu p	Pmcn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	*n*	*n/2*	*np*	*s*	*s'*	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
							Mutu baut	Fub	d	ϕVn geser								*Avg*	*Ant*	*ϕTn1*	*Ans*	*Atg*	*ϕTn2*	*An*	*ϕNn*	
			(kN)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	169	B	56.578	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.14	0.57	1		40	320	332	126.69	192	400	103.968			ok
	170	A	115.296	12	12	370	A-325	825	19	70.1378	131.508	151.848	1.64	0.82	1		40	480	1080	351.54	252	1200	257.958			ok
75	150	E	26.122	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.53	0.26	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	157	E	13.441	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.27	0.14	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	171	E	23.187	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.47	0.23	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	172	E	1.512	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.03	0.02	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
76	158	E	63.279	12	6	370	A-325	825	16	49.7376	93.258	63.936	1.27	0.64	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	159	E	63.162	12	6	370	A-325	825	16	49.7376	93.258	63.936	1.27	0.63	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	181	E	63.279	12	6	370	A-325	825	16	49.7376	93.258	63.936	1.27	0.64	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	182	E	63.162	12	6	370	A-325	825	16	49.7376	93.258	63.936	1.27	0.63	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
77	160	E	15.972	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.32	0.16	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	161	E	15.312	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.31	0.15	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	183	E	15.359	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.31	0.15	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	184	E	15.962	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.32	0.16	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
78	162	E	0.975	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.02	0.01	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	163	E	0.950	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.02	0.01	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	185	E	0.899	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.02	0.01	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	186	E	1.027	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.02	0.01	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
79	164	E	10.003	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.20	0.10	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	165	E	10.294	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.21	0.10	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	187	E	9.867	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.20	0.10	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	188	E	10.429	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.21	0.10	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
80	166	E	5.028	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.10	0.05	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	167	E	5.058	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.10	0.05	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	189	E	5.097	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.10	0.05	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	190	E	4.986	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.10	0.05	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
81	168	A	144.991	12	12	370	A-325	825	19	70.1378	131.508	151.848	2.07	1.03	2	110	40	1800	1080	494.1	1344	1200	439.776			ok
	169	B	56.578	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.14	0.57	1		40	320	332	126.69	192	400	103.968			ok
	179	B	26.261	12	8	370	A-325	825	16	49.7376	93.258	85.248	0.53	0.26	1		40	320	332	126.69	192	400	103.968			ok
	191	A	145.270	12	12	370	A-325	825	19	70.1378	131.508	151.848	2.07	1.04	2	110	40	1800	1080	494.1	1344	1200	439.776			ok

Tabel 4.7.b Lanjutan

Join	Btg	Prf	Nu	tp	tf	Fu p	Prncn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
							Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	192	B	56.049	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.13	0.56	1		40	320	332	126.69	192	400	103.968			ok
82	170	A	115.296	12	12	370	A-325	825	19	70.1378	131.508	151.848	1.64	0.82	1		40	480	1080	351.54	252	1200	257.958			ok
	171	E	23.187	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.47	0.23	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	179	B	26.261	12	8	370	A-325	825	16	49.7376	93.258	85.248	0.53	0.26	1		40	320	332	126.69	192	400	103.968			ok
	180	E	4.596	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.09	0.05	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	193	A	115.576	12	12	370	A-325	825	19	70.1378	131.508	151.848	1.65	0.82	1		40	480	1080	351.54	252	1200	257.958			ok
	194	E	23.341	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.47	0.23	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
83	172	E	1.512	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.03	0.02	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	180	E	4.596	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.09	0.05	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	195	E	1.512	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.03	0.02	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
84	173	D	209.178	12	7	370	A-325	825	16	49.7376	93.258	74.592	4.21	2.10	3	60	40	1120	186	344.87	784	245	349.272	1436	398.49	ok
	181	E	63.279	12	6	370	A-325	825	16	49.7376	93.258	63.936	1.27	0.64	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	196	E	26.058	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.52	0.26	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	203	D	271.529	12	7	370	A-325	825	16	49.7376	93.258	74.592	5.46	2.73	3	60	40	1120	186	344.87	784	245	349.272	1436	398.49	ok
	204	E	13.640	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.27	0.14	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
85	174	D	91.635	12	7	370	A-325	825	16	49.7376	93.258	74.592	1.84	0.92	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	182	E	63.162	12	6	370	A-325	825	16	49.7376	93.258	63.936	1.27	0.63	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	183	E	15.359	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.31	0.15	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	196	E	26.058	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.52	0.26	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	197	D	23.389	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.47	0.24	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	205	D	197.845	12	7	370	A-325	825	16	49.7376	93.258	74.592	3.98	1.99	2	60	40	700	186	254.15	476	245	246.708	1436	398.49	ok
	206	D	51.254	12	7	370	A-325	825	16	49.7376	93.258	74.592	1.03	0.52	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
86	175	E	43.213	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.87	0.43	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	184	E	15.962	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.32	0.16	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	185	E	0.899	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.02	0.01	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	197	D	23.389	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.47	0.24	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	198	D	53.935	12	7	370	A-325	825	16	49.7376	93.258	74.592	1.08	0.54	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	207	E	7.156	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.14	0.07	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	208	D	43.013	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.86	0.43	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
87	176	E	7.854	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.16	0.08	1		40	240	129	123.44	144	180	112.752	960	266.4	ok

Tabel 4.7.b Lanjutan

Join	Btg	Prf	Nu	tp	tf	Fu p	Pmcn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	*n*	*n/2*	*np*	*s*	*s'*	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
							Mutu baut	Fub	d	ϕVn geser								*Avg*	*Ant*	*ϕTn1*	*Ans*	*Atg*	*ϕTn2*	*An*	*ϕNn*	
			(kN)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	186	E	1.027	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.02	0.01	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	187	E	9.867	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.20	0.10	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	198	D	53.935	12	7	370	A-325	825	16	49.7376	93.258	74.592	1.08	0.54	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	199	D	48.586	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.98	0.49	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
88	177	E	4.712	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.09	0.05	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	188	E	10.429	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.21	0.10	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	189	E	5.097	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.10	0.05	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	199	D	48.586	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.98	0.49	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	200	D	58.818	12	7	370	A-325	825	16	49.7376	93.258	74.592	1.18	0.59	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
89	178	E	75.154	12	6	370	A-325	825	16	49.7376	93.258	63.936	1.51	0.76	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	190	E	4.986	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.10	0.05	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	191	A	145.270	12	12	370	A-325	825	19	70.1378	131.508	151.848	2.07	1.04	2	110	40	1800	1080	494.1	1344	1200	439.776			ok
	200	D	58.818	12	7	370	A-325	825	16	49.7376	93.258	74.592	1.18	0.59	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	201	B	68.515	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.38	0.69	1		40	320	332	126.69	192	400	103.968			ok
	209	A	171.924	12	12	370	A-325	825	19	70.1378	131.508	151.848	2.45	1.23	2	110	40	1800	1080	494.1	1344	1200	439.776			ok
	210	B	66.525	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.34	0.67	1		40	320	332	126.69	192	400	103.968			ok
90	192	B	56.049	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.13	0.56	1		40	320	332	126.69	192	400	103.968			ok
	193	A	115.576	12	12	370	A-325	825	19	70.1378	131.508	151.848	1.65	0.82	1		40	480	1080	351.54	252	1200	257.958			ok
	201	B	68.515	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.38	0.69	1		40	320	332	126.69	192	400	103.968			ok
	202	E	13.441	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.27	0.14	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	211	A	142.975	12	12	370	A-325	825	19	70.1378	131.508	151.848	2.04	1.02	2	110	40	1800	1080	494.1	1344	1200	439.776			ok
	212	E	11.291	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.23	0.11	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
91	194	E	23.341	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.47	0.23	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	195	E	1.512	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.03	0.02	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	202	E	13.441	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.27	0.14	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	213	E	18.775	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.38	0.19	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
92	203	D	271.529	12	7	370	A-325	825	16	49.7376	93.258	74.592	5.46	2.73	3	60	40	1120	186	344.87	784	245	349.272	1436	398.49	ok
	214	E	7.524	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.15	0.08	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	218	D	279.670	12	7	370	A-325	825	16	49.7376	93.258	74.592	5.62	2.81	3	60	40	1120	186	344.87	784	245	349.272	1436	398.49	ok
	219	E	10.280	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.21	0.10	1		40	240	129	123.44	144	180	112.752	960	266.4	ok

Tabel 4.7.b Lanjutan

Join	Btg	Prf	Nu	tp	tf	Fu p	Prncn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
							Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
93	204	E	13.640	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.27	0.14	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	205	D	197.845	12	7	370	A-325	825	16	49.7376	93.258	74.592	3.98	1.99	2	60	40	700	186	254.15	476	245	246.708	1436	398.49	ok
	214	E	7.524	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.15	0.08	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	220	D	186.538	12	7	370	A-325	825	16	49.7376	93.258	74.592	3.75	1.88	2	60	40	700	186	254.15	476	245	246.708	1436	398.49	ok
94	206	D	51.254	12	7	370	A-325	825	16	49.7376	93.258	74.592	1.03	0.52	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	207	E	7.156	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.14	0.07	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	215	E	4.871	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.10	0.05	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	221	D	43.897	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.88	0.44	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
95	208	D	43.013	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.86	0.43	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	215	E	4.871	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.10	0.05	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	222	E	5.271	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.11	0.05	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	223	D	48.230	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.97	0.48	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
96	209	A	171.924	12	12	370	A-325	825	19	70.1378	131.508	151.848	2.45	1.23	2	110	40	1800	1080	494.1	1344	1200	439.776			ok
	216	B	57.971	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.17	0.58	1		40	320	332	126.69	192	400	103.968			ok
	224	A	112.463	12	12	370	A-325	825	19	70.1378	131.508	151.848	1.60	0.80	1		40	480	1080	351.54	252	1200	257.958			ok
	225	B	64.240	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.29	0.65	1		40	320	332	126.69	192	400	103.968			ok
97	210	B	66.525	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.34	0.67	1		40	320	332	126.69	192	400	103.968			ok
	211	A	142.975	12	12	370	A-325	825	19	70.1378	131.508	151.848	2.04	1.02	2	110	40	1800	1080	494.1	1344	1200	439.776			ok
	216	B	57.971	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.17	0.58	1		40	320	332	126.69	192	400	103.968			ok
	217	E	12.958	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.26	0.13	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	226	A	196.312	12	12	370	A-325	825	19	70.1378	131.508	151.848	2.80	1.40	2	110	40	1800	1080	494.1	1344	1200	439.776			ok
	227	E	8.528	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.17	0.09	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
98	212	E	11.291	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.23	0.11	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	213	E	18.775	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.38	0.19	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	217	E	12.958	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.26	0.13	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	228	E	30.242	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.61	0.30	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
99	218	D	279.670	12	7	370	A-325	825	16	49.7376	93.258	74.592	5.62	2.81	3	60	40	1120	186	344.87	784	245	349.272	1436	398.49	ok
	229	E	5.444	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.11	0.05	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	233	D	284.199	12	7	370	A-325	825	16	49.7376	93.258	74.592	5.71	2.86	3	60	40	1120	186	344.87	784	245	349.272	1436	398.49	ok
	234	E	6.521	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.13	0.07	1		40	240	129	123.44	144	180	112.752	960	266.4	ok

Tabel 4.7.b Lanjutan

Join	Btg	Prf	Nu	tp	tf	Fu p	Prncn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
							Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
100	219	E	10.280	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.21	0.10	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	220	D	186.538	12	7	370	A-325	825	16	49.7376	93.258	74.592	3.75	1.88	2	60	40	700	186	254.15	476	245	246.708	1436	398.49	ok
	229	E	5.444	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.11	0.05	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	235	D	178.460	12	7	370	A-325	825	16	49.7376	93.258	74.592	3.59	1.79	2	60	40	700	186	254.15	476	245	246.708	1436	398.49	ok
101	221	D	43.897	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.88	0.44	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	222	E	5.271	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.11	0.05	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	231	B	60.017	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.21	0.60	1		40	320	332	126.69	192	400	103.968			ok
	236	D	38.454	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.77	0.39	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
102	223	D	48.230	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.97	0.48	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	230	E	3.484	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.07	0.04	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	237	E	3.488	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.07	0.04	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	238	D	51.817	12	7	370	A-325	825	16	49.7376	93.258	74.592	1.04	0.52	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
103	224	A	112.463	12	12	370	A-325	825	19	70.1378	131.508	151.848	1.60	0.80	1		40	480	1080	351.54	252	1200	257.958			ok
	231	B	60.017	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.21	0.60	1		40	320	332	126.69	192	400	103.968			ok
	239	A	48.579	12	12	370	A-325	825	19	70.1378	131.508	151.848	0.69	0.35	1		40	480	1080	351.54	252	1200	257.958			ok
	240	B	69.742	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.40	0.70	1		40	320	332	126.69	192	400	103.968			ok
104	225	B	64.240	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.29	0.65	1		40	320	332	126.69	192	400	103.968			ok
	226	A	196.312	12	12	370	A-325	825	19	70.1378	131.508	151.848	2.80	1.40	2	110	40	1800	1080	494.1	1344	1200	439.776			ok
	231	B	60.017	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.21	0.60	1		40	320	332	126.69	192	400	103.968			ok
	232	E	2.572	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.05	0.03	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	241	A	263.981	12	12	370	A-325	825	19	70.1378	131.508	151.848	3.76	1.88	2		40	480	1080	351.54	24	1200	219.996			ok
	242	E	9.975	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.20	0.10	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
105	227	E	8.528	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.17	0.09	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	228	E	30.242	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.61	0.30	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	232	E	2.572	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.05	0.03	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	243	E	37.961	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.76	0.38	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
106	233	D	284.199	12	7	370	A-325	825	16	49.7376	93.258	74.592	5.71	2.86	3	60	40	1120	186	344.87	784	245	349.272	1436	398.49	ok
	244	E	3.137	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.06	0.03	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	248	D	284.830	12	7	370	A-325	825	16	49.7376	93.258	74.592	5.73	2.86	3	60	40	1120	186	344.87	784	245	349.272	1436	398.49	ok
	249	E	2.336	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.05	0.02	1		40	240	129	123.44	144	180	112.752	960	266.4	ok

Tabel 4.7.b Lanjutan

Join	Btg	Prf	Nu	tp	tf	Fu p	Pmcn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	n	n/2.	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
							Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
107	234	E	6.521	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.13	0.07	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	235	D	178.460	12	7	370	A-325	825	16	49.7376	93.258	74.592	3.59	1.79	2	60	40	700	186	254.15	476	245	246.708	1436	398.49	ok
	244	E	3.137	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.06	0.03	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	250	D	173.904	12	7	370	A-325	825	16	49.7376	93.258	74.592	3.50	1.75	2	60	40	700	186	254.15	476	245	246.708	1436	398.49	ok
108	236	D	38.454	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.77	0.39	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	237	E	3.488	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.07	0.04	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	245	E	2.020	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.04	0.02	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	251	D	34.866	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.70	0.35	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
109	238	D	51.817	12	7	370	A-325	825	16	49.7376	93.258	74.592	1.04	0.52	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	239	A	48.579	12	12	370	A-325	825	19	70.1378	131.508	151.848	0.69	0.35	1		40	480	1080	351.54	252	1200	257.958			ok
	245	E	2.020	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.04	0.02	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	246	B	72.432	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.46	0.73	1		40	320	332	126.69	192	400	103.968			ok
	252	A	19.893	12	12	370	A-325	825	19	70.1378	131.508	151.848	0.28	0.14	1		40	480	1080	351.54	252	1200	257.958			ok
	253	B	124.375	12	8	370	A-325	825	16	49.7376	93.258	85.248	2.50	1.25	2	70	40	880	332	187.17	624	400	175.896			ok
110	240	B	69.742	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.40	0.70	1		40	320	332	126.69	192	400	103.968			ok
	241	A	263.981	12	12	370	A-325	825	19	70.1378	131.508	151.848	3.76	1.88	2	110	40	1800	1080	494.1	1344	1200	439.776			ok
	246	B	72.432	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.46	0.73	1		40	320	332	126.69	192	400	103.968			ok
	247	E	12.934	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.26	0.13	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	254	A	360.813	12	12	370	A-325	825	19	70.1378	131.508	151.848	5.14	2.57	3	110	40	3120	1080	636.66	2436	1200	621.594			ok
	255	E	36.576	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.74	0.37	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
111	242	E	9.975	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.20	0.10	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	243	E	37.961	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.76	0.38	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	247	E	12.934	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.26	0.13	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	256	E	29.499	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.59	0.30	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
112	248	D	284.830	12	7	370	A-325	825	16	49.7376	93.258	74.592	5.73	2.86	3	60	40	1120	186	344.87	784	245	349.272	1436	398.49	ok
	257	D	15.963	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.32	0.16	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	262	D	31.698	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.64	0.32	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	267	H	259.241	12	9	370	A-325	825	16	49.7376	93.258	95.904	5.21	2.61	3	100	40	2160	329	648.88	1728	405	721.224	2605	722.857	ok
113	249	E	2.336	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.05	0.02	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	250	D	173.904	12	7	370	A-325	825	16	49.7376	93.258	74.592	3.50	1.75	2	60	40	700	186	254.15	476	245	246.708	1436	398.49	ok

Tabel 4.7.b Lanjutan

Join	Btg	Prf	Nu	tp	tf	Fu p	Pmcn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	*n*	*n/2*	*np*	*s*	*s'*	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
							Mutu baut	Fub	d	ϕVn geser								*Avg*	*Ant*	*ϕTn1*	*Ans*	*Atg*	*ϕTn2*	*An*	*ϕNn*	
			(kN)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	257	D	15.963	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.32	0.16	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	258	D	67.241	12	7	370	A-325	825	16	49.7376	93.258	74.592	1.35	0.68	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	263	D	114.066	12	7	370	A-325	825	16	49.7376	93.258	74.592	2.29	1.15	2	60	40	700	186	254.15	476	245	246.708	1436	398.49	ok
	268	D	100.000	12	7	370	A-325	825	16	49.7376	93.258	74.592	2.01	1.01	2	60	40	700	186	254.15	476	245	246.708	1436	398.49	ok
	269	E	25.003	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.50	0.25	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
114	258	D	67.241	12	7	370	A-325	825	16	49.7376	93.258	74.592	1.35	0.68	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	259	D	80.182	12	7	370	A-325	825	16	49.7376	93.258	74.592	1.61	0.81	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	270	E	19.537	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.39	0.20	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	271	E	23.183	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.47	0.23	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
115	251	D	34.866	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.70	0.35	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	252	A	19.893	12	12	370	A-325	825	19	70.1378	131.508	151.848	0.28	0.14	1		40	480	1080	351.54	252	1200	257.958			ok
	259	D	80.182	12	7	370	A-325	825	16	49.7376	93.258	74.592	1.61	0.81	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	260	B	64.307	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.29	0.65	1		40	320	332	126.69	192	400	103.968			ok
	272	A	3.013	12	12	370	A-325	825	19	70.1378	131.508	151.848	0.04	0.02	1		40	480	1080	351.54	252	1200	257.958			ok
	273	B	15.085	12	8	370	A-325	825	16	49.7376	93.258	85.248	0.30	0.15	1		40	320	332	126.69	192	400	103.968			ok
116	253	B	124.375	12	8	370	A-325	825	16	49.7376	93.258	85.248	2.50	1.25	2	70	40	880	332	187.17	624	400	175.896			ok
	254	A	360.813	12	12	370	A-325	825	19	70.1378	131.508	151.848	5.14	2.57	3	110	40	3120	1080	636.66	2436	1200	621.594			ok
	260	B	64.307	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.29	0.65	1		40	320	332	126.69	192	400	103.968			ok
	261	E	37.918	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.76	0.38	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	264	E	6.576	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.13	0.07	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	274	A	472.017	12	12	370	A-325	825	19	70.1378	131.508	151.848	6.73	3.36	4	110	40	4440	1080	779.22	3528	1200	803.412			ok
117	255	E	36.576	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.74	0.37	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	256	E	29.499	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.59	0.30	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	261	E	37.918	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.76	0.38	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	265	E	3.296	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.07	0.03	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	266	E	3.995	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.08	0.04	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
118	262	D	31.698	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.64	0.32	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	263	D	114.066	12	7	370	A-325	825	16	49.7376	93.258	74.592	2.29	1.15	2	60	40	700	186	254.15	476	245	246.708	1436	398.49	ok
	276	D	113.688	12	7	370	A-325	825	16	49.7376	93.258	74.592	2.29	1.14	2	60	40	700	186	254.15	476	245	246.708	1436	398.49	ok
	277	D	31.858	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.64	0.32	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok

Tabel 4.7.b Lanjutan

Join	Btg	Prf	Nu	tp	tf	Fu p	Pmcn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	*n*	*n/2*	*np*	*s*	*s'*	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
							Mutu baut	Fub	d	ϕVn geser								*Avg*	*Ant*	*ϕTn1*	*Ans*	*Atg*	*ϕTn2*	*An*	*ϕNn*	
			(kN)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
119	264	E	6.576	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.13	0.07	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	265	E	3.296	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.07	0.03	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	275	E	3.187	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.06	0.03	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	282	E	3.943	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.08	0.04	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
120	266	E	3.995	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.08	0.04	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	275	E	3.187	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.06	0.03	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	283	E	3.883	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.08	0.04	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
121	267	H	259.241	12	9	370	A-325	825	16	49.7376	93.258	95.904	5.21	2.61	3	100	40	2160	329	648.88	1728	405	721.224	2605	722.857	ok
	276	D	113.688	12	7	370	A-325	825	16	49.7376	93.258	74.592	2.29	1.14	2	60	40	700	186	254.15	476	245	246.708	1436	398.49	ok
	278	D	47.835	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.96	0.48	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	284	H	374.161	12	9	370	A-325	825	16	49.7376	93.258	95.904	7.52	3.76	4	100	40	3060	329	843.28	2484	405	972.972	2605	722.857	ok
	285	D	28.126	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.57	0.28	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
122	268	D	100.000	12	7	370	A-325	825	16	49.7376	93.258	74.592	2.01	1.01	2	60	40	700	186	254.15	476	245	246.708	1436	398.49	ok
	277	D	31.858	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.64	0.32	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	278	D	47.835	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.96	0.48	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	279	D	28.457	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.57	0.29	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	286	D	125.851	12	7	370	A-325	825	16	49.7376	93.258	74.592	2.53	1.27	2	60	40	700	186	254.15	476	245	246.708	1436	398.49	ok
123	269	E	25.003	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.50	0.25	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	270	E	19.537	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.39	0.20	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	279	D	28.457	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.57	0.29	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	280	D	43.076	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.87	0.43	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
124	271	E	23.183	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.47	0.23	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	272	A	3.013	12	12	370	A-325	825	19	70.1378	131.508	151.848	0.04	0.02	1		40	480	1080	351.54	252	1200	257.958			ok
	280	D	43.076	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.87	0.43	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	281	B	4.831	12	8	370	A-325	825	16	49.7376	93.258	85.248	0.10	0.05	1		40	320	332	126.69	192	400	103.968			ok
	287	A	41.876	12	12	370	A-325	825	19	70.1378	131.508	151.848	0.60	0.30	1		40	480	1080	351.54	252	1200	257.958			ok
	288	B	70.542	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.42	0.71	1		40	320	332	126.69	192	400	103.968			ok
125	273	B	15.085	12	8	370	A-325	825	16	49.7376	93.258	85.248	0.30	0.15	1		40	320	332	126.69	192	400	103.968			ok
	274	A	472.017	12	12	370	A-325	825	19	70.1378	131.508	151.848	6.73	3.36	4	110	40	4440	1080	779.22	3528	1200	803.412			ok
	281	B	4.831	12	8	370	A-325	825	16	49.7376	93.258	85.248	0.10	0.05	1		40	320	332	126.69	192	400	103.968			ok

Tabel 4.7.b Lanjutan

Join	Btg	Prf	Nu	tp	tf	Fu p	Pmcn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
							Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	289	A	485.112	12	12	370	A-325	825	19	70.1378	131.508	151.848	6.92	3.46	4	110	40	4440	1080	779.22	3528	1200	803.412			ok
126	282	E	3.943	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.08	0.04	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
	283	E	3.883	12	6	370	A-325	825	16	49.7376	93.258	63.936	0.08	0.04	1		40	240	129	123.44	144	180	112.752	960	266.4	ok
127	284	H	374.161	12	9	370	A-325	825	16	49.7376	93.258	95.904	7.52	3.76	4	100	40	3060	329	843.28	2484	405	972.972	2605	722.857	ok
	290	D	15.819	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.32	0.16	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	292	H	394.913	12	9	370	A-325	825	16	49.7376	93.258	95.904	7.94	3.97	4	100	40	3060	329	843.28	2484	405	972.972	2605	722.857	ok
	293	D	25.128	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.51	0.25	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
128	285	D	28.126	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.57	0.28	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	286	D	125.851	12	7	370	A-325	825	16	49.7376	93.258	74.592	2.53	1.27	2	60	40	700	186	254.15	476	245	246.708	1436	398.49	ok
	290	D	15.819	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.32	0.16	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	294	D	102.723	12	7	370	A-325	825	16	49.7376	93.258	74.592	2.07	1.03	2	60	40	700	186	254.15	476	245	246.708	1436	398.49	ok
129	287	A	41.876	12	12	370	A-325	825	19	70.1378	131.508	151.848	0.60	0.30	1		40	480	1080	351.54	252	1200	257.958			ok
	291	B	52.160	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.05	0.52	1		40	320	332	126.69	192	400	103.968			ok
	295	A	95.789	12	12	370	A-325	825	19	70.1378	131.508	151.848	1.37	0.68	1		40	480	1080	351.54	252	1200	257.958			ok
	296	B	59.541	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.20	0.60	1		40	320	332	126.69	192	400	103.968			ok
130	288	B	70.542	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.42	0.71	1		40	320	332	126.69	192	400	103.968			ok
	289	A	485.112	12	12	370	A-325	825	19	70.1378	131.508	151.848	6.92	3.46	4	110	40	4440	1080	779.22	3528	1200	803.412			ok
	291	B	52.160	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.05	0.52	1		40	320	332	126.69	192	400	103.968			ok
	297	A	549.063	12	12	370	A-325	825	19	70.1378	131.508	151.848	7.83	3.91	4	110	40	4440	1080	779.22	3528	1200	803.412			ok
131	292	H	394.913	12	9	370	A-325	825	16	49.7376	93.258	95.904	7.94	3.97	4	100	40	3060	329	843.28	2484	405	972.972	2605	722.857	ok
	298	D	13.944	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.28	0.14	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	300	H	412.480	12	9	370	A-325	825	16	49.7376	93.258	95.904	8.29	4.15	5	100	40	3960	329	1037.7	3240	405	1224.72	2605	722.857	ok
	301	D	21.349	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.43	0.21	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
132	293	D	25.128	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.51	0.25	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	294	D	102.723	12	7	370	A-325	825	16	49.7376	93.258	74.592	2.07	1.03	2	60	40	700	186	254.15	476	245	246.708	1436	398.49	ok
	298	D	13.944	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.28	0.14	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	302	D	82.032	12	7	370	A-325	825	16	49.7376	93.258	74.592	1.65	0.82	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
133	295	A	95.789	12	12	370	A-325	825	19	70.1378	131.508	151.848	1.37	0.68	1		40	480	1080	351.54	252	1200	257.958			ok
	299	B	45.133	12	8	370	A-325	825	16	49.7376	93.258	85.248	0.91	0.45	1		40	320	332	126.69	192	400	103.968			ok
	303	A	142.648	12	12	370	A-325	825	19	70.1378	131.508	151.848	2.03	1.02	2	110	40	1800	1080	494.1	1344	1200	439.776			ok

Tabel 4.7.b Lanjutan

Join	Btg	Prf	Nu	tp	tf	Fu p	Pmcn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
							Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	304	B	51.533	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.04	0.52	1		40	320	332	126.69	192	400	103.968			ok
134	296	B	59.541	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.20	0.60	1		40	320	332	126.69	192	400	103.968			ok
	297	A	549.063	12	12	370	A-325	825	19	70.1378	131.508	151.848	7.83	3.91	4	110	40	4440	1080	779.22	3528	1200	803.412			ok
	299	B	45.133	12	8	370	A-325	825	16	49.7376	93.258	85.248	0.91	0.45	1		40	320	332	126.69	192	400	103.968			ok
	305	A	603.435	12	12	370	A-325	825	19	70.1378	131.508	151.848	8.60	4.30	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
135	300	H	412.480	12	9	370	A-325	825	16	49.7376	93.258	95.904	8.29	4.15	5	100	40	3960	329	1037.7	3240	405	1224.72	2605	722.857	ok
	306	D	2.077	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.04	0.02	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	309	H	409.427	12	9	370	A-325	825	16	49.7376	93.258	95.904	8.23	4.12	5	100	40	3960	329	1037.7	3240	405	1224.72	2605	722.857	ok
	310	D	5.243	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.11	0.05	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
136	301	D	21.349	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.43	0.21	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	302	D	82.032	12	7	370	A-325	825	16	49.7376	93.258	74.592	1.65	0.82	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	306	D	2.077	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.04	0.02	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	307	D	12.895	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.26	0.13	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	311	D	65.249	12	7	370	A-325	825	16	49.7376	93.258	74.592	1.31	0.66	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
137	303	A	142.648	12	12	370	A-325	825	19	70.1378	131.508	151.848	2.03	1.02	2	110	40	1800	1080	494.1	1344	1200	439.776			ok
	307	D	12.895	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.26	0.13	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	308	B	37.738	12	8	370	A-325	825	16	49.7376	93.258	85.248	0.76	0.38	1		40	320	332	126.69	192	400	103.968			ok
	312	A	194.396	12	12	370	A-325	825	19	70.1378	131.508	151.848	2.77	1.39	2	110	40	1800	1080	494.1	1344	1200	439.776			ok
	313	B	57.593	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.16	0.58	1		40	320	332	126.69	192	400	103.968			ok
138	304	B	51.533	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.04	0.52	1		40	320	332	126.69	192	400	103.968			ok
	305	A	603.435	12	12	370	A-325	825	19	70.1378	131.508	151.848	8.60	4.30	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
	308	B	37.738	12	8	370	A-325	825	16	49.7376	93.258	85.248	0.76	0.38	1		40	320	332	126.69	192	400	103.968			ok
	314	A	650.220	12	12	370	A-325	825	19	70.1378	131.508	151.848	9.27	4.64	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
139	309	H	409.427	12	9	370	A-325	825	16	49.7376	93.258	95.904	8.23	4.12	5	100	40	3960	329	1037.7	3240	405	1224.72	2605	722.857	ok
	315	D	27.445	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.55	0.28	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	317	H	329.957	12	9	370	A-325	825	16	49.7376	93.258	95.904	6.63	3.32	4	100	40	3060	329	843.28	2484	405	972.972	2605	722.857	ok
	318	D	84.848	12	7	370	A-325	825	16	49.7376	93.258	74.592	1.71	0.85	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
140	310	D	5.243	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.11	0.05	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	311	D	65.249	12	7	370	A-325	825	16	49.7376	93.258	74.592	1.31	0.66	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	312	A	194.396	12	12	370	A-325	825	19	70.1378	131.508	151.848	2.77	1.39	2	110	40	1800	1080	494.1	1344	1200	439.776			ok

Tabel 4.7.b Lanjutan

Join	Btg	Prf	Nu	tp	tf	Fu p	Pmcn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
							Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	315	D	27.445	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.55	0.28	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	316	B	40.810	12	8	370	A-325	825	16	49.7376	93.258	85.248	0.82	0.41	1		40	320	332	126.69	192	400	103.968			ok
	319	A	306.533	12	12	370	A-325	825	19	70.1378	131.508	151.848	4.37	2.19	3	110	40	3120	1080	636.66	2436	1200	621.594			ok
	320	B	43.360	12	8	370	A-325	825	16	49.7376	93.258	85.248	0.87	0.44	1		40	320	332	126.69	192	400	103.968			ok
141	313	B	57.593	12	8	370	A-325	825	16	49.7376	93.258	85.248	1.16	0.58	1		40	320	332	126.69	192	400	103.968			ok
	314	A	650.220	12	12	370	A-325	825	19	70.1378	131.508	151.848	9.27	4.64	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
	316	B	40.810	12	8	370	A-325	825	16	49.7376	93.258	85.248	0.82	0.41	1		40	320	332	126.69	192	400	103.968			ok
	321	A	702.366	12	12	370	A-325	825	19	70.1378	131.508	151.848	10.01	5.01	6	110	40	7080	1080	1064.3	5712	1200	1167.05			ok
142	317	H	329.957	12	9	370	A-325	825	16	49.7376	93.258	95.904	6.63	3.32	4	100	40	3060	329	843.28	2484	405	972.972	2605	722.857	ok
	322	D	0.830	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.02	0.01	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	324	H	330.253	12	9	370	A-325	825	16	49.7376	93.258	95.904	6.64	3.32	4	100	40	3060	329	843.28	2484	405	972.972	2605	722.857	ok
143	318	D	84.848	12	7	370	A-325	825	16	49.7376	93.258	74.592	1.71	0.85	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	319	A	306.533	12	12	370	A-325	825	19	70.1378	131.508	151.848	4.37	2.19	3	110	40	3120	1080	636.66	2436	1200	621.594			ok
	322	D	0.830	12	7	370	A-325	825	16	49.7376	93.258	74.592	0.02	0.01	1		40	280	186	163.43	168	245	144.144	1386	384.615	ok
	323	B	32.037	12	8	370	A-325	825	16	49.7376	93.258	85.248	0.64	0.32	1		40	320	332	126.69	192	400	103.968			ok
	325	A	360.601	12	12	370	A-325	825	19	70.1378	131.508	151.848	5.14	2.57	3	110	40	3120	1080	636.66	2436	1200	621.594			ok
	326	B	32.780	12	8	370	A-325	825	16	49.7376	93.258	85.248	0.66	0.33	1		40	320	332	126.69	192	400	103.968			ok
144	320	B	43.360	12	8	370	A-325	825	16	49.7376	93.258	85.248	0.87	0.44	1		40	320	332	126.69	192	400	103.968			ok
	321	A	702.366	12	12	370	A-325	825	19	70.1378	131.508	151.848	10.01	5.01	6	110	40	7080	1080	1064.3	5712	1200	1167.05			ok
	323	B	32.037	12	8	370	A-325	825	16	49.7376	93.258	85.248	0.64	0.32	1		40	320	332	126.69	192	400	103.968			ok
	327	A	741.339	12	12	370	A-325	825	19	70.1378	131.508	151.848	10.57	5.28	6	110	40	7080	1080	1064.3	5712	1200	1167.05			ok
145	324	H	330.253	12	9	370	A-325	825	16	49.7376	93.258	95.904	6.64	3.32	4	100	40	3060	329	843.28	2484	405	972.972	2605	722.857	ok
	325	A	360.601	12	12	370	A-325	825	19	70.1378	131.508	151.848	5.14	2.57	3	110	40	3120	1080	636.66	2436	1200	621.594			ok
	328	B	30.668	12	8	370	A-325	825	16	49.7376	93.258	85.248	0.62	0.31	1		40	320	332	126.69	192	400	103.968			ok
	329	A	548.619	12	12	370	A-325	825	19	70.1378	131.508	151.848	7.82	3.91	4	110	40	4440	1080	779.22	3528	1200	803.412			ok
	330	B	174.707	12	8	370	A-325	825	16	49.7376	93.258	85.248	3.51	1.76	2	70	40	880	332	187.17	624	400	175.896			ok
146	326	B	32.780	12	8	370	A-325	825	16	49.7376	93.258	85.248	0.66	0.33	1		40	320	332	126.69	192	400	103.968			ok
	327	A	741.339	12	12	370	A-325	825	19	70.1378	131.508	151.848	10.57	5.28	6	110	40	7080	1080	1064.3	5712	1200	1167.05			ok
	328	B	30.668	12	8	370	A-325	825	16	49.7376	93.258	85.248	0.62	0.31	1		40	320	332	126.69	192	400	103.968			ok
	331	A	709.352	12	12	370	A-325	825	19	70.1378	131.508	151.848	10.11	5.06	6	110	40	7080	1080	1064.3	5712	1200	1167.05			ok

Tabel 4.7.b Lanjutan

Join	Btg	Prf	Nu	tp	tf	Fu p	Prncn mutu,diameter,,jmlh,,jrk baut			ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
							Mutu baut	Fub	d	ϕVn geser							Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
147	329	A	548.619	12	12	370	A-325	825	19	70.1378	131.508	151.848	7.82	3.91	4	110	40	4440	1080	779.22	3528	1200	803.412			ok
	332	B	152.639	12	8	370	A-325	825	16	49.7376	93.258	85.248	3.07	1.53	2	70	40	880	332	187.17	624	400	175.896			ok
	333	A	374.376	12	12	370	A-325	825	19	70.1378	131.508	151.848	5.34	2.67	3	110	40	3120	1080	636.66	2436	1200	621.594			ok
	334	B	187.207	12	8	370	A-325	825	16	49.7376	93.258	85.248	3.76	1.88	3	70	40	1440	332	247.65	1056	400	247.824			ok
148	330	B	174.707	12	8	370	A-325	825	16	49.7376	93.258	85.248	3.51	1.76	2	70	40	880	332	187.17	624	400	175.896			ok
	331	A	709.352	12	12	370	A-325	825	19	70.1378	131.508	151.848	10.11	5.06	6	110	40	7080	1080	1064.3	5712	1200	1167.05			ok
	332	B	152.639	12	8	370	A-325	825	16	49.7376	93.258	85.248	3.07	1.53	2	70	40	880	332	187.17	624	400	175.896			ok
	335	A	547.330	12	12	370	A-325	825	19	70.1378	131.508	151.848	7.80	3.90	4	110	40	4440	1080	779.22	3528	1200	803.412			ok
149	333	A	374.376	12	12	370	A-325	825	19	70.1378	131.508	151.848	5.34	2.67	3	110	40	3120	1080	636.66	2436	1200	621.594			ok
	336	B	163.868	12	8	370	A-325	825	16	49.7376	93.258	85.248	3.29	1.65	2	70	40	880	332	187.17	624	400	175.896			ok
	337	A	190.826	12	12	370	A-325	825	19	70.1378	131.508	151.848	2.72	1.36	2	110	40	1800	1080	494.1	1344	1200	439.776			ok
	338	B	196.502	12	8	370	A-325	825	16	49.7376	93.258	85.248	3.95	1.98	3	70	40	1440	332	247.65	1056	400	247.824			ok
150	334	B	187.207	12	8	370	A-325	825	16	49.7376	93.258	85.248	3.76	1.88	3	70	40	1440	332	247.65	1056	400	247.824			ok
	335	A	547.330	12	12	370	A-325	825	19	70.1378	131.508	151.848	7.80	3.90	4	110	40	4440	1080	779.22	3528	1200	803.412			ok
	336	B	163.868	12	8	370	A-325	825	16	49.7376	93.258	85.248	3.29	1.65	2	70	40	880	332	187.17	624	400	175.896			ok
	339	A	371.966	12	12	370	A-325	825	19	70.1378	131.508	151.848	5.30	2.65	3	110	40	3120	1080	636.66	2436	1200	621.594			ok
151	337	A	190.826	12	12	370	A-325	825	19	70.1378	131.508	151.848	2.72	1.36	2	110	40	1800	1080	494.1	1344	1200	439.776			ok
	340	B	169.553	12	8	370	A-325	825	16	49.7376	93.258	85.248	3.41	1.70	2	70	40	880	332	187.17	624	400	175.896			ok
	341	A	10.646	12	12	370	A-325	825	19	70.1378	131.508	151.848	0.15	0.08	1		40	480	1080	351.54	252	1200	257.958			ok
	342	B	207.748	12	8	370	A-325	825	16	49.7376	93.258	85.248	4.18	2.09	3	70	40	1440	332	247.65	1056	400	247.824			ok
152	338	B	196.502	12	8	370	A-325	825	16	49.7376	93.258	85.248	3.95	1.98	3	70	40	1440	332	247.65	1056	400	247.824			ok
	339	A	371.966	12	12	370	A-325	825	19	70.1378	131.508	151.848	5.30	2.65	3	110	40	3120	1080	636.66	2436	1200	621.594			ok
	340	B	169.553	12	8	370	A-325	825	16	49.7376	93.258	85.248	3.41	1.70	2	70	40	880	332	187.17	624	400	175.896			ok
	343	A	188.527	12	12	370	A-325	825	19	70.1378	131.508	151.848	2.69	1.34	2	110	40	1800	1080	494.1	1344	1200	439.776			ok
153	341	A	10.646	12	12	370	A-325	825	19	70.1378	131.508	151.848	0.15	0.08	1		40	480	1080	351.54	252	1200	257.958			ok
	344	B	185.771	12	8	370	A-325	825	16	49.7376	93.258	85.248	3.74	1.87	2	70	40	880	332	187.17	624	400	175.896			ok
	345	C	13.017	12	8	370	A-325	410	12	13.9039	26.070	63.936	0.94	0.47	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
154	342	B	207.748	12	8	370	A-325	825	16	49.7376	93.258	85.248	4.18	2.09	3	70	40	1440	332	247.65	1056	400	247.824			ok
	343	A	188.527	12	12	370	A-325	825	19	70.1378	131.508	151.848	2.69	1.34	2	110	40	1800	1080	494.1	1344	1200	439.776			ok
	344	B	185.771	12	8	370	A-325	825	16	49.7376	93.258	85.248	3.74	1.87	2	70	40	880	332	187.17	624	400	175.896			ok

Tabel 4.7.b Lanjutan

Join	Btg	Prf	Nu	tp	tf	Fu p	Pmcn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
							Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	346	C	9.875	12	8	370	A-325	410	12	13.9039	26.070	63.936	0.71	0.36	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
	347	C	6.623	12	8	370	A-325	410	12	13.9039	26.070	63.936	0.48	0.24	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
155	345	C	13.017	12	8	370	A-325	410	12	13.9039	26.070	63.936	0.94	0.47	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
	346	C	6.465	12	8	370	A-325	410	12	13.9039	26.070	63.936	0.46	0.23	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
	348	C	6.465	12	8	370	A-325	410	12	13.9039	26.070	63.936	0.46	0.23	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
	349	C	5.921	12	8	370	A-325	410	12	13.9039	26.070	63.936	0.43	0.21	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
156	347	C	6.623	12	8	370	A-325	410	12	13.9039	26.070	63.936	0.48	0.24	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
	348	C	6.465	12	8	370	A-325	410	12	13.9039	26.070	63.936	0.46	0.23	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
	350	C	7.538	12	8	370	A-325	410	12	13.9039	26.070	63.936	0.54	0.27	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
	351	C	0.555	12	8	370	A-325	410	12	13.9039	26.070	63.936	0.04	0.02	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
157	349	C	5.921	12	8	370	A-325	410	12	13.9039	26.070	63.936	0.43	0.21	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
	350	C	7.538	12	8	370	A-325	410	12	13.9039	26.070	63.936	0.54	0.27	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
	352	C	3.267	12	8	370	A-325	410	12	13.9039	26.070	63.936	0.23	0.12	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
158	351	C	0.555	12	8	370	A-325	410	12	13.9039	26.070	63.936	0.04	0.02	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
	352	C	3.267	12	8	370	A-325	410	12	13.9039	26.070	63.936	0.23	0.12	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok

Keterangan:

[1] Titik buhul

[2] Nomer batang

[3] Profil terpasang

[4] Nu = gaya batang

[5] Ag = luas penampang profil (mm^2)

[6] tp = tebal pelat buhul

[7] tf = tebal profil

[8] Fu p = tegangan putus minimum baja profil

[9] Mutu baut

[10] Fu b = tegangan tarik putus baut

[11] d = diameter baut

[12] ΦRn geser = 0,75.0,4.Fub.Ab (kuat geser rencana baut)

[13] ΦRn tarik = 0,75.0,75.Fub.Ab (kuat tarik rencana baut)

[14] ΦRn tumpu = 2,4.0,75.db.tp.Fu (kuat tumpu rencana baut)

[15] n = jumlah baut

[16] n/2

[17] np = baut terpasang

[18] s = jarak antar baut

[19] s' = jarak lubang baut dengan tepi pelat profil

[20] Avg = luas bruto pelelehan geser

[21] Ant = luas bersih retakan tarik

[22] ΦTn1 = kekuatan nominal tarik pelat profil pelelehan geser-retakan tarik

[23] Ans = luas bersih retakan geser

[24] Atg = luas kotor pelelehan tarik

[25] ΦTn2 = kekuatan nominal tarik pelat profil retakan geser-pelelehan tarik

[26] An = luas netto profil

[27] ΦNn = kuat tarik profil

[28] Nu ≤ Φ Nn ; profil aman dipakai

Tabel 4.7.c Perencanaan Sambungan Baut Kuda-Kuda K2

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	*n*	*n/2*	*np*	*s*	*s'*	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								*Avg*	*An*	*ϕTn1*	*Ans*	*Atg*	*ϕTn2*	*An*	*ϕNn*	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				mm	mm	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	16	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
1	1	C	3.695	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.27	0.13	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	2	C	6.603	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.47	0.24	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	3	C	7.987	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.57	0.29	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
2	1	C	3.695	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.27	0.13	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	4	C	0.300	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.02	0.01	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
3	2	C	6.603	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.47	0.24	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	5	C	7.012	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.50	0.25	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	6	C	14.613	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	1.05	0.53	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	7	C	10.663	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.77	0.38	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
4	3	C	7.987	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.57	0.29	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	4	C	0.300	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.02	0.01	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	5	C	7.012	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.50	0.25	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	8	C	7.522	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.54	0.27	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
5	6	C	14.613	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	1.05	0.53	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	9	B	168.849	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.39	1.70	2	70	40	880	332	187.17	624	400	175.9			ok
	10	A	17.589	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	0.25	0.13	1		40	480	1080	351.54	252	1200	257.96			ok
6	7	C	10.663	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.77	0.38	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	8	C	7.522	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.54	0.27	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	9	B	168.849	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.39	1.70	2	70	40	880	332	187.17	624	400	175.9			ok
	11	B	184.335	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.71	1.85	2	70	40	880	332	187.17	624	400	175.9			ok
	12	A	163.628	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	2.33	1.17	2	110	40	1800	1080	494.1	1344	1200	439.78			ok
7	10	A	17.589	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	0.25	0.13	1		40	480	1080	351.54	252	1200	257.96			ok
	11	B	184.335	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.71	1.85	2	70	40	880	332	187.17	624	400	175.9			ok
	13	B	151.153	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.04	1.52	2	70	40	880	332	187.17	624	400	175.9			ok
	14	A	171.886	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	2.45	1.23	2	110	40	1800	1080	494.1	1344	1200	439.78			ok
8	12	A	163.628	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	2.33	1.17	2	110	40	1800	1080	494.1	1344	1200	439.78			ok
	13	B	151.153	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.04	1.52	2	70	40	880	332	187.17	624	400	175.9			ok
	15	B	172.555	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.47	1.73	2	70	40	880	332	187.17	624	400	175.9			ok
	16	B	324.777	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	6.53	3.26	5	70	40	2560	332	368.61	1920	400	391.68			ok

Tabel 4.7.c Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Prncn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				mm	mm	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	16	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
9	14	A	171.886	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	2.45	1.23	2	110	40	1800	1080	494.1	1344	1200	439.78			ok
	15	B	172.555	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.47	1.73	2	70	40	880	332	187.17	624	400	175.9			ok
	17	B	143.607	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.89	1.44	2	70	40	880	332	187.17	624	400	175.9			ok
	18	A	332.632	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	4.74	2.37	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
10	16	B	324.777	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	6.53	3.26	5	70	40	2560	332	368.61	1920	400	391.68			ok
	17	B	143.607	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.89	1.44	2	70	40	880	332	187.17	624	400	175.9			ok
	19	B	162.469	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.27	1.63	2	70	40	880	332	187.17	624	400	175.9			ok
	20	A	477.013	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	6.80	3.40	4	110	40	4440	1080	779.22	3528	1200	803.41			ok
11	18	A	332.632	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	4.74	2.37	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
	19	B	162.469	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.27	1.63	2	70	40	880	332	187.17	624	400	175.9			ok
	21	B	131.860	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.65	1.33	2	70	40	880	332	187.17	624	400	175.9			ok
	22	A	482.967	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	6.89	3.44	4	110	40	4440	1080	779.22	3528	1200	803.41			ok
12	20	A	477.013	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	6.80	3.40	4	110	40	4440	1080	779.22	3528	1200	803.41			ok
	21	B	131.860	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.65	1.33	2	70	40	880	332	187.17	624	400	175.9			ok
	23	B	148.877	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.99	1.50	2	70	40	880	332	187.17	624	400	175.9			ok
	24	A	615.113	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	8.77	4.39	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
13	22	A	482.967	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	6.89	3.44	4	110	40	4440	1080	779.22	3528	1200	803.41			ok
	23	B	148.877	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.99	1.50	2	70	40	880	332	187.17	624	400	175.9			ok
	25	B	25.151	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.51	0.25	1		40	320	332	126.69	192	400	103.97			ok
	26	H	285.079	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	5.73	2.87	3	100	40	2160	328.5	648.878	1728	405	721.22	2604.9	722.857	ok
	27	A	318.319	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	4.54	2.27	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
14	24	A	615.113	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	8.77	4.39	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
	25	B	25.151	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.51	0.25	1		40	320	332	126.69	192	400	103.97			ok
	28	B	25.168	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.51	0.25	1		40	320	332	126.69	192	400	103.97			ok
	29	A	639.039	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	9.11	4.56	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
15	26	H	285.079	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	5.73	2.87	3	100	40	2160	328.5	648.878	1728	405	721.22	2604.9	722.857	ok
	30	D	0.683	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.01	0.01	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	32	H	284.797	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	5.73	2.86	3	100	40	2160	328.5	648.878	1728	405	721.22	2604.9	722.857	ok
16	27	A	318.319	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	4.54	2.27	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
	28	B	25.168	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.51	0.25	1		40	320	332	126.69	192	400	103.97			ok

Tabel 4.7.c Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Prncn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	*n*	*n/2*	*np*	*s*	*s'*	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								*Avg*	*Ant*	*ϕTn1*	*Ans*	*Atg*	*ϕTn2*	*An*	*ϕNn*	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				mm	mm	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	16	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	30	D	0.683	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.01	0.01	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	31	B	30.547	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.61	0.31	1		40	320	332	126.69	192	400	103.97			ok
	33	D	71.928	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.45	0.72	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	34	A	269.175	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	3.84	1.92	2	110	40	1800	1080	494.1	1344	1200	439.78			ok
17	29	A	639.039	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	9.11	4.56	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
	31	B	30.547	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.61	0.31	1		40	320	332	126.69	192	400	103.97			ok
	35	B	43.309	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.87	0.44	1		40	320	332	126.69	192	400	103.97			ok
	36	A	600.698	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	8.56	4.28	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
18	32	H	284.797	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	5.73	2.86	3	100	40	2160	328.5	648.878	1728	405	721.22	2604.9	722.857	ok
	33	D	71.928	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.45	0.72	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	37	D	23.341	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.47	0.23	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	39	H	352.008	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	7.08	3.54	4	100	40	3060	328.5	843.278	2484	405	972.97	2604.9	722.857	ok
19	34	A	269.175	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	3.84	1.92	2	110	40	1800	1080	494.1	1344	1200	439.78			ok
	35	B	43.309	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.87	0.44	1		40	320	332	126.69	192	400	103.97			ok
	37	D	23.341	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.47	0.23	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	38	B	40.138	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.81	0.40	1		40	320	332	126.69	192	400	103.97			ok
	40	D	4.744	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.1	0.05	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	41	D	59.970	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.21	0.60	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	42	A	166.179	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	2.37	1.18	2	110	40	1800	1080	494.1	1344	1200	439.78			ok
20	36	A	600.698	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	8.56	4.28	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
	38	B	40.138	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.81	0.40	1		40	320	332	126.69	192	400	103.97			ok
	43	B	56.429	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.13	0.57	1		40	320	332	126.69	192	400	103.97			ok
	44	A	549.466	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	7.83	3.92	4	110	40	4440	1080	779.22	3528	1200	803.41			ok
21	39	H	352.008	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	7.08	3.54	4	100	40	3060	328.5	843.278	2484	405	972.97	2604.9	722.857	ok
	40	D	4.744	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.1	0.05	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	45	D	2.049	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.04	0.02	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	48	H	353.611	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	7.11	3.55	4	100	40	3060	328.5	843.278	2484	405	972.97	2604.9	722.857	ok
22	41	D	59.970	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.21	0.60	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	45	D	2.049	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.04	0.02	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	46	D	11.220	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.23	0.11	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok

Tabel 4.7.c Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				mm	mm	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	16	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	49	D	20.137	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.4	0.20	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	50	D	75.680	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.52	0.76	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
23	42	A	166.179	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	2.37	1.18	2	110	40	1800	1080	494.1	1344	1200	439.78			ok
	43	B	56.429	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.13	0.57	1		40	320	332	126.69	192	400	103.97			ok
	46	D	11.220	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.23	0.11	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	47	B	38.913	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.78	0.39	1		40	320	332	126.69	192	400	103.97			ok
	51	A	115.308	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.64	0.82	1		40	480	1080	351.54	252	1200	257.96			ok
24	44	A	549.466	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	7.83	3.92	4	110	40	4440	1080	779.22	3528	1200	803.41			ok
	47	B	38.913	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.78	0.39	1		40	320	332	126.69	192	400	103.97			ok
	52	B	53.620	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.08	0.54	1		40	320	332	126.69	192	400	103.97			ok
	53	A	500.596	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	7.14	3.57	4	110	40	4440	1080	779.22	3528	1200	803.41			ok
25	48	H	353.611	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	7.11	3.55	4	100	40	3060	1094	1267.85	2484	1170	1248.4	8630.8	2395.05	ok
	49	D	20.137	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.4	0.20	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	54	D	12.944	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.26	0.13	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	56	H	337.391	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	6.78	3.39	4	100	40	3060	238.5	793.328	2484	315	940.57	1930.4	535.693	ok
26	50	D	75.680	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.52	0.76	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	54	D	12.944	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.26	0.13	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	57	D	23.413	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.47	0.24	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	58	D	94.971	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.91	0.95	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
27	51	A	115.308	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.64	0.82	1		40	480	1080	703.08	252	1200	515.92	8352	2317.68	ok
	52	B	53.620	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.08	0.54	1		40	320	332	126.69	192	400	103.97			ok
	55	B	46.893	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.94	0.47	1		40	320	332	126.69	192	400	103.97			ok
	59	A	66.500	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	0.95	0.47	1		40	480	1080	351.54	252	1200	257.96			ok
28	53	A	500.596	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	7.14	3.57	4	110	40	4440	1080	779.22	3528	1200	803.41			ok
	55	B	46.893	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.94	0.47	1		40	320	332	126.69	192	400	103.97			ok
	60	B	62.721	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.26	0.63	1		40	320	332	126.69	192	400	103.97			ok
	61	A	443.434	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	6.32	3.16	4	110	40	4440	1080	779.22	3528	1200	803.41			ok
29	56	H	337.391	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	6.78	3.39	4	100	40	3060	328.5	843.278	2484	405	972.97	2604.9	722.857	ok
	57	D	23.413	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.47	0.24	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	62	D	14.547	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.29	0.15	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok

Tabel 4.7.c Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				mm	mm	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	16	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	64	H	318.046	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	6.39	3.20	4	100	40	3060	328.5	843.278	2484	405	972.97	2604.9	722.857	ok
30	58	D	94.971	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.91	0.95	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	62	D	14.547	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.29	0.15	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	65	D	26.243	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.53	0.26	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	66	D	116.784	940	12	7	370	A-325	825	16	49.738	93.258	74.592	2.35	1.17	2	60	40	700	185.5	254.153	476	245	246.71	1436	398.49	ok
31	59	A	66.500	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	0.95	0.47	1		40	480	1080	351.54	252	1200	257.96			ok
	60	B	62.721	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.26	0.63	1		40	320	332	126.69	192	400	103.97			ok
	63	B	54.563	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.1	0.55	1		40	320	332	126.69	192	400	103.97			ok
	67	A	11.849	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	0.17	0.08	1		40	480	1080	351.54	252	1200	257.96			ok
32	61	A	443.434	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	6.32	3.16	4	110	40	4440	1080	779.22	3528	1200	803.41			ok
	63	B	54.563	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.1	0.55	1		40	320	332	126.69	192	400	103.97			ok
	68	B	74.083	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.49	0.74	1		40	320	332	126.69	192	400	103.97			ok
	69	A	376.470	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	5.37	2.68	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
33	64	H	318.046	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	6.39	3.20	4	100	40	3060	328.5	843.278	2484	405	972.97	2604.9	722.857	ok
	65	D	26.243	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.53	0.26	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	70	D	44.420	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.89	0.45	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	74	D	105.865	940	12	7	370	A-325	825	16	49.738	93.258	74.592	2.13	1.06	2	60	40	700	185.5	254.153	476	245	246.71	1436	398.49	ok
	76	H	210.606	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	4.23	2.12	3	100	40	2160	328.5	648.878	1728	405	721.22	2604.9	722.857	ok
34	66	D	116.784	940	12	7	370	A-325	825	16	49.738	93.258	74.592	2.35	1.17	2	60	40	700	185.5	254.153	476	245	246.71	1436	398.49	ok
	70	D	44.420	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.89	0.45	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	71	D	30.355	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.61	0.31	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	74	D	105.865	940	12	7	370	A-325	825	16	49.738	93.258	74.592	2.13	1.06	2	60	40	700	185.5	254.153	476	245	246.71	1436	398.49	ok
	75	D	22.533	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.45	0.23	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	77	D	98.741	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.99	0.99	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
35	71	D	30.355	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.61	0.31	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	72	D	32.037	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.64	0.32	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	78	E	5.122	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.1	0.05	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	79	E	3.712	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.07	0.04	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
36	67	A	11.849	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	0.17	0.08	1		40	480	1080	351.54	252	1200	257.96			ok
	68	B	74.083	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.49	0.74	1		40	320	332	126.69	192	400	103.97			ok

Tabel 4.7.c Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				mm	mm	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	72	D	32.037	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.64	0.32	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	73	B	32.312	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.65	0.32	1		40	320	332	126.69	192	400	103.97			ok
	80	E	4.374	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.09	0.04	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	81	A	61.023	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	0.87	0.44	1		40	480	1080	351.54	252	1200	257.96			ok
37	69	A	376.470	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	5.37	2.68	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
	73	B	32.312	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.65	0.32	1		40	320	332	126.69	192	400	103.97			ok
	82	B	43.341	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.87	0.44	1		40	320	332	126.69	192	400	103.97			ok
	83	A	335.734	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	4.79	2.39	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
38	74	D	105.865	940	12	7	370	A-325	825	16	49.738	93.258	74.592	2.13	1.06	2	60	40	700	185.5	254.153	476	245	246.71	1436	398.49	ok
	75	D	22.533	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.45	0.23	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	84	D	22.348	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.45	0.22	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	85	D	106.306	940	12	7	370	A-325	825	16	49.738	93.258	74.592	2.14	1.07	2	60	40	700	185.5	254.153	476	245	246.71	1436	398.49	ok
39	76	H	210.606	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	4.23	2.12	3	100	40	2160	328.5	648.878	1728	405	721.22	2604.9	722.857	ok
	84	D	22.348	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.45	0.22	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	86	D	12.070	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.24	0.12	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	90	D	228.335	940	12	7	370	A-325	825	16	49.738	93.258	74.592	4.59	2.30	3	60	40	1120	185.5	344.873	784	245	349.27	1436	398.49	ok
40	77	D	98.741	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.99	0.99	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	78	E	5.122	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.1	0.05	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	85	D	106.306	940	12	7	370	A-325	825	16	49.738	93.258	74.592	2.14	1.07	2	60	40	700	185.5	254.153	476	245	246.71	1436	398.49	ok
	86	D	12.070	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.24	0.12	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	87	D	64.967	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.31	0.65	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	91	E	19.053	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.38	0.19	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	92	D	167.873	940	12	7	370	A-325	825	16	49.738	93.258	74.592	3.38	1.69	2	60	40	700	185.5	254.153	476	245	246.71	1436	398.49	ok
41	79	E	3.712	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.07	0.04	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	80	E	4.374	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.09	0.04	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	87	D	64.967	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.31	0.65	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	88	D	67.224	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.35	0.68	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
42	81	A	61.023	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	0.87	0.44	1		40	480	1080	351.54	252	1200	257.96			ok
	82	B	43.341	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.87	0.44	1		40	320	332	126.69	192	400	103.97			ok
	88	D	67.224	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.35	0.68	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok

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Tabel 4.7.c Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				mm	mm	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	16	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	89	B	79.940	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.61	0.80	1		40	320	332	126.69	192	400	103.97			ok
	93	D	19.596	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.39	0.20	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	94	A	108.826	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.55	0.78	1		40	480	1080	351.54	252	1200	257.96			ok
43	83	A	335.734	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	4.79	2.39	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
	89	B	79.940	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.61	0.80	1		40	320	332	126.69	192	400	103.97			ok
	95	B	31.945	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.64	0.32	1		40	320	332	126.69	192	400	103.97			ok
	96	A	337.062		12	12	370	A-325	825	19	70.138	131.508	151.848	4.81	2.40	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
44	90	D	228.335	940	12	7	370	A-325	825	16	49.738	93.258	74.592	4.59	2.30	3	60	40	1120	185.5	344.873	784	245	349.27	1436	398.49	ok
	91	E	19.053	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.38	0.19	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	97	E	10.065	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.2	0.10	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	100	D	243.303	940	12	7	370	A-325	825	16	49.738	93.258	74.592	4.89	2.45	3	60	40	1120	185.5	344.873	784	245	349.27	1436	398.49	ok
45	92	D	167.873	940	12	7	370	A-325	825	16	49.738	93.258	74.592	3.38	1.69	2	60	40	700	185.5	254.153	476	245	246.71	1436	398.49	ok
	97	E	10.065	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.2	0.10	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	101	E	15.861	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.32	0.16	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	102	D	155.917	940	12	7	370	A-325	825	16	49.738	93.258	74.592	3.13	1.57	2	60	40	700	185.5	254.153	476	245	246.71	1436	398.49	ok
46	93	D	19.596	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.39	0.20	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	98	E	20.023	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.4	0.20	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	103	D	42.921	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.86	0.43	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	104	E	23.047	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.46	0.23	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
47	94	A	108.826	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.55	0.78	1		40	480	1080	351.54	252	1200	257.96			ok
	95	B	31.945	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.64	0.32	1		40	320	332	126.69	192	400	103.97			ok
	98	E	20.023	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.4	0.20	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	99	B	3.880	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.08	0.04	1		40	320	332	126.69	192	400	103.97			ok
	105	A	88.016	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.25	0.63	1		40	480	1080	351.54	252	1200	257.96			ok
48	96	A	337.062	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	4.81	2.40	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
	99	B	3.880	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.08	0.04	1		40	320	332	126.69	192	400	103.97			ok
	106	B	7.144	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.14	0.07	1		40	320	332	126.69	192	400	103.97			ok
	107	A	335.709	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	4.79	2.39	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
49	100	D	243.303	940	12	7	370	A-325	825	16	49.738	93.258	74.592	4.89	2.45	3	60	40	1120	185.5	344.873	784	245	349.27	1436	398.49	ok
	101	E	15.861	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.32	0.16	1		40	240	129	123.435	144	180	112.75	960	266.4	ok

Tabel 4.7.c Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Prncn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				mm	mm	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	16	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	108	E	8.675	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.17	0.09	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	111	D	255.274	940	12	7	370	A-325	825	16	49.738	93.258	74.592	5.13	2.57	3	60	40	1120	185.5	344.873	784	245	349.27	1436	398.49	ok
50	102	D	155.917	940	12	7	370	A-325	825	16	49.738	93.258	74.592	3.13	1.57	2	60	40	700	185.5	254.153	476	245	246.71	1436	398.49	ok
	108	E	8.675	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.17	0.09	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	112	E	13.553	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.27	0.14	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	113	D	146.319	940	12	7	370	A-325	825	16	49.738	93.258	74.592	2.94	1.47	2	60	40	700	185.5	254.153	476	245	246.71	1436	398.49	ok
51	103	D	42.921	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.86	0.43	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	109	E	2.154	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.04	0.02	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	114	D	40.881	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.82	0.41	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	115	E	3.812	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.08	0.04	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
52	104	E	23.047	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.46	0.23	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	105	A	88.016	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.25	0.63	1		40	480	1080	351.54	252	1200	257.96			ok
	106	B	7.144	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.14	0.07	1		40	320	332	126.69	192	400	103.97			ok
	109	E	2.154	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.04	0.02	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	110	B	1.530	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.03	0.02	1		40	320	332	126.69	192	400	103.97			ok
	116	D	13.475	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.27	0.14	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	117	A	120.198	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.71	0.86	1		40	480	1080	351.54	252	1200	257.96			ok
53	107	A	335.709	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	4.79	2.39	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
	110	B	1.530	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.03	0.02	1		40	320	332	126.69	192	400	103.97			ok
	118	B	7.943	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.16	0.08	1		40	320	332	126.69	192	400	103.97			ok
	119	A	331.672	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	4.73	2.36	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
54	111	D	255.274	940	12	7	370	A-325	825	16	49.738	93.258	74.592	5.13	2.57	3	60	40	1120	185.5	344.873	784	245	349.27	1436	398.49	ok
	112	E	13.553	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.27	0.14	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	120	E	7.411	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.15	0.07	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	123	D	265.028	940	12	7	370	A-325	825	16	49.738	93.258	74.592	5.33	2.66	3	60	40	1120	185.5	344.873	784	245	349.27	1436	398.49	ok
55	113	D	146.319	940	12	7	370	A-325	825	16	49.738	93.258	74.592	2.94	1.47	2	60	40	700	185.5	254.153	476	245	246.71	1436	398.49	ok
	120	E	7.411	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.15	0.07	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	124	E	11.496	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.23	0.12	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	125	D	139.014	940	12	7	370	A-325	825	16	49.738	93.258	74.592	2.79	1.40	2	60	40	700	185.5	254.153	476	245	246.71	1436	398.49	ok
56	114	D	40.881	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.82	0.41	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok

Tabel 4.7.c Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				mm	mm	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	16	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	126	D	36.572	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.74	0.37	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	121	E	3.789	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.08	0.04	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	127	E	6.109	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.12	0.06	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
57	115	E	3.812	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.08	0.04	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	116	D	13.475	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.27	0.14	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	121	E	3.789	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.08	0.04	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	128	D	14.872	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.3	0.15	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
58	117	A	120.198	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.71	0.86	1		40	480	1080	351.54	252	1200	257.96			ok
	118	B	7.943	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.16	0.08	1		40	320	332	126.69	192	400	103.97			ok
	122	B	7.434	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.15	0.07	1		40	320	332	126.69	192	400	103.97			ok
	129	A	124.387	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.77	0.89	1		40	480	1080	351.54	252	1200	257.96			ok
59	119	A	331.672	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	4.73	2.36	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
	122	B	7.434	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.15	0.07	1		40	320	332	126.69	192	400	103.97			ok
	130	B	19.302	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.39	0.19	1		40	320	332	126.69	192	400	103.97			ok
	131	A	319.550	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	4.56	2.28	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
60	123	D	265.028	940	12	7	370	A-325	825	16	49.738	93.258	74.592	5.33	2.66	3	60	40	1120	185.5	344.873	784	245	349.27	1436	398.49	ok
	124	E	11.496	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.23	0.12	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	132	E	41.851	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.84	0.42	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	136	E	63.724	691	12	6	370	A-325	825	16	49.738	93.258	63.936	1.28	0.64	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	144	D	221.374	940	12	7	370	A-325	825	16	49.738	93.258	74.592	4.45	2.23	3	60	40	1120	185.5	344.873	784	245	349.27	1436	398.49	ok
61	125	D	139.014	940	12	7	370	A-325	825	16	49.738	93.258	74.592	2.79	1.40	2	60	40	700	185.5	254.153	476	245	246.71	1436	398.49	ok
	126	D	36.572	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.74	0.37	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	132	E	41.851	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.84	0.42	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	133	E	26.630	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.54	0.27	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	137	E	63.700	691	12	6	370	A-325	825	16	49.738	93.258	63.936	1.28	0.64	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	138	E	16.975	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.34	0.17	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	145	E	16.666	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.34	0.17	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
62	127	E	6.109	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.12	0.06	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	128	D	14.872	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.3	0.15	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	133	E	26.630	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.54	0.27	1		40	240	129	123.435	144	180	112.75	960	266.4	ok

Tabel 4.7.c Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				mm	mm	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	16	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	134	E	14.144	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.28	0.14	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	139	E	16.666	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.34	0.17	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	140	E	10.154	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.2	0.10	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	146	E	11.821	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.24	0.12	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
63	129	A	124.387	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.77	0.89	1		40	480	1080	351.54	252	1200	257.96			ok
	130	B	19.302	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.39	0.19	1		40	320	332	126.69	192	400	103.97			ok
	134	E	14.144	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.28	0.14	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	135	B	18.581	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.37	0.19	1		40	320	332	126.69	192	400	103.97			ok
	141	E	9.945	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.2	0.10	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	142	B	33.315	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.67	0.33	1		40	320	332	126.69	192	400	103.97			ok
	147	A	106.264	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.52	0.76	1		40	480	1080	351.54	252	1200	257.96			ok
64	131	A	319.550	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	4.56	2.28	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
	135	B	18.581	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.37	0.19	1		40	320	332	126.69	192	400	103.97			ok
	143	B	33.229	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.67	0.33	1		40	320	332	126.69	192	400	103.97			ok
	148	A	295.306	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	4.21	2.11	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
65	136	E	63.724	691	12	6	370	A-325	825	16	49.738	93.258	63.936	1.28	0.64	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	137	E	63.700	691	12	6	370	A-325	825	16	49.738	93.258	63.936	1.28	0.64	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	149	E	63.724	691	12	6	370	A-325	825	16	49.738	93.258	63.936	1.28	0.64	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	150	E	63.700	691	12	6	370	A-325	825	16	49.738	93.258	63.936	1.28	0.64	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
66	138	E	16.975	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.34	0.17	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	139	E	16.666	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.34	0.17	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	151	E	16.525	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.33	0.17	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	152	E	17.110	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.34	0.17	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
67	140	E	10.154	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.2	0.10	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	141	E	9.945	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.2	0.10	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	153	E	10.224	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.21	0.10	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	154	E	9.874	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.2	0.10	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
68	142	B	33.315	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.67	0.33	1		40	320	332	126.69	192	400	103.97			ok
	143	B	33.229	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.67	0.33	1		40	320	332	126.69	192	400	103.97			ok
	155	B	33.315	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.67	0.33	1		40	320	332	126.69	192	400	103.97			ok

Tabel 4.7.c Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				mm	mm	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	156	B	33.229	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.67	0.33	1		40	320	332	126.69	192	400	103.97			ok
69	144	D	221.374	940	12	7	370	A-325	825	16	49.738	93.258	74.592	4.45	2.23	3	60	40	1120	185.5	344.873	784	245	349.27	1436	398.49	ok
	149	E	63.724	691	12	6	370	A-325	825	16	49.738	93.258	63.936	1.28	0.64	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	157	E	41.851	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.84	0.42	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	161	D	265.028	940	12	7	370	A-325	825	16	49.738	93.258	74.592	5.33	2.66	3	60	40	1120	185.5	344.873	784	245	349.27	1436	398.49	ok
	162	E	11.495	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.23	0.12	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
70	145	D	104.268	940	12	7	370	A-325	825	16	49.738	93.258	74.592	2.1	1.05	2	60	40	700	185.5	254.153	476	245	246.71	1436	398.49	ok
	150	E	63.700	691	12	6	370	A-325	825	16	49.738	93.258	63.936	1.28	0.64	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	151	E	16.525	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.33	0.17	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	157	E	41.851	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.84	0.42	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	158	E	26.461	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.53	0.27	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	163	D	138.304	940	12	7	370	A-325	825	16	49.738	93.258	74.592	2.78	1.39	2	60	40	700	185.5	254.153	476	245	246.71	1436	398.49	ok
	164	D	36.644	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.74	0.37	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
71	146	E	11.821	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.24	0.12	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	152	E	17.110	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.34	0.17	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	153	E	10.224	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.21	0.10	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	158	E	26.461	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.53	0.27	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	159	E	13.852	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.28	0.14	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	165	E	5.512	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.11	0.06	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	166	D	15.407	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.31	0.15	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
72	147	A	106.264	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.52	0.76	1		40	480	1080	351.54	252	1200	257.96			ok
	154	E	9.874	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.2	0.10	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	155	B	33.315	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.67	0.33	1		40	320	332	126.69	192	400	103.97			ok
	159	E	13.852	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.28	0.14	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	160	B	18.581	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.37	0.19	1		40	320	332	126.69	192	400	103.97			ok
	167	A	124.387	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.77	0.89	1		40	480	1080	351.54	252	1200	257.96			ok
	168	B	18.836	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.38	0.19	1		40	320	332	126.69	192	400	103.97			ok
73	148	A	295.306	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	4.21	2.11	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
	156	B	33.229	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.67	0.33	1		40	320	332	126.69	192	400	103.97			ok
	160	B	18.581	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.37	0.19	1		40	320	332	126.69	192	400	103.97			ok

Tabel 4.7.c Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				mm	mm	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	16	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	169	A	319.550	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	4.56	2.28	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
74	161	D	265.028	940	12	7	370	A-325	825	16	49.738	93.258	74.592	5.33	2.66	3	60	40	1120	185.5	344.873	784	245	349.27	1436	398.49	ok
	170	E	7.321	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.15	0.07	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	173	D	255.274	940	12	7	370	A-325	825	16	49.738	93.258	74.592	5.13	2.57	3	60	40	1120	185.5	344.873	784	245	349.27	1436	398.49	ok
	174	E	13.544	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.27	0.14	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
75	162	E	11.495	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.23	0.12	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	163	D	138.304	940	12	7	370	A-325	825	16	49.738	93.258	74.592	2.78	1.39	2	60	40	700	185.5	254.153	476	245	246.71	1436	398.49	ok
	170	E	7.321		12	6	370	A-325	825	16	49.738	93.258	63.936	0.15	0.07	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	175	D	146.124	691	12	7	370	A-325	825	16	49.738	93.258	74.592	2.94	1.47	2	60	40	700	185.5	254.153	476	245	246.71	1436	398.49	ok
76	164	D	36.644	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.74	0.37	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	165	E	5.512	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.11	0.06	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	171	E	3.409	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.07	0.03	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	176	D	41.293	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.83	0.42	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
77	166	D	15.407	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.31	0.15	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	171	E	3.409	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.07	0.03	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	177	E	3.239	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.07	0.03	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	178	D	13.632	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.27	0.14	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
78	167	A	124.387	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.77	0.89	1		40	480	1080	351.54	252	1200	257.96			ok
	172	B	7.434	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.15	0.07	1		40	320	332	126.69	192	400	103.97			ok
	179	A	120.198	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.71	0.86	1		40	480	1080	351.54	252	1200	257.96			ok
	180	B	7.497	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.15	0.08	1		40	320	332	126.69	192	400	103.97			ok
79	168	B	18.836	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.38	0.19	1		40	320	332	126.69	192	400	103.97			ok
	169	A	319.550	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	4.56	2.28	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
	172	B	7.434	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.15	0.07	1		40	320	332	126.69	192	400	103.97			ok
	181	A	331.672	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	4.73	2.36	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
80	173	D	255.274	940	12	7	370	A-325	825	16	49.738	93.258	74.592	5.13	2.57	3	60	40	1120	185.5	344.873	784	245	349.27	1436	398.49	ok
	182	E	8.582	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.17	0.09	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	185	D	243.303	940	12	7	370	A-325	825	16	49.738	93.258	74.592	4.89	2.45	3	60	40	1120	185.5	344.873	784	245	349.27	1436	398.49	ok
	186	E	15.852	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.32	0.16	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
81	174	E	13.544	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.27	0.14	1		40	240	129	123.435	144	180	112.75	960	266.4	ok

Tabel 4.7.c Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Prncn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				mm	mm	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	175	D	146.124	940	12	7	370	A-325	825	16	49.738	93.258	74.592	2.94	1.47	2	60	40	700	185.5	254.153	476	245	246.71	1436	398.49	ok
	182	E	8.582	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.17	0.09	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	187	D	155.917	940	12	7	370	A-325	825	16	49.738	93.258	74.592	3.13	1.57	2	60	40	700	185.5	254.153	476	245	246.71	1436	398.49	ok
82	176	D	41.293	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.83	0.42	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	177	E	3.239	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.07	0.03	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	183	E	1.789	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.04	0.02	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	188	D	43.638	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.88	0.44	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
83	178	D	13.632	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.27	0.14	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	179	A	120.198	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.71	0.86	1		40	480	1080	351.54	252	1200	257.96			ok
	183	E	1.789	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.04	0.02	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	184	B	1.211	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.02	0.01	1		40	320	332	126.69	192	400	103.97			ok
	189	E	23.243	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.47	0.23	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	190	A	88.016	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.25	0.63	1		40	480	1080	351.54	252	1200	257.96			ok
	191	B	6.004	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.12	0.06	1		40	320	332	126.69	192	400	103.97			ok
84	180	B	7.497	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.15	0.08	1		40	320	332	126.69	192	400	103.97			ok
	181	A	331.672	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	4.73	2.36	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
	184	B	1.211	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.02	0.01	1		40	320	332	126.69	192	400	103.97			ok
	192	A	335.709	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	4.79	2.39	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
85	185	E	8.582	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.17	0.09	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	193	E	9.975	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.2	0.10	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	196	D	228.335	940	12	7	370	A-325	825	16	49.738	93.258	74.592	4.59	2.30	3	60	40	1120	185.5	344.873	784	245	349.27	1436	398.49	ok
	197	E	19.052	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.38	0.19	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
86	186	E	15.852	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.32	0.16	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	187	D	155.917	940	12	7	370	A-325	825	16	49.738	93.258	74.592	3.13	1.57	2	60	40	700	185.5	254.153	476	245	246.71	1436	398.49	ok
	193	E	9.975	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.2	0.10	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	198	D	167.873	940	12	7	370	A-325	825	16	49.738	93.258	74.592	3.38	1.69	2	60	40	700	185.5	254.153	476	245	246.71	1436	398.49	ok
87	188	D	43.638	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.88	0.44	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	189	E	23.243	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.47	0.23	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	194	E	20.023	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.4	0.20	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	199	D	20.605	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.41	0.21	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok

Tabel 4.7.c Lanjutan

Join	Btg	Prf	Nu (kN)	Ag (mm2)	tp (mm)	tf (mm)	Fu.p (Mpa)	Pmcn mutu,diameter,,jmlh,,jrk baut: Mutu baut	Fub (Mpa)	d (mm)	ϕVn geser (kN)	ϕTn trk (kN)	ϕRn tump. (kN)	*n*	*n/2*	*np*	*s* mm	*s'* mm	Cek p.geser-r.tarik: *Avg* (mm2)	*Ant* (mm2)	*ϕTn1* (kN)	Cek r.geser-p.tarik: *Ans* (mm2)	*Atg* (mm2)	*ϕTn2* (kN)	cek An profil: *An* (mm2)	*ϕNn* (kN)	Ket.
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	16	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
88	190	A	88.016	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.25	0.63	1		40	480	1080	351.54	252	1200	257.96			ok
	194	E	20.023	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.4	0.20	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	195	B	3.049	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.06	0.03	1		40	320	332	126.69	192	400	103.97			ok
	200	A	108.826	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.55	0.78	1		40	480	1080	351.54	252	1200	257.96			ok
	201	B	31.401	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.63	0.32	1		40	320	332	126.69	192	400	103.97			ok
89	191	A	337.062	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	4.81	2.40	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
	192	A	335.709	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	4.79	2.39	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
	195	B	3.049	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.06	0.03	1		40	320	332	126.69	192	400	103.97			ok
	202	A	337.062	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	4.81	2.40	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
90	196	D	228.335	940	12	7	370	A-325	825	16	49.738	93.258	74.592	4.59	2.30	3	60	40	1120	185.5	344.873	784	245	349.27	1436	398.49	ok
	203	D	11.425	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.23	0.11	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	207	D	21.978	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.44	0.22	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	209	H	210.606	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	4.23	2.12	3	100	40	2160	328.5	648.878	1728	405	721.22	2604.9	722.857	ok
91	197	E	19.052	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.38	0.19	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	198	D	167.873	940	12	7	370	A-325	825	16	49.738	93.258	74.592	3.38	1.69	2	60	40	700	185.5	254.153	476	245	246.71	1436	398.49	ok
	203	D	11.425	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.23	0.11	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	204	D	64.967	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.31	0.65	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	208	D	106.474	940	12	7	370	A-325	825	16	49.738	93.258	74.592	2.14	1.07	2	60	40	700	185.5	254.153	476	245	246.71	1436	398.49	ok
	210	D	98.741	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.99	0.99	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	211	E	5.102	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.1	0.05	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
92	204	D	64.967	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.31	0.65	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	205	D	67.224	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.35	0.68	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	212	E	3.682	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.07	0.04	1		40	240	159	140.085	144	210	123.55	1200	333	ok
	213	E	4.341	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.09	0.04	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
93	199	D	20.605	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.41	0.21	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	200	A	108.826	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.55	0.78	1		40	480	1080	351.54	252	1200	257.96			ok
	205	D	67.224	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.35	0.68	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	206	B	79.940	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.61	0.80	1		40	320	332	126.69	192	400	103.97			ok
	214	A	61.023	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	0.87	0.44	1		40	480	1080	351.54	252	1200	257.96			ok
	215	B	43.341	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.87	0.44	1		40	320	332	126.69	192	400	103.97			ok

Tabel 4.7.c Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				mm	mm	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
94	201	B	31.401	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.63	0.32	1		40	320	332	126.69	192	400	103.97			ok
	202	A	337.062	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	4.81	2.40	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
	206	B	79.940	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.61	0.80	1		40	320	332	126.69	192	400	103.97			ok
	216	A	336.293	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	4.79	2.40	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
95	207	D	21.978	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.44	0.22	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	208	D	106.474	940	12	7	370	A-325	825	16	49.738	93.258	74.592	2.14	1.07	2	60	40	700	185.5	254.153	476	245	246.71	1436	398.49	ok
	217	D	106.032	940	12	7	370	A-325	825	16	49.738	93.258	74.592	2.13	1.07	2	60	40	700	185.5	254.153	476	245	246.71	1436	398.49	ok
	218	D	22.230	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.45	0.22	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
96	209	H	210.606	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	4.23	2.12	3	100	40	2160	328.5	648.878	1728	405	721.22	2604.9	722.857	ok
	217	D	106.032	940	12	7	370	A-325	825	16	49.738	93.258	74.592	2.13	1.07	2	60	40	700	185.5	254.153	476	245	246.71	1436	398.49	ok
	219	D	44.420	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.89	0.45	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	223	H	318.046	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	6.39	3.20	4	100	40	3060	328.5	843.278	2484	405	972.97	2604.9	722.857	ok
	224	D	26.578	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.53	0.27	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
97	210	D	98.741	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.99	0.99	2	60	40	700	185.5	254.153	476	245	246.71	1436	398.49	ok
	218	D	22.230	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.45	0.22	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	219	D	44.420	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.89	0.45	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	220	D	31.124	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.63	0.31	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	225	D	116.784	940	12	7	370	A-325	825	16	49.738	93.258	74.592	2.35	1.17	2	60	40	700	185.5	254.153	476	245	246.71	1436	398.49	ok
98	211	E	5.102	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.1	0.05	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	212	E	3.682	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.07	0.04	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	220	D	31.124	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.63	0.31	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	221	D	31.566	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.63	0.32	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
99	213	E	4.341	691	12	6	370	A-325	825	16	49.738	93.258	63.936	0.09	0.04	1		40	240	129	123.435	144	180	112.75	960	266.4	ok
	214	A	61.023	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	0.87	0.44	1		40	480	1080	351.54	252	1200	257.96			ok
	221	D	31.566	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.63	0.32	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	222	B	32.312	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.65	0.32	1		40	320	332	126.69	192	400	103.97			ok
	226	A	6.228	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	0.09	0.04	1		40	480	1080	351.54	252	1200	257.96			ok
	227	B	73.600	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.48	0.74	1		40	320	332	126.69	192	400	103.97			ok
100	215	B	43.341	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.87	0.44	1		40	320	332	126.69	192	400	103.97			ok
	216	A	336.293	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	4.79	2.40	3	110	40	3120	1080	636.66	2436	1200	621.59			ok

Tabel 4.7.c Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				mm	mm	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	222	B	32.312	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.65	0.32	1		40	320	332	126.69	192	400	103.97			ok
	228	A	377.029	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	5.38	2.69	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
101	223	H	318.046	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	6.39	3.20	4	100	40	3060	328.5	843.278	2484	405	972.97	2604.9	722.857	ok
	229	D	14.882	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.3	0.15	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	231	H	337.391	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	6.78	3.39	1		40	360	328.5	260.078	216	405	217.73	2466	684.315	ok
	232	D	23.475	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.47	0.24	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
102	224	D	26.578	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.53	0.27	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	225	D	116.784	940	12	7	370	A-325	825	16	49.738	93.258	74.592	2.35	1.17	2	60	40	700	185.5	254.153	476	245	246.71	1436	398.49	ok
	229	D	14.882	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.3	0.15	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	233	D	94.971	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.91	0.95	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
103	226	A	6.228	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	0.09	0.04	1		40	480	1080	351.54	252	1200	257.96			ok
	230	B	54.563	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.1	0.55	1		40	320	332	126.69	192	400	103.97			ok
	234	A	61.819	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	0.88	0.44	1		40	480	1080	351.54	252	1200	257.96			ok
	235	B	62.409	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.25	0.63	1		40	320	332	126.69	192	400	103.97			ok
104	227	B	73.600	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.48	0.74	1		40	320	332	126.69	192	400	103.97			ok
	228	A	377.029	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	5.38	2.69	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
	230	B	54.563	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.1	0.55	1		40	320	332	126.69	192	400	103.97			ok
	236	A	443.993	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	6.33	3.17	4	110	40	4440	1080	779.22	3528	1200	803.41			ok
105	231	H	337.391	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	6.78	3.39	4	100	40	3060	328.5	843.278	2484	405	972.97	2604.9	722.857	ok
	237	D	12.985	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.26	0.13	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	239	H	353.611	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	7.11	3.55	4	100	40	3060	2754	2189.43	2484	2831	1846.2	21888	6073.96	ok
	240	D	19.897	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.4	0.20	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
106	232	D	23.475	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.47	0.24	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	233	D	94.971	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.91	0.95	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	237	D	12.985	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.26	0.13	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	240	D	19.897	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.4	0.20	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	241	D	75.680	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.52	0.76	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
107	234	A	61.819	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	0.88	0.44	1		40	480	1080	351.54	252	1200	257.96			ok
	238	B	46.893	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.94	0.47	1		40	320	332	126.69	192	400	103.97			ok
	242	A	110.315	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.57	0.79	1		40	480	1080	351.54	252	1200	257.96			ok

Tabel 4.7.c Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Prncn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				mm	mm	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	243	B	53.620	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.08	0.54	1		40	320	332	126.69	192	400	103.97			ok
108	235	B	62.409	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.25	0.63	1		40	320	332	126.69	192	400	103.97			ok
	236	A	443.993	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	6.33	3.17	4	110	40	4440	1080	779.22	3528	1200	803.41			ok
	238	B	46.893	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.94	0.47	1		40	320	332	126.69	192	400	103.97			ok
	244	A	501.155	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	7.15	3.57	4	110	40	4440	1080	779.22	3528	1200	803.41			ok
109	239	H	353.611	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	7.11	3.55	4	100	40	3060	328.5	421.639	2484	405	486.49			ok
	245	D	1.638	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.03	0.02	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	248	H	352.008	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	7.08	3.54	4	100	40	3060	328.5	843.278	2484	405	972.97	2604.9	722.857	ok
	249	D	4.527	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.09	0.05	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
110	240	D	19.897	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.4	0.20	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	241	D	75.680	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.52	0.76	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	245	D	1.638	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.03	0.02	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	246	D	10.983	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.22	0.11	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	250	D	61.829	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.24	0.62	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
111	242	A	110.315	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.57	0.79	1		40	480	1080	351.54	252	1200	257.96			ok
	246	D	10.983	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.22	0.11	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	247	B	38.913	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.78	0.39	1		40	320	332	126.69	192	400	103.97			ok
	251	A	161.412	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	2.3	1.15	2	110	40	1800	1080	494.1	1344	1200	439.78			ok
	252	B	56.429	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.13	0.57	1		40	320	332	126.69	192	400	103.97			ok
112	243	B	53.620	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.08	0.54	1		40	320	332	126.69	192	400	103.97			ok
	244	A	501.155	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	7.15	3.57	4	110	40	4440	1080	779.22	3528	1200	803.41			ok
	247	B	38.913	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.78	0.39	1		40	320	332	126.69	192	400	103.97			ok
	253	A	550.025	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	7.84	3.92	4	110	40	4440	1080	779.22	3528	1200	803.41			ok
113	248	H	352.008	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	7.08	3.54	4	100	40	3060	328.5	421.639	2484	405	486.49			ok
	254	D	23.006	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.46	0.23	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	256	H	284.797	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	5.73	2.86	3	100	40	2160	328.5	648.878	1728	405	721.22	2604.9	722.857	ok
	257	D	71.761	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.44	0.72	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
114	249	D	4.527	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.09	0.05	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	250	D	61.829	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.24	0.62	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	251	A	161.412	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	2.3	1.15	2	110	40	1800	1080	494.1	1344	1200	439.78			ok

Tabel 4.7.c Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				mm	mm	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	16	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	254	D	23.006	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.46	0.23	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	255	B	40.138	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.81	0.40	1		40	320	332	126.69	192	400	103.97			ok
	258	A	265.705	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	3.79	1.89	2	110	40	1800	1080	494.1	1344	1200	439.78			ok
	259	B	42.493	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.85	0.43	1		40	320	332	126.69	192	400	103.97			ok
115	252	B	56.429	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.13	0.57	1		40	320	332	126.69	192	400	103.97			ok
	253	A	550.025	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	7.84	3.92	4	110	40	4440	1080	779.22	3528	1200	803.41			ok
	255	B	40.138	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.81	0.40	1		40	320	332	126.69	192	400	103.97			ok
	260	A	601.257	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	8.57	4.29	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
116	256	H	284.797	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	5.73	2.86	3	100	40	2160	328.5	648.878	1728	405	721.22	2604.9	722.857	ok
	261	D	0.850	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.02	0.01	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	263	H	285.079	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	5.73	2.87	3	100	40	2160	328.5	648.878	1728	405	721.22	2604.9	722.857	ok
117	257	D	71.761	940	12	7	370	A-325	825	16	49.738	93.258	74.592	1.44	0.72	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	258	A	265.705	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	3.79	1.89	2	110	40	1800	1080	494.1	1344	1200	439.78			ok
	261	D	0.850	940	12	7	370	A-325	825	16	49.738	93.258	74.592	0.02	0.01	1		40	280	185.5	163.433	168	245	144.14	1386	384.615	ok
	262	B	30.547	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.61	0.31	1		40	320	332	126.69	192	400	103.97			ok
	264	A	314.604	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	4.49	2.24	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
	265	B	25.176	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.51	0.25	1		40	320	332	126.69	192	400	103.97			ok
118	259	B	42.493	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.85	0.43	1		40	320	332	126.69	192	400	103.97			ok
	260	A	601.257	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	8.57	4.29	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
	262	B	30.547	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.61	0.31	1		40	320	332	126.69	192	400	103.97			ok
	266	A	639.598	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	9.12	4.56	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
119	263	H	285.079	1550	12	9	370	A-325	825	16	49.738	93.258	95.904	5.73	2.87	3	100	40	2160	328.5	648.878	1728	405	721.22	2604.9	722.857	ok
	264	A	314.604	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	4.49	2.24	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
	267	B	24.505	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.49	0.25	1		40	320	332	126.69	192	400	103.97			ok
	268	A	478.678	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	6.82	3.41	4	110	40	4440	1080	779.22	3528	1200	803.41			ok
	269	B	148.877	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.99	1.50	2	70	40	880	332	187.17	624	400	175.9			ok
120	265	B	25.176	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.51	0.25	1		40	320	332	126.69	192	400	103.97			ok
	266	A	639.598	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	9.12	4.56	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
	267	B	24.505	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.49	0.25	1		40	320	332	126.69	192	400	103.97			ok
	270	A	615.672	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	8.78	4.39	5	110	40	5760	1080	921.78	4620	1200	985.23			ok

Tabel 4.7.c Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				mm	mm	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	16	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
121	268	A	478.678	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	6.82	3.41	4	110	40	4440	1080	779.22	3528	1200	803.41			ok
	271	B	131.860	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.65	1.33	2	70	40	880	332	187.17	624	400	175.9			ok
	272	A	327.437	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	4.67	2.33	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
	273	B	162.469	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.27	1.63	2	70	40	880	332	187.17	624	400	175.9			ok
122	269	B	148.877	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.99	1.50	2	70	40	880	332	187.17	624	400	175.9			ok
	270	A	615.672	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	8.78	4.39	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
	271	B	131.860	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.65	1.33	2	70	40	880	332	187.17	624	400	175.9			ok
	274	A	477.572	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	6.81	3.40	4	110	40	4440	1080	779.22	3528	1200	803.41			ok
123	272	A	327.437	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	4.67	2.33	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
	275	B	143.607	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.89	1.44	2	70	40	880	332	187.17	624	400	175.9			ok
	276	A	166.244	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	2.37	1.19	2	110	40	1800	1080	494.1	1344	1200	439.78			ok
	277	B	172.555	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.47	1.73	2	70	40	880	332	187.17	624	400	175.9			ok
124	273	B	162.469	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.27	1.63	2	70	40	880	332	187.17	624	400	175.9			ok
	274	A	477.572	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	6.81	3.40	4	110	40	4440	1080	779.22	3528	1200	803.41			ok
	275	B	143.607	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.89	1.44	2	70	40	880	332	187.17	624	400	175.9			ok
	278	A	325.336	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	4.64	2.32	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
125	276	A	166.244	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	2.37	1.19	2	110	40	1800	1080	494.1	1344	1200	439.78			ok
	279	B	150.206	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.02	1.51	2	70	40	880	332	187.17	624	400	175.9			ok
	280	A	12.654	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	0.18	0.09	1	110	40	480	1080	351.54	252	1200	257.96			ok
	281	B	184.329	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.71	1.85	2	70	40	880	332	187.17	624	400	175.9			ok
126	277	B	172.555	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.47	1.73	2	70	40	880	332	187.17	624	400	175.9			ok
	278	A	325.336	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	4.64	2.32	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
	279	B	150.206	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.02	1.51	2	70	40	880	332	187.17	624	400	175.9			ok
	282	A	164.215	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	2.34	1.17	2	110	40	1800	1080	494.1	1344	1200	439.78			ok
127	280	A	12.654	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	0.18	0.09	1		40	480	1080	351.54	252	1200	257.96			ok
	283	B	167.253	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.36	1.68	2	70	40	880	332	187.17	624	400	175.9			ok
	284	C	14.618	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	1.05	0.53	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
128	281	B	184.329	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.71	1.85	2	70	40	880	332	187.17	624	400	175.9			ok
	282	A	164.215	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	2.34	1.17	2	110	40	1800	1080	494.1	1344	1200	439.78			ok
	283	B	167.253	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.36	1.68	2	70	40	880	332	187.17	624	400	175.9			ok

Tabel 4.7.c Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Prncn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				mm	mm	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	16	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	285	C	11.191	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.8	0.40	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	286	C	7.330	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.53	0.26	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
129	284	C	14.618	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	1.05	0.53	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	285	C	11.191	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.8	0.40	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	287	C	7.341	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.53	0.26	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	288	C	6.602	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.47	0.24	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
130	286	C	7.330	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.53	0.26	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	287	C	7.341	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.53	0.26	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	289	C	8.313	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.6	0.30	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	290	C	3.695	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.27	0.13	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
131	288	C	6.602	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.47	0.24	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	289	C	8.313	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.6	0.30	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	291	C	3.695	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.27	0.13	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
132	290	C	0.519	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.04	0.02	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	291	C	3.695	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.27	0.13	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok

Keterangan:

[1] Titik buhul
[2] Nomer batang
[3] Profil terpasang
[4] Nu = gaya batang
[5] Ag = luas penampang profil (mm^2)
[6] tp = tebal pelat buhul
[7] tf = tebal profil
[8] Fu p = tegangan putus minimum baja profil
[9] Mutu baut
[10] Fu b = tegangan tarik putus baut
[11] d = diameter baut
[12] ΦRn geser = 0,75.0,4.Fub.Ab (kuat geser rencana baut)
[13] ΦRn tarik = 0,75.0,75.Fub.Ab (kuat tarik rencana baut)
[14] ΦRn tumpu = 2,4.0,75.db.tp.Fu (kuat tumpu rencana baut)
[15] n = jumlah baut
[16] n/2
[17] np = baut terpasang
[18] s = jarak antar baut
[19] s' = jarak lubang baut dengan tepi pelat profil
[20] Avg = luas bruto pelelehan geser
[21] Ant = luas bersih retakan tarik
[22] ΦTn1 = kekuatan nominal tarik pelat profil pelelehan geser-retakan tarik
[23] Ans = luas bersih retakan geser
[24] Atg = luas kotor pelelehan tarik
[25] ΦTn2 = kekuatan nominal tarik pelat profil retakan geser-pelelehan tarik
[26] An = luas netto profil
[27] ΦNn = kuat tarik profil
[28] Nu ≤ Φ Nn ; profil aman dipakai

Tabel 4.7.d Perencanaan Sambungan Baut Kuda-Kuda K3

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Prncn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
1	1	C	3.831	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.28	0.14	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	2	C	6.589	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.47	0.24	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	3	C	7.955	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.57	0.29	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
2	1	C	3.831	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.28	0.14	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	4	C	0.502	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.04	0.02	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
3	2	C	6.589	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.47	0.24	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	5	C	7.371	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.53	0.27	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	6	C	14.683	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	1.06	0.53	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	7	C	10.827	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.78	0.39	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
4	3	C	7.955	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.57	0.29	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	4	C	0.502	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.04	0.02	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	5	C	7.371	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.53	0.27	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	8	C	7.271	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.52	0.26	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
5	6	C	14.683	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	1.06	0.53	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	9	B	140.606	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.83	1.41	2	70	40	880	332	187.17	624	400	175.9			ok
	10	A	9.964	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	0.14	0.07	1		40	480	1080	351.54	252	1200	257.96			ok
6	7	C	10.827	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.78	0.39	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	8	C	7.271	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.52	0.26	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	9	B	140.606	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.83	1.41	2	70	40	880	332	187.17	624	400	175.9			ok
	11	B	151.185	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.04	1.52	2	70	40	880	332	187.17	624	400	175.9			ok
	12	A	128.654	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.83	0.92	1		40	480	1080	351.54	252	1200	257.96			ok
7	10	A	9.964	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	0.14	0.07	1		40	480	1080	351.54	252	1200	257.96			ok
	11	B	151.185	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.04	1.52	2	70	40	880	332	187.17	624	400	175.9			ok
	13	B	123.766	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.49	1.24	2	70	40	880	332	187.17	624	400	175.9			ok
	14	A	137.931	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.97	0.98	1		40	480	1080	351.54	252	1200	257.96			ok
8	12	A	128.654	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.83	0.92	1		40	480	1080	351.54	252	1200	257.96			ok
	13	B	123.766	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.49	1.24	2	70	40	880	332	187.17	624	400	175.9			ok
	15	B	139.450	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.80	1.40	2	70	40	880	332	187.17	624	400	175.9			ok
	16	A	258.927	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	3.69	1.85	2	110	40	1800	1080	494.1	1344	1200	439.78			ok
9	14	A	137.931	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.97	0.98	1		40	480	1080	351.54	252	1200	257.96			ok

Tabel 4.7.d Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Prncn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	*n*	*n/2*	*np*	*s*	*s'*	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								*Avg*	*Ant*	*ϕTn1*	*Ans*	*Atg*	*ϕTn2*	*An*	*ϕNn*	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	15	B	139.450	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.80	1.40	2	70	40	880	332	187.17	624	400	175.9			ok
	17	B	116.243	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.34	1.17	2	70	40	880	332	187.17	624	400	175.9			ok
	18	A	268.102	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	3.82	1.91	2	110	40	1800	1080	494.1	1344	1200	439.78			ok
10	16	A	258.927	6353	12	8	370	A-325	825	19	70.138	131.508	101.232	3.69	1.85	2	70	40	880	720	294.84	576	800	239.9			ok
	17	B	116.243	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.34	1.17	2	70	40	880	332	187.17	624	400	175.9			ok
	19	B	129.273	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.60	1.30	2	70	40	880	332	187.17	624	400	175.9			ok
	20	A	379.827	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	5.42	2.71	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
11	18	A	268.102	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	3.82	1.91	2	110	40	1800	1080	494.1	1344	1200	439.78			ok
	19	B	129.273	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.60	1.30	2	70	40	880	332	187.17	624	400	175.9			ok
	21	B	107.571	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.16	1.08	2	70	40	880	332	187.17	624	400	175.9			ok
	22	A	389.028	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	5.55	2.77	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
12	20	A	379.827	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	5.42	2.71	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
	21	B	107.571	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.16	1.08	2	70	40	880	332	187.17	624	400	175.9			ok
	23	B	117.434	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.36	1.18	2	70	40	880	332	187.17	624	400	175.9			ok
	24	A	490.047	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	6.99	3.49	4	110	40	4440	1080	779.22	3528	1200	803.41			ok
13	22	A	389.028	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	5.55	2.77	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
	23	B	117.434	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.36	1.18	2	70	40	880	332	187.17	624	400	175.9			ok
	25	B	95.287	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.92	0.96	1		40	320	332	126.69	192	400	103.97			ok
	26	A	497.649	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	7.1	3.55	4	110	40	4440	1080	779.22	3528	1200	803.41			ok
14	24	A	490.047	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	6.99	3.49	4	110	40	4440	1080	779.22	3528	1200	803.41			ok
	25	B	95.287	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.92	0.96	1		40	320	332	126.69	192	400	103.97			ok
	27	B	95.005	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.91	0.96	1		40	320	332	126.69	192	400	103.97			ok
	28	A	565.763	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	8.07	4.03	4	110	40	4440	1080	779.22	3528	1200	803.41			ok
15	26	A	497.649	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	7.1	3.55	4	100	40	4080	1080	740.34	3168	1200	743.47			ok
	27	B	95.005	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.91	0.96	1		40	320	332	126.69	192	400	103.97			ok
	29	B	31.548	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.63	0.32	1		40	320	332	126.69	192	400	103.97			ok
	30	A	557.661	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	7.95	3.98	4	110	40	4440	1080	779.22	3528	1200	803.41			ok
16	28	A	565.763	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	8.07	4.03	4	110	40	4440	1080	779.22	3528	1200	803.41			ok
	29	B	31.548	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.63	0.32	1		40	320	332	126.69	192	400	103.97			ok
	31	B	109.076	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.19	1.10	2	70	40	880	332	187.17	624	400	175.9			ok
	32	A	645.206	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	9.2	4.60	5	110	40	5760	1080	921.78	4620	1200	985.23			ok

Tabel 4.7.d Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Prncn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump,	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
17	30	A	557.661	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	7.95	3.98	4	110	40	4440	1080	779.22	3528	1200	803.41			ok
	31	B	109.076	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.19	1.10	2	110	40	1200	332	221.73	944	400	229.18			ok
	33	B	80.832	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.63	0.81	1		40	320	332	126.69	192	400	103.97			ok
	34	A	653.904	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	9.32	4.66	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
18	32	A	645.206	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	9.2	4.60	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
	33	B	80.832	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.63	0.81	1		40	320	332	126.69	192	400	103.97			ok
	35	B	92.953	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.87	0.93	1		40	320	332	126.69	192	400	103.97			ok
	36	A	725.565	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	10.3	5.17	6	110	40	7080	1080	1064.34	5712	1200	1167			ok
19	34	A	653.904	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	9.32	4.66	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
	35	B	92.953	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.87	0.93	1		40	320	332	126.69	192	400	103.97			ok
	37	B	73.921	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.49	0.74	1		40	320	332	126.69	192	400	103.97			ok
	38	A	734.482	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	10.5	5.24	6	110	40	7080	1080	1064.34	5712	1200	1167			ok
20	36	A	725.565	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	10.3	5.17	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
	37	B	73.921	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.49	0.74	1		40	320	332	126.69	192	400	103.97			ok
	39	B	81.146	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.63	0.82	1		40	320	332	126.69	192	400	103.97			ok
	40	A	796.700	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	11.4	5.68	6	110	40	7080	1080	1064.34	5712	1200	1167			ok
21	38	A	734.482	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	10.5	5.24	6	110	40	7080	1080	1064.34	5712	1200	1167			ok
	39	B	81.146	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.63	0.82	1		40	320	332	126.69	192	400	103.97			ok
	41	B	61.211	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.23	0.62	1		40	320	332	126.69	192	400	103.97			ok
	42	A	803.591	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	11.5	5.73	6	110	40	7080	1080	1064.34	5712	1200	1167			ok
22	40	A	796.700	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	11.4	5.68	6	110	40	7080	300	847.89	5712	420	1026.6			ok
	41	B	61.211	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.23	0.62	1		40	320	212	93.39	192	280	82.368			ok
	43	B	75.379	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.52	0.76	1		40	320	212	93.39	192	280	82.368			ok
	44	A	858.971	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	12.2	6.12	7	110	40	8400	300	990.45	6804	420	1208.5			ok
23	42	A	803.591	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	11.5	5.73	6	110	40	7080	1080	1064.34	5712	1200	1167			ok
	43	B	75.379	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.52	0.76	1		40	320	332	126.69	192	400	103.97			ok
	45	B	144.666	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.91	1.45	2	70	40	880	212	153.87	624	280	154.3			ok
	46	A	842.274	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	12	6.00	6	110	40	7080	480	897.84	5712	600	1059			ok
24	44	A	858.971	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	12.2	6.12	6	110	40	7080	1080	1064.34	5712	1200	1167			ok
	45	B	144.666	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.91	1.45	2	70	40	880	332	187.17	624	400	175.9			ok
	47	B	74.388	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.5	0.75	1		40	320	332	126.69	192	400	103.97			ok

Tabel 4.7.d Lanjutan

Join	Btg	Pn	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	48	A	891.936	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	12.7	6.36	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok
25	46	A	842.274	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	12	6.00	6	110	40	7080	1080	1064.34	5712	1200	1167			ok
	47	B	74.388	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.5	0.75	1		40	320	332	126.69	192	400	103.97			ok
	49	B	41.472	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.83	0.42	1		40	320	332	126.69	192	400	103.97			ok
	50	A	899.955	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	12.8	6.42	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok
26	48	A	891.936	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	12.7	6.36	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok
	49	B	41.472	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.83	0.42	1		40	320	332	126.69	192	400	103.97			ok
	51	B	53.067	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.07	0.53	1		40	320	332	126.69	192	400	103.97			ok
	52	A	931.113	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	13.3	6.64	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok
27	50	A	899.955	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	12.8	6.42	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok
	51	B	53.067	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.07	0.53	1		40	320	332	126.69	192	400	103.97			ok
	53	B	36.305	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.73	0.36	1		40	320	332	126.69	192	400	103.97			ok
	54	A	939.130	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	13.4	6.69	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok
28	52	A	931.113	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	13.3	6.64	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok
	53	B	36.305	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.73	0.36	1		40	320	332	126.69	192	400	103.97			ok
	55	B	42.720	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.86	0.43	1		40	320	332	126.69	192	400	103.97			ok
	56	A	962.440	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	13.7	6.86	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok
29	54	A	939.130	6353	12	9	370	A-325	825	19	70.138	131.508	113.886	13.4	6.69	8	110	40	7290	810	1012.1	5922	900	1148			ok
	55	B	42.720	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.86	0.43	1		40	320	332	126.69	192	400	103.97			ok
	57	B	27.826	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.56	0.28	1		40	320	332	126.69	192	400	103.97			ok
	58	A	969.971	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	13.8	6.91	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok
30	56	A	962.440	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	13.7	6.86	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok
	57	B	27.826	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.56	0.28	1		40	320	332	126.69	192	400	103.97			ok
	59	B	31.583	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.63	0.32	1		40	320	332	126.69	192	400	103.97			ok
	60	A	984.984	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	14	7.02	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok
31	58	A	969.971	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	13.8	6.91	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok
	59	B	31.583	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.63	0.32	1		40	320	332	126.69	192	400	103.97			ok
	61	B	20.641	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.42	0.21	1		40	320	332	126.69	192	400	103.97			ok
	62	A	992.087	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	14.1	7.07	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok
32	60	A	984.984	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	14	7.02	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok
	61	B	20.641	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.42	0.21	1		40	320	332	126.69	192	400	103.97			ok

Tabel 4.7.d Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Prncn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	63	B	20.855	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.42	0.21	1		40	320	332	126.69	192	400	103.97			ok
	64	A	998.984	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	14.2	7.12	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok
33	62	A	992.087	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	14.1	7.07	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok
	63	B	20.855	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.42	0.21	1		40	320	332	126.69	192	400	103.97			ok
	65	B	13.560	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.27	0.14	1		40	320	332	126.69	192	400	103.97			ok
	66	A	1005.546	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	14.3	7.17	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok
34	64	A	998.984	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	14.2	7.12	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok
	65	B	13.560	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.27	0.14	1		40	320	332	126.69	192	400	103.97			ok
	67	B	12.521	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.25	0.13	1		40	320	332	126.69	192	400	103.97			ok
	68	A	1006.258	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	14.3	7.17	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok
35	66	A	1005.546	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	14.3	7.17	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok
	67	B	12.521	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.25	0.13	1		40	320	332	126.69	192	400	103.97			ok
	69	B	4.466	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.09	0.04	1		40	320	332	126.69	192	400	103.97			ok
	70	B	7.237	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.15	0.07	1		40	320	332	126.69	192	400	103.97			ok
	72	A	1005.011	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	14.3	7.16	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok
36	68	A	1006.258	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	14.3	7.17	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok
	69	B	4.466	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.09	0.04	1		40	320	332	126.69	192	400	103.97			ok
	71	B	9.425	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.19	0.09	1		40	320	332	126.69	192	400	103.97			ok
	73	A	996.511	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	14.2	7.10	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok
37	70	B	7.237	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.15	0.07	1		40	320	332	126.69	192	400	103.97			ok
	71	B	9.425	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.19	0.09	1		40	320	332	126.69	192	400	103.97			ok
	74	B	3.241	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.07	0.03	1		40	320	332	126.69	192	400	103.97			ok
	75	B	7.154	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.14	0.07	1		40	320	332	126.69	192	400	103.97			ok
38	72	A	1005.011	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	14.3	7.16	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok
	74	B	3.241	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.07	0.03	1		40	320	332	126.69	192	400	103.97			ok
	76	B	6.864	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.14	0.07	1		40	320	332	126.69	192	400	103.97			ok
	77	A	996.526	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	14.2	7.10	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok
	78	B	17.953	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.36	0.18	1		40	320	332	126.69	192	400	103.97			ok
39	73	A	996.511	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	14.2	7.10	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok
	75	B	7.154	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.14	0.07	1		40	320	332	126.69	192	400	103.97			ok
	76	B	6.864	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.14	0.07	1		40	320	332	126.69	192	400	103.97			ok

Tabel 4.7.d Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket
								Mutu baut	Fub	d	ϕVn gese								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	79	A	1002.871	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	14.3	7.15	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok
40	77	A	996.526	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	14.2	7.10	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok
	80	B	17.500	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.35	0.18	1		40	320	332	126.69	192	400	103.97			ok
	81	A	976.923	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	13.9	6.96	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok
	82	B	26.128	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.53	0.26	1		40	320	332	126.69	192	400	103.97			ok
41	78	B	17.953	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.36	0.18	1		40	320	332	126.69	192	400	103.97			ok
	79	A	1002.871	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	14.3	7.15	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok
	80	B	17.500	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.35	0.18	1		40	320	332	126.69	192	400	103.97			ok
	83	A	989.643	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	14.1	7.05	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok
42	81	A	976.923	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	13.9	6.96	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok
	84	B	25.041	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.5	0.25	1		40	320	332	126.69	192	400	103.97			ok
	85	A	948.682	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	13.5	6.76	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok
	86	B	37.473	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.75	0.38	1		40	320	332	126.69	192	400	103.97			ok
43	82	B	26.128	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.53	0.26	1		40	320	332	126.69	192	400	103.97			ok
	83	A	989.643	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	14.1	7.05	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok
	84	B	25.041	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.5	0.25	1		40	320	332	126.69	192	400	103.97			ok
	87	A	969.503	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	13.8	6.91	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok
44	85	A	948.682	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	13.5	6.76	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok
	88	B	32.655	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.66	0.33	1		40	320	332	126.69	192	400	103.97			ok
	89	A	911.717	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	13	6.50	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok
	90	B	49.121	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.99	0.49	1		40	320	332	126.69	192	400	103.97			ok
45	86	B	37.473	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.75	0.38	1		40	320	332	126.69	192	400	103.97			ok
	87	A	969.503	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	13.8	6.91	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok
	88	B	32.655	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.66	0.33	1		40	320	332	126.69	192	400	103.97			ok
	91	A	940.833	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	13.4	6.71	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok
46	89	A	911.717	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	13	6.50	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok
	92	B	41.502	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.83	0.42	1		40	320	332	126.69	192	400	103.97			ok
	93	A	866.357	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	12.4	6.18	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok
	94	B	60.015	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.21	0.60	1		40	320	332	126.69	192	400	103.97			ok
47	90	B	49.121	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.99	0.49	1		40	320	332	126.69	192	400	103.97			ok
	91	A	940.833	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	13.4	6.71	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok

Tabel 4.7.d Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	92	B	41.502	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.83	0.42	1		40	320	332	126.69	192	400	103.97			ok
	95	A	903.386	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	12.9	6.44	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok
48	93	A	866.357	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	12.4	6.18	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok
	96	B	46.989	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.94	0.47	1		40	320	332	126.69	192	400	103.97			ok
	97	A	801.661	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	11.4	5.71	6	110	40	7080	1080	1064.34	5712	1200	1167			ok
	98	B	82.436	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.66	0.83	1		40	320	332	126.69	192	400	103.97			ok
49	94	B	60.015	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.21	0.60	1		40	320	332	126.69	192	400	103.97			ok
	95	A	903.386	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	12.9	6.44	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok
	96	B	46.989	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.94	0.47	1		40	320	332	126.69	192	400	103.97			ok
	99	A	857.979	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	12.2	6.12	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok
50	97	A	801.661	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	11.4	5.71	6	110	40	7080	1080	1064.34	5712	1200	1167			ok
	100	B	134.601	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.71	1.35	2	70	40	880	332	187.17	624	400	175.9			ok
	101	A	756.221	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	10.8	5.39	6	110	40	7080	1080	1064.34	5712	1200	1167			ok
	102	B	81.210	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.63	0.82	1		40	320	332	126.69	192	400	103.97			ok
51	98	B	82.436	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.66	0.83	1		40	320	332	126.69	192	400	103.97			ok
	99	A	857.979	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	12.2	6.12	7	110	40	8400	1080	1206.9	6804	1200	1348.9			ok
	100	B	134.601	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.71	1.35	2	70	40	880	332	187.17	624	400	175.9			ok
	103	A	817.197	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	11.7	5.83	6	110	40	7080	1080	1064.34	5712	1200	1167			ok
52	101	A	756.221	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	10.8	5.39	6	110	40	7080	1080	1064.34	5712	1200	1167			ok
	104	B	63.700	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.28	0.64	1		40	320	332	126.69	192	400	103.97			ok
	105	A	687.134	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	9.8	4.90	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
	106	B	84.129	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.69	0.85	1		40	320	332	126.69	192	400	103.97			ok
53	102	B	81.210	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.63	0.82	1		40	320	332	126.69	192	400	103.97			ok
	103	A	817.197	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	11.7	5.83	6	110	40	7080	1080	1064.34	5712	1200	1167			ok
	104	B	63.700	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.28	0.64	1		40	320	332	126.69	192	400	103.97			ok
	107	A	753.745	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	10.7	5.37	6	110	40	7080	1080	1064.34	5712	1200	1167			ok
54	105	A	687.134	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	9.8	4.90	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
	108	B	73.825	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.48	0.74	1		40	320	332	126.69	192	400	103.97			ok
	109	A	610.156	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	8.7	4.35	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
	110	B	92.983	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.87	0.93	1		40	320	332	126.69	192	400	103.97			ok
55	106	B	84.129	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.69	0.85	1		40	320	332	126.69	192	400	103.97			ok

Tabel 4.7.d Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	107	A	753.745	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	10.7	5.37	6	110	40	7080	1080	1064.34	5712	1200	1167			ok
	108	B	73.825	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.48	0.74	1		40	320	332	126.69	192	400	103.97			ok
	111	A	685.295	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	9.77	4.89	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
56	109	A	610.156	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	8.7	4.35	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
	112	B	78.436	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.58	0.79	1		40	320	332	126.69	192	400	103.97			ok
	113	A	519.286	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	7.4	3.70	4	110	40	4440	1080	779.22	3528	1200	803.41			ok
	114	B	105.849	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.13	1.06	2	70	40	880	332	187.17	624	400	175.9			ok
57	110	B	92.983	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.87	0.93	1		40	320	332	126.69	192	400	103.97			ok
	111	A	685.295	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	9.77	4.89	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
	112	B	78.436	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.58	0.79	1		40	320	332	126.69	192	400	103.97			ok
	115	A	608.667	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	8.68	4.34	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
58	113	A	519.286	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	7.4	3.70	4	110	40	4440	1080	779.22	3528	1200	803.41			ok
	116	B	31.734	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.64	0.32	1		40	320	332	126.69	192	400	103.97			ok
	117	A	462.964	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	6.6	3.30	4	110	40	4440	1080	779.22	3528	1200	803.41			ok
	118	B	90.159	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.81	0.91	1		40	320	332	126.69	192	400	103.97			ok
59	114	B	105.849	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.13	1.06	2	70	40	880	332	187.17	624	400	175.9			ok
	115	A	608.667	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	8.68	4.34	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
	116	B	31.734	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.64	0.32	1		40	320	332	126.69	192	400	103.97			ok
	119	A	533.736	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	7.61	3.80	4	110	40	4440	1080	779.22	3528	1200	803.41			ok
60	117	A	462.964	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	6.6	3.30	4	110	40	4440	1080	779.22	3528	1200	803.41			ok
	120	B	89.095	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.79	0.90	1		40	320	332	126.69	192	400	103.97			ok
	121	A	361.440	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	5.15	2.58	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
	122	B	109.892	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.21	1.10	2	70	40	880	332	187.17	624	400	175.9			ok
61	118	B	90.159	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.81	0.91	1		40	320	332	126.69	192	400	103.97			ok
	119	A	533.736	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	7.61	3.80	4	110	40	4440	1080	779.22	3528	1200	803.41			ok
	120	B	89.095	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.79	0.90	1		40	320	332	126.69	192	400	103.97			ok
	123	A	462.965	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	6.6	3.30	4	110	40	4440	1080	779.22	3528	1200	803.41			ok
62	121	A	361.440	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	5.15	2.58	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
	124	B	100.472	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.02	1.01	1		40	320	332	126.69	192	400	103.97			ok
	125	A	247.845	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	3.53	1.77	2	110	40	1800	1080	494.1	1344	1200	439.78			ok
	126	B	121.392	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.44	1.22	2	70	40	880	332	187.17	624	400	175.9			ok

Tabel 4.7.d Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	oVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
63	122	B	109.892	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.21	1.10	2	70	40	880	332	187.17	624	400	175.9			ok
	123	A	462.965	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	6.6	3.30	4	110	40	4440	1080	779.22	3528	1200	803.41			ok
	124	B	100.472	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.02	1.01	1		40	320	332	126.69	192	400	103.97			ok
	127	A	359.927	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	5.13	2.57	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
64	125	A	247.845	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	3.53	1.77	2	110	40	1800	1080	494.1	1344	1200	439.78			ok
	128	B	108.885	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.19	1.09	2	70	40	880	332	187.17	624	400	175.9			ok
	129	A	125.484	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.79	0.89	1		40	480	1080	351.54	252	1200	257.96			ok
	130	B	131.031	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.63	1.32	2	70	40	880	332	187.17	624	400	175.9			ok
65	126	B	121.392	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.44	1.22	2	70	40	880	332	187.17	624	400	175.9			ok
	127	A	359.927	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	5.13	2.57	3	110	40	3120	1080	636.66	2436	1200	621.59			ok
	128	B	108.885	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.19	1.09	2	70	40	880	332	187.17	624	400	175.9			ok
	131	A	246.352	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	3.51	1.76	2	110	40	1800	1080	494.1	1344	1200	439.78			ok
66	129	A	125.484	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.79	0.89	1		40	480	1080	351.54	252	1200	257.96			ok
	132	B	116.030	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.33	1.17	2	70	40	880	332	187.17	624	400	175.9			ok
	133	A	9.964	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	0.14	0.07	1		40	480	1080	351.54	252	1200	257.96			ok
	134	B	142.200	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.86	1.43	2	70	40	880	332	187.17	624	400	175.9			ok
67	130	B	131.031	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.63	1.32	2	70	40	880	332	187.17	624	400	175.9			ok
	131	A	246.352	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	3.51	1.76	2	110	40	1800	1080	494.1	1344	1200	439.78			ok
	132	B	116.030	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.33	1.17	2	70	40	880	332	187.17	624	400	175.9			ok
	135	A	123.337	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.76	0.88	1		40	480	1080	351.54	252	1200	257.96			ok
68	133	A	9.964	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	0.14	0.07	1		40	480	1080	351.54	252	1200	257.96			ok
	136	B	132.000	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.65	1.33	2	70	40	880	332	187.17	624	400	175.9			ok
	137	C	11.622	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.84	0.42	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
69	134	B	142.200	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.86	1.43	2	70	40	880	332	187.17	624	400	175.9			ok
	135	A	123.337	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.76	0.88	1		40	480	1080	351.54	252	1200	257.96			ok
	136	B	132.000	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.65	1.33	2	70	40	880	332	187.17	624	400	175.9			ok
	138	C	9.079	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.65	0.33	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	139	C	6.745	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.49	0.24	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
70	137	C	11.622	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.84	0.42	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	138	C	9.079	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.65	0.33	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok

Tabel 4.7.d Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Prncn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	140	C	5.996	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.43	0.22	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	141	C	4.997	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.36	0.18	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
71	139	C	6.745	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.49	0.24	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	140	C	5.996	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.43	0.22	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	142	C	6.121	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.44	0.22	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	143	C	0.283	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.02	0.01	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
72	141	C	4.997	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.36	0.18	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	142	C	6.121	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.44	0.22	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	144	C	2.701	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.19	0.10	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
73	143	C	0.283	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.02	0.01	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok
	144	C	2.701	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.19	0.10	1		40	320	268	217.86	224	320	189.79	2016	559.44	ok

Keterangan:

[1] Titik buhul

[2] Nomer batang

[3] Profil terpasang

[4] Nu = gaya batang

[5] Ag = luas penampang profil (mm^2)

[6] tp = tebal pelat buhul

[7] tf = tebal profil

[8] Fu p = tegangan putus minimum baja profil

[9] Mutu baut

[10] Fu b = tegangan tarik putus baut

[11] d = diameter baut

[12] ΦRn geser = 0,75.0,4.Fub.Ab (kuat geser rencana baut)

[13] ΦRn tarik = 0,75.0,75.Fub.Ab (kuat tarik rencana baut)

[14] ΦRn tumpu = 2,4.0,75.db.tp.Fu (kuat tumpu rencana baut)

[15] n = jumlah baut

[16] n/2

[17] np = baut terpasang

[18] s = jarak antar baut

[19] s' = jarak lubang baut dengan tepi pelat profil

[20] Avg = luas bruto pelelehan geser

[21] Ant = luas bersih retakan tarik

[22] ΦTn1 = kekuatan nominal tarik pelat profil pelelehan geser-retakan tarik

[23] Ans = luas bersih retakan geser

[24] Atg = luas kotor pelelehan tarik

[25] ΦTn2 = kekuatan nominal tarik pelat profil retakan geser-pelelehan tarik

[26] An = luas netto profil

[27] ΦNn = kuat tarik profil

[28] Nu ≤ Φ Nn ; profil aman dipakai

Tabel 4.7.e Perencanaan Sambungan Baut Kuda-Kuda K4

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
1	1	C	3.250	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.23	0.12	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
	2	C	5.885	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.42	0.21	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
	3	C	7.134	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.51	0.26	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
2	1	C	3.250	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.23	0.12	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
	4	C	0.296	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.02	0.01	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
3	2	C	5.885	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.42	0.21	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
	5	C	6.241	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.45	0.22	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
	6	C	13.173	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.95	0.47	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
	7	C	9.708	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.70	0.35	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
4	3	C	7.134	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.51	0.26	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
	4	C	0.296	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.02	0.01	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
	5	C	6.241	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.45	0.22	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
	8	C	6.658	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.48	0.24	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
5	6	C	13.173	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.95	0.47	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
	9	B	127.391	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.56	1.28	2	70	40	880	332	187.17	624	400	175.896			ok
	10	A	12.489	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	0.18	0.09	1		40	480	1080	351.54	252	1200	257.958			ok
6	7	C	9.708	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.70	0.35	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
	8	C	6.658	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.48	0.24	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
	9	B	127.391	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.56	1.28	2	70	40	880	332	187.17	624	400	175.896			ok
	11	B	144.414	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.90	1.45	2	70	40	880	332	187.17	624	400	175.896			ok
	12	A	112.524	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.60	0.80	1		40	480	1080	351.54	252	1200	257.958			ok
7	10	A	12.489	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	0.18	0.09	1		40	480	1080	351.54	252	1200	257.958			ok
	11	B	144.414	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.90	1.45	2	70	40	880	332	187.17	624	400	175.896			ok
	13	B	112.884	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.27	1.13	2	70	40	880	332	187.17	624	400	175.896			ok
	14	A	120.791	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.72	0.86	1		40	480	1080	351.54	252	1200	257.958			ok
8	12	A	112.524	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.60	0.80	1		40	480	1080	351.54	252	1200	257.958			ok
	13	B	112.884	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.27	1.13	2	70	40	880	332	187.17	624	400	175.896			ok
	15	B	126.677	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.55	1.27	2	70	40	880	332	187.17	624	400	175.896			ok
	16	A	224.671	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	3.20	1.60	2	110	40	1800	1080	494.1	1344	1200	439.776			ok
9	14	A	120.791	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.72	0.86	1		40	480	1080	351.54	252	1200	257.958			ok

Tabel 4.7.e Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump	*n*	*n/2*	*np*	*s*	*s'*	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								*Avg*	*Ant*	*ϕTn1*	*Ans*	*Atg*	*ϕTn2*	*An*	*ϕNn*	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	15	B	126.677	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.55	1.27	2	70	40	880	332	187.17	624	400	175.896			ok
	17	B	104.553	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.10	1.05	1		40	320	332	126.69	192	400	103.968			ok
	18	A	228.970	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	3.26	1.63	2	110	40	1800	1080	494.1	1344	1200	439.776			ok
10	16	A	224.671	6353	12	8	370	A-325	825	19	70.138	131.508	101.232	3.20	1.60	2	70	40	880	720	294.84	576	800	239.904			ok
	17	B	104.553	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.10	1.05	1		40	320	332	126.69	192	400	103.968			ok
	19	B	169.882	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.42	1.71	2	70	40	880	332	187.17	624	400	175.896			ok
	20	A	358.701	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	5.11	2.56	3	110	40	3120	1080	636.66	2436	1200	621.594			ok
11	18	A	228.970	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	3.26	1.63	2	110	40	1800	1080	494.1	1344	1200	439.776			ok
	19	B	169.882	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	3.42	1.71	2	70	40	880	332	187.17	624	400	175.896			ok
	21	B	117.918	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.37	1.19	2	70	40	880	332	187.17	624	400	175.896			ok
	22	A	391.778	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	5.59	2.79	3	110	40	3120	1080	636.66	2436	1200	621.594			ok
12	20	A	358.701	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	5.11	2.56	3	110	40	3120	1080	636.66	2436	1200	621.594			ok
	21	B	117.918	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.37	1.19	2	70	40	880	332	187.17	624	400	175.896			ok
	23	B	11.715	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.24	0.12	1		40	320	332	126.69	192	400	103.968			ok
	24	A	414.090	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	5.90	2.95	3	110	40	3120	1080	636.66	2436	1200	621.594			ok
13	22	A	391.778	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	5.59	2.79	3	110	40	3120	1080	636.66	2436	1200	621.594			ok
	23	B	11.715	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.24	0.12	1		40	320	332	126.69	192	400	103.968			ok
	25	B	10.419	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.21	0.10	1		40	320	332	126.69	192	400	103.968			ok
	26	A	392.106	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	5.59	2.80	3	110	40	3120	1080	636.66	2436	1200	621.594			ok
14	24	A	414.090	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	5.9	2.95	3	110	40	3120	1080	636.66	2436	1200	621.594			ok
	25	B	10.419	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.21	0.10	1		40	320	332	126.69	192	400	103.968			ok
	27	B	139.936	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.81	1.41	2	70	40	880	332	187.17	624	400	175.896			ok
	28	A	510.030	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	7.27	3.64	4	110	40	4440	1080	779.22	3528	1200	803.412			ok
15	26	A	392.106	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	5.59	2.80	3	100	40	2880	1080	610.74	2196	1200	581.634			ok
	27	B	139.936	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.81	1.41	2	70	40	880	332	187.17	624	400	175.896			ok
	29	B	121.977	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.45	1.23	2	100	40	1120	332	213.09	864	400	215.856			ok
	30	A	527.263	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	7.52	3.76	4	110	40	4440	1080	779.22	3528	1200	803.412			ok
16	28	A	510.030	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	7.27	3.64	4	110	40	4440	1080	779.22	3528	1200	803.412			ok
	29	B	121.977	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.45	1.23	2	70	40	880	332	187.17	624	400	175.896			ok
	31	B	92.743	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.86	0.93	1		40	320	332	126.69	192	400	103.968			ok
	32	A	600.355	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	8.56	4.28	5	110	40	5760	1080	921.78	4620	1200	985.23			ok

Tabel 4.7.e Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Prncn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Ag	ϕTn2	An	ϕNn	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
17	30	A	527.263	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	7.52	3.76	4	110	40	4440	1080	779.22	3528	1200	803.412			ok
	31	B	92.743	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.86	0.93	1		40	320	332	126.69	192	400	103.968			ok
	33	B	63.746	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.28	0.64	1		40	320	332	126.69	192	400	103.968			ok
	34	A	603.463	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	8.6	4.30	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
18	32	A	600.355	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	8.56	4.28	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
	33	B	63.746	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.28	0.64	1		40	320	332	126.69	192	400	103.968			ok
	35	B	87.984	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.77	0.88	1		40	320	332	126.69	192	400	103.968			ok
	36	A	671.631	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	9.58	4.79	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
19	34	A	603.463	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	8.6	4.30	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
	35	B	87.984	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.77	0.88	1		40	320	332	126.69	192	400	103.968			ok
	37	B	90.328	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.82	0.91	1		40	320	332	126.69	192	400	103.968			ok
	38	A	657.991	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	9.38	4.69	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
20	36	A	671.631	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	9.58	4.79	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
	37	B	90.328	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.82	0.91	1		40	320	332	126.69	192	400	103.968			ok
	39	B	87.116	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.75	0.88	1		40	320	332	126.69	192	400	103.968			ok
	40	A	713.181	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	10.2	5.08	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
21	38	A	657.991	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	9.38	4.69	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
	39	B	87.116	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.75	0.88	1		40	320	332	126.69	192	400	103.968			ok
	41	B	54.966	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.11	0.55	1		40	320	332	126.69	192	400	103.968			ok
	42	A	719.302	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	10.3	5.13	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
22	40	A	713.181	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	10.2	6.00	6	110	40	7080	300	847.89	5712	420	1026.648			ok
	41	B	54.966	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.11	0.55	1		40	320	212	93.39	192	280	82.368			ok
	43	B	74.131	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.49	0.75	1		40	320	212	93.39	192	280	82.368			ok
	44	A	765.669	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	10.9	5.46	6	110	40	7080	300	847.89	5712	420	1026.648			ok
23	42	A	719.302	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	10.3	5.13	6	110	40	7080	1080	1064.34	5712	1200	1167.048			ok
	43	B	74.131	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.49	0.75	1		40	320	332	126.69	192	400	103.968			ok
	45	B	51.282	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.03	0.52	1		40	320	212	93.39	192	280	82.368			ok
	46	A	771.874	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	11	5.50	6	110	40	7080	480	897.84	5712	600	1059.048			ok
24	44	A	765.669	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	10.9	5.46	6	110	40	7080	1080	1064.34	5712	1200	1167.048			ok
	45	B	51.282	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.03	0.52	1		40	320	332	126.69	192	400	103.968			ok
	47	B	64.817	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.3	0.65	1		40	320	332	126.69	192	400	103.968			ok

Tabel 4.7.e Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump	*n*	*n/2*	*np*	*s*	*s'*	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								*Avg*	*Ant*	*ϕTn1*	*Ans*	*Atg*	*ϕTn2*	*An*	*ϕNn*	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	48	A	811.514	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	11.6	5.79	6	110	40	7080	1080	1064.34	5712	1200	1167.048			ok
25	46	A	771.874	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	11	5.50	6	110	40	7080	1080	1064.34	5712	1200	1167.048			ok
	47	B	64.817	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.3	0.65	1		40	320	332	126.69	192	400	103.968			ok
	49	B	43.525	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.88	0.44	1		40	320	332	126.69	192	400	103.968			ok
	50	A	817.293	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	11.7	5.83	6	110	40	7080	1080	1064.34	5712	1200	1167.048			ok
26	48	A	811.514	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	11.6	5.79	6	110	40	7080	1080	1064.34	5712	1200	1167.048			ok
	49	B	43.525	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.88	0.44	1		40	320	332	126.69	192	400	103.968			ok
	51	B	54.597	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.1	0.55	1		40	320	332	126.69	192	400	103.968			ok
	52	A	849.652	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	12.1	6.06	6	110	40	7080	1080	1064.34	5712	1200	1167.048			ok
27	50	A	817.293	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	11.7	5.83	6	110	40	7080	1080	1064.34	5712	1200	1167.048			ok
	51	B	54.597	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.1	0.55	1		40	320	332	126.69	192	400	103.968			ok
	53	B	36.047	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.72	0.36	1		40	320	332	126.69	192	400	103.968			ok
	54	A	855.019	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	12.2	6.10	7	110	40	8400	1080	1206.9	6804	1200	1348.866			ok
28	52	A	849.652	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	12.1	6.06	6	110	40	7080	1080	1064.34	5712	1200	1167.048			ok
	53	B	36.047	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.72	0.36	1		40	320	332	126.69	192	400	103.968			ok
	55	B	43.807	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.88	0.44	1		40	320	332	126.69	192	400	103.968			ok
	56	A	879.672	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	12.5	6.27	7	110	40	8400	1080	1206.9	6804	1200	1348.866			ok
29	54	A	855.019	6353	12	9	370	A-325	825	19	70.138	131.508	113.886	12.2	6.10	7	110	40	6300	810	905.175	5103	900	1011.65			ok
	55	B	43.807	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.88	0.44	1		40	320	332	126.69	192	400	103.968			ok
	57	B	28.469	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.57	0.29	1		40	320	332	126.69	192	400	103.968			ok
	58	A	884.616	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	12.6	6.31	7	110	40	8400	1080	1206.9	6804	1200	1348.866			ok
30	56	A	879.672	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	12.5	6.27	7	110	40	8400	1080	1206.9	6804	1200	1348.866			ok
	57	B	28.469	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.57	0.29	1		40	320	332	126.69	192	400	103.968			ok
	59	B	33.046	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.66	0.33	1		40	320	332	126.69	192	400	103.968			ok
	60	A	901.588	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	12.9	6.43	7	110	40	8400	1080	1206.9	6804	1200	1348.866			ok
31	58	A	884.616	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	12.6	6.31	7	110	40	8400	1080	1206.9	6804	1200	1348.866			ok
	59	B	33.046	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.66	0.33	1		40	320	332	126.69	192	400	103.968			ok
	61	B	21.355	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.43	0.21	1		40	320	332	126.69	192	400	103.968			ok
	62	A	906.138	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	12.9	6.46	7	110	40	8400	1080	1206.9	6804	1200	1348.866			ok
32	60	A	901.588	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	12.9	6.43	7	110	40	8400	1080	1206.9	6804	1200	1348.866			ok
	61	B	21.355	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.43	0.21	1		40	320	332	126.69	192	400	103.968			ok

Tabel 4.7.e Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	63	B	22.604	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.45	0.23	1		40	320	332	126.69	192	400	103.968			ok
	64	A	915.645	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	13.1	6.53	7	110	40	8400	1080	1206.9	6804	1200	1348.866			ok
33	62	A	906.138	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	12.9	6.46	7	110	40	8400	1080	1206.9	6804	1200	1348.866			ok
	63	B	22.604	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.45	0.23	1		40	320	332	126.69	192	400	103.968			ok
	65	B	14.420	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.29	0.14	1		40	320	332	126.69	192	400	103.968			ok
	66	A	919.697	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	13.1	6.56	7	110	40	8400	1080	1206.9	6804	1200	1348.866			ok
34	64	A	915.645	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	13.1	6.53	7	110	40	8400	1080	1206.9	6804	1200	1348.866			ok
	65	B	14.420	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.29	0.14	1		40	320	332	126.69	192	400	103.968			ok
	67	B	14.327	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.29	0.14	1		40	320	332	126.69	192	400	103.968			ok
	68	A	923.460	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	13.2	6.58	7	110	40	8400	1080	1206.9	6804	1200	1348.866			ok
35	66	A	919.697	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	13.1	6.56	7	110	40	8400	1080	1206.9	6804	1200	1348.866			ok
	67	B	14.327	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.29	0.14	1		40	320	332	126.69	192	400	103.968			ok
	69	B	4.684	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.09	0.05	1		40	320	332	126.69	192	400	103.968			ok
	70	B	5.058	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.1	0.05	1		40	320	332	126.69	192	400	103.968			ok
	72	A	920.996	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	13.1	6.57	7	110	40	8400	1080	1206.9	6804	1200	1348.866			ok
36	68	A	923.460	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	13.2	6.58	7	110	40	8400	1080	1206.9	6804	1200	1348.866			ok
	69	B	4.684	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.09	0.05	1		40	320	332	126.69	192	400	103.968			ok
	71	B	7.922	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.16	0.08	1		40	320	332	126.69	192	400	103.968			ok
	73	A	915.080	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	13	6.52	7	110	40	8400	1080	1206.9	6804	1200	1348.866			ok
37	70	B	5.058	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.1	0.05	1		40	320	332	126.69	192	400	103.968			ok
	71	B	7.922	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.16	0.08	1		40	320	332	126.69	192	400	103.968			ok
	74	B	4.472	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.09	0.04	1		40	320	332	126.69	192	400	103.968			ok
	75	B	8.187	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.16	0.08	1		40	320	332	126.69	192	400	103.968			ok
38	72	A	920.996	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	13.1	6.57	7	110	40	8400	1080	1206.9	6804	1200	1348.866			ok
	74	B	4.472	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.09	0.04	1		40	320	332	126.69	192	400	103.968			ok
	76	B	4.886	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.1	0.05	1		40	320	332	126.69	192	400	103.968			ok
	77	A	914.705	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	13	6.52	7	110	40	8400	1080	1206.9	6804	1200	1348.866			ok
	78	B	14.344	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.29	0.14	1		40	320	332	126.69	192	400	103.968			ok
39	73	A	915.080	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	13	6.52	7	110	40	8400	1080	1206.9	6804	1200	1348.866			ok
	75	B	8.187	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.16	0.08	1		40	320	332	126.69	192	400	103.968			ok
	76	B	4.886	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.1	0.05	1		40	320	332	126.69	192	400	103.968			ok

Tabel 4.7.e Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,,jmlh,jrk baut				ϕTn trk	ϕRn tump	*n*	*n/2*	*np*	*s*	*s'*	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								*Avg*	*Ant*	*ϕTn1*	*Ans*	*Atg*	*ϕTn2*	*An*	*ϕNn*	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	79	A	921.585	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	13.1	6.57	7	110	40	8400	1080	1206.9	6804	1200	1348.866			ok
40	77	A	914.705	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	13	6.52	7	110	40	8400	1080	1206.9	6804	1200	1348.866			ok
	80	B	14.420	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.29	0.14	1		40	320	332	126.69	192	400	103.968			ok
	81	A	897.744	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	12.8	6.40	7	110	40	8400	1080	1206.9	6804	1200	1348.866			ok
	82	B	22.584	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.45	0.23	1		40	320	332	126.69	192	400	103.968			ok
41	78	B	14.344	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.29	0.14	1		40	320	332	126.69	192	400	103.968			ok
	79	A	921.585	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	13.1	6.57	7	110	40	8400	1080	1206.9	6804	1200	1348.866			ok
	80	B	14.420	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.29	0.14	1		40	320	332	126.69	192	400	103.968			ok
	83	A	910.475	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	13	6.49	7	110	40	8400	1080	1206.9	6804	1200	1348.866			ok
42	81	A	897.744	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	12.8	6.40	7	110	40	8400	1080	1206.9	6804	1200	1348.866			ok
	84	B	21.341	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.43	0.21	1		40	320	332	126.69	192	400	103.968			ok
	85	A	872.838	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	12.4	6.22	7	110	40	8400	1080	1206.9	6804	1200	1348.866			ok
	86	B	33.030	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.66	0.33	1		40	320	332	126.69	192	400	103.968			ok
43	82	B	22.584	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.45	0.23	1		40	320	332	126.69	192	400	103.968			ok
	83	A	910.475	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	13	6.49	7	110	40	8400	1080	1206.9	6804	1200	1348.866			ok
	84	B	21.341	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.43	0.21	1		40	320	332	126.69	192	400	103.968			ok
	87	A	893.976	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	12.7	6.37	7	110	40	8400	1080	1206.9	6804	1200	1348.866			ok
44	85	A	872.838	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	12.4	6.22	7	110	40	8400	1080	1206.9	6804	1200	1348.866			ok
	88	B	28.456	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.57	0.29	1		40	320	332	126.69	192	400	103.968			ok
	89	A	843.061	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	12	6.01	6	110	40	7080	1080	1064.34	5712	1200	1167.048			ok
	90	B	43.791	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.88	0.44	1		40	320	332	126.69	192	400	103.968			ok
45	86	B	33.030	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.66	0.33	1		40	320	332	126.69	192	400	103.968			ok
	87	A	893.976	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	12.7	6.37	7	110	40	8400	1080	1206.9	6804	1200	1348.866			ok
	88	B	28.456	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.57	0.29	1		40	320	332	126.69	192	400	103.968			ok
	91	A	872.086	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	12.4	6.22	7	110	40	8400	1080	1206.9	6804	1200	1348.866			ok
46	89	A	843.061	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	12	6.01	6	110	40	7080	1080	1064.34	5712	1200	1167.048			ok
	92	B	36.034	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.72	0.36	1		40	320	332	126.69	192	400	103.968			ok
	93	A	805.361	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	11.5	5.74	6	110	40	7080	1080	1064.34	5712	1200	1167.048			ok
	94	B	54.580	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.1	0.55	1		40	320	332	126.69	192	400	103.968			ok
47	90	B	43.791	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.88	0.44	1		40	320	332	126.69	192	400	103.968			ok
	91	A	872.086	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	12.4	6.22	7	110	40	8400	1080	1206.9	6804	1200	1348.866			ok

Tabel 4.7.e Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,,jmlh,,jrk baut				ϕTn tik	ϕRn tump	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Am	ϕTn1	Ans	Ag	ϕTn2	An	ϕNn	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	92	B	36.034	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.72	0.36	1		40	320	332	126.69	192	400	103.968			ok
	95	A	842.092	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	12	6.00	6	110	40	7080	1080	1064.34	5712	1200	1167.048			ok
48	93	A	805.361	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	11.5	5.74	6	110	40	7080	1080	1064.34	5712	1200	1167.048			ok
	96	B	43.512	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.87	0.44	1		40	320	332	126.69	192	400	103.968			ok
	97	A	759.964	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	10.8	5.42	6	110	40	7080	1080	1064.34	5712	1200	1167.048			ok
	98	B	64.807	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.3	0.65	1		40	320	332	126.69	192	400	103.968			ok
49	94	B	54.580	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.1	0.55	1		40	320	332	126.69	192	400	103.968			ok
	95	A	842.092	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	12	6.00	6	110	40	7080	1080	1064.34	5712	1200	1167.048			ok
	96	B	43.512	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	0.87	0.44	1		40	320	332	126.69	192	400	103.968			ok
	99	A	803.980	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	11.5	5.73	6	110	40	7080	1080	1064.34	5712	1200	1167.048			ok
50	97	A	759.964	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	10.8	5.42	6	110	40	7080	1080	1064.34	5712	1200	1167.048			ok
	100	B	51.264	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.03	0.52	2	70	40	880	332	187.17	624	400	175.896			ok
	101	A	707.430	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	10.1	5.04	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
	102	B	74.065	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.49	0.74	1		40	320	332	126.69	192	400	103.968			ok
51	98	B	64.807	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.3	0.65	1		40	320	332	126.69	192	400	103.968			ok
	99	A	803.980	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	11.5	5.73	6	110	40	7080	1080	1064.34	5712	1200	1167.048			ok
	100	B	51.264	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.03	0.52	1		40	320	332	126.69	192	400	103.968			ok
	103	A	758.156	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	10.8	5.40	6	110	40	7080	1080	1064.34	5712	1200	1167.048			ok
52	101	A	707.430	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	10.1	5.04	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
	104	B	55.034	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.11	0.55	1		40	320	332	126.69	192	400	103.968			ok
	105	A	646.058	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	9.21	4.61	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
	106	B	87.363	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.76	0.88	1		40	320	332	126.69	192	400	103.968			ok
53	102	B	74.065	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.49	0.74	1		40	320	332	126.69	192	400	103.968			ok
	103	A	758.156	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	10.8	5.40	6	110	40	7080	1080	1064.34	5712	1200	1167.048			ok
	104	B	55.034	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.11	0.55	1		40	320	332	126.69	192	400	103.968			ok
	107	A	705.711	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	10.1	5.03	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
54	105	A	646.058	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	9.21	4.61	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
	108	B	89.406	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.8	0.90	1		40	320	332	126.69	192	400	103.968			ok
	109	A	593.001	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	8.45	4.23	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
	110	B	88.744	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.78	0.89	1		40	320	332	126.69	192	400	103.968			ok
55	106	B	87.363	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.76	0.88	1		40	320	332	126.69	192	400	103.968			ok

Tabel 4.7.e Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	107	A	705.711	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	10.1	5.03	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
	108	B	89.406	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.8	0.90	1		40	320	332	126.69	192	400	103.968			ok
	111	A	663.694	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	9.46	4.73	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
56	109	A	593.001	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	8.45	4.23	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
	112	B	69.930	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.41	0.70	1		40	320	332	126.69	192	400	103.968			ok
	113	A	515.561	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	7.35	3.68	4	110	40	4440	1080	779.22	3528	1200	803.412			ok
	114	B	92.207	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.85	0.93	1		40	320	332	126.69	192	400	103.968			ok
57	110	B	88.744	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.78	0.89	1		40	320	332	126.69	192	400	103.968			ok
	111	A	663.694	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	9.46	4.73	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
	112	B	69.930	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.41	0.70	1		40	320	332	126.69	192	400	103.968			ok
	115	A	592.812	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	8.45	4.23	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
58	113	A	515.561	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	7.35	3.68	4	110	40	4440	1080	779.22	3528	1200	803.412			ok
	116	B	79.648	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.6	0.80	1		40	320	332	126.69	192	400	103.968			ok
	117	A	427.916	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	6.1	3.05	3	110	40	3120	1080	636.66	2436	1200	621.594			ok
	118	B	101.309	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.04	1.02	1		40	320	332	126.69	192	400	103.968			ok
59	114	B	92.207	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.85	0.93	1		40	320	332	126.69	192	400	103.968			ok
	115	A	592.812	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	8.45	4.23	5	110	40	5760	1080	921.78	4620	1200	985.23			ok
	116	B	79.648	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.6	0.80	1		40	320	332	126.69	192	400	103.968			ok
	119	A	513.768	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	7.33	3.66	4	110	40	4440	1080	779.22	3528	1200	803.412			ok
60	117	A	427.916	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	6.1	3.05	3	110	40	3120	1080	636.66	2436	1200	621.594			ok
	120	B	86.892	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.75	0.87	1		40	320	332	126.69	192	400	103.968			ok
	121	A	332.031	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	4.73	2.37	3	110	40	3120	1080	636.66	2436	1200	621.594			ok
	122	B	111.025	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.23	1.12	2	70	40	880	332	187.17	624	400	175.896			ok
61	118	B	101.309	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.04	1.02	1		40	320	332	126.69	192	400	103.968			ok
	119	A	513.768	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	7.33	3.66	4	110	40	4440	1080	779.22	3528	1200	803.412			ok
	120	B	86.892	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.75	0.87	1		40	320	332	126.69	192	400	103.968			ok
	123	A	426.000	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	6.07	3.04	3	110	40	3120	1080	636.66	2436	1200	621.594			ok
62	121	A	332.031	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	4.73	2.37	3	110	40	3120	1080	636.66	2436	1200	621.594			ok
	124	B	94.804	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.91	0.95	1		40	320	332	126.69	192	400	103.968			ok
	125	A	227.744	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	3.25	1.62	2	110	40	1800	1080	494.1	1344	1200	439.776			ok
	126	B	120.717	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.43	1.21	2	70	40	880	332	187.17	624	400	175.896			ok

Tabel 4.7.e Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,,jmlh,jrk baut				ϕTn trk	ϕRn tump	*n*	*n/2*	*np*	*s*	*s'*	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								*Avg*	*Ant*	*ϕTn1*	*Ans*	*Atg*	*ϕTn2*	*An*	*ϕNn*	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
63	122	B	111.025	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.23	1.12	2	70	40	880	332	187.17	624	400	175.896			ok
	123	A	426.000	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	6.07	3.04	3	110	40	3120	1080	636.66	2436	1200	621.594			ok
	124	B	94.804	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	1.91	0.95	1		40	320	332	126.69	192	400	103.968			ok
	127	A	329.784	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	4.7	2.35	3	110	40	3120	1080	636.66	2436	1200	621.594			ok
64	125	A	227.744	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	3.25	1.62	2	110	40	1800	1080	494.1	1344	1200	439.776			ok
	128	B	102.702	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.06	1.03	1		40	320	332	126.69	192	400	103.968			ok
	129	A	114.682	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.64	0.82	1		40	480	1080	351.54	252	1200	257.958			ok
	130	B	131.012	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.63	1.32	2	70	40	880	332	187.17	624	400	175.896			ok
65	126	B	120.717	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.43	1.21	2	70	40	880	332	187.17	624	400	175.896			ok
	127	A	329.784	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	4.7	2.35	3	110	40	3120	1080	636.66	2436	1200	621.594			ok
	128	B	102.702	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.06	1.03	1		40	320	332	126.69	192	400	103.968			ok
	131	A	225.207	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	3.21	1.61	2	110	40	1800	1080	494.1	1344	1200	439.776			ok
66	129	A	114.682	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.64	0.82	1		40	480	1080	351.54	252	1200	257.958			ok
	132	B	109.763	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.21	1.10	2	70	40	880	332	187.17	624	400	175.896			ok
	133	A	10.643	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	0.15	0.08	1		40	480	1080	351.54	252	1200	257.958			ok
	134	B	142.170	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.86	1.43	2	70	40	880	332	187.17	624	400	175.896			ok
67	130	B	131.012	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.63	1.32	2	70	40	880	332	187.17	624	400	175.896			ok
	131	A	225.207	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	3.21	1.61	2	110	40	1800	1080	494.1	1344	1200	439.776			ok
	132	B	109.763	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.21	1.10	2	70	40	880	332	187.17	624	400	175.896			ok
	135	A	112.153	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.6	0.80	1		40	480	1080	351.54	252	1200	257.958			ok
68	133	A	10.643	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	0.15	0.08	1		40	480	1080	351.54	252	1200	257.958			ok
	136	B	127.586	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.57	1.28	2	70	40	880	332	187.17	624	400	175.896			ok
	137	C	13.116	-1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.94	0.47	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
69	134	B	142.170	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.86	1.43	2	70	40	880	332	187.17	624	400	175.896			ok
	135	A	112.153	6353	12	12	370	A-325	825	19	70.138	131.508	151.848	1.6	0.80	1		40	480	1080	351.54	252	1200	257.958			ok
	136	B	127.586	2716	12	8	370	A-325	825	16	49.738	93.258	85.248	2.57	1.28	2	70	40	880	332	187.17	624	400	175.896			ok
	138	C	10.124	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.73	0.36	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
	139	C	6.528	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.47	0.23	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
70	137	C	13.116	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.94	0.47	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
	138	C	10.124	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.73	0.36	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
	140	C	6.501	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.47	0.23	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok

Tabel 4.7.e Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Prncn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump	*n*	*n/2*	*np*	*s*	*s'*	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	*d*	ϕVn geser								*Avg*	*Ant*	*ϕTn1*	*Ans*	*Atg*	*ϕTn2*	*An*	*ϕNn*	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	141	C	5.899	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.42	0.21	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
71	139	C	6.528	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.47	0.23	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
	140	C	6.501	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.47	0.23	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
	142	C	7.491	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.54	0.27	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
	143	C	0.530	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.04	0.02	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
72	141	C	5.899	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.42	0.21	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
	142	C	7.491	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.54	0.27	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
	144	C	3.261	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.23	0.12	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
73	143	C	0.530	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.04	0.02	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok
	144	C	3.261	1230	12	8	370	A-325	410	12	13.904	26.070	63.936	0.23	0.12	1		40	320	268	217.86	224	320	189.792	2016	559.44	ok

Keterangan:

[1] Titik buhul

[2] Nomer batang

[3] Profil terpasang

[4] Nu = gaya batang

[5] Ag = luas penampang profil (mm^2)

[6] tp = tebal pelat buhul

[7] tf = tebal profil

[8] Fu p = tegangan putus minimum baja profil

[9] Mutu baut

[10] Fu b = tegangan tarik putus baut

[11] d = diameter baut

[12] ΦRn geser = 0,75.0,4.Fub.Ab (kuat geser rencana baut)

[13] ΦRn tarik = 0,75.0,75.Fub.Ab (kuat tarik rencana baut)

[14] ΦRn tumpu = 2,4.0,75.db.tp.Fu (kuat tumpu rencana baut)

[15] n = jumlah baut

[16] n/2

[17] np = baut terpasang

[18] s = jarak antar baut

[19] s' = jarak lubang baut dengan tepi pelat profil

[20] Avg = luas bruto pelelehan geser

[21] Ant = luas bersih retakan tarik

[22] ΦTn1 = kekuatan nominal tarik pelat profil pelelehan geser-retakan tarik

[23] Ans = luas bersih retakan geser

[24] Atg = luas kotor pelelehan tarik

[25] ΦTn2 = kekuatan nominal tarik pelat profil retakan geser-pelelehan tarik

[26] An = luas netto profil

[27] ΦNn = kuat tarik profil

[28] Nu ≤ Φ Nn ; profil aman dipakai

Tabel 4.7.f Perencanaan Sambungan Baut Kuda-Kuda K5

Join	Btg	Prf	Nu (kN)	Ag (mm2)	tp (mm)	tf (mm)	Fu p (Mpa)	Pmcn mutu diameter jmlh jrk baut: Mutu baut	Fub (Mpa)	d (mm)	φVd geser (kN)	φRn tarik (kN)	φRn tumpu (kN)	n1	n2	np	s (mm)	s1 (mm)	Cek p geser r tarik: Avg (mm2)	Ant (mm2)	φTn1 (kN)	Cek r geser p tarik: Ans (mm2)	Atg (mm2)	φTn2 (kN)	cek An profil: An (mm2)	φNn (kN)	Ket
(1)	(2)	(3)	(4)	(5)	(6)		(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)
1	1	E	2.108	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.08	0.04	1	0	40	240	141	130.095	168	180	120.74	2016	559.44	ok
	2	E	2.529	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.09	0.05	1	0	40	240	141	130.095	168	180	120.74	2016	559.44	ok
	3	F	3.399	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.12	0.06	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
2	1	E	0.200	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.01	0.00	1	0	40	240	141	130.095	168	180	120.74	2016	559.44	ok
	4	E	4.513	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.16	0.08	1	0	40	240	141	130.095	168	180	120.74	2016	559.44	ok
3	2	E	8.509	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.30	0.15	1	0	40	240	141	130.095	168	180	120.74	2016	559.44	ok
	5	F	7.796	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.28	0.14	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	6	E	2.797	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.10	0.05	1	0	40	240	141	130.095	168	180	120.74	2016	559.44	ok
	7	F	6.208	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.22	0.11	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
4	3	F	14.354	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.51	0.26	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	4	E	9.147	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.33	0.16	1	0	40	240	141	130.095	168	180	120.74	2016	559.44	ok
	5	F	9.140	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.33	0.16	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	8	E	17.393	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.62	0.31	1	0	40	240	141	130.095	168	180	120.74	2016	559.44	ok
5	6	E	16.607	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.59	0.30	1	0	40	240	141	130.095	168	180	120.74	2016	559.44	ok
	9	F	1.333	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.05	0.02	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	10	E	9.024	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.32	0.16	1	0	40	240	141	130.095	168	180	120.74	2016	559.44	ok
	11	F	7.340	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.26	0.13	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
6	7	F	7.098	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.25	0.13	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	8	E	6.862	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.25	0.12	1	0	40	240	141	130.095	168	180	120.74	2016	559.44	ok
	9	F	4.182	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.15	0.07	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	12	E	4.097	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.15	0.07	1	0	40	240	141	130.095	168	180	120.74	2016	559.44	ok
7	10	E	2.948	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.11	0.05	1	0	40	240	141	130.095	168	180	120.74	2016	559.44	ok
	13	C	10.674	1230	12	8	370	A-325	825	12	27.977	52.458	63.936	0.38	0.19	1	0	40	320	268	217.86	224	320	189.79	2016	559.44	ok
8	13	C	0.990	1230	12	8	370	A-325	825	12	27.977	52.458	63.936	0.04	0.02	1	0	40	320	268	217.86	224	320	189.79	2016	559.44	ok
	14	C	4.399	1230	12	8	370	A-325	825	12	27.977	52.458	63.936	0.16	0.08	1	0	40	320	268	217.86	224	320	189.79	2016	559.44	ok
	15	E	1.514	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.05	0.03	1	0	40	240	141	130.095	168	180	120.74	2016	559.44	ok
9	11	F	10.065	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.36	0.18	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	12	E	5.680	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.20	0.10	1	0	40	240	141	130.095	168	180	120.74	2016	559.44	ok
	14	C	9.172	1230	12	8	370	A-325	825	12	27.977	52.458	63.936	0.33	0.16	1	0	40	320	268	217.86	224	320	189.79	2016	559.44	ok

Tabel 4.7.f Lanjutan

Join	Btg	Prf	Nu (kN)	Ag (mm2)	tp (mm)	tf (mm)	Fu p (Mpa)	Pmch mutu,diameter,jmlh,jrk baut: Mutu baut	Fub (Mpa)	d (mm)	φVn geser (kN)	φTn tarik (kN)	φRn tum p (kN)	n	n/2	np	s (mm)	s1 min	Cek p geser r tarik: Avg (mm2)	Ant (mm2)	φTu1 (kN)	Cek r geser p tarik: Ans (mm2)	Atg (mm2)	φTu2 (kN)	cek An profil: An (mm2)	φNn (kN)	Ket
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	16	F	5.266	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.19	0.09	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	17	E	5.564	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.20	0.10	1	0	40	240	141	130.095	168	180	120.74	2016	559.44	ok
10	15	E	7.517	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.27	0.13	1	0	40	240	141	130.095	168	180	120.74	2016	559.44	ok
	16	F	12.527	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.45	0.22	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	18	F	0.169	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.01	0.00	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	19	E	8.228	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.29	0.15	1	0	40	240	141	130.095	168	180	120.74	2016	559.44	ok
11	17	E	4.462	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.16	0.08	1	0	40	240	141	130.095	168	180	120.74	2016	559.44	ok
	18	F	10.861	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.39	0.19	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	20	F	8.610	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.31	0.15	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	21	E	4.227	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.15	0.08	1	0	40	240	141	130.095	168	180	120.74	2016	559.44	ok
12	19	E	8.228	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.29	0.15	1	0	40	240	141	130.095	168	180	120.74	2016	559.44	ok
	20	F	8.610	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.31	0.15	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	22	F	6.668	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.24	0.12	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	23	E	16.014	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.57	0.29	1	0	40	240	141	130.095	168	180	120.74	2016	559.44	ok
13	21	E	4.227	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.15	0.08	1	0	40	240	141	130.095	168	180	120.74	2016	559.44	ok
	22	F	6.668	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.24	0.12	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	24	F	3.676	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.13	0.07	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	25	E	7.386	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.26	0.13	1	0	40	240	141	130.095	168	180	120.74	2016	559.44	ok
14	23	E	16.014	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.57	0.29	1	0	40	240	141	130.095	168	180	120.74	2016	559.44	ok
	24	F	3.676	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.13	0.07	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	26	F	2.527	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.09	0.05	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	27	E	19.377	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.69	0.35	1	0	40	240	141	130.095	168	180	120.74	2016	559.44	ok
15	25	E	7.386	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.26	0.13	1	0	40	240	141	130.095	168	180	120.74	2016	559.44	ok
	26	F	2.527	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.09	0.05	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	28	F	1.536	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.05	0.03	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	29	E	6.315	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.23	0.11	1	0	40	240	141	130.095	168	180	120.74	2016	559.44	ok
16	27	E	19.377	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.69	0.35	1	0	40	240	141	130.095	168	180	120.74	2016	559.44	ok
	28	F	1.536	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.05	0.03	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	30	F	1.897	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.07	0.03	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	31	E	18.240	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.65	0.33	1	0	40	240	141	130.095	168	180	120.74	2016	559.44	ok

Tabel 4.7.f Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Mutu baut	Fub	d	ΦVn geser	ΦTn tarik	ΦRn tumpu	n	n/2	np	s'	s	Cek t geser-t tarik			Cek t geser-p tarik			cek An profil		Ket
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	Avg (mm2)	Ant (mm2)	ΦTn1 (kN)	Avg (mm2)	Ans (mm2)	ΦTn2 (kN)	An (mm2)	ΦNn (kN)	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	
17	29	E	6.315	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.23	0.11	1	0	40	240	141	130.095	168	180	120.74	2016	559.44	ok
	30	F	1.897	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.07	0.03	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	32	F	4.012	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.14	0.07	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	33	E	4.539	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.16	0.08	1	0	40	240	141	130.095	168	180	120.74	2016	559.44	ok
18	31	E	18.240	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.65	0.33	1	0	40	240	141	130.095	168	180	120.74	2016	559.44	ok
	32	F	4.012	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.14	0.07	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	34	F	4.550	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.16	0.08	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
19	33	E	4.539	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.16	0.08	1	0	40	240	141	130.095	168	180	120.74	2016	559.44	ok
	34	F	4.550	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.16	0.08	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok

Keterangan:

[1] Titik buhul

[2] Nomer batang

[3] Profil terpasang

[4] Nu = gaya batang

[5] Ag = luas penampang profil (mm^2)

[6] tp = tebal pelat buhul

[7] tf = tebal profil

[8] Fu p = tegangan putus minimum baja profil

[9] Mutu baut

[10] Fu b = tegangan tarik putus baut

[11] d = diameter baut

[12] ΦRn geser = 0,75.0,4.Fub.Ab (kuat geser rencana baut)

[13] ΦRn tarik = 0,75.0,75.Fub.Ab (kuat tarik rencana baut)

[14] ΦRn tumpu = 2,4.0,75.db.tp.Fu (kuat tumpu rencana baut)

[15] n = jumlah baut

[16] n/2

[17] np = baut terpasang

[18] s = jarak antar baut

[19] s' = jarak lubang baut dengan tepi pelat profil

[20] Avg = luas bruto pelelehan geser

[21] Ant = luas bersih retakan tarik

[22] ΦTn1 = kekuatan nominal tarik pelat profil pelelehan geser-retakan tarik

[23] Ans = luas bersih retakan geser

[24] Atg = luas kotor pelelehan tarik

[25] ΦTn2 = kekuatan nominal tarik pelat profil retakan geser-pelelehan tarik

[26] An = luas netto profil

[27] ΦNn = kuat tarik profil

[28] Nu ≤ Φ Nn ; profil aman dipakai

Tabel 4.7.g Perencanaan Sambungan Baut Kuda-Kuda K6

Join	Btg	Prf	Nu (kN)	Ag (mm2)	tp (mm)	tf (mm)	Fu p (Mpa)	Pmcn mutu,diameter,jmlh,lk baut: Mutu baut	Fub (Mpa)	d (mm)	ϕVn geser (kN)	ϕTn trk (kN)	ϕRn tumpu (kN)	n	n/2	np	s (mm)	s' (mm)	Cek p geser-r tarik: Avg (mm2)	Ant (mm2)	ϕTn1 (kN)	Cek r geser-p tarik: Ans (mm2)	Atg (mm2)	ϕTn2 (kN)	cek An profil: An (mm2)	ϕNn (kN)	Ket
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
1	1	E	2.104	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.08	0.04	1	0	40	240	141	130.095	168	180	120.744	2016	559.44	ok
	2	E	2.530	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.09	0.05	1	0	40	240	141	130.095	168	180	120.744	2016	559.44	ok
	3	F	3.401	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.12	0.06	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
2	1	E	2.104	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.08	0.04	1	0	40	240	141	130.095	168	180	120.744	2016	559.44	ok
	4	E	0.200	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.01	0.00	1	0	40	240	141	130.095	168	180	120.744	2016	559.44	ok
3	2	E	2.530	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.09	0.05	1	0	40	240	141	130.095	168	180	120.744	2016	559.44	ok
	5	F	4.529	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.16	0.08	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	6	E	8.505	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.30	0.15	1	0	40	240	141	130.095	168	180	120.744	2016	559.44	ok
	7	F	7.784	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.28	0.14	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
4	3	F	3.401	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.12	0.06	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	4	E	0.200	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.01	0.00	1	0	40	240	141	130.095	168	180	120.744	2016	559.44	ok
	5	F	4.529	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.16	0.08	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	8	E	2.796	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.10	0.05	1	0	40	240	141	130.095	168	180	120.744	2016	559.44	ok
5	6	E	8.505	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.30	0.15	1	0	40	240	141	130.095	168	180	120.744	2016	559.44	ok
	9	F	6.153	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.22	0.11	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	10	E	14.387	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.51	0.26	1	0	40	240	141	130.095	168	180	120.744	2016	559.44	ok
	11	F	9.234	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.33	0.17	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
6	7	F	7.784	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.28	0.14	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	8	E	2.796	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.10	0.05	1	0	40	240	141	130.095	168	180	120.744	2016	559.44	ok
	9	F	6.153	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.22	0.11	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	12	E	9.141	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.33	0.16	1	0	40	240	141	130.095	168	180	120.744	2016	559.44	ok
7	10	E	14.387	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.51	0.26	1	0	40	240	141	130.095	168	180	120.744	2016	559.44	ok
	13	C	21.993	1230	12	8	370	A-325	825	12	27.977	52.458	63.936	0.79	0.39	1	0	40	320	268	217.86	224	320	189.792	2016	559.44	ok
8	13	C	21.993	1230	12	8	370	A-325	825	12	27.977	52.458	63.936	0.79	0.39	1	0	40	320	268	217.86	224	320	189.792	2016	559.44	ok
	14	C	20.232	1230	12	8	370	A-325	825	12	27.977	52.458	63.936	0.72	0.36	1	0	40	320	268	217.86	224	320	189.792	2016	559.44	ok
	15	E	3.918	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.14	0.07	1	0	40	240	141	130.095	168	180	120.744	2016	559.44	ok
9	11	F	9.234	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.33	0.17	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	12	E	9.141	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.33	0.16	1	0	40	240	141	130.095	168	180	120.744	2016	559.44	ok
	14	C	20.232	1230	12	8	370	A-325	825	12	27.977	52.458	63.936	0.72	0.36	1	0	40	320	268	217.86	224	320	189.792	2016	559.44	ok

Tabel 4.7.g Lanjutan

Join	Btg	Prf	Nu (kN)	Ag (mm2)	tw (mm)	tf (mm)	Fu p (Mpa)	Pmcn mutu,diameter,jmlh,jrk baut: Mutu baut	Fub (Mpa)	d (mm)	φVn geser (kN)	φTn tk (kN)	φRn tump (kN)	n	n/2	np	s (mm)	s' (mm)	Cek p geser-r tarik: Avg (mm2)	Ant (mm2)	φTn1 (kN)	Cek r geser-p tarik: Ans (mm2)	Ag (mm2)	φTn2 (kN)	cek An profil: An (mm2)	φNn (kN)	Ket
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	16	F	13.356	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.48	0.24	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	17	E	4.462	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.16	0.08	1	0	40	240	141	130.095	168	180	120.744	2016	559.44	ok
10	15	E	3.918	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.14	0.07	1	0	40	240	141	130.095	168	180	120.744	2016	559.44	ok
	16	F	13.356	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.48	0.24	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	18	F	10.861	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.39	0.19	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	19	E	8.228	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.29	0.15	1	0	40	240	141	130.095	168	180	120.744	2016	559.44	ok
11	17	E	4.462	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.16	0.08	1	0	40	240	141	130.095	168	180	120.744	2016	559.44	ok
	18	F	10.861	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.39	0.19	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	20	F	8.610	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.31	0.15	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	21	E	4.227	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.15	0.08	1	0	40	240	141	130.095	168	180	120.744	2016	559.44	ok
12	19	E	8.228	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.29	0.15	1	0	40	240	141	130.095	168	180	120.744	2016	559.44	ok
	20	F	8.610	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.31	0.15	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	22	F	6.668	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.24	0.12	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	23	E	16.014	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.57	0.29	1	0	40	240	141	130.095	168	180	120.744	2016	559.44	ok
13	21	E	4.227	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.15	0.08	1	0	40	240	141	130.095	168	180	120.744	2016	559.44	ok
	22	F	6.668	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.24	0.12	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	24	F	3.676	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.13	0.07	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	25	E	7.386	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.26	0.13	1	0	40	240	141	130.095	168	180	120.744	2016	559.44	ok
14	23	E	16.014	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.57	0.29	1	0	40	240	141	130.095	168	180	120.744	2016	559.44	ok
	24	F	3.676	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.13	0.07	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	26	F	2.527	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.09	0.05	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	27	E	19.377	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.69	0.35	1	0	40	240	141	130.095	168	180	120.744	2016	559.44	ok
15	25	E	7.386	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.26	0.13	1	0	40	240	141	130.095	168	180	120.744	2016	559.44	ok
	26	F	2.527	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.09	0.05	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	28	F	1.536	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.05	0.03	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	29	E	6.315	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.23	0.11	1	0	40	240	141	130.095	168	180	120.744	2016	559.44	ok
16	27	E	19.377	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.69	0.35	1	0	40	240	141	130.095	168	180	120.744	2016	559.44	ok
	28	F	1.536	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.05	0.03	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	30	F	1.897	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.07	0.03	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	31	E	18.240	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.65	0.33	1	0	40	240	141	130.095	168	180	120.744	2016	559.44	ok

Tabel 4.7.g Lanjutan

Join	Btg	Prf	Nu (kN)	Ag (mm2)	tp (mm)	tf (mm)	Fu p (Mpa)	Prncn mutu,diameter,jmlh,jrk baut: Mutu baut	Fub (Mpa)	d (mm)	φVn geser (kN)	φTn trk (kN)	φRn tump (kN)	n	n/2	np	s (mm)	s' (mm)	Cek p.geser-r.tarik: Avg (mm2)	Ant (mm2)	φTn1 (kN)	Cek r.geser-p.tarik: Ans (mm2)	Atg (mm2)	φTn2 (kN)	cek An profil: An (mm2)	φNn (kN)	Ket
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
17	29	E	6.315	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.23	0.11	1	0	40	240	141	130.095	168	180	120.744	2016	559.44	ok
	30	F	1.897	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.07	0.03	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	32	F	4.012	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.14	0.07	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	33	E	4.539	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.16	0.08	1	0	40	240	141	130.095	168	180	120.744	2016	559.44	ok
18	31	E	18.240	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.65	0.33	1	0	40	240	141	130.095	168	180	120.744	2016	559.44	ok
	32	F	4.012	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.14	0.07	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	34	F	4.550	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.16	0.08	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	35	E	16.491	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.59	0.29	1	0	40	240	141	130.095	168	180	120.744	2016	559.44	ok
19	33	E	4.539	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.16	0.08	1	0	40	240	141	130.095	168	180	120.744	2016	559.44	ok
	34	F	4.550	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.16	0.08	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	36	F	7.256	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.26	0.13	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	37	E	2.192	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.08	0.04	1	0	40	240	141	130.095	168	180	120.744	2016	559.44	ok
20	35	E	16.491	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.59	0.29	1	0	40	240	141	130.095	168	180	120.744	2016	559.44	ok
	36	F	7.256	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.26	0.13	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	38	F	7.738	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.28	0.14	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	39	E	11.538	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.41	0.21	1	0	40	240	141	130.095	168	180	120.744	2016	559.44	ok
21	37	E	2.192	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.08	0.04	1	0	40	240	141	130.095	168	180	120.744	2016	559.44	ok
	38	F	7.738	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.28	0.14	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	40	F	13.006	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.46	0.23	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	41	E	12.091	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.43	0.22	1	0	40	240	141	130.095	168	180	120.744	2016	559.44	ok
22	39	E	11.538	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.41	0.21	1	0	40	240	141	130.095	168	180	120.744	2016	559.44	ok
	40	F	13.006	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.46	0.23	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	42	F	11.577	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.41	0.21	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	43	E	3.079	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.11	0.06	1	0	40	240	141	130.095	168	180	120.744	2016	559.44	ok
23	41	E	12.091	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.43	0.22	1	0	40	240	141	130.095	168	180	120.744	2016	559.44	ok
	42	F	11.577	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.41	0.21	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	44	F	18.014	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.64	0.32	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
	45	E	28.213	691	12	6	370	A-325	825	12	27.977	52.458	47.952	1.01	0.50	1	0	40	240	141	130.095	168	180	120.744	2016	559.44	ok
24	43	E	3.079	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.11	0.06	1	0	40	240	141	130.095	168	180	120.744	2016	559.44	ok
	44	F	18.014	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.64	0.32	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok

Tabel 4.7.g Lanjutan

Join	Btg	Prf	Nu (kN)	Ag (mm2)	tp (mm)	tf (mm)	Fu p (Mpa)	Prnch mutu,diameter,jmlh,jrk baut				φTn tik (kN)	φRn tump (kN)	n	n/2	np	s (mm)	s' (mm)	Cek p geser-r tarik			Cek r geser-p tarik			cek An profil		Ket
								Mutu baut	Fub (Mpa)	d (mm)	φVn geser (kN)								Avg (mm2)	Ant (mm2)	φTn1 (kN)	Ans (mm2)	Atg (mm2)	φTn2 (kN)	An (mm2)	φNn (kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	46	F	0.118	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.00	0.00	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok
25	45	E	28.213	691	12	6	370	A-325	825	12	27.977	52.458	47.952	1.01	0.50	1	0	40	240	141	130.095	168	180	120.744	2016	559.44	ok
	46	F	0.118	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.00	0.00	1	0	40	200	92.5	94.5375	140	125	91.62	2016	559.44	ok

Keterangan:

[1] Titik buhul

[2] Nomer batang

[3] Profil terpasang

[4] Nu = gaya batang

[5] Ag = luas penampang profil (mm^2)

[6] tp = tebal pelat buhul

[7] tf = tebal profil

[8] Fu p = tegangan putus minimum baja profil

[9] Mutu baut

[10] Fu b = tegangan tarik putus baut

[11] d = diameter baut

[12] ΦRn geser = 0,75.0,4.Fub.Ab (kuat geser rencana baut)

[13] ΦRn tarik = 0,75.0,75.Fub.Ab (kuat tarik rencana baut)

[14] ΦRn tumpu = 2,4.0,75.db.tp.Fu (kuat tumpu rencana baut)

[15] n = jumlah baut

[16] n/2

[17] np = baut terpasang

[18] s = jarak antar baut

[19] s' = jarak lubang baut dengan tepi pelat profil

[20] Avg = luas bruto pelelehan geser

[21] Ant = luas bersih retakan tarik

[22] ΦTn1 = kekuatan nominal tarik pelat profil pelelehan geser-retakan tarik

[23] Ans = luas bersih retakan geser

[24] Atg = luas kotor pelelehan tarik

[25] ΦTn2 = kekuatan nominal tarik pelat profil retakan geser-pelelehan tarik

[26] An = luas netto profil

[27] ΦNn = kuat tarik profil

[28] Nu ≤ Φ Nn ; profil aman dipakai

Tabel 4.7.h Perencanaan Sambungan Baut Kuda-Kuda K7

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter, jmlh, jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Ag	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
1	1	E	2.338	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.08	0.04	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	2	E	2.803	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.10	0.05	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	3	F	3.764	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.13	0.07	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
2	1	E	2.338	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.08	0.04	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	4	E	0.283	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.01	0.01	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
3	2	E	2.803	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.10	0.05	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	5	F	5.265	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.19	0.09	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	6	E	9.632	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.34	0.17	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	7	F	8.868	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.32	0.16	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
4	3	F	3.764	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.13	0.07	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	4	E	0.283	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.01	0.01	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	5	F	5.265	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.19	0.09	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	8	E	3.115	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.11	0.06	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
5	6	E	9.632	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.34	0.17	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	9	F	7.172	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.26	0.13	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	10	E	16.562	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.59	0.30	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	11	F	10.914	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.39	0.20	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
6	7	F	8.868	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.32	0.16	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	8	E	3.115	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.11	0.06	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	9	F	7.172	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.26	0.13	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	12	E	10.359	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.37	0.19	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
7	10	E	16.562	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.59	0.30	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	13	C	29.290	1230	12	8	370	A-325	825	12	27.977	52.458	63.936	1.05	0.52	1	0	40	320	268	217.86	224	320	189.792	2016	559.44	ok
8	13	C	29.290	1230	12	8	370	A-325	825	12	27.977	52.458	63.936	1.05	0.52	1	0	40	320	268	217.86	224	320	189.792	2016	559.44	ok
	14	C	25.430	1230	12	8	370	A-325	825	12	27.977	52.458	63.936	0.91	0.45	1	0	40	320	268	217.86	224	320	189.792	2016	559.44	ok
	15	E	9.504	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.34	0.17	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
9	11	F	10.914	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.39	0.20	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	12	E	10.359	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.37	0.19	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	14	C	25.430	1230	12	8	370	A-325	825	12	27.977	52.458	63.936	0.91	0.45	1	0	40	320	268	217.86	224	320	189.792	2016	559.44	ok

Tabel 4.7.h Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tumpu	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Ag	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	16	F	17.782	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.64	0.32	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	17	E	3.871	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.14	0.07	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
10	15	E	9.504	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.34	0.17	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	16	F	17.782	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.64	0.32	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	18	F	14.815	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.53	0.26	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	19	E	6.740	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.24	0.12	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
11	17	E	3.871	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.14	0.07	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	18	F	14.815	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.53	0.26	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	20	F	12.331	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.44	0.22	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	21	E	8.392	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.30	0.15	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
12	19	E	6.740	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.24	0.12	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	20	F	12.331	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.44	0.22	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	22	F	9.832	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.35	0.18	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	23	E	17.864	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.64	0.32	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
13	21	E	8.392	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.30	0.15	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	22	F	9.832	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.35	0.18	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	24	F	6.572	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.23	0.12	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	25	E	14.356	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.51	0.26	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
14	23	E	17.864	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.64	0.32	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	24	F	6.572	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.23	0.12	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	26	F	4.585	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.16	0.08	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	27	E	23.699	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.85	0.42	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
15	25	E	14.356	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.51	0.26	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	26	F	4.585	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.16	0.08	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	28	F	1.799	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.06	0.03	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	29	E	14.675	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.52	0.26	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
16	27	E	23.699	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.85	0.42	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	30	E	21.976	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.79	0.39	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	35	E	1.951	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.07	0.03	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
17	28	F	1.799	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.06	0.03	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok

Tabel 4.7.h Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter, jmlh, jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	30	E	21.976	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.79	0.39	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	31	F	1.371	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.05	0.02	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	32	E	21.908	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.78	0.39	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
18	29	E	14.675	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.52	0.26	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	31	F	1.371	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.05	0.02	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	33	F	4.310	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.15	0.08	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	34	E	12.734	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.46	0.23	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
19	32	E	21.908	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.78	0.39	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	33	F	4.310	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.15	0.08	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	36	F	4.822	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.17	0.09	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	37	E	20.070	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.72	0.36	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
20	34	E	12.734	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.46	0.23	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	36	F	4.822	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.17	0.09	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	38	F	7.981	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.29	0.14	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	39	E	7.242	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.26	0.13	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
21	35	E	1.951	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.07	0.03	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	40	F	0.486	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.02	0.01	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	43	E	1.756	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.06	0.03	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
22	37	E	20.070	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.72	0.36	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	38	F	7.981	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.29	0.14	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	40	F	0.486	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.02	0.01	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	41	F	1.893	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.07	0.03	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	42	E	21.935	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.78	0.39	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	44	F	7.155	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.26	0.13	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
23	39	E	7.242	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.26	0.13	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	41	F	1.893	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.07	0.03	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	45	F	6.762	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.24	0.12	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	46	E	1.839	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.07	0.03	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
24	42	E	21.935	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.78	0.39	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	47	E	7.419	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.27	0.13	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok

Tabel 4.7.h Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Prncn mutu,diameter, jmlh, jrk baut				ϕTn trk	ϕRn tump.	*n*	*n/2*	*np*	*s*	*s'*	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								*Avg*	*Ant*	*ϕTn1*	*Ans*	*Atg*	*ϕTn2*	*An*	*ϕNn*	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	48	E	29.213	691	12	6	370	A-325	825	12	27.977	52.458	47.952	1.04	0.52	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
25	43	E	1.756	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.06	0.03	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	44	F	7.155	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.26	0.13	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	49	F	3.796	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.14	0.07	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	51	E	4.472	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.16	0.08	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
26	47	E	7.419	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.27	0.13	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	49	F	3.796	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.14	0.07	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	52	F	5.789	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.21	0.10	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	53	E	2.827	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.10	0.05	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
27	45	F	6.762	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.24	0.12	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	48	E	29.213	691	12	6	370	A-325	825	12	27.977	52.458	47.952	1.04	0.52	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	50	F	5.529	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.20	0.10	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	54	E	23.533	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.84	0.42	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
28	46	E	1.839	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.07	0.03	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	50	F	5.529	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.20	0.10	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	55	F	11.576	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.41	0.21	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	56	E	9.225	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.33	0.16	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
29	51	E	4.472	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.16	0.08	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	52	F	5.789	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.21	0.10	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	57	F	3.896	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.14	0.07	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	59	E	9.233	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.33	0.17	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
30	53	E	2.827	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.10	0.05	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	57	F	3.896	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.14	0.07	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	60	F	7.687	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.27	0.14	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	61	E	3.496	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.12	0.06	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
31	54	E	23.533	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.84	0.42	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	55	F	11.576	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.41	0.21	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	58	F	10.320	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.37	0.18	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	62	E	13.016	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.47	0.23	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
32	56	E	9.225	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.33	0.16	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok

Tabel 4.7.h Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmen mutu,diameter, jmlh, jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	58	F	10.320	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.37	0.18	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	63	F	17.574	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.63	0.31	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	64	E	24.972	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.89	0.45	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
33	59	E	9.233	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.33	0.17	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	60	F	7.687	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.27	0.14	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	65	F	4.997	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.18	0.09	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	68	E	15.494	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.55	0.28	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
34	61	E	3.496	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.12	0.06	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	65	F	4.997	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.18	0.09	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	66	E	5.953	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.21	0.11	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	69	F	0.738	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.03	0.01	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	70	E	2.880	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.10	0.05	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
35	62	E	13.016	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.47	0.23	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	63	F	17.574	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.63	0.31	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	66	E	5.953	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.21	0.11	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	67	F	4.759	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.17	0.09	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	71	F	28.043	480	12	5	370	A-325	825	12	27.977	52.458	39.96	1.00	0.50	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	72	E	19.524	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.70	0.35	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
36	67	F	4.759	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.17	0.09	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	67	F	4.759	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.17	0.09	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	73	F	0.534	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.02	0.01	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	74	E	24.461	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.87	0.44	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
37	68	E	15.494	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.55	0.28	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	69	F	0.738	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.03	0.01	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	75	F	0.491	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.02	0.01	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	78	E	14.980	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.54	0.27	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
38	70	E	2.880	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.10	0.05	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	71	F	28.043	480	12	5	370	A-325	825	12	27.977	52.458	39.96	1.00	0.50	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	75	F	0.491	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.02	0.01	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	76	E	5.809	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.21	0.10	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok

Tabel 4.7.h Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,ciameter, jmlh, jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	79	F	23.345	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.83	0.42	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	80	E	1.859	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.07	0.03	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
39	72	E	19.524	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.70	0.35	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	73	F	0.534	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.02	0.01	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	76	E	5.809	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.21	0.10	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	77	F	6.333	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.23	0.11	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	81	E	20.072	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.72	0.36	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
40	74	E	24.461	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.87	0.44	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	77	F	6.333	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.23	0.11	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	82	F	12.611	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.45	0.23	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	83	E	35.742	691	12	6	370	A-325	825	12	27.977	52.458	47.952	1.28	0.64	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
41	78	E	14.980	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.54	0.27	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	79	F	23.345	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.83	0.42	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	84	F	14.109	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.50	0.25	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	86	E	33.977	691	12	6	370	A-325	825	12	27.977	52.458	47.952	1.21	0.61	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
42	80	E	1.859	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.07	0.03	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	84	F	14.109	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.50	0.25	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	87	F	17.661	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.63	0.32	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	88	E	11.091	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.40	0.20	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
43	81	E	20.072	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.72	0.36	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	82	F	12.611	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.45	0.23	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	85	F	11.156	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.40	0.20	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	89	E	8.740	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.31	0.16	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
44	83	E	35.742	691	12	6	370	A-325	825	12	27.977	52.458	47.952	1.28	0.64	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	85	F	11.156	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.40	0.20	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	90	F	14.264	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.51	0.25	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	91	E	43.626	691	12	6	370	A-325	825	12	27.977	52.458	47.952	1.56	0.78	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
45	86	E	33.977	691	12	6	370	A-325	825	12	27.977	52.458	47.952	1.21	0.61	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	87	F	17.661	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.63	0.32	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	92	F	0.086	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.00	0.00	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok

Tabel 4.7.h Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter, jmlh, jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
46	88	E	11.091	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.40	0.20	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	92	F	0.086	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.00	0.00	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
47	89	E	8.740	691	12	6	370	A-325	825	12	27.977	52.458	47.952	0.31	0.16	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	90	F	14.264	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.51	0.25	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
	93	F	0.118	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.00	0.00	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok
48	91	E	43.626	691	12	6	370	A-325	825	12	27.977	52.458	47.952	1.56	0.78	1	0	40	240	141	130.10	168	180	120.744	2016	559.44	ok
	93	F	0.118	480	12	5	370	A-325	825	12	27.977	52.458	39.96	0.00	0.00	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.44	ok

Keterangan:

[1] Titik buhul

[2] Nomer batang

[3] Profil terpasang

[4] Nu = gaya batang

[5] Ag = luas penampang profil (mm^2)

[6] tp = tebal pelat buhul

[7] tf = tebal profil

[8] Fu p = tegangan putus minimum baja profil

[9] Mutu baut

[10] Fu b = tegangan tarik putus baut

[11] d = diameter baut

[12] ΦRn geser = 0,75.0,4.Fub.Ab (kuat geser rencana baut)

[13] ΦRn tarik = 0,75.0,75.Fub.Ab (kuat tarik rencana baut)

[14] ΦRn tumpu = 2,4.0,75.db.tp.Fu (kuat tumpu rencana baut)

[15] n = jumlah baut

[16] n/2

[17] np = baut terpasang

[18] s = jarak antar baut

[19] s' = jarak lubang baut dengan tepi pelat profil

[20] Avg = luas bruto pelelehan geser

[21] Ant = luas bersih retakan tarik

[22] ΦTn1 = kekuatan nominal tarik pelat profil pelelehan geser-retakan tarik

[23] Ans = luas bersih retakan geser

[24] Atg = luas kotor pelelehan tarik

[25] ΦTn2 = kekuatan nominal tarik pelat profil retakan geser-pelelehan tarik

[26] An = luas netto profil

[27] ΦNn = kuat tarik profil

[28] Nu ≤ Φ Nn ; profil aman dipakai

Tabel 4.7.i Perencanaan Sambungan Baut Kuda-Kuda K8

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter, jmlh, jrk baut			ϕVn geser	ϕTn trk	ϕRn tump	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d									Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
1	1	E	2.331	691	12	6	370	A-325	825	12	27.977	52.4576	47.952	0.08	0.04	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	2	E	2.804	691	12	6	370	A-326	825	12	27.977	52.4576	47.952	0.10	0.05	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	3	F	3.769	480	12	5	370	A-327	825	12	27.977	52.4576	39.96	0.13	0.07	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
2	1	E	2.331	691	12	6	370	A-328	825	12	27.977	52.4576	47.952	0.08	0.04	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	4	E	0.284	691	12	6	370	A-329	825	12	27.977	52.4576	47.952	0.01	0.01	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
3	2	E	2.804	691	12	6	370	A-330	825	12	27.977	52.4576	47.952	0.10	0.05	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	5	F	5.291	480	12	5	370	A-331	825	12	27.977	52.4576	39.96	0.19	0.09	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	6	E	9.624	691	12	6	370	A-332	825	12	27.977	52.4576	47.952	0.34	0.17	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	7	F	8.847	480	12	5	370	A-333	825	12	27.977	52.4576	39.96	0.32	0.16	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
4	3	F	3.769	480	12	5	370	A-334	825	12	27.977	52.4576	39.96	0.13	0.07	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	4	E	0.284	691	12	6	370	A-335	825	12	27.977	52.4576	47.952	0.01	0.01	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	5	F	5.291	480	12	5	370	A-336	825	12	27.977	52.4576	39.96	0.19	0.09	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	8	E	3.115	691	12	6	370	A-337	825	12	27.977	52.4576	47.952	0.11	0.06	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
5	6	E	9.624	691	12	6	370	A-338	825	12	27.977	52.4576	47.952	0.34	0.17	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	9	F	7.083	480	12	5	370	A-339	825	12	27.977	52.4576	39.96	0.25	0.13	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	10	E	16.618	691	12	6	370	A-340	825	12	27.977	52.4576	47.952	0.59	0.30	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	11	F	11.062	480	12	5	370	A-341	825	12	27.977	52.4576	39.96	0.40	0.20	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
6	7	F	8.847	480	12	5	370	A-342	825	12	27.977	52.4576	39.96	0.32	0.16	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	8	E	3.115	691	12	6	370	A-343	825	12	27.977	52.4576	47.952	0.11	0.06	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	9	F	7.083	480	12	5	370	A-344	825	12	27.977	52.4576	39.96	0.25	0.13	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	12	E	10.359	691	12	6	370	A-345	825	12	27.977	52.4576	47.952	0.37	0.19	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
7	10	E	16.618	691	12	6	370	A-346	825	12	27.977	52.4576	47.952	0.59	0.30	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	13	C	32.925	691	12	6	370	A-347	825	12	27.977	52.4576	47.952	1.18	0.59	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
8	13	C	32.925	691	12	6	370	A-348	825	12	27.977	52.4576	47.952	1.18	0.59	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	14	C	27.465	691	12	6	370	A-349	825	12	27.977	52.4576	47.952	0.98	0.49	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	15	E	13.764	691	12	6	370	A-350	825	12	27.977	52.4576	47.952	0.49	0.25	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
9	11	F	11.062	480	12	5	370	A-351	825	12	27.977	52.4576	39.96	0.40	0.20	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	12	E	10.359	691	12	6	370	A-352	825	12	27.977	52.4576	47.952	0.37	0.19	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	14	C	27.465	691	12	6	370	A-353	825	12	27.977	52.4576	47.952	0.98	0.49	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok

Tabel 4.7.i Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,,jmlh,,jrk baut			ϕTn trk	ϕRn tump.	*n*	*n/2*	*np*	*s*	*s'*	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser							*Avg*	*Ant*	*ϕTn1*	*Ans*	*Atg*	*ϕTn2*	*An*	*ϕNn*	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	16	F	20.263	480	12	5	370	A-354	825	12	27.977	52.4576	39.96	0.72	0.36	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	17	E	2.663	691	12	6	370	A-355	825	12	27.977	52.4576	47.952	0.10	0.05	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
10	15	E	13.764	691	12	6	370	A-356	825	12	27.977	52.4576	47.952	0.49	0.25	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	16	F	20.263	480	12	5	370	A-357	825	12	27.977	52.4576	39.96	0.72	0.36	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	18	F	17.075	480	12	5	370	A-358	825	12	27.977	52.4576	39.96	0.61	0.31	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	19	E	4.801	691	12	6	370	A-359	825	12	27.977	52.4576	47.952	0.17	0.09	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
11	17	E	2.663	691	12	6	370	A-360	825	12	27.977	52.4576	47.952	0.10	0.05	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	18	F	17.075	480	12	5	370	A-361	825	12	27.977	52.4576	39.96	0.61	0.31	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	20	F	14.949	480	12	5	370	A-362	825	12	27.977	52.4576	39.96	0.53	0.27	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	21	E	12.425	691	12	6	370	A-363	825	12	27.977	52.4576	47.952	0.44	0.22	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
12	19	E	4.801	691	12	6	370	A-364	825	12	27.977	52.4576	47.952	0.17	0.09	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	20	F	14.949	480	12	5	370	A-365	825	12	27.977	52.4576	39.96	0.53	0.27	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	22	F	12.055	480	12	5	370	A-366	825	12	27.977	52.4576	39.96	0.43	0.22	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	23	E	18.272	691	12	6	370	A-367	825	12	27.977	52.4576	47.952	0.65	0.33	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
13	21	E	12.425	691	12	6	370	A-368	825	12	27.977	52.4576	47.952	0.44	0.22	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	22	F	12.055	480	12	5	370	A-369	825	12	27.977	52.4576	39.96	0.43	0.22	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	24	F	9.229	480	12	5	370	A-370	825	12	27.977	52.4576	39.96	0.33	0.16	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	25	E	20.778	691	12	6	370	A-371	825	12	27.977	52.4576	47.952	0.74	0.37	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
14	23	E	18.272	691	12	6	370	A-372	825	12	27.977	52.4576	47.952	0.65	0.33	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	24	F	9.229	480	12	5	370	A-373	825	12	27.977	52.4576	39.96	0.33	0.16	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	26	F	6.541	480	12	5	370	A-374	825	12	27.977	52.4576	39.96	0.23	0.12	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	27	E	26.430	691	12	6	370	A-375	825	12	27.977	52.4576	47.952	0.94	0.47	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
15	25	E	20.778	-691	12	6	370	A-376	825	12	27.977	52.4576	47.952	0.74	0.37	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	26	F	6.541	480	12	5	370	A-377	825	12	27.977	52.4576	39.96	0.23	0.12	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	28	F	3.161	480	12	5	370	A-378	825	12	27.977	52.4576	39.96	0.11	0.06	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	29	E	23.183	691	12	6	370	A-379	825	12	27.977	52.4576	47.952	0.83	0.41	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
16	27	E	26.430	691	12	6	370	A-380	825	12	27.977	52.4576	47.952	0.94	0.47	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	30	E	23.143	691	12	6	370	A-381	825	12	27.977	52.4576	47.952	0.83	0.41	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	35	E	3.615	691	12	6	370	A-382	825	12	27.977	52.4576	47.952	0.13	0.06	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
17	28	F	3.161	480	12	5	370	A-383	825	12	27.977	52.4576	39.96	0.11	0.06	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok

Tabel 4.7.i Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,,jmlh.,jrk baut			ϕTn trk	ϕRn tump	*n*	*n/2*	*np*	*s*	*s'*	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser							*Avg*	*Ant*	*ϕTn1*	*Ans*	*Atg*	*ϕTn2*	*An*	*ϕNn*	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	30	E	23.143	691	12	6	370	A-384	825	12	27.977	52.4576	47.952	0.83	0.41	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	31	F	1.050	480	12	5	370	A-385	825	12	27.977	52.4576	39.96	0.04	0.02	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	32	E	24.947	691	12	6	370	A-386	825	12	27.977	52.4576	47.952	0.89	0.45	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
18	29	E	23.183	691	12	6	370	A-387	825	12	27.977	52.4576	47.952	0.83	0.41	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	31	F	1.050	480	12	5	370	A-388	825	12	27.977	52.4576	39.96	0.04	0.02	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	33	F	2.955	480	12	5	370	A-389	825	12	27.977	52.4576	39.96	0.11	0.05	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	34	E	21.851	691	12	6	370	A-390	825	12	27.977	52.4576	47.952	0.78	0.39	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
19	32	E	24.947	691	12	6	370	A-391	825	12	27.977	52.4576	47.952	0.89	0.45	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	33	F	2.955	480	12	5	370	A-392	825	12	27.977	52.4576	39.96	0.11	0.05	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	36	F	3.233	480	12	5	370	A-393	825	12	27.977	52.4576	39.96	0.12	0.06	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	37	E	23.790	691	12	6	370	A-394	825	12	27.977	52.4576	47.952	0.85	0.43	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
20	34	E	21.851	691	12	6	370	A-395	825	12	27.977	52.4576	47.952	0.78	0.39	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	36	F	3.233	480	12	5	370	A-396	825	12	27.977	52.4576	39.96	0.12	0.06	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	38	F	6.381	480	12	5	370	A-397	825	12	27.977	52.4576	39.96	0.23	0.11	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	39	E	17.464	691	12	6	370	A-398	825	12	27.977	52.4576	47.952	0.62	0.31	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
21	35	E	3.615	691	12	6	370	A-399	825	12	27.977	52.4576	47.952	0.13	0.06	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	40	F	0.494	480	12	5	370	A-400	825	12	27.977	52.4576	39.96	0.02	0.01	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	43	E	3.416	691	12	6	370	A-401	825	12	27.977	52.4576	47.952	0.12	0.06	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
22	37	E	23.790	691	12	6	370	A-402	825	12	27.977	52.4576	47.952	0.85	0.43	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	38	F	6.381	480	12	5	370	A-403	825	12	27.977	52.4576	39.96	0.23	0.11	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	40	F	0.494	480	12	5	370	A-404	825	12	27.977	52.4576	39.96	0.02	0.01	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	41	F	2.471	480	12	5	370	A-405	825	12	27.977	52.4576	39.96	0.09	0.04	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	42	E	24.127	691	12	6	370	A-406	825	12	27.977	52.4576	47.952	0.86	0.43	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	44	F	4.301	480	12	5	370	A-407	825	12	27.977	52.4576	39.96	0.15	0.08	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
23	39	E	17.464	691	12	6	370	A-408	825	12	27.977	52.4576	47.952	0.62	0.31	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	41	F	2.471	480	12	5	370	A-409	825	12	27.977	52.4576	39.96	0.09	0.04	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	45	F	7.449	480	12	5	370	A-410	825	12	27.977	52.4576	39.96	0.27	0.13	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	46	E	10.795	691	12	6	370	A-411	825	12	27.977	52.4576	47.952	0.39	0.19	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
24	42	E	24.127	691	12	6	370	A-412	825	12	27.977	52.4576	47.952	0.86	0.43	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	47	E	8.027	691	12	6	370	A-413	825	12	27.977	52.4576	47.952	0.29	0.14	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok

Tabel 4.7.i Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diam eter, jmlh,,jrk baut				ϕTn trk	ϕRn tump	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	48	E	31.998	691	12	6	370	A-414	825	12	27.977	52.4576	47.952	1.14	0.57	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
25	43	E	3.416	691	12	6	370	A-415	825	12	27.977	52.4576	47.952	0.12	0.06	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	44	F	4.301	480	12	5	370	A-416	825	12	27.977	52.4576	39.96	0.15	0.08	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	49	F	2.422	480	12	5	370	A-417	825	12	27.977	52.4576	39.96	0.09	0.04	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	51	E	2.192	691	12	6	370	A-418	825	12	27.977	52.4576	47.952	0.08	0.04	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
26	47	E	8.027	691	12	6	370	A-419	825	12	27.977	52.4576	47.952	0.29	0.14	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	49	F	2.422	480	12	5	370	A-420	825	12	27.977	52.4576	39.96	0.09	0.04	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	52	F	3.337	480	12	5	370	A-421	825	12	27.977	52.4576	39.96	0.12	0.06	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	53	E	5.436	691	12	6	370	A-422	825	12	27.977	52.4576	47.952	0.19	0.10	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
27	45	F	7.449	480	12	5	370	A-423	825	12	27.977	52.4576	39.96	0.27	0.13	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	48	E	31.998	691	12	6	370	A-424	825	12	27.977	52.4576	47.952	1.14	0.57	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	50	F	6.045	480	12	5	370	A-425	825	12	27.977	52.4576	39.96	0.22	0.11	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	54	E	25.732	691	12	6	370	A-426	825	12	27.977	52.4576	47.952	0.92	0.46	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
28	46	E	10.795	691	12	6	370	A-427	825	12	27.977	52.4576	47.952	0.39	0.19	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	50	F	6.045	480	12	5	370	A-428	825	12	27.977	52.4576	39.96	0.22	0.11	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	55	F	12.191	480	12	5	370	A-429	825	12	27.977	52.4576	39.96	0.44	0.22	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	56	E	1.298	691	12	6	370	A-430	825	12	27.977	52.4576	47.952	0.05	0.02	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
29	51	E	2.192	691	12	6	370	A-431	825	12	27.977	52.4576	47.952	0.08	0.04	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	52	F	3.337	480	12	5	370	A-432	825	12	27.977	52.4576	39.96	0.12	0.06	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	57	F	2.453	480	12	5	370	A-433	825	12	27.977	52.4576	39.96	0.09	0.04	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	59	E	3.067	691	12	6	370	A-434	825	12	27.977	52.4576	47.952	0.11	0.05	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
30	53	E	5.436	691	12	6	370	A-435	825	12	27.977	52.4576	47.952	0.19	0.10	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	57	F	2.453	480	12	5	370	A-436	825	12	27.977	52.4576	39.96	0.09	0.04	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	60	F	5.237	480	12	5	370	A-437	825	12	27.977	52.4576	39.96	0.19	0.09	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	61	E	1.095	691	12	6	370	A-438	825	12	27.977	52.4576	47.952	0.04	0.02	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
31	54	E	25.732	691	12	6	370	A-439	825	12	27.977	52.4576	47.952	0.92	0.46	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	55	F	12.191	480	12	5	370	A-440	825	12	27.977	52.4576	39.96	0.44	0.22	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	58	F	10.838	480	12	5	370	A-441	825	12	27.977	52.4576	39.96	0.39	0.19	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	62	E	14.661	691	12	6	370	A-442	825	12	27.977	52.4576	47.952	0.52	0.26	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
32	56	E	1.298	691	12	6	370	A-443	825	12	27.977	52.4576	47.952	0.05	0.02	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok

Tabel 4.7.i Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter.,,mlh.,jrk baut				ϕTn trk	ϕRn tump	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	58	F	10.838	480	12	5	370	A-444	825	12	27.977	52.4576	39.96	0.39	0.19	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	63	F	18.191	480	12	5	370	A-445	825	12	27.977	52.4576	39.96	0.65	0.33	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	64	E	16.467	691	12	6	370	A-446	825	12	27.977	52.4576	47.952	0.59	0.29	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
33	59	E	3.067	691	12	6	370	A-447	825	12	27.977	52.4576	47.952	0.11	0.05	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	60	F	5.237	480	12	5	370	A-448	825	12	27.977	52.4576	39.96	0.19	0.09	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	65	F	3.570	480	12	5	370	A-449	825	12	27.977	52.4576	39.96	0.13	0.06	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	68	E	7.330	691	12	6	370	A-450	825	12	27.977	52.4576	47.952	0.26	0.13	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
34	61	E	1.095	691	12	6	370	A-451	825	12	27.977	52.4576	47.952	0.04	0.02	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	65	F	3.570	480	12	5	370	A-452	825	12	27.977	52.4576	39.96	0.13	0.06	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	66	E	9.853	691	12	6	370	A-453	825	12	27.977	52.4576	47.952	0.35	0.18	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	69	F	9.773	480	12	5	370	A-454	825	12	27.977	52.4576	39.96	0.35	0.17	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	70	E	9.064	691	12	6	370	A-455	825	12	27.977	52.4576	47.952	0.32	0.16	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
35	62	E	14.661	691	12	6	370	A-456	825	12	27.977	52.4576	47.952	0.52	0.26	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	63	F	18.191	480	12	5	370	A-457	825	12	27.977	52.4576	39.96	0.65	0.33	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	66	E	9.853	691	12	6	370	A-458	825	12	27.977	52.4576	47.952	0.35	0.18	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	67	F	10.606	480	12	5	370	A-459	825	12	27.977	52.4576	39.96	0.38	0.19	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	71	F	38.943	480	12	5	370	A-460	825	12	27.977	52.4576	39.96	1.39	0.70	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	72	E	29.225	691	12	6	370	A-461	825	12	27.977	52.4576	47.952	1.04	0.52	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
36	67	F	10.606	480	12	5	370	A-462	825	12	27.977	52.4576	39.96	0.38	0.19	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	67	F	10.606	480	12	5	370	A-463	825	12	27.977	52.4576	39.96	0.38	0.19	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	73	F	7.423	480	12	5	370	A-464	825	12	27.977	52.4576	39.96	0.27	0.13	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	74	E	9.729	691	12	6	370	A-465	825	12	27.977	52.4576	47.952	0.35	0.17	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
37	68	E	7.330	691	12	6	370	A-466	825	12	27.977	52.4576	47.952	0.26	0.13	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	69	F	9.773	480	12	5	370	A-467	825	12	27.977	52.4576	39.96	0.35	0.17	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	75	F	5.328	480	12	5	370	A-468	825	12	27.977	52.4576	39.96	0.19	0.10	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	80	E	2.560	691	12	6	370	A-469	825	12	27.977	52.4576	47.952	0.09	0.05	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
38	70	E	9.064	691	12	6	370	A-470	825	12	27.977	52.4576	47.952	0.32	0.16	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	71	F	38.943	480	12	5	370	A-471	825	12	27.977	52.4576	39.96	1.39	0.70	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	75	F	5.328	480	12	5	370	A-472	825	12	27.977	52.4576	39.96	0.19	0.10	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	76	E	12.236	691	12	6	370	A-473	825	12	27.977	52.4576	47.952	0.44	0.22	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok

Tabel 4.7.i Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Prncn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	81	F	15.853	480	12	5	370	A-474	825	12	27.977	52.4576	39.96	0.57	0.28	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	82	E	25.157	691	12	6	370	A-475	825	12	27.977	52.4576	47.952	0.90	0.45	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
39	72	E	29.225	691	12	6	370	A-476	825	12	27.977	52.4576	47.952	1.04	0.52	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	73	F	7.423	480	12	5	370	A-477	825	12	27.977	52.4576	39.96	0.27	0.13	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	76	E	12.236	691	12	6	370	A-478	825	12	27.977	52.4576	47.952	0.44	0.22	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	77	F	6.891	480	12	5	370	A-479	825	12	27.977	52.4576	39.96	0.25	0.12	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	83	E	36.034	691	12	6	370	A-480	825	12	27.977	52.4576	47.952	1.29	0.64	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
40	74	E	9.729	691	12	6	370	A-481	825	12	27.977	52.4576	47.952	0.35	0.17	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	77	F	6.891	480	12	5	370	A-482	825	12	27.977	52.4576	39.96	0.25	0.12	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	84	F	13.284	480	12	5	370	A-483	825	12	27.977	52.4576	39.96	0.47	0.24	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	85	E	21.602	691	12	6	370	A-484	825	12	27.977	52.4576	47.952	0.77	0.39	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
41	78	F	3.786	480	12	5	370	A-485	825	12	27.977	52.4576	39.96	0.14	0.07	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	79	F	3.831	480	12	5	370	A-486	825	12	27.977	52.4576	39.96	0.14	0.07	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
42	78	F	3.786	480	12	5	370	A-487	825	12	27.977	52.4576	39.96	0.14	0.07	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	86	F	3.270	480	12	5	370	A-488	825	12	27.977	52.4576	39.96	0.12	0.06	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	89	F	6.331	480	12	5	370	A-489	825	12	27.977	52.4576	39.96	0.23	0.11	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	90	F	3.543	480	12	5	370	A-490	825	12	27.977	52.4576	39.96	0.13	0.06	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
43	79	F	3.831	480	12	5	370	A-491	825	12	27.977	52.4576	39.96	0.14	0.07	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	86	F	3.270	480	12	5	370	A-492	825	12	27.977	52.4576	39.96	0.12	0.06	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	91	F	3.828	480	12	5	370	A-493	825	12	27.977	52.4576	39.96	0.14	0.07	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
44	80	E	2.560	691	12	6	370	A-494	825	12	27.977	52.4576	47.952	0.09	0.05	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	81	F	15.853	480	12	5	370	A-495	825	12	27.977	52.4576	39.96	0.57	0.28	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	87	F	9.681	480	12	5	370	A-496	825	12	27.977	52.4576	39.96	0.35	0.17	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	92	E	12.400	691	12	6	370	A-497	825	12	27.977	52.4576	47.952	0.44	0.22	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
45	82	E	25.157	691	12	6	370	A-498	825	12	27.977	52.4576	47.952	0.90	0.45	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	87	F	9.681	480	12	5	370	A-499	825	12	27.977	52.4576	39.96	0.35	0.17	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	93	F	12.206	480	12	5	370	A-500	825	12	27.977	52.4576	39.96	0.44	0.22	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	94	E	18.134	691	12	6	370	A-501	825	12	27.977	52.4576	47.952	0.65	0.32	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
46	83	E	36.034	691	12	6	370	A-502	825	12	27.977	52.4576	47.952	1.29	0.64	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	84	F	13.284	480	12	5	370	A-503	825	12	27.977	52.4576	39.96	0.47	0.24	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok

Tabel 4.7.i Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Prncn mutu,diameter ,jmlh,jrk baut				ϕTn trk	ϕRn tump	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	88	F	11.720	480	12	5	370	A-504	825	12	27.977	52.4576	39.96	0.42	0.21	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	95	E	24.089	691	12	6	370	A-505	825	12	27.977	52.4576	47.952	0.86	0.43	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
47	85	E	21.602	691	12	6	370	A-506	825	12	27.977	52.4576	47.952	0.77	0.39	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	88	F	11.720	480	12	5	370	A-507	825	12	27.977	52.4576	39.96	0.42	0.21	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	96	F	14.656	480	12	5	370	A-508	825	12	27.977	52.4576	39.96	0.52	0.26	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	97	E	29.776	691	12	6	370	A-509	825	12	27.977	52.4576	47.952	1.06	0.53	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
48	92	E	12.400	691	12	6	370	A-510	825	12	27.977	52.4576	47.952	0.44	0.22	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	93	F	12.206	480	12	5	370	A-511	825	12	27.977	52.4576	39.96	0.44	0.22	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	98	F	10.418	480	12	5	370	A-512	825	12	27.977	52.4576	39.96	0.37	0.19	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	101	E	19.384	691	12	6	370	A-513	825	12	27.977	52.4576	47.952	0.69	0.35	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
49	94	E	18.134	691	12	6	370	A-514	825	12	27.977	52.4576	47.952	0.65	0.32	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	98	F	10.418	480	12	5	370	A-515	825	12	27.977	52.4576	39.96	0.37	0.19	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	102	F	18.470	480	12	5	370	A-516	825	12	27.977	52.4576	39.96	0.66	0.33	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	103	E	3.125	691	12	6	370	A-517	825	12	27.977	52.4576	47.952	0.11	0.06	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
50	95	E	24.089	691	12	6	370	A-518	825	12	27.977	52.4576	47.952	0.86	0.43	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	96	F	14.656	480	12	5	370	A-519	825	12	27.977	52.4576	39.96	0.52	0.26	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	99	F	15.705	480	12	5	370	A-520	825	12	27.977	52.4576	39.96	0.56	0.28	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	104	E	16.000	691	12	6	370	A-521	825	12	27.977	52.4576	47.952	0.57	0.29	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
51	89	F	6.331	480	12	5	370	A-522	825	12	27.977	52.4576	39.96	0.23	0.11	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	97	E	29.776	691	12	6	370	A-523	825	12	27.977	52.4576	47.952	1.06	0.53	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	99	F	15.705	480	12	5	370	A-524	825	12	27.977	52.4576	39.96	0.56	0.28	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	100	F	8.222	480	12	5	370	A-525	825	12	27.977	52.4576	39.96	0.29	0.15	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	105	F	14.704	480	12	5	370	A-526	825	12	27.977	52.4576	39.96	0.53	0.26	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	106	E	36.529	691	12	6	370	A-527	825	12	27.977	52.4576	47.952	1.31	0.65	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
52	90	F	3.543	480	12	5	370	A-528	825	12	27.977	52.4576	39.96	0.13	0.06	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	91	F	3.828	480	12	5	370	A-529	825	12	27.977	52.4576	39.96	0.14	0.07	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	100	F	8.222	480	12	5	370	A-530	825	12	27.977	52.4576	39.96	0.29	0.15	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	107	F	16.570	480	12	5	370	A-531	825	12	27.977	52.4576	39.96	0.59	0.30	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	108	F	21.285	480	12	5	370	A-532	825	12	27.977	52.4576	39.96	0.76	0.38	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
53	101	E	19.384	691	12	6	370	A-533	825	12	27.977	52.4576	47.952	0.69	0.35	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok

Tabel 4.7.i Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump	*n*	*n/2*	*np*	*s*	*s'*	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								*Avg*	*Ant*	*ϕTn1*	*Ans*	*Atg*	*ϕTn2*	*An*	*ϕNn*	
			(kN)	(mm2)	(mm)	(mm	(Mpa)		(Mpa)	(mm	(kN)	(kN)	(kN)				(mm	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	102	F	18.470	480	12	5	370	A-534	825	12	27.977	52.4576	39.96	0.66	0.33	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	109	F	11.387	480	12	5	370	A-535	825	12	27.977	52.4576	39.96	0.41	0.20	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	114	E	34.384	691	12	6	370	A-536	825	12	27.977	52.4576	47.952	1.23	0.61	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
54	103	E	3.125	691	12	6	370	A-537	825	12	27.977	52.4576	47.952	0.11	0.06	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	109	F	11.387	480	12	5	370	A-538	825	12	27.977	52.4576	39.96	0.41	0.20	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	110	E	11.550	691	12	6	370	A-539	825	12	27.977	52.4576	47.952	0.41	0.21	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	115	F	0.709	480	12	5	370	A-540	825	12	27.977	52.4576	39.96	0.03	0.01	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	116	E	2.469	691	12	6	370	A-541	825	12	27.977	52.4576	47.952	0.09	0.04	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
55	110	E	11.550	691	12	6	370	A-542	825	12	27.977	52.4576	47.952	0.41	0.21	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	111	E	19.454	691	12	6	370	A-543	825	12	27.977	52.4576	47.952	0.70	0.35	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	117	F	18.355	480	12	5	370	A-544	825	12	27.977	52.4576	39.96	0.66	0.33	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	118	F	0.006	480	12	5	370	A-545	825	12	27.977	52.4576	39.96	0.00	0.00	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	119	F	22.072	480	12	5	370	A-546	825	12	27.977	52.4576	39.96	0.79	0.39	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
56	104	E	16.000	691	12	6	370	A-547	825	12	27.977	52.4576	47.952	0.57	0.29	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	105	F	14.704	480	12	5	370	A-548	825	12	27.977	52.4576	39.96	0.53	0.26	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	111	E	19.454	691	12	6	370	A-549	825	12	27.977	52.4576	47.952	0.70	0.35	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	112	F	6.100	480	12	5	370	A-550	825	12	27.977	52.4576	39.96	0.22	0.11	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	120	E	3.859	691	12	6	370	A-551	825	12	27.977	52.4576	47.952	0.14	0.07	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
57	106	E	36.529	691	12	6	370	A-552	825	12	27.977	52.4576	47.952	1.31	0.65	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	107	F	16.570	480	12	5	370	A-553	825	12	27.977	52.4576	39.96	0.59	0.30	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	112	F	6.100	480	12	5	370	A-554	825	12	27.977	52.4576	39.96	0.22	0.11	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	113	F	4.003	480	12	5	370	A-555	825	12	27.977	52.4576	39.96	0.14	0.07	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	121	F	5.379	480	12	5	370	A-556	825	12	27.977	52.4576	39.96	0.19	0.10	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	122	E	26.374	691	12	6	370	A-557	825	12	27.977	52.4576	47.952	0.94	0.47	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
58	108	F	21.285	480	12	5	370	A-558	825	12	27.977	52.4576	39.96	0.76	0.38	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	113	F	4.003	480	12	5	370	A-559	825	12	27.977	52.4576	39.96	0.14	0.07	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	123	F	9.856	480	12	5	370	A-560	825	12	27.977	52.4576	39.96	0.35	0.18	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	124	F	30.204	480	12	5	370	A-561	825	12	27.977	52.4576	39.96	1.08	0.54	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
59	114	E	34.384	691	12	6	370	A-562	825	12	27.977	52.4576	47.952	1.23	0.61	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	115	F	0.709	480	12	5	370	A-563	825	12	27.977	52.4576	39.96	0.03	0.01	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok

Tabel 4.7.*i* Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter,,jmlh,,jrk baut				ϕTn trk	ϕRn tump.	*n*	*n/2*	*np*	*s*	*s'*	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								*Avg*	*Ant*	*ϕTn1*	*Ans*	*Atg*	*ϕTn2*	*An*	*ϕNn*	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	125	F	0.868	480	12	5	370	A-564	825	12	27.977	52.4576	39.96	0.03	0.02	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	130	E	35.016	691	12	6	370	A-565	825	12	27.977	52.4576	47.952	1.25	0.63	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
60	116	E	2.469	691	12	6	370	A-566	825	12	27.977	52.4576	47.952	0.09	0.04	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	117	F	18.355	480	12	5	370	A-567	825	12	27.977	52.4576	39.96	0.66	0.33	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	125	F	0.868	480	12	5	370	A-568	825	12	27.977	52.4576	39.96	0.03	0.02	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	126	E	3.357	691	12	6	370	A-569	825	12	27.977	52.4576	47.952	0.12	0.06	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	131	F	31.520	480	12	5	370	A-570	825	12	27.977	52.4576	39.96	1.13	0.56	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	132	E	10.588	691	12	6	370	A-571	825	12	27.977	52.4576	47.952	0.38	0.19	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
61	118	F	0.006	480	12	5	370	A-572	825	12	27.977	52.4576	39.96	0.00	0.00	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	126	E	3.357	691	12	6	370	A-573	825	12	27.977	52.4576	47.952	0.12	0.06	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	127	E	2.893	691	12	6	370	A-574	825	12	27.977	52.4576	47.952	0.10	0.05	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
62	119	F	22.072	480	12	5	370	A-575	825	12	27.977	52.4576	39.96	0.79	0.39	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	120	E	3.859	691	12	6	370	A-576	825	12	27.977	52.4576	47.952	0.14	0.07	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	121	F	5.379	480	12	5	370	A-577	825	12	27.977	52.4576	39.96	0.19	0.10	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	127	E	2.893	691	12	6	370	A-578	825	12	27.977	52.4576	47.952	0.10	0.05	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	128	F	16.181	480	12	5	370	A-579	825	12	27.977	52.4576	39.96	0.58	0.29	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	133	E	11.312	691	12	6	370	A-580	825	12	27.977	52.4576	47.952	0.40	0.20	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
63	122	E	26.374	691	12	6	370	A-581	825	12	27.977	52.4576	47.952	0.94	0.47	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	123	F	9.856	480	12	5	370	A-582	825	12	27.977	52.4576	39.96	0.35	0.18	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	128	F	16.181	480	12	5	370	A-583	825	12	27.977	52.4576	39.96	0.58	0.29	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	129	F	4.730	480	12	5	370	A-584	825	12	27.977	52.4576	39.96	0.17	0.08	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	134	F	24.407	480	12	5	370	A-585	825	12	27.977	52.4576	39.96	0.87	0.44	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	135	E	39.448	691	12	6	370	A-586	825	12	27.977	52.4576	47.952	1.41	0.70	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
64	124	F	30.204	480	12	5	370	A-587	825	12	27.977	52.4576	39.96	1.08	0.54	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	129	F	4.730	480	12	5	370	A-588	825	12	27.977	52.4576	39.96	0.17	0.08	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	136	F	10.793	480	12	5	370	A-589	825	12	27.977	52.4576	39.96	0.39	0.19	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
	137	F	39.941	480	12	5	370	A-590	825	12	27.977	52.4576	39.96	1.43	0.71	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
65	130	E	35.016	691	12	6	370	A-591	825	12	27.977	52.4576	47.952	1.25	0.63	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	131	F	31.520	480	12	5	370	A-592	825	12	27.977	52.4576	39.96	1.13	0.56	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
66	132	E	10.588	691	12	6	370	A-593	825	12	27.977	52.4576	47.952	0.38	0.19	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok

Tabel 4.7.i Lanjutan

Join	Btg	Prf	Nu	Ag	tp	tf	Fu p	Pmcn mutu,diameter, jmlh, jrk baut				ϕTn trk	ϕRn tump.	n	n/2	np	s	s'	Cek p.geser-r.tarik			Cek r.geser-p.tarik			cek An profil		Ket.
								Mutu baut	Fub	d	ϕVn geser								Avg	Ant	ϕTn1	Ans	Atg	ϕTn2	An	ϕNn	
			(kN)	(mm2)	(mm)	(mm)	(Mpa)		(Mpa)	(mm)	(kN)	(kN)	(kN)				(mm)	(mm)	(mm2)	(mm2)	(kN)	(mm2)	(mm2)	(kN)	(mm2)	(kN)	
[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
67	133	E	11.312	691	12	6	370	A-597	825	12	27.977	52.4576	47.952	0.40	0.20	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	134	F	24.407	480	12	5	370	A-598	825	12	27.977	52.4576	39.96	0.87	0.44	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
68	135	E	39.448	691	12	6	370	A-599	825	12	27.977	52.4576	47.952	1.41	0.70	1	0	40	240	141	130.10	168	180	120.744	2016	559.4	ok
	136	F	10.793	480	12	5	370	A-600	825	12	27.977	52.4576	39.96	0.39	0.19	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok
69	137	F	39.941	480	12	5	370	A-601	825	12	27.977	52.4576	39.96	1.43	0.71	1	0	40	200	92.5	94.54	140	125	91.62	2016	559.4	ok

Keterangan:

[1] Titik buhul

[2] Nomer batang

[3] Profil terpasang

[4] Nu = gaya batang

[5] Ag = luas penampang profil (mm^2)

[6] tp = tebal pelat buhul

[7] tf = tebal profil

[8] Fu p = tegangan putus minimum baja profil

[9] Mutu baut

[10] Fu b = tegangan tarik putus baut

[11] d = diameter baut

[12] ΦRn geser = 0,75.0,4.Fub.Ab (kuat geser rencana baut)

[13] ΦRn tarik = 0,75.0,75.Fub.Ab (kuat tarik rencana baut)

[14] ΦRn tumpu = 2,4.0,75.db.tp.Fu (kuat tumpu rencana baut)

[15] n = jumlah baut

[16] n/2

[17] np = baut terpasang

[18] s = jarak antar baut

[19] s' = jarak lubang baut dengan tepi pelat profil

[20] Avg = luas bruto pelelehan geser

[21] Ant = luas bersih retakan tarik

[22] ΦTn1 = kekuatan nominal tarik pelat profil pelelehan geser-retakan tarik

[23] Ans = luas bersih retakan geser

[24] Atg = luas kotor pelelehan tarik

[25] ΦTn2 = kekuatan nominal tarik pelat profil retakan geser-pelelehan tarik

[26] An = luas netto profil

[27] ΦNn = kuat tarik profil

[28] Nu ≤ Φ Nn ; profil aman dipakai

Tabel ! 5.1 Penulangan Pelat Lantai

Pelat beton	Arah	L	Ly/Lx	letak	c	wu	Mu	Mu/ø	h	d'	d	a	penulangan pokok pelat					Penulangan bagi pelat			
													As perlu	As min	s perlu	Tul pakai	As pakai	As perlu	s perlu	Tul pakai	As pakai
		(m)				(kNm)	(kNm)	(kNm)	(mm)	(mm)	(mm)	(mm)	(mm^2)	(mm^2)	(mm)		(mm^2)	(mm^2)	(mm)		(mm^2)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]
L1	arah-x	3.150	1.270	lx=tx	48.80	11.4	5.520	6.900	120	19	101	4.102	290.5583	300	168	P8- 150	334.9333	168	168.2143	P6- 150	188.4
	arah-y	4.000	1.270	ly	38	11.4	4.298	5.37303	120	27	93	3.463	245.2958	300	168	P8- 150	334.9333	168	168.2143	P6- 150	188.4
				ty	-38	11.4	-4.298	-5.373	120	19	101	3.179	225.1792	300	168	P8- 150	334.9333	168	168.2143	P6- 150	188.4
L2	arah-x	3.250	1.231	lx=tx	47.24	11.4	5.688	7.110	120	19	101	4.230	299.625	300	168	P8- 150	334.9333	168	168.2143	P6- 150	188.4
	arah-y	4.000	1.231	ly	38	11.4	4.576	5.720	120	27	93	3.691	261.4458	300	168	P8- 150	334.9333	168	168.2143	P6- 150	188.4
				ty	-38	11.4	-4.576	-5.720	120	19	101	3.388	239.9833	300	168	P8- 150	334.9333	168	168.2143	P6- 150	188.4
L3	arah-x	3.150	1.905	lx=tx	61.05	11.4	6.906	8.632	120	19	101	5.159	365.4292	300	168	P8- 150	334.9333	168	168.2143	P6- 150	188.4
	arah-y	6.000	1.905	ly	35	11.4	3.959	4.949	120	27	93	3.185	225.6042	300	168	P8- 150	334.9333	168	168.2143	P6- 150	188.4
				ty	-35	11.4	-3.959	-4.9488	120	19	101	2.925	207.1875	300	168	P8- 150	334.9333	168	168.2143	P6- 150	188.4
L4	arah-x	3.250	1.846	lx=tx	60.46	11.4	7.280	9.100	120	19	101	5.447	385.8292	300	168	P8- 150	334.9333	168	168.2143	P6- 150	188.4
	arah-y	6.000	1.846	ly	35	11.4	4.214	5.26805	120	27	93	3.394	240.4083	300	168	P8- 150	334.9333	168	168.2143	P6- 150	188.4
				ty	-35	11.4	-4.214	-5.268	120	19	101	3.116	220.7167	300	168	P8- 150	334.9333	168	168.2143	P6- 150	188.4
L5	arah-x	3.150	2.222	lx=tx	62.22	11.4	7.038	8.798	120	19	101	5.261	372.6542	300	168	P8- 150	334.9333	168	168.2143	P6- 150	188.4
	arah-y	7.000	2.222	ly	34	11.4	3.846	4.807	120	27	93	3.092	219.0167	300	168	P8- 150	334.9333	168	168.2143	P6- 150	188.4
				ty	-34	11.4	-3.84596	-4.8075	120	19	101	2.840	201.1667	300	168	P8- 150	334.9333	168	168.2143	P6- 150	188.4
L6	arah-x	3.250	2.154	lx=tx	62	11.4	7.466	9.33197	120	19	101	5.590	395.9583	300	168	P8- 150	334.9333	168	168.2143	P6- 150	188.4
	arah-y	7.000	2.154	ly	34	11.4	4.094	5.118	120	27	93	3.296	233.4667	300	168	P8- 150	334.9333	168	168.2143	P6- 150	188.4
				ty	-34	11.4	-4.09403	-5.1175	120	19	101	3.026	214.3417	300	168	P8- 150	334.9333	168	168.2143	P6- 150	188.4
L7	arah-x	3.000	1.083	lx=tx	40.98	11.4	4.205	5.256	120	19	101	3.109	220.2208	300	168	P8- 150	334.9333	168	168.2143	P6- 150	188.4
	arah-y	3.250	1.083	ly	36.83	11.4	3.779	4.723	120	27	93	3.037	215.1208	300	168	P8- 150	334.9333	168	168.2143	P6- 150	188.4
				ty	-36.83	11.4	-3.779	-4.7234	120	19	101	2.789	197.5542	300	168	P8- 150	334.9333	168	168.2143	P6- 150	188.4
L8	arah-x	3.150	1.444	lx=tx	53.32	11.4	6.031	7.53921	120	19	101	4.491	318.1125	300	168	P8- 150	334.9333	168	168.2143	P6- 150	188.4
	arah-y	4.550	1.444	ly	37.44	11.4	4.235	5.29385	120	27	93	3.411	241.6125	300	168	P8- 150	334.9333	168	168.2143	P6- 150	188.4
				ty	-37.44	11.4	-4.235	-5.2939	120	19	101	3.132	221.85	300	168	P8- 150	334.9333	168	168.2143	P6- 150	188.4
L9	arah-x	3.150	1.111	lx=tx	42.44	11.4	4.801	6.0014	120	19	101	3.558	252.025	300	168	P8- 150	334.9333	168	168.2143	P6- 150	188.4
	arah-y	3.500	1.111	ly	37.11	11.4	4.198	5.24719	120	27	93	3.380	239.4167	300	168	P8- 150	334.9333	168	168.2143	P6- 150	188.4
				ty	-37.11	11.4	-4.198	-5.2472	120	19	101	3.104	219.8667	300	168	P8- 150	334.9333	168	168.2143	P6- 150	188.4

Tabel 5.1 Lanjutan

Pelat beton	Arah	L	Ly/Lx	letak	c	wu	Mu	Mu/ø	h	d'	d	a	penulangan pokok pelat					Penulangan bagi pelat			
													As perlu	As min	s perlu	Tul pakai	As pakai	As perlu	s perlu	Tul pakai	As pakai
		(m)				(kNm)	(kNm)	(kNm)	(mm)	(mm)	(mm)	(mm)	(mm^2)	(mm^2)	(mm)		(mm^2)	(mm^2)	(mm)		(mm^2)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]
L10	arah-x	3.150	1.850	lx=tx	60.5	11.4	6.844	8.554	120	19	101	5.111	362.0292	300	168	P8- 150	334.9333	168	168.2143	P6- 150	188.4
	arah-y	5.827	1.850	ly	35	11.4	3.959	4.949	120	27	93	3.185	225.6042	300	168	P8- 150	334.9333	168	168.2143	P6- 150	188.4
				ty	-35.00	11.4	-3.959	-4.9488	120	19	101	2.925	207.1875	300	168	P8- 150	334.9333	168	168.2143	P6- 150	188.4
L11	arah-x	3.150	1.428	lx=tx	53.86	11.4	6.092	7.615	120	19	101	4.537	321.3708	300	168	P8- 150	334.9333	168	168.2143	P6- 150	188.4
	arah-y	4.500	1.428	ly	37.28	11.4	4.217	5.271	120	27	93	3.396	240.55	300	168	P8- 150	334.9333	168	168.2143	P6- 150	188.4
				ty	-37.28	11.4	-4.217	-5.2712	120	19	101	3.118	220.8583	300	168	P8- 150	334.9333	168	168.2143	P6- 150	188.4

Keterangan **Tabel 5.1** :

[1] Pelat yang ditinjau

[2] Arah tinjauan pelat: arah-x dan arah-y

[3] *L* = bentang pelat menurut arah-x dan arah-y

[4] *Ly/Lx*

[5] Letak tulangan: *l* = lapangan, *t* = tumpuan

[6] *c* = koefisien momen tergantung kondisi tumpuan Ly/Lx (ketentuan PBI 1971, tumpuan terjepit elastis)

[7] *wu* = berat merata terfaktor

[8] *Mu* = 0,001.*c*.*wu*.*Lx*^2

[10] *h* = tebal pelat

[11] *d'* = *Pb* + 1/2.*P* (untuk *lx*,*tx* , dan *ty*)
d' = *Pb* + *P* +1/2.*P* (untuk *ly*)
dengan *Pb* = 15 mm, *P* = 8 mm

[12] *d* = *h* - *d'*

[13] *a* didapat dari persamaan
(*Mu*/0,8) = 0,85.*f'c*.*b*.*a*.[*d* - (*a*/2)]
dengan *f'c* = 20 Mpa, *b* = 1000 mm

[14] *As perlu* = (0,85.*f'c*.*b*.*a*)/*fy*
dengan *fy* = 240 Mpa

[15] *A s,min* = 0,0025.*b*.*h*

[16] *S perlu* = (*P*^2.π.0,25.*b*)/*A s perlu*

[17] Tulangan pokok terpakai

[18] *A s pakai* = [(*P*^2.π.0,25.*b*)/*S pakai* > *As perlu*
P = 8 mm

[19] *As perlu bagi* = 0,0014.*b*.*h*

[20] *S perlu bagi* = [(*P*^2.π.0,25.*b*)/*As perlu*
P = 6 mm

[21] Tulangan bagi terpakai

[22] *As bagi pakai* = [(*P*^2.π.0,25.*b*)/*S pakai* > *As perlu*

5.2 Momen Rencana Balok Anak

Balok	Letak Momen	M. mati MD	M. hidup ML	Mu	Balok Anak	Lantai
]	[2]	[3]	[4]	[5]	[6]	[7]
	tumpuan	1.074375	0.8535445	2.6549212	BA k	Lantai 1 Arah A
	lapangan	-1.323195	-1.051221	-3.2697876		
	tumpuan	-8.515907	-6.765518	-21.0439172		
2	tumpuan	-13.18272	-10.37106	-32.41296	BA j	Lantai 1 Arah A
2	lapangan	18.79381	14.4362	45.650492		
2	tumpuan	-21.33469	-16.24946	-51.600764		
3	tumpuan	-12.50592	-9.515484	-30.2318784	BA i	Lantai 1 Arah A
3	lapangan	-8.92654	-7.035306	-21.9683376		
3	tumpuan	-46.31001	-35.65757	-112.624124		
4	tumpuan	-46.31001	-35.65757	-112.624124	BA g	Lantai 1 Arah A
4	lapangan	38.99244	30.10142	94.9532		
4	tumpuan	-61.46892	-48.06483	-150.666432		
5	tumpuan	-61.46892	-48.06483	-150.666432	BA d	Lantai 1 Arah A
5	lapangan	21.24365	17.07329	52.809644		
5	tumpuan	-29.6163	-20.76659	-68.766104		
6	tumpuan	-29.6163	-20.76659	-68.766104	BA o	Lantai 1 Arah A
6	lapangan	8.258691	3.597102	15.6657924		
6	tumpuan	-33.37584	-23.52821	-77.696144		
7	tumpuan	-33.37584	-23.52821	-77.696144	BA d	Lantai 1 Arah A
7	lapangan	25.07584	19.88828	61.912256		
7	tumpuan	-50.045	-39.67323	-123.531168		
8	tumpuan	-50.045	-39.67323	-123.531168	BA d	Lantai 1 Arah A
8	lapangan	25.07584	19.88828	61.912256		
8	tumpuan	-33.37584	-23.52821	-77.696144		
9	tumpuan	-33.37584	-23.52821	-77.696144	BA o	Lantai 1 Arah A
9	lapangan	8.258691	3.597102	15.6657924		
9	tumpuan	-29.6163	-20.76659	-68.766104		
10	tumpuan	-29.6163	-20.76659	-68.766104	BA d	Lantai 1 Arah A
10	lapangan	21.24365	17.07329	52.809644		
10	tumpuan	-61.46892	-48.06483	-150.666432		
11	tumpuan	-61.46892	-48.06483	-150.666432	BA g	Lantai 1 Arah A
11	lapangan	38.99244	30.10142	94.9532		
11	tumpuan	-46.31001	-35.65757	-112.624124		
12	tumpuan	-46.31001	-35.65757	-112.624124	BA i	Lantai 1 Arah A
12	lapangan	-8.92654	-7.035306	-21.9683376		
12	tumpuan	-12.50592	-9.515484	-30.2318784		
13	tumpuan	-21.33469	-16.24946	-51.600764	BA j	Lantai 1 Arah A
13	lapangan	18.79381	14.4362	45.650492		
13	tumpuan	-13.18272	-10.37106	-32.41296		
15	tumpuan	-8.515907	-6.765518	-21.0439172	BA k	Lantai 1 Arah A
15	lapangan	-1.323195	-1.051221	-3.2697876		
15	tumpuan	1.074375	0.8535445	2.6549212		
1	tumpuan	2.532855	2.022504	6.2754324	BA l	Lantai 1 Arah A
1	lapangan	-1.207064	-0.9638501	-2.99063696		
1	tumpuan	-12.42682	-9.922914	-30.7888464		
2	tumpuan	-13.70016	-10.49129	-33.226256	BA m	Lantai 1 Arah A
2	lapangan	-1.180625	-1.755906	-4.2261996		
2	tumpuan	8.014096	6.979478	20.78408		

5.2 Lanjutan

Balok	Letak Momen	M. mati MD	M. hidup ML	Mu	Balok Anak	Lantai
	[2]	[3]	[4]	[5]	[6]	[7]
	tumpuan	3.213112	2.63726	8.0753504	BA n	Lantai 1 Arah A
	lapangan	-14.40473	-9.630913	-32.6951368		
	tumpuan	-33.21714	-21.89909	-74.899112		
	tumpuan	-33.21714	-21.89909	-74.899112	BA f	Lantai 1 Arah A
	lapangan	22.82902	15.08238	51.526632		
	tumpuan	-33.36414	-21.84041	-74.981624		
	tumpuan	-33.36414	-21.84041	-74.981624	BA c	Lantai 1 Arah A
	lapangan	9.526753	6.073938	21.1504044		
	tumpuan	-28.45089	-18.78772	-64.20142		
5	tumpuan	-28.45089	-18.78772	-64.20142	BA c	Lantai 1 Arah A
5	lapangan	18.95302	12.73689	43.122648		
5	tumpuan	-14.51161	-8.514506	-31.0371416		
7	tumpuan	-14.51161	-8.514506	-31.0371416	BA h	Lantai 1 Arah A
7	lapangan	-16.4793	-12.99646	-40.569496		
7	tumpuan	-34.15736	-26.38167	-83.199504		
8	tumpuan	-34.15736	-26.38167	-83.199504	BA e	Lantai 1 Arah A
8	lapangan	33.9834	26.39883	83.018208		
8	tumpuan	-34.15736	-26.38167	-83.199504		
9	tumpuan	-34.15736	-26.38167	-83.199504	BA h	Lantai 1 Arah A
9	lapangan	-16.4793	-12.99646	-40.569496		
9	tumpuan	-14.51161	-8.514506	-31.0371416		
10	tumpuan	-14.51161	-8.514506	-31.0371416	BA c	Lantai 1 Arah A
10	lapangan	18.95302	12.73689	43.122648		
10	tumpuan	-28.45089	-18.78772	-64.20142		
11	tumpuan	-28.45089	-18.78772	-64.20142	BA c	Lantai 1 Arah A
11	lapangan	9.526753	6.073938	21.1504044		
11	tumpuan	-33.36414	-21.84041	-74.981624		
12	tumpuan	-33.36414	-21.84041	-74.981624	BA f	Lantai 1 Arah A
12	lapangan	22.82902	15.08238	51.526632		
12	tumpuan	-33.21714	-21.89909	-74.899112		
13	tumpuan	-33.21714	-21.89909	-74.899112	BA n	Lantai 1 Arah A
13	lapangan	-14.40473	-9.630913	-32.6951368		
13	tumpuan	3.213112	2.63726	8.0753504		
14	tumpuan	8.014096	6.979478	20.78408	BA m	Lantai 1 Arah A
14	lapangan	-1.180625	-1.755906	-4.2261996		
14	tumpuan	-13.70016	-10.49129	-33.226256		
15	tumpuan	-12.42682	-9.922914	-30.7888464	BA l	Lantai 1 Arah A
15	lapangan	-1.207064	-0.9638501	-2.99063696		
15	tumpuan	2.532855	2.022504	6.2754324		
1	tumpuan	1.074375	0.8535445	2.6549212	BA k	Lantai 1 Arah B
1	lapangan	-1.323195	-1.051221	-3.2697876		
1	tumpuan	-8.515907	-6.765518	-21.0439172		
2	tumpuan	-11.97084	-9.429768	-29.4526368	BA j	Lantai 1 Arah B
2	lapangan	16.4647	12.62713	39.961048		
2	tumpuan	-27.20479	-20.8089	-65.939988		
3	tumpuan	-17.4791	-13.37827	-42.380152	BA i	Lantai 1 Arah B
3	lapangan	3.656288	2.738048	8.7684224		
3	tumpuan	-16.17116	-12.24809	-39.002336		

5.2 Lanjutan

Balok	Letak Momen	M. mati MD	M. hidup ML	Mu	Balok Anak	Lantai
	[2]	[3]	[4]	[5]	[6]	[7]
	tumpuan	-16.17116	-12.24809	-39.002336	BA b	Lantai 1 Arah B
	lapangan	11.8909	9.034966	28.7250256		
	tumpuan	-13.3366	-9.661982	-31.4630912		
	tumpuan	-13.3366	-9.661982	-31.4630912	BA b	Lantai 1 Arah B
	lapangan	1.251676	0.4663881	2.24823216		
	tumpuan	-37.44962	-29.38524	-91.955928		
	tumpuan	-37.44962	-29.38524	-91.955928	BA d	Lantai 1 Arah B
	lapangan	30.49673	24.28541	75.452732		
	tumpuan	-35.12946	-25.02194	-82.190456		
	tumpuan	-35.12946	-25.02194	-82.190456	BA o	Lantai 1 Arah B
	lapangan	4.625306	0.7225634	6.70646864		
	tumpuan	-35.12946	-25.02194	-82.190456		
3	tumpuan	-35.12946	-25.02194	-82.190456	BA d	Lantai 1 Arah B
3	lapangan	30.49673	24.28541	75.452732		
3	tumpuan	-37.44962	-29.38524	-91.955928		
3	tumpuan	-37.44962	-29.38524	-91.955928	BA b	Lantai 1 Arah B
3	lapangan	1.251676	0.4663881	2.24823216		
3	tumpuan	-13.3366	-9.661982	-31.4630912		
0	tumpuan	-13.3366	-9.661982	-31.4630912	BA b	Lantai 1 Arah B
0	lapangan	11.8909	9.034966	28.7250256		
0	tumpuan	-16.17116	-12.24809	-39.002336		
1	tumpuan	-16.17116	-12.24809	-39.002336	BA i	Lantai 1 Arah B
1	lapangan	3.656288	2.738048	8.7684224		
1	tumpuan	-17.4791	-13.37827	-42.380152		
3	tumpuan	-27.20479	-20.8089	-65.939988	BA j	Lantai 1 Arah B
3	lapangan	16.4647	12.62713	39.961048		
3	tumpuan	-11.97084	-9.429768	-29.4526368		
4	tumpuan	-8.515907	-6.765518	-21.0439172	BA k	Lantai 1 Arah B
4	lapangan	-1.323195	-1.051221	-3.2697876		
4	tumpuan	1.074375	0.8535445	2.6549212		
1	tumpuan	1.102858	0.8806411	2.73245536	BA l	Lantai 1 Arah B
1	lapangan	-1.358275	-1.084593	-3.3652788		
1	tumpuan	-8.741674	-6.980296	-21.6584824		
2	tumpuan	-8.592197	-6.761176	-21.128518	BA m	Lantai 1 Arah B
2	lapangan	-1.651229	-1.795382	-4.854086		
2	tumpuan	3.498074	3.170412	9.270348		
3	tumpuan	1.984597	1.789976	5.245478	BA n	Lantai 1 Arah B
3	lapangan	-2.796991	-1.781062	-6.2060884		
3	tumpuan	-8.773151	-5.352099	-19.0911396		
4	tumpuan	-8.773151	-5.352099	-19.0911396	BA a	Lantai 1 Arah B
4	lapangan	6.951261	4.275456	15.1822428		
4	tumpuan	-9.925895	-6.37699	-22.114258		
5	tumpuan	-9.925895	-6.37699	-22.114258	BA a	Lantai 1 Arah B
5	lapangan	2.933375	2.084746	6.8556436		
5	tumpuan	-16.80892	-9.733518	-35.7443328		
6	tumpuan	-16.80892	-9.733518	-35.7443328	BA c	Lantai 1 Arah B
6	lapangan	12.01056	6.673668	25.0905408		
6	tumpuan	-40.03849	-29.69514	-95.558412		

el 5.2 Lanjutan

m Balok	Letak Momen	M. mati MD	M. hidup ML	Mu	Balok Anak	Lantai
[1]	[2]	[3]	[4]	[5]	[6]	[7]
7	tumpuan	-40.03849	-29.69514	-95.558412	BA e	Lantai 1 Arah B
7	lapangan	28.10227	23.08535	70.659284		
7	tumpuan	-40.03849	-29.69514	-95.558412		
8	tumpuan	-40.03849	-29.69514	-95.558412	BA c	Lantai 1 Arah B
8	lapangan	12.01056	6.673668	25.0905408		
8	tumpuan	-16.80892	-9.733518	-35.7443328		
9	tumpuan	-16.80892	-9.733518	-35.7443328	BA a	Lantai 1 Arah B
9	lapangan	2.933375	2.084746	6.8556436		
9	tumpuan	-9.925895	-6.37699	-22.114258		
10	tumpuan	-9.925895	-6.37699	-22.114258	BA a	Lantai 1 Arah B
10	lapangan	6.951261	4.275456	15.1822428		
10	tumpuan	-8.773151	-5.352099	-19.0911396		
11	tumpuan	-8.773151	-5.352099	-19.0911396	BA n	Lantai 1 Arah B
11	lapangan	-2.796991	-1.781062	-6.2060884		
11	tumpuan	1.984597	1.789976	5.245478		
12	tumpuan	3.498074	3.170412	9.270348	BA m	Lantai 1 Arah B
12	lapangan	-1.651229	-1.795382	-4.854086		
12	tumpuan	-8.592197	-6.761176	-21.128518		
13	tumpuan	-8.741674	-6.980296	-21.6584824	BA l	Lantai 1 Arah B
13	lapangan	-1.358275	-1.084593	-3.3652788		
13	tumpuan	1.102858	0.8806411	2.73245536		
1	tumpuan	1.074375	0.8535445	2.6549212	BA k	Lantai 2 Arah A
1	lapangan	-1.323195	-1.051221	-3.2697876		
1	tumpuan	-8.515907	-6.765518	-21.0439172		
2	tumpuan	-11.92245	-9.170625	-28.97994	BA j	Lantai 2 Arah A
2	lapangan	11.51605	7.504266	25.8260856		
2	tumpuan	-8.016567	-3.564858	-15.3236532		
3	tumpuan	-4.038523	-1.450949	-7.167746	BA i	Lantai 2 Arah A
3	lapangan	-12.22411	-10.1753	-30.949412		
3	tumpuan	-45.04426	-34.45234	-109.176856		
4	tumpuan	-45.04426	-34.45234	-109.176856	BA g	Lantai 2 Arah A
4	lapangan	39.69644	30.77181	96.870624		
4	tumpuan	-61.32666	-47.92928	-150.27884		
5	tumpuan	-61.32666	-47.92928	-150.27884	BA o	Lantai 2 Arah A
5	lapangan	20.26412	16.14042	50.141616		
5	tumpuan	-31.71763	-22.76788	-74.489764		
6	tumpuan	-31.71763	-22.76788	-74.489764	BA o	Lantai 2 Arah A
6	lapangan	11.38015	6.569942	24.1680872		
6	tumpuan	-25.03159	-15.58123	-54.967876		
7	tumpuan	-25.03159	-15.58123	-54.967876	BA o	Lantai 2 Arah A
7	lapangan	13.623	8.980725	30.71676		
7	tumpuan	-27.23193	-17.94632	-61.392428		
8	tumpuan	-27.23193	-17.94632	-61.392428	BA o	Lantai 2 Arah A
8	lapangan	13.623	8.980725	30.71676		
8	tumpuan	-25.03159	-15.58123	-54.967876		
9	tumpuan	-25.03159	-15.58123	-54.967876	BA o	Lantai 2 Arah A
9	lapangan	11.38015	6.569942	24.1680872		
9	tumpuan	-31.71763	-22.76788	-74.489764		

l 5.2 Lanjutan

n Balok	Letak Momen	M. mati	M. hidup	Mu	Balok Anak	Lantai
		MD	ML			
1]	[2]	[3]	[4]	[5]	[6]	[7]
10	tumpuan	-31.71763	-22.76788	-74.489764	BA o	Lantai 2 Arah A
10	lapangan	20.26412	16.14042	50.141616		
10	tumpuan	-61.32666	-47.92928	-150.27884		
11	tumpuan	-61.32666	-47.92928	-150.27884	BA g	Lantai 2 Arah A
11	lapangan	39.69644	30.77181	96.870624		
11	tumpuan	-45.04426	-34.45234	-109.176856		
12	tumpuan	-45.04426	-34.45234	-109.176856	BA i	Lantai 2 Arah A
12	lapangan	-12.22411	-10.1753	-30.949412		
12	tumpuan	-4.038523	-1.450949	-7.167746		
13	tumpuan	-8.016567	-3.564858	-15.3236532	BA j	Lantai 2 Arah A
13	lapangan	11.51605	7.504266	25.8260856		
13	tumpuan	-11.92245	-9.170625	-28.97994		
15	tumpuan	-8.515907	-6.765518	-21.0439172	BA k	Lantai 2 Arah A
15	lapangan	-1.323195	-1.051221	-3.2697876		
15	tumpuan	1.074375	0.8535445	2.6549212		
1	tumpuan	1.074375	0.8535445	2.6549212	BA l	Lantai 2 Arah B
1	lapangan	-1.323195	-1.051221	-3.2697876		
1	tumpuan	-8.515907	-6.765518	-21.0439172		
2	tumpuan	-10.55596	-8.082091	-25.5984976	BA m	Lantai 2 Arah B
2	lapangan	8.889804	5.412219	19.3273152		
2	tumpuan	-14.63556	-8.837483	-31.7026448		
3	tumpuan	-9.646173	-5.917951	-21.0441292	BA n	Lantai 2 Arah B
3	lapangan	1.963997	1.12681	4.1596924		
3	tumpuan	-11.0604	-7.381121	-25.0822736		
4	tumpuan	-11.0604	-7.381121	-25.0822736	BA b	Lantai 2 Arah B
4	lapangan	8.649572	5.947983	19.8962592		
4	tumpuan	-3.942019	-0.7149123	-5.87428248		
5	tumpuan	-3.942019	-0.7149123	-5.87428248	BA b	Lantai 2 Arah B
5	lapangan	-5.006709	-5.493827	-14.798174		
5	tumpuan	-38.37297	-30.26474	-94.471148		
6	tumpuan	-38.37297	-30.26474	-94.471148	BA d	Lantai 2 Arah B
6	lapangan	35.52607	29.07525	89.151684		
6	tumpuan	24.14743	-14.56276	52.277316		
7	tumpuan	-24.14743	-14.56275	-52.277316	BA b	Lantai 2 Arah B
7	lapangan	-11.42416	-14.56275	-37.009392		
7	tumpuan	-24.14743	-14.56275	-52.277316		
8	tumpuan	-24.14743	-14.56275	-52.277316	BA d	Lantai 2 Arah B
8	lapangan	35.52607	29.07525	89.151684		
8	tumpuan	-38.37297	-30.26474	-94.471148		
9	tumpuan	-38.37297	-30.26474	-94.471148	BA b	Lantai 2 Arah B
9	lapangan	-5.006709	-5.493827	-14.798174		
9	tumpuan	-3.942019	-0.7149123	-5.87428248		
10	tumpuan	-3.942019	-0.7149123	-5.87428248	BA b	Lantai 2 Arah B
10	lapangan	8.649572	5.947983	19.8962592		
10	tumpuan	-11.0604	-7.381121	-25.0822736		
11	tumpuan	-11.0604	-7.381121	-25.0822736	BA n	Lantai 2 Arah B
11	lapangan	1.963997	1.12681	4.1596924		
11	tumpuan	-9.646173	-5.917951	-21.0441292		

l 5.2 Lanjutan

n Balok	Letak Momen	M. mati MD	M. hidup ML	Mu	Balok Anak	Lantai
[1]	[2]	[3]	[4]	[5]	[6]	[7]
13	tumpuan	-14.63556	-8.837483	-31.7026448	BA m	Lantai 2 Arah B
13	lapangan	8.889804	5.412219	19.3273152		
13	tumpuan	-10.55596	-8.082091	-25.5984976		
14	tumpuan	-8.515907	-6.765518	-21.0439172	BA I	Lantai 2 Arah B
14	lapangan	-1.323195	-1.051221	-3.2697876		
14	tumpuan	1.074375	0.8535445	2.6549212		
1	tumpuan	-62.46747	-49.06281	-153.46146	BA T A	Arah B
1	lapangan	33.38087	24.53141	79.3073		
1	tumpuan	-66.78031	-49.06281	-158.636868		
1	tumpuan	-65.06801	-45.86179	-151.460476	BA T B	Arah B
1	lapangan	33.0843	22.9309	76.3906		
1	tumpuan	-65.34919	-45.86179	-151.797892		
1	tumpuan	-70.30827	-55.66085	-173.427284	BA T C	Arah A
1	lapangan	37.65913	27.83043	89.719644		
1	tumpuan	-75.33992	-55.66085	-179.465264		
1	tumpuan	-44.23642	-27.92192	-97.758776	BA T D	Arah A
1	lapangan	22.47132	13.96096	49.30312		
1	tumpuan	-44.41685	-27.92192	-97.975292		
1	tumpuan	-32.15526	-19.02474	-69.025896	BA T E	Arah A
1	lapangan	16.30012	9.51237	34.779936		
1	tumpuan	-32.26894	-19.02474	-69.162312		
1	tumpuan	-27.61669	-15.38318	-57.753116	BA T F	Arah B
1	lapangan	13.98497	7.691591	29.0885096		
1	tumpuan	-27.70694	-15.38318	-57.861416		
1	tumpuan	-27.18858	-16.40708	-58.877624	BA T G	Arah A
1	lapangan	14.28346	8.203542	30.2658192		
1	tumpuan	-28.57288	-16.40708	-60.538784		

erangan **Tabel 5.2** :

Nomor elemen balok

Letak momen

MD = momen akibat beban mati (kNm)

ML = momen akibat beban hidup (kNm)

Mu = 1,2MD + 1,6ML

Tipe balok anak yang ditinjau

Letak balok anak

Tabel 5.3 Gaya Geser Rencana Balok Anak

No Elm Balok	Station	VD	VL	Vu	Balok Anak	Lantai
[1]	[2]	[3]	[4]	[5]	[6]	[7]
1	0	2.842171E-14	0	3.41061E-14	BA k	Lantai 1 Arah A
1	0.5303301	9.041805	7.183321	22.3434796		
1	1.06066	18.08361	14.36664	44.686956		
2	0	-30.75126	-23.75593	-74.911	BA j	Lantai 1 Arah A
2	2.212236	1.842473	1.328611	4.3367452		
2	4.424471	34.43621	26.41315	83.584492		
3	0	-14.0378	-10.52007	-33.677472	BA i	Lantai 1 Arah A
3	1.714	9.861169	7.626048	24.0350796		
3	3.428	33.76014	25.77217	81.74764		
4	0	-50.90981	-39.34903	-124.05022	BA g	Lantai 1 Arah A
4	3.5	2.165559	1.772465	5.4346148		
4	7	55.24093	42.89397	134.919468		
5	0	-49.83295	-38.87571	-122.000676	BA d	Lantai 1 Arah A
5	3	-5.308769	-4.549707	-13.650054		
5	6	39.21541	29.77629	94.700556		
6	0	-25.87659	-16.70273	-57.776276	BA o	Lantai 1 Arah A
6	3	0.62659	0.4602705	1.4883408		
6	6	27.12977	17.62327	60.752956		
7	0	-41.74598	-31.63516	-100.711432	BA d	Lantai 1 Arah A
7	3	2.778193	2.690837	7.6391708		
7	6	47.30237	37.01684	115.989788		
8	0	-47.30237	-37.01684	-115.989788	BA d	Lantai 1 Arah A
8	3	-2.778193	-2.690837	-7.6391708		
8	6	41.74598	31.63516	100.711432		
9	0	-27.12977	-17.62327	-60.752956	BA o	Lantai 1 Arah A
9	3	-0.62659	-0.4602705	-1.4883408		
9	6	25.87659	16.70273	57.776276		
10	0	-39.21541	-29.77629	-94.700556	BA d	Lantai 1 Arah A
10	3	5.308769	4.549707	13.650054		
10	6	49.83295	38.87571	122.000676		
11	0	-55.24093	-42.89397	-134.919468	BA g	Lantai 1 Arah A
11	3.5	-2.165559	-1.772465	-5.4346148		
11	7	50.90981	39.34903	124.05022		
12	0	-33.76014	-25.77217	-81.74764	BA i	Lantai 1 Arah A
12	1.714	-9.861169	-7.626048	-24.0350796		
12	3.428	14.0378	10.52007	33.677472		
13	0	-34.43621	-26.41315	-83.584492	BA j	Lantai 1 Arah A
13	2.212236	-1.842473	-1.328611	-4.3367452		
13	4.424471	30.75126	23.75593	74.911		
15	0	-18.08361	-14.36664	-44.686956	BA k	Lantai 1 Arah A
15	0.5303301	-9.041805	-7.183321	-22.3434796		
15	1.06066	-6.543052E-15	-1.24371E-14	-2.7751E-14		
1	0	1.421085E-14	5.329071E-15	2.55795E-14	BA l	Lantai 1 Arah A
1	0.6537471	11.44148	9.136115	28.34756		
1	1.307494	22.88297	18.27223	56.695132		
2	0	-13.07811	-8.055472	-28.5824872	BA m	Lantai 1 Arah A
2	1.084404	-10.01208	-8.055472	-24.9032512		
2	2.168807	-6.946041	-8.055472	-21.2240044		

Tabel 5.3 Lanjutan

No Elm Balok	Station	VD	VL	Vu	Balok Anak	Lantai
[1]	[2]	[3]	[4]	[5]	[6]	[7]
3	0	26.18546	18.87411	61.621128	BA n	Lantai 1 Arah A
3	0.65	28.02327	18.87411	63.8265		
3	1.3	29.86107	18.87411	66.03186		
4	0	-32.04737	-21.12388	-72.255052	BA f	Lantai 1 Arah A
4	3.5	2.100008E-02	-8.382878E-03	0.011787491		
4	7	32.08937	21.10712	72.278636		
5	0	-27.77505	-18.10078	-62.291308	BA c	Lantai 1 Arah A
5	3	-0.8188748	-0.5087811	-1.79669952		
5	6	26.1373	17.08322	58.697912		
6	0	-29.27939	-19.3042	-66.021988	BA c	Lantai 1 Arah A
6	3	-2.323213	-1.712202	-5.5273788		
6	6	24.63296	15.8798	54.967232		
7	0	-3.925004	2.022043E-02	-4.677652112	BA h	Lantai 1 Arah A
7	1.5	6.548584	5.95572	17.3874528		
7	3	17.02217	11.89122	39.452556		
8	0	-45.42718	-35.187	-110.811816	BA e	Lantai 1 Arah A
8	3	-2.708944E-14	-7.105427E-15	-4.3876E-14		
8	6	45.42718	35.187	110.811816		
9	0	-17.02217	-11.89122	-39.452556	BA h	Lantai 1 Arah A
9	1.5	-6.548584	-5.95572	-17.3874528		
9	3	3.925004	-2.022043E-02	4.677652112		
10	0	-24.63296	-15.8798	-54.967232	BA c	Lantai 1 Arah A
10	3	2.323213	1.712202	5.5273788		
10	6	29.27939	19.3042	66.021988		
11	0	-26.1373	-17.08322	-58.697912	BA c	Lantai 1 Arah A
11	3	0.8188748	0.5087811	1.79669952		
11	6	27.77505	18.10078	62.291308		
12	0	-32.08937	-21.10712	-72.278636	BA f	Lantai 1 Arah A
12	3.5	-2.100008E-02	8.382878E-03	-0.011787491		
12	7	32.04737	21.12388	72.255052		
13	0	-29.86107	-18.87411	-66.03186	BA n	Lantai 1 Arah A
13	0.65	-28.02327	-18.87411	-63.8265		
13	1.3	-26.18546	-18.87411	-61.621128		
14	0	6.946041	8.055472	21.2240044	BA m	Lantai 1 Arah A
14	1.084404	10.01208	8.055472	24.9032512		
14	2.168807	13.07811	8.055472	28.5824872		
15	0	-22.88297	-18.27223	-56.695132	BA l	Lantai 1 Arah A
15	0.6537471	-11.44148	-9.136115	-28.34756		
15	1.307494	2.873569E-15	-5.473053E-16	2.57259E-15		
1	0	7.105427E-15	0	8.52651E-15	BA k	Lantai 1 Arah B
1	0.5303301	9.041805	7.183321	22.3434796		
1	1.06066	18.08361	14.36664	44.686956		
2	0	-29.15063	-22.51268	-71.001044	BA j	Lantai 1 Arah B
2	2.212236	3.443113	2.571862	8.2467148		
2	4.424471	36.03685	27.6564	87.49446		
3	0	-24.28052	-18.47581	-58.69792	BA i	Lantai 1 Arah B
3	1.714	-0.3815477	-0.3296905	-0.98536204		
3	3.428	23.51743	17.81643	56.727204		

Tabel 5.3 Lanjutan

No Elm Balok	Station	VD	VL	Vu	Balok Anak	Lantai
[1]	[2]	[3]	[4]	[5]	[6]	[7]
4	0	-27.35342	-20.63653	-65.842552	BA b	Lantai 1 Arah B
4	2	-0.7086395	-0.6465261	-1.88480916		
4	4	25.93614	19.34347	62.07292		
5	0	-20.61653	-15.05919	-48.83454	BA b	Lantai 1 Arah B
5	2	6.028253	4.930815	15.1232076		
5	4	32.67304	24.92081	79.080944		
6	0	-44.91087	-35.05322	-109.978196	BA d	Lantai 1 Arah B
6	3	-0.3866926	-0.7272176	-1.62757928		
6	6	44.13748	33.59878	106.723024		
7	0	-26.50318	-17.163	-59.264616	BA o	Lantai 1 Arah B
7	3	1.021405E-14	1.421085E-14	3.49942E-14		
7	6	26.50318	17.163	59.264616		
8	0	-44.13748	-33.59878	-106.723024	BA d	Lantai 1 Arah B
8	3	0.3866926	0.7272176	1.62757928		
8	6	44.91087	35.05322	109.978196		
9	0	-32.67304	-24.92081	-79.080944	BA b	Lantai 1 Arah B
9	2	-6.028253	-4.930815	-15.1232076		
9	4	20.61653	15.05919	48.83454		
10	0	-25.93614	-19.34347	-62.07292	BA b	Lantai 1 Arah B
10	2	0.7086395	0.6465261	1.88480916		
10	4	27.35342	20.63653	65.842552		
11	0	-23.51743	-17.81643	-56.727204	BA i	Lantai 1 Arah B
11	1.714	0.3815477	0.3296905	0.98536204		
11	3.428	24.28052	18.47581	58.69792		
13	0	-36.03685	-27.6564	-87.49446	BA j	Lantai 1 Arah B
13	2.212236	-3.443113	-2.571862	-8.2467148		
13	4.424471	29.15063	22.51268	71.001044		
14	0	-18.08361	-14.36664	-44.686956	BA k	Lantai 1 Arah B
14	0.5303301	-9.041805	-7.183321	-22.3434796		
14	1.06066	1.368556E-14	1.798171E-14	4.51934E-14		
1	0	-1.776357E-15	-3.552714E-15	-7.81597E-15	BA l	Lantai 1 Arah B
1	0.6303301	9.281515	7.411363	22.9959988		
1	1.06066	18.56303	14.82273	45.992004		
2	0	-9.844721	-6.238113	-21.794646	BA m	Lantai 1 Arah B
2	0.796041	-7.594001	-6.238113	-19.093782		
2	1.592082	-5.343281	-6.238113	-16.392918		
3	0	6.437387	5.493904	16.5151108	BA n	Lantai 1 Arah B
3	0.65	8.275191	5.493904	18.7204756		
3	1.3	10.113	5.493904	20.9258464		
4	0	-16.0126	-9.883778	-35.0291648	BA a	Lantai 1 Arah B
4	2	0.2881856	0.2562227	0.75577904		
4	4	16.58897	10.39622	36.540716		
5	0	-14.58003	-9.300868	-32.3774248	BA a	Lantai 1 Arah B
5	2	1.720757	0.8391321	3.40751976		
5	4	18.02154	10.97913	39.192456		
6	0	-23.08458	-14.26506	-50.525592	BA c	Lantai 1 Arah B
6	3	3.871595	3.326938	9.9690148		
6	6	30.82777	20.91894	70.463628		

Tabel 5.3 Lanjutan

No Elm Balok	Station	VD	VL	Vu	Balok Anak	Lantai
[1]	[2]	[3]	[4]	[5]	[6]	[7]
7	0	-45.42718	-35.187	-110.811816	BA e	Lantai 1 Arah B
7	3	-2.708944E-14	-7.105427E-15	-4.3876E-14		
7	6	45.42718	35.187	110.811816		
8	0	-30.82777	-20.91894	-70.463628	BA c	Lantai 1 Arah B
8	3	-3.871595	-3.326938	-9.9690148		
8	6	23.08458	14.26506	50.525592		
9	0	-18.02154	-10.97913	-39.192456	BA a	Lantai 1 Arah B
9	2	-1.720757	-0.8391321	-3.40751976		
9	4	14.58003	9.300868	32.3774248		
10	0	-16.58897	-10.39622	-36.540716	BA a	Lantai 1 Arah B
10	2	-0.2881856	-0.2562227	-0.75577904		
10	4	16.0126	9.883778	35.0291648		
11	0	-10.113	-5.493904	-20.9258464	BA n	Lantai 1 Arah B
11	0.65	-8.275191	-5.493904	-18.7204756		
11	1.3	-6.437387	-5.493904	-16.5151108		
12	0	5.343281	6.238113	16.392918	BA m	Lantai 1 Arah B
12	0.796041	7.594001	6.238113	19.093782		
12	1.592082	9.844721	6.238113	21.794646		
13	0	-18.56303	-14.82273	-45.992004	BA l	Lantai 1 Arah B
13	0.5303301	-9.281515	-7.411363	-22.9959988		
13	1.06066	-9.919366E-16	-9.844556E-17	-1.34784E-15		
1	0	7.105427E-15	0	8.52651E-15	BA k	Lantai 2 Arah A
1	0.5303301	9.041805	7.183321	22.3434796		
1	1.06066	18.08361	14.36664	44.686956		
2	0	-20.30709	-13.80816	-46.461564	BA j	Lantai 2 Arah A
2	2.212236	-0.8827909	-1.266991	-3.08653468		
2	4.424471	18.54151	11.27417	40.288484		
3	0	-2.410562	0.5530954	-2.00772176	BA i	Lantai 2 Arah A
3	1.714	11.962	9.627011	29.7576176		
3	3.428	26.33456	18.70093	61.52296		
4	0	-50.74931	-39.19622	-123.613124	BA g	Lantai 2 Arah A
4	3.5	2.326058	1.925277	5.8717128		
4	7	55.40143	43.04678	135.356564		
5	0	-49.45901	-38.51957	-120.982124	BA o	Lantai 2 Arah A
5	3	-4.93484	-4.193566	-12.6315136		
5	6	39.58934	30.13243	95.719096		
6	0	-27.61752	-18.36077	-62.518256	BA o	Lantai 2 Arah A
6	3	-1.114339	-1.197775	-3.2536468		
6	6	25.38884	15.96523	56.010976		
7	0	-26.13645	-16.76882	-58.193852	BA o	Lantai 2 Arah A
7	3	0.3667219	0.3941802	1.0707546		
7	6	26.8699	17.55718	60.335368		
8	0	-26.8699	-17.55718	-60.335368	BA o	Lantai 2 Arah A
8	3	-0.3667219	-0.3941802	-1.0707546		
8	6	26.13645	16.76882	58.193852		
9	0	-25.38884	-15.96523	-56.010976	BA o	Lantai 2 Arah A
9	3	1.114339	1.197775	3.2536468		
9	6	27.61752	18.36077	62.518256		

Tabel 5.3 Lanjutan

No Elm Balok	Station	VD	VL	Vu	Balok Anak	Lantai
[1]	[2]	[3]	[4]	[5]	[6]	[7]
10	0	-39.58934	-30.13243	-95.719096	BA o	Lantai 2 Arah A
10	3	4.93484	4.193566	12.6315136		
10	6	49.45901	38.51957	120.982124		
11	0	-55.40143	-43.04678	-135.356564	BA g	Lantai 2 Arah A
11	3.5	-2.326058	-1.925277	-5.8717128		
11	7	50.74931	39.19622	123.613124		
12	0	-26.33456	-18.70093	-61.52296	BA i	Lantai 2 Arah A
12	1.714	-11.962	-9.627011	-29.7576176		
12	3.428	2.410562	-0.5530954	2.00772176		
13	0	-18.54151	-11.27417	-40.288484	BA j	Lantai 2 Arah A
13	2.212236	0.8827909	1.266991	3.08653468		
13	4.424471	20.30709	13.80816	46.461564		
15	0	-18.08361	-14.36664	-44.686956	BA k	Lantai 2 Arah A
15	0.5303301	-9.041805	-7.183321	-22.3434796		
15	1.06066	-6.543052E-15	-1.778959E-15	-1.0698E-14		
1	0	0	1.776357E-15	2.84217E-15	BA l	Lantai 2 Arah B
1	0.5303301	9.041805	7.183321	22.3434796		
1	1.06066	18.08361	14.36664	44.686956		
2	0	-18.50224	-12.37043	-41.995376	BA m	Lantai 2 Arah B
2	2.212236	0.922053	0.1707305	1.3796324		
2	4.424471	20.34635	12.71189	44.754644		
3	0	-13.96001	-8.647087	-30.5873512	BA n	Lantai 2 Arah B
3	1.714	0.4125527	0.4268291	1.1779898		
3	3.428	14.78511	9.500745	32.943324		
4	0	-17.93038	-11.66255	-40.176536	BA b	Lantai 2 Arah B
4	2	-1.779596	-1.666552	-4.8019984		
4	4	14.37119	8.329448	30.5725448		
5	0	-7.543047	-2.608543	-13.2253252	BA b	Lantai 2 Arah B
5	2	8.607737	7.387457	22.1492156		
5	4	24.75852	17.38346	57.52376		
6	0	-46.8951	-36.943	-115.38292	BA d	Lantai 2 Arah B
6	3	-2.370923	-2.616998	-7.0323044		
6	6	42.15325	31.709	101.3183		
7	0	-8.482176	1.776357E-14	-10.1786112	BA b	Lantai 2 Arah B
7	3	1.554312E-14	1.776357E-14	4.70735E-14		
7	6	8.482176	1.776357E-14	10.1786112		
8	0	-42.15325	-31.709	-101.3183	BA d	Lantai 2 Arah B
8	3	2.370923	2.616998	7.0323044		
8	6	46.8951	36.943	115.38292		
9	0	-24.75852	-17.38346	-57.52376	BA b	Lantai 2 Arah B
9	2	-8.607737	-7.387457	-22.1492156		
9	4	7.543047	2.608543	13.2253252		
10	0	-14.37119	-8.329448	-30.5725448	BA b	Lantai 2 Arah B
10	2	1.779596	1.666552	4.8019984		
10	4	17.93038	11.66255	40.176536		
11	0	-14.78511	-9.500745	-32.943324	BA n	Lantai 2 Arah B
11	1.714	-0.4125527	-0.4268291	-1.1779898		
11	3.428	13.96001	8.647087	30.5873512		

Tabel 5.3 Lanjutan

No Elm Balok	Station	VD	VL	Vu	Balok Anak	Lantai
[1]	[2]	[3]	[4]	[5]	[6]	[7]
13	0	-20.34635	-12.71189	-44.754644	BA m	Lantai 2 Arah B
13	2.212236	-0.922053	-0.1707305	-1.3796324		
13	4.424471	18.50224	12.37043	41.995376		
14	0	-18.08361	-14.36664	-44.686956	BA I	Lantai 2 Arah B
14	0.5303301	-9.041805	-7.183321	-22.3434796		
14	1.06066	-5.25296E-16	2.181415E-16	-2.81329E-16		
1	0	-54.21941	-45.28875	-137.525292	BA T A	Arah B
1	3.25	-4.542639	2.264855E-14	-5.4511668		
1	6.5	59.53413	45.28875	143.902956		
1	0	-58.8207	-43.6779	-140.46948	BA T B	Arah B
1	3.15	-3.155367	1.644171E-14	-3.7864404		
1	6.3	59.70997	43.6779	141.536604		
1	0	-60.88327	-51.37925	-155.266724	BA T C	Arah A
1	3.25	-5.299746	-2.664535E-15	-6.3596952		
1	6.5	67.08378	51.37925	162.707336		
1	0	-40.10943	-26.5923	-90.678996	BA T D	Arah A
1	3.15	-2.024694	-5.368969E-15	-2.4296328		
1	6.3	40.68004	26.5923	91.363728		
1	0	-29.35097	-18.1188	-64.211244	BA T E	Arah A
1	3.15	-1.275732	-4.996004E-15	-1.5308784		
1	6.3	29.7105	18.1188	64.64268		
1	0	-25.29092	-14.65065	-53.790144	BA T F	Arah B
1	3.15	-1.012785	-1.656661E-15	-1.215342		
1	6.3	25.57635	14.65065	54.13266		
1	0	-23.99208	-15.145	-53.022496	BA T G	Arah A
1	3.25	-1.458061	3.330669E-15	-1.7496732		
1	6.5	25.69796	15.145	55.069552		

Keterangan **Tabel 5.3** :

[1] Nomor elemen balok

[2] Station

[3] VD = gaya geser akibat beban mati (kN)

[4] VL = gaya geser akibat beban hidup (kN)

[5] Vu = 1,2VD + 1,6VL

[6] Tipe balok anak yang ditinjau

[7] Letak balok anak

Tabel 5.4 Penulangan Lentur Balok Anak

Balok	Letak Tulangan		Tulangan Terpakai	As (mm^2)	ρ	Analisa	Mu (kNm)	B (mm)	h (mm)	d' (mm)	d (mm)	x (mm)	a (mm)	fs (MPa)	Cc (kN)	Cs (kN)	Mnak (kNm)	øMnak (kNm)	Ket
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]
LT 1																			
BALk	Tump	Atas	2D25	981.25	0.0107	Mtump	21.044	300	400	62.5	337.5	72.236	61.4	80.868265	313.1431	79.35199	117.894	94.3151942	Aman
		Bawah	2D25	981.25															
	Lap	Atas	2D25	981.25	0.0111	Mlap	3.27	300	400	62.5	337.5	72.236	61.4	80.868265	313.1431	79.35199	117.894	94.3151942	Aman
		Bawah	2D25	981.25															
BALj	Tump	Atas	2D25	981.25	0.01	Mtump	51.601	300	400	62.5	337.5	72.236	61.4	80.868265	313.1431	79.35199	117.894	94.3151942	Aman
		Bawah	2D25	981.25															
	Lap	Atas	2D25	981.25	0.0101	Mlap	45.650	300	400	62.5	337.5	72.236	61.4	80.868265	313.1431	79.35199	117.894	94.3151942	Aman
		Bawah	2D25	981.25															
BALi	Tump	Atas	3D25	1471.875	0.0125	Mtump	112.624	300	400	62.5	337.5	83.883	71.3	152.94875	363.6328	225.1214	171.6709	137.336687	Aman
		Bawah	2D25	981.25															
	Lap	Atas	2D25	981.25	0.0106	Mlap	21.968	300	400	62.5	337.5	72.236	61.4	80.868265	313.1431	79.35199	117.894	94.3151942	Aman
		Bawah	2D25	981.25															
BALg	Tump	Atas	4D25	1962.5	0.0146	Mtump	150.666	300	400	62.5	337.5	92.664	78.76	195.3121	401.6984	383.3	225.161	180.128761	Aman
		Bawah	3D25	1471.875															
	Lap	Atas	3D25	1471.875	0.0132	Mlap	94.953	300	400	62.5	337.5	83.883	71.3	152.94875	363.6328	225.1214	171.6709	137.336687	Aman
		Bawah	2D25	981.25															
BALd	Tump	Atas	4D25	1962.5	0.0146	Mtump	150.666	300	400	62.5	337.5	92.664	78.76	195.3121	401.6984	383.3	225.161	180.128761	Aman
		Bawah	3D25	1471.875															
	Lap	Atas	2D25	981.25	0.0099	Mlap	52.31	300	400	62.5	337.5	72.236	61.4	80.868265	313.1431	79.35199	117.894	94.3151942	Aman
		Bawah	2D25	981.25															
BALl	Tump	Atas	2D25	981.25	0.0104	Mtump	30.739	300	400	62.5	337.5	72.236	61.4	80.868265	313.1431	79.35199	117.894	94.3151942	Aman
		Bawah	2D25	981.25															
	Lap	Atas	2D25	981.25	0.0111	Mlap	2.991	300	400	62.5	337.5	72.236	61.4	80.868265	313.1431	79.35199	117.894	94.3151942	Aman
		Bawah	2D25	981.25															
BALm	Tump	Atas	2D25	981.25	0.0104	Mtump	38.226	300	400	62.5	337.5	72.236	61.4	80.868265	313.1431	79.35199	117.894	94.3151942	Aman
		Bawah	2D25	981.25															
	Lap	Atas	2D25	981.25	0.0111	Mlap	4.226	300	400	62.5	337.5	72.236	61.4	80.868265	313.1431	79.35199	117.894	94.3151942	Aman
		Bawah	2D25	981.25															
BALn	Tump	Atas	2D25	981.25	0.0094	Mtump	74.899	300	400	62.5	337.5	72.236	61.4	80.868265	313.1431	79.35199	117.894	94.3151942	Aman
		Bawah	2D25	981.25															
	Lap	Atas	2D25	981.25	0.0104	Mlap	32.695	300	400	62.5	337.5	72.236	61.4	80.868265	313.1431	79.35199	117.894	94.3151942	Aman
		Bawah	2D25	981.25															

Tabel 5.4 Lanjutan

Balok	Letak Tulangan		Tulangan Terpakai	As (mm^2)	ρ	Analisis	Mu (kNm)	b (mm)	h (mm)	d' (mm)	d (mm)	X (mm)	a (mm)	fs (Mpa)	Cc (kN)	Cs (kN)	Mnak (kNm)	øMnak (kNm)	Ket
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]
BALf	Tump	Atas	2D25	981.25	0.0094	Mtump	74.899	300	400	62.5	337.5	72.236	61.4	80.868265	313.1431	79.35199	117.894	94.3151942	Aman
		Bawah	2D25	981.25															
	Lap	Atas	2D25	981.25	0.01	Mlap	51.527	300	400	62.5	337.5	72.236	61.4	80.868265	313.1431	79.35199	117.894	94.3151942	Aman
		Bawah	2D25	981.25															
BALc	Tump	Atas	2D25	981.25	0.0094	Mtump	74.982	300	400	62.5	337.5	72.236	61.4	80.868265	313.1431	79.35199	117.894	94.3151942	Aman
		Bawah	2D25	981.25															
	Lap	Atas	2D25	981.25	0.0102	Mlap	43.123	300	400	62.5	337.5	72.236	61.4	80.868265	313.1431	79.35199	117.894	94.3151942	Aman
		Bawah	2D25	981.25															
BALh	Tump	Atas	2D25	981.25	0.0093	Mtump	83.199	300	400	62.5	337.5	72.236	61.4	80.868265	313.1431	79.35199	117.894	94.3151942	Aman
		Bawah	2D25	981.25															
	Lap	Atas	2D25	981.25	0.0102	Mlap	40.569	300	400	62.5	337.5	72.236	61.4	80.868265	313.1431	79.35199	117.894	94.3151942	Aman
		Bawah	2D25	981.25															
BALe	Tump	Atas	3D25	1471.875	0.0137	Mtump	83.199	300	400	62.5	337.5	83.883	71.3	152.94875	363.6328	225.1214	171.6709	137.336687	Aman
		Bawah	2D25	981.25															
	Lap	Atas	2D25	981.25	0.0093	Mlap	83.199	300	400	62.5	337.5	72.236	61.4	80.868265	313.1431	79.35199	117.894	94.3151942	Aman
		Bawah	2D25	981.25															
BALb	Tump	Atas	2D25	981.25	0.0091	Mtump	91.956	300	400	62.5	337.5	72.236	61.4	80.868265	313.1431	79.35199	117.894	94.3151942	Aman
		Bawah	2D25	981.25															
	Lap	Atas	2D25	981.25	0.0105	Mlap	28.725	300	400	62.5	337.5	72.236	61.4	80.868265	313.1431	79.35199	117.894	94.3151942	Aman
		Bawah	2D25	981.25															
BALa	Tump	Atas	2D25	981.25	0.0103	Mtump	35.744	300	400	62.5	337.5	72.236	61.4	80.868265	313.1431	79.35199	117.894	94.3151942	Aman
		Bawah	2D25	981.25															
	Lap	Atas	2D25	981.25	0.0108	Mlap	15.182	300	400	62.5	337.5	72.236	61.4	80.868265	313.1431	79.35199	117.894	94.3151942	Aman
		Bawah	2D25	981.25															
BALo	Tump	Atas	2D25	981.25	0.0094	Mtump	77.696	300	400	62.5	337.5	72.236	61.4	80.868265	313.1431	79.35199	117.894	94.3151942	Aman
		Bawah	2D25	981.25															
	Lap	Atas	2D25	981.25	0.0108	Mlap	15.666	300	400	62.5	337.5	72.236	61.4	80.868265	313.1431	79.35199	117.894	94.3151942	Aman
		Bawah	2D25	981.25															
BALp	Tump	Atas	3D25	1471.875	0.0132	Mtump	94.471	300	400	62.5	337.5	83.883	71.3	152.94875	363.6328	225.1214	171.6709	137.336687	Aman
		Bawah	2D25	981.25															
		Atas	2D25	981.25	0.0107	Mlap	19.896	300	400	62.5	337.5	72.236	61.4	80.868265	313.1431	79.35199	117.894	94.3151942	Aman
		Bawah	2D25	981.25															
BATa	Tump	Atas	4D25	1962.5	0.0142	Mtump	158.637	300	400	62.5	337.5	92.664	78.76	195.3121	401.6984	383.3	225.161	180.128761	Aman
		Bawah	3D25	1471.875															

Tabel 5.4 Lanjutan

Balok	Letak Tulangan		Tulangan Terpakai	As (mm^2)	ρ	Analisis	Mu (kNm)	b (mm)	h (mm)	d' (mm)	d (mm)	x (mm)	a (mm)	fs (Mpa)	Cc (kN)	Cs (kN)	Mnak (kNm)	øMnak (kNm)	Ket
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]
BATa	Lap	Atas	2D25	981.25	0.0093	Mlap	79.307	300	400	62.5	337.5	72.236	61.4	80.868265	313.1431	79.35199	117.894	94.3151942	Aman
		Bawah	2D25	981.25															
BATb	Tump	Atas	4D25	1962.5	0.0146	Mtump	151.798	300	400	62.5	337.5	92.664	78.76	195.3121	401.6984	383.3	225.161	180.128761	Aman
		Bawah	3D25	1471.875															
	Lap	Atas	2D25	981.25	0.0094	Mlap	76.391	300	400	62.5	337.5	72.236	61.4	80.868265	313.1431	79.35199	117.894	94.3151942	Aman
		Bawah	2D25	981.25															
BATc	Tump	Atas	4D25	1962.5	0.0131	Mtump	179.465	300	400	62.5	337.5	92.664	78.76	195.3121	401.6984	383.3	225.161	180.128761	Aman
		Bawah	3D25	1471.875															
	Lap	Atas	2D25	981.25	0.0091	Mlap	89.72	300	400	62.5	337.5	72.236	61.4	80.868265	313.1431	79.35199	117.894	94.3151942	Aman
		Bawah	2D25	981.25															
BATd	Tump	Atas	3D25	1471.875	0.0131	Mtump	97.975	300	400	62.5	337.5	83.883	71.3	152.94875	363.6328	225.1214	171.6709	137.336687	Aman
		Bawah	2D25	981.25															
	Lap	Atas	2D25	981.25	0.01	Mlap	49.303	300	400	62.5	337.5	72.236	61.4	80.868265	313.1431	79.35199	117.894	94.3151942	Aman
		Bawah	2D25	981.25															
BATe	Tump	Atas	2D25	981.25	0.0096	Mtump	69.162	300	400	62.5	337.5	72.236	61.4	80.868265	313.1431	79.35199	117.894	94.3151942	Aman
		Bawah	2D25	981.25															
	Lap	Atas	2D25	981.25	0.0104	Mlap	34.78	300	400	62.5	337.5	72.236	61.4	80.868265	313.1431	79.35199	117.894	94.3151942	Aman
		Bawah	2D25	981.25															
BATf	Tump	Atas	2D25	981.25	0.0098	Mtump	57.861	300	400	62.5	337.5	72.236	61.4	80.868265	313.1431	79.35199	117.894	94.3151942	Aman
		Bawah	2D25	981.25															
	Lap	Atas	2D25	981.25	0.0105	Mlap	29.089	300	400	62.5	337.5	72.236	61.4	80.868265	313.1431	79.35199	117.894	94.3151942	Aman
		Bawah	2D25	981.25															
BATg	Tump	Atas	2D25	981.25	0.0098	Mtump	60.539	300	400	62.5	337.5	72.236	61.4	80.868265	313.1431	79.35199	117.894	94.3151942	Aman
		Bawah	2D25	981.25															
	Lap	Atas	2D25	981.25	0.0105	Mlap	30.266	300	400	62.5	337.5	72.236	61.4	80.868265	313.1431	79.35199	117.894	94.3151942	Aman
		Bawah	2D25	981.25															

Keterangan **Tabel 5.4** :

[1] Balok anak yang ditinjau

[2] Letak tulangan: tumpuan dan lapangan atas dan bawah

[3] Tulangan yang dipakai

[4] Luas tulangan

[5] $\rho = (As - As'.fs'/fy)/(b.d)$, rasio penulangan

[6] Analisis: Momen tumpuan negatif dan momen lapangan

[7] Mu = momen rencana balok (Dari Tabel 5.2)

[8] b = lebar balok anak

[9] h = tinggi balok anak

[10] $d' = D/2 + 10 + 50$

[11] $d = h - d'$ (tinggi efektif)

[12] x : didapat dari persamaan

$(0,85.f'c.b.0,85)x^2 + (600As'-As.fy)x - 600d'As' = 0$

[13] $a = x.0,85$

[14] $fs' = [(x-d)/x]600$

[15] $Cc = 0,85.f'c.b.a$

[16] $Cs = As'fs'$

[17] $Mnak = Cc(d-a/2)+Cs(d-d')$

[18] $0,8.Mnak \geq Mu$ (Aman)

Tabel 5.5 Penulangan Geser Balok Anak

Balok	Vu,b (kN)	l (m)	Vu,b' (kN)	d (m)	bw (m)	Vc (kN)	Vs (kN)	D tul (mm)	Av (mm^2)	S (mm)	Smaks (mm)	Tul. Geser Terpakai	0,6.(Vc+Vs) (kN)	Keterangan
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]
BALk	44.687	1.061	3.622	0.3375	0.3	75.467	-69.430	10	78.5	-91.581	168.75	**P10 - 150**	70.71	Aman
BALj	83.584	4.424	65.163	0.3375	0.3	75.467	33.138	10	78.5	191.881	168.75	**P10 - 150**	70.71	Aman
BALi	81.748	3.428	58.497	0.3375	0.3	75.467	22.028	10	78.5	288.658	168.75	**P10 - 150**	70.71	Aman
BALg	134.979	7	116.178	0.3375	0.3	75.467	118.163	10	78.5	53.811	168.75	**P10 -50**	121.58	Aman
BALd	122.001	6	102.176	0.3375	0.3	75.467	94.826	10	78.5	67.055	168.75	**P10 - 60**	108.87	Aman
BALl	56.695	1.131	7.820	0.3375	0.3	75.467	-62.434	10	78.5	-101.844	168.75	**P10 - 150**	70.71	Aman
BALm	28.582	2.169	15.734	0.3375	0.3	75.467	-49.244	10	78.5	-129.122	168.75	**P10 - 150**	70.71	Aman
BALn	66.032	1.3	16.508	0.3375	0.3	75.467	-47.954	10	78.5	-132.596	168.75	**P10 - 150**	70.71	Aman
BALf	72.279	7	62.212	0.3375	0.3	75.467	28.219	10	78.5	225.330	168.75	**P10 - 150**	70.71	Aman
BALc	66.022	6	55.293	0.3375	0.3	75.467	16.688	10	78.5	381.013	168.75	**P10 - 150**	70.71	Aman
BALh	39.453	3	26.631	0.3375	0.3	75.467	-31.083	10	78.5	-204.567	168.75	**P10 - 150**	70.71	Aman
BALe	110.812	6	92.805	0.3375	0.3	75.467	79.208	10	78.5	80.276	168.75	**P10 -80**	92.97	Aman
BALb	79.081	4	59.805	0.3375	0.3	75.467	24.208	10	78.5	262.664	168.75	**P10 - 150**	70.71	Aman
BALa	39.192	4	29.639	0.3375	0.3	75.467	-26.069	10	78.5	-243.910	168.75	**P10 - 150**	70.71	Aman
BALo	120.982	6	101.322	0.3375	0.3	75.467	93.403	10	78.5	68.076	168.75	**P10 - 60**	108.87	Aman
BALp	57.524	4	43.503	0.3375	0.3	75.467	-2.963	10	78.5	-2145.905	168.75	**P10 - 150**	70.71	Aman
BATa	143.903	6.5	122.318	0.3375	0.3	75.467	128.395	10	78.5	49.523	168.75	**P10 - 40**	140.66	Aman
BATb	141.537	6.3	119.632	0.3375	0.3	75.467	123.920	10	78.5	51.311	168.75	**P10 - 50**	121.58	Aman
BATc	162.707	6.5	138.301	0.3375	0.3	75.467	155.034	10	78.5	41.014	168.75	**P10 - 40**	140.66	Aman
BATd	91.364	6.3	77.224	0.3375	0.3	75.467	53.240	10	78.5	119.431	168.75	**P10 - 110**	79.96	Aman
BATe	64.643	6.3	54.639	0.3375	0.3	75.467	15.597	10	78.5	407.668	168.75	**P10 - 150**	70.71	Aman
BATf	54.133	6.3	45.755	0.3375	0.3	75.467	0.791	10	78.5	8033.527	168.75	**P10 - 150**	70.71	Aman
BATg	55.07	6.5	46.810	0.3375	0.3	75.467	2.549	10	78.5	2494.959	168.75	**P10 - 150**	70.71	Aman

Keterangan **Tabel 5.5** :

[1] Balok anak yang ditinjau

[2] *Vu,b* = gaya geser balok anak

[3] *l* = bentang balok anak

[4] *Vu,b'* = gaya geser balok anak terpakai

[5] *d* = tinggi efektif balok anak

[6] *bw* = lebar badan balok anak

[7] *Vc* = 1/6.√*fc*^0,5.*bw.d* (gaya geser beton)

[8] *Vs* = *Vu,b'*/0,6 - *Vc*

[9] D tul = diameter tulangan geser yang dipakai = 10 mm

[10] *Av* = 1/4.π.10^2 (luas tulangan)

[11] *S* = (*Av.fy.d*)/*Vs* (jarak sengkang perlu)

[12] *Smaks* = *d*/2 (jarak sengkang maksimum)

[13] Tulangan geser terpakai

[14] 0,6.(*Vc* + *Vs*)

[15] Jika [0,6.(*Vc* + *Vs*)] ≥ *Vu,b'* Aman

Tabel 7.1.a Momen Rencana Balok Portal A

Portal	No.blk	Jarak (m)	LTK MOMEN	MD (kNm)	ML (kNm)	ME (kNm)		Mu1 (kNm)	Mu2 (kNm)	Mu3 (kNm)	Mu4 (kNm)	Mu5 (kNm)	Ket.bal
						E KIRI	E KANAN						
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
AS x-3		0	tump.kiri	-3.650745	-2.197	0	-3.552714E-15	-7.896094	-4.98670725	-4.98670725	-3.2856705	-3.2856705	balok I
	39	0,4596194	lapangan	-0.9126862	-0.54925	0	-1.919818E-15	-1.97402344	-1.24667676	-1.24667676	-0.82141758	-0.82141758	
		0,9192388	tump.kanan	6.926507E-15	4.358059E-15	0	-2.869214E-16	1.52847E-14	9.56081E-15	9.25955E-15	6.23386E-15	5.94693E-15	
		0	tump.kiri	-3.650745	-2.197	-7.105427E-15	0	-7.896094	-4.98670725	-4.98670725	-3.2856705	-3.2856705	
	40	0,4596194	lapangan	-0.9126862	-0.54925	-2.206739E-15	0	-1.97402344	-1.24667676	-1.24667676	-0.82141758	-0.82141758	
		0,9192388	tump.kanan	1.891692E-14	3.247836E-15	2.691949E-15	0	2.78968E-14	2.43944E-14	2.15679E-14	1.97172E-14	1.70252E-14	
		0	tump.kiri	-88.9198	-71.12876	42.80857	-8.420654	-220.509776	-85.7593905	-139.5500757	-37.21925	-88.448474	
		1,75	lapangan	10.67604	9.615323	23.50621	-3.918962	28.1957648	40.93940708	12.14297648	33.114646	5.689474	
	41-42	3,5	lapangan	73.51938	56.56982	4.203856	0.5827302	178.734968	111.3085533	107.5063712	70.371298	66.7501722	
		0	lapangan	73.58447	56.5527	3.77704	-0.261667	178.785684	110.919753	106.6791107	70.003063	65.964356	
		1,75	lapangan	7.754349	8.692347	-18.13481	4.289689	23.212974	-6.336001875	17.20972208	-11.1558959	11.2686031	
		3,5	tump.kanan	-94.82827	-72.95759	-40.04666	8.841044	-230.526068	-179.9214113	-128.5893221	-125.392103	-76.504399	
		0	tump.kiri	-70.78173	-38.24355	35.84311	-11.08231	-146.127756	-56.76341475	-106.0351058	-27.860447	-74.785867	
		0,9625	tump.kiri	-18.04737	-10.71187	24.4983	-7.119299	-38.795836	1.14974475	-32.0487342	8.255667	-23.361932	
		1,925	lapangan	24.97009	9.029966	13.15349	-3.156291	44.4120536	44.77049115	27.6452211	35.626571	19.31679	
		0	lapangan	24.36765	9.256649	13.41636	-3.993162	44.0518184	44.53295123	26.25295313	35.347245	17.937723	
	43-45	1,075	lapangan	30.101	12.84417	1.504827	0.1831037	56.671872	39.9293076	38.54149814	28.595727	27.2740037	
		2,15	lapangan	25.8488	10.42244	-10.4067	4.359369	47.694464	21.685986	37.19035845	12.85722	27.623289	
		0	lapangan	26.47777	10.21685	-9.930926	3.540792	48.123484	22.73908245	36.88438635	13.899067	27.370785	
		0,9625	tump.kanan	-15.03694	-8.265143	-21.22113	7.536478	-31.2685568	-42.41017358	-12.21468518	-34.754376	-5.996768	
		1,925	tump.kanan	-66.26855	-34.53898	-32.51133	11.53216	-134.784628	-121.8518385	-75.606174	-92.153025	-48.109535	
		0	tump.kiri	-70.09116	-53.45873	26.23051	-12.11979	-169.64336	-74.11951575	-114.3873308	-36.851534	-75.201834	
		1,5	lapangan	4.338829	5.793372	13.63529	-5.693581	14.47599	21.91434525	1.6190307	17.5402361	-1.7886349	
		3	lapangan	52.84698	42.09548	1.040056	0.7326249	130.769144	78.6815148	78.35871215	48.602338	48.2949069	
	46-47	0	lapangan	53.08765	42.2421	1.764741	-0.1470266	131.29254	79.77211305	77.76475707	49.543626	47.6318584	
		1,5	lapangan	9.666305	7.973658	-10.08048	5.730255	24.3574188	3.7512867	20.35255845	-1.3808055	14.4299295	
		3	tump.kanan	-59.67688	-49.24478	-21.9257	11.60754	-150.403904	-111.5362185	-76.3263165	-75.634892	-42.101652	
		0	tump.kiri	-14.87535	-11.6245	-32.63919	23.81855	-36.44962	-55.9931295	3.2874975	-46.027005	10.430735	
	48	1,5	lapangan	-3.679494	-2.224714	0.6067473	0.505252	-7.9749352	-4.394358885	-4.50092895	-2.7047973	-2.8062926	
		3	tump.kanan	-18.40547	-15.77493	33.85269	-22.80804	-47.326452	7.93774275	-51.55602375	17.287767	-39.372963	
		0	tump.kiri	-40.4115	-30.24864	15.70822	-14.4745	-96.891624	-41.81898	-73.510836	-20.66213	-50.84485	

Lanjutan Tabel 7.1.a

Portal	No.balok	Jarak (m)	LTK MOMEN	MD (kNm)	ML (kNm)	ME (kNm)		Mu1 (kNm)	Mu2 (kNm)	Mu3 (kNm)	Mu4 (kNm)	Mu5 (kNm)	Ket.balok
						E KIRI	E KANAN						
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
	49	3	lapangan	26.62413	19.96262	0.6166882	0.6168798	63.889148	39.08344461	39.08343579	24.5786052	24.5785968	
		6	tump.kanan	-40.41383	-30.25113	-14.47444	15.70826	-96.898404	-73.51452675	-41.82269175	-50.846887	-20.664187	
	50	0	tump.kiri	-14.87093	-11.61977	23.81841	-32.63922	-36.436748	3.29447475	-55.98603675	10.434573	-46.023057	
		1,5	lapangan	-3.679552	-2.224768	0.5051634	0.6068317	-7.9750912	-4.50111123	-4.394359515	-2.8064334	-2.7047651	
		3	tump.kanan	-18.41001	-15.77977	-22.80808	33.85289	-47.339644	-51.56337375	7.93064475	-39.377089	17.283881	
	51-52	0	tump.kiri	-59.67409	-49.24122	11.60642	-21.92457	-150.39486	-76.322694	-111.5302335	-42.100261	-75.631251	
		1,5	lapangan	9.667295	7.974949	5.730362	-10.08059	24.3606724	20.35438808	3.752888475	14.4309275	-1.3800245	
		3	lapangan	53.08685	42.24112	-0.1456951	1.763389	131.290012	77.76480065	79.76933895	47.6324699	49.541554	
		0	lapangan	52.84889	42.09558	0.7333021	1.039066	130.771596	78.36148121	78.6825333	48.2973031	48.603067	
		1,5	lapangan	4.337587	5.791721	-5.693415	13.63512	14.471858	1.617034125	21.91199588	-1.7895867	17.5389483	
		3	tump.kanan	-70.09555	-53.46213	-12.12013	26.23117	-169.654068	-114.3940823	-74.12521725	-75.206125	-36.854825	
	53-55	0	tump.kiri	-66.25948	-34.52937	11.53164	-32.51072	-134.758368	-75.59215125	-121.8366293	-48.101892	-92.144252	
		0,9625	tump.kiri	-15.03177	-8.259837	7.536101	-21.22077	-31.2538632	-12.20686688	-42.40158143	-5.992492	-34.749363	
		1,925	lapangan	26.47902	10.21986	3.540565	-9.93082	48.1266	36.88599075	22.7410365	27.371683	13.900298	
		0	lapangan	25.85209	10.42414	4.359184	-10.40696	47.701132	37.1945112	21.69006	27.626065	12.859921	
		1,075	lapangan	30.09776	12.84121	0.1830717	1.504854	56.663248	38.53650854	39.92437995	27.2710557	28.592838	
		2,15	lapangan	24.3579	9.249034	-3.993041	13.41667	44.0279344	26.2388448	44.51904135	17.929069	35.33878	
		0	lapangan	24.96207	9.022864	-3.156277	13.15358	44.3910664	27.63308625	44.7584361	19.309586	35.619443	
		0.9625	tump.kanan	-18.05895	-10.723	-7.118915	24.49794	-38.82754	-32.06633325	1.1313645	-23.37197	8.244885	
		1,925	tump.kanan	-70.79689	-38.25871	-11.08155	35.8423	-146.170204	-106.0581848	-56.78814225	-74.798751	-27.874901	
	56-57	0	tump.kiri	-94.9351	-73.0556	8.840495	-40.04626	**-230.81108**	-128.7535253	-180.084618	-76.601095	-125.48785	
		1,75	lapangan	7.737364	8.677305	4.289391	-18.13449	23.1685248	17.18367788	-6.361397175	11.2530186	-11.1708624	
		3,5	lapangan	73.65733	56.62062	-0.261714	3.777289	**178.981788**	106.7912223	111.0321755	66.029883	70.068886	
		0	lapangan	73.58929	56.63524	0.5827842	4.203625	178.923532	107.6141789	111.4160618	66.8131452	70.433986	
		1,75	lapangan	10.84087	9.766908	-3.918417	23.50559	28.6360968	12.39620235	41.1914097	5.838366	33.262373	
		3,5	tump.kanan	-88.66005	-70.89101	-8.419618	42.80756	-219.817676	-139.1514317	-85.36289475	-88.213663	-36.986485	
AS x-2		0	tump.kiri	-1.567877	0	-2.842171E-14	7.105427E-15	-1.8814524	-1.64627085	-1.64627085	-1.4110893	-1.4110893	balok lt.1
	89	0,4596194	lapangan	-0.3919693	0	-1.535354E-14	3.839635E-15	-0.47036316	-0.411567765	-0.411567765	-0.35277237	-0.35277237	
		0,9192388	tump.kanan	8.409072E-16	0	-2.295371E-15	5.738427E-16	1.00909E-15	-1.52719E-15	1.48549E-15	-1.53855E-15	1.33066E-15	
		0	tump.kiri	-1.567877	-1.776357E-15	-2.131528E-14	5.684342E-14	-1.8814524	-1.64627085	-1.64627085	-1.4110893	-1.4110893	
	90	0,4596194	lapangan	-0.3919693	-1.776357E-15	-8.253113E-15	1.765391E-14	-0.47036316	-0.411567765	-0.411567765	-0.35277237	-0.35277237	
		0,9192388	tump.kanan	-1.459119E-14	-1.776357E-15	4.810057E-15	-2.15356E-14	-2.0352E-14	-1.12028E-14	-3.88657E-14	-8.32201E-15	-3.46677E-14	
		0	tump.kiri	-8.401906	-5.222937	-56.94202	18.947	-18.4389864	-71.35316423	8.330306775	-64.5037354	11.3852846	
	103	1,442498	lapangan	1.326481	-0.2347476	1.636714	-0.5242136	1.21618104	2.98811226	0.71913828	2.8305469	0.6696193	

Lanjutan Tabel 7.1.a

Portal	No.balok	Jarak (m)	LTK MOMEN	MD (kNm)	ML (kNm)	ME (kNm)		Mu1 (kNm)	Mu2 (kNm)	Mu3 (kNm)	Mu4 (kNm)	Mu5 (kNm)	Ket.balok
						E KIRI	E KANAN						
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
		2,884996	tump.kanan	3.333119	4.753442	60.21545	-19.99542	11.60525	69.2215545	-14.999859	63.2152571	-16.9956129	
	104	0	tump.kiri	-12.70607	-9.363332	18.9432	-56.94199	-30.2286152	1.6332372	-78.0462123	7.507737	-68.377453	
		1,442498	lapangan	3.729385	2.052474	-0.5240936	1.636679	7.7592204	4.44310482	6.71191605	2.8323529	4.9931255	
		2,884996	tump.kanan	-0.17436	1.451661	-19.99139	60.21535	2.1134256	-20.41191548	63.80516153	-20.148314	60.058426	
	109	0	tump.kiri	-3.597575	-1.935634	-58.21736	27.34022	-7.4141044	-65.9218896	23.9135694	-61.4551775	24.1024025	
		1,155	lapangan	-0.4477649	-1.25539	0.4789322	0.1936807	-2.54594188	-0.626354085	-0.92586816	0.07594379	-0.20930771	
		2,31	tump.kanan	-2.248457	-0.5751454	59.17522	-26.95286	-3.61838104	59.47114982	-30.96333419	57.1516087	-28.9764713	
	110	0	tump.kiri	-62.06537	-45.07665	21.6736	-11.12436	-146.601084	-66.07659975	-100.5144578	-34.185233	-66.983193	
		3,5	lapangan	34.71682	25.8297	0.1936941	0.2727659	**82.987704**	50.21663231	50.2996577	31.4388321	31.5179039	
		7	tump.kanan	-64.88016	-46.99728	-21.28621	11.66989	**-153.05184**	-115.1482605	-80.5443555	-79.678354	-46.722254	
	111	0	tump.kiri	-46.84763	-34.36153	22.96707	-14.2051	-111.195604	-43.11439125	-82.14516975	-19.195797	-56.367967	
		3	lapangan	25.22891	18.62563	0.5050952	8.776448E-02	60.0757	36.79916121	36.36096395	23.2111142	22.79378348	
		6	tump.kanan	-46.97312	-33.98722	-21.95687	14.38062	-110.747296	-90.21978	-52.0654155	-64.232678	-27.895188	
	112	0	tump.kiri	-47.20209	-34.29981	19.88937	-14.59446	-111.522204	-46.68575625	-82.89377775	-22.592511	-57.076341	
		3	lapangan	25.093	18.62423	0.6193596	-3.052474E-02	59.910368	36.77569833	36.09331977	23.2030596	22.55317526	
		6	tump.kanan	-46.89047	-34.05173	-18.65065	14.53341	-110.751332	-86.69533425	-51.85207125	-60.852073	-27.668013	
	113	0	tump.kiri	-5.068973	-3.457114	31.57467	-26.9827	-11.61415	26.015997	-35.4692415	27.0125943	-31.5447757	
		1,5	lapangan	4.374369	2.987087	0.5842155	-6.398498E-02	10.028582	6.7747344	6.094123896	4.5211476	3.87294712	
		3	tump.kanan	-13.43193	-8.568712	-30.40623	26.85473	-29.8282552	-50.5286418	9.5953662	-42.494967	14.765993	
	114	0	tump.kiri	-11.55799	-4.782539	29.34015	-27.49592	-21.5216504	16.16043503	-43.51743848	18.937959	-37.898111	
		1,5	lapangan	7.451584	3.564649	0.2667367	0.2121741	14.6453392	9.97567746	9.91838673	6.9731623	6.9185997	
		3	tump.kanan	-13.72598	-6.088162	-28.80667	27.92027	-26.2122352	-47.85556755	11.70771945	-41.160052	15.566888	
	115	0	tump.kiri	-13.69666	-6.077107	27.91812	-28.80953	-26.1593632	11.74205183	-47.82198068	15.591126	-41.136524	
		1,5	lapangan	7.451113	3.56459	0.212394	0.2664402	14.6446796	9.9180921	9.97484061	6.9183957	6.9724419	
		3	tump.kanan	-11.58825	-4.793714	-27.49333	29.34241	-21.5758424	-43.55235885	16.12516815	-37.922755	18.912985	
	116	0	tump.kiri	-13.40049	-8.557518	26.85902	-30.41551	-29.7726168	9.63875955	-50.49949695	14.798579	-42.475951	
		1,5	lapangan	4.374042	2.987091	-6.799954E-02	0.5884183	10.028196	6.089567358	6.77880609	3.86863826	4.5250561	
		3	tump.kanan	-5.101072	-3.468299	-26.99502	31.59235	-11.6705648	-35.52175358	25.99498493	-31.5859848	27.0013852	
	117	0	tump.kiri	-46.87244	-34.04516	14.53835	-18.65856	-110.719184	-51.8245035	-86.681259	-27.646846	-60.843756	
		3	lapangan	25.09258	18.62386	-2.815378E-02	0.6169603	59.909272	36.09517403	36.77254382	22.55516822	23.2002823	
		6	tump.kanan	-47.22098	-34.30713	-14.59466	19.89248	-111.556584	-82.91766525	-46.70616825	-57.093542	-22.606402	
	118	0	tump.kiri	-46.95612	-33.98182	14.37767	-21.95684	-110.718256	-52.047828	-90.1990635	-27.882838	-64.217348	
		3	lapangan	25.23036	18.62705	8.720375E-02	0.5056888	60.079712	36.36264319	36.80205249	22.79452775	23.2130128	
		6	tump.kanan	-46.86173	-34.36409	-14.20326	22.96822	-111.21662	-82.15938675	-43.12933275	-56.378817	-19.207337	

Lanjutan Tabel 7.1.a

Portal	No.balok	Jarak (m)	LTK MOMEN	MD (kNm)	ML (kNm)	ME (kNm)		Mu1 (kNm)	Mu2 (kNm)	Mu3 (kNm)	Mu4 (kNm)	Mu5 (kNm)	Ket.balok
						E KIRI	E KANAN						
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
	119	0	tump.kiri	-64.81838	-46.9476	11.66908	-21.28796	-152.898216	-80.454255	-115.059147	-46.667462	-79.624502	
		3,5	lapangan	34.68528	25.79947	0.2727932	0.1936269	82.901488	50.25069861	50.167574	31.4895452	31.4103789	
		7	tump.kanan	-62.19022	-45.18679	-11.1235	21.67522	-146.927128	-100.7024708	-66.26381475	-67.094698	-34.295978	
	120	0	tump.kiri	-5.878286	-4.130579	27.33741	-58.22073	-13.6628696	20.36352623	-69.47252078	22.0469526	-63.5111874	
		1,155	lapangan	0.9911849	0.1149893	0.1936574	0.4789205	1.37340476	1.304453798	1.603980053	1.08572381	1.37098691	
		2,31	tump.kanan	-5.179041	-3.343437	-26.9501	59.17857	-11.5643484	-35.49090248	54.94420103	-31.6112369	54.5174331	
	221	0	tump.kiri	-1.567877	2.869214E-16	-2.842171E-14	1.065814E-14	-1.8814524	-1.64627085	-1.64627085	-1.4110893	-1.4110893	balok lt.2
		0,4596194	lapangan	-0.3919693	-2.978871E-15	-1.535854E-14	8.607641E-16	-0.47036316	-0.411567765	-0.411567765	-0.35277237	-0.35277237	
		0,9192388	tump.kanan	4.948732E-15	-3.552714E-15	-2.295371E-15	-8.936613E-15	2.54136E-16	9.20854E-16	-6.05245E-15	2.15849E-15	-4.48275E-15	
	222	0	tump.kiri	-1.567877	-2.869214E-16	-3.552714E-15	0	-1.8814524	-1.64627085	-1.64627085	-1.4110893	-1.4110893	
		0,4596194	lapangan	-0.3919693	2.978871E-15	-2.869214E-16	0	-0.47036316	-0.411567765	-0.411567765	-0.35277237	-0.35277237	
		0,9192388	tump.kanan	1.094394E-14	-16.49795	2.978871E-15	0	-26.39672	-8.66142375	-8.66142375	1.28284E-14	9.84955E-15	
	223	0	tump.kiri	-21.57851	2.96585	-69.08833	14.97191	-21.148852	-93.64311075	-5.37985875	-88.508989	-4.448749	
		1,442498	lapangan	1.637139	2.419287	11.62602	-0.5739577	5.835426	15.19644263	2.38646604	13.0994451	0.8994674	
		2,884996	tump.kanan	5.604794	-16.41519	92.34036	-16.11983	-19.5385512	94.22443695	-19.65876255	97.3846746	-11.0755154	
	224	0	tump.kiri	-21.44537	2.913834	14.9703	-69.09048	-21.0723096	-5.26906065	-93.53287965	-4.330533	-88.391313	
		1,442498	lapangan	1.576269	2.232494	-0.5737669	11.62595	5.4635132	2.224686555	15.0343893	0.8448752	13.0445921	
		2,884996	tump.kanan	5.349913	2,232494	-16.11783	92.34239	3571996.82	1172048.044	1172161.927	-11.3029083	97.1573117	
	229	0	tump.kiri	-36.07439	-25.6891	-43.87667	19.80239	-84.391828	-97.4353905	-30.5723775	-76.343621	-12.664561	
		1,155	lapangan	-13.37012	-8.426983	-0.7996897	0.4261954	-29.5273168	-19.30246626	-18.01528691	-12.8327977	-11.6069126	
		2,31	tump.kanan	-1.533197	-1.436859	42.27729	-18.95	-4.1388108	42.02694668	-22.26170783	40.8974127	-20.3298773	
	233	0	tump.kiri	-151.0364	-102.8287	17.54588	-9.41392	-345.7696	-194.1501135	-222.4579035	-118.38688	-145.34668	
		1,2125	tump.kiri	-24.37767	-14.53177	11.71794	-5.298776	-52.504036	-20.92189575	-38.78944755	-10.221963	-27.238679	
		2,425	lapangan	79.54842	50.75668	5.889999	-1.183632	176.668792	116.357597	108.9302844	77.483577	70.409946	
		0	lapangan	71.68237	45.23674	7.855505	-3.771402	158.397628	107.2640573	95.0558049	72.369638	60.742731	
		0,5375	lapangan	94.43248	63.28712	4.248782	-1.593404	214.578368	136.8410631	130.7067678	89.238014	83.395828	
		1,075	lapangan	113.3879	77.98378	0.6420588	0.5845953	260.839528	160.6729412	160.6126046	102.6911688	102.6337053	
		0	lapangan	113.5111	78.08843	-1.176102	-0.2480377	**261.154808**	158.9481737	159.9226412	100.983888	101.9119523	
		0,5375	lapangan	92.54754	61.8638	-3.981338	1.914707	210.039128	125.4730071	131.6638544	79.311448	85.207493	
		1,075	lapangan	67.78928	42.28545	-6.786575	4.077453	149.003856	86.2527015	97.6599309	54.223777	65.087805	
		0	lapangan	75.96048	47.89722	-4.963899	1.4775	167.788128	99.69245055	106.4559195	63.400533	69.841932	
		1,2125	tump.kanan	-32.84302	-21.10522	-11.77814	6.014772	-73.179976	-57.9324585	-39.2499009	-41.336858	-23.543946	
		2,425	tump.kanan	-164.3791	-113.1161	-18.59237	10.55205	**-378.24068**	-251.505996	-220.904355	-166.53356	-137.38914	
		0	tump.kiri	-110.6586	-83.14661	19.78799	-12.32468	-265.824896	-139.0661108	-172.7844143	-79.80475	-111.91742	

Lanjutan Tabel 7.1.a

Portal	No.balok	Jarak (m)	LTK MOMEN	MD (kNm)	ML (kNm)	ME (kNm)		Mu1 (kNm)	Mu2 (kNm)	Mu3 (kNm)	Mu4 (kNm)	Mu5 (kNm)	Ket.balok
						E KIRI	E KANAN						
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
		0.9625	tump.kiri	-31.08774	-22.7047	13.47951	-7.729324	-73.632808	-30.408609	-52.6778847	-14.499456	-35.70829	
		1 925	lapangan	35.04774	24.78266	7.171023	-3.133968	81.709544	57.34059765	46.5203571	38.713989	28.408998	
		0	lapangan	33.08591	22.76973	7.056022	-3.937957	76.13466	54.10313685	42.5594589	36.833341	25.839362	
		0.5375	lapangan	47.68356	38.46284	3.153454	-1.246743	118.760816	73.5718557	68.95164885	46.068658	41.668461	
	237	1.075	lapangan	58.62518	51.04299	-0.749114	1.44447	152.019	87.56743905	89.87070225	52.013548	54.207132	
		0	lapangan	58.49847	50.96716	2.014295	-1.291755	151.74562	90.29616225	86.82480975	54.662918	51.356868	
		0,5375	lapangan	49.27298	39.31955	-1.960127	1.396243	122.038856	70.3212594	73.8454479	42.385555	45.741925	
		1,075	lapangan	36.39147	24.55899	-5.934549	4.084242	82.964148	44.8732368	55.39296735	26.817774	36.836565	
		0	lapangan	38.34426	26.61125	-6.047831	3.273535	88.591112	47.8821567	57.669591	28.462003	37.783369	
		0,9625	tump.kanan	-24.89473	-19.42025	-12.53959	7.830457	-60.946076	-49.50166725	-28.1131179	-34.944847	-14.5748	
		1,925	tump.kanan	-101.5691	-78.40631	-19.03135	12.38738	-247.333016	-167.7937853	-134.8041188	-110.44354	-79.02481	
		0	tump.kiri	-114.8672	-87.45129	17.30663	-12.79448	-277.762704	-148.3505258	-179.9566913	-86.07385	-116.17496	
		1,5	tump.kiri	3.968929	6.131124	8.528129	-5.799245	14.5725132	16.340751	1.2970083	12.1001651	-2.2272089	
		3	lapangan	86.01595	61.0323	-0.2503674	1.195989	200.87082	122.0958192	123.6144935	77.1639876	78.610344	
		0	lapangan	85.67685	60.94205	1.773534E-03	0.3813558	200.3195	121.957131	122.3556923	77.11093853	77.4905208	
	240	0,425	lapangan	77.42411	53.5167	-2.69797	2.518867	178.535652	106.5587145	112.0363934	66.983729	72.200566	
		0,85	lapangan	66.21803	42.98612	-5.397713	4.656379	148.239428	86.42904585	96.98584245	54.198514	64.252606	
		0	lapangan	70.81036	46.39298	-2.808036	2.067546	159.2012	95.7587547	100.8781158	60.921288	65.79687	
		1,075	tump.kanan	-14.04745	-10.50696	-9.088097	6.935975	-33.668076	-29.80847835	-12.98320275	-21.730802	-5.70673	
		2,15	tump.kanan	-113.5294	-79.85876	-15.36816	11.8044	-264.009296	-177.268287	-148.737099	-117.54462	-90.37206	
		0	tump.kiri	-25.41141	-19.88261	24.51511	-20.75925	-62.305868	-11.37948525	-58.91756325	1.644841	-43.629519	
	241	1,5	lapangan	-2.743992	-0.1237046	0.7686459	-0.3148645	-3.49071776	-2.13905832	-3.27674424	-1.7009469	-2.7844573	
		3	tump.kanan	-1.386222	-2.864801	-22.97782	20.12952	-6.247148	-27.08626463	18.17644238	-24.2254198	18.8819202	
		0	tump.kiri	-5.016758	-3.755208	21.93804	-20.45143	-12.0284424	15.7958619	-28.7130816	17.4229578	-24.9665122	
	242	1,5	lapangan	2.544391	1.965415	0.1806989	0.2018439	6.1979332	3.89318727	3.91538952	2.4706508	2.4917958	
		3	tump.kanan	-4.724102	-3.563962	-21.57664	20.85511	-11.3712616	-29.48685915	15.06647835	-25.8283318	16.6034182	
		0	tump.kiri	-4.695518	-3.556644	20.85461	-21.58037	-11.325252	15.0998085	-29.4569205	16.6286438	-25.8063362	
	243	1,5	lapangan	2.545209	1.965416	0.2019786	0.180528	6.1989164	3.91639038	3.89386725	2.4926667	2.4712161	
		3	tump.kanan	-5.043706	-3.762525	-20.45065	21.94142	-12.0724872	-28.74439943	15.76727408	-24.9899854	17.4020846	
		0	tump.kiri	-1.35916	-2.857159	20.12378	-22.97609	-6.2024464	18.20284253	-27.05202098	18.900536	-24.199334	
	244	1,5	lapangan	-2.745	-0.1238986	-0.3123522	0.7661419	-3.49223776	-3.275266575	-2.14284777	-2.7828522	-1.7043581	
		3	tump.kanan	-25.44048	-19.89064	-20.74848	24.50837	-62.3536	-58.940994	-11.4213015	-43.644912	1.611938	
		0	tump.kiri	-113.5104	-79.85275	11.7921	-15.35822	-263.97688	-148.7269088	-177.2347448	-90.36726	-117.51758	
		1,075	tump.kiri	-14.03818	-10.50368	6.930548	-9.083849	-33.651704	-12.9774456	-29.79256245	-5.703814	-21.718211	

Lanjutan Tabel 7.1.a

Portal	No.balok	Jarak (m)	LTK MOMEN	MD (kNm)	ML (kNm)	ME (kNm)		Mu1 (kNm)	Mu2 (kNm)	Mu3 (kNm)	Mu4 (kNm)	Mu5 (kNm)	Ket.balok
						E KIRI	E KANAN						
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
		2,15	lapangan	70.80997	46.39352	2.06899	-2.809482	159.201596	100.879506	95.7571104	65.797963	60.919491	
		0	lapangan	66.2252	42.98527	4.658586	-5.401336	148.246672	96.99524205	86.43232395	64.261266	54.201344	
	247	0,425	lapangan	77.42765	53.5155	2.520524	-2.70043	178.53798	112.0412202	106.5592185	72.205409	66.984455	
		0,85	lapangan	85.67675	60.94048	0.3824619	4.753556E-04	200.316868	122.3559245	121.9548386	77.4915369	77.10955036	
		0	lapangan	86.01912	61.03181	1.19633	-0.2512948	200.87384	123.6179228	122.0979167	78.613538	77.1659132	
		1,5	tump.kanan	3.960634	6.128839	-5.799111	8.529241	14.5589032	1.287239625	16.33200923	-2.2345404	12.0938116	
		3	tump.kanan	-114.8869	-87.45538	12.79455	17.30978	-277.792888	-179.979597	-148.3700505	-116.19276	-86.08843	
		0	tump.kiri	-101.5454	-78.39933	12.38795	-19.0353	-247.293408	-134.7749708	-167.7693833	-79.00291	-110.42616	
		0,9625	tump.kiri	-24.88146	-19.41562	7.830744	-12.54164	-60.922744	-28.0964523	-49.4874555	-14.56257	-34.934954	
		1,925	lapangan	38.3471	26.61353	3.273535	-6.047976	88.598168	57.67377	47.88618345	37.785925	28.464414	
		0	lapangan	36.39631	24.56164	4.084278	-5.935113	82.974196	55.3994784	44.87911785	36.840957	26.821566	
		0.5375	lapangan	49.27307	39.32082	1.396126	-1.959911	122.040996	73.8460863	70.32224745	45.741889	42.385852	
	251	1,075	lapangan	58.49381	50.96703	-1.292026	2.01529	151.73982	86.81956395	90.29224575	51.352403	54.659719	
		0	lapangan	33.07868	22.76482	-3.937216	7.055816	76.118128	42.5500677	54.0927513	25.833596	36.826628	
		0,5375	lapangan	47.68105	38.45938	-1.246346	3.152979	118.752268	68.9476137	73.56690495	41.666599	46.065924	
		1,075	lapangan	58.62738	51.04099	1.444524	-0.7498586	152.01844	89.87201895	87.56791722	54.209166	52.0147834	
		0	lapangan	35.04269	24.77837	-3.133314	7.17052	81.69662	46.51348905	57.33251475	28.405107	38.708941	
		0,9625	tump.kanan	-31.10349	-22.71173	-7.728288	13.48019	-73.662956	-52.69702515	-30.42812325	-35.721429	-14.512951	
		1,925	tump.kanan	-110.6851	-83.15638	-12.32326	19.78986	-265.872328	-172.8158775	-139.0971015	-111.93985	-79.82673	
		0	tump.kiri	-164.3659	-113.116	10.5512	-18.59461	-378.22468	-220.891335	-251.4944355	-137.37811	-166.52392	
		1,2125	tump.kiri	-32.83894	-21.10715	6.013574	-11.77821	-73.178168	-39.24788805	-57.92926125	-23.541472	-41.333256	
		2,425	lapangan	75.95541	47.89324	1.475948	-4.96182	167.775676	106.4468769	99.6872205	69.835817	63.398049	
		0	lapangan	67.78982	42.27911	4.076523	-6.786637	148.99436	97.6561929	86.2498749	65.087361	54.224201	
		0,5375	lapangan	92.54707	61.85988	1.914193	-3.981195	210.032292	131.6607632	125.4706058	85.206556	79.311168	
	255	1,075	lapangan	113.5096	78.08692	-0.2481377	-1.175752	261.150592	159.9201684	158.9461734	101.9105023	100.982888	
		0	lapangan	113.3905	77.98553	0.5845242	0.6419073	260.845448	160.6161787	160.6764309	102.6359742	102.6933573	
		0,5375	lapangan	94.43254	63.29031	-1.593134	4.248934	214.583544	130.7087891	136.8429605	83.396152	89.23822	
		1,075	lapangan	71.67986	45.24137	-3.770792	7.855961	158.402024	95.05624065	107.2643313	60.741082	72.367835	
		0	lapangan	79.55571	50.7631	-1.18235	5.888278	176.687812	108.9426555	116.3668149	70.417789	77.488417	
		1,2125	tump.kanan	-24.36524	-14.51532	-5.297918	11.71822	-52.4628	-38.7668589	-20.899914	-27.226634	-10.210496	
		2,425	tump.kanan	-151.0188	-102.8022	-9.413486	17.54815	-345.70608	-222.4250553	-194.1153375	-145.330406	-118.36877	
		0	tump.kiri	-36.26814	-25.89558	19.79926	-43.8784	-84.954696	-30.8875035	-97.7490465	-12.842066	-76.519726	
	256	1,155	lapangan	-13.37319	-8.429843	0.4261246	-0.7997219	-29.5355768	-18.02008625	-19.30722507	-11.6097464	-12.8355929	
		2,31	tump.kanan	-1.345596	-1.2361	-18.94702	42.27895	-3.5924752	-21.9561993	42.3310692	-20.1580564	41.0679136	

Lanjutan Tabel 7.1.a

Portal	No.balok	Jarak (m)	LTK MOMEN	MD (kNm)	ML (kNm)	ME (kNm)		Mu1 (kNm)	Mu2 (kNm)	Mu3 (kNm)	Mu4 (kNm)	Mu5 (kNm)	Ket.balok
						E KIRI	E KANAN						
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
AS x-1		0	tump.kiri	-4.171461	0	2.842171E-14	0	-5.0057532	-4.38003405	-4.38003405	-3.7543149	-3.7543149	balok lt.1
	136	0,4596194	lapangan	-1.042865	0	2.295371E-15	0	-1.251438	-1.09500825	-1.09500825	-0.9385785	-0.9385785	
		0,9192388	tump.kanan	1.324375E-14	0	-2.383097E-14	0	1.58925E-14	-1.11166E-14	1.39059E-14	-1.19116E-14	1.19194E-14	
		0	tump.kiri	-6.600836	3.552714E-15	0	0	-7.9210032	-6.9308778	-6.9308778	-5.9407524	-5.9407524	
	137	0,4596194	lapangan	-1.650209	2.869214E-16	-6.531585E-15	2.612634E-14	-1.9802508	-1.73271945	-1.73271945	-1.4851881	-1.4851881	
		0,9192388	tump.kanan	-1.073707E-14	-2.978871E-15	-1.306317E-14	5.225268E-14	-1.7651E-14	-2.65542E-14	4.20275E-14	-2.27265E-14	4.25893E-14	
		0	tump.kiri	-36.8315	-11.18892	-46.1615	31.96117	-62.100072	-93.016833	-10.9880295	-79.30985	-1.18718	
	148	2,91328	lapangan	27.44384	11.17328	1.602239	-0.8345228	50.809856	36.36435495	33.80575506	26.301695	23.8649332	
		5,82656	tump.kanan	-43.54158	-15.4781	49.36597	-33.63022	-77.014856	-2.010393	-89.1563925	10.178548	-72.817642	
		0	tump.kiri	-36.73809	-11.26185	32.00994	-46.23526	-62.104668	-10.87702875	-93.03448875	-1.054341	-79.299541	
	149	2,91328	lapangan	27.37897	11.17805	-0.8355351	1.603837	50.739644	33.7390829	36.3004236	23.8055379	26.24491	
		5,82656	tump.kanan	-43.76472	-15.39563	-33.68102	49.44294	-77.150672	-89.40073275	-2.12057475	-73.069268	10.054692	
		0	tump.kiri	-23.70161	-7.398932	58.00458	-47.27739	-40.2802232	32.1336792	-78.4123893	36.673131	-68.608839	
	161	2,275	lapangan	13.48765	5.244596	0.1367868	-0.2713573	24.5765336	17.05907154	16.63052024	12.2756718	11.8675277	
		4,55	tump.kanan	-31.80719	-12.00111	-57.731	46.73468	-57.370404	-100.3156823	9.37328175	-86.357471	18.108209	
		0	tump.kiri	-62.52873	-22.34426	38.18865	-32.99918	-110.785292	-37.2878205	-112.035042	-18.087207	-89.275037	
	162	3,5	lapangan	34.57359	13.00844	-0.1699068	0.2674189	**62.301812**	42.95329836	43.41249035	30.9463242	31.3836499	
		7	tump.kanan	-63.55272	-22.3826	-38.52846	33.53401	-112.075424	**-118.936104**	-43.2705105	-95.725908	-23.663438	
		0	tump.kiri	-49.71264	-18.47539	43.44951	-38.80189	-89.215792	-16.27586625	-102.6398363	-1.291866	-83.543266	
	163	3	lapangan	24.39261	9.422253	0.2729327	-3.470478E-03	44.3467368	30.84550266	30.55527932	22.2262817	21.94987852	
		6	tump.kanan	-44.93541	-14.6551	-42.90365	38.79495	-77.370652	-99.9249405	-14.1414105	-83.345519	-1.646919	
		0	tump.kiri	-30.83516	-1.075386	42.1438	-39.09668	-38.7228096	11.30949435	-73.99300965	14.392156	-66.848324	
	164	3	lapangan	13.7225	-1.074616	0.2041103	0.1013671	14.7476144	14.05876742	13.95088706	12.5543603	12.4516171	
		6	tump.kanan	-30.57935	-1.073845	-41.73557	39.29941	-38.413372	-76.49443463	8.592294375	-69.256985	11.777995	
		0	tump.kiri	-45.85293	-15.52336	42.60038	-41.373	-79.860892	-11.5649415	-99.7369905	1.332743	-82.640637	
	165	3	lapangan	24.99793	9.670561	-0.7162717	1.053404	45.4704136	30.57278574	32.43094523	21.7818653	23.551541	
		6	tump.kanan	-47.58448	-17.11052	-44.03292	43.47981	-84.478208	-105.181293	-13.2929265	-86.858952	0.653778	
		0	tump.kiri	-46.39875	-16.96501	13.89046	-14.11672	-82.822516	-43.04033475	-72.44787375	-27.868415	-55.875595	
	166	3	lapangan	24.03839	9.312958	4.758721E-02	5.446777E-02	43.7468008	30.17957902	30.18680361	21.68213821	21.68901877	
		6	tump.kanan	-45.77692	-16.38408	-13.79529	14.22565	-81.146832	-71.1524625	-41.7304755	-54.994518	-26.973578	
		0	tump.kiri	-30.50213	-1.208524	42.56911	-45.14263	-38.5361944	12.0358539	-80.0614731	15.117193	-72.594547	
	167	3	lapangan	13.72559	-1.104931	1.008871	-0.7318377	14.7028184	14.89109528	13.06335114	13.361902	11.6211933	
		6	tump.kanan	-30.90621	-1.001339	-40.55137	43.67895	-38.6895944	-75.55616198	12.88567403	-68.366959	15.863361	
		0	tump.kiri	-44.85863	-14.67534	38.72271	-42.86215	-77.3109	-14.1472695	-99.8113725	-1.650057	-83.234917	

Lanjutan Tabel 7.1.a

Portal	No.balok	Jarak (m)	LTK MOMEN	MD (kNm)	ML (kNm)	ME (kNm)		Mu1 (kNm)	Mu2 (kNm)	Mu3 (kNm)	Mu4 (kNm)	Mu5 (kNm)	Ket.balok
						E KIRI	E KANAN						
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
	168	3	lapangan	24.39046	9.422824	-4.761818E-02	0.317975	44.3450704	30.50696651	30.89083935	21.90379582	22.269389	
		6	tump.kanan	-49.79372	-18.45401	-38.81794	43.4981	-89.27888	-102.7305983	-16.29875625	-83.632288	-1.316248	
	169	0	tump.kiri	-63.47581	-22.40068	33.60574	-38.62843	-112.01206	-43.1239305	-118.969809	-23.522489	-95.756659	
		3,5	lapangan	34.57211	13.00727	0.2723956	-0.1756164	62.298164	43.41554763	42.94513503	31.3872946	30.9392826	
		7	tump.kanan	-62.60858	-22.32852	-33.06095	38.2772	-110.855928	-112.1754795	-37.270422	-89.408672	-18.070522	
	170	0	tump.kiri	-31.68192	-12.02076	46.81159	-57.84481	-57.25152	9.5752545	-100.3139655	18.297862	-86.358538	
		2.275	lapangan	13.4863	5.245396	-0.2708136	0.1362095	24.5761936	16.63009362	17.05746788	11.8668564	12.2738795	
		4,55	tump.kanan	-23.82957	-7.377679	-47.35322	58.11723	-40.3997704	-78.61521098	32.12876153	-68.799833	36.670617	
	272	0	tump.kiri	-5.755836	-7.105427E-15	0	-1.421085E-14	-6.9070032	-6.0436278	-6.0436278	-5.1802524	-5.1802524	balok lt.2
		0,4596194	lapangan	-1.438959	-7.105427E-15	0	-1.147685E-15	-1.7267508	-1.51090695	-1.51090695	-1.2950631	-1.2950631	
		0,9192388	tump.kanan	1.130086E-14	-7.105427E-15	0	1.191548E-14	2.19235E-15	8.13555E-15	2.06468E-14	1.01708E-14	2.20863E-14	
	273	0	tump.kiri	-9.769586	0	0	0	-11.7235032	-10.2580653	-10.2580653	-8.7926274	-8.7926274	
		0,4596194	lapangan	-2.442396	6.53[illegible]585E-15	0	0	-2.9308752	-2.5645158	-2.5645158	-2.1981564	-2.1981564	
		0,9192388	tump.kanan	1.218903E-14	1.306317E-14	0	0	3.55279E-14	1.96566E-14	1.96566E-14	1.09701E-14	1.09701E-14	
	284	0	tump.kiri	-51.66283	-16.23691	-70.4294	43.0345	-87.974452	-136.7212193	-17.58412425	-116.925947	-3.462047	
		2,91328	lapangan	32.37307	8.770144	2.758355	-1.067075	52.8799144	41.49232185	37.47562035	31.894118	28.068688	
		5,82656	tump.kanan	-50.6788	-15.23638	75.94611	-45.16865	-85.192768	18.531576	-108.638922	30.33519	-90.77957	
	285	0	tump.kiri	-51.39259	-16.2805	43.03271	-70.44367	-87.719908	-17.3251365	-136.4753355	-3.220621	-116.697001	
		2,91328	lapangan	32.15845	8.770458	-1.067086	2.758792	52.6228728	37.25042265	41.26759455	27.875519	31.701397	
		5,82656	tump.kanan	-51.37828	-15.19216	-45.16689	75.96126	-85.961392	-109.3483125	17.836245	-91.407342	29.720808	
	297	0	tump.kiri	-33.95644	-9.951599	91.9369	-56.41455	-56.6702864	55.65489353	-100.114129	61.376104	-86.975346	
		2,275	lapangan	15.41598	4.235629	1.68681	-0.1622086	25.2761824	20.18163473	18.2401652	15.561192	13.7121734	
		4,55	tump.kanan	-37.10429	-11.46638	-88.56328	56.09014	-62.871356	-137.970798	13.915293	-121.957141	22.696279	
	298	0	tump.kiri	-77.10902	-21.94289	54.89272	-40.68167	-127.639448	-34.84713225	-135.2002418	-14.505398	-110.079788	
		3,5	lapangan	42.5109	13.20343	0.2096951	0.3899111	**72.138568**	51.78842561	51.97765241	38.4695051	38.6497211	
		7	tump.kanan	-79.03529	-22.39401	-54.47333	41.46149	-130.672764	-151.9409063	-51.20934525	-125.605091	-29.670271	
	299	0	tump.kiri	-60.68023	-18.45992	59.29313	-47.90615	-102.352148	-11.147913	-123.707157	4.680923	-102.518357	
		3	lapangan	30.13251	9.347436	0.7985679	0.0308951	51.1149096	37.3850357	36.57897926	27.9178269	27.1501541	
		6	tump.kanan	-56.23802	-14.82021	-57.69599	47.96794	-91.19796	-127.4113208	-16.46419425	-108.310208	-2.646278	
	300	0	tump.kiri	-42.58338	-0.9830872	55.57394	-48.73935	-52.6729955	13.12396722	-96.40498728	17.248898	-87.064392	
		3	lapangan	19.21887	-1.000707	0.4543783	0.2724909	21.4615128	20.13153954	19.94055777	17.7513613	17.5694739	
		6	tump.kanan	-41.58841	-1.018327	-54.66519	49.28432	-51.5354152	-101.6009017	7.546083825	-92.094759	11.854751	
	301	0	tump.kiri	-57.23344	-16.13901	52.63961	-49.94393	-94.502544	-13.29650175	-121.0092188	1.129514	-101.454026	
		3	lapangan	30.58904	9.592011	0.5674359	0.1325289	52.0540656	37.75010547	37.29345312	28.0975719	27.6626649	

Lanjutan Tabel 7.1.a

Portal	No.balok	Jarak (m)	LTK MOMEN	MD (kNm)	ML (kNm)	ME (kNm)		Mu1 (kNm)	Mu2 (kNm)	Mu3 (kNm)	Mu4 (kNm)	Mu5 (kNm)	Ket.balok
						E KIRI	E KANAN						
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
		6	tump.kanan	-58.77174	-16.65196	-51.50473	50.20898	-97.169224	-124.5325725	-17.733177	-104.399296	-2.685586	
		0	tump.kiri	-58.59426	-16.64381	50.12027	-51.44159	-96.943208	-17.63558975	-124.2756428	-2.614564	-104.176424	
	302	3	lapangan	30.6085	9.59036	0.3055531	0.38158	52.074776	37.49469476	37.574523	27.8532031	27.92923	
		6	tump.kanan	-57.37201	-16.15047	-49.50917	52.20475	-94.687164	-120.7042358	-13.90461975	-101.143979	0.569941	
		0	tump.kiri	-41.49632	-1.011242	48.54501	-53.91156	-51.4135712	6.87022245	-100.7091761	11.198322	-91.258248	
	303	3	lapangan	19.21612	-0.9945939	7.380015E-02	0.6604152	21.46799376	19.73225436	20.34820016	17.36830815	17.9549232	
		6	tump.kanan	-42.68097	-0.9779453	-48.3974	55.23239	-52.7818765	-96.14570978	12.66556972	-86.810273	16.819517	
		0	tump.kiri	-56.12644	-14.8379	48.0495	-57.79335	-91.092368	-16.2706845	-127.405677	-2.464296	-108.307146	
	304	3	lapangan	30.13142	9.346772	5.502125E-02	0.7741958	51.1125392	36.60231861	37.35795189	27.17329925	27.8924738	
		6	tump.kanan	-60.79399	-18.44355	-47.93946	59.34174	-102.462468	-123.8529863	-11.20772625	-102.654051	4.627149	
		0	tump.kiri	-78.93056	-22.40791	41.45235	-54.47762	-130.569316	-51.11626275	**-151.8427313**	-29.585145	-125.515115	
	305	3,5	lapangan	42.50917	13.2032	0.3878246	0.2120008	72.136124	51.97352433	51.78890934	38.6460776	38.4702538	
		7	tump.kanan	-77.21723	-21.92944	-40.67671	54.90162	-127.74778	-135.301593	-34.9443465	-110.172217	-14.593887	
		0	tump.kiri	-36.94052	-11.48235	56.0901	-88.58385	-62.700384	14.07882525	-137.8288223	22.843632	-121.830318	
	306	2,275	lapangan	15.41698	4.235078	-0.1622268	1.687039	25.2765008	18.24090681	20.1826359	13.7130552	15.562321	
		4,55	tump.kanan	-34.11821	-9.93673	-56.41456	91.95793	-56.84062	-100.2761918	55.51492275	-87.120949	61.251541	
		0	tump.kiri	-4.048936	-2.197	0	0	-8.3739232	-5.4048078	-5.4048078	-3.6440424	-3.6440424	balok lt.3
	343	0,4596194	lapangan	-1.012234	-0.54925	0	0	-2.0934808	-1.35120195	-1.35120195	-0.9110106	-0.9110106	(tribun)
		0,9192388	tump.kanan	-7.739469E-15	-2.058694E-14	0	0	-4.2226E-14	-1.89346E-14	-1.89346E-14	-6.96552E-15	-6.96552E-15	
		0	tump.kiri	-4.048936	-2.197	-2.842171E-14	3.410605E-13	-8.3739232	-5.4048078	-5.4048078	-3.6440424	-3.6440424	
	344	0,4596194	lapangan	-1.012234	-0.54925	-8.826956E-15	2.365552E-13	-2.0934808	-1.35120195	-1.35120195	-0.9110106	-0.9110106	
		0,9192388	tump.kanan	-3.149824E-14	-2.058694E-14	1.07678E-14	1.320498E-13	-7.0737E-14	-3.25751E-14	9.4771E-14	-1.75806E-14	1.03701E-13	
		0	tump.kiri	-9.33912	-36.65902	-117.4063	30.13973	-69.861376	-152.3286765	2.594655	-125.811508	21.734522	
	345	2,91328	lapangan	31.80433	48.99082	7.040507	-0.9070748	116.550508	66.50725935	58.16229846	35.664404	27.7168222	
		5,82656	tump.kanan	-68.59283	-81.03607	131.4873	-31.95388	-211.969108	23.49525675	-148.1179823	69.753753	-93.687427	
		0	tump.kiri	-9.458926	-36.61648	30.10558	-117.3761	-69.9370792	2.4553347	-152.4004293	21.5925466	-125.8891334	
	346	2,91328	lapangan	31.84429	48.9922	-0.9059333	7.039454	116.600668	58.20617954	66.5488362	27.7539277	35.699315	
		5,82656	tump.kanan	-68.3931	-81.07584	-31.91744	131.455	-211.793064	-147.690883	23.650179	-93.47123	69.90121	
		0	tump.kiri	-6.786245	-23.95836	56.00096	-46.68734	-46.47687	39.09731175	-68.72540325	49.8933395	-52.7949605	
	347	2,275	lapangan	14.05823	23.61396	-1.60277	-0.4328859	54.652212	25.475562	26.70394031	11.049637	12.2195211	
		4,55	tump.kanan	-44.76588	-49.31953	-59.2065	45.82157	-132.630304	-135.0637523	-24.78427875	-99.495792	5.532278	
		0	tump.kiri	-107.5973	-58.52565	40.32594	-35.44216	-222.7578	-101.3608943	-180.9173993	-56.51163	-132.27973	
		1,2125	tump.kiri	-15.41555	-7.542708	24.44695	-21.83467	-30.5669928	5.5230483	-43.0726527	10.572955	-35.708665	
		2,425	lapangan	59.25471	29.85305	8.567952	-8.227187	118.870532	86.88664635	69.2517504	61.897191	45.102052	

Lanjutan Tabel 7.1.a

Portal	No.balok	Jarak (m)	LTK MOMEN	MD (kNm)	ML (kNm)	ME (kNm)		Mu1 (kNm)	Mu2 (kNm)	Mu3 (kNm)	Mu4 (kNm)	Mu5 (kNm)	Ket.balok
						E KIRI	E KANAN						
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
		0	lapangan	57.28467	28.61972	10.48496	-10.95206	114.533156	86.1834645	63.6745935	62.041163	40.604143	
	350	1,075	lapangan	61.48574	30.48435	-1.546913	0.4047917	122.558648	78.9403146	80.98960454	53.790253	55.7419577	
		2,15	lapangan	54.61214	26.34074	-13.57879	11.76164	107.679752	56.913906	83.5213575	35.572136	60.912566	
		0	lapangan	-115.5786	-65.46021	-38.09816	35.3283	**-243.430656**	-195.7272083	-118.6294253	-142.1189	-68.69244	
		1,2125	tump.kanan	-20.72997	-12.17396	-25.01347	22.17735	-44.3543	-54.421941	-4.87158	-43.670443	3.520377	
		2,425	tump.kanan	56.60723	27.5251	-11.92878	9.026402	111.968836	61.36305	83.3659911	39.017727	59.972909	
		0	tump.kiri	45.09639	47.30689	-1.167316	1.408075	129.806692	70.96164495	73.6658055	39.419435	41.994826	
		1,5	lapangan	2.941308	5.206641	21.59932	-19.20729	11.8601952	28.50114593	-14.34579458	24.2464972	-16.5601128	
	352	3	lapangan	-67.25616	-59.84361	44.36595	-39.82265	-176.457168	-55.45261575	-143.8506458	-16.164594	-100.353194	
		0	lapangan	-66.34205	-62.08901	-43.65648	39.80331	-178.952876	-148.0951868	-60.46240725	-103.364325	-19.904535	
		1,5	lapangan	3.419401	4.099824	-21.09038	19.17898	10.6629996	-16.40212035	25.88070765	-18.0129191	22.2564409	
		3	tump.kanan	45.13847	47.33566	1.475734	-1.445355	**129.90802**	73.7977107	70.73056725	42.100357	39.179268	
		0	tump.kiri	50.2107	28.69501	-12.93191	12.53014	106.166456	54.20813475	80.94328725	32.25772	57.71977	
		1,925	lapangan	16.96746	12.63663	15.13052	-13.83318	40.57956	40.33710975	9.92522475	30.401234	1.437534	
	354	3,85	lapangan	-65.48382	-46.46976	43.19296	-40.19651	-152.9322	-47.802027	-135.3609705	-15.742478	-99.131948	
		0	lapangan	-84.43168	-53.10593	-42.81455	40.36411	-186.287504	-161.4891548	-74.15156175	-118.803062	-35.624402	
		1,075	lapangan	-11.06539	-8.832691	-26.59461	25.10352	-27.4107736	-44.18016278	10.10287373	-36.553461	15.144669	
		2,15	tump.kanan	51.22622	29.4313	-10.37468	9.842925	108.561544	58.3455495	79.57403475	35.728918	55.946523	
		0	tump.kiri	-74.23754	-53.9133	42.38829	-41.01946	-175.346328	-61.746195	-149.3243325	-24.425496	-107.833246	
		1,5	lapangan	3.520973	3.680674	20.44611	-19.64457	10.114246	27.097791	-14.997423	23.6149857	-16.4756943	
	356	3	lapangan	53.23711	38.32465	-1.496078	1.730326	125.203972	74.44852485	77.83624905	46.417321	49.643725	
		0	lapangan	53.64434	38.57842	1.524402	-1.280831	126.09868	78.1808496	75.23535495	49.804308	46.999075	
		1,5	lapangan	5.459548	4.647783	-20.11499	19.9697	13.9879104	-12.94812803	29.14079648	-15.2013968	24.8832932	
		3	tump.kanan	-70.76763	-52.23285	-41.75439	41.22023	-168.493716	-145.5703673	-58.44701625	-105.445257	-22.470637	
		0	tump.kiri	-70.68193	-52.23697	41.48537	-42.01672	-168.397468	-58.08079725	-145.7579918	-22.128367	-105.630457	
		1,5	lapangan	5.499678	4.646727	20.10048	-20.24323	14.0343768	29.31969758	-13.04119793	25.0501902	-15.2935198	
	358	3	lapangan	53.63891	38.58043	-1.284418	1.530261	126.09538	75.22694235	78.1823553	46.990601	49.80528	
		0	lapangan	53.23759	38.32328	1.732923	-1.497846	125.202356	77.83876065	74.4464532	49.646754	46.415985	
		1,5	lapangan	3.475855	3.682901	-19.78579	20.58887	10.0636676	-15.19190873	27.20148428	-16.6575205	23.7171395	
		3	tump.kanan	-74.32825	-53.90747	-41.30451	42.6756	-175.445852	-149.7158198	-61.53670425	-108.199935	-24.219825	
		0	tump.kiri	-84.35518	-53.10917	40.28101	-42.73196	-186.200888	-74.16019275	-161.3238113	-35.638652	-118.651622	
		1,075	lapangan	-11.01732	-8.833672	25.05442	-26.54564	-27.3546592	10.1012772	-44.0787858	15.138832	-36.461228	
	360	2,15	lapangan	51.24587	29.43258	9.827836	-10.35933	108.587172	79.5794958	58.3829715	55.949119	35.761953	
		0	lapangan	50.238	28.69572	12.51191	-12.91471	106.198752	80.9526585	54.2547075	57.72611	32.29949	

Lanjutan Tabel 7.1.a

Portal	No.balok	Jarak (m)	LTK MOMEN	MD (kNm)	ML (kNm)	ME (kNm)		Mu1 (kNm)	Mu2 (kNm)	Mu3 (kNm)	Mu4 (kNm)	Mu5 (kNm)	Ket.balok
						E KIRI	E KANAN						
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
		1,925	lapangan	16.94301	12.63713	-13.77571	15.07206	40.55102	9.96015825	40.25031675	1.472999	30.320769	
		3,85	tump.kanan	-65.56001	-46.46847	-40.06334	43.05884	-153.021564	-135.3004643	-48.02217525	-99.067349	-15.945169	
	362	0	tump.kiri	-66.26524	-62.09404	39.7345	-43.58818	-178.868752	-60.456648	-147.945462	-19.904216	-103.226896	
		1,5	lapangan	3.456496	4.098017	19.1433	-21.05443	10.7046224	25.88124473	-16.32637178	22.2541464	-17.9435836	
		3	lapangan	45.13586	47.34008	-1.4479	1.479319	129.90716	70.7259	73.79947995	39.174374	42.101593	
		0	lapangan	45.10095	47.30597	1.405072	-1.164631	129.810692	73.66695735	70.9687692	41.995927	39.426224	
		1,5	lapangan	2.906047	5.209128	-19.17854	21.57106	11.8218612	-14.35132545	28.43575455	-16.5630977	24.1865023	
		3	tump.kanan	-67.33124	-59.83772	-39.76216	44.30676	-176.53784	-143.862873	-55.590507	-100.360276	-16.291356	
	365	0	tump.kiri	-115.5281	-65.47696	35.28022	-38.0523	-243.396856	-118.635678	-195.634824	-68.69507	-142.02759	
		1,2125	tump.kiri	-20.69459	-12.18065	22.1459	-24.98304	-44.322548	-4.87096575	-54.35635275	3.520769	-43.608171	
		2,425	lapangan	56.62746	27.52847	9.011571	-11.91377	111.998504	83.3734293	61.40182125	59.976285	39.050944	
		0	lapangan	54.63953	26.3428	11.74699	-13.56547	107.715916	83.535816	56.957733	60.922567	35.610107	
		1,075	lapangan	61.4936	30.48918	0.4037408	-1.545769	122.575008	80.99902734	78.95204205	55.7479808	53.798471	
		2,15	lapangan	57.27298	28.62631	-10.93951	10.47393	114.529672	63.67895625	86.16306825	40.606172	62.019612	
		0	lapangan	59.25488	29.86277	-8.214456	8.555244	118.886288	69.27039945	86.87858445	45.114936	61.884636	
		1,2125	tump.kanan	-15.44834	-7.537222	-21.80541	24.41919	-30.5975632	-43.07347905	5.46235095	-35.708916	10.515684	
		2,425	tump.kanan	-107.663	-58.5244	-35.39637	40.28314	-222.83464	-180.9376485	-101.474163	-132.29307	-56.61356	
	366	0	tump.kiri	-44.69301	-49.33857	45.76023	-59.14847	-132.573324	-24.78216825	-134.9363033	5.536521	-99.372179	
		2,275	lapangan	14.05406	23.61629	-0.4327614	-1.602786	54.650936	26.70091578	25.47238995	12.2158926	11.045868	
		4,55	tump.kanan	-6.867458	-23.93465	-46.62576	55.9429	-46.5363896	-68.73357015	38.96352285	-52.8064722	49.7621878	
	380	0	tump.kiri	-1.592764	0	-5.684342E-14	0	-1.9113168	-1.6724022	-1.6724022	-1.4334876	-1.4334876	balok ata
		0,4596194	lapangan	-0.398191	0	-4.590742E-15	0	-0.4778292	-0.41810055	-0.41810055	-0.3583719	-0.3583719	
		0,9192388	tump.kanan	-3.877557E-14	0	4.766193E-14	0	-4.6531E-14	9.33068E-15	-4.07143E-14	1.27639E-14	-3.4898E-14	
	381	0	tump.kiri	-1.592764	-1.421085E-14	3.552714E-14	-1.136868E-13	-1.9113168	-1.6724022	-1.6724022	-1.4334876	-1.4334876	
		0,4596194	lapangan	-0.398191	-1.147685E-15	1.593238E-14	-9.181484E-15	-0.4778292	-0.41810055	-0.41810055	-0.3583719	-0.3583719	
		0,9192388	tump.kanan	-3.649961E-14	1.191548E-14	-3.662371E-15	9.532387E-14	-2.4735E-14	-3.59145E-14	6.80211E-14	-3.6512E-14	6.24742E-14	
	382	0	tump.kiri	-1.950109	6.402749	-44.86433	6.516785	7.9042676	-45.79371773	8.156453025	-46.6194281	4.7616869	
		2,91328	lapangan	5.194658	-0.8261243	-1.461803	-0.1202785	4.91179072	3.485782493	4.894383218	3.2133892	4.5549137	
		5,82656	tump.kanan	-19.6561	-8.054997	41.94072	-6.757341	-36.4753152	19.16997758	-31.96298648	24.25023	-24.447831	
	383	0	tump.kiri	-1.991204	6.412603	6.509398	-44.85758	7.87072	8.110720275	-45.82460663	4.7173144	-46.6496636	
		2,91328	lapangan	5.19258	-0.8262547	-0.1200854	-1.461993	4.90908848	4.892335613	3.483332633	4.5532366	3.211329	
		5,82656	tump.kanan	-19.61916	-8.065112	-6.749568	41.9336	-36.4471712	-31.9213482	19.1959782	-24.406812	24.276356	
	384	0	tump.kiri	-3.34324	3.362497	7.69232	-13.49685	1.3681072	6.331844925	-15.91678358	4.683404	-16.505766	
		2,275	lapangan	3.531517	0.2230648	-0.6804643	-0.1168417	4.59472408	3.110714355	3.702518085	2.497901	3.0615236	

Lanjutan Tabel 7.1.a

Portal	No.balok	Jarak (m)	LTK MOMEN	MD (kNm)	ML (kNm)	ME (kNm)		Mu1 (kNm)	Mu2 (kNm)	Mu3 (kNm)	Mu4 (kNm)	Mu5 (kNm)	Ket.balok
						E KIRI	E KANAN						
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
		4,55	tump.kanan	-9.105086	-2.916368	-9.053248	13.26317	-15.592292	-20.5973439	2.834895	-17.2478254	5.0685926	
		0	tump.kiri	-13.68533	1.381293	5.984175	-9.570941	-14.2123272	-7.361033925	-23.69390573	-6.332622	-21.887738	
	385	3,5	lapangan	7.753582	7.917592E-02	-0.4451915	-2.735716E-03	9.430979872	7.715377383	8.179955956	6.5330323	6.975488084	
		7	tump.kanan	-16.98825	-1.222941	-6.874557	9.56547	-22.3426056	-25.69799138	-8.435963025	-22.163982	-5.723955	
		0	tump.kiri	-9.212369	1.334522	8.736831	-10.69974	-8.9196076	0.20130915	-20.2070904	0.4456989	-18.9908721	
	386	3	lapangan	5.900229	5.330546E-02	-0.2249583	-1.967676E-02	7.165563536	5.987019602	6.202565219	5.0852478	5.29052934	
		6	tump.kanan	-12.91588	-1.227911	-9.186748	10.66039	-17.4637136	-23.85241268	-3.012917775	-20.81104	-0.963902	
		0	tump.kiri	-10.75283	0.8722222	9.930532	-10.69557	-11.5078405	-0.405496245	-22.06290335	0.252985	-20.373117	
	387	3	lapangan	5.661021	0.0996113	-0.104223	-4.368475E-03	6.95260328	5.886933833	5.991781084	4.9906959	5.090550425	
		6	tump.kanan	-11.85383	-0.6729996	-10.13898	10.68683	-15.3013954	-23.44577529	-1.57867479	-20.807427	0.018383	
		0	tump.kiri	-11.12073	-0.1573104	10.39612	-10.61713	-13.5965726	-0.84342846	-22.90734096	0.387463	-20.625787	
	388	3	lapangan	5.772832	5.290479E-02	-4.107475E-02	-1.448388E-02	7.012046064	6.046120127	6.074040541	5.15447405	5.18106492	
		6	tump.kanan	-11.26231	0.26312	-10.47827	10.58816	-13.09378	-22.689471	-0.5697195	-20.614349	0.452081	
		0	tump.kiri	-11.24156	0.2609337	10.6632	-10.55399	-13.0723781	-0.470287808	-22.74833731	0.545796	-20.671394	
	389	3	lapangan	5.772989	0.0529005	-1.317863E-02	-4.246909E-02	7.0122276	6.075573651	6.044818668	5.18251147	5.15322101	
		6	tump.kanan	-11.14117	-0.1551327	-10.68956	10.46905	-13.6176163	-23.00371117	-0.787170668	-20.716613	0.441997	
		0	tump.kiri	-11.83837	-0.6740007	10.65445	-10.10594	-15.2844451	-1.596966368	-23.39537587	-8.3E-05	-20.760473	
	390	3	lapangan	5.661145	9.966139E-02	-5.525404E-03	-0.1029739	6.952832224	5.990722806	5.888401885	5.089505096	4.9920566	
		6	tump.kanan	-10.76804	0.8733235	-10.6655	9.899991	-11.5243304	-22.04672216	-0.452956612	-20.356736	0.208755	
		0	tump.kiri	-12.90003	-1.229945	10.65694	-9.183588	-17.447948	-3.000965625	-23.83352003	-0.953087	-20.793615	
	391	3	lapangan	5.900759	5.336536E-02	-1.807191E-02	-0.2265708	7.166295376	6.204838259	5.985914424	5.29261119	5.0841123	
		6	tump.kanan	-9.227152	1.336676	-10.69308	8.730447	-8.9339008	-20.2144887	0.18021465	-18.9975168	0.4260102	
		0	tump.kiri	-16.97713	-1.225366	9.555653	-6.865072	-22.3331416	-8.435868	-25.67762925	-5.723764	-22.144489	
	392	3,5	lapangan	7.754232	7.920311E-02	-2.406017E-03	-0.4454968	9.431803376	8.180998915	7.715753593	6.976402783	6.533312	
		7	tump.kanan	-13.69514	1.383772	-9.560464	5.974079	-14.2201328	-23.6919039	-7.38063375	-21.88609	-6.351547	
		0	tump.kiri	-9.094383	-2.919485	13.24669	-9.037129	-15.5844356	2.827192725	-20.57081723	5.0617453	-17.2220737	
	393	2,275	lapangan	3.532507	0.2231328	-0.1165344	-0.6807559	4.59602088	3.70391595	3.111483375	3.0627219	2.4985004	
		4,55	tump.kanan	-3.351964	3.36575	-13.47976	7.675618	1.3628432	-15.90629145	6.30685545	-16.4965276	4.6588504	
AS y-4 &		0	tump.kiri	-9.943145	-0.9758344	15.91447	-18.3972	-13.493109	5.75757819	-30.26967531	6.9656395	-27.3460305	balok lt.1
AS y-18		1,557524	lapangan	18.35997	8.96063	6.446505	-7.793536	36.368972	30.7511295	15.79908645	22.970478	8.730437	
	58 & 87	3,115048	lapangan	24.2787	8.465805	-3.021464	2.810126	42.679728	26.76464543	32.88781493	18.829366	24.660956	
		0	lapangan	21.77466	6.731291	-3.591755	3.288368	36.8996576	22.62597803	29.85010718	16.005439	22.885562	
		1,557524	lapangan	0.2644197	-0.7811874	-9.044843	10.52145	-0.9325962	-9.62956785	10.9150398	-8.80686527	10.75942773	
		3,115048	tump.kanan	-43.6302	-18.72495	-14.49793	17.75454	-82.31616	-70.86513525	-37.00004175	-53.76511	-21.51264	

Lanjutan Tabel 7.1.a

Portal	No.balok	Jarak (m)	LTK MOMEN	MD (kNm)	ML (kNm)	ME (kNm)		Mu1 (kNm)	Mu2 (kNm)	Mu3 (kNm)	Mu4 (kNm)	Mu5 (kNm)	Ket.balok
						E KIRI	E KANAN						
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
	105&121	0	tump.kiri	-63.4011	-33.18687	21.97088	-25.74859	**-137.180312**	-63.54983775	-113.6552813	-35.09011	-82.80958	
		1,509776	lapangan	4.971965	4.057402	10.36747	-12.0899	12.4582012	18.2365428	-5.3436957	14.8422385	-7.6151315	
		3,019553	lapangan	42.25978	26.92656	-1.235933	1.568799	**93.794232**	57.21148335	60.15645195	36.797869	39.602601	
		0	lapangan	42.14882	26.86201	-1.27538	1.579312	93.5578	57.01966725	60.01709385	36.658558	39.51325	
		1,509776	lapangan	7.948335	4.810965	-11.47169	13.6657	17.235546	-1.173766125	25.22049338	-4.3181885	20.8192015	
		3,019553	tump.kanan	-57.33739	-35.61519	-21.668	25.75208	-127.389172	-102.1786343	-52.38755025	-73.271651	-25.851571	
	225&257	0	tump.kiri	-30.00135	-12.34365	3.673247	-3.754453	-55.75146	-34.1249244	-41.9240094	-23.327968	-30.755668	balok lt.2
		1,509776	lapangan	12.84612	7.911377	1.517608	-1.562382	28.0735472	19.23538733	16.00139783	13.079116	9.999126	
		3,019553	lapangan	34.66061	18.36488	-0.6380306	0.6296889	70.97654	45.36527037	46.69637585	30.5565184	31.8242379	
		0	lapangan	34.76039	18.40371	-0.6648242	0.6480967	**71.158404**	45.46229184	46.84085879	30.6195268	31.9324477	
		1,509776	lapangan	3.781797	1.795468	-1.768167	1.828173	7.4109052	3.0569322	6.8330892	1.6354503	5.2317903	
		3,019553	tump.kanan	-58.28205	-34.18788	-2.87151	3.00825	**-124.639068**	-82.159875	-75.986127	-55.325355	-49.445595	
	171	0	tump.kiri	-61.3347	-46.4285	3.335011	-4.098144	-147.88724	-90.74794575	-86.4320352	-57.078895	-52.968504	blk tribun
		0,4787761	lapangan	27.02597	20.85369	0.7286733	-0.932709	65.797068	40.09056272	38.3461113	25.0520463	23.390664	
		0,9575522	tump.kanan	-37.53536	-32.57256	-1.877665	2.232726	-97.158528	-53.01096045	-60.8157732	-30.446813	-37.879968	
	307	0	tump.kiri	-75.35693	-61.14415	1.285883	-1.136491	-188.258956	-113.2039671	-109.328036	-69.705534	-66.014171	
		3,765661	lapangan	46.47594	38.38745	-0.2992073	0.3352878	**117.191048**	68.63898059	69.30520044	41.5291387	42.1636338	
		7,531321	tump.kanan	-80.14082	-66.18343	-1.884297	1.807066	**-202.062472**	-117.5439846	-120.0874773	-70.840855	-73.263229	
AS y-5 & AS y-17	60&91	0	tump.kiri	8.198727	13.43694	19.17299	-21.20222	31.3375764	35.79469635	-6.59927415	26.5518443	-13.8233657	balok lt.1
		1,724567	lapangan	24.97326	13.39976	9.013201	-9.923075	51.407528	42.72065805	22.83756825	31.489135	12.552859	
		3,449134	lapangan	27.73274	13.36258	-1.146593	1.356074	54.659416	34.93080885	37.5586092	23.812873	26.31554	
		0	lapangan	24.69687	13.48066	5.050895E-02	2.597398E-02	46.4053	31.4870944	31.46133268	22.27769195	22.25315698	
		1,724567	lapangan	-3.983054	-4.88183	-10.44125	11.67581	-12.5905928	-17.70847995	5.51443305	-14.0259986	8.0910614	
		3,449134	tump.kanan	-46.67803	-20.24432	-20.933	23.32564	-88.404548	-81.6198495	-35.1482775	-62.943227	-18.684587	
	123&150	0	tump.kiri	-85.18533	-53.51554	24.53539	-27.32421	148.336448	90.26348783	92.17182965	57.4127395	59.2302079	
		1,671594	lapangan	8.681972	7.05677	11.84245	-13.17862	21.7091984	25.25544735	-1.01667615	19.6562248	-5.3648452	
		3,343187	lapangan	64.73692	44.15759	-0.8504885	0.9669799	-187.84726	-91.7780955	-146.2306755	-52.131407	-103.991007	
		0	lapangan	53.25569	35.17945	-0.3198391	0.4055042	**-158.624492**	-124.9879418	-67.58821125	-88.702839	-34.036429	
		1,671594	lapangan	10.55791	5.987401	-13.03284	14.66303	22.2493336	0.544709025	29.62537253	-3.530721	24.165149	
		3,343187	tump.kanan	-69.95221	-46.67615	-25.74585	28.92056	**120.193948**	74.0518547	74.81346516	47.6102819	48.3356252	
	259&286	0	tump.kiri	-29.36271	-6.357402	5.231945	-5.57296	**-45.4070952**	-28.6749393	-40.02008955	-21.194494	-31.999399	balok lt.2
		1,671594	lapangan	13.48566	7.752032	2.569613	-2.68844	28.5860432	20.92785345	15.4068978	14.706707	9.448654	
		3,343187	lapangan	43.16674	21.86147	-9.271789E-02	0.1960794	86.77844	56.70499497	57.00823212	38.75734811	39.0461454	

Lanjutan Tabel 7.1.a

Portal	No.balok	Jarak (m)	LTK MOMEN	MD (kNm)	ML (kNm)	ME (kNm)		Mu1 (kNm)	Mu2 (kNm)	Mu3 (kNm)	Mu4 (kNm)	Mu5 (kNm)	Ket.balok
						E KIRI	E KANAN						
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
		0	lapangan	36.58418	17.30463	1.751884E-03	0.1310101	**71.588424**	47.50015923	47.63588036	32.92751388	33.0567721	
		1,671594	lapangan	7.631208	2.510299	-3.017254	3.436859	13.173928	6.162558675	12.93937733	3.8508332	10.3049462	
		3,343187	tump.kanan	-59.13411	-35.75552	-6.03626	6.742709	-128.169764	-87.2005365	-73.78261905	-59.256959	-46.47799	
		0	tump.kiri	-84.21484	-60.24145	5.541487	-6.109268	-197.444128	-123.6894414	-116.0105027	-79.257259	-71.943984	blk tribun
	173	3,761187	lapangan	38.71102	28.10838	1.038792	-1.129948	91.426632	56.4942021	54.2170251	35.87871	33.70997	
		7,522373	tump.kanan	-50.78445	-37.99206	-3.463903	3.849372	-121.728636	-67.45094265	-79.6842354	-40.164518	-51.815273	
		0	tump.kiri	-121.5243	-94.04912	2.888808	-2.694065	-296.307752	-182.0764523	-171.8026212	-114.229155	-104.444554	
	311	4,029814	lapangan	74.24924	60.82076	-0.9842385	1.116626	**186.412304**	108.8591506	111.0650583	65.8400775	67.940942	
		8,059628	tump.kanan	-129.498	-104.6611	-4.857285	4.927316	**-322.85536**	-187.8867291	-193.7487458	-113.659392	-119.242265	
AS y-6 &		0	tump.kiri	-4.481811	7.375786	21.07293	-22.60643	6.4230844	21.2929626	-24.5703654	17.0393001	-26.6400599	balok lt.1
AS y-16		1,625	lapangan	29.05545	16.60346	11.18103	-11.73936	61.432076	50.9651205	26.898711	37.330935	14.410545	
	61&92	3,25	lapangan	50.14924	25.83114	1.289116	-0.8722764	101.508912	67.5716223	65.30216028	46.423432	44.2620396	
		0	lapangan	51.63176	26.77123	1.892834	-1.368798	104.79208	70.25571945	66.83100585	48.361418	45.099786	
		1,625	lapangan	-1.355603	-2.353238	-11.75691	12.72109	-5.3919044	-15.0035886	10.6983114	-12.9769527	11.5010473	
		3,25	tump.kanan	-78.80128	-42.92042	-25.40665	26.81098	-163.234208	-131.951547	-77.1230355	-96.327802	-44.110172	
		0	tump.kiri	-96.30162	-62.12803	26.7452	-28.88057	**-214.966792**	-105.6514568	-164.0585153	-59.926258	-115.552028	
		1,575	lapangan	6.841506	5.961873	13.20375	-14.24835	17.748804	24.17750213	-4.647202875	19.3611054	-8.0909946	
	124&151	3,15	lapangan	76.41602	53.21452	-0.3376946	0.3838588	**176.842456**	107.8198647	108.5774957	68.4367234	69.1582768	
		0	lapangan	75.91718	52.83825	-0.1063941	0.166351	175.641816	107.3414064	107.6277888	68.2190679	68.491813	
		1,575	lapangan	10.17418	6.152647	-15.14415	16.41082	22.0532512	-1.988328825	31.14438968	-5.987388	25.567582	
		3,15	tump.kanan	-89.13743	-61.3702	-30.1819	32.65528	-205.157236	-157.5046515	-91.5256125	-110.405587	-47.568407	
		0	tump.kiri	-63.14948	-39.22224	-0.1719721	1.126733E-02	**-138.53496**	-87.07920071	-86.8867993	-57.0065041	-56.82326467	balok lt.2
		1,575	lapangan	15.31448	8.53141	5.595856E-02	-4.235562E-02	32.027632	20.61795074	20.51472085	13.83899056	13.74067638	
	260&287	3,15	lapangan	71.14938	45.86644	0.2838892	-9.597857E-02	158.76556	99.08481366	98.6859525	64.3183312	63.93846343	
		0	lapangan	70.93444	45.628	0.2106164	-1.866194E-02	**158.126128**	98.65700922	98.41626696	64.0516124	63.82233406	
		1.575	lapangan	6.803112	4.158306	-0.2171583	0.5322837	14.817024	9.098351535	9.885276135	5.9056325	6.6550845	
		3,15	tump.kanan	-90.89683	-58.14864	-0.6449531	1.083229	-202.11402	-126.6469083	-124.8323171	-82.4521001	-80.723918	
		0	tump.kiri	-105.3297	-70.01762	12.4519	-13.01798	**-238.423832**	-153.0863754	-141.2579889	-100.254768	-88.989638	blk tribun
	174	3,579455	lapangan	44.49746	31.17339	3.496931	-3.605445	103.274376	66.7601403	59.3026455	43.544645	36.442269	
		7,158911	tump.kanan	-28.59675	-22.52721	-5.458038	5.807092	-70.359636	-28.77887775	-55.52225175	-13.285175	-38.755055	
		0	tump.kiri	-69.42715	-48.76519	6.714958	-5.82675	-161.336884	-114.3865433	-83.79559125	-77.614255	-48.480015	
	312	3,871046	lapangan	57.86718	41.37602	-4.207432	4.088833	**135.642248**	78.0651459	86.77622415	47.87303	56.169295	
		7,742093	tump.kanan	-88.54568	-63.39856	-15.12982	14.00442	-207.692512	-119.2065021	-132.3752955	-72.976154	-85.517862	

Lanjutan Tabel 7.1.a

Portal	No.balok	Jarak (m)	LTK MOMEN	MD (kNm)	ML (kNm)	ME (kNm)		Mu1 (kNm)	Mu2 (kNm)	Mu3 (kNm)	Mu4 (kNm)	Mu5 (kNm)	Ket.balok
						E KIRI	E KANAN						
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
AS y-7 & AS y-15	62&93	0	tump.kiri	-29.46771	-10.99532	22.65373	-24.69319	-52.953764	-12.927222	-62.641488	-3.867209	-51.214129	balok lt.1
		1,625	lapangan	24.7978	13.02189	11.91005	-12.95041	50.592384	45.37973475	19.27625175	34.22807	9.36761	
		3,25	lapangan	66.61984	37.0391	1.166363	-1.207621	139.206368	90.62104065	88.12835745	61.124219	58.750235	
		0	lapangan	66.51276	36.95158	1.175563	-1.190223	138.93784	90.47231865	87.98824335	61.037047	58.671261	
		1,625	lapangan	2.376554	1.505154	-9.672906	10.60485	5.2601112	-6.87096375	14.42068005	-7.5340074	12.7437486	
		3,25	tump.kanan	-98.2328	-56.82668	-20.52138	22.39992	-208.802048	-154.525896	-109.458531	-108.9309	-66.0096	
	125&152	0	tump.kiri	-106.9188	-70.89735	20.26553	-22.24767	-241.73832	-128.2069373	-172.8459023	-75.96129	-118.47459	
		1,575	lapangan	7.078011	5.743992	9.736755	-10.65898	17.6840004	20.6711001	-0.74442165	16.1069649	-4.2887701	
		3,15	lapangan	87.50623	61.54808	-0.7921233	0.9297072	**203.484404**	123.362554	125.1704761	77.9634837	79.6853142	
		0	lapangan	87.46069	61.50483	-0.8964505	1.060425	203.360556	123.1824872	125.2372065	77.8181705	79.775046	
		1,575	lapangan	9.600558	5.888413	-11.34302	12.54915	20.9421304	1.261831725	26.34861023	-2.7025178	21.1896522	
		3,15	tump.kanan	-101.8282	-70.56525	-21.78959	24.03787	**-235.09824**	-166.8454358	-118.7266028	-113.43497	-67.60751	
	261&288	0	tump.kiri	-89.4584	-59.65444	-2.089478	2.174415	**-202.797184**	-127.4438529	-122.9667653	-82.602038	-78.338145	balok lt.2
		1,575	lapangan	18.37102	13.00636	-1.059947	1.157027	42.8554	25.00496565	27.33278835	15.473971	17.690945	
		3,15	lapangan	92.63184	64.8299	-0.0304166	0.1396393	214.886048	131.2671921	131.4457508	83.3382394	83.5082953	
		0	lapangan	92.61485	64.82796	6.141512E-02	0.1443371	**214.862556**	131.3447574	131.4318255	83.41478012	83.4977021	
		1,575	lapangan	7.967056	4.73964	2.466193E-02	-0.8714276	17.1438912	10.87961483	9.93872082	7.19501233	6.2989228	
		3,15	tump.kanan	-110.2493	-76.18594	-1.209125E-02	-1.887192	-254.196664	-155.7720793	-157.7409351	-99.23646125	-101.111562	
	176	0	tump.kiri	-98.63728	-66.58823	13.91925	-15.13979	**-224.905904**	-144.6108636	-131.8370403	-94.566789	-82.401243	blk tribun
		3,579455	lapangan	40.78921	27.62958	4.063005	-4.38374	93.15438	61.60035525	52.731273	40.773294	32.326549	
		7,158911	tump.kanan	-28.81339	-22.78564	-5.793237	6.372309	-71.033092	-27.601308	-58.1133	-12.012801	-41.071841	
	315	0	tump.kiri	-54.82322	-35.64207	7.558136	-7.137393	-122.815176	-95.94090975	-56.75591775	-68.068938	-30.749898	
		3,871046	lapangan	49.69081	34.74242	-5.584952	5.726801	**115.216844**	64.5509214	76.42826205	39.136777	50.44853	
		7,742093	tump.kanan	-71.44767	-46.47551	-18.72804	18.591	-160.09802	-91.48365345	-106.9139589	-56.744767	-71.440296	
AS y-8 & AS y-14	63&94	0	tump.kiri	-26.20441	-9.908491	23.02378	-27.23617	-47.2988776	-8.541619275	-61.31456678	-0.560189	-50.820139	balok lt.1
		1,625	lapangan	23.82669	12.03894	12.06513	-14.216	47.854332	44.0068545	16.411668	33.509151	7.228021	
		3,25	lapangan	61.41433	33.98637	1.106474	-1.195829	128.075388	83.48968845	81.0722703	56.379371	54.077068	
		0	lapangan	61.41605	33.94473	1.139048	-1.297821	**128.010828**	83.50383615	80.9451237	56.413493	53.976624	
		1,625	lapangan	3.436541	2.743801	-9.81261	11.6525	8.5139308	-5.254376925	17.28398858	-6.7197231	14.7453869	
		3,25	tump.kanan	-91.01613	-51.34255	-20.76427	24.60283	-191.367436	-144.3242588	-96.68880375	-102.678787	-57.311687	
	126&153	0	tump.kiri	-82.54716	-49.63565	20.54982	-24.37475	**-178.473632**	-91.15592325	-138.3267218	-53.742624	-98.667194	
		1,575	lapangan	6.892213	5.360161	9.86462	-11.64519	16.8469132	20.40875918	-2.176541325	16.0676117	-5.4421983	
		3,15	lapangan	62.76297	39.51873	-0.8205754	1.084363	138.545532	85.78684758	87.7870329	55.6660976	57.571036	

Lanjutan Tabel 7.1.a

Portal	No.balok	Jarak (m)	LTK MOMEN	MD (kNm)	ML (kNm)	ME (kNm)		Mu1 (kNm)	Mu2 (kNm)	Mu3 (kNm)	Mu4 (kNm)	Mu5 (kNm)	Ket.balok
						E KIRI	E KANAN						
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
		0	lapangan	62.86437	39.59784	-0.7879864	0.9999041	138.793788	85.96906878	87.84635381	55.7899466	57.5778371	
		1,575	lapangan	5.329206	1.93815	-11.48674	13.75037	9.4960872	-5.44788195	21.05108355	-6.6904546	18.5466554	
		3,15	tump.kanan	-74.83501	-46.14017	-22.18549	26.50084	0	-23.2947645	27.825882	-22.18549	26.50084	
		0	tump.kiri	-66.7694	-37.56814	-2.186018	3.457448	0	-2.2953189	3.6303204	-2.186018	3.457448	balok lt.2
		1,575	lapangan	17.16576	13.09966	-1.086149	1.700269	41.558368	23.76091305	26.68665195	14.363035	17.149453	
	262&289	3,15	lapangan	67.53232	42.93021	0.0137204	-0.0569	149.72712	93.46170267	93.38755125	60.7928084	60.722188	
		0	lapangan	67.69049	43.14451	1.497434E-02	4.05987E-03	**150.259804**	93.74160531	93.73014511	60.93641534	60.92550087	
		1,575	lapangan	3.179865	-8.161288E-02	1.066994	-1.763686	3.685281392	4.416376188	1.444162188	3.9288905	1.0982105	
		3,15	tump.kanan	-83.95978	-53.72636	2.119014	-3.531432	**-186.713912**	-114.1391433	-120.0721116	-73.444788	-79.095234	
		0	tump.kiri	-91.24245	-60.65726	14.08216	-16.51296	-65.96936	-46.30393425	-33.07233825	-31.237614	-18.636094	blk tribun
	179	3,579455	lapangan	38.94963	25.2813	4.110724	-4.886075	87.189636	58.4860542	49.03941525	39.165391	30.168592	
		7,158911	tump.kanan	-28.19656	-20.08343	-5.86071	6.74081	0	14.786268	-17.338608	14.08216	-16.51296	
		0	tump.kiri	-89,59097	-61,98603	8.211159	-10.78421	-15143732.8	-9310853.105	-9310803.372	-5954481.348	-5954433.983	
	317	3,871046	lapangan	57,04009	42,20167	-5.968323	8.216445	**13597078**	8204790.858	8204805.752	5133602.132	5133616.316	
		7,742093	tump.kanan	-66,16068	-45,02782	-20.1478	27.2171	**-20668681.2**	-12661309.8	-12661329.75	-8063179.089	-8063198.084	
AS y-9 &		0	tump.kiri	-18.67274	-1.914489	21.16556	-23.10625	-25.4704704	1.612354275	-44.87304623	4.360094	-39.911716	balok lt.1
AS y-13		1,625	lapangan	22.20366	11.87749	11.12851	-12.14019	45.648376	41.23446075	16.80232575	31.111804	7.843104	
	64&95	3,25	lapangan	50.63659	25.66947	1.091455	-1.174133	101.83506	67.790919	65.4120516	46.664386	44.398798	
		0	lapangan	50.67883	25.79021	1.091456	-1.174134	102.078932	67.89866055	65.51979105	46.702403	44.436813	
		1,625	lapangan	3.938872	2.736033	-8.928093	9.81525	9.1042992	-3.802264725	15.87824543	-5.3831082	13.3602348	
		3,25	tump.kanan	-83.77981	-47.49457	1.064942	-1.12116	-176.527084	-111.7852607	-114.0806678	-74.336887	-76.522989	
		0	tump.kiri	-84.12582	-50.37227	-18.92113	20.75166	-181.546616	-134.6447393	-92.98830975	-94.634368	-54.961578	
		1,575	lapangan	6.983049	5.724686	18.51585	-20.44438	17.5391564	29.7793041	-11.1289374	24.8005941	-14.1596359	
	127&154	3,15	lapangan	64.52331	40.98439	-0.6446446	0.7909558	**143.002996**	88.58940342	90.09678384	57.4253344	58.8619348	
		0	lapangan	64.49619	41.00727	-0.8152167	0.9978129	143.00706	88.39383872	90.2975198	57.2313543	59.0443839	
		1,575	lapangan	6.235435	2.694025	-10.45536	11.66425	11.792962	-3.016558125	20.20903238	-4.8434685	17.2761415	
		3,15	tump.kanan	-74.65438	-46.03785	-20.0955	22.33069	**-163.245816**	-123.6572453	-79.10974575	-87.284442	-44.858252	
		0	tump.kiri	-50.00583	-25.47447	-2.656456	2.726279	**-100.766148**	-68.66949705	-63.0176253	-47.661703	-42.278968	balok lt.2
		1,575	lapangan	12.82783	6.559654	-1.204228	1.284474	25.8888424	15.64860045	18.26173755	10.340819	12.829521	
	263&290	3,15	lapangan	53.03242	28.17515	0.2480001	-0.1573305	108.719144	70.73639486	70.31079773	47.9771781	47.5718475	
		0	lapangan	52.83475	28.00277	2.363416E-02	6.413121E-02	**108.206132**	70.20275762	70.24527952	47.57490916	47.61540621	
		1,575	lapangan	2.793306	0.2903828	1.394058	-1.281358	3.81657968	4.54918317	1.73999637	3.9080334	1.2326174	
		3,15	tump.kanan	-69.87719	-37.84063	2.764481	-2.626848	-144.397636	-90.3346752	-95.99557065	-60.12499	-65.516319	

Lanjutan Tabel 7.1.a

Portal	No.balok	Jarak (m)	LTK MOMEN	MD (kNm)	ML (kNm)	ME (kNm)		Mu1 (kNm)	Mu2 (kNm)	Mu3 (kNm)	Mu4 (kNm)	Mu5 (kNm)	Ket.balok
						E KIRI	E KANAN						
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
	181	0	tump.kiri	-98.16928	-64.87354	12.97371	-14.15821	**-221.6008**	-142.6983159	-130.9896966	-93.64946	-82.498394	blk tribun
		3,579455	lapangan	44.37769	31.65644	3.8383	-4.152126	103.903532	67.2464205	58.8564732	43.778221	35.787795	
		7,158911	tump.kanan	-41.52176	-31.7705	-5.297108	5.853958	-100.658912	-46.654965	-75.143481	-24.395874	-51.527794	
	319	0	tump.kiri	-48.20781	-30.08219	8.841292	-8.454854	-105.980876	-88.95691875	-43.99788225	-64.858999	-22.040869	
		3,871046	lapangan	46.99958	31.58075	-6.315341	6.44565	**106.928696**	59.2983447	72.69738525	35.984281	48.745272	
		7,742093	tump.kanan	-74.91969	-50.66851	-21.47197	21.34616	-170.973244	-95.98328565	-114.144239	-58.586429	-75.882575	
AS y-10 & AS y-12	65&96	0	tump.kiri	-61.34422	-29.74163	20.89359	-22.65685	-121.199672	-58.08751725	-103.8154793	-34.316208	-77.866648	balok lt.1
		1,625	lapangan	29.00379	13.05517	10.86635	-11.73702	55.69282	48.71761125	24.98407275	36.969761	14.366391	
		3,25	lapangan	79.7099	44.40926	0.8391054	-0.8171853	166.706696	107.8913172	106.1522119	72.5780154	70.9217247	
		0	lapangan	79.63889	44.29652	0.8372079	-0.8083268	**166.4411**	107.7555758	106.0277644	72.5122089	70.8666742	
		1,625	lapangan	15.41965	8.826521	-9.254428	10.10348	32.6260136	11.10740663	31.43321003	4.623257	23.981165	
		3,25	tump.kanan	-104.9619	-53.81991	-19.34607	21.0153	166.4411	-158.7788213	-116.3993828	-113.81178	-73.45041	
	182	0	tump.kiri	-63.15596	-35.01974	4.945471	-5.292119	-131.818736	-87.06783645	-82.20165555	-59.096283	-54.461825	blk tribun
		3,579455	lapangan	26.1187	14.40431	1.344776	-1.45679	54.389336	36.39891255	33.45726825	24.851606	22.05004	
		7,158911	tump.kanan	-28.04222	-16.15008	-2.255919	2.378539	-59.490792	-32.73037845	-43.47984795	-20.292527	-30.530117	
	320	0	tump.kiri	-29.37666	-22.67929	1.432321	-1.342995	-71.538856	-46.53940515	-39.02613015	-30.045932	-22.890432	
		3,871046	lapangan	49.96722	38.85552	-1.087308	1.102783	**122.129496**	71.7230556	74.02265115	43.88319	46.073281	
		7,742093	tump.kanan	-91.18372	-67.27437	-3.606938	3.548562	**-217.059456**	-134.8492352	-127.3359602	-85.672286	-78.516786	
AS y-11	128&155	0	tump.kiri	-91.80013	-61.69233	28.64534	-31.24957	**-208.867884**	-98.70100275	-161.5906583	-53.974777	-113.869687	balok lt.1
		1,575	lapangan	12.80398	8.914585	14.12832	-15.38566	29.628112	32.95907213	1.969393125	25.651902	-3.862078	
		3,15	lapangan	83.83948	58.68425	-0.3886966	0.4782417	194.502176	118.4325538	119.342839	75.0668354	75.9337737	
		0	lapangan	83.82201	58.59551	-0.1078792	0.1690736	**194.339388**	118.6625326	118.953333	75.3319298	75.6088826	
		1,575	lapangan	9.092546	5.958693	-14.54772	15.93983	20.444964	-2.599618875	29.41230863	-6.3644286	24.1231214	
		3,15	tump.kanan	-99.20554	-67.51547	-28.98755	31.71059	-227.0714	-170.0483663	-106.3153193	-118.272536	-57.574396	
	264&291	0	tump.kiri	-21.5136	-4.209214	13.00519	-14.6027	**-32.5510624**	-11.14366785	-40.13195235	-6.35705	-33.96494	balok lt.2
		1,575	lapangan	23.44103	13.35484	6.779848	-7.557154	49.49698	38.7432129	23.6893608	27.876775	13.539773	
		3,15	lapangan	56.70616	30.91889	0.554511	-0.5116097	117.517616	76.3561218	75.23669507	51.590055	50.5239343	
		0	lapangan	56.89855	30.99347	0.9932038	-1.000408	**117.867812**	77.05791324	74.96462085	52.2018988	50.208287	
		1,575	lapangan	1.216937	2.79312E-03	-5.193474	5.980779	1.464793392	-4.173897462	7.559068188	-4.0982307	7.0760223	
		3,15	tump.kanan	-88.03329	-51.82514	-11.38015	12.96197	-188.560172	-131.5923105	-106.0330845	-90.610111	-66.267991	
	321	0	tump.kiri	-62.10645	-40.53633	15.11043	-15.42805	-139.385868	-70.62739425	-102.6927983	-40.785375	-71.323855	blk tribun
		3,871046	lapangan	56.69436	39.63133	-2.327716	1.923192	**131.44336**	77.89142445	82.35487785	48.697208	52.948116	
		7,742093	tump.kanan	-67.98406	-47.8657	-19.76587	19.27444	**-158.165992**	-117.266919	-76.2745935	-80.951524	-41.911214	

Keterangan :

[1] Portal yg ditinjau

[2] Nomor elemen balok

[3] Jarak elemen balok (m)

[4] Letak/daerah momen

[5] MD = momen yg terjadi akibat beban mati

[6] ML = momen yg terjadi akibat beban hidup

[7] MEkiri = momen yg terjadi akibat beban gempa kiri

[8] MEkanan = momen yg terjadi akibat beban gempa kanan

[9] Mu1 = 1,2MD + 1,6 ML

[10] Mu2 = 1,05(MD+0,5ML+MEkiri)

[11] Mu3 = 1,05(MD+0,5ML+MEkanan)

[12] Mu4 = 0,9(MD+MEkiri)

[13] Mu5 = 0,9(MD+MEkanan)

[14] Keterangan balok

Tabel 7.1.b Momen Rencana Balok Portal B

Portal	No.balok	Jarak (m)	Ltk momen	MD (kNm)	ML (kNm)	ME (kNm)		Mu1 (kNm)	Mu2 (kNm)	Mu3 (kNm)	Mu4 (kNm)	Mu5 (kNm)	Ket.balok
						E KIRI	E KANAN						
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
AS y-3		0	tump.kiri	-3.650745	-2.197	-7.105427E-15	0	-7.896094	-4.98670725	-4.98670725	-3.2856705	-3.2856705	balok lt.1
	33	0.46	lapangan	-0.9126862	-0.54925	-5.738427E-16	1.632896E-15	-1.97402344	-1.24667676	-1.24667676	-0.82141758	-0.82141758	
		0.919	tump.kanan	-1.789205E-16	3.580903E-15	5.957742E-15	3.265792E-15	5.51474E-15	7.94774E-15	5.12119E-15	5.79671E-15	3.10476E-15	
		0	tump.kiri	-3.650745	-2.197	0	1.421085E-14	-7.896094	-4.98670725	-4.98670725	-3.2856705	-3.2856705	
	34	0.46	lapangan	-0.9126862	-0.54925	0	1.421085E-14	-1.97402344	-1.24667676	-1.24667676	-0.82141758	-0.82141758	
		0.919	tump.kanan	-3.50959E-15	-5.967015E-15	0	1.421085E-14	-1.37587E-14	-6.81775E-15	8.10364E-15	-3.15863E-15	1.10522E-14	
		0	tump.kiri	-15.11618	-14.63038	-50.31269	17.62054	-41.548024	-76.381263	-5.0513715	-63.917252	4.015978	
	35	2	lapangan	6.696055	7.976818	3.535346	-0.2870246	20.7981748	14.9308005	10.91731137	9.5617955	5.7394249	
		4	tump.kanan	-27.54099	-16.88265	57.38338	-18.19459	-60.061428	22.47111825	-56.88575025	32.596489	-42.981481	
		0	tump.kiri	-12.18185	-11.53839	25.01272	-10.99623	-33.079644	7.41475875	-30.39463875	14.049055	-21.959895	
	36	2	lapangan	6.610581	6.384312	-0.7623677	0.8357261	18.1475964	9.492387765	11.17038626	5.1871552	6.785249	
		4	tump.kanan	-24.52025	-23.15965	-26.53746	12.66769	-66.47974	-65.76941175	-24.60400425	-48.605685	-9.400535	
		0	tump.kiri	-48.65745	-49.61232	18.08719	-10.82937	-137.768652	-58.145241	-88.507629	-25.704515	-54.621075	
		1 5	lapangan	7.698547	7.105922	9.199134	-5.025226	20.6077316	21.4731741	6.5375961	16.1278263	1.9034663	
	37-38	3	lapangan	38.13271	40.87416	0.3110735	0.7789192	111.157908	61.82490668	62.31614466	34.6305125	35.0983582	
		0	lapangan	38.24896	40.83882	0.7355275	0.215829	111.240864	62.37409238	61.82840895	35.1595915	34.639893	
		1.5	lapangan	4.852836	5.537252	-8.175127	6.090589	14.6830064	-0.58134825	14.39765355	-3.8075746	10.4581414	
		3	tump.kanan	-54.46513	-52.71432	-17.08578	11.96535	-149.701068	-102.8034735	-72.299787	-66.104397	-37.053267	
		0	tump.kiri	-44.9411	-34.71397	14.91288	-13.92322	-109.471672	-49.75446525	-80.03237025	-25.53411	-54.37021	
	39	3	lapangan	21.9816	15.45366	0.5356544	0.559652	51.103776	31.75628862	31.7814861	20.3190944	20.343092	
		6	tump.kanan	-45.1693	-34.80371	-13.84157	15.04253	-109.889096	-80.23336125	-49.90505625	-54.49394	-25.60984	
		0	tump.kiri	-54.09657	-52.54186	11.9258	-17.18455	-148.98286	-71.863785	-102.4296525	-36.761113	-65.871463	
		1.5	lapangan	4.992395	5.607204	6.073069	-8.246301	14.9624004	14.5625193	-0.4728192	10.5662245	-3.7531455	
	40-41	3	lapangan	38.15952	40.80627	0.2203432	0.6919518	111.081456	61.72214811	62.21733714	34.5639112	35.0355198	
		0	lapangan	38.82823	41.30101	0.7735358	0.2676507	112.675492	63.26488434	62.73370499	35.7189428	35.2130577	
		1.5	lapangan	7.539495	7.030082	-4.996765	9.184916	20.2955252	6.36065955	21.2514246	1.7887805	15.9704615	
		3	tump.kanan	-49.67107	-50.19084	-10.76707	18.10218	-139.910628	-89.810238	-59.4975255	-55.471033	-26.601783	
		0	tump.kiri	-23.93615	-22.80378	13.2529	-28.23302	-65.209428	-23.189397	-66.749613	-8.289635	-49.775555	
	42	2	lapangan	6.681842	6.37703	0.4556517	0.2455442	18.2214584	10.84230914	10.62169626	6.4693095	6.259202	
		4	tump.kanan	-12.62343	-11.90883	-12.3416	28.72411	-34.202244	-32.46541725	10.65357825	-23.702687	17.363023	
		0	tump.kiri	-22.72334	-16.57629	-12.10401	40.45834	-53.790072	-45.27126975	9.91919775	-32.555016	20.007334	

Lanjutan Tabel 7.1.b

Portal	No.balok	Jarak (m)	LTK MOMEN	MD (kNm)	ML (kNm)	ME (kNm)		Mu1 (kNm)	Mu2 (kNm)	Mu3 (kNm)	Mu4 (kNm)	Mu5 (kNm)	Ket.balok
						E KIRI	E KANAN						
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
	43	2	lapangan	6.7863	8.189623	-0.1366027	2.693651	21.2469568	11.28173424	14.25350063	5.9710673	8.801321	
		4	tump.kanan	-13.62732	-14.51113	11.83081	-35.07104	-39.570592	-9.50467875	-58.75162125	-0.433778	-47.335628	
AS y-2	71	0	tump.kiri	-1.567877	0	-2.131628E-14	3.552714E-15	-1.8814524	-1.64627085	-1.64627085	-1.4110893	-1.4110893	balok lt.1
		0.46	lapangan	-0.3919693	0	-1.721528E-15	2.869214E-16	-0.47036316	-0.411567765	-0.411567765	-0.35277237	-0.35277237	
		0.919	tump.kanan	-2.156695E-15	0	1.787323E-14	-2.978871E-15	-2.58803E-15	1.65024E-14	-5.39234E-15	1.59322E-14	-4.9199E-15	
	72	0	tump.kiri	-1.567877	-1.776357E-15	3.552714E-15	7.105427E-15	-1.8814524	-1.64627085	-1.64627085	-1.4110893	-1.4110893	
		0.46	lapangan	-0.3919693	-3.409253E-15	3.552714E-15	5.738427E-16	-0.47036316	-0.411567765	-0.411567765	-0.35277237	-0.35277237	
		0.919	tump.kanan	3.838509E-15	-5.042149E-15	3.552714E-15	-5.957742E-15	-3.46123E-15	5.11366E-15	-4.87232E-15	7.00737E-15	-2.50308E-15	
	83	0	tump.kiri	-14.01302	-12.23955	-45.66042	18.92088	-36.398904	-69.08287575	-1.27251075	-58.272138	6.309162	
		1.442	lapangan	4.145427	1.84162	1.268641	-0.5287806	7.9211044	6.6516219	4.76432922	4.9995253	3.2021037	
		2.885	tump.kanan	-0.118976	3.906173	48.1977	-19.97844	6.1071056	52.53340103	-19.05154598	48.0906216	-20.0855184	
	84	0	tump.kiri	-9.607049	-8.879031	13.9026	-34.02977	-25.7349084	-0.151152725	-50.48015123	5.2562559	-42.6761141	
		1.442	lapangan	3.60359	1.91333	-0.3940692	0.947942	7.385636	4.37449509	5.78360685	2.8491618	4.191173	
		2.885	tump.kanan	-3.52497	0.6890711	-14.69074	35.92566	-3.12745024	-18.76473317	34.38248683	-17.863213	32.753187	
	89	0	tump.kiri	-6.621285	-3.759964	-32.48963	20.26932	-13.9614844	-43.04044185	12.35645565	-38.4487865	14.3101635	
		1.155	lapangan	1.52095	0.4060057	0.3173962	4.300682E-02	2.47474912	2.143416503	1.855307654	1.6862512	1.41186182	
		2.31	tump.kanan	-3.376512	-3.132019	33.12442	-20.1833	-9.0630448	29.59099343	-26.38211258	30.0855592	-23.2221608	
	90	0	tump.kiri	-17.87006	-13.1031	20.47726	-13.58253	-42.409032	-4.1415675	-39.904347	4.394206	-29.665584	
		2	lapangan	10.57132	7.898098	4.461285E-02	0.2284295	25.3225408	15.29323094	15.48623843	9.55880085	9.7426175	
		4	tump.kanan	-25.11112	-18.03403	-20.38803	14.03938	-58.987792	-57.24197325	-21.09319275	-42.988038	-8.560628	
	91	0	tump.kiri	-13.26637	-10.43837	19.80279	-14.66144	-32.621036	1.383C9675	-34.80434475	7.863057	-26.601173	
		2	lapangan	9.903904	7.702989	0.0810397	0.2129046	24.2094672	14.52826011	14.66671826	8.9945533	9.1264182	
		4	tump.kanan	-31.04964	-21.08898	19.64071	15.08725	-71.001936	-64.296582	-27.832224	-47.585386	-12.857426	
	92	0	tump.kiri	-39.57071	-30.01224	13.17637	-11.04894	-95.504436	-43.470483	-68.9070585	-22.437269	-46.662579	
		3	lapangan	25.86965	19.11999	8.263192E-02	0.2300764	61.635564	37.28789077	37.44270747	23.36531692	23.5127614	
		6	tump.kanan	-52.96856	-37.34777	-13.01111	11.5091	-123.318704	-88.88623275	-63.14001225	-60.682814	-36.162604	
	93	0	tump.kiri	-62.18007	-33.16152	12.50099	-12.26811	-127.674516	-69.572832	-95.580387	-43.461073	-68.230173	
		3	lapangan	35.0303	19.14484	0.1579281	0.1734453	72.668104	46.99868051	47.01497357	31.6851981	31.7007153	
		6	tump.kanan	-63.78788	-34.14881	-12.18513	12.615	-131.183552	-97.69978575	-71.65964925	-69.594222	-44.794092	
	94	0	tump.kiri	-49.71666	-35.58755	11.44152	-13.1319	-116.600072	-58.87236075	-84.67445175	-33.303474	-57.876894	
		3	lapangan	24.70021	18.47321	0.2387527	6.902032E-02	59.197388	35.88434609	35.70612709	22.4689417	22.29920932	
		6	tump.kanan	-45.1615	-33.06602	-10.96402	13.26994	-107.099432	-76.2914565	-50.8457985	-51.60937	-27.37541	
		0	tump.kiri	-20.70617	-14.99838	14.94575	-19.74421	-48.844812	-13.9225905	-50.3470485	-3.689803	-38.379763	

Lanjutan Tabel 7.1.b

Portal	No.balok	Jarak (m)	TK MOMEN	MD (kNm)	ML (kNm)	ME (kNm)		Mu1 (kNm)	Mu2 (kNm)	Mu3 (kNm)	Mu4 (kNm)	Mu5 (kNm)	Ket.balok
						E KIRI	E KANAN						
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
	95	2	lapangan	10.85892	8.122025	0.2020027	9.170968E-02	26.025944	15.87803196	15.76222429	9.9750307	9.86473768	
		4	tump.kanan	-21.6998	-15.69091	-14.54174	19.92763	-51.145216	-46.29134475	-10.09850625	-34.07156	0.39781	
	96	0	tump.kiri	-20.81657	-15.27746	13.97921	-20.58639	-49.42382	-15.1998945	-51.4937745	-4.755703	-39.321303	
		2	lapangan	11.48078	8.526023	0.2173524	5.888984E-02	27.4185728	16.7592011	16.59281541	10.5500544	10.39159184	
		4	tump.kanan	-20.34569	-14.60383	-13.5445	20.70416	-47.780956	-43.25171025	-7.29061725	-31.855621	2.393039	
	97	0	tump.kiri	-4.459494	-2.526511	20.43971	-33.23826	-9.5538104	15.40030853	-40.96155998	16.4261654	-37.2518046	
		1.155	lapangan	1.399035	0.3450642	-0.1373591	0.6695561	2.23094472	1.5059184	2.35317936	1.1217724	1.9286876	
		2.31	tump.kanan	-5.782134	-4.387355	-20.71442	34.57737	-13.9583288	-30.12474308	27.93163643	-25.9183406	29.3734494	
	183	0	tump.kiri	-1.567877	3.552714E-15	-2.842171E-14	1.065814E-14	-1.8814524	-1.64627085	-1.64627085	-1.4110893	-1.4110893	balok lt.2
		0.46	lapangan	-0.3919693	3.552714E-15	-2.295371E-15	8.607641E-16	-0.47036316	-0.411567765	-0.411567765	-0.35277237	-0.35277237	
		0.919	tump.kanan	4.948732E-15	3.552714E-15	2.383097E-14	-8.936613E-15	1.16228E-14	3.20839E-14	-2.3221E-15	2.82848E-14	-4.48275E-15	
	184	0	tump.kiri	-1.567877	7.105427E-15	7.105427E-15	0	-1.8814524	-1.64627085	-1.64627085	-1.4110893	-1.4110893	
		0.46	lapangan	-0.3919693	-2.691949E-15	5.738427E-16	0	-0.47036316	-0.411567765	-0.411567765	-0.35277237	-0.35277237	
		0.919	tump.kanan	1.094394E-14	-1.248933E-14	-5.957742E-15	0	-6.8502E-15	-1.32139E-15	4.93424E-15	3.8918E-15	9.84955E-15	
	185	0	tump.kiri	-24.04901	-14.64318	-38.28479	11.20323	-52.2879	-73.1381595	-21.1757385	-59.928899	-10.440879	
		1.442	lapangan	0.6486337	2.79881	5.855745	-0.4682024	5.25645644	8.298972885	1.658828115	6.43951533	0.11556793	
		2.885	tump.kanan	6.09828	0.230434	49.99628	-12.13963	7.6866304	59.02026585	-6.22243965	55.484732	-6.651178	
	186	0	tump.kiri	-22.96659	-13.75126	11.00383	-38.28693	-49.561924	-19.7803095	-71.5356075	-9.666101	-58.956861	
		1.442	lapangan	0.4911101	2.758305	-0.4425609	5.780114	5.00262012	1.499086785	8.03289543	-0.00056181	6.22211309	
		2.885	tump.kanan	4.700817	-0.7424926	-11.88895	49.84716	4.45299224	-7.937348265	56.88556724	-7.6582147	54.0778953	
	191	0	tump.kiri	-12.7149	-6.010546	22.07954	-14.23681	-24.8747536	6.67733535	-31.45483215	10.63613	-25.68022	
		1.155	lapangan	-2.252673	-0.5011556	-4.206939E-02	4.304818E-02	-3.50505656	-2.6725862	-2.583212751	-2.06947509	-1.98435752	
		2.31	tump.kanan	-2.657794	-5.263758	-22.16368	14.32291	-11.6113656	-28.82502065	9.48489885	-24.5556946	11.9308954	
	192	0	tump.kiri	-12.73782	-14.88749	15.17563	-10.175	-39.105368	-5.25623175	-31.87439325	3.711592	-21.639038	
		2	lapangan	9.077768	10.79264	-8.582668E-02	0.2305054	28.1615456	15.10767439	15.43982307	8.08416452	8.4004966	
		4	tump.kanan	-14.67045	-16.86057	-15.34728	10.63602	-44.581452	-40.37041575	-13.08795075	-28.550685	-2.567385	
	193	0	tump.kiri	-9.56018	-12.68311	15.08603	-11.15687	-31.765192	-0.85649025	-28.41153525	6.481868	-19.761032	
		2	lapangan	4.450718	7.049601	-4.362925E-02	0.2052663	16.6202232	8.328483713	8.58982404	3.96201695	4.2109125	
		4	tump.kanan	-27.10219	-26.55102	-15.17329	11.5674	-75.00426	-58.3285395	-30.250815	-39.565261	-12.824571	
		0	tump.kiri	-84.35421	-71.31161	10.79523	-9.166036	-215.323628	-114.6755243	-135.6348536	-65.123559	-85.084825	
		0.9625	lapangan	-17.64026	-14.27102	6.877197	-5.606078	-44.001944	-18.79350165	-31.9009404	-8.999037	-21.482312	
		1.925	tump.kanan	35.6383	29.81501	2.95916	-2.04612	90.469976	56.18021325	50.92466925	35.03363	30.02835	
		0	tump.kiri	31.25523	26.00452	4.521794	-3.620278	79.113508	51.2182482	42.6690726	32.651501	24.509429	

Lanjutan Tabel 7.1.b

Portal	No.balok	Jarak (m)	LTK MOMEN	MD (kNm)	ML (kNm)	ME (kNm)		Mu1 (kNm)	Mu2 (kNm)	Mu3 (kNm)	Mu4 (kNm)	Mu5 (kNm)	Ket.balok
						E KIRI	E KANAN						
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
	194-197	0.5375	tump.kiri	48.51886	42.04636	2.284731	-1.595154	125.496808	75.41810955	71.3442303	45.951705	42.07182	
		1.075	lapangan	62.12646	54.97523	0.0476689	0.4299703	162.51212	94.1448311	94.54624757	55.9614829	56.3437843	
		0	lapangan	61.95877	54.95801	7.871619E-02	3.006671E-02	162.28334	93.99231575	93.9412338	55.84160919	55.79295971	
		0.5375	lapangan	51.89423	41.35574	-2.15025	2.029887	128.44226	73.9429425	78.33208635	44.554557	48.734694	
		1.075	lapangan	38.17367	24.6405	-4.379217	4.029708	85.233204	48.42043815	57.2498094	29.977086	38.386011	
		0	lapangan	42.23047	28.2859	-2.822631	2.482356	95.934004	56.22832845	61.7985648	35.184792	40.489779	
		0.9625	lapangan	-19.73912	-16.5479	-6.7864	6.003338	-50.163584	-36.5394435	-23.1102186	-24.551608	-11.76187	
		1.925	lapangan	-95.1441	-74.33626	-10.75017	9.524321	-233.110936	-150.21552	-128.9273045	-96.37986	-76.105369	
	198-199	0	lapangan	-65.31521	-45.80899	10.25815	-10.07638	-151.672636	-81.85963275	-103.2108893	-48.525539	-68.860069	
		1.5	tump.kanan	-0.6233284	-0.5447916	4.779979	-4.547127	-1.61966064	4.07846754	-5.71499376	4.21898344	-5.10812256	
		3	tump.kanan	49.23891	33.46941	-0.698194	0.9821301	112.637748	68.53919205	70.30353236	43.616825	45.2971491	
		0	tump.kiri	48.41175	32.98503	0.9844373	-0.6887643	110.870148	69.18313742	67.42627574	44.5550123	42.8818107	
		1.5	tump.kiri	-1.649392	-1.168582	-4.508997	4.827344	-3.8490016	-7.079814	2.72334405	-5.9934498	3.3428912	
		3	lapangan	-66.54018	-46.5722	-10.00243	10.34345	-154.363736	-104.8201455	-83.4569715	-69.888592	-49.542712	
	200-203	0	lapangan	-94.56827	-74.07575	9.466117	-10.86607	-232.003124	-128.2470294	-149.5958258	-75.645326	-95.977513	
		0.9625	lapangan	-19.57634	-16.50532	5.964137	-6.862902	-49.90012	-22.95810615	-36.4264971	-11.654569	-24.481608	
		1.925	lapangan	41.98019	28.11056	2.462156	-2.859738	95.353124	61.4225073	55.8345186	40.244327	34.922433	
		0	lapangan	38.50879	24.80964	4.011972	-4.407837	85.905972	57.6718611	48.83106165	38.669883	30.250074	
		0.5375	lapangan	51.9004	41.33893	2.021681	-2.16062	128.422768	78.3211233	73.92970725	48.732041	44.54974	
		1.075	lapangan	61.63599	54.75526	3.139059E-02	8.659695E-02	161.571604	93.49726112	93.5552278	55.50378159	55.55898795	
		0	lapangan	62.53406	55.19268	0.4219659	5.405261E-02	163.34916	95.0799842	94.69367524	56.7026199	56.33470661	
		0.5375	tump.kanan	48.82166	42.22126	-1.59786	2.30879	126.140008	71.7511515	75.853134	42.341634	46.248284	
		1.075	tump.kanan	31.45324	26.13688	-3.617687	4.563528	79.562896	42.94919265	51.5394684	24.690229	32.871444	
		0	tump.kiri	-84.06284	-71.11188	-9.130974	10.94149	-214.654416	-135.1872417	-114.1111545	-84.78753	-64.715066	
		0.9625	tump.kiri	-17.06752	-13.91439	-5.58702	6.97556	-42.744048	-31.09232175	-17.90161275	-20.947788	-8.385208	
		1.925	lapangan	36.49242	30.32854	-2.043067	3.009629	92.316568	52.09430415	57.39963495	30.800111	35.852807	
	204	0	lapangan	-27.46508	-26.66146	11.54023	-15.43246	-75.616432	-30.718359	-59.0396835	-13.178342	-40.151032	
		2	lapangan	4.203628	6.94999	0.1997866	-2.000078E-02	16.1643376	8.27233008	8.041553331	3.9830518	3.76326442	
		4	lapangan	-9.691472	-12.7719	-11.14065	15.39246	-32.0648064	-28.5789756	-0.7192101	-19.8629748	6.6701352	
	205	0	lapangan	-14.28276	-16.79782	10.65984	-15.77938	-44.015824	-12.6229215	-40.3841025	-2.194644	-28.633864	
		2	tump.kanan	8.89057	10.65133	0.2237293	-5.634929E-02	27.710812	15.16196252	14.86788	8.2252423	7.94516371	
		4	tump.kanan	-13.49991	-15.23284	-10.21238	15.66668	-40.572436	-32.8951455	-5.7221325	-22.362299	3.516761	
		0	tump.kiri	-0.252607	-3.924077	14.22031	-22.61159	-6.5816516	12.60594773	-26.06754728	13.9929637	-22.8389363	

Lanjutan Tabel 7.1.b

Portal	No.balok	Jarak (m)	TK MOMEN	MD (kNm)	ML (kNm)	ME (kNm)		Mu1 (kNm)	Mu2 (kNm)	Mu3 (kNm)	Mu4 (kNm)	Mu5 (kNm)	Ket.balok
						E KIRI	E KANAN						
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
	206	1.155	lapangan	-2.258501	-0.4537384	9.512294E-02	-0.1594107	-3.43618264	-2.509759623	-2.777019945	-1.93752796	-2.1920616	
		2.31	tump.kanan	-15.13174	-7.255393	-14.03006	22.29276	-29.7667168	-34.42897133	3.709989675	-27.648626	8.674194	
AS y 1	112	0	tump.kiri	-4.171461	3.552714E-15	0	7.105427E-15	-5.0057532	-4.38003405	-4.38003405	-3.7543149	-3.7543149	balok lt.1
		0.46	lapangan	-1.042865	3.552714E-15	-1.305317E-14	5.738427E-16	-1.251438	-1.09500825	-1.09500825	-0.9385785	-0.9385785	
		0.919	tump.kanan	-5.85209E-15	3.552714E-15	-2.612634E-14	-5.957742E-15	-1.33817E-15	-3.17122E-14	-1.05351E-14	-3.13932E-14	-1.12246E-14	
	113	0	tump.kiri	-4.171461	-1.776357E-15	7.105427E-15	0	-5.0057532	-4.38003405	-4.38003405	-3.7543149	-3.7543149	
		0.46	lapangan	-1.042865	-1.776357E-15	7.105427E-15	1.306317E-14	-1.251438	-1.09500825	-1.09500825	-0.9385785	-0.9385785	
		0.919	tump.kanan	-5.85209E-15	-1.776357E-15	7.105427E-15	2.612634E-14	-9.86468E-15	3.83416E-16	2.03554E-14	1.83855E-15	2.08595E-14	
	124	0	tump.kiri	-39.06875	-11.94081	-33.87502	20.13672	-65.987796	-82.85988375	-26.14755675	-69.036895	-15.025155	
		2.913	lapangan	26.96364	11.23257	1.144206	-0.5529003	50.32848	35.41033755	33.62837594	25.411482	23.7143757	
		5.827	tump.kanan	-42.26472	-14.60762	36.16343	-21.24252	-74.089856	-14.075355	-74.3516025	-1.874818	-59.280768	
	125	0	tump.kiri	-37.96987	-11.34616	20.29859	-34.32897	-63.7177	-24.511578	-81.870516	-13.874293	-68.501853	
		2.913	lapangan	26.91462	11.20329	-0.5558286	1.157866	50.222808	33.55845822	35.35783755	23.6673294	25.381024	
		5.827	tump.kanan	-43.46165	-15.26083	-21.41025	36.64471	-76.571308	-76.12743075	-15.16972275	-60.525735	-2.470775	
	136	0	tump.kiri	-23.40264	-6.786963	40.1474	-32.11695	-38.9423088	14.01884243	-61.85872508	19.085024	-53.179326	
		2.275	lapangan	15.30275	6.249703	0.7262172	-0.6151741	28.3628248	20.11150964	18.70304877	14.4986922	13.1573009	
		4.55	tump.kanan	-28.47595	-10.60287	-38.69497	30.88661	-51.135732	-76.09597275	-3.03531375	-64.323325	5.258255	
	137	0	tump.kiri	-19.89788	-6.979901	39.2434	-33.43241	-35.0452976	16.64834798	-59.66125253	21.335308	-51.340502	
		2	lapangan	9.237641	2.976063	0.1981042	-1.199788E-02	15.84687	11.46996554	11.24935835	8.5119811	8.30187902	
		4	tump.kanan	-25.37496	-10.16797	-38.84719	33.40841	-46.718704	-72.77144175	3.09693825	-61.684654	10.570946	
	138	0	tump.kiri	-10.17498	-0.4285024	38.07243	-33.74522	-12.89557984	29.06735874	-46.34117376	28.914948	-42.902702	
		2	lapangan	7.997395	2.666675	-0.1894716	0.4055837	13.863554	9.598323945	10.22313201	7.0081839	7.6032392	
		4	tump.kanan	-37.57835	-17.33815	-38.45137	34.55639	-72.83506	-88.93373475	-12.27558675	-72.271885	0.735875	
	139	0	tump.kiri	-36.49191	-11.12455	27.93404	-25.96289	-61.589572	-14.82615225	-71.41792875	-4.908679	-58.805609	
		3	lapangan	27.28386	10.91974	-0.1042236	0.3818969	50.212216	34.27148172	34.78190825	24.4512504	24.9373709	
		6	tump.kanan	-52.37364	-19.01097	-28.14248	26.72669	-93.26592	-94.52268525	-36.91005675	-75.278756	-20.409586	
	140	0	tump.kiri	-32.15258	-1.832667	27.66347	-27.35779	-41.5153632	-5.675715675	-63.44803868	-1.273852	-56.295112	
		3	lapangan	15.53548	-4.984396E-C2	0.2156937	0.0872978	18.56282566	16.51256431	16.37774861	14.1976257	14.0692298	
		6	tump.kanan	-25.63599	1.732979	-27.23208	27.53238	-27.9904216	-54.60165953	2.901023475	-50.304471	4.459989	
	141	0	tump.kiri	-51.10324	-18.22692	25.45494	-27.86169	-90.48696	-35.449848	-92.4823095	-19.537976	-73.854606	
		3	lapangan	24.33907	9.303864	0.3337015	-5.723982E-02	44.0930664	30.79093868	30.38045029	22.2388645	21.84792318	
		6	tump.kanan	-43.65189	-15.14035	-25.78754	27.74721	-76.606828	-80.86008525	-24.64859775	-65.074241	-11.539491	
		0	tump.kiri	-22.80253	-8.533118	34.41264	-38.29373	-41.0160248	7.71072855	-68.63095995	13.890363	-58.816007	

Lanjutan Tabel 7.1.b

Portal	No.balok	Jarak (m)	TK MOMEN	MD (kNm)	ML (kNm)	ME (kNm)		Mu1 (kNm)	Mu2 (kNm)	Mu3 (kNm)	Mu4 (kNm)	Mu5 (kNm)	Ket.balok
						E KIRI	E KANAN						
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
	142	2	lapangan	9.529809	3.33698	0.4034697	-0.1861814	16.7749388	12.18185714	11.56272348	8.9802978	8.3906467	
		4	tump.kanan	-21.88597	-7.892922	-33.60569	37.92136	-38.8918392	-62.41002705	12.69337545	-53.303063	18.223987	
	143	0	tump.kiri	-19.87294	-6.510288	33.33447	-38.75748	-34.2639888	10.7167053	-64.9798422	15.448824	-56.643126	
		2	lapangan	10.60157	3.922822	-2.856285E-02	0.2154955	18.9983992	13.16113906	13.41740033	9.51285015	9.7569085	
		4	tump.kanan	-22.67203	-8.744069	-33.39159	39.18847	-41.1969464	-63.45743723	12.75162578	-53.796417	18.783643	
	144	0	tump.kiri	-26.95477	-9.700448	30.85389	-38.64839	-47.8664408	-0.9986592	-73.9760532	6.594597	-62.907683	
		2.275	lapangan	15.08368	6.102154	-0.6093605	0.7136517	27.8638624	18.40166633	19.79082914	12.9659515	14.2889637	
		4.55	tump.kanan	-25.36197	-7.984478	-32.07262	40.0757	-43.2095288	-64.49817045	11.25756555	-54.898393	17.249927	
	221	0	tump.kiri	-5.755836	0	0	1.421085E-14	-6.9070032	-6.0436278	-6.0436278	-5.1802524	-5.1802524	balok lt.2
		0.46	lapangan	-1.438959	0	0	1.421085E-14	-1.7267508	-1.51090695	-1.51090695	-1.2950631	-1.2950631	
		0.919	tump.kanan	-1.267996E-14	0	0	1.421085E-14	-1.5216E-14	-1.3314E-14	1.60743E-15	-1.1412E-14	2.79889E-15	
	222	0	tump.kiri	-5.755836	-7.105427E-15	0	0	-6.9070032	-6.0436278	-6.0436278	-5.1802524	-5.1802524	
		0.46	lapangan	-1.438959	-5.738427E-16	6.531585E-15	2.612634E-14	-1.7267508	-1.51090695	-1.51090695	-1.2950631	-1.2950631	
		0.919	tump.kanan	-2.909999E-15	5.957742E-15	1.306317E-14	5.225268E-14	6.04039E-15	1.37886E-14	5.49376E-14	1.04442E-14	4.96337E-14	
	232	0	tump.kiri	-67.17479	-18.88094	-46.78618	27.92195	-110.819252	-129.571512	-51.1279755	-107.243491	-32.535361	
		2.913	lapangan	43.66031	8.745815	2.018894	-0.7294995	66.385676	52.55471708	49.6689039	41.313173	38.5647795	
		5.827	tump.kanan	-64.05663	-12.64101	50.82397	-29.38095	-97.093572	-20.53082325	-104.7459893	-6.826997	-87.031917	
	233	0	tump.kiri	-66.33047	-18.40906	27.97054	-47.063	-109.05106	-49.942683	-128.7279	-31.726883	-106.760423	
		2.913	lapangan	43.63101	8.727659	-0.7282675	2.022807	66.3214664	49.6299006	52.51852883	38.5396415	41.290716	
		5.827	tump.kanan	-64.95953	-13.1492	-29.42708	51.10861	-98.990156	-106.0092705	-21.446796	-87.890657	-7.354967	
	244	0	tump.kiri	-43.3136	-11.53894	55.34973	-37.47855	-70.438624	6.579993	-90.889701	16.36749	-76.46079	
		2.275	lapangan	23.18484	4.702819	1.697407	-0.6550383	35.3463184	28.59533933	26.12527176	22.563763	20.2113177	
		4.55	tump.kanan	-43.59309	-8.944655	-51.95492	36.16848	-66.623156	-105.0213544	-12.49178438	-91.188701	-3.065301	
	245	0	tump.kiri	-35.02215	-7.799311	49.38803	-39.41837	-54.5054776	10.98953573	-82.25718428	17.868095	-70.938305	
		2	lapangan	17.42585	4.184414	0.4092692	-0.0283321	27.6060824	20.92369251	20.46421115	16.0925342	15.6549329	
		4	tump.kanan	-33.12926	-6.931862	-48.56949	39.36171	-50.8460912	-89.42291505	2.90484495	-78.385824	9.545376	
	246	0	tump.kiri	-33.76574	-7.792928	46.67395	-39.6196	-52.9875728	9.4623333	-81.1458942	16.284784	-70.008766	
		2	lapangan	15.48862	3.44726	-0.1550883	0.5336162	24.10196	17.91001979	18.63315951	13.7846697	14.4733742	
		4	tump.kanan	-38.26015	-8.412552	-46.98412	40.68683	-59.3722632	-93.9230733	-1.8685758	-81.418255	6.252695	
	247	0	tump.kiri	-74.56053	-17.10878	34.17511	-31.02804	-116.846684	-51.3868005	-119.850108	-32.929367	-98.132517	
		3	lapangan	42.75616	10.41228	-1.577156E-02	0.4693436	67.96704	50.34385486	50.85322578	38.46477244	38.9498876	
		6	tump.kanan	-71.68417	-14.04166	-34.20665	31.96673	-108.48766	-118.5572325	-49.0751835	-98.722403	-32.549023	
		0	tump.kiri	-44.35146	-1.906361	33.3456	-32.88755	-56.2719296	-12.55699253	-82.10180003	-6.570714	-72.803864	

Lanjutan Tabel 7.1.b

Portal	No.balok	Jarak (m)	TK MOMEN	MD (kNm)	ML (kNm)	ME (kNm)		Mu1 (kNm)	Mu2 (kNm)	Mu3 (kNm)	Mu4 (kNm)	Mu5 (kNm)	Ket.balok
						E KIRI	E KANAN						
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
	248	3	lapangan	16.47173	-2.151096	0.2286576	0.2516675	16.3243224	16.40608158	16.43024198	15.0532146	15.0762245	
		6	tump.kanan	-45.31461	-2.39583	-32.88828	33.39088	-58.2108616	-83.37084578	-13.77772778	-73.671429	-7.392269	
	249	0	tump.kiri	-69.54929	-12.82355	31.99897	-34.27702	-103.976828	-46.16019975	-115.7499893	-30.595391	-96.871381	
		3	lapangan	43.39702	10.77042	0.4784813	-2.680185E-02	69.309096	51.72374687	51.19319956	39.5357993	39.03051615	
		6	tump.kanan	-75.4137	-17.61061	-31.04201	34.22341	-118.673416	-121.0240658	-52.49537475	-98.91434	-33.64892	
	250	0	tump.kiri	-38.92192	-8.548549	40.6581	-47.0223	-60.3839824	-2.664999225	-94.72941923	5.628372	-82.052028	
		2	lapangan	15.10029	3.266628	0.5330598	-0.1505677	23.3469528	18.12999699	17.41218812	14.1233208	13.4396933	
		4	tump.kanan	-33.88062	-8.018194	-39.59198	46.72116	-53.4858544	-81.35578185	9.27301515	-70.084538	16.228602	
	251	0	tump.kiri	-33.02668	-7.023651	39.36032	-48.61714	-50.8698576	2.962905225	-89.41342778	9.636308	-78.341152	
		2	lapangan	17.19344	4.011253	-2.538319E-02	0.4085601	27.0501328	20.13236748	20.58800793	15.44871281	15.8826561	
		4	tump.kanan	-35.58955	-8.053842	-39.41109	49.43426	-55.5936072	-82.97893905	10.30867845	-71.441685	17.403665	
	252	0	tump.kiri	-42.04661	-7.989802	36.14668	-52.01517	-63.2396152	-10.38957255	-102.9595151	-1.695269	-89.857119	
		2.275	lapangan	23.23366	4.733612	-0.6548588	1.694878	35.4621712	26.19551256	28.6627362	20.2554352	22.605172	
		4.55	tump.kanan	-44.76244	-12.42221	-37.45639	55.40493	-73.590464	-92.85143175	4.65295425	-77.742586	15.118734	
	282	0	tump.kiri	-4.048936	-0.54925	0	-7.105427E-15	-5.7375232	-4.53973905	-4.53973905	-3.6440424	-3.6440424	balok lt.3
		0.46	lapangan	-1.012234	-0.1373125	5.225268E-14	-5.738427E-16	-1.4343808	-1.134934762	-1.134934763	-0.9110106	-0.9110106	
		0.919	tump.kanan	4.466306E-14	2.54156E-15	1.045054E-13	5.957742E-15	5.76622E-14	1.57961E-13	5.44862E-14	1.44702E-13	4.61545E-14	
	283	0	tump.kiri	-3.899614	-0.54925	-3.552714E-15	8.526513E-14	-5.5583368	-4.38295095	-4.38295095	-3.5096526	-3.5096526	
		0.46	lapangan	-0.9749035	-0.1373125	-6.818506E-15	5.913879E-14	-1.3895842	-1.095737738	-1.095737737	-0.87741315	-0.87741315	
		0.919	tump.kanan	-2.859854E-15	2.54156E-15	-1.00843E-14	3.301245E-14	6.34671E-16	-1.2257E-14	3.29945E-14	-1.26582E-14	3.04386E-14	
	284	0	tump.kiri	-9.496947	1.963146	-59.90805	19.06098	-8.2233028	-71.8340952	11.0833863	-68.4553023	10.5137277	
		2.913	lapangan	31.2795	23.18567	2.694805	-0.5656694	74.632472	47.845497	44.42199888	30.846355	27.5858806	
		5.827	tump.kanan	-69.49812	-49.0672	65.29765	-20.19232	-161.905264	-30.1707735	-119.935242	2.749342	-82.740628	
	285	0	tump.kiri	-9.237162	2.061292	19.0607	-59.99841	-7.7865272	11.3968932	-71.6151723	10.7472542	-68.3118558	
		2.913	lapangan	31.29225	23.18421	-0.565689	2.700276	74.645436	44.4345993	47.86386255	27.597336	30.863301	
		5.827	tump.kanan	-69.73241	-49.14827	-20.19208	65.39896	-162.316124	-120.2235563	-30.35296425	-82.951249	2.639791	
	286	0	tump.kiri	-33.16553	-20.52876	-31.23251	28.03552	-72.804772	-78.448146	-16.2167145	-61.081577	-1.813547	
		2.275	lapangan	17.74703	11.32849	-0.8547406	-0.5542917	39.42202	23.68436112	23.99983247	15.1175864	15.4180353	
		4.55	tump.kanan	-11.0089	-2.691059	29.52303	-29.14411	-17.5163744	18.02703053	-43.57346648	19.61502	-39.05212	
	287	0	tump.kiri	-17.23417	-8.889539	29.50461	-30.79967	-34.9042664	8.216954025	-55.10253998	13.993857	-46.310423	
		2	lapangan	10.59063	5.621688	-0.540372	-5.558865E-02	21.7034568	13.5041571	14.01317962	8.991195	9.47597835	
		4	tump.kanan	-21.83769	-11.73375	-30.58535	30.68849	-44.979228	-61.20441075	3.13312125	-50.239271	11.034569	
		0	tump.kiri	-24.80378	-13.91951	-30.78281	30.84376	-52.035752	-65.67366225	-0.96576375	-53.106212	8.520358	

Lanjutan Tabel 7.1.b

Portal	No.balok	Jarak (m)	LTK MOMEN	MD (kNm)	ML (kNm)	ME (kNm)		Mu* (kNm)	Mu2 (kNm)	Mu3 (kNm)	Mu4 (kNm)	Mu5 (kNm)	Ket.balok
						E KIRI	E KANAN						
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
	288	2	lapangan	9.221385	5.206604	-0.3822194	0.2859967	19.3962284	12.01459098	12.71621789	7.9170271	8.5852432	
		4	tump.kanan	-17.00657	-7.533944	30.01838	-30.27176	-32.4621944	9.7070799	-53.5975671	14.712467	-45.577673	
	289-291	0	tump.kiri	-61.12978	-26.12749	24.28129	-24.13203	-115.15972	-52.40784675	-103.2418328	-30.735512	-79.148832	
		0.9625	tump.kiri	-11.88911	-3.760655	15.89152	-15.79115	-20.28398	2.228186625	-31.03861688	5.191321	-26.491349	
		1.925	lapangan	26.76155	14.42932	7.501754	-7.45028	55.200772	43.5518622	27.8522265	31.587149	16.635115	
		0	lapangan	25.58509	13.70324	9.0555	-9.025412	52.627292	43.5668205	24.5818629	32.082081	14.001169	
		1.075	lapangan	34.18204	13.06925	-0.2167551	0.2161786	61.929248	42.5249054	42.97948578	30.5470809	30.9800146	
		2.15	lapangan	31.70432	10.93296	-9.489011	9.457769	55.53792	29.06587845	48.95999745	19.044877	37.991657	
		0	lapangan	-80.21337	-34.99408	-24.62549	24.55491	-152.245572	-128.452695	-76.813275	-96.817523	-47.637123	
		0.9625	tump.kanan	-18.54076	-9.686803	-15.29595	16.22037	-37.7509968	-41.66516708	-7.523031075	-32.982634	-0.466314	
		1.925	tump.kanan	32.54184	11.43962	7.966411	7.885833	57.3536	31.81000095	48.45485715	21.321245	37.173489	
	292	0	tump.kiri	-87.22811	-48.85231	-24.40179	-24.36009	-182.837428	-91.61509875	-142.8150728	-54.103509	-102.865389	
		1.5	lapangan	6.582374	4.114842	-11.79061	-11.76185	14.483196	21.45245025	-3.27763275	17.7151966	-5.8372634	
		3	tump.kanan	69.07148	42.90699	-0.3205819	0.8363883	151.53696	94.18961276	95.92943147	61.3437501	63.0007203	
	293	0	tump.kiri	68.14025	42.35679	0.8434299	-0.8127532	149.539164	94.67017865	92.93118639	62.1696549	60.5134718	
		1.5	lapangan	7.192185	4.493943	-11.7525	11.79863	15.8209308	-2.429010675	22.29967583	-5.2795335	18.2715965	
		3	tump.kanan	-85.07826	-47.54391	-24.34842	24.41002	-178.164168	-139.8585668	-88.66220475	-100.918854	-52.160414	
	294	0	tump.kiri	-78.90127	-34.24082	24.54749	-24.64186	-149.466836	-75.0478995	-126.696717	-46.463653	-95.653003	
		0.9625	lapangan	-17.97683	-9.376227	16.21375	-16.31118	-36.5741592	-6.773753175	-40.92492968	0.034603	-32.490327	
		1.925	tump.kanan	32.3576	11.31151	7.880024	-7.980508	56.927536	48.18804795	31.53448935	37.001864	21.141332	
	295	0	tump.kiri	32.19126	11.2038	9.454926	-9.491259	56.555592	49.6104903	29.71699605	38.42706	19.480875	
		1.075	lapangan	34.02994	12.9764	0.2164008	-0.2102351	61.598168	42.77126784	42.32330015	30.8433468	30.4167109	
		2.15	tump.kanan	24.79394	13.24668	-9.022124	9.070788	50.947416	23.5149138	42.5124714	13.292422	31.385334	
	296	0	tump.kiri	26.67756	14.38995	-7.445097	7.528416	55.036992	27.7488099	43.47099855	16.564707	31.53822	
		0.9625	lapangan	-12.45155	-4.044947	-15.78975	15.90979	-21.4137752	-31.77696218	1.507554825	-26.996145	4.703395	
		1.925	tump.kanan	-62.17067	-26.6567	-24.13439	24.29117	-117.255524	-104.6150805	-53.7682425	-80.087993	-31.662433	
	297	0	tump.kiri	-24.20322	-13.38072	30.82018	-30.82615	-50.453016	-0.07707	-64.8057165	9.037282	-52.609048	
		2	lapangan	9.241886	5.212275	0.2853353	-0.3891878	19.4299032	12.74002674	12.03177749	8.6030327	7.9285096	
		4	tump.kanan	-17.56612	-8.061396	-30.24952	30.04778	-33.9775776	-54.4386549	8.8735101	-46.059028	14.238272	
	298	0	tump kiri	-22.35319	-12.10688	30.6951	-30.55742	-46.206836	2.3923935	-61.9227525	10.568229	-50.684291	
		2	lapangan	10.60039	5.624652	-5.498191E-02	-0.5365459	21.7199112	14.02562079	13.51997861	9.48536909	9.0038051	
		4	tump.kanan	-16.68915	-8.510481	-30.80507	29.48433	-33.6437496	-54.33693353	8.966936475	-45.825305	14.464095	
		0	tump.kiri	-32.96164	-20.48736	28.03034	-31.29113	-72.333744	-15.933729	-78.2212725	-1.635136	-60.956606	

Lanjutan Tabel 7.1.b

Portal	No.balok	Jarak (m)	TK MOMEN	MD (kNm)	ML (kNm)	ME (kNm)		Mu1 (kNm)	Mu2 (kNm)	Mu3 (kNm)	Mu4 (kNm)	Mu5 (kNm)	Ket.balok
						E KIRI	E KANAN						
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
	299	2.275	lapangan	17.76259	11.33449	-0.5548135	-0.8494031	39.450292	24.01877258	23.7094535	15.4315175	15.1369279	
		4.55	tump.kanan	-11.18178	-2.820469	-29.13997	29.59233	-17.9308864	-43.81858373	17.85033128	-39.203572	19.528728	
	312	0	tump.kiri	-1.592764	-1.421085E-14	-2.842171E-14	3.552714E-15	-1.9113168	-1.6724022	-1.6724022	-1.4334876	-1.4334876	balok atap
		0.46	lapangan	-0.398191	-7.67927E-15	-2.295371E-15	2.869214E-16	-0.4778292	-0.41810055	-0.41810055	-0.3583719	-0.3583719	
		0.919	tump.kanan	-5.071047E-14	-1.147685E-15	2.383097E-14	-2.978871E-15	-6.26889E-14	-2.8826E-14	-5.69763E-14	-2.18085E-14	-4.86183E-14	
	313	0	tump.kiri	-1.592764	-1.421085E-14	-7.105427E-15	5.684342E-14	-1.9113168	-1.6724022	-1.6724022	-1.4334876	-1.4334876	
		0.46	lapangan	-0.398191	-7.67927E-15	-5.738427E-16	4.590742E-15	-0.4778292	-0.41810055	-0.41810055	-0.3583719	-0.3583719	
		0.919	tump.kanan	-1.035386E-14	-1.147685E-15	5.957742E-15	-4.766193E-14	-1.42609E-14	-5.21846E-15	-6.15191E-14	-3.36073E-15	-5.69804E-14	
	314	0	tump.kiri	-1.716383	7.254702	-21.58661	3.96048	9.5478636	-20.6594241	6.1650204	-23.1313547	2.4157353	
		2.913	lapangan	5.23402	-0.4651571	-1.014511	-7.654141E-02	5.53657264	4.186276973	5.171145042	3.696107	4.63407659	
		5.827	tump.kanan	-19.8111	-8.185017	19.55759	-4.113563	-36.8693472	-4.563319425	-29.41803008	1.7276	-21.943553	
	315	0	tump.kiri	-1.653769	7.265373	3.958343	-21.60464	9.640074	6.234123525	-20.60700863	2.4699509	-23.0930321	
		2.913	lapangan	5.232775	-0.4653367	-7.667615E-02	-1.013718	5.53479128	5.169602025	4.185708083	4.63282135	3.6957795	
		5.827	tump.kanan	-19.8762	-8.196046	-4.111695	19.57721	-36.9651136	-29.4902139	-4.61686365	-22.000275	1.68863	
	316	0	tump.kiri	-3.44558	2.486737	2.812776	-7.940359	-0.1559168	0.641092725	-10.64969903	-0.288246	-11.041381	
		2.275	lapangan	3.374535	9.217338E-02	-0.5680715	-0.1305787	4.196919408	2.9951777	3.45454514	2.46901	2.9065028	
		4.55	tump.kanan	-9.31671	-2.302391	-3.948919	7.679202	-14.8638776	-15.13766573	-2.928138675	-12.333958	-0.705837	
	317	0	tump.kiri	-2.410081	2.045604	3.870081	-8.531695	0.3808692	2.6069421	-10.4149227	1.7010081	-10.7007679	
		2	lapangan	2.625995	0.1457289	-0.383132	-4.597771E-02	3.38436024	2.431513823	2.785525827	1.9802635	2.31741779	
		4	tump.kanan	-7.417353	-1.754146	-4.633345	8.439739	-11.7074572	-13.57730955	0.15257865	-11.3119627	1.7641213	
	318	0	tump.kiri	-4.291545	0.993383	5.144347	-8.111561	-3.5604412	1.416968175	-12.50173523	1.2819565	-11.9739515	
		2	lapangan	2.59972	0.1349445	-0.2467881	1.262594E-02	3.3355752	2.541424358	2.8138091	2.0929599	2.35237394	
		4	tump.kanan	-5.588439	-0.7234941	-5.637923	8.136813	-7.86371736	-12.1675145	2.295958298	-10.6675181	3.1072179	
	319	0	tump.kiri	-10.90862	0.2162642	4.891052	-5.948671	-12.74432128	-6.204897195	-17.58661685	-4.926696	-15.766429	
		3	lapangan	5.806293	9.049095E-02	-0.1494898	-9.937825E-03	7.11233712	5.987151109	6.133680683	5.0761739	5.215725875	
		6	tump.kanan	-11.4075	-3.528228E-02	-5.190042	5.928795	-13.74545165	-17.4459423	-5.771163447	-15.456792	-4.337955	
	320	0	tump.kiri	-11.51955	-0.2029039	5.446902	-5.592388	-14.14810624	-6.482804948	-18.07405945	-4.920693	-15.959983	
		3	lapangan	5.68219	-5.553423E-02	-7.140479E-02	-7.127696E-02	6.729773232	5.862169	5.862303221	5.04256621	5.04269404	
		6	tump.kanan	-11.04477	9.183547E-02	-5.589712	5.449834	-13.10678725	-17.41799248	-5.826469178	-15.530005	-4.490459	
	321	0	tump.kiri	-11.11676	0.1237027	5.928292	-5.193022	-13.14218768	-5.382947483	-17.06032718	-4.076792	-15.198106	
		3	lapangan	5.814882	9.639771E-02	-1.007633E-02	-0.1496936	7.132094736	6.145654751	5.999056618	5.22331747	5.0837002	
		6	tump.kanan	-11.18218	6.909267E-02	-5.943444	4.893635	-13.30806773	-17.95088155	-6.566698598	-16.012406	-5.170327	
		0	tump.kiri	-5.497022	-0.6064068	8.129487	-5.646423	-7.56667728	2.44572468	-12.01898082	3.1821672	-10.5937428	

Lanjutan Tabel 7.1.b

Portal	No.balok	Jarak (m)	LTK MOMEN	MD (kNm)	ML (kNm)	ME (kNm)		Mu1 (kNm)	Mu2 (kNm)	Mu3 (kNm)	Mu4 (kNm)	Mu5 (kNm)	Ket.balok
						E KIRI	E KANAN						
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
	322	2	lapangan	2.586997	0.1275263	1.256712E-02	-0.2458186	3.30843848	2.796493634	2.525188628	2.34086442	2.0824787	
		4	tump.kanan	-4.408409	0.3614595	-8.104353	5.154787	-3.9117556	-12.68613386	1.235963138	-12.0719211	1.1872189	
	323	0	tump.kiri	-7.600077	-1.882857	8.441745	-4.632245	-12.1326636	-0.104748525	-13.83243803	1.6016757	-11.4723143	
		2	lapangan	2.62601	0.1442045	-4.602621E-02	-0.3832224	3.3819392	2.784690342	2.430634343	2.31738279	1.9801866	
		4	tump.kanan	-2.227327	2.171266	-8.533797	3.8658	0.8012332	-10.15926555	2.8603113	-10.5383913	1.8612057	
	324	0	tump.kiri	-9.260672	-2.263003	7.67847	-3.963053	-14.7336112	-2.849388675	-15.07298783	-0.6561348	-12.2976578	
		2.275	lapangan	3.379721	9.502589E-02	-0.130794	-0.5685305	4.207706624	3.461261942	3.001638617	2.9109549	2.4732184	
		4.55	tump.kanan	-3.491247	2.453055	-7.940058	2.825992	-0.2646084	-10.71501638	0.589336125	-11.0821803	-0.3161303	
AS x-4 & AS x-15	44&69 45&70	0	tump.kiri	-19.80564	-10.76197	7.442917	-11.00925	-6.547616	-7.3308249	-26.70560025	-10.382159	-28.834326	balok lt.1
		1.557524	lapangan	16.43167	5.509881	3.367115	-5.028319	30.1338136	24.20641178	15.39120608	18.155618	9.760184	
		3.115048	lapangan	23.56856	2.257787	-0.7086869	0.9526138	31.8947312	25.18820493	26.93257067	20.5030171	22.1643178	
		0	lapangan	23.40932	1.479325	-1.018374	1.292455	30.458104	24.28713893	26.71350938	20.050014	22.360843	
		1.557524	lapangan	2.799454	-2.589859	-4.249784	6.504905	-0.7844296	-2.882522475	8.409900975	-1.7302754	9.0244136	
		3.115048	tump.kanan	-46.91084	-5.659044	-7.481194	11.71735	-66.9474784	-60.6076338	-40.4491626	-49.70095	-30.502406	
	85&98 86&99	0	tump.kiri	-58.36931	-36.91452	-0.301093	0.5843259	-129.106404	-80.98404615	-80.05435631	-52.833472	-51.9480531	
		1.509776	lapangan	4.223902	4.656321	-4.867846	7.915246	12.518796	1.768427325	15.19067393	-1.0663342	11.7167578	
		3.019553	lapangan	39.22282	26.85205	-9.434598	15.24617	90.030664	45.37495935	71.28976575	25.86594	50.546708	
		0	lapangan	39.44577	27.033	-0.301093	0.5843259	90.587724	55.29423585	56.2239257	35.2001	36.0855189	
		1.509776	lapangan	6.075611	3.9704	-4.867846	7.915246	13.6433732	3.35261325	16.77485985	0.6002039	13.3832959	
		3.019553	tump.kanan	-54.88885	-38.46732	-9.434598	15.24617	-127.414332	-87.7349634	-61.820157	-58.834563	-34.153795	
	187&207 188&208	0	tump.kiri	-38.86861	-9.821752	0.7361584	-2.933948	-62.3571352	-45.19549398	-49.0491057	-34.2455906	-37.915697	balok lt.2
		1.509776	lapangan	8.683575	4.686451	0.3293885	-1.25474	17.9186116	11.92399845	10.26066353	8.144606	6.5604775	
		3.019553	lapangan	38.69372	9.393126	-7.738143E-02	0.4244672	61.4614656	45.47854665	46.00548771	34.74696657	35.2488152	
		0	lapangan	39.03639	9.618245	-0.1653481	0.4574965	62.23286	45.86417262	46.51815945	34.9674029	35.5902475	
		1.509776	lapangan	3.765172	2.037218	-0.1748069	1.625998	7.7777552	4.839422805	6.73026795	3.2138479	5.0146528	
		3.019553	tump.kanan	-59.10035	-24.91892	-0.1842658	2.7945	-110.790692	-75.33127959	-72.2035755	-53.3745808	-50.395815	
	145 , 146	0	tump.kiri	-63.72639	-50.63992	-1.935866	3.189612	-157.49554	-95.5313268	-90.1495749	-59.289617	-54.164139	blk tribun
		3.457387	lapangan	27.10129	23.32379	0.8362873	-1.099847	69.839612	41.57944592	39.5465049	25.2274483	23.291314	
		6.914774	tump.kanan	-28.46207	-31.81073	3.60844	-5.389306	-85.051652	-42.79694475	-52.24457805	-22.007423	-31.005169	
	253 , 254	0	tump.kiri	-73.33954	-62.35361	-6.610659	1.296843	-187.773224	-116.6833542	-108.3804771	-72.616245	-64.708743	
		3.765661	lapangan	45.87295	40.28746	-1.718044	9.699091E-02	119.507476	67.5135678	69.41935446	39.567611	41.38264591	
		7.531321	tump.kanan	-76.66644	-70.03167	3.174572	-1.102861	-204.0504	-113.9330882	-118.4243928	-65.825224	-70.102657	

Lanjutan Tabel 7.1.b

Portal	No.balok	Jarak (m)	TK MOMEN	MD (kNm)	ML (kNm)	ME (kNm)		Mu1 (kNm)	Mu2 (kNm)	Mu3 (kNm)	Mu4 (kNm)	Mu5 (kNm)	Ket.balok
						E KIRI	E KANAN						
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
AS x-5 & AS x-14	46&73 55&82	0	tump.kiri	1.899198	11.52021	9.354868	-13.09849	20.7113736	17.86487955	-5.71114635	11.0641462	-11.3892118	balok lt.1
		1.724567	lapangan	14.41765	7.347933	4.28055	-5.98535	29.0578728	23.49077483	12.71157983	17.256435	6.990535	
		3.449134	lapangan	17.47593	3.17566	-0.7937673	1.127794	26.052172	19.18349234	21.2011317	14.9345697	16.856131	
		0	lapangan	15.87173	3.428455	-2.757508E-03	-2.167502E-02	24.531604	18.46235999	18.4424966	14.28179949	14.26288198	
		1.724567	lapangan	-1.965461	-2.943038	-4.789058	6.788108	-7.067414	-8.6373399	3.5186844	-6.5579729	5.0191931	
		3.449134	tump.kanan	-29.26282	-9.314531	-9.575358	13.59789	-50.0186336	-45.67021568	-21.33830528	-35.911896	-12.738648	
	102&127 108&134	0	tump.kiri	-78.42534	-53.23485	11.34545	-16.22326	-179.286168	-98.38218075	-127.3293263	-59.237356	-86.806066	
		1.671594	lapangan	7.48971	6.623313	5.293797	-7.559589	19.5849528	16.89992168	3.403866375	12.034536	-0.81885	
		3.343187	lapangan	59.87178	43.00998	-0.7578572	1.104083	140.662104	84.64985844	86.60489565	53.1267448	54.988685	
		0	lapangan	52.32658	36.98825	-9.123071E-02	0.189325	121.973096	74.265948	74.5605315	47.00269129	47.283247	
		1.671594	lapangan	7.662613	5.116236	-5.615891	8.188451	17.3811132	4.835082	19.3296411	1.2804607	15.0848027	
		3.343187	tump.kanan	-70.53433	-50.22727	-11.14055	16.18758	-165.004828	-112.1279408	-83.43340425	-74.621447	-47.293317	
	209&234 218&243	0	tump.kiri	-48.46331	0.6933588	3.115602	-4.379618	-57.04659792	-47.25108003	-55.12106103	-40.501377	-47.996597	balok lt.2
		1.671594	lapangan	9.070097	2.878578	1.41998	-1.950513	15.4898412	12.5258343	8.98681665	9.5830673	6.2125743	
		3.343187	lapangan	57.71559	5.063797	-0.275643	0.4785923	77.3607832	62.97043778	63.76238484	51.668388	52.4226233	
		0	lapangan	49.20405	5.630094	-2.634802E-02	0.1813972	68.0530104	54.59238643	54.81051891	44.25729698	44.4650422	
		1.671594	lapangan	7.112435	3.681076	-1.7836	2.71032	14.4246436	7.52784165	12.24645765	4.6175915	9.1115115	
		3.343187	tump.kanan	-68.51216	-21.73943	-3.540852	5.239244	-116.99768	-87.06886335	-77.84976255	-65.201796	-56.4217	
	147 , 158	0	tump.kiri	-84.68681	-59.7112	-3.555265	4.883452	-197.162092	-124.0025588	-115.1419059	-79.773394	-71.334677	blk tribun
		3.761187	lapangan	37.31161	28.55894	0.91359	-1.29793	90.468236	55.1299035	52.8078075	34.494039	32.282519	
		7.522373	tump.kanan	-45.46979	-37.62119	5.382445	-7.479313	-114.757652	-61.842837	-75.3476829	-35.540366	-48.402124	
	257 , 271	0	tump.kiri	-120.6584	-94.66576	-3.841747	2.495549	-296.255296	-180.4246784	-173.7705176	-112.434307	-106.097011	
		4.029814	lapangan	74.1878	60.5446	-0.6905491	0.3033342	185.89672	108.9580284	110.0016059	66.0784709	67.0723542	
		8.059628	tump.kanan	-125.0546	-104.6338	2.460648	-1.88888	-317.4796	-183.6563946	-188.223399	-110.088492	-114.43802	
AS x-6 & AS x-13	47&74 54&81	0	tump.kiri	2.170449	14.53754	18.0813	-24.58178	25.8646028	28.89554495	-15.89968905	20.0347041	-22.6283759	balok lt.1
		1.625	lapangan	25.6951	14.06533	9.301661	-12.54468	53.338648	44.1308973	21.19223925	32.427251	10.58091	
		3.25	lapangan	36.77629	13.59312	0.5220265	-0.5075792	65.88054	46.29962033	45.21853434	33.6206875	32.5910818	
		0	lapangan	36.05225	14.0775	0.8297862	-0.9411597	65.7867	46.11682551	44.25733232	33.2768112	31.5058653	
		1.625	lapangan	-3.458857E-03	-2.017339	-9.113192	12.34222	-3.231893028	-10.63158637	11.89659623	-9.116304971	12.33910703	
		3.25	tump.kanan	-60.51749	-29.55488	-19.05617	25.6256	-119.908796	-99.068655	-52.1527965	-73.521911	-28.840141	

Lanjutan Tabel 7.1.b

Portal	No.balok	Jarak (m)	LTK MOMEN	MD (kNm)	ML (kNm)	ME (kNm)		Mu1 (kNm)	Mu2 (kNm)	Mu3 (kNm)	Mu4 (kNm)	Mu5 (kNm)	Ket.balok
						E KIRI	E KANAN						
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
		0	tump.kiri	-70.05065	-42.65969	20.275	-27.40225	-152.316284	-74.66076975	-124.7218823	-42.770585	-90.447835	
		1.575	lapangan	5.909305	5.981126	10.0125	-13.51778	16.6609676	19.8579864	-4.8488076	15.3308745	-8.1994055	
	103&128	3.15	lapangan	48.30065	33.78469	-0.2499948	0.366691	112.016284	68.19015021	68.8376703	43.2205902	43.837276	
	107&133	0	lapangan	47.31443	33.03707	-0.1500655	0.1884299	109.636628	66.86704448	67.22246465	42.4329215	42.7714169	
		1.575	lapangan	8.865225	5.700645	-11.40045	15.47474	19.759302	0.330852375	28.54980188	-3.4217475	23.4534425	
		3.15	tump.kanan	-63.15259	-42.47303	-22.65083	30.76105	-143.739956	-112.3919318	-56.30945775	-79.488161	-26.076281	
		0	tump.kiri	-46.53216	0.9763009	1.769007	-1.871607	-54.27651056	-46.48875268	-50.31139738	-40.109937	-43.750551	balok lt.2
		1.575	lapangan	12.61191	3.324102	0.795532	-0.7660952	20.4528552	15.82296765	14.18325909	12.146251	10.5846238	
	210&235	3.15	lapangan	60.06649	5.671904	-0.1779428	0.3394171	81.1548344	65.86072416	66.40395206	53.8818982	54.3992581	
	217&242	0	lapangan	59.32547	5.716403	-0.2436978	0.4610826	80.3368088	65.03697239	65.77699181	53.1492252	53.8540056	
		1.575	lapangan	7.008876	1.529593	-1.483109	1.955196	10.858	6.605091675	10.21531193	4.8248794	8.2631844	
		3.15	tump.kanan	-78.87634	-23.49447	-2.722521	3.449309	-132.24276	-98.0134008	-91.5329793	-73.711227	-67.539397	
		0	tump.kiri	-101.1019	-68.32095	-5.307628	7.069364	-230.6358	-147.5985032	-134.6026616	-96.299338	-83.922346	blk tribun
	148 , 157	3.579455	lapangan	41.79666	33.71592	2.756398	-3.789332	104.101464	64.4815689	57.6085524	40.373392	33.827662	
		7.158911	tump.kanan	-29.94523	-32.46857	10.82042	-14.64803	-87.883988	-37.12704975	-63.86892225	-16.130287	-41.598737	
		0	tump.kiri	-103.3572	-83.03366	2.379344	-1.584864	-256.882496	-149.6194203	-153.7818387	-90.642136	-94.606344	
	258 , 270	3.871046	lapangan	65.72729	48.48434	-1.326347	1.341596	156.447692	93.07526365	95.8766088	57.828214	60.496157	
		7.742093	tump.kanan	-85.8469	-58.91986	-5.032037	4.268057	-197.288056	-126.3558104	-116.5907117	-82.294247	-72.994153	
AS x-7 &		0	tump.kiri	-13.259	1.56313	21.33526	-24.46881	-13.409792	9.30071625	-38.79355725	9.40216	-36.40191	balok lt.1
AS x-12		1.625	lapangan	22.57551	13.3977	11.20361	-12.84867	48.526932	42.5018685	17.2469745	31.521569	7.469289	
	48&75	3.25	lapangan	45.96654	25.23228	1.071971	-1.228523	95.531496	62.63738355	60.22186485	42.441857	40.141363	
	53&80	0	lapangan	45.95807	25.27523	1.179289	-1.29835	95.590052	62.7637227	60.16220175	42.541552	40.063913	
		1.625	lapangan	-0.4883374	-1.543376	-8.911016	10.25446	-3.05540648	-10.67959347	9.44415633	-9.35051966	9.81495634	
		3.25	tump.kanan	-83.40791	-51.2474	-19.00132	21.80727	-182.085332	-134.4345765	-91.585557	-94.068439	-53.259849	
		0	tump.kiri	-122.2638	-80.08345	18.8682	-21.60314	-274.85008	-150.6091913	-193.1040983	-91.16922	-131.64056	
		1.575	lapangan	10.14758	8.245675	9.026359	-10.3188	25.370176	24.46161533	4.149198375	18.159181	-1.185978	
	104&129	3.15	lapangan	108.9904	75.73755	-0.8154876	0.9655384	251.96856	153.3458718	155.2159491	97.2758724	99.0568984	
	106&132	0	lapangan	105.9242	73.81977	-0.7566938	0.9991312	245.220672	149.1812608	151.024877	94.5750862	96.3309112	
		1.575	lapangan	11.5399	7.800772	-10.4542	12.08601	26.3291152	5.2353903	28.9026108	-0.06829	22.47192	
		3.15	tump.kanan	-116.4131	-79.05547	-20.1517	23.17289	-266.184472	-184.8971618	-139.4063423	-124.92349	-81.5989	

Lanjutan Tabel 7.1.b

Portal	No.balok	Jarak (m)	LTK MOMEN	MD (kNm)	ML (kNm)	ME (kNm)		Mu1 (kNm)	Mu2 (kNm)	Mu3 (kNm)	Mu4 (kNm)	Mu5 (kNm)	Ket.balok
						E KIRI	E KANAN						
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
		0	tump.kiri	-45.88721	-0.1454127	1.226713	-1.274769	-55.29731232	-46.96986352	-49.59641962	-40.071776	-42.573258	balok lt.2
		1.575	lapangan	8.85275	0.6696639	0.4032284	-0.3339359	11.69476224	10.07035087	9.296328353	8.3707034	7.6335391	
	211&236	3.15	lapangan	51.90321	1.48474	-0.4202559	0.606897	64.659436	54.83659031	55.91510085	46.2926331	47.319786	
	216&241	0	lapangan	51.78028	1.395238	-0.4223424	0.6169481	64.3687168	54.65833443	55.74958946	46.1799096	47.2192001	
		1.575	lapangan	5.930519	0.9739858	-1.279489	1.576312	8.67500008	5.394924045	8.393515095	4.0579781	6.9137791	
		3.15	tump.kanan	-73.48785	-20.28452	-2.136636	2.535676	-120.640652	-90.0550833	-85.1491557	-68.275701	-63.603389	
		0	tump.kiri	-114.129	-77.80622	-6.511817	7.515378	-261.444752	-167.5211234	-152.7925686	-109.227917	-95.200722	blk tribun
	149 , 156	3.579455	lapangan	54.88081	42.57417	3.543733	-4.054433	133.975644	83.6972094	75.7191351	52.936462	45.338296	
		7.158911	tump.kanan	-62.43141	-50.32132	13.59928	-15.62424	-155.431804	-77.6924295	-108.3771255	-42.588989	-71.812509	
		0	tump.kiri	-79.07649	-52.9389	-4.256127	3.987715	-179.594028	-115.2921704	-106.6361363	-75.424968	-67.181126	
	259 , 269	3.871046	lapangan	61.59859	44.62268	-1.29633	1.447635	145.314596	86.74428	89.62544325	54.142401	56.886366	
		7.742093	tump.kanan	-103.2116	-81.36867	1.663467	-1.092445	-254.043792	-149.3440914	-152.237799	-91.226973	-93.982885	
AS x-8 &		0	tump.kiri	-11.782	7.327351	19.65266	-21.3719	-2.4146384	12.11105228	-30.96473573	9.04886	-31.9757	balok lt.1
AS x-11		1.625	lapangan	20.98138	12.36035	10.39038	-11.26657	44.954216	39.42953175	16.68973425	29.273622	7.616672	
	49&76	3.25	lapangan	41.30128	17.39335	1.128098	-1.161244	77.390896	53.68235565	51.27854655	38.29925	36.009908	
	52&79	0	lapangan	41.33759	17.43662	1.07696	-1.081047	77.5037	53.689503	51.42359565	38.280791	36.122784	
		1.625	lapangan	1.819666	0.5950471	-8.247414	9.023	3.13567456	-6.436735673	11.69719903	-6.6097146	10.6606994	
		3.25	tump.kanan	-74.17142	-39.13194	-17.57179	19.12705	-151.616808	-116.674639	-78.340857	-84.326068	-47.627228	
		0	tump.kiri	-100.6126	-51.55822	17.61719	-19.20955	-203.228272	-114.213246	-152.881323	-72.93415	-109.76089	
		1.575	lapangan	9.861822	7.636048	8.34623	-9.073226	24.0518632	23.1273798	4.836951	17.2218698	-0.1975862	
	101&126	3.15	lapangan	87.25537	46.29583	-0.9247273	1.063093	178.779772	114.9524856	117.0396969	77.6051057	79.592926	
	105&131	0	lapangan	73.55295	37.83569	-0.518662	0.6242063	148.800644	96.54973965	97.74975137	65.678993	66.8218613	
		1.575	lapangan	7.357039	3.98993	-9.55863	10.50881	15.2123348	-0.2169573	20.8538547	-2.9372949	17.1301451	
		3.15	tump.kanan	-92.8988	-50.99805	-18.5986	20.39341	-193.07544	-143.8462463	-102.9046358	-102.20752	-63.21551	
		0	tump.kiri	-91.6123	-33.03159	0.9636278	-0.9862334	-162.785304	-112.5226906	-114.5700448	-81.4874422	-83.4373034	balok lt.2
		1.575	lapangan	15.77706	5.237581	0.1992658	-0.1684436	27.3126016	19.52487212	19.13877725	14.3986198	14.0309104	
	215&240	3.15	lapangan	100.5374	33.08813	-0.5650961	0.6493461	173.585888	122.3421873	123.6173517	89.9185639	91.1330061	
		0	lapangan	100.4177	32.98925	-0.6099261	0.6795492	173.28404	122.1175188	123.4714679	89.7660039	91.0554792	
		1.575	lapangan	9.844035	3.721865	-1.061655	1.270214	17.767826	11.17547813	13.62394058	7.7979765	10.1298455	
		3.15	tump.kanan	-114.2983	-46.38277	-1.513383	1.860879	-211.370392	-145.9532214	-142.4102463	-104.381853	-101.007591	
		0	tump.kiri	-51.30489	-40.94649	12.54392	-13.63026	-127.080252	-62.19592575	-89.67881475	-33.630481	-59.804661	blk tribun
	150 , 155	3.579455	lapangan	47.48857	36.63023	3.322906	-3.569784	115.594652	72.58292055	65.34559605	46.062619	39.169929	
		7.158911	tump.kanan	-110.9739	-72.40944	-5.898105	6.490697	-249.023784	-160.7305613	-147.7223192	-105.774615	-93.385813	

Lanjutan Tabel 7.1.b

Portal	No.balok	Jarak (m)	LTK MOMEN	MD (kNm)	ML (kNm)	ME (kNm)		Mu1 (kNm)	Mu2 (kNm)	Mu3 (kNm)	Mu4 (kNm)	Mu5 (kNm)	Ket.balok
						E KIRI	E KANAN						
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
	260 , 268	0	tump.kiri	-74.1434	-56.9135	1.796561	-1.232048	-180.03368	-105.8437685	-109.0238079	-64.932499	-67.961108	
		3.871046	lapangan	51.75777	34.70784	-1.445777	1.501716	117.641868	71.04920865	74.1440763	45.136216	48.083709	
		7.742093	tump.kanan	-64.31718	-39.24531	-4.688116	4.235481	-139.973112	-93.05934855	-83.6895717	-62.573578	-53.649981	
AS x 9 & AS x 10	50&77 51&78	0	tump.kiri	-43.9558	-4.955122	20.76411	-22.25397	-60.6751552	-26.95271355	-72.12169755	-18.79611	-61.81419	balok lt.1
		1.625	lapangan	22.41132	8.700049	10.94718	-11.68202	40.8136624	39.59395073	15.83329073	31.117368	8.488168	
		3 25	lapangan	49.13652	10.91251	1.13025	-1.110075	76.42384	58.50917625	56.156835	45.353118	43.112793	
		0	lapangan	49.18866	10.90734	1.035798	-1.02691	76.478136	58.4620344	56.296191	45.305592	43.242884	
		1 625	lapangan	12.23529	4.819139	-8.7001	9.394571	22.3929704	6.241997475	25.24140203	2.311661	20.406332	
		3 25	tump.kanan	-76.37482	-24.15448	-18.436	19.81605	-130.296952	-112.232463	-72.0678105	-87.173338	-48.921288	
	110&135 104&130	0	tump.kiri	-42.83144	-19.8946	18.21154	-19.69936	-83.229088	-36.29556	-76.102005	-20.336756	-58.247656	
		1.575	lapangan	2.337296	4.095875	8.566756	-9.226652	9.3581552	13.59958898	-5.083489425	10.6703224	-7.1230856	
		3.15	lapangan	12.47408	6.34075	-1.078024	1.24606	25.114096	15.29475255	17.73504075	10.148648	12.472732	
		0	lapangan	12.47408	6.34075	-1.078024	1.24606	25.114096	15.29475255	17.73504075	10.148648	12.472732	
		1.575	lapangan	2.660034	0.7904279	-10.31563	11.27664	4.45672544	-7.623401153	15.04848235	-7.9215994	13.6706706	
		3.15	tump.kanan	-28.81765	-14.73403	-19.55323	21.30723	-58.155628	-58.52478975	-15.62130675	-45.489115	-4.628655	
	213&238 214&239	0	tump.kiri	-71.8788	-18.10974	0.7294549	-0.7347742	-115.230144	-84.21442586	-85.75186641	-63.9614651	-65.4256942	balok lt.2
		1.575	lapangan	22.67023	11.38949	8.211812E-02	-5.544456E-02	45.42746	29.86944778	29.72500696	20.48532512	20.34776244	
		3.15	lapangan	94.59022	30.4701	-0.5652187	0.623885	162.260424	114.7230539	115.9716128	84.5659793	85.755083	
		0	lapangan	94.7334	30.5884	-0.6063444	0.6522358	162.62152	114.8923184	116.2138276	84.6537156	85.9122958	
		1.575	lapangan	5.692659	0.3025053	-0.9621119	1.122936	7.31519928	5.125889738	7.315190033	4.1612812	6.2463291	
		3.15	tump.kanan	-105.9771	-40.40201	-1.317879	1.593637	-191.815736	-133.8707832	-130.8136914	-96.697269	-93.785753	
	152 , 153	0	tump.kiri	-93.92902	-41.95832	-6.050939	6.555201	-179.848136	-127.007075	-113.770628	-90.587057	-77.980917	blk tribun
		3.579455	lapangan	27.64779	13.76596	3.549604	-3.744935	55.202884	39.9343927	32.32512675	28.432615	21.138076	
		7.158911	tump.kanan	-16.13878	-10.48822	13.15015	-14.04507	-36.147688	-8.644377	-37.199358	-1.374752	-28.569972	
	263 , 265	0	tump.kiri	-53.84342	-31.41649	-5.102175	1.627284	-114.878488	-78.386532	-71.32060005	-53.561253	-46.831794	
		3.871046	lapangan	50.21276	32.18733	-1.614708	-1.27126	111.75504	67.92630285	68.28692325	43.576776	43.920224	
		7.742093	tump.kanan	-59.23616	-41.83921	1.87276	0.8046515	-138.026128	-82.19715525	-83.31866918	-51.439784	-52.5078925	

Keterangan :

[1] Portal yg ditinjau

[2] Nomor elemen balok

[3] Jarak elemen balok (m)

[4] Letak/daerah momen

[5] MD = momen yg terjadi akibat beban mati

[6] ML = momen yg terjadi akibat beban hidup

[7] MEkiri = momen yg terjadi akibat beban gempa kiri

[8] MEkanan = momen yg terjadi akibat beban gempa kanan

[9] Mu1 = 1,2MD + 1,6 ML

[10] Mu2 = 1,05(MD+0,5ML+MEkiri)

[11] Mu3 = 1,05(MD+0,5ML+MEkanan)

[12] Mu4 = 0,9(MD+MEkiri)

[13] Mu5 = 0,9(MD+MEkanan)

[14] Keterangan balok

Tabel 7.1.c. Redistribusi Momen Rencana Balok Daktilitas Penuh

Balok	Analisis	Mu (kNm)	b (mm)	d (mm)	ρb	Rn1 (Mpa)	ρ	Rn2 (Mpa)	ρ'	ρ - ρ'	0,5 ρb	%	∂M	M tump - (kNm)	M tump + (kNm)	M lap (kNm)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]
AS X-3																
LT 1	Mtump -	230.811	350	387.5	0.021675	5.489781	0.01721	0.411096	0.00104	0.016168	0.010838	10	23.0811	207.730	40.365	202.063
	Mtump +	17.284														
	Mlap	178.982														
AS X-2																
LT 1	Mtump -	153.052	350	387.5	0.021675	3.640303	0.01036	1.646428	0.004337	0.006027	0.010838	18.877	28.892	124.160	98.114	111.879
	Mtump +	69.222														
	Mlap	82.987														
LT 2	Mtump -	378.241	350	387.5	0.021675	8.996367	0.03223	1.006832	0.002596	0.029636	0.010838	10	37.824	340.417	80.155	298.979
	Mtump +	42.331														
	Mlap	261.155														
AS X-3																
LT 1	Mtump -	118.936	250	637.5	0.021675	1.463265	0.00383	0.451162	0.001143	0.002688	0.010838	25.040	29.782	89.154	66.453	92.084
	Mtump +	36.671														
	Mlap	62.302														
LT 2	Mtump -	151.843	250	637.5	0.021675	1.868118	0.00496	0.887523	0.00228	0.00268	0.010838	25.055	38.044	113.799	110.183	99.420
	Mtump +	72.139														
	Mlap	61.376														
LT 3	Mtump -	243.397	250	637.5	0.021675	2.994504	0.0083	1.598253	0.004204	0.004092	0.010838	22.448	54.637	188.760	184.545	184.54398
	Mtump +	129.908														
	Mlap	129.907														
B. ATAP	Mtump -	46.619	400	337.5	0.021675	1.278985	0.00333	0.666008	0.001699	0.001629	0.010838	26.994	12.584	34.035	36.860	22.016
	Mtump +	24.276														
	Mlap	9.432														
AS Y-4 & Y-18																
LT 1	Mtump -	137.18	400	437.5	0.021675	2.239673	0.00603	0.113731	0.000285	0.005741	0.010838	19.405004	26.620	110.560	33.586	120.414
	Mtump +	6.966														
	Mlap	93.794														
LT 2	Mtump -	124.639	400	437.5	0.021675	2.034922	0.00543	0.380865	0.000963	0.004472	0.010838	21.748	27.106	97.533	50.434	98.264
	Mtump +	23.328														
	Mlap	71.158														
TRIBUN	Mtump -	202.062	400	437.5	0.021675	3.298971	0.00926	0.497094	0.001261	0.007994	0.010838	15.248	30.811	171.251	61.258	148.002
	Mtump +	30.447														
	Mlap	117.191														
AS Y-5 & AS Y-17																
LT 1	Mtump -	148.336												148.336	35.795	158.624

Tabel 7.1.c. Lanjutan

Balok	Analisis	Mu (kNm)	b (mm)	d (mm)	ρb	Rn1 (Mpa)	ρ	Rn2 (Mpa)	ρ'	ρ - ρ'	0,5 ρb	%	∂M	M tump - (kNm)	M tump + (kNm)	M lap (kNm)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]
LT 1	Mtump +	35.795														
	Mlap	158.624														
LT 2	Mtump -	128.17	400	437.5	0.021675	2.092571	0.0056	0.346024	0.000874	0.004726	0.010838	21.278	27.272	100.898	48.466	98.860
	Mtump +	21.194														
	Mlap	71.588														
TRIBUN	Mtump -	322.855	400	437.5	0.021675	5.271102	0.01631	0.655755	0.001672	0.014633	0.010838	10	32.286	290.570	72.451	218.698
	Mtump +	40.165														
	Mlap	186.412														
AS Y-6 & Y-16																
LT 1	Mtump -	214.967	400	437.5	0.021675	3.509665	0.00994	0.347641	0.000878	0.009057	0.010838	13.285	28.559	186.408	49.852	205.401
	Mtump +	21.293														
	Mlap	176.842														
LT 2	Mtump -	138.535														
	Mlap	176.842														
TRIBUN	Mtump -	238.424	400	437.5	0.021675	3.892637	0.01121	0.216898	0.000546	0.010664	0.010838	10.320	24.605	213.819	37.890	160.247
	Mtump +	13.285														
	Mlap	135.642														
AS Y-7 & Y15																
LT 1	Mtump -	235.098	400	437.5	0.021675	3.838335	0.01103	0.063135	0.000158	0.010868	0.010838	10	23.510	211.588	27.377	226.994
	Mtump +	3.867														
	Mlap	203.484														
LT 2	Mtump -	202.797												202.797	0	214.863
	Mlap	214.863														
TRIBUN	Mtump -	224.906	400	437.5	0.021675	3.671935	0.01047	0.196131	0.000493	0.009976	0.010838	11.590	26.066	198.840	38.079	141.283
	Mtump +	12.013														
	Mlap	115.217														
AS Y-8 & Y-14																
LT 1	Mtump -	178.474	400	437.5	0.021675	2.913861	0.00805	0.432669	0.001096	0.006951	0.010838	17.173	30.650	147.824	57.1507	158.661
	Mtump +	26.501														
	Mlap	128.011														
LT 2	Mtump -	186.714	400	437.5	0.021675	3.048392	0.00846	0.059265	0.000148	0.008315	0.010838	14.655	27.362	159.352	30.992	177.622
	Mtump +	3.63														
	Mlap	150.26														
TRIBUN	Mtump -	206.687	400	437.5	0.021675	3.374482	0.0095	0.241404	0.000608	0.00889	0.010838	13.595	28.099	178.588	42.885	164.070
	Mtump +	14.786														
	Mlap	135.971														

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Tabel 7.1.c. Lanjutan

Balok	Analisis	Mu (kNm)	b (mm)	d (mm)	ρb	Rn1 (Mpa)	ρ	Rn2 (Mpa)	ρ'	ρ - ρ'	0,5 ρb	%	∂M	M tump - (kNm)	M tump + (kNm)	M lap (kNm)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]
AS Y-9 & Y-13																
LT 1	Mtump -	163.246	400	437.5	0.021675	2.665241	0.00729	0.071184	0.000178	0.00711	0.010838	16.880	27.555	135.691	31.915	170.558
	Mtump +	4.36														
	Mlap	143.003														
LT 2	Mtump -	100.766												100.766	0	108.206
	Mlap	108.206														
TRIBUN	Mtump -	221.601	400	437.5	0.021675	3.617976	0.01029	0.359853	0.000909	0.009381	0.010838	12.687	28.1147	193.486	50.156	135.044
	Mtump +	22.041														
	Mlap	106.929														
AS Y-10 & Y-12																
LT 1	Mtump -	121.199												121.199	0	166.707
	Mlap	166.707														
TRIBUN	Mtump -	217.059	400	437.5	0.021675	3.54332	0.01005	0.331314	0.000837	0.009211	0.010838	13.002	28.223	188.836	48.516	150.352
	Mtump +	20.293														
	Mlap	122.129														
AS Y-11																
LT 1	Mtump -	208.868	400	437.5	0.021675	3.41009	0.00961	0.939984	0.002419	0.007193	0.010838	16.725	34.933	173.935	92.507	229.272
	Mtump +	57.574														
	Mlap	194.339														
LT 2	Mtump -	188.56	400	437.5	0.021675	3.078531	0.00856	0.103788	0.00026	0.008298	0.010838	14.687	27.694	160.86599	34.051	145.56201
	Mtump +	6.357														
	Mlap	117.868														
TRIBUN	Mtump -	158.166	400	437.5	0.021675	2.582302	0.00704	0.597894	0.001522	0.005517	0.010838	19.819	31.348	126.818	67.969	162.791
	Mtump +	36.621														
	Mlap	131.443														
AS Y-3																
LT 1	Mtump -	149.701	400	387.5	0.021675	3.115525	0.00867	0.416379	0.001054	0.00762	0.010838	15.938	23.859	125.842	43.866	136.534
	Mtump +	20.007														
	Mlap	112.675														
AS Y-2																
LT 1	Mtump -	131.184	350	387.5	0.021675	3.120178	0.00869	0.366285	0.000926	0.007763	0.010838	15.674	20.562	110.622	35.962	93.230
	Mtump +	15.4														
	Mlap	72.668														
LT 2	Mtump -	215.324	350	387.5	0.021675	5.121427	0.01571	3.000208	0.008314	0.007392	0.010838	16.359	35.225	180.099	161.365	198.574
	Mtump +	126.14														
	Mlap	163.349														

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Balok	Analisis	Mu (kNm)	b (mm)	d (mm)	ρb	Rn1 (Mpa)	ρ	Rn2 (Mpa)	ρ'	ρ - ρ'	0,5 ρb	%	∂M	M tump - (kNm)	M tump + (kNm)	M lap (kNm)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]
AS Y-1																
LT 1	Mtump -	94.523	250	637.5	0.021675	1.162913	0.00301	0.35761	0.000904	0.002111	0.010838	26.105	24.675	69.848	53.742	75.003
	Mtump +	29.067														
	Mlap	50.328														
LT 2	Mtump -	129.571	250	637.5	0.021675	1.594107	0.00419	0.214121	0.000539	0.003653	0.010838	23.258	30.136	99.435	47.540	99.445
	Mtump +	17.404														
	Mlap	69.309														
LT 3	Mtump -	182.837	250	637.5	0.021675	2.249436	0.00605	1.864354	0.004949	0.001106	0.010838	27.959	51.120	131.717	202.657	125.752
	Mtump +	151.537														
	Mlap	74.632														
B. ATAP	Mtump -	36.965	400	637.5	0.021675	0.284237	0.00072	0.074125	0.000186	0.000531	0.010838	29.020	10.727	26.238	20.367	17.859
	Mtump +	9.64														
	Mlap	7.132														
AS X-4 & X-15																
LT 1	Mtump -	129.106	400	637.5	0.021675	0.992741	0.00256	0.096263	0.000241	0.002318	0.010838	25.723	33.210	95.896	45.729	123.798
	Mtump +	12.519														
	Mlap	90.588														
LT 2	Mtump -	110.791	400	437.5	0.021675	1.808833	0.00479	0.559118	0.001422	0.003371	0.010838	23.780	26.346	84.445	60.592	88.579
	Mtump +	34.246														
	Mlap	62.233														
TRIBUN	Mtump -	204.05	400	437.5	0.021675	3.331429	0.00936	0.359298	0.000908	0.008451	0.010838	14.404	29.391	174.659	51.398	148.898
	Mtump +	22.007														
	Mlap	119.507														
AS X-5 & X-14																
LT 1	Mtump -	179.286	400	437.5	0.021675	2.927118	0.00809	0.291673	0.000736	0.007352	0.010838	16.433	29.462	149.824	47.327	170.124
	Mtump +	17.865														
	Mlap	140.662														
LT 2	Mtump -	116.998	400	437.5	0.021675	1.910171	0.00508	0.661241	0.001687	0.003392	0.010838	23.740	27.775	89.223	68.276	105.136
	Mtump +	40.501														
	Mlap	77.361														
TRIBUN	Mtump -	317.48	400	437.5	0.021675	5.183347	0.01595	0.580245	0.001476	0.014476	0.010838	10	31.748	285.732	67.288	217.645
	Mtump +	35.54														
	Mlap	185.897														
AS X-6 & AS X 13																
LT 1	Mtump -	143.74	400	437.5	0.021675	2.346776	0.00634	0.471788	0.001196	0.005143	0.010838	20.508	29.478	114.262	58.375	141.494
	Mtump +	28.897														
	Mlap	112.016														

Tabel 7.1.c. Lanjutan

Balok	Analisis	Mu (kNm)	b (mm)	d (mm)	ρb	Rn1 (Mpa)	ρ	Rn2 (Mpa)	ρ'	ρ - ρ'	0,5 ρb	%	∂M	M tump - (kNm)	M tump + (kNm)	M lap (kNm)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]
LT 2	Mtump -	132.243	400	437.5	0.021675	2.159069	0.00579	0.654857	0.00167	0.004122	0.010838	22.392	29.612	102.631	69.722	110.767
	Mtump +	40.11														
	Mlap	81.155														
TRIBUN	Mtump -	256.882	400	437.5	0.021675	4.193992	0.01225	0.263347	0.000664	0.011587	0.010838	10	25.688	231.194	41.818	182.136
	Mtump +	16.13														
	Mlap	156.448														
AS X-7 & AS X-12																
LT 1	Mtump -	274.85	400	437.5	0.021675	4.487347	0.0133	0.153502	0.000386	0.012914	0.010838	10	27.485	247.365	36.887	272.706
	Mtump +	9.402														
	Mlap	245.221														
LT 2	Mtump -	120.641	400	437.5	0.021675	1.969649	0.00525	0.654237	0.001668	0.00358	0.010838	23.394	28.222	92.419	68.294	92.881
	Mtump +	40.072														
	Mlap	64.659														
TRIBUN	Mtump -	261.445	400	437.5	0.021675	4.26849	0.01251	0.595331	0.001775	0.010738	0.010838	10.184	26.625	234.820	69.214	171.940
	Mtump +	42.589														
	Mlap	145.315														
AS X-8 & AS X-11																
LT 1	Mtump -	203.228	400	437.5	0.021675	3.318008	0.00932	0.197731	0.000497	0.008819	0.010838	13.725	27.894	175.334	40.005	176.695
	Mtump +	12.111														
	Mlap	148.801														
LT 2	Mtump -	211.37	400	437.5	0.021675	3.450939	0.00974	1.3304	0.003467	0.006277	0.010838	18.416	38.926	172.444	120.413	212.512
	Mtump +	81.487														
	Mlap	173.586														
TRIBUN	Mtump -	249.024	400	437.5	0.021675	4.065698	0.0118	0.549061	0.001396	0.010408	0.010838	10.793	26.878	222.146	60.508	144.520
	Mtump +	33.63														
	Mlap	117.642														
AS X-9 & AS X-10																
LT 1	Mtump -	130.297	400	437.5	0.021675	2.127298	0.0057	0.075576	0.000189	0.005511	0.010838	19.829	25.837	104.460	30.466	102.315
	Mtump +	4.629														
	Mlap	76.478														
LT 2	Mtump -	191.816	400	437.5	0.021675	3.13169	0.00872	1.044261	0.002696	0.006029	0.010838	18.875	36.204	155.612	100.165	198.826
	Mtump +	63.961														
	Mlap	162.622														
TRIBUN	Mtump -	179.848	400	437.5	0.021675	2.936294	0.00812	0.022449	5.62E-05	0.008059	0.010838	15.127	27.205	152.643	28.580	138.960
	Mtump +	1.375														
	Mlap	111.755														

Keterangan Tabel 7.1.c :

[1] Balok lantai 1 s/d 3, balok atap dan balok tribun

[2] Analisis: momen tumpuan negatif, positif dan momen lapangan

[3] Mu = momen rencana balok (dari Tabel 7.1)

[4] b = lebar balok

[5] d = h-d' (tinggi efektif)

[6] ρb = rasio tulangan tarik dalam keadaan seimbang (balance) =((0,85.f'c)/fy).β1.(600/(600+fy))

[7] Rn1 = Koefisien tahanan untuk perencanaan kuat : (Mtump -)/(0,8.b.d^2)

[8] ρ = Rasio tulangan tarik: (1/m)[1-(√(1-((2.m.Rn1)/fy)))]

[9] Rn2 = Koefisien tahanan untuk perencanaan kuat : (Mtump +)/(0,8.b.d^2)

[10] ρ' = Rasio tulangan tarik: (1/m)[1-(√(1-((2.m.Rn2)/fy)))]

[11) ρ - ρ'

[12) 0,5 * ρb

[13) % = 30[1-4/3*((ρ - ρ)'/ρb)]

Faktor redistribusi maksimum dalam persen

[14) Mu*% (redistribusi momen)

[15) Momen tumpuan negatif terpakai (momen hasil redistribusi)

[16) Momen tumpuan positif terpakai (momen hasil redistribusi)

[17) Momen lapangan terpakai (momen hasil redistribusi)

Tabel 7.2.a Gaya Geser Rencana Balok Portal A

Portal	No.balok	Jarak (m)	Daerah Gaya Geser	VD (kNm)	VL (kNm)	VE (kNm) E KIRI	Ket.balok
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
AS x-3	39	0	tump.kiri	-7.942974	-4.780042	0	balok lt.1
		0,4596194	lapangan	-3.971487	-2.390021	0	
		0,9192388	tump.kanan	-3.343549E-14	-1.412911E-14	0	
	40	0	tump.kiri	-7.942974	-4.780042	-1.065814E-14	
		0,4596194	lapangan	-3.971487	-2.390021	-1.065814E-14	
		0,9192388	tump.kanan	-6.18572E-14	-2.833996E-14	-1.065814E-14	
	41-42	0	tump.kiri	-65.94262	-53.24156	11.02992	
		1,75	lapangan	-46.41119	-36.48531	11.02992	
		3,5	lapangan	-26.87976	-19.72906	11.02992	
		0	lapangan	28.5865	20.24669	12.52106	
		1,75	lapangan	48.11792	37.00294	12.52106	
		3,5	tump.kanan	**67.64935**	**53.75919**	12.52106	
	43-45	0	tump.kiri	-59.39201	-31.87893	11.78682	
		0,9625	tump.kiri	-49.7412	-24.55767	11.78682	
		1,925	lapangan	-40.09039	-17.23642	11.78682	
		0	lapangan	-9.977788	-6.132226	11.08049	
		1,075	lapangan	-0.688911	-0.5422266	11.08049	
		2,15	lapangan	8.599966	5.047773	11.08049	
		0	lapangan	38.5291	15.92957	11.73008	
		0,9625	tump.kanan	48.17991	23.25082	11.73008	
		1,925	tump.kanan	57.83072	30.57208	11.73008	
	46-47	0	tump.kiri	-57.1806	-45.2764	8.39682	
		1,5	lapangan	-40.97938	-31.8514	8.39682	
		3	lapangan	-24.77816	-18.4264	8.39682	
		0	lapangan	21.38695	17.07063	7.896813	
		1,5	lapangan	37.58818	30.49563	7.896813	
		3	tump.kanan	53.7894	43.92062	7.896813	
	48	0	tump.kiri	-15.02452	-12.04152	-22.16396	
		1,5	lapangan	1.176706	1.383475	-22.16396	
		3	tump.kanan	17.37793	14.80847	-22.16396	
	49	0	tump.kiri	-41.27831	-30.22458	5.030443	
		3	lapangan	3.894562E-04	4.158979E-04	5.030443	
		6	tump.kanan	41.27909	30.22542	5.030443	
	50	0	tump.kiri	-15.02153	-12.03833	**15.54216**	
		1,5	lapangan	1.17969	1.386666	15.54216	
		3	tump.kanan	17.38091	14.81167	15.54216	
	51-52	0	tump.kiri	-53.7882	-43.91911	3.917371	
		1,5	lapangan	-37.58698	-30.49411	3.917371	
		3	lapangan	-21.38576	-17.06911	3.917371	
		0	lapangan	24.78026	18.42757	4.284478	
		1,5	lapangan	40.98148	31.85257	4.284478	
		3	tump.kanan	57.1827	45.27757	4.284478	
	53-55	0	tump.kiri	-57.82665	-30.56761	4.151207	
		0,9625	tump.kiri	-48.17584	-23.24635	4.151207	
		1,925	lapangan	-38.52503	-15.9251	4.151207	
		0	lapangan	-8.593904	-5.043439	3.884756	
		1,075	lapangan	0.6949725	0.5465609	3.884756	
		2,15	lapangan	9.98385	6.136561	3.884756	
		0	lapangan	40.0941	17.2406	4.117026	

Lanjutan Tabel 7.2.a

Portal	No.balok	Jarak (m)	Daerah Gaya Geser	VD (kNm)	VL (kNm)	VE (kNm) E KIRI	Ket.balok
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
		0,9625	tump.kanan	49.74492	24.56186	4.117026	
		1,925	tump.kanan	59.39573	31.88311	4.117026	
	56-57	0	tump.kiri	-67.7007	-53.8066	2.600631	
		1,75	lapangan	-48.16927	-37.05035	2.600631	
		3,5	lapangan	-28.63784	-20.2941	2.600631	
		0	lapangan	26.82553	19.67982	2.572115	
		1,75	lapangan	46.35695	36.43607	2.572115	
		3,5	tump.kanan	65.88838	53.19232	2.572115	
AS x-2	89	0	tump.kiri	-3.411251	0	-2.842171E-14	balok lt.1
		0,4596194	lapangan	-1.705626	0	-2.842171E-14	
		0,9192388	tump.kanan	-7.019775E-15	0	-2.842171E-14	
	90	0	tump.kiri	-3.411251	0	-2.842171E-14	
		0,4596194	lapangan	-1.705626	0	-2.842171E-14	
		0,9192388	tump.kanan	2.140193E-14	0	-2.842171E-14	
	103	0	tump.kiri	-9.420646	-3.458022	-40.60924	
		1,442498	lapangan	-4.067606	-3.458022	-40.60924	
		2,884996	tump.kanan	1.285434	-3.458022	-40.60924	
	104	0	tump.kiri	-16.85339	-10.56451	13.49554	
		1,442498	lapangan	-4.343754	-3.748703	13.49554	
		2,884996	tump.kanan	8.165879	3.067099	13.49554	
	109	0	tump.kiri	-4.870183	-0.5889562	-50.8193	
		1,155	lapangan	-0.5840339	-0.5889562	-50.8193	
		2,31	tump.kanan	3.702116	-0.5889562	-50.8193	
	110	0	tump.kiri	-47.86622	-33.32563	6.137115	
		3,5	lapangan	0.4021127	0.2743748	6.137115	
		7	tump.kanan	48.67044	33.87437	6.137115	
	111	0	tump.kiri	-41.35194	-28.86238	7.487324	
		3	lapangan	2.091539E-02	-6.238511E-02	7.487324	
		6	tump.kanan	41.39377	28.73762	7.487324	
	112	0	tump.kiri	-41.42479	-28.84135	6.423336	
		3	lapangan	-5.193635E-02	-4.134709E-02	6.423336	
		6	tump.kanan	41.32092	28.75865	6.423336	
	113	0	tump.kiri	-12.22878	-7.296134	20.6603	
		1,5	lapangan	2.787653	1.703866	20.6603	
		3	tump.kanan	17.80408	10.70387	20.6603	
	114	0	tump.kiri	-22.91876	-8.564793	19.38227	
		1,5	lapangan	0.7226642	0.4352078	19.38227	
		3	tump.kanan	24.36409	9.435207	19.38227	
	115	0	tump.kiri	-24.34423	-9.427797	18.47048	
		1,5	lapangan	-0.7028034	-0.4277976	18.47048	
		3	tump.kanan	22.93863	8.572203	18.47048	
	116	0	tump.kiri	-17.7829	-10.69641	17.95135	
		1,5	lapangan	-2.766471	-1.696406	17.95135	
		3	tump.kanan	12.24996	7.303594	17.95135	
	117	0	tump.kiri	-41.31477	-28.75634	4.855501	
		3	lapangan	5.809041E-02	4.366206E-02	4.855501	
		6	tump.kanan	41.43095	28.84366	4.855501	
	118	0	tump.kiri	-41.38859	-28.73629	4.763488	
		3	lapangan	-1.573036E-02	6.371193E-02	4.763488	
		6	tump.kanan	41.35712	28.86371	4.763488	

Lanjutan Tabel 7.2.a

Portal	No.balok	Jarak (m)	Daerah Gaya Geser	VD (kNm)	VL (kNm)	VE (kNm) E KIRI	Ket.balok
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
	119	0	tump.kiri	-48.64378	-33.85154	3.256083	
		3,5	lapangan	-0.3754519	-0.2515445	3.256083	
		7	tump.kanan	47.89288	33.34846	3.256083	
	120	0	tump.kiri	-10.3191	-5.798129	23.50109	
		1,155	lapangan	-0.3027036	-0.3407543	23.50109	
		2,31	tump.kanan	9.71369	5.116621	23.50109	
	221	0	tump.kiri	-3.411251	7.105427E-15	-2.842171E-14	balok lt.2
		0,4596194	lapangan	-1.705626	7.105427E-15	-2.842171E-14	
		0,9192388	tump.kanan	8.565197E-17	7.105427E-15	-2.842171E-14	
	222	0	tump.kiri	-3.411251	-7.105427E-15	-7.105427E-15	
		0,4596194	lapangan	-1.705626	-7.105427E-15	-7.105427E-15	
		0,9192388	tump.kanan	-1.41252E-14	-7.105427E-15	-7.105427E-15	
	223	0	tump.kiri	-20.7682	-16.96113	-55.95457	
		1,442498	lapangan	-9.422303	-6.55711	-55.95457	
		2,884996	tump.kanan	1.923594	3.846905	-55.95457	
	224	0	tump.kiri	-20.63371	-16.86769	10.7758	
		1,442498	lapangan	-9.287807	-6.463677	10.7758	
		2,884996	tump.kanan	2.058091	3.940338	10.7758	
	229	0	tump.kiri	-23.08115	-17.16893	-37.29609	
		1,155	lapangan	-14.9529	-10.49881	-37.29609	
		2,31	tump.kanan	-6.824638	-3.82868	-37.29609	
	230-233	0	tump.kiri	-110.7741	-78.04361	4.806548	
		1,2125	tump.kiri	-95.08651	-63.33416	4.806548	
		2,425	lapangan	-79.39894	-48.62472	4.806548	
		0	lapangan	-44.81166	-35.35381	6.710182	
		0,5375	lapangan	-38.79585	-30.46236	6.710182	
		1,075	lapangan	-32.78004	-25.57111	6.710182	
		0	lapangan	36.5161	28.41384	5.219044	
		0,5375	lapangan	42.53191	33.30509	5.219044	
		1,075	lapangan	48.54772	38.19634	5.219044	
		0	lapangan	83.42154	51.6878	5.619988	
		1,2125	tump.kanan	99.10911	66.39725	5.619988	
		2,425	tump.kanan	114.7967	81.10669	5.619988	
	234-237	0	tump.kiri	-87.45163	-66.5406	6.554267	
		0,9625	tump.kiri	-75.69161	-56.06715	6.554267	
		1,925	lapangan	-63.93159	-45.59371	6.554267	
		0	lapangan	-29.57978	-30.85602	7.260592	
		0,5375	lapangan	-23.75747	-26.30071	7.260592	
		1,075	lapangan	-17.93516	-21.7454	7.260592	
		0	lapangan	14.74234	20.01043	7.394274	
		0,5375	lapangan	20.56465	24.56574	7.394274	
		1,075	lapangan	26.38696	29.12105	7.394274	
		0	lapangan	60.92225	44.08113	6.744688	
		0,9625	tump.kanan	72.68227	54.55458	6.744688	
		1,925	tump.kanan	84.44229	65.02802	6.744688	
	238-240	0	tump.kiri	-87.36734	-69.42578	5.852331	
		1,5	tump.kiri	-66.96104	-49.49453	5.852331	
		3	lapangan	-46.55474	-29.56328	5.852331	
		0	lapangan	17.11094	15.47743	6.352337	
		0,425	lapangan	22.89273	21.12462	6.352337	
		0,85	lapangan	28.67451	26.77181	6.352337	

Lanjutan Tabel 7.2.a

Portal	No.balok	Jarak (m)	Daerah Gaya Geser	VD (kNm)	VL (kNm)	VE (kNm) E KIRI	Ket.balok
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
		0	lapangan	74.09478	49.61111	5.841917	
		1,075	tump.kanan	85.7394	58.72174	5.841917	
		2,15	tump.kanan	97.38402	67.83236	5.841917	
		0	tump.kiri	-20.05482	-16.9226	15.83098	
	241	1,5	lapangan	-8.008394	-5.672603	15.83098	
		3	tump.kanan	4.038033	5.577397	15.83098	
		0	tump.kiri	-8.90398	-5.688749	14.5049	
	242	1,5	lapangan	-9.755194E-02	-6.374882E-02	14.5049	
		3	tump.kanan	8.708876	5.561251	14.5049	
		0	tump.kiri	-8.690366	-5.556373	13.76842	
	243	1,5	lapangan	0.1160625	6.862688E-02	13.76842	
		3	tump.kanan	8.92249	5.693627	13.76842	
		0	tump.kiri	-4.019321	-5.572174	13.62409	
	244	1,5	lapangan	8.027107	5.677826	13.62409	
		3	tump.kanan	20.07354	16.92783	13.62409	
		0	tump.kiri	-97.37504	-67.82983	4.522378	
		1,075	tump.kiri	-85.73042	-58.7192	4.522378	
		2,15	lapangan	-74.0858	-49.60857	4.522378	
		0	lapangan	-28.66597	-26.77096	5.030734	
	245-247	0,425	lapangan	-22.88418	-21.12377	5.030734	
		0,85	lapangan	-17.10239	-15.47658	5.030734	
		0	lapangan	46.56238	29.56448	4.663627	
		1,5	tump.kanan	66.96868	49.49573	4.663627	
		3	tump.kanan	87.37498	69.42698	4.663627	
		0	tump.kiri	-84.43146	-65.02558	4.734762	
		0,9625	tump.kiri	-72.67144	-54.55214	4.734762	
		1,925	lapangan	-60.91142	-44.07869	4.734762	
		0	lapangan	-26.37812	-29.11847	5.001213	
		0,5375	lapangan	-20.55581	-24.56316	5.001213	
	248-251	1,075	lapangan	-14.73351	-20.00785	5.001213	
		0	lapangan	-29.58854	-30.85872	-5.006269	
		0,5375	lapangan	-23.76624	-26.30341	-5.006269	
		1,075	lapangan	-17.94393	-21.74809	-5.006269	
		0	lapangan	63.94271	45.59656	4.773999	
		0,9625	tump.kanan	75.70273	56.07	4.773999	
		1,925	tump.kanan	87.46275	66.54344	4.773999	
		0	tump.kiri	-114.7891	-81.105	3.742372	
		1,2125	tump.kiri	-99.10156	-66.39555	3.742372	
		2,425	lapangan	-83.41399	-51.68611	3.742372	
		0	lapangan	-48.54585	-38.20084	4.02294	
		0,5375	lapangan	-42.53004	-33.30959	4.02294	
	252-255	1,075	lapangan	-36.51424	-28.41834	4.02294	
		0	lapangan	32.78481	25.56844	4.051456	
		0,5375	lapangan	38.80062	30.45969	4.051456	
		1,075	lapangan	44.81643	35.35094	4.051456	
		0	lapangan	79.39469	48.61644	3.394283	
		1,2125	tump.kanan	95.08227	63.32589	3.394283	
		2,425	tump.kanan	110.7698	78.03533	3.394283	
		0	tump.kiri	-23.24624	-17.34522	16.77328	
	256	1,155	lapangan	-15.11798	-10.6751	16.77328	
		2,31	tump.kanan	-1.345596	-4.004973	16.77328	

Lanjutan Tabel 7.2.a

Portal	No.balok	Jarak (m)	Daerah Gaya Geser	VD (kNm)	VL (kNm)	VE (kNm) E KIRI	Ket.balok
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
AS x-1	136	0	tump.kiri	-9.075902	0	5.684342E-14	balok lt.1
		0,4596194	lapangan	-4.537951	0	5.684342E-14	
		0,9192388	tump.kanan	-1.395813E-14	0	5.684342E-14	
	137	0	tump.kiri	-14.36153	7.105427E-15	1.421085E-14	
		0,4596194	lapangan	-7.180763	7.105427E-15	1.421085E-14	
		0,9192388	tump.kanan	1.091087E-14	7.105427E-15	1.421085E-14	
	148	0	tump.kiri	-42.0655	-13.02911	-16.39518	
		2,91328	lapangan	1.151637	0.7361416	-16.39518	
		5,82656	tump.kanan	44.36877	14.50139	-16.39518	
	149	0	tump.kiri	-42.01117	-13.05577	11.2744	
		2,91328	lapangan	1.205966	0.709473	11.2744	
		5,82656	tump.kanan	44.4231	14.47472	11.2744	
	161	0	tump.kiri	-31.96711	-9.737907	25.43639	
		2,275	lapangan	1.781445	1.011468	25.43639	
		4,55	tump.kanan	35.53	11.76084	25.43639	
	162	0	tump.kiri	-51.77457	-16.53202	10.95959	
		3,5	lapangan	0.1462829	5.47704E-03	10.95959	
		7	tump.kanan	52.06714	**16.54298**	10.95959	
	163	0	tump.kiri	-45.29979	-14.81171	14.39219	
		3	lapangan	-0.7962032	-0.6367142	14.39219	
		6	tump.kanan	43.70739	13.53829	14.39219	
	164	0	tump.kiri	-29.66248	-2.567912E-04	13.97989	
		3	lapangan	-0.0426349	-2.567912E-04	13.97989	
		6	tump.kanan	29.57721	-2.567912E-04	13.97989	
	165	0	tump.kiri	-44.215	-13.91047	14.43888	
		3	lapangan	0.2885918	0.2645271	14.43888	
		6	tump.kanan	44.79218	14.43953	14.43888	
	166	0	tump.kiri	-43.54696	-14.27182	4.614293	
		3	lapangan	-0.1036382	-9.682143E-02	4.614293	
		6	tump.kanan	43.33968	14.07818	4.614293	
	167	0	tump.kiri	-29.55249	-3.453074E-02	13.85341	
		3	lapangan	6.734566E-02	-3.453074E-02	13.85341	
		6	tump.kanan	29.68719	-3.453074E-02	13.85341	
	168	0	tump.kiri	-43.68108	-13.54522	12.92344	
		3	lapangan	0.8225147	0.6297792	12.92344	
		6	tump.kanan	45.3261	14.80478	12.92344	
	169	0	tump.kiri	-52.04475	-16.54781	9.523813	
		3,5	lapangan	-0.1238903	-1.030912E-02	9.523813	
		7	tump.kanan	**51.79697**	16.52719	9.523813	
	170	0	tump.kiri	-35.47435	-11.76983	**20.69556**	
		2,275	lapangan	-1.725792	-1.020458	20.69556	
		4,55	tump.kanan	32.02276	9.728917	20.69556	
	272	0	tump.kiri	-12.52305	0	0	balok lt.2
		0,4596194	lapangan	-6.261524	0	0	
		0,9192388	tump.kanan	-1.395813E-14	0	0	
	273	0	tump.kiri	-21.25582	-1.421085E-14	0	
		0,4596194	lapangan	-10.62791	-1.421085E-14	0	
		0,9192388	tump.kanan	-1.92872E-14	-1.421085E-14	0	
	284	0	tump.kiri	-54.31083	-13.93697	-25.12212	
		2,91328	lapangan	-0.1688865	-0.1717192	-25.12212	
		5,82656	tump.kanan	53.97305	13.59353	-25.12212	

Lanjutan Tabel 7.2.a

Portal	No.balok	Jarak (m)	Daerah Gaya Geser	VD (kNm)	VL (kNm)	VE (kNm) E KIRI	Ket.balok
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
	285	0	tump.kiri	-54.14439	-13.95204	15.13751	
		2,91328	lapangan	-2.45736E-03	-0.1867898	15.13751	
		5,82656	tump.kanan	54.13948	13.57846	15.13751	
	297	0	tump.kiri	-41.58797	-10.41646	39.67037	
		2,275	lapangan	0.6918356	0.3329184	39.67037	
		4,55	tump.kanan	42.97164	11.08229	39.67037	
	298	0	tump.kiri	-64.77068	-16.47305	15.62372	
		3,5	lapangan	0.2751806	6.444506E-02	15.62372	
		7	tump.kanan	65.32104	16.60195	15.62372	
	299	0	tump.kiri	-56.49396	-14.78162	19.49819	
		3	lapangan	-0.740369	-0.6066179	19.49819	
		6	tump.kanan	55.01322	13.56838	19.49819	
	300	0	tump.kiri	-41.03567	5.873225E-03	18.37319	
		3	lapangan	-0.1658279	5.873225E-03	18.37319	
		6	tump.kanan	40.70401	5.873225E-03	18.37319	
	301	0	tump.kiri	-55.4972	-14.08951	17.35739	
		3	lapangan	0.2563843	8.549162E-02	17.35739	
		6	tump.kanan	56.00998	14.26049	17.35739	
	302	0	tump.kiri	-55.9573	-14.25723	16.60491	
		3	lapangan	-0.2037086	-8.222485E-02	16.60491	
		6	tump.kanan	55.54988	14.09278	16.60491	
	303	0	tump.kiri	-40.6724	-5.549517E-03	16.15707	
		3	lapangan	0.1974425	-5.549517E-03	16.15707	
		6	tump.kanan	41.06728	-5.549517E-03	16.15707	
	304	0	tump.kiri	-54.97567	-13.57406	15.99816	
		3	lapangan	0.7779253	0.6009423	15.99816	
		6	tump.kanan	56.53152	14.77594	15.99816	
	305	0	tump.kiri	-65.29061	-16.60585	11.73272	
		3,5	lapangan	-0.2447595	-0.0683526	11.73272	
		7	tump.kanan	64.80109	16.46915	11.73272	
	306	0	tump.kiri	-42.90009	-11.08907	24.7263	
		2,275	lapangan	0.6202878	0.3396959	24.7263	
		4,55	tump.kanan	41.65952	10.40968	24.7263	
	343	0	tump.kiri	-8.809323	-4.780042	0	balok lt.3
		0,4596194	lapangan	-4.404662	-2.390021	0	(tribun)
		0,9192388	tump.kanan	2.734217E-14	1.871116E-14	0	
	344	0	tump.kiri	-8.809323	-4.780042	-4.263256E-14	
		0,4596194	lapangan	-4.404662	-2.390021	-4.263256E-14	
		0,9192388	tump.kanan	8.418559E-14	1.871116E-14	-4.263256E-14	
	345	0	tump.kiri	-33.25186	-51.69513	-42.71707	
		2,91328	lapangan	10.16959	7.61634	-42.71707	
		5,82656	tump.kanan	53.59103	66.9278	-42.71707	
	346	0	tump.kiri	-33.3067	-51.681	10.64488	
		2,91328	lapangan	10.11475	7.630465	10.64488	
		5,82656	tump.kanan	53.53619	66.94193	10.64488	
	347	0	tump.kiri	-22.54769	-37.11081	25.32032	
		2,275	lapangan	6.707172	5.573884	25.32032	
		4,55	tump.kanan	39.24203	48.25857	25.32032	
		0	tump.kiri	-82.54169	-46.42552	13.09608	
		1,2125	tump.kiri	-68.80493	-36.44483	13.09608	
		2,425	lapangan	-55.06818	-26.46413	13.09608	
		0	lapangan	-9.058986	-4.530011	11.19244	

Lanjutan Tabel 7.2.a

Portal	No.balok	Jarak (m)	Daerah Gaya Geser	VD (kNm)	VL (kNm)	VE (kNm) E KIRI	Ket.balok
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
	348-350	1,075	lapangan	1.24304	1.059989	11.19244	
		2,15	lapangan	11.54507	6.649989	11.19244	
		0	lapangan	-84.74123	-48.32515	-10.7915	
		1,2125	tump.kanan	-71.00447	-38.34446	-10.7915	
		2,425	tump.kanan	-57.26772	-28.36376	-10.7915	
	351-352	0	tump.kiri	19.83593	22.29183	-15.17776	
		1,5	lapangan	37.45085	35.71683	-15.17776	
		3	lapangan	55.06577	49.14183	-15.17776	
		0	lapangan	-54.77509	-49.90089	-15.04407	
		1,5	lapangan	-37.16018	-36.47589	-15.04407	
		3	tump.kanan	-19.54526	-23.05089	-15.04407	
	353-354	0	tump.kiri	6.266612	0.2495147	-14.57789	
		1,925	lapangan	30.05053	19.52358	-14.57789	
		3,85	lapangan	53.83444	38.79764	-14.57789	
		0	lapangan	-73.39872	-43.97941	-15.08831	
		1,075	lapangan	-63.09669	-38.38941	-15.08831	
		2,15	tump.kanan	-52.79467	-32.79941	-15.08831	
	355-356	0	tump.kiri	-60.10647	-44.17098	14.62813	
		1,5	lapangan	-42.49155	-30.74598	14.62813	
		3	lapangan	-24.87663	-17.32098	14.62813	
		0	lapangan	23.85574	16.84542	14.42626	
		1,5	lapangan	41.47066	30.27042	14.42626	
		3	tump.kanan	59.08558	43.69542	14.42626	
	357-358	0	tump.kiri	-59.0552	-43.69747	14.2566	
		1,5	lapangan	-41.44028	-30.27247	14.2566	
		3	lapangan	-23.82536	-16.84747	14.2566	
		0	lapangan	24.90703	17.31858	14.34581	
		1,5	lapangan	42.52195	30.74358	14.34581	
		3	tump.kanan	60.13687	44.16858	14.34581	
	359-360	0	tump.kiri	-73.37228	-43.98151	14.16426	
		1,075	lapangan	-63.07026	-38.39151	14.16426	
		2,15	lapangan	-52.76823	-32.80151	14.16426	
		0	lapangan	6.293489	0.2491028	13.65591	
		1,925	lapangan	30.0774	19.52316	13.65591	
		3,85	tump.kanan	53.86132	38.79723	13.65591	
	361-362	0	tump.kiri	-54.74862	-49.90304	13.72747	
		1,5	lapangan	-37.1337	-36.47804	13.72747	
		3	lapangan	-19.51878	-23.05304	13.72747	
		0	lapangan	19.86248	22.28956	13.72241	
		1,5	lapangan	37.4774	35.71456	13.72241	
		3	tump.kanan	55.09232	49.13956	13.72241	
	363-365	0	tump.kiri	-84.72872	-48.33345	10.83243	
		1,2125	tump.kiri	-70.99197	-38.35276	10.83243	
		2,425	lapangan	-57.25522	-28.37206	10.83243	
		0	lapangan	-11.52689	-6.652098	10.55186	
		1,075	lapangan	-1.224863	-1.062098	10.55186	
		2,15	lapangan	9.077164	4.527902	10.55186	
		0	lapangan	55.09536	26.46762	11.20904	
		1,2125	tump.kanan	68.83212	36.44832	11.20904	
		2,425	tump.kanan	82.56887	46.42901	11.20904	

Lanjutan Tabel 7.2.a

Portal	No.balok	Jarak (m)	Daerah Gaya Geser	VD (kNm)	VL (kNm)	VE (kNm) E KIRI	Ket.balok
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
	366	0	tump.kiri	-39.20817	-48.26797	20.30462	
		2,275	lapangan	-9.953307	-5.58328	20.30462	
		4,55	tump.kanan	22.58155	37.10141	20.30462	
	380	0	tump.kiri	-3.465398	0	-1.136868E-13	balok atap
		0,4596194	lapangan	-1.732699	0	-1.136868E-13	
		0,9192388	tump.kanan	2.44493E-14	0	-1.136868E-13	
	381	0	tump.kiri	-3.465398	-2.842171E-14	4.263256E-14	
		0,4596194	lapangan	-1.732699	-2.842171E-14	4.263256E-14	
		0,9192388	tump.kanan	5.287101E-14	-2.842171E-14	4.263256E-14	
	382	0	tump.kiri	-7.943805	2.481352	-14.89816	
		2,91328	lapangan	3.038841	2.481352	-14.89816	
		5,82656	tump.kanan	14.02149	2.481352	-14.89816	
	383	0	tump.kiri	-7.957198	2.484779	2.275608	
		2,91328	lapangan	3.025448	2.484779	2.275608	
		5,82656	tump.kanan	14.00809	2.484779	2.275608	
	384	0	tump.kiri	-7.310082	1.37997	3.680345	
		2,275	lapangan	1.26634	1.37997	3.680345	
		4,55	tump.kanan	9.842762	1.37997	3.680345	
	385	0	tump.kiri	-12.72265	0.3720334	1.836962	
		3,5	lapangan	0.4718456	0.3720334	1.836962	
		7	tump.kanan	13.66634	0.3720334	1.836962	
	386	0	tump.kiri	-10.69232	0.4270723	2.987263	
		3	lapangan	0.6172514	0.4270723	2.987263	
		6	tump.kanan	11.92682	0.4270723	2.987263	
	387	0	tump.kiri	-11.12607	0.2575369	3.344918	
		3	lapangan	0.1835008	0.2575369	3.344918	
		6	tump.kanan	11.49307	0.2575369	3.344918	
	388	0	tump.kiri	-11.28597	-7.007175E-02	3.479064	
		3	lapangan	2.359687E-02	-7.007175E-02	3.479064	
		6	tump.kanan	11.33317	-7.007175E-02	3.479064	
	389	0	tump.kiri	-11.3263	6.934439E-02	3.558793	
		3	lapangan	-1.673226E-02	6.934439E-02	3.558793	
		6	tump.kanan	11.29284	6.934439E-02	3.558793	
	390	0	tump.kiri	-11.48796	-0.2578874	3.553324	
		3	lapangan	-0.1783883	-0.2578874	3.553324	
		6	tump.kanan	11.13118	-0.2578874	3.553324	
	391	0	tump.kiri	-11.92171	-0.42777	3.558337	
		3	lapangan	-0.6121471	-0.42777	3.558337	
		6	tump.kanan	10.69742	-0.42777	3.558337	
	392	0	tump.kiri	-13.66335	-0.3727341	2.730874	
		3,5	lapangan	-0.4688547	-0.3727341	2.730874	
		7	tump.kanan	12.72564	-0.3727341	2.730874	
	393	0	tump.kiri	-9.838492	-1.38137	5.873946	
		2,275	lapangan	-1.26207	-1.38137	5.873946	
		4,55	tump.kanan	7.314352	-1.38137	5.873946	
AS y-4 & AS y-18	58 & 87	0	tump.kiri	25.35775	9.728331	-6.078858	balok lt.1
		1,557524	lapangan	10.98598	3.030977	-6.078858	
		3,115048	lapangan	-3.385796	-3.666376	-6.078858	
		0	lapangan	-6.624647	-1.47467	-3.501126	
		1,557524	lapangan	-20.99642	-8.172024	-3.501126	
		3,115048	tump.kanan	-35.36819	-14.86938	-3.501126	

Lanjutan Tabel 7.2.a

Portal	No.balok	Jarak (m)	Daerah Gaya Geser	VD (kNm)	VL (kNm)	VE (kNm) E KIRI	Ket.balok
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
	105&121	0	tump.kiri	**53.917**	**32.81177**	**-7.685513**	
		1,509776	lapangan	34.99223	21.56393	-7.685513	
		3,019553	lapangan	16.06745	10.3161	-7.685513	
		0	lapangan	-14.02255	-9.774217	-6.753522	
		1,509776	lapangan	-32.94733	-21.02205	-6.753522	
		3,019553	tump.kanan	-51.8721	-32.26989	-6.753522	
	225&257	0	tump.kiri	35.3456	16.66193	-1.427787	balok lt.2
		1,509776	lapangan	21.41441	10.16989	**-1.427787**	
		3,019553	lapangan	7.483224	3.677855	-1.427787	
		0	lapangan	-11.88854	-6.169176	-0.7307987	
		1,509776	lapangan	-30.81331	-17.41701	-0.7307987	
		3,019553	tump.kanan	**-49.73809**	**-28.66485**	-0.7307987	
	171	0	tump.kiri	37.76727	29.16458	**-0.7538462**	balok tribun
		0,4787761	lapangan	-5.794745	-2.003817	-0.7538462	
		0,9575522	tump.kanan	-43.12196	-33.17221	-0.7538462	
	307	0	tump.kiri	**59.74958**	**47.53861**	-0.4209328	
		3,765661	lapangan	3.199844	0.6691108	-0.4209328	
		7,531321	tump.kanan	-58.95493	-46.20039	-0.4209328	
AS y-5 & AS y-17	60&91	0	tump.kiri	13.79016	-0.0215596	-5.891214	balok lt.1
		1,724567	lapangan	5.663454	-0.0215596	-5.891214	
		3,449134	lapangan	-2.463258	-0.0215596	-5.891214	
		0	lapangan	-12.56686	-8.90803	-6.083704	
		1,724567	lapangan	-20.69357	-8.90803	-6.083704	
		3,449134	tump.kanan	-28.82028	-8.90803	-6.083704	
	123&150	0	tump.kiri	**63.77878**	**39.74661**	**-7.593316**	
		1,671594	lapangan	44.84411	29.21557	-7.593316	
		3,343187	lapangan	25.90943	18.68453	-7.593316	
		0	lapangan	-17.91875	-13.95326	-7.605319	
		1,671594	lapangan	-36.85343	-24.4843	-7.605319	
		3,343187	tump.kanan	-55.7881	-35.01534	-7.605319	
	259&286	0	tump.kiri	29.57178	8.440708	-1.592691	balok lt.2
		1,671594	lapangan	21.6947	8.440708	-1.592691	
		3,343187	lapangan	13.81762	8.440708	-1.592691	
		0	lapangan	-9.696173	-5.340088	-1.806064	
		1,671594	lapangan	-28.63085	-15.87113	-1.806064	
		3,343187	tump.kanan	**-47.56552**	**-26.40217**	**-1.806064**	
	173	0	tump.kiri	46.65489	30.64025	-1.197147	balok tribun
		3,761187	lapangan	-8.552548	-2.957762	-1.197147	
		7,522373	tump.kanan	-52.33375	-36.55577	**-1.197147**	
	311	0	tump.kiri	86.5797	**66.35839**	-0.9610982	
		4,029814	lapangan	5.527392	1.316685	-0.9610982	
		8,059628	tump.kanan	**-85.8536**	-63.72502	-0.9610982	
AS y-6 & AS y-16	61&92	0	tump.kiri	24.46708	5.678571	-6.087328	balok lt.1
		1,625	lapangan	16.80956	5.678571	-6.087328	
		3,25	lapangan	9.152035	5.678571	-6.087328	
		0	lapangan	-26.93041	-16.16234	-8.399841	
		1,625	lapangan	-40.13324	-21.44359	-8.399841	
		3,25	tump.kanan	-53.33608	-26.72484	-8.399841	

Lanjutan Tabel 7.2.a

Portal	No.balok	Jarak (m)	Daerah Gaya Geser	VD (kNm)	VL (kNm)	VE (kNm) E KIRI	Ket.balok
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
	124&151	0	tump.kiri	**72.67152**	**46.53918**	-8.597744	
		1,575	lapangan	54.831	36.61668	-8.597744	
		3,15	lapangan	36.99047	26.69418	-8.597744	
		0	lapangan	-34.55776	-26.33415	-9.547781	
		1,575	lapangan	-52.39829	-36.25665	-9.547781	
		3,15	tump.kanan	-70.23882	-46.17915	**-9.547781**	
	260&287	0	tump.kiri	-54.9239	-37.84619	**7.078583**	balok lt.2
		1,575	lapangan	-54.9239	-37.84619	7.078583	
		3,15	lapangan	-54.9239	-37.84619	7.078583	
		0	lapangan	-33.53448	-23.02247	-0.2716094	
		1,575	lapangan	-51.37501	-32.94497	-0.2716094	
		3,15	tump.kanan	**-69.21554**	**-42.86747**	-0.2716094	
	174	0	tump.kiri	45.70077	28.77094	-2.501769	balok tribun
		3,579455	lapangan	-15.3203	-6.633747	-2.501769	
		7,158911	tump.kanan	-63.68442	-42.03843	-2.501769	
	312	0	tump.kiri	**64.44299**	**43.08738**	**-2.82156**	
		3,871046	lapangan	5.437391	1.890106	-2.82156	
		7,742093	tump.kanan	-60.37917	-39.30717	-2.82156	
AS y-7 & AS y-15	62&93	0	tump.kiri	37.22292	14.77982	-6.611498	balok lt.1
		1,625	lapangan	29.5654	14.77982	-6.611498	
		3,25	lapangan	21.90788	14.77982	-6.611498	
		0	lapangan	-31.94279	-18.29235	-6.675981	
		1,625	lapangan	-50.69094	-28.85485	-6.675981	
		3,25	tump.kanan	-69.43909	-39.41735	-6.675981	
	125&152	0	tump.kiri	**79.56276**	**51.96867**	**-6.685002**	
		1,575	lapangan	61.72223	42.04617	-6.685002	
		3,15	lapangan	43.88171	32.12367	-6.685002	
		0	lapangan	-42.25117	-32.00451	-6.632744	
		1,575	lapangan	-60.09171	-41.92701	-6.632744	
		3,15	tump.kanan	-77.93224	-51.84951	-6.632744	
	261&288	0	tump.kiri	75.64695	49.44134	0.6536704	balok lt.2
		1,575	lapangan	57.80642	39.51884	0.6536704	
		3,15	lapangan	39.9659	29.59634	0.6536704	
		0	lapangan	-46.5608	-34.84381	0.6564525	
		1,575	lapangan	-64.40133	-44.76632	0.6564525	
		3,15	tump.kanan	**-82.24186**	**-54.68882**	**0.6564525**	
	176	0	tump.kiri	44.33661	26.9412	-2.753559	balok tribun
		3,579455	lapangan	-13.66345	-6.118611	-2.753559	
		7,158911	tump.kanan	**-59.84187**	**-39.17842**	-2.753559	
	315	0	tump.kiri	53.64757	33.44188	**-3.395229**	
		3,871046	lapangan	4.455698	1.399291	-3.395229	
		7,742093	tump.kanan	-50.03358	-30.6433	-3.395229	
AS y-8 & AS y-14	63&94	0	tump.kiri	34.61713	13.50611	-6.743787	balok lt.1
		1,625	lapangan	26.95961	13.50611	-6.743787	
		3,25	lapangan	19.30209	13.50611	-6.743787	
		0	lapangan	-28.15407	-15.67974	-6.739481	
		1,625	lapangan	-46.90221	-26.24224	-6.739481	
		3,25	tump.kanan	**-65.65035**	-36.80474	-6.739481	

Lanjutan Tabel 7.2.a

Portal	No.balok	Jarak (m)	Daerah Gaya Geser	VD (kNm)	VL (kNm)	VE (kNm) E KIRI	Ket.balok
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
	126&153	0	tump.kiri	63.97073	**38.22548**	-6.784251	
		1,575	lapangan	46.1302	28.30298	-6.784251	
		3,15	lapangan	28.28967	18.38048	-6.784251	
		0	lapangan	-31.08287	-22.25717	-6.792859	
		1,575	lapangan	-43.71409	-27.21842	**-6.792859**	
		3,15	tump.kanan	-56.34531	-32.17967	-6.792859	
	262&289	0	tump.kiri	60.476	35.47753	0.6983298	balok lt.2
		1,575	lapangan	42.63547	25.55503	**0.6983298**	
		3,15	lapangan	24.79494	15.63253	0.6983298	
		0	lapangan	-35.51173	-25.79141	0.667949	
		1,575	lapangan	-48.14294	-30.75266	0.667949	
		3,15	tump.kanan	**-60.77416**	**-35.71391**	0.667949	
	179	0	tump.kiri	41.35737	24.34534	-2.78574	balok tribun
		3,579455	lapangan	-12.70858	-5.667598	-2.78574	
		7,158911	tump.kanan	-56.04245	-35.68053	-2.78574	
	317	0	tump.kiri	**64.1553**	**42.6482**	**-3.662958**	
		3,871046	lapangan	5.941125	2.190391	-3.662958	
		7,742093	tump.kanan	-58.96194	-38.26742	-3.662958	
AS y-9 & AS y-13	64&95	0	tump.kiri	28.98347	8.487371	**-6.176648**	balok lt.1
		1,625	lapangan	21.32595	8.487371	-6.176648	
		3,25	lapangan	13.66843	8.487371	-6.176648	
		0	lapangan	-19.85109	-15.67974	-6.14956	
		1,625	lapangan	-41.37189	-26.24224	-6.14956	
		3,25	tump.kanan	-62.89269	-36.80474	-6.14956	
	127&154	0	tump.kiri	**65.03073**	**38.92461**	-6.082697	
		1,575	lapangan	47.1902	29.00212	-6.082697	
		3,15	lapangan	29.34967	19.07961	-6.082697	
		0	lapangan	-31.54357	-22.67212	-6.120725	
		1,575	lapangan	-44.17479	-27.63337	-6.120725	
		3,15	tump.kanan	-56.806	-32.59462	-6.120725	
	263&290	0	tump.kiri	45.34177	21.99288	**0.9220496**	balok lt.2
		1,575	lapangan	32.71056	17.03163	0.9220496	
		3,15	lapangan	20.07934	12.07038	0.9220496	
		0	lapangan	-26.32495	-15.94141	0.8701102	
		1,575	lapangan	-38.95617	-20.90266	0.8701102	
		3,15	tump.kanan	**-51.58739**	**-25.86391**	0.8701102	
	181	0	tump.kiri	49.85776	31.93847	-2.552178	balok tribun
		3,579455	lapangan	-12.66651	-4.624033	-2.552178	
		7,158911	tump.kanan	**-62.11617**	**-41.18653**	-2.552178	
	319	0	tump.kiri	53.09234	33.0762	-3.915384	
		3,871046	lapangan	5.641613	2.659013	**-3.915384**	
		7,742093	tump.kanan	-46.83799	-27.75817	-3.915384	
AS y-10 & AS y-12	65&96	0	tump.kiri	20.85588	28.09691	**-6.170609**	balok lt.1
		1,625	lapangan	65.94785	22.81566	-6.170609	
		3,25	lapangan	43.40127	17.53441	-6.170609	
		0	lapangan	-25.9357	-16.98655	-6.210238	
		1,625	lapangan	-56.80025	-30.18967	-6.210238	
		3,25	tump.kanan	**-87.6648**	**-43.3928**	-6.210238	
	182	0	tump.kiri	28.82673	15.64542	-1.005934	balok tribun
		3,579455	lapangan	-3.966909	-2.635829	-1.005934	
		7,158911	tump.kanan	-43.29786	-20.91708	**-1.005934**	

Lanjutan Tabel 7.2.a

Portal	No.balok	Jarak (m)	Daerah Gaya Geser	VD (kNm)	VL (kNm)	VE (kNm) E KIRI	Ket.balok
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
	320	0	tump.kiri	**-91.18372**	**41.19758**	-0.650891	
		3,871046	lapangan	49.96722	5.76008	-0.650891	
		7,742093	tump.kanan	-29.37666	-29.67742	-0.650891	
AS y-11	128&155	0	tump.kiri	73.59913	48.13729	**-9.217155**	balok lt.1
		1,575	lapangan	55.7586	38.21479	-9.217155	
		3,15	lapangan	37.91808	28.29229	-9.217155	
		0	lapangan	-40.26345	-30.11276	-9.16815	
		1,575	lapangan	-58.10398	-40.03526	-9.16815	
		3,15	tump.kanan	**-75.94451**	**-49.95776**	-9.16815	
	264&291	0	tump.kiri	32.25357	11.15178	**-3.952595**	balok lt.2
		1,575	lapangan	24.83167	11.15178	-3.952595	
		3,15	lapangan	17.40977	11.15178	-3.952595	
		0	lapangan	-28.16958	-16.36912	-3.928049	
		1,575	lapangan	-46.01011	-26.29162	-3.928049	
		3,15	tump.kanan	**-63.85064**	**-36.21412**	-3.928049	
	321	0	tump.kiri	**56.14471**	**36.38419**	**-4.504764**	balok tribun
		3,871046	lapangan	3.312263	0.9466903	-4.504764	
		7,742093	tump.kanan	-55.37907	-34.49081	-4.504764	

Keterangan Tabel 7.2.a :

[1] Portal yg ditinjau

[2] Nomor elemen balok

[3] Jarak elemen balok (m)

[4] Letak/daerah gaya geser

[5] VD = gaya geser yg terjadi akibat beban mati

[6] VL = gaya geser yg terjadi akibat beban hidup

[7] VEkiri = gaya geser yg terjadi akibat beban gempa kiri

[8] Keterangan balok

Tabel 7.2.b Gaya Geser Rencana Balok Portal B

Portal	No.balok	Jarak (m)	Daerah Gaya Geser	VD (kNm)	VL (kNm)	VE (kNm) E KIRI	Ket.balok
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
AS y-3	33	0	tump.kiri	-7.942974	-4.780042	-1.421085E-14	balok lt.1
		0.46	lapangan	-3.971487	-2.390021	-1.421085E-14	
		0.919	tump.kanan	-3.343549E-14	-2.478725E-14	-1.421085E-14	
	34	0	tump.kiri	-7.942974	-4.780042	0	
		0.46	lapangan	-3.971487	-2.390021	0	
		0.919	tump.kanan	-2.988278E-14	-1.057639E-14	0	
	35	0	tump.kiri	-22.99844	-19.83693	-26.92402	
		2	lapangan	3.106202	0.5630675	-26.92402	
		4	tump.kanan	29.21084	20.96307	-26.92402	
	36	0	tump.kiri	-19.95703	-17.49469	12.88754	
		2	lapangan	3.084599	2.905314	12.88754	
		4	tump.kanan	26.12623	23.30531	12.88754	
	37-38	0	tump.kiri	-45.13128	-43.58716	5.925374	
		1.5	lapangan	-28.93005	-30.16216	5.925374	
		3	lapangan	-12.72883	-16.73716	5.925374	
		0	lapangan	14.70347	17.75938	5.940436	
		1.5	lapangan	30.9047	31.18438	5.940436	
		3	tump.kanan	47.10592	44.60938	5.940436	
	39	0	tump.kiri	-41.24067	-30.21004	4.792409	
		3	lapangan	3.803394E-02	1.495556E-02	4.792409	
		6	tump.kanan	41.31673	30.23996	4.792409	
	40-41	0	tump.kiri	-46.95325	-44.54104	3.901817	
		1.5	lapangan	-30.75203	-31.11604	3.901817	
		3	lapangan	-14.5508	-17.69104	3.901817	
		0	lapangan	13.29854	17.07228	3.846867	
		1.5	lapangan	29.49977	30.49728	3.846867	
		3	tump.kanan	45.70099	43.92228	3.846867	
	42	0	tump.kiri	-25.86981	-23.12374	6.398625	
		2	lapangan	-2.82818	-2.723736	6.398625	
		4	tump.kanan	20.21345	17.67626	6.398625	
	43	0	tump.kiri	-25.31564	-20.91629	-5.983704	
		2	lapangan	-2.274004	-0.5162888	-5.983704	
		4	tump.kanan	20.76763	19.88371	-5.983704	
AS y-2	71	0	tump.kiri	-3.411251	0	-4.263256E-14	balok lt.1
		0.46	lapangan	-1.705626	0	-4.263256E-14	
		0.919	tump.kanan	8.565197E-17	0	-4.263256E-14	
	72	0	tump.kiri	-3.411251	3.552714E-15	0	
		0.46	lapangan	-1.705626	3.552714E-15	0	
		0.919	tump.kanan	-1.41252E-14	3.552714E-15	0	
	83	0	tump.kiri	-18.77007	-12.41225	-32.53319	
		1.442	lapangan	-4.815966	-5.596447	-32.53319	
		2.885	tump.kanan	9.138138	1.219355	-32.53319	
	84	0	tump.kiri	-14.61781	-10.13231	9.911052	
		1.442	lapangan	-2.108176	-3.316505	9.911052	
		2.885	tump.kanan	10.40146	3.499297	9.911052	
	89	0	tump.kiri	-11.42106	-5.729212	-28.40435	
		1.155	lapangan	-1.404664	-0.2718375	-28.40435	
		2.31	tump.kanan	8.61173	5.185537	-28.40435	
	90	0	tump.kiri	-25.77164	-17.96727	10.21632	
		2	lapangan	1.810266	1.232733	10.21632	
		4	tump.kanan	29.39217	20.43273	10.21632	

Lanjutan Tabel 7.2.b

Portal	No.balok	Jarak (m)	Daerah Gaya Geser	VD (kNm)	VL (kNm)	VE (kNm) E KIRI	Ket.balok
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
	91	0	tump.kiri	-23.13609	-16.53735	9.860875	
		2	lapangan	4.445818	2.662652	9.860875	
		4	tump.kanan	32.02772	21.86265	9.860875	
	92	0	tump.kiri	-39.13988	-27.57741	4.36458	
		3	lapangan	2.232975	1.222589	4.36458	
		6	tump.kanan	43.60583	30.02259	4.36458	
	93	0	tump.kiri	-58.35489	-28.63545	4.114353	
		3	lapangan	0.2679683	0.1645479	4.114353	
		6	tump.kanan	58.89082	28.96455	4.114353	
	94	0	tump.kiri	-42.13205	-29.22025	3.734257	
		3	lapangan	-0.7591943	-0.4202543	3.734257	
		6	tump.kanan	40.61366	28.37975	3.734257	
	95	0	tump.kiri	-27.3335	-19.02687	7.371873	
		2	lapangan	0.2484071	0.1731325	7.371873	
		4	tump.kanan	27.83031	19.37313	7.371873	
	96	0	tump.kiri	-27.69962	-19.36841	6.880929	
		2	lapangan	-0.1177199	-0.188407	6.880929	
		4	tump.kanan	27.46418	19.03159	6.880929	
	97	0	tump.kiri	-9.443822	-4.695105	17.81564	
		1.155	lapangan	0.5725712	0.7622699	17.81564	
		2.31	tump.kanan	10.58896	6.219645	17.81564	
	183	0	tump.kiri	-3.411251	0	-5.684342E-14	balok lt.2
		0.46	lapangan	-1.705626	0	-5.684342E-14	
		0.919	tump.kanan	8.565197E-17	0	-5.684342E-14	
	184	0	tump.kiri	-3.411251	2.131628E-14	1.421085E-14	
		0.46	lapangan	-1.705626	2.131628E-14	1.421085E-14	
		0.919	tump.kanan	-1.41252E-14	2.131628E-14	1.421085E-14	
	185	0	tump.kiri	-21.79558	-15.55952	-30.60007	
		1.442	lapangan	-10.44968	-5.155505	-30.60007	
		2.885	tump.kanan	0.8962159	5.248511	-30.60007	
	186	0	tump.kiri	-20.936	-14.91313	7.935119	
		1.442	lapangan	-9.590103	-4.509111	7.935119	
		2.885	tump.kanan	1.755794	5.894905	7.935119	
	191	0	tump.kiri	-12.48198	-6.99341	19.15291	
		1.155	lapangan	-4.353726	-0.3232847	19.15291	
		2.31	tump.kanan	3.774531	6.34684	19.15291	
	192	0	tump.kiri	-18.45875	-19.50673	7.630729	
		2	lapangan	0.4831566	0.4932686	7.630729	
		4	tump.kanan	19.42506	20.49327	7.630729	
	193	0	tump.kiri	-14.5564	-16.53302	7.564832	
		2	lapangan	4.385503	3.466978	7.564832	
		4	tump.kanan	23.32741	23.46698	7.564832	
	194-197	0	tump.kiri	-74.0938	-63.00675	4.070688	
		0.9625	lapangan	-62.33377	-52.53331	4.070688	
		1.925	tump.kanan	-50.57376	-42.05986	4.070688	
		0	tump.kiri	-34.53974	-31.50481	4.161977	
		0.5375	tump.kiri	-28.71743	-26.9495	4.161977	
		1.075	lapangan	-22.89512	-22.39419	4.161977	
		0	lapangan	16.30337	23.64702	4.146914	
		0.5375	lapangan	22.12567	28.20233	4.146914	
		1.075	lapangan	27.94798	32.75764	4.146914	
		0	lapangan	59.60339	42.83677	4.118202	
		0.9625	lapangan	71.36341	53.31021	4.118202	

Lanjutan Tabel 7.2.b

Portal	No.balok	Jarak (m)	Daerah Gaya Geser	VD (kNm)	VL (kNm)	VE (kNm) E KIRI	Ket.balok
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
		1.925	lapangan	83.12343	63.78366	4.118202	
	198-199	0	lapangan	-46.99113	-32.05113	3.652115	
		1.5	tump.kanan	-38.18471	-26.42613	3.652115	
		3	tump.kanan	-29.37828	-20.80113	3.652115	
		0	tump.kiri	29.51088	20.89408	3.66229	
		1.5	tump.kiri	38.31731	26.51908	3.66229	
		3	lapangan	47.12374	32.14408	3.66229	
	200-203	0	lapangan	-82.69428	-63.55725	3.638422	
		0.9625	lapangan	-70.93427	-53.0838	3.638422	
		1.925	lapangan	-59.17425	-42.61036	3.638422	
		0	lapangan	-27.33598	-32.41171	3.702867	
		0.5375	lapangan	-21.51367	-27.85639	3.702867	
		1.075	lapangan	-15.69136	-23.30108	3.702867	
		0	lapangan	23.09008	22.47334	3.757817	
		0.5375	tump.kanan	28.91239	27.02865	3.757817	
		1.075	tump.kanan	34.7347	31.58397	3.757817	
		0	tump.kiri	-74.38612	-63.16977	-3.68203	
		0.9625	tump.kiri	-62.62611	-52.69632	-3.68203	
		1.925	lapangan	-50.86609	-42.22288	-3.68203	
	204	0	lapangan	-23.38531	-23.47239	5.670221	
		2	lapangan	-4.443402	-3.472389	5.670221	
		4	lapangan	14.4985	16.52761	5.670221	
	205	0	lapangan	-19.13762	-20.39124	5.218057	
		2	tump.kanan	-0.1957144	-0.3912453	5.218057	
		4	tump.kanan	18.74619	19.60876	5.218057	
	206	0	tump.kiri	-1.687073	-5.227997	12.2296	
		1.155	lapangan	6.441185	1.442128	12.2296	
		2.31	tump.kanan	14.56944	8.112253	12.2296	
AS y-1	112	0	tump.kiri	-9.075902	0	2.842171E-14	balok lt.1
		0.46	lapangan	-4.537951	0	2.842171E-14	
		0.919	tump.kanan	1.446358E-14	0	2.842171E-14	
	113	0	tump.kiri	-9.075902	0	0	
		0.46	lapangan	-4.537951	0	0	
		0.919	tump.kanan	1.446358E-14	0	0	
	124	0	tump.kiri	-42.66862	-13.30755	-12.02055	
		2.913	lapangan	0.548519	0.4576999	-12.02055	
		5.827	tump.kanan	43.76566	14.22295	-12.02055	
	125	0	tump.kiri	-42.2746	-13.09338	7.1584	
		2.913	lapangan	0.9425417	0.6718654	7.1584	
		5.827	tump.kanan	44.15968	14.43711	7.1584	
	136	0	tump.kiri	-32.63354	-9.910715	17.328	
		2.275	lapangan	1.115013	0.8386602	17.328	
		4.55	tump.kanan	34.86357	11.58804	17.328	
	137	0	tump.kiri	-28.29979	-8.652983	19.52265	
		2	lapangan	1.369269	0.7970177	19.52265	
		4	tump.kanan	31.03833	10.24702	19.52265	
	138	0	tump.kiri	-22.81822	-5.222589	19.13095	
		2	lapangan	6.850842	4.227411	19.13095	
		4	tump.kanan	36.5199	13.67741	19.13095	
	139	0	tump.kiri	-41.85663	-12.8606	9.346087	
		3	lapangan	2.646956	1.314404	9.346087	
		6	tump.kanan	47.15055	15.4894	9.346087	
		0	tump.kiri	-30.70594	-0.5942744	9.14926	

Lanjutan Tabel 7.2.b

Portal	No.balok	Jarak (m)	Daerah Gaya Geser	VD (kNm)	VL (kNm)	VE (kNm) E KIRI	Ket.balok
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
	140	3	lapangan	-1.086098	-0.5942744	9.14926	
		6	tump.kanan	28.53374	-0.5942744	9.14926	
	141	0	tump.kiri	-45.74548	-14.68943	8.707081	
		3	lapangan	-1.24189	-0.5144275	8.707081	
		6	tump.kanan	43.2617	13.66057	8.707081	
	142	0	tump.kiri	-29.8982	-9.610049	17.00458	
		2	lapangan	-0.2291387	-0.1600488	17.00458	
		4	tump.kanan	29.43992	9.289951	17.00458	
	143	0	tump.kiri	-28.96929	-8.891555	16.68151	
		2	lapangan	0.699771	0.5584452	16.68151	
		4	tump.kanan	30.36883	10.00844	16.68151	
	144	0	tump.kiri	-34.09862	-11.12651	13.83	
		2.275	lapangan	-0.3500654	-0.3771362	13.83	
		4.55	tump.kanan	33.39849	10.37224	13.83	
	221	0	tump.kiri	-12.52305	0	0	balok lt.2
		0.46	lapangan	-6.261524	0	0	
		0.919	tump.kanan	4.288529E-14	0	0	
	222	0	tump.kiri	-12.52305	-1.421085E-14	-1.421085E-14	
		0.46	lapangan	-6.261524	-1.421085E-14	-1.421085E-14	
		0.919	tump.kanan	-1.395813E-14	-1.421085E-14	-1.421085E-14	
	232	0	tump.kiri	-69.13062	-14.83619	-16.75262	
		2.913	lapangan	-0.5351643	-1.070945	-16.75262	
		5.827	tump.kanan	68.06029	12.6943	-16.75262	
	233	0	tump.kiri	-68.83074	-14.66799	9.85103	
		2.913	lapangan	-0.2352922	-0.9027386	9.85103	
		5.827	tump.kanan	68.36015	12.86251	9.85103	
	244	0	tump.kiri	-53.50522	-11.31955	23.58344	
		2.275	lapangan	6.142613E-02	-0.5701720	23.58344	
		4.55	tump.kanan	53.62807	10.1792	23.58344	
	245	0	tump.kiri	-47.56478	-9.666862	24.48938	
		2	lapangan	-0.4732212	-0.2168623	24.48938	
		4	tump.kanan	46.61834	9.233138	24.48938	
	246	0	tump.kiri	-45.96796	-9.295094	23.41452	
		2	lapangan	1.123603	0.154906	23.41452	
		4	tump.kanan	48.21516	9.604906	23.41452	
	247	0	tump.kiri	-71.11674	-14.68619	11.39696	
		3	lapangan	-0.4793938	-0.511188	11.39696	
		6	tump.kanan	70.15794	13.66381	11.39696	
	248	0	tump.kiri	-40.70932	8.157831E-02	11.03898	
		3	lapangan	0.1605235	8.157831E-02	11.03898	
		6	tump.kanan	41.03036	8.157831E-02	11.03898	
	249	0	tump.kiri	-69.65993	-13.37716	10.50683	
		3	lapangan	0.9774014	0.7978424	10.50683	
		6	tump.kanan	71.61474	14.97284	10.50683	
	250	0	tump.kiri	-48.35189	-9.582588	20.06252	
		2	lapangan	-1.260327	-0.1325885	20.06252	
		4	tump.kanan	45.83123	9.317411	20.06252	
	251	0	tump.kiri	-46.45084	-9.192452	19.69285	
		2	lapangan	0.6407177	0.2575478	19.69285	
		4	tump.kanan	47.73228	9.707548	19.69285	
	252	0	tump.kiri	-52.96976	-9.77522	16.1765	
		2.275	lapangan	0.5968859	0.9741551	16.1765	
		4.55	tump.kanan	54.16354	11.72353	16.1765	

Lanjutan Tabel 7.2.b

Portal	No.balok	Jarak (m)	Daerah Gaya Geser	VD (kNm)	VL (kNm)	VE (kNm) E KIRI	Ket.balok
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
	282	0	tump.kiri	-8.809323	-1.19501	-1.136868E-13	balok lt.3
		0.46	lapangan	-4.404662	-0.5975052	-1.136868E-13	
		0.919	tump.kanan	-2.950125E-14	1.178322E-14	-1.136868E-13	
	283	0	tump.kiri	-8.484442	-1.19501	7.105427E-15	
		0.46	lapangan	-4.242221	-0.5975052	7.105427E-15	
		0.919	tump.kanan	3.399722E-14	1.178322E-14	7.105427E-15	
	284	0	tump.kiri	-33.1254	-16.24448	-21.48879	
		2.913	lapangan	10.29459	8.761662	-21.48879	
		5.827	tump.kanan	53.71458	33.7678	-21.48879	
	285	0	tump.kiri	-33.0406	-16.21715	6.736871	
		2.913	lapangan	10.37939	8.788986	6.736871	
		5.827	tump.kanan	53.79938	33.79512	6.736871	
	286	0	tump.kiri	-35.76447	-19.83891	-13.35286	
		2.275	lapangan	-6.509611	-3.942352	-13.35286	
		4.55	tump.kanan	26.02525	11.95421	-13.35286	
	287	0	tump.kiri	-25.41568	-11.88895	15.02249	
		2	lapangan	-0.4891202	0.711053	15.02249	
		4	tump.kanan	27.71744	13.31105	15.02249	
	288	0	tump.kiri	-28.51586	-14.19639	-15.2003	
		2	lapangan	-3.589301	-1.596393	-15.2003	
		4	tump.kanan	24.61726	11.00361	-15.2003	
	289-291	0	tump.kiri	-56.21577	-24.63598	8.716642	
		0.9625	tump.kiri	-45.65783	-21.06847	8.716642	
		1.925	lapangan	-35.0999	-17.50097	8.716642	
		0	lapangan	-13.14818	-0.1089994	8.625354	
		1.075	lapangan	-2.846153	1.288501	8.625354	
		2.15	lapangan	7.455873	2.686001	8.625354	
		0	lapangan	-69.13208	-27.68891	-8.654066	
		0.9625	tump.kanan	-58.57413	-24.1214	-8.654066	
		1.925	tump.kanan	-48.0162	-20.55389	-8.654066	
	292	0	tump.kiri	-70.80812	-38.16143	8.407458	
		1.5	lapangan	-53.1932	-30.58643	8.407458	
		3	tump.kanan	-32.29828	-23.01143	8.407458	
	293	0	tump.kiri	31.27125	22.3919	8.397285	
		1.5	lapangan	52.16617	29.9669	8.397285	
		3	tump.kanan	69.78109	37.5419	8.397285	
	294	0	tump.kiri	-68.35475	-27.23106	8.658422	
		0.9625	lapangan	-57.79682	-23.66355	8.658422	
		1.925	tump.kanan	-47.23888	-20.09604	8.658422	
	295	0	tump.kiri	-6.86141	-2.347678	8.593977	
		1.075	lapangan	3.440616	-0.9501778	8.593977	
		2.15	tump.kanan	13.74264	0.4473222	8.593977	
	296	0	tump.kiri	35.59699	17.75543	8.669764	
		0.9625	lapangan	46.15492	21.32293	8.669764	
		1.925	tump.kanan	56.71286	24.89044	8.669764	
	297	0	tump.kiri	-28.22584	-13.92983	15.26743	
		2	lapangan	-3.299275	-1.329832	15.26743	
		4	tump.kanan	24.90729	11.27017	15.26743	
	298	0	tump.kiri	-27.98507	-13.4991	15.37504	
		2	lapangan	-3.058511	-0.8991002	15.37504	
		4	tump.kanan	25.14805	11.7009	15.37504	
	299	0	tump.kiri	-35.68164	-19.77939	12.5649	
		2.275	lapangan	-6.426782	-3.882832	12.5649	

Lanjutan Tabel 7.2.b

Portal	No.balok	Jarak (m)	Daerah Gaya Geser	VD (kNm)	VL (kNm)	VE (kNm) E KIRI	Ket.balok
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
		4.55	tump.kanan	26.10808	12.01373	12.5649	
	312	0	tump.kiri	-3.465398	-1.421085E-14	-5.684342E-14	balok atap
		0.46	lapangan	-1.732699	-1.421085E-14	-5.684342E-14	
		0.919	tump.kanan	5.287101E-14	-1.421085E-14	-5.684342E-14	
	313	0	tump.kiri	-3.465398	-1.421085E-14	-1.421085E-14	
		0.46	lapangan	-1.732699	-1.421085E-14	-1.421085E-14	
		0.919	tump.kanan	2.44493E-14	-1.421085E-14	-1.421085E-14	
	314	0	tump.kiri	-7.877089	2.649886	-7.061492	
		2.913	lapangan	3.105557	2.649886	-7.061492	
		5.827	tump.kanan	14.0882	2.649886	-7.061492	
	315	0	tump.kiri	-7.855169	2.65361	1.385043	
		2.913	lapangan	3.127477	2.65361	1.385043	
		5.827	tump.kanan	14.11012	2.65361	1.385043	
	316	0	tump.kiri	-7.286064	1.052556	1.486087	
		2.275	lapangan	1.290358	1.052556	1.486087	
		4.55	tump.kanan	9.86678	1.052556	1.486087	
	317	0	tump.kiri	-6.287894	0.9499376	2.126607	
		2	lapangan	1.251818	0.9499376	2.126607	
		4	tump.kanan	8.79153	0.9499376	2.126607	
	318	0	tump.kiri	-7.215488	0.4292193	2.695567	
		2	lapangan	0.3242236	0.4292193	2.695567	
		4	tump.kanan	7.863935	0.4292193	2.695567	
	319	0	tump.kiri	-11.22642	4.192441E-02	1.680184	
		3	lapangan	8.314829E-02	4.192441E-02	1.680184	
		6	tump.kanan	11.39272	4.192441E-02	1.680184	
	320	0	tump.kiri	-11.3687	-4.912323E-02	1.839436	
		3	lapangan	7.912907E-02	-4.912323E-02	1.839436	
		6	tump.kanan	11.23044	-4.912323E-02	1.839436	
	321	0	tump.kiri	-11.29867	9.10168E-03	1.979456	
		3	lapangan	1.090188E-02	9.10168E-03	1.979456	
		6	tump.kanan	11.32047	9.10168E-03	1.979456	
	322	0	tump.kiri	-7.811865	-0.3669666	4.05846	
		2	lapangan	-0.2721532	-0.3669666	4.05846	
		4	tump.kanan	7.267559	-0.3669666	4.05846	
	323	0	tump.kiri	-8.882899	-1.013531	4.243886	
		2	lapangan	-1.343187	-1.013531	4.243886	
		4	tump.kanan	6.196525	-1.013531	4.243886	
	324	0	tump.kiri	-9.844428	-1.036496	3.432643	
		2.275	lapangan	-1.268005	-1.036496	3.432643	
		4.55	tump.kanan	7.308417	-1.036496	3.432643	
AS x-4 & AS x-15		0	tump.kiri	32.60786	-2.730034	-2.616847	balok lt.1
		1.557524	lapangan	13.92409	-2.730034	-2.616847	
	44&69	3.115048	lapangan	-4.759686	-2.730034	-2.616847	
	45&70	0	lapangan	-3.890567	-2.612598	-2.074709	
		1.557524	lapangan	-22.57434	-2.612598	-2.074709	
		3.115048	tump.kanan	-41.25811	-2.612598	-2.074709	
		0	tump.kiri	48.93261	32.36572	-3.245012	
		1.509776	lapangan	32.32006	21.11789	-3.245012	
	85&98	3.019553	lapangan	15.70751	9.870051	-3.245012	
	86&99	0	lapangan	-14.6287	-10.44422	-3.024787	
		1.509776	lapangan	-31.24125	-21.69206	-3.024787	
		3.019553	tump.kanan	-47.8538	-32.93989	-3.024787	
		0	tump.kiri	37.30566	12.85552	-0.2694239	balok lt.2

Lanjutan Tabel 7.2.b

Portal	No.balok	Jarak (m)	Daerah Gaya Geser	VD (kNm)	VL (kNm)	VE (kNm) E KIRI	Ket.balok
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
	187&207 188&208	1.509776	lapangan	25.68669	6.363484	-0.2694239	
		3.019553	lapangan	14.06773	-0.1285547	-0.2694239	
		0	lapangan	-15.88787	-0.1900068	-6.265045E-03	
		1.509776	lapangan	-32.50042	-11.43784	-6.265045E-03	
		3.019553	tump.kanan	-49.11297	-22.68568	-6.265045E-03	
	145 , 146	0	tump.kiri	34.30139	30.87198	-0.8018057	balok tribun
		3.457387	lapangan	-7.425736	-2.723039	-0.8018057	
		6.914774	tump.kanan	-42.91806	-36.31805	-0.8018057	
	253 , 254	0	tump.kiri	57.77748	50.24121	-1.299271	
		3.765661	lapangan	3.006387	1.019484	-1.299271	
		7.531321	tump.kanan	-57.36975	-48.20225	-1.299271	
AS x-5 & AS x-14	46&73 55&82	0	tump.kiri	10.00166	-2.419316	-2.942372	balok lt.1
		1.724567	lapangan	4.516128	-2.419316	-2.942372	
		3.449134	lapangan	-0.9694021	-2.419316	-2.942372	
		0	lapangan	-7.600233	-3.694547	-2.775364	
		1.724567	lapangan	-13.08576	-3.694547	-2.775364	
		3.449134	tump.kanan	-18.57129	-3.694547	-2.775364	
	102&127 108&134	0	tump.kiri	57.74147	39.31939	-3.62029	
		1.671594	lapangan	41.36685	28.78835	-3.62029	
		3.343187	lapangan	24.99223	18.25731	-3.62029	
		0	lapangan	-20.37502	-15.5565	-3.305026	
		1.671594	lapangan	-36.74964	-26.08754	-3.305026	
		3.343187	tump.kanan	-53.12426	-36.61858	-3.305026	
	209&234 218&243	0	tump.kiri	37.07681	1.307267	-1.014375	balok lt.2
		1.671594	lapangan	31.75978	1.307267	-1.014375	
		3.343187	lapangan	26.44275	1.307267	-1.014375	
		0	lapangan	-18.83615	2.344383	-1.051244	
		1.671594	lapangan	-35.21078	-8.186657	-1.051244	
		3.343187	tump.kanan	-51.5854	-18.7177	-1.051244	
	147 , 158	0	tump.kiri	49.56707	30.66144	-1.18815	balok tribun
		3.761187	lapangan	-9.321805	-2.936574	-1.18815	
		7.522373	tump.kanan	-51.07133	-36.53459	-1.18816	
	257 , 271	0	tump.kiri	83.7871	66.28602	-0.781971	
		4.029814	lapangan	4.69905	1.23679	-0.781971	
		8.059628	tump.kanan	-84.71769	-63.81244	-0.781971	
AS x-6 & AS x-13	47&74 54&81	0	tump.kiri	18.30547	-0.2905906	-5.402852	balok lt.1
		1.625	lapangan	10.64795	-0.2905906	-5.402852	
		3.25	lapangan	2.990431	-0.2905906	-5.402852	
		0	lapangan	-16.51093	-8.144098	-6.118756	
		1.625	lapangan	-29.71377	-13.42535	-6.118756	
		3.25	tump.kanan	-42.9166	-18.7066	-6.118756	
	103&128 107&133	0	tump.kiri	55.41237	34.19056	-6.515871	
		1.575	lapangan	37.57184	24.26806	-6.515871	
		3.15	lapangan	19.73131	14.34556	-6.515871	
		0	lapangan	-17.22837	-14.04896	-7.143099	
		1.575	lapangan	-35.06889	-23.97146	-7.143099	
		3.15	tump.kanan	-52.90942	-33.89396	-7.143099	
	210&235 217&242	0	tump.kiri	41.26274	1.490668	-0.6180792	balok lt.2
		1.575	lapangan	33.84084	1.490668	-0.6180792	
		3.15	lapangan	26.41894	1.490668	-0.6180792	
		0	lapangan	-26.03306	0.6492077	-0.786928	
		1.575	lapangan	-43.87359	-9.273293	-0.786928	

Lanjutan Tabel 7.2.b

Portal	No.balok	Jarak (m)	Daerah Gaya Geser	VD (kNm)	VL (kNm)	VE (kNm) E KIRI	Ket.balok
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
		3.15	tump.kanan	**-61.71412**	**-19.19579**	**-0.786928**	
		0	tump.kiri	44.04472	33.44349	-2.252864	balok tribun
	148 , 157	3.579455	lapangan	-13.61046	-5.008077	-2.252864	
		7.158911	tump.kanan	-61.16914	-43.45964	**-2.252864**	
		0	tump.kiri	69.91516	47.3838	0.9572839	
	258 , 270	3.871046	lapangan	-5.80018	-3.114636	0.9572839	
		7.742093	tump.kanan	**-74.7778**	**-53.61307**	0.9572839	
AS x-7 & AS x-12		0	tump.kiri	25.88076	7.282815	-6.234857	balok lt.1
		1.625	lapangan	18.22324	7.282815	-6.234857	
	48&75	3.25	lapangan	10.56572	7.282815	-6.234857	
	53&80	0	lapangan	-21.05677	-12.98292	-6.209419	
		1.625	lapangan	-39.80492	-23.54543	-6.209419	
		3.25	tump.kanan	-58.55306	-34.10793	-6.209419	
		0	tump.kiri	**91.25458**	**59.38948**	**-6.248791**	
		1.575	lapangan	73.41405	49.46698	-6.248791	
	104&129	3.15	lapangan	55.57352	39.54448	-6.248791	
	106&132	0	lapangan	-52.74274	-38.60933	-6.157145	
		1.575	lapangan	-70.58327	-48.53183	-6.157145	
		3.15	tump.kanan	-88.42381	-58.45432	-6.157145	
		0	tump.kiri	38.46648	0.5175089	-0.5228472	balok lt.2
		1.575	lapangan	31.04458	0.5175089	-0.5228472	
	211&236	3.15	lapangan	23.62267	0.5175089	-0.5228472	
	216&241	0	lapangan	-21.92713	3.040039	-0.54422	
		1.575	lapangan	-39.76766	-6.882462	-0.54422	
		3.15	tump.kanan	**-57.60819**	**-16.80496**	**-0.54422**	
		0	tump.kiri	64.70106	44.91074	-2.80924	balok tribun
	149 , 156	3.579455	lapangan	-13.55962	-3.839258	-2.80924	
		7.158911	tump.kanan	**-74.38748**	**-52.58926**	**-2.80924**	
		0	tump.kiri	72.01684	50.9221	-0.7645988	
	259 , 269	3.871046	lapangan	6.521507	3.672104	-0.7645988	
		7.742093	tump.kanan	-66.78567	-43.5779	-0.7645988	
AS x-8 & AS x-11		0	tump.kiri	23.99084	3.097232	-5.699865	balok lt.1
		1.625	lapangan	16.33331	3.097232	-5.699865	
	49&76	3.25	lapangan	8.675796	3.097232	-5.699865	
	52&79	0	lapangan	-16.79309	-6.843209	-5.738076	
		1.625	lapangan	-35.54123	-17.40571	-5.738076	
		3.25	tump.kanan	-54.28938	-27.96821	-5.738076	
		0	tump.kiri	**77.78913**	**41.1431**	**-5.929557**	
		1.575	lapangan	60.07868	31.29295	-5.929557	
	101&126	3.15	lapangan	42.36824	21.4428	-5.929557	
	105&131	0	lapangan	-34.48871	-18.0022	-5.698114	
		1.575	lapangan	-52.45932	-27.99705	-5.698114	
		3.15	tump.kanan	-70.42993	-37.9919	-5.698114	
		0	tump.kiri	73.63111	25.95164	**-0.4853092**	balok lt.2
		1.575	lapangan	60.99989	20.99039	-0.4853092	
	215&240	3.15	lapangan	48.36868	16.02914	-0.4853092	
		0	lapangan	-50.32328	-15.27497	-0.2868118	
		1.575	lapangan	-68.16381	-25.19747	-0.2868118	
		3.15	tump.kanan	**-86.00434**	**-35.11997**	-0.2868118	
		0	tump.kiri	**-110.9739**	**-72.40944**	**12.54392**	balok tribun
	150 , 155	3.579455	lapangan	47.48857	36.63023	3.322906	
		7.158911	tump.kanan	-51.30489	-40.94649	-5.898105	

Lanjutan Tabel 7.2.b

Portal	No.balok	Jarak (m)	Daerah Gaya Geser	VD (kNm)	VL (kNm)	VE (kNm) E KIRI	Ket.balok
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
		0	tump.kiri	54.14762	32.71362	0.837587	
	260 , 268	3.871046	lapangan	-3.995613	-2.282095	0.837587	
		7.742093	tump.kanan	-56.35321	-37.27781	0.837587	
AS x-9 & AS x-10		0	tump.kiri	51.19038	10.1636	-6.041189	balok lt.1
		1.625	lapangan	28.64379	4.882349	-6.041189	
	50&77	3.25	lapangan	6.097209	-0.3989009	**-6.041189**	
	51&78	0	lapangan	-10.54302	-0.2257507	-5.991322	
		1.625	lapangan	-38.63492	-10.78825	-5.991322	
		3.25	tump.kanan	**-66.72681**	**-21.35075**	-5.991322	
		0	tump.kiri	35.41193	18.28934	-5.994408	
		1.575	lapangan	17.1867	8.152876	-5.994408	
	110&135	3.15	lapangan	-1.038543	-1.983591	-5.994408	
	104&130	0	lapangan	-1.038543	-1.983591	-5.994408	
		1.575	lapangan	-13.39738	-6.837858	-5.994408	
		3.15	tump.kanan	-25.75622	-11.69212	-5.994408	
		0	tump.kiri	65.47852	20.38342	-0.4110075	balok lt.2
		1.575	lapangan	52.84731	15.42217	-0.4110075	
	213&238	3.15	lapangan	40.21609	10.46092	**-0.4110075**	
	214&239	0	lapangan	-51.08641	-17.57539	-0.2258841	
		1.575	lapangan	-63.71763	-22.53664	-0.2258841	
		3.15	tump.kanan	**-76.34885**	**-27.49789**	-0.2258841	
		0	tump.kiri	28.99143	13.88532	-2.682124	balok tribun
	152 , 153	3.579455	lapangan	-9.928224	-4.395934	-2.682124	
		7.158911	tump.kanan	**-55.38519**	-22.67719	**-2.682124**	
		0	tump.kiri	49.57322	30.4357	-0.9009109	
	263 , 265	3.871046	lapangan	2.887948	1.346241	-0.9009109	
		7.742093	tump.kanan	-48.8262	**-27.74322**	-0.9009109	

Keterangan Tabel 7.2.b :

[1] Portal yg ditinjau

[2] Nomor elemen balok

[3] Jarak elemen balok (m)

[4] Letak/daerah gaya geser

[5] VD = gaya geser yg terjadi akibat beban mati

[6] VL = gaya geser yg terjadi akibat beban hidup

[7] VEkiri = gaya geser yg terjadi akibat beban gempa kiri

[8] Keterangan balok

Tabel 7.3.a Penulangan Lentur dan Momen Nominal Aktual Balok Portal A

Balok	Letak Tulangan		Tulangan Terpakai	As (mm^2)	ρ	Analisis	Mu (kNm)	b (mm)	h (mm)	d' (mm)	d (mm)	x (mm)	a (mm)	f's (Mpa)	Cc (kN)	Cs (kN)	Mnak (kNm)	øMnak (kNm)	Ket
(a)	(b)	[c]	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	[r]	(s)	(t)
AS X-3																			
balok lt.1	Tump	Atas	4D25	1962.5	0.01125	Mtump -	207.73	350	450	62.5	387.5	87.91	74.724	173.42737	444.6048	340.3512	266.2873	213.0298393	Aman
		Bawah	3D25	1471.875															
	Tump	Atas	2D25	981.25	0.00773	Mtump +	40.365	350	450	62.5	387.5	68.074	57.863	49.128889	344.2843	48.20772	139.117	111.2936127	Aman
		Bawah	2D25	981.25															
	Lap	Bawah	4D25	1962.5	0.01143	Mlap	202.063	350	450	62.5	387.5	87.91	74.724	173.42737	444.6048	340.3512	266.2873	213.0298393	Aman
		Atas	3D25	1471.875															
AS X-2																			
balok lt.1	Tump	Atas	3D25	1471.875	0.01038	Mtump -	124.16	350	450	62.5	387.5	79.343	67.442	127.36851	401.2772	187.4705	202.8915	162.313174	Aman
		Bawah	2D25	981.25															
	Tump	Atas	2D25	981.25	0.00728	Mtump +	98.114	350	450	62.5	387.5	68.074	57.863	49.128889	344.2843	48.20772	139.117	111.2936127	Aman
		Bawah	2D25	981.25															
	Lap	Bawah	3D25	1471.875	0.01065	Mlap	111.879	350	450	62.5	387.5	79.343	67.442	127.36851	401.2772	187.4705	202.8915	162.313174	Aman
		Atas	2D25	981.25															
balok lt.2	Tump	Atas	8D25	3925	0.01806	Mtump -	340.417	350	450	62.5	387.5	109.827	93.353	258.55391	555.4501	1014.824	519.1283	415.3026185	Aman
		Bawah	6D25	2943.75															
	Tump	Atas	2D25	981.25	0.00743	Mtump +	80.155	350	450	62.5	387.5	68.074	57.863	49.128889	344.2843	48.20772	139.117	111.2936127	Aman
		Bawah	2D25	981.25															
	Lap	Bawah	6D25	2943.75	0.01381	Mlap	298.979	350	450	62.5	387.5	100.59	85.502	227.19952	508.7339	668.8186	392.7517	314.201346	Aman
		Atas	5D25	2453.125															
AS X-1																			
balok lt.1	Tump	Atas	2D25	981.25	0.00746	Mtump -	89.154	250	700	62.5	637.5	77.354	65.751	115.21576	279.4413	113.0555	233.964	187.1711826	Aman
		Bawah	2D25	981.25															
	Tump	Atas	2D25	981.25	0.00768	Mtump +	66.453	250	700	62.5	637.5	77.354	65.751	115.21576	279.4413	113.0555	233.964	187.1711826	Aman
		Bawah	2D25	981.25															
	Lap	Bawah	2D25	981.25	0.00743	Mlap	92.084	250	700	62.5	637.5	77.354	65.751	115.21576	279.4413	113.0555	233.964	187.1711826	Aman
		Atas	2D25	981.25															
balok lt.2	Tump	Atas	2D25	981.25	0.00721	Mtump -	113.799	250	700	62.5	637.5	77.354	65.751	115.21576	279.4413	113.0555	233.964	187.1711826	Aman
		Bawah	2D25	981.25															
	Tump	Atas	2D25	981.25	0.00725	Mtump +	110.183	250	700	62.5	637.5	77.354	65.751	115.21576	279.4413	113.0555	233.964	187.1711826	Aman
		Bawah	2D25	981.25															
	Lap	Bawah	2D25	981.25	0.00736	Mlap	99.42	250	700	62.5	637.5	77.354	65.751	115.21576	279.4413	113.0555	233.964	187.1711826	Aman
		Atas	2D25	981.25															

Tabel 7.3.a Lanjutan

Balok	Letak Tulangan		Tulangan Terpakai	As (mm^2)	ρ	Analisis	Mu (kNm)	b (mm)	h (mm)	d' (mm)	d (mm)	x (mm)	a (mm)	f's (Mpa)	Cc (kN)	Cs (kN)	Mnak (kNm)	øMnak (kNm)	Ket
(a)	(b)	[c]	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	[r]	(s)	(t)
balok lt 3	Tump	Atas	3D25	1471.875	0.00974	Mtump -	188.76	250	700	62.5	637.5	89.41	75.999	180.58383	322.9936	265.7968	346.4681	277.1744739	Aman
		Bawah	2D25	981.25															
	Tump	Atas	2D25	981.25	0.00652	Mtump +	184.545	250	700	62.5	637.5	77.354	65.751	115.21576	279.4413	113.0555	233.964	187.1711826	Aman
		Bawah	2D25	981.25															
	Lap	Bawah	2D25	981.25	0.00652	Mlap	184.544	250	700	62.5	637.5	77.354	65.751	115.21576	279.4413	113.0555	233.964	187.1711826	Aman
		Atas	2D25	981.25															
balok atap	Tump	Atas	2D25	981.25	0.00748	Mtump -	34.035	400	400	62.5	337.5	64.598	54.908	19.486671	373.3764	19.1213	121.0222	96.81773776	Aman
		Bawah	2D25	981.25															
	Tump	Atas	2D25	981.25	0.00747	Mtump +	36.86	400	400	62.5	337.5	64.598	54.908	19.486671	373.3764	19.1213	121.0222	96.81773776	Aman
		Bawah	2D25	981.25															
	Lap	Bawah	2D25	981.25	0.00753	Mlap	22.016	400	400	62.5	337.5	64.598	54.908	19.486671	373.3764	19.1213	121.0222	96.81773776	Aman
		Atas	2D25	981.25															
AS Y-4 & Y-18																			
balok lt 1	Tump	Atas	2D25	981.25	0.00571	Mtump -	110.56	400	500	62.5	437.5	64.598	54.908	19.486671	373.3764	19.1213	160.2719	128.2175567	Aman
		Bawah	2D25	981.25															
	Tump	Atas	2D25	981.25	0.00589	Mtump+	33.586	400	500	62.5	437.5	64.598	54.908	19.486671	373.3764	19.1213	160.2719	128.2175567	Aman
		Bawah	2D25	981.25															
	Lap	Atas	2D25	981.25	0.00569	Mlap	120.414	400	500	62.5	437.5	64.598	54.908	19.486671	373.3764	19.1213	160.2719	128.2175567	Aman
		Bawah	2D25	981.25															
balok lt 2	Tump	Atas	2D25	981.25	0.00574	Mtump -	97.533	400	500	62.5	437.5	64.598	54.908	19.486671	373.3764	19.1213	160.2719	128.2175567	Aman
		Bawah	2D25	981.25															
	Tump	Atas	2D25	981.25	0.00585	Mtump +	50.434	400	500	62.5	437.5	64.598	54.908	19.486671	373.3764	19.1213	160.2719	128.2175567	Aman
		Bawah	2D25	981.25															
	Lap	Bawah	2D25	981.25	0.00574	Mlap	98.264	400	500	62.5	437.5	64.598	54.908	19.486671	373.3764	19.1213	160.2719	128.2175567	Aman
		Atas	2D25	981.25															
balok tribun	Tump	Atas	3D25	1471.875	0.00821	Mtump -	171.251	400	500	62.5	437.5	75.519	64.191	103.43622	436.4998	152.2452	234.0509	187.2407233	Aman
		Bawah	2D25	981.25															
	Tump	Atas	2D25	981.25	0.00582	Mtump +	61.258	400	500	62.5	437.5	64.598	54.908	19.486671	373.3764	19.1213	160.2719	128.2175567	Aman
		Bawah	2D25	981.25															
	Lap	Bawah	3D25	1471.875	0.0085	Mlap	148.002	400	500	62.5	437.5	75.519	64.191	103.43622	436.4998	152.2452	234.0509	187.2407233	Aman
		Atas	2D25	981.25															
AS Y-5 & Y-17																			
balok lt1	Tump	Atas	3D25	1471.875	0.00849	Mtump -	148.336	400	500	62.5	437.5	75.519	64.191	103.43622	436.4998	152.2452	234.0509	187.2407233	Aman
		Bawah	2D25	981.25															
	Lap	Atas	3D25	1471.875	0.00837	Mlap	158.624	400	500	62.5	437.5	75.519	64.191	103.43622	436.4998	152.2452	234.0509	187.2407233	Aman
		Bawah	2D25	981.25															

Tabel 7.3.a Lanjutan

Balok	Letak Tulangan		Tulangan Terpakai	As (mm^2)	ρ	Analisis	Mu (kNm)	b (mm)	h (mm)	d' (mm)	d (mm)	x (mm)	a (mm)	f's (Mpa)	Cc (kN)	Cs (kN)	Mnak (kNm)	øMnak (kNm)	Ket
(a)	(b)	[c]	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	[r]	(s)	(t)
balok lt.2	Tump	Atas	2D25	981.25	0.00573	Mtump -	100.898	400	500	62.5	437.5	64.598	54.908	19.486671	373.3764	19.1213	160.2719	128.2175567	Aman
		Bawah	2D25	981.25															
	Tump	Atas	2D25	981.25	0.00585	Mtump +	48.466	400	500	62.5	437.5	64.598	54.908	19.486671	373.3764	19.1213	160.2719	128.2175567	Aman
		Bawah	2D25	981.25															
	Lap	Bawah	2D25	981.25	0.00574	Mlap	98.86	400	500	62.5	437.5	64.598	54.908	19.486671	373.3764	19.1213	160.2719	128.2175567	Aman
		Atas	2D25	981.25															
balok tribun	Tump	Atas	5D25	2453.125	0.01101	Mtump -	290.57	400	500	62.5	437.5	90.663	77.064	186.38033	524.0321	457.2143	380.5275	304.4220134	Aman
		Bawah	3D25	1471.875															
	Tump	Atas	2D25	981.25	0.0058	Mtump +	72.451	400	500	62.5	437.5	64.598	54.908	19.486671	373.3764	19.1213	160.2719	128.2175567	Aman
		Bawah	2D25	981.25															
	Lap	Bawah	4D25	1962.5	0.01005	Mlap	218.698	400	500	62.5	437.5	83.883	71.301	152.94875	484.8437	300.1619	307.395	245.9160355	Aman
		Atas	2D25	981.25															
AS Y-6 & Y-16																			
balok lt.1	Tump	Atas	3D25	1471.875	0.00802	Mtump -	186.408	400	500	62.5	437.5	75.519	64.191	103.43622	436.4998	152.2452	234.0509	187.2407233	Aman
		Bawah	2D25	981.25															
	Tump	Atas	2D25	981.25	0.00585	Mtump +	49.852	400	500	62.5	437.5	64.598	54.908	19.486671	373.3764	19.1213	160.2719	128.2175567	Aman
		Bawah	2D25	981.25															
	Lap	Bawah	4D25	1962.5	0.0103	Mlap	205.401	400	500	62.5	437.5	83.883	71.301	152.94875	484.8437	300.1619	307.395	245.9160355	Aman
		Atas	2D25	981.25															
balok lt.2	Tump	Atas	3D25	1471.875	0.00861	Mtump -	138.535	400	500	62.5	437.5	75.519	64.191	103.43622	436.4998	152.2452	234.0509	187.2407233	Aman
		Bawah	2D25	981.25															
	Lap	Bawah	3D25	1471.875	0.00814	Mlap	176.842	400	500	62.5	437.5	75.519	64.191	103.43622	436.4998	152.2452	234.0509	187.2407233	Aman
		Atas	2D25	981.25															
balok tribun	Tump	Atas	4D25	1962.5	0.01014	Mtump -	213.819	400	500	62.5	437.5	83.883	71.301	152.94875	484.8437	300.1619	307.395	245.9160355	Aman
		Bawah	2D25	981.25															
	Tump	Atas	2D25	981.25	0.00588	Mtump +	37.89	400	500	62.5	437.5	64.598	54.908	19.486671	373.3764	19.1213	160.2719	128.2175567	Aman
		Bawah	2D25	981.25															
	Lap	Bawah	3D25	1471.875	0.00835	Mlap	160.247	400	500	62.5	437.5	75.519	64.191	103.43622	436.4998	152.2452	234.0509	187.2407233	Aman
		Atas	2D25	981.25															
AS Y-7 & Y-15																			
balok lt.1	Tump	Atas	4D25	1962.5	0.01018	Mtump -	211.588	400	500	62.5	437.5	83.883	71.301	152.94875	484.8437	300.1619	307.395	245.9160355	Aman
		Bawah	2D25	981.25															
	Tump	Atas	2D25	981.25	0.0059	Mtump+	27.377	400	500	62.5	437.5	64.598	54.908	19.486671	373.3764	19.1213	160.2719	128.2175567	Aman
		Bawah	2D25	981.25															
	Lap	Bawah	4D25	1962.5	0.0099	Mlap	226.994	400	500	62.5	437.5	83.883	71.301	152.94875	484.8437	300.1619	307.395	245.9160355	Aman
		Atas	2D25	981.25															

Tabel 7.3.a Lanjutan

Balok	Letak Tulangan		Tulangan Terpakai	As (mm^2)	p	Analisis	Mu (kNm)	b (mm)	h (mm)	d' (mm)	d (mm)	x (mm)	a (mm)	f's (Mpa)	Cc (kN)	Cs (kN)	Mnak (kNm)	øMnak (kNm)	Ket
(a)	(b)	[c]	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	[r]	(s)	(t)
balok lt.2	Tump	Atas	**4D25**	1962.5	0.01034	Mtump -	202.797	400	500	62.5	437.5	83.883	71.301	152.94875	484.8437	300.1619	307.395	245.9160355	Aman
		Bawah	**2D25**	981.25															
	Lap	Bawah	**4D25**	1962.5	0.01012	Mlap	214.863	400	500	62.5	437.5	83.883	71.301	152.94875	484.8437	300.1619	307.395	245.9160355	Aman
		Atas	**2D25**	981.25															
balok tribun	Tump	Atas	**4D25**	1962.5	0.01042	Mtump -	198.84	400	500	62.5	437.5	83.883	71.301	152.94875	484.8437	300.1619	307.395	245.9160355	Aman
		Bawah	**2D25**	981.25															
	Tump	Atas	**2D25**	981.25	0.00588	Mtump +	33.079	400	500	62.5	437.5	64.598	54.908	19.486671	373.3764	19.1213	160.2719	128.2175567	Aman
		Bawah	**2D25**	981.25															
	Lap	Bawah	**3D25**	1471.875	0.00858	Mlap	141.283	400	500	62.5	437.5	75.519	64.191	103.43622	436.4998	152.2452	234.0509	187.2407233	Aman
		Atas	**2D25**	981.25															
AS Y-8 & Y-14																			
balok lt.1	Tump	Atas	**3D25**	1471.875	0.0085	Mtump -	147.824	400	500	62.5	437.5	75.519	64.191	103.43622	436.4998	152.2452	234.0509	187.2407233	Aman
		Bawah	**2D25**	981.25															
	Tump	Atas	**2D25**	981.25	0.00583	Mtump +	57.151	400	500	62.5	437.5	64.598	54.908	19.486671	373.3764	19.1213	160.2719	128.2175567	Aman
		Bawah	**2D25**	981.25															
	Lap	Bawah	**3D25**	1471.875	0.00837	Mlap	158.661	400	500	62.5	437.5	75.519	64.191	103.43622	436.4998	152.2452	234.0509	187.2407233	Aman
		Atas	**2D25**	981.25															
balok lt.2	Tump	Atas	**3D25**	1471.875	0.00836	Mtump -	159.352	400	500	62.5	437.5	75.519	64.191	103.43622	436.4998	152.2452	234.0509	187.2407233	Aman
		Bawah	**2D25**	981.25															
	Tump	Atas	**2D25**	981.25	0.00589	Mtump+	30.992	400	500	62.5	437.5	64.598	54.908	19.486671	373.3764	19.1213	160.2719	128.2175567	Aman
		Bawah	**2D25**	981.25															
	Lap	Bawah	**3D25**	1471.875	0.00813	Mlap	177.622	400	500	62.5	437.5	75.519	64.191	103.43622	436.4998	152.2452	234.0509	187.2407233	Aman
		Atas	**2D25**	981.25															
balok tribun	Tump	Atas	**3D25**	1471.875	0.00812	Mtump -	178.588	400	500	62.5	437.5	75.519	64.191	103.43622	436.4998	152.2452	234.0509	187.2407233	Aman
		Bawah	**2D25**	981.25															
	Tump	Atas	**2D25**	981.25	0.00587	Mtump+	42.885	400	500	62.5	437.5	64.598	54.908	19.486671	373.3764	19.1213	160.2719	128.2175567	Aman
		Bawah	**2D25**	981.25															
	Lap	Bawah	**3D25**	1471.875	0.0083	Mlap	164.07	400	500	62.5	437.5	75.519	64.191	103.43622	436.4998	152.2452	234.0509	187.2407233	Aman
		Atas	**2D25**	981.25															
AS Y-9 & Y-13																			
balok lt 1	Tump	Atas	**3D25**	1471.875	0.00865	Mtump -	135.691	400	500	62.5	437.5	75.519	64.191	103.43622	436.4998	152.2452	234.0509	187.2407233	Aman
		Bawah	**2D25**	981.25															
	Tump	Atas	**2D25**	981.25	0.00589	Mtump +	31.915	400	500	62.5	437.5	64.598	54.908	19.486671	373.3764	19.1213	160.2719	128.2175567	Aman
		Bawah	**2D25**	981.25															

Tabel 7.3.a Lanjutan

Balok	Letak Tulangan		Tulangan Terpakai	As (mm^2)	ρ	Analisis	Mu (kNm)	b (mm)	h (mm)	d' (mm)	d (mm)	x (mm)	a (mm)	fs (Mpa)	Cc (kN)	Cs (kN)	Mnak (kNm)	øMnak (kNm)	Ket
(a)	(b)	[c]	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	[r]	(s)	(t)
balok lt.1	Lap	Bawah	3D25	1471.875	0.00822	Mlap	170.558	400	500	62.5	437.5	75.519	64.191	103.43622	436.4998	152.2452	234.0509	187.2407233	Aman
		Atas	2D25	981.25															
balok lt.2	Tump	Atas	2D25	981.25	0.00573	Mtump -	100.766	400	500	62.5	437.5	64.598	54.908	19.486671	373.3764	19.1213	160.2719	128.2175567	Aman
		Bawah	2D25	981.25															
	Lap	Bawah	2D25	981.25	0.00572	Mlap	108.206	400	500	62.5	437.5	64.598	54.908	19.486671	373.3764	19.1213	160.2719	128.2175567	Aman
		Atas	2D25	981.25															
balok tribun	Tump	Atas	4D25	1962.5	0.01051	Mtump -	193.486	400	500	62.5	437.5	83.883	71.301	152.94875	484.8437	300.1619	307.395	245.9160355	Aman
		Bawah	2D25	981.25															
	Tump	Atas	2D25	981.25	0.00585	Mtump +	50.156	400	500	62.5	437.5	64.598	54.908	19.486671	373.3764	19.1213	160.2719	128.2175567	Aman
		Bawah	2D25	981.25															
	Lap	Bawah	3D25	1471.875	0.00866	Mlap	135.044	400	500	62.5	437.5	75.519	64.191	103.43622	436.4998	152.2452	234.0509	187.2407233	Aman
		Atas	2D25	981.25															
AS Y-10 & Y-12																			
balok lt.1	Tump	Atas	2D25	981.25	0.00569	Mtump -	121.199	400	500	62.5	437.5	64.598	54.908	19.486671	373.3764	19.1213	160.2719	128.2175567	Aman
		Bawah	2D25	981.25															
	Lap	Bawah	3D25	1471.875	0.00827	Mlap	166.707	400	500	62.5	437.5	75.519	64.191	103.43622	436.4998	152.2452	234.0509	187.2407233	Aman
		Atas	2D25	981.25															
balok tribun	Tump	Atas	4D25	1962.5	0.0106	Mtump -	188.836	400	500	62.5	437.5	83.883	71.301	152.94875	484.8437	300.1619	307.395	245.9160355	Aman
		Bawah	2D25	981.25															
	Tump	Atas	2D25	981.25	0.00585	Mtump +	48.516	400	500	62.5	437.5	64.598	54.908	19.486671	373.3764	19.1213	160.2719	128.2175567	Aman
		Bawah	2D25	981.25															
	Lap	Bawah	3D25	1471.875	0.00847	Mlap	150.352	400	500	62.5	437.5	75.519	64.191	103.43622	436.4998	152.2452	234.0509	187.2407233	Aman
		Atas	2D25	981.25															
AS Y-11																			
balok lt.1	Tump	Atas	3D25	1471.875	0.00818	Mtump -	173.935	400	500	62.5	437.5	75.519	64.191	103.43622	436.4998	152.2452	234.0509	187.2407233	Aman
		Bawah	2D25	981.25															
	Tump	Atas	2D25	981.25	0.00575	Mtump +	92.507	400	500	62.5	437.5	64.598	54.908	19.486671	373.3764	19.1213	160.2719	128.2175567	Aman
		Bawah	2D25	981.25															
	Lap	Bawah	4D25	1962.5	0.00986	Mlap	229.272	400	500	62.5	437.5	83.883	71.301	152.94875	484.8437	300.1619	307.395	245.9160355	Aman
		Atas	2D25	981.25															
balok lt.2	Tump	Atas	3D25	1471.875	0.00834	Mtump -	160.866	400	500	62.5	437.5	75.519	64.191	103.43622	436.4998	152.2452	234.0509	187.2407233	Aman
		Bawah	2D25	981.25															
	Tump	Atas	2D25	981.25	0.00589	Mtump +	34.051	400	500	62.5	437.5	64.598	54.908	19.486671	373.3764	19.1213	160.2719	128.2175567	Aman
		Bawah	2D25	981.25															

Tabel 7.3.a Lanjutan

Balok	Letak Tulangan		Tulangan Terpakai	As (mm^2)	ρ	Analisis	Mu (kNm)	b (mm)	h (mm)	d' (mm)	d (mm)	x (mm)	a (mm)	f's (Mpa)	Cc (kN)	Cs (kN)	Mnak (kNm)	øMnak (kNm)	Ket
(a)	(b)	[c]	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	[r]	(s)	(t)
balok lt.2	Lap	Bawah	3D25	1471.875	0.00853	Mlap	145.562	400	500	62.5	437.5	75.519	64.191	103.43622	436.4998	152.2452	234.0509	187.2407233	Aman
		Atas	2D25	981.25															
balok tribun	Tump	Atas	2D25	981.25	0.00557	Mtump -	126.818	400	500	62.5	437.5	64.598	54.908	19.486671	373.3764	19.1213	160.2719	128.2175567	Aman
		Bawah	2D25	981.25															
	Tump	Atas	2D25	981.25	0.00581	Mtump +	67.969	400	500	62.5	437.5	64.598	54.908	19.486671	373.3764	19.1213	160.2719	128.2175567	Aman
		Bawah	2D25	981.25															
	Lap	Bawah	3D25	1471.875	0.00831	Mlap	162.791	400	500	62.5	437.5	75.519	64.191	103.43622	436.4998	152.2452	234.0509	187.2407233	Aman
		Atas	2D25	981.25															

Keterangan Tabel 7.3.a

[a] Balok lantai 1 s/d 3, balok tribun dan balok atap

[b] Letak tulangan: Tumpuan dan Lapangan

[c] Letak tulangan : Atas dan Bawah

[d] Tulangan yang dipakai

[e] Luas tulangan

[f] Rasio tulangan: $\rho = (As-As'.fs'/fy)/(b.d)$

[g] Analisis: momen tumpuan: negatif, positif dan lapangan

[h] Mu = momen rencana balok (dari Tabel 7.1)

[i] b = lebar balok daerah desak

[j] h = tinggi balok

[k] $d' = D/2 + 10 + 50$

[l] $d = h - d'$ (tinggi efektif)

[m] x = didapat dari persamaan : (0,85.f'c .b.0,85)x^2+(600As+As.fy)-600.d'.As)

[n] $a = x .0,85$

[o] $f's = [(x-d')/x]600$

[p] $Cc = 0,85.f'c.b.a$

[q] $Cs = As'.fs'$

[r] $Mnak = Cc(d-a/2)+Cs(d-d')$

[s] $0,8.Mnak \geq Mu$ (aman)

Tabel 7.3.b Penulangan Lentur dan Momen Nominal Aktual Balok Portal B

Balok	Letak Tulangan		Tulangan Terpakai	As (mm^2)	ρ	Analisis	Mu (kNm)	b (mm)	h (mm)	d' (mm)	d (mm)	x (mm)	a (mm)	fs (Mpa)	Cc (kN)	Cs (kN)	Mnak (kNm)	øMnak (kNm)	Ket
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)	(t)
AS Y-3																			
balok lt.1	Tump	Atas	3D25	1471.875	0.01034	Mtump -	125.842	350	450	62.5	387.5	79.343	67.44155	127.3685	401.2772	187.471	202.89147	162.313	Aman
		Bawah	2D25	981.25															
	Tump	Atas	2D25	981.25	0.00775	Mtump +	43.866	350	450	62.5	387.5	68.074	57.8629	49.12889	344.2843	48.2077	139.11702	111.294	Aman
		Bawah	2D25	981.25															
	Lap	Bawah	3D25	1471.875	0.0101	Mlap	136.534	350	450	62.5	387.5	79.343	67.44155	127.3685	401.2772	187.471	202.89147	162.313	Aman
		Atas	2D25	981.25															
AS Y-2																			
balok lt.1	Tump	Atas	2D25	981.25	0.00717	Mtump -	110.622	350	450	62.5	387.5	68.074	57.8629	49.12889	344.2843	48.2077	139.11702	111.294	Aman
		Bawah	2D25	981.25															
	Tump	Atas	2D25	981.25	0.00782	Mtump +	35.962	350	450	62.5	387.5	68.074	57.8629	49.12889	344.2843	48.2077	139.11702	111.294	Aman
		Bawah	2D25	981.25															
	Lap	Bawah	2D25	981.25	0.00732	Mlap	93.23	350	450	62.5	387.5	68.074	57.8629	49.12889	344.2843	48.2077	139.11702	111.294	Aman
		Atas	2D25	981.25															
balok lt.2	Tump	Atas	4D25	1962.5	0.0121	Mtump -	180.099	350	450	62.5	387.5	87.913	74.72605	173.4419	444.62	340.38	266.30133	213.041	Aman
		Bawah	2D25	981.25															
	Tump	Atas	3D25	1471.875	0.00954	Mtump +	161.365	350	450	62.5	387.5	79.343	67.44155	127.3685	401.2772	187.471	202.89147	162.313	Aman
		Bawah	2D25	981.25															
	Lap	Bawah	4D25	1962.5	0.01153	Mlap	198.574	350	450	62.5	387.5	87.913	74.72605	173.4419	444.620	340.38	266.30133	213.041	Aman
		Atas	2D25	981.25															
AS Y-1																			
balok lt.1	Tump	Atas	2D25	981.25	0.00765	Mtump -	69.848	250	700	62.5	637.5	77.354	65.7509	115.2158	279.4413	113.055	233.96398	187.171	Aman
		Bawah	2D25	981.25															
	Tump	Atas	2D25	981.25	0.0076	Mtump +	53.742	250	700	62.5	637.5	77.354	65.7509	115.2158	279.4413	113.055	233.96398	187.171	Aman
		Bawah	2D25	981.25															
	Lap	Bawah	2D25	981.25	0.0076	Mlap	75.003	250	700	62.5	637.5	77.354	65.7509	115.2158	279.4413	113.055	233.96398	187.171	Aman
		Atas	2D25	981.25															
balok lt.2	Tump	Atas	2D25	981.25	0.00735	Mtump -	99.435	250	700	62.5	637.5	77.354	65.7509	115.2158	279.4413	113.055	233.96398	187.171	Aman
		Bawah	2D25	981.25															
	Tump	Atas	2D25	981.25	0.00787	Mtump +	47.54	250	700	62.5	637.5	77.354	65.7509	115.2158	279.4413	113.055	233.96398	187.171	Aman
		Bawah	2D25	981.25															
	Lap	Bawah	2D25	981.25	0.00736	Mlap	99.445	250	700	62.5	637.5	77.354	65.7509	115.2158	279.4413	113.055	233.96398	187.171	Aman
		Atas	2D25	981.25															

Tabel 7.3.b Lanjutan

Balok	Letak Tulangan		Tulangan Terpakai	As (mm^2)	ρ	Analisis	Mu (kNm)	b (mm)	h (mm)	d' (mm)	d (mm)	x (mm)	a (mm)	fs (Mpa)	Cc (kN)	Cs (kN)	Mnak (kNm)	øMnak (kNm)	Ket
(a)	(b)	[c]	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	[r]	(s)	(t)
balok lt.3	Tump	Atas	2D25	981.25	0.00704	Mtump -	131.717	250	700	62.5	637.5	77.354	65.7509	115.2158	279.4413	113.055	233.96398	187.171	Aman
		Bawah	2D25	981.25															
	Tump	Atas	3D25	1471.875	0.00948	Mtump +	202.657	250	700	62.5	637.5	83.883	71.30055	152.9488	303.0273	225.121	311.82175	249.457	Aman
		Bawah	2D25	981.25															
	Lap	Bawah	2D25	981.25	0.0071	Mlap	125.752	250	700	62.5	637.5	77.354	65.7509	115.2158	279.4413	113.055	233.96398	187.171	Aman
		Atas	2D25	981.25															
balok atap	Tump	Atas	2D25	981.25	0.00751	Mtump -	27.205	400	400	62.5	337.5	64.598	54.9083	19.48667	373.3764	19.1213	121.02217	96.8177	Aman
		Bawah	2D25	981.25															
	Tump	Atas	2D25	981.25	0.00754	Mtump +	19.4	400	400	62.5	337.5	64.598	54.9083	19.48667	373.3764	19.1213	121.02217	96.8177	Aman
		Bawah	2D25	981.25															
	Lap	Bawah	2D25	981.25	0.00755	Mlap	16.892	400	400	62.5	337.5	64.598	54.9083	19.48667	373.3764	19.1213	121.02217	96.8177	Aman
		Atas	2D25	981.25															
AS X-4 & X-15																			
balok lt.1	Tump	Atas	2D25	981.25	0.00573	Mtump -	102.598	400	500	62.5	437.5	64.598	54.9083	19.48667	373.3764	19.1213	160.27195	128.218	Aman
		Bawah	2D25	981.25															
	Tump	Atas	2D25	981.25	0.00588	Mtump +	39.027	400	500	62.5	437.5	64.598	54.9083	19.48667	373.3764	19.1213	160.27195	128.218	Aman
		Bawah	2D25	981.25															
	Lap	Bawah	2D25	981.25	0.0057	Mlap	117.096	400	500	62.5	437.5	64.598	54.9083	19.48667	373.3764	19.1213	160.27195	128.218	Aman
		Atas	2D25	981.25															
balok lt.2	Tump	Atas	2D25	981.25	0.00577	Mtump -	84.445	400	500	62.5	437.5	64.598	54.9083	19.48667	373.3764	19.1213	160.27195	128.218	Aman
		Bawah	2D25	981.25															
	Tump	Atas	2D25	981.25	0.00583	Mtump +	60.592	400	500	62.5	437.5	64.598	54.9083	19.48667	373.3764	19.1213	160.27195	128.218	Aman
		Bawah	2D25	981.25															
	Lap	Atas	2D25	981.25	0.00576	Mlap	83.579	400	500	62.5	437.5	64.598	54.9083	19.48667	373.3764	19.1213	160.27195	128.218	Aman
		Bawah	2D25	981.25															
balok tribun	Tump	Atas	3D25	1471.875	0.00817	Mtump -	174.659	400	500	62.5	437.5	75.519	64.19115	103.4362	436.4998	152.245	234.0509	187.241	Aman
		Bawah	2D25	981.25															
	Tump	Atas	2D25	981.25	0.00585	Mtump +	51.398	400	500	62.5	437.5	64.598	54.9083	19.48667	373.3764	19.1213	160.27195	128.218	Aman
		Bawah	2D25	981.25															
	Lap	Bawah	3D25	1471.875	0.00849	Mlap	148.898	400	500	62.5	437.5	75.519	64.19115	103.4362	436.4998	152.245	234.0509	187.241	Aman
		Atas	2D25	981.25															
AS X-5 & X-14																			
balok lt.1	Tump	Atas	3D25	1471.875	0.00847	Mtump -	149.824	400	500	62.5	437.5	75.519	64.19115	103.4362	436.4998	152.245	234.0509	187.241	Aman
		Bawah	2D25	981.25															

Tabel 7.3.b Lanjutan

Balok	Letak Tulangan		Tulangan Terpakai	As (mm^2)	ρ	Analisis	Mu (kNm)	b (mm)	h (mm)	d' (mm)	d (mm)	x (mm)	a (mm)	fs (Mpa)	Cc (kN)	Cs (kN)	Mnak (kNm)	øMnak (kNm)	Ket
(a)	(b)	[c]	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	[r]	(s)	(t)
balok lt.1	Tump	Atas	2D25	981.25	0.00586	Mtump +	47.327	400	500	62.5	437.5	64.598	54.9083	19.48667	373.3764	19.1213	160.27195	128.218	Aman
		Bawah	2D25	981.25															
	Lap	Bawah	3D25	1471.875	0.00822	Mlap	170.124	400	500	62.5	437.5	75.519	64.19115	103.4362	436.4998	152.245	234.0509	187.241	Aman
		Atas	2D25	981.25															
balok lt.2	Tump	Atas	2D25	981.25	0.00576	Mtump -	89.223	400	500	62.5	437.5	64.598	54.9083	19.48667	373.3764	19.1213	160.27195	128.218	Aman
		Bawah	2D25	981.25															
	Tump	Atas	2D25	981.25	0.00581	Mtump +	68.276	400	500	62.5	437.5	64.598	54.9083	19.48667	373.3764	19.1213	160.27195	128.218	Aman
		Bawah	2D25	981.25															
	Lap	Bawah	2D25	981.25	0.00572	Mlap	105.136	400	500	62.5	437.5	64.598	54.9083	19.48667	373.3764	19.1213	160.27195	128.218	Aman
		Atas	2D25	981.25															
balok tribun	Tump	Atas	5D25	2453.125	0.01112	Mtump -	235.732	400	500	62.5	437.5	90.663	77.06355	186.3803	524.0321	457.214	380.52752	304.422	Aman
		Bawah	3D25	1471.875															
	Tump	Atas	2D25	981.25	0.00581	Mtump +	67.288	400	500	62.5	437.5	64.598	54.9083	19.48667	373.3764	19.1213	160.27195	128.218	Aman
		Bawah	2D25	981.25															
	Lap	Bawah	4D25	1962.5	0.01007	Mlap	217.645	400	500	62.5	437.5	83.883	71.30055	152.9488	484.8437	300.162	307.39504	245.916	Aman
		Atas	2D25	981.25															
AS X-6 & X-13																			
balok lt.1	Tump	Atas	2D25	981.25	0.0057	Mtump -	114.262	400	500	62.5	437.5	64.598	54.9083	19.48667	373.3764	19.1213	160.27195	128.218	Aman
		Bawah	2D25	981.25															
	Tump	Atas	2D25	981.25	0.00583	Mtump +	58.375	400	500	62.5	437.5	64.598	54.9083	19.48667	373.3764	19.1213	160.27195	128.218	Aman
		Bawah	2D25	981.25															
	Lap	Bawah	3D25	1471.875	0.00858	Mlap +	141.494	400	500	62.5	437.5	75.519	64.19115	103.4362	436.4998	152.245	234.0509	187.241	Aman
		Atas	2D25	981.25															
balok lt.2	Tump	Atas	2D25	981.25	0.00573	Mtump -	102.631	400	500	62.5	437.5	64.598	54.9083	19.48667	373.3764	19.1213	160.27195	128.218	Aman
		Bawah	2D25	981.25															
	Tump	Atas	2D25	981.25	0.0058	Mtump+	69.722	400	500	62.5	437.5	64.598	54.9083	19.48667	373.3764	19.1213	160.27195	128.218	Aman
		Bawah	2D25	981.25															
	Lap	Bawah	2D25	981.25	0.00571	Mlap	110.767	400	500	62.5	437.5	64.598	54.9083	19.48667	373.3764	19.1213	160.27195	128.218	Aman
		Atas	2D25	981.25															
balok tribun	Tump	Atas	4D25	1962.5	0.00983	Mtump -	231.194	400	500	62.5	437.5	83.883	71.30055	152.9488	484.8437	300.162	307.39504	245.916	Aman
		Bawah	2D25	981.25															

Tabel 7.3.b Lanjutan

Balok	Letak Tulangan		Tulangan Terpakai	As (mm^2)	ρ	Analisis	Mu (kNm)	b (mm)	h (mm)	d' (mm)	d (mm)	x (mm)	a (mm)	f's (Mpa)	Cc (kN)	Cs (kN)	Mnak (kNm)	øMnak (kNm)	Ket
(a)	(b)	[c]	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	[r]	(s)	(t)
balok tribun	Tump	Atas	2D25	981.25	0.00587	Mtump +	41.818	400	500	62.5	437.5	64.598	54.9083	19.48667	373.3764	19.1213	160.27195	128.218	Aman
		Bawah	2D25	981.25															
	Lap	Bawah	3D25	1471.875	0.00808	Mlap	182.136	400	500	62.5	437.5	75.519	64.19115	103.4362	436.4998	152.245	234.0509	187.241	Aman
		Atas	2D25	981.25															
AS X-7 & X-12																			
balok lt.1	Tump	Atas	5D25	2453.125	0.01197	Mtump -	247.365	400	500	62.5	437.5	90.663	77.06355	186.3803	524.0321	457.214	380.52752	304.422	Aman
		Bawah	3D25	1471.875															
	Tump	Atas	2D25	981.25	0.00588	Mtump+	36.887	400	500	62.5	437.5	64.598	54.9083	19.48667	373.3764	19.1213	160.27195	128.218	Aman
		Bawah	2D25	981.25															
	Lap	Bawah	5D25	2453.125	0.01141	Mlap	272.706	400	500	62.5	437.5	90.663	77.06355	186.3803	524.0321	457.214	380.52752	304.422	Aman
		Atas	3D25	1471.875															
balok lt.2	Tump	Atas	2D25	981.25	0.00575	Mtump -	92.419	400	500	62.5	437.5	64.598	54.9083	19.48667	373.3764	19.1213	160.27195	128.218	Aman
		Bawah	2D25	981.25															
	Tump	Atas	2D25	981.25	0.00581	Mtump +	68.294	400	500	62.5	437.5	64.598	54.9083	19.48667	373.3764	19.1213	160.27195	128.218	Aman
		Bawah	2D25	981.25															
	Lap	Bawah	2D25	981.25	0.00575	Mlap	92.881	400	500	62.5	437.5	64.598	54.9083	19.48667	373.3764	19.1213	160.27195	128.218	Aman
		Atas	2D25	981.25															
balok tribun	Tump	Atas	4D25	1962.5	0.00976	Mtump -	234.82	400	500	62.5	437.5	83.883	71.30055	152.9488	484.8437	300.162	307.39504	245.916	Aman
		Bawah	2D25	981.25															
	Tump	Atas	2D25	981.25	0.00581	Mtump +	69.214	400	500	62.5	437.5	64.598	54.9083	19.48667	373.3764	19.1213	160.27195	128.218	Aman
		Bawah	2D25	981.25															
	Lap	Bawah	3D25	981.25	0.0054	Mlap	171.94	400	500	62.5	437.5	75.519	64.19115	103.4362	436.4998	101.497	215.02026	172.016	Aman
		Atas	2D25	981.25															
AS X-8 & X-11																			
balok lt.1	Tump	Atas	3D25	1471.875	0.00816	Mtump -	175.334	400	500	62.5	437.5	75.519	64.19115	103.4362	436.4998	152.245	234.0509	187.241	Aman
		Bawah	2D25	981.25															
	Tump	Atas	2D25	981.25	0.00587	Mtump +	40.005	400	500	62.5	437.5	64.598	54.9083	19.48667	373.3764	19.1213	160.27195	128.218	Aman
		Bawah	2D25	981.25															
	Lap	Bawah	3D25	1471.875	0.00814	Mlap	176.695	400	500	62.5	437.5	75.519	64.19115	103.4362	436.4998	152.245	234.0509	187.241	Aman
		Atas	2D25	981.25															

Tabel 7.3.b Lanjutan

Balok	Letak Tulangan		Tulangan Terpakai	As (mm^2)	ρ	Analisis	Mu (kNm)	b (mm)	h (mm)	d' (mm)	d (mm)	x (mm)	a (mm)	fs (Mpa)	Cc (kN)	Cs (kN)	Mnak (kNm)	øMnak (kNm)	Ket
(a)	(b)	[c]	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	[r]	(s)	(t)
balok lt.2	Tump	Atas	**3D25**	1471.875	0.0082	Mtump -	172.444	400	500	62.5	437.5	75.519	64.19115	103.4362	436.4998	152.245	234.0509	187.241	Aman
		Bawah	**2D25**	981.25															
	Tump	Atas	**2D25**	981.25	0.00569	Mtump +	120.413	400	500	62.5	437.5	64.598	54.9083	19.48667	373.3764	19.1213	160.27195	128.218	Aman
		Bawah	**2D25**	981.25															
	Lap	Bawah	**4D25**	1962.5	0.01017	Mlap	212.512	400	500	62.5	437.5	83.883	71.30055	152.9488	484.8437	300.162	307.39504	245.916	Aman
		Atas	**2D25**	981.25															
balok tribun	Tump	Atas	**4D25**	1962.5	0.00999	Mtump -	222.146	400	500	62.5	437.5	83.883	71.30055	152.9488	484.8437	300.162	307.39504	245.916	Aman
		Bawah	**2D25**	981.25															
	Tump	Atas	**2D25**	981.25	0.00583	Mtump +	60.508	400	500	62.5	437.5	64.598	54.9083	19.48667	373.3764	19.1213	160.27195	128.218	Aman
		Bawah	**2D25**	981.25															
	Lap	Bawah	**3D25**	1471.875	0.00854	Mlap	144.52	400	500	62.5	437.5	75.519	64.19115	103.4362	436.4998	152.245	234.0509	187.241	Aman
		Atas	**2D25**	981.25															
AS X-9 & X-10																			
balok lt.1	Tump	Atas	**2D25**	981.25	0.00572	Mtump -	104.46	400	500	62.5	437.5	64.598	54.9083	19.48667	373.3764	19.1213	160.27195	128.218	Aman
		Bawah	**2D25**	981.25															
	Tump	Atas	**2D25**	981.25	0.0059	Mtump +	30.466	400	500	62.5	437.5	64.598	54.9083	19.48667	373.3764	19.1213	160.27195	128.218	Aman
		Bawah	**2D25**	981.25															
	Lap	Bawah	**2D25**	981.25	0.00573	Mlap	102.315	400	500	62.5	437.5	64.598	54.9083	19.48667	373.3764	19.1213	160.27195	128.218	Aman
		Atas	**2D25**	981.25															
balok lt.2	Tump	Atas	**3D25**	1471.875	0.0084	Mtump -	155.612	400	500	62.5	437.5	75.519	64.19115	103.4362	436.4998	152.245	234.0509	187.241	Aman
		Bawah	**2D25**	981.25															
	Tump	Atas	**2D25**	981.25	0.00573	Mtump-	100.166	400	500	62.5	437.5	64.598	54.9083	19.48667	373.3764	19.1213	160.27195	128.218	Aman
		Bawah	**2D25**	981.25															
	Lap	Bawah	**4D25**	1962.5	0.01042	Mlap	198.827	400	500	62.5	437.5	83.883	71.30055	152.9488	484.8437	300.162	307.39504	245.916	Aman
		Atas	**2D25**	981.25															
balok tribun	Tump	Atas	**3D25**	1471.875	0.00844	Mtump -	152.643	400	500	62.5	437.5	75.519	64.19115	103.4362	436.4998	152.245	234.0509	187.241	Aman
		Bawah	**2D25**	981.25															
	Tump	Atas	**2D25**	981.25	0.0059	Mtump -	28.58	400	500	62.5	437.5	64.598	54.9083	19.48667	373.3764	19.1213	160.27195	128.218	Aman
		Bawah	**2D25**	981.25															
	Lap	Bawah	**3D25**	1471.875	0.00861	Mlap	138.96	400	500	62.5	437.5	75.519	64.19115	103.4362	436.4998	152.245	234.0509	187.241	Aman
		Atas	**2D25**	981.25															

Keterangan Tabel 7.3.b :

[a] Balok lantai 1 s/d 3, balok tribun dan balok atap

[b] Letak tulangan: Tumpuan dan Lapangan

[c] Letak tulangan : Atas dan Bawah

[d] Tulangan yang dipakai

[e] Luas tulangan

[f] Rasio tulangan: $\rho = (As-As'.fs'/fy)/(b.d)$

[g] Analisis: momen tumpuan: negatif, positif dan lapangan

[h] Mu = momen rencana balok (dari Tabel 7.1)

[i] b = lebar balok daerah desak

[j] h = tinggi balok

[k] d' = D/2 + 10 + 50

[l] d = h - d' (tinggi efektif)

[m] x = didapat dari persamaan : (0,85.f'c .b.0,85)x^2+(600As+As.fy)-600.d'.As)

[n] a = x.0,85

[o] f's = [(x-d')/x]600

[p] Cc = 0,85.f'c.b.a

[q] Cs = As'.fs'

[r] Mnak = Cc(d-a/2)+Cs(d-d')

[s] 0,8.Mnak ≥ Mu

Tabel 7.4.a Gaya Geser Rencana Balok Portal A

Portal	Balok	*ln* (m)	Ujg blk	*VD* (kN)	*VL* (kN)	*VE* (kN)	*Mnak* (kNm)	*Mnak'* (kNm)	*Vu,b* (kN)	*Vu,b maks* (kN)	*Vu,b pakai* (kN)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
AS x-3	Lantai 1	6.5	1	67.64935	53.75919	15.54216	266.287	139.117	182.053	192.756	182.053
			2	67.64935	53.75919	15.54216	266.287	139.117	72.905	62.202	62.202
AS x-2	Lantai 1	6.5	1	48.67044	33.87437	50.819	202.891	139.117	132.712	300.113	132.712
			2	48.67044	33.87437	50.8193	202.891	139.117	40.633	-126.769	40.633
	Lantai 2	6.5	1	114.7967	81.10669	55.95457	519.128	139.117	294.308	440.708	294.308
			2	114.7967	81.10669	55.95457	519.128	139.117	117.089	-29.311	117.089
AS x-1	Lantai 1	6.5	1	51.79697	16.54298	20.69556	233.964	233.964	134.747	158.678	134.747
			2	51.79697	16.54298	20.69556	233.964	233.964	8.767	-15.164	8.767
	Lantai 2	6.5	1	65.32104	16.60195	39.67037	233.964	233.964	149.009	252.635	149.009
			2	65.32104	16.60195	39.67037	233.964	233.964	23.029	-80.596	23.029
	Lantai 3	6.5	1	84.72872	66.94193	42.71707	346.468	233.964	237.389	338.666	237.389
			2	84.72872	66.94193	42.71707	346.468	233.964	81.119	-20.158	81.119
	Atap	6.5	1	14.02149	2.481352	14.89816	121.022	121.022	49.911	79.900	49.911
			2	14.02149	2.481352	14.89816	121.022	121.022	-15.255	-45.244	-15.255
AS y-4 & AS y-18	Lantai 1	5.95	1	53.917	32.81177	7.685513	160.272	160.272	134.215	123.344	123.344
			2	53.918	32.81178	8.685513	160.272	160.272	47.916	54.587	47.916
	Lantai 2	5.65	1	49.73809	28.66485	1.427787	160.272	160.272	125.473	88.320	88.320
			2	49.73809	28.66485	1.427787	160.272	160.272	39.173	76.326	39.173
	Tribun	7.09	1	59.74958	47.53861	0.7538462	243.051	160.272	166.946	115.819	115.819
			2	59.74959	47.53862	1.7538462	243.051	160.272	58.359	105.286	58.359
AS y-5 & AS y-17	Lantai 1	5.95	1	63.77878	39.74661	7.593316	243.051	160.272	162.995	140.594	140.594
			2	63.77879	39.74662	8.593316	243.051	160.272	54.408	72.610	54.408
	Lantai 2	5.65	1	47.56552	26.40217	1.806064	160.272	160.272	120.816	85.252	85.252
			2	47.56552	26.40217	1.806064	160.272	160.272	34.516	70.081	34.516
	Tribun	7.09	1	85.8536	66.35839	1.197147	380.528	160.272	232.623	164.851	164.851
			2	86.8536	66.35840	2.197147	380.528	160.272	88.073	151.645	88.073

Tabel 7.4.a Lanjutan

Portal	Balok	*ln* (m)	Ujg blk	*VD* (kN)	*VL* (kN)	*VE* (kN)	*Mnak* (kNm)	*Mnak'* (kNm)	*Vu,b* (kN)	*Vu,b maks* (kN)	*Vu,b pakai* (kN)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
AS y-6 & AS y-16	Lantai 1	5.95	1	72.67152	46.53918	9.547781	243.051	160.272	179.465	165.272	165.272
			2	72.67153	46.53919	10.547781	243.051	160.272	70.878	80.871	70.878
	Lantai 2	5.65	1	69.21554	42.86747	7.078583	243.051	160.272	171.981	147.417	147.417
			2	69.21554	42.86747	7.078584	243.051	160.272	63.394	87.957	63.394
	Tribun	7.09	1	64.44299	43.08738	-2.82156	307.395	160.272	175.862	101.056	101.056
			2	64.44300	43.08739	-2.82157	307.395	160.272	49.952	124.758	49.952
AS y-7 & AS y-15	Lantai 1	5.95	1	79.56276	51.96867	6.685002	307.395	160.272	201.063	166.185	166.185
			2	79.56277	51.96868	7.685002	307.395	160.272	75.153	105.831	75.153
	Lantai 2	5.65	1	82.24186	54.68882	0.6564525	307.395	160.272	206.732	146.534	146.534
			2	82.24186	54.68882	0.6564526	307.395	160.272	80.822	141.020	80.822
	Tribun	7.09	1	59.84187	39.17842	3.395229	307.395	160.272	166.926	118.231	118.231
			2	59.84187	39.17842	3.395229	307.395	160.272	41.016	89.711	41.016
AS y-8 & AS y-14	Lantai 1	5.95	1	65.65035	38.22548	6.792859	243.051	160.272	163.363	137.600	137.600
			2	66.65035	38.22549	7.792859	243.051	160.272	55.826	77.390	55.826
	Lantai 2	5.65	1	-60.77416	-35.71391	0.6933298	243.051	160.272	-47.019	-98.379	-47.019
			2	-60.77417	-35.71392	0.6933299	243.051	160.272	-155.606	-104.245	-104.245
	Tribun	7.09	1	64.1553	42.6482	3.662958	243.051	160.272	166.437	127.528	127.528
			2	64.1554	42.6483	4.662958	243.051	160.272	57.850	92.559	57.850
AS y-9 & AS y-13	Lantai 1	5.95	1	65.03073	38.92461	-6.176648	243.051	160.272	163.447	83.211	83.211
			2	65.03074	38.92462	-6.176649	243.051	160.272	54.860	135.095	54.860
	Lantai 2	5.65	1	51.58739	25.86391	0.9220496	243.051	160.272	135.617	85.196	85.196
			2	51.58739	25.86391	0.9220497	243.051	160.272	27.030	77.451	27.030
	Tribun	7.09	1	62.11617	41.18653	3.915384	243.051	160.272	162.761	124.912	124.912
			2	62.11617	41.18653	3.915384	243.051	160.272	54.174	92.023	54.174
AS y-10 & AS y-12	Lantai 1	5.95	1	87.6648	43.3928	6.170609	160.272	160.272	180.761	163.527	163.527
			2	87.6648	43.3928	6.170609	160.272	160.272	94.460	111.694	94.460
	Tribun	6.61	1	91.18372	41.19758	1.005934	307.395	160.272	201.956	143.225	143.225
			2	92.18372	41.19759	2.005934	307.395	160.272	76.045	130.575	76.045

Tabel 7.4.a Lanjutan

Portal	Balok	*ln* (m)	Ujg blk	*VD* (kN)	*VL* (kN)	*VE* (kN)	*Mnak* (kNm)	*Mnak'* (kNm)	*Vu,b* (kN)	*Vu,b maks* (kN)	*Vu,b pakai* (kN)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
AS y-11	Lantai 1	5.95	1	75.94	49.95776	9.217155	243.051	160.272	186.491	170.909	170.909
			2	75.94451	49.95776	9.217155	243.051	160.272	77.904	93.485	77.904
	Lantai 2	5.95	1	63.85064	36.214	3.952595	243.051	160.272	159.361	121.669	121.669
			2	63.85064	36.214	3.953	243.051	160.272	42.862	78.235	42.862
	Tribun	7.09	1	56.14471	36.38419	4.505	160.272	160.272	140.305	116.075	116.075
			2	56.14472	36.38420	5.505	160.272	160.272	54.005	74.035	54.005

Keterangan Tabel 7.4.a

[1] Portal yg ditinjau

[2] Balok yg ditinjau

[3] Bentang bersih balok (m)

[4] Ujung 1 = ujung balok, ujung 2 = ujung balok yg lain

[5] VD = gaya geser yg terjadi akibat beban mati

[6] VL = gaya geser yg terjadi akibat beban hidup

[7] VE = gaya geser yg terjadi akibat beban gempa

[8] Mnak = momen nominal aktual pada tumpuan negatif

[9] Mnak' = momen nominal aktual pada tumpuan positif

[10] Untuk ujung 1, Vu,b = 1,05(VD+VL)+0,7.1,25.(Mnak+Mnak')/ ln (gaya geser rencana)
Untuk ujung 2, Vu,b = 1,05(VD+VL)-0,7.1,25.(Mnak+Mnak')/ ln (gaya geser rencana)

[11] Untuk ujung 1, Vu,b maks = 1,05(VD+VL+4/K.VE) (gaya geser maksimum)
Untuk ujung 2, Vu,b maks = 1,05(VD+VL-4/K.VE) (gaya geser maksimum)

[12] Vu,b pakai

Tabel 7.4.b Gaya Geser Rencana Balok Portal B

Portal	Balok	*ln* (m)	Ujg blk	*VD* (kN)	*VL* (kN)	*VE* (kN)	*Mnak* (kNm)	*Mnak'* (kNm)	*Vu,b* (kN)	*Vu,b maks* (kN)	*Vu,b pakai* (kN)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
AS y-3	Lantai 1	6.5	1	47.10592	44.60938	26.92402	202.891	139.117	142.341	209.382	142.341
			2	47.10593	44.60938	26.92402	202.891	139.117	50.262	-16.780	50.262
AS y-2	Lantai 1	6.5	1	58.89082	30.02259	32.53319	139.177	139.177	130.830	229.998	130.830
			2	58.89082	30.02259	32.53319	139.177	139.177	55.888	-43.280	55.888
	Lantai 2	6.5	1	83.12343	63.78365	30.60007	266.301	202.891	217.413	282.773	217.413
			2	83.12343	63.78365	30.60007	266.301	202.891	91.092	25.732	25.732
AS y-1	Lantai 1	6.5	1	47.15055	15.4894	19.52265	233.964	233.964	128.762	147.767	128.762
			2	47.15055	15.4894	19.52265	233.964	233.964	2.782	-16.223	2.782
	Lantai 2	6.5	1	71.61474	14.97284	24.48938	233.964	233.964	153.907	193.772	153.907
			2	71.61475	14.97285	24.48939	233.964	233.964	27.927	-11.938	27.927
	Lantai 3	6.5	1	70.80812	-38.16143	15.37504	233.964	311.822	107.750	98.854	98.854
			2	71.80812	-38.16144	15.37505	233.964	311.822	-38.142	-29.246	-29.246
	Atap	6.5	1	14.0882	2.649886	7.061492	121.022	121.022	50.158	47.233	47.233
			2	14.0883	2.649887	7.061492	121.022	121.022	-15.008	-12.083	-12.083
AS x-4 & AS x-15	Lantai 1	5.95	1	48.93261	32.36572	3.245012	160.272	160.272	128.513	98.992	98.992
			2	48.93262	32.36573	3.245012	160.272	160.272	42.213	71.734	42.213
	Lantai 2	5.65	1	49.11297	22.68568	0.2694239	160.272	160.272	118.539	76.520	76.520
			2	49.11297	22.68568	0.2694239	160.272	160.272	32.238	74.257	32.238
	Tribun	7.092	1	57.77748	50.24121	1.299271	234.051	160.272	166.502	118.877	118.877
			2	57.77749	50.24122	1.299271	234.051	160.272	60.338	107.963	60.338
AS x-5 & AS x-14	Lantai 1	5.95	1	57.74147	39.31939	3.62029	234.051	160.272	154.996	117.119	117.119
			2	57.74148	39.31940	3.62029	234.051	160.272	48.832	86.709	48.832
	Lantai 2	5.65	1	51.5854	18.7177	1.051244	160.272	160.272	116.968	78.233	78.233
			2	51.5854	18.7177	1.051244	160.272	160.272	30.668	69.403	30.668
	Tribun	7.092	1	84.71769	53.81244	1.18816	380.528	160.272	228.757	160.947	160.947
			2	84.71769	53.81244	1.18816	380.528	160.272	83.157	150.966	83.157

Tabel 7.4.b Lanjutan

Portal	Balok	*In* (m)	Ujg blk	*VD* (kN)	*VL* (kN)	*VE* (kN)	*Mnak* (kNm)	*Mnak'* (kNm)	*Vu,b* (kN)	*Vu,b maks* (kN)	*Vu,b pakai* (kN)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
AS x-6 & AS x-13	Lantai 1	5.95	1	52.90942	33.89396	7.143099	234.051	160.272	144.225	121.145	121.145
			2	52.90942	33.89396	7.143099	234.051	160.272	38.062	61.143	38.062
	Lantai 2	5.65	1	61.71412	19.19579	0.786928	160.272	160.272	128.106	88.261	88.261
			2	61.71412	19.19579	0.786928	160.272	160.272	41.805	81.650	41.805
	Tribun	7.092	1	74.7778	53.61307	2.252864	307.395	160.272	197.766	144.272	144.272
			2	74.7778	53.61307	2.252864	307.395	160.272	71.855	125.348	71.855
AS x-7 & AS x-12	Lantai 1	5.95	1	91.25458	59.38948	6.248791	380.528	160.272	230.976	184.421	184.421
			2	91.25459	59.38949	6.248791	380.528	160.272	85.376	131.931	85.376
	Lantai 2	5.65	1	57.60819	16.80496	0.54422	160.272	160.272	121.284	80.420	80.420
			2	57.60819	16.80496	0.54422	160.272	160.272	34.984	75.848	34.984
	Tribun	7.092	1	74.38748	52.58926	2.80924	307.395	160.272	196.281	145.124	145.124
			2	74.38748	52.58926	2.80924	307.395	160.272	70.370	121.527	70.370
AS x-8 & AS x-11	Lantai 1	5.95	1	77.78913	41.1431	5.929557	234.051	160.272	177.961	149.783	149.783
			2	77.78914	41.1432	5.929557	234.051	160.272	71.797	99.975	71.797
	Lantai 2	5.65	1	86.00434	35.11997	0.4853092	307.395	160.272	190.136	129.219	129.219
			2	86.00434	35.11997	0.4853092	307.395	160.272	129.597	139.868	129.597
	Tribun	7.092	1	110.9739	72.40944	12.54392	307.395	160.272	255.508	245.237	245.237
			2	110.9739	72.40944	12.54393	307.395	160.272	129.597	139.868	129.597
AS x-9 & AS x-10	Lantai 1	5.95	1	66.72681	21.35075	6.041189	160.272	160.272	135.632	117.854	117.854
			2	66.72681	21.35075	6.041189	160.272	160.272	49.331	67.108	49.331
	Lantai 2	5.65	1	76.34885	27.49789	0.4110075	307.395	160.272	171.994	110.765	110.765
			2	76.34885	27.49789	0.4110075	307.395	160.272	46.084	107.313	46.084
	Tribun	7.092	1	55.38519	27.74322	2.682124	234.051	160.272	140.367	98.550	98.550
			2	55.38519	27.74322	2.682124	234.051	160.272	34.203	76.020	34.203

Keterangan Tabel 7.4.b

[1] Portal yg ditinjau

[3] Bentang bersih balok (m)

[4] Ujung 1 = ujung balok, ujung 2 = ujung balok yg lain

[5] VD = gaya geser yg terjadi akibat beban mati

[6] VL = gaya geser yg terjadi akibat beban hidup

[10] Untuk ujung 1, Vu,b = 1,05(VD+VL)+0,7.1,25.(Mnak+Mnak')/ ln (gaya geser rencana)

Untuk ujung 2, Vu,b = 1,05(VD+VL)-0,7.1,25.(Mnak+Mnak')/ ln (gaya geser rencana)

[11] Untuk ujung 1, Vu,b maks = 1,05(VD+VL+4/K.VE) (gaya geser maksimum)

Untuk ujung 2, Vu,b maks = 1,05(VD+VL-4/K.VE) (gaya geser maksimum)

[12] Vu,b pakai

Tabel 7.5.a Penulangan Geser Balok Portal A

Portal	Balok	ln (m)	Lokasi	Jarak (m)	Vu,b1 (kN)	Vu,b2 (kN)	Vu,b terpakai (kN)	d (mm)	bw (mm)	Vc (kN)	Vs (kN)	S (mm)	Smaks (mm)	Tul geser terpakai	0.6(Vs+Vc) ≥ Vu,b' (kN)	Keterangan
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]
AS X-3	Lantai 1	6.5	Pada SP	0-0.9	182.053	62.202	182.053	387.5	350	0	303.4217	96.291	96.875	**4P10-95**	184.528	Aman
			Kritis	0.3875			174.908	387.5	350	101.0889	190.4245	153.430	96.875	**4P10-95**	245.181	Aman
			Luar SP	0.9			165.458	387.5	350	101.0889	174.6748	167.264	193.750	**4P10-165**	166.897	Aman
AS X-2	Lantai 1	6.5	Pada SP	0-0.9	132.712	40.633	132.712	387.5	350	0	221.1867	66.046	96.875	**2P10-65**	134.847	Aman
			Kritis	0.3875			127.223	387.5	350	101.0889	110.9489	131.668	96.875	**2P10-95**	152.917	Aman
			Luar SP	0.9			119.963	387.5	350	101.0889	98.84876	147.786	193.750	**2P10-140**	123.261	Aman
	Lantai 2	6.5	Pada SP	0-0.9	294.308	117.089	294.308	387.5	350	0	490.5133	85.772	96.875	**4P12-85**	296.979	Aman
			Kritis	0.3875			283.743	387.5	350	101.0889	371.816	113.153	96.875	**4P12-95**	326.372	Aman
			Luar SP	0.9			269.770	387.5	350	101.0889	348.5277	120.714	193.750	**4P12-120**	271.014	Aman
AS X-1	Lantai 1	6.5	Pada SP	0-1.4	134.747	8.767	134.747	637.5	250	0	224.5783	107.015	159.375	**2P10-100**	144.199	Aman
			Kritis	0.6375			122.391	637.5	250	118.7911	85.19434	141.050	159.375	**P10-140**	122.774	Aman
			Luar SP	1.4			107.613	637.5	250	118.7911	60.56363	198.413	318.750	**P10-195**	108.249	Aman
	Lantai 2	6.5	Pada SP	0-1.4	149.009	23.029	149.009	637.5	250	0	248.3483	96.772	159.375	**2P10-95**	151.789	Aman
			Kritis	0.6375			136.653	637.5	250	118.7911	108.9643	110.280	159.375	**P10-110**	136.820	Aman
			Luar SP	1.4			121.875	637.5	250	118.7911	84.33363	142.489	318.750	**P10-140**	122.774	Aman
	Lantai 3	6.5	Pada SP	0-1.4	237.389	81.119	237.389	637.5	250	0	395.6483	60.744	159.375	**2P10-60**	240.332	Aman
			Kritis	0.6375			222.063	637.5	250	118.7911	251.3131	95.631	159.375	**2P10-95**	223.064	Aman
			Luar SP	1.4			203.731	637.5	250	118.7911	220.7603	108.866	318.750	**2P10-105**	208.607	Aman
	Balok atap	6.5	Pada SP	0-0.8	49.911	-15.255	49.911	337.5	400	0	83.185	76.477	84.375	**P10-75**	50.894	Aman
			Kritis	0.3375			46.527	337.5	400	100.6231	-23.07742	-275.669	84.375	**P10-80**	108.087	Aman
			Luar SP	0.8			41.891	337.5	400	100.6231	-30.80544	-206.514	168.75	**P10-160**	84.230	Aman
AS Y-4 & AS Y-18	Lantai 1	5.95	Pada SP	0-1	123.344	47.916	123.344	437.5	400	0	205.5733	80.231	109.375	**2P10-80**	123.701	Aman
			Kritis	0.4375			117.798	437.5	400	130.4373	65.89241	125.154	109.375	**P10-105**	125.386	Aman
			Luar SP	1			110.667	437.5	400	130.4373	54.00774	152.695	218.750	**P10-150**	111.249	Aman
	Lantai 2	5.65	Pada SP	0-1	88.32	39.173	88.320	437.5	400	0	147.2	112.048	109.375	**2P10-105**	94.248	Aman
			Kritis	0.4375			84.514	437.5	400	130.4373	10.41998	791.431	109.375	**P10-105**	125.386	Aman
			Luar SP	1			79.621	437.5	400	130.4373	2.265061	3640.829	218.750	**P10-210**	101.824	Aman
	Tribun	7.092	Pada SP	0-1	115.819	58.359	115.819	437.5	400	0	193.0317	85.444	109.375	**2P10-85**	116.424	Aman
			Kritis	0.4375			112.274	437.5	400	130.4373	56.6866	145.479	109.375	**P10-105**	125.386	Aman
			Luar SP	1			107.717	437.5	400	130.4373	49.09089	167.988	218.750	**P10-165**	108.250	Aman

Tabel 7.5.a Lanjutan

Portal	Balok	ln (m)	Lokasi	Jarak (m)	Vu,b1 (kN)	Vu,b2 (kN)	Vu,b terpakai (kN)	d (mm)	bw (mm)	Vc (kN)	Vs (kN)	S (mm)	Smaks (mm)	Tul geser terpakai	0.6(Vs+Vc) ≥ Vu,b' (kN)	Keterangan
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]
AS Y-5 & AS Y-17	Lantai 1	5.95	Pada SP	0-1	140.594	54.408	140.594	437.5	400	0	234.3233	70.387	109.375	**2P10-70**	141.372	Aman
			Kritis	0.4375			134.257	437.5	400	130.4373	93.32402	88.366	109.375	**P10-85**	136.474	Aman
			Luar SP	1			126.109	437.5	400	130.4373	79.7443	103.414	218.750	**P10-100**	127.743	Aman
	Lantai 2	5.65	Pada SP	0-1	85.252	34.516	85.252	437.5	400	0	142.0867	116.080	109.375	**2P10-105**	94.248	Aman
			Kritis	0.4375			81.323	437.5	400	130.4373	5.10158	1616.499	109.375	**P10-105**	125.386	Aman
			Luar SP	1			76.272	437.5	400	130.4373	-3.317004	-2486.190	218.750	**P10-210**	101.824	Aman
	Tribun	7.092	Pada SP	0-1	164.851	88.073	164.851	437.5	400	0	274.7517	60.030	109.375	**2P10-60**	164.934	Aman
			Kritis	0.4375			160.115	437.5	400	130.4373	136.4204	120.901	109.375	**2P10-105**	172.510	Aman
			Luar SP	1			154.025	437.5	400	130.4373	126.271	130.619	218.750	**2P10-130**	154.386	Aman
AS Y-6 & AS Y-16	Lantai 1	5.95	Pada SP	0-1	165.272	70.878	165.272	437.5	400	0	275.4533	119.755	109.375	**4P10-105**	188.496	Aman
			Kritis	0.4375			158.331	437.5	400	130.4373	133.4481	123.594	109.375	**2P10-105**	172.510	Aman
			Luar SP	1			149.407	437.5	400	130.4373	118.5751	139.097	218.750	**2P10-135**	151.566	Aman
	Lantai 2	5.65	Pada SP	0-1	147.417	63.394	147.417	437.5	400	0	245.695	67.130	109.375	**2P10-65**	152.247	Aman
			Kritis	0.4375			140.911	437.5	400	130.4373	104.414	78.981	109.375	**P10-75**	144.236	Aman
			Luar SP	1			132.546	437.5	400	130.4373	90.47216	91.152	218.750	**P10-90**	133.240	Aman
	Tribun	7.092	Pada SP	0-1	101.056	49.952	101.056	437.5	400	0	168.4267	97.926	109.375	**2P10-95**	104.169	Aman
			Kritis	0.4375			97.903	437.5	400	130.4373	32.73509	251.922	109.375	**P10-105**	125.386	Aman
			Luar SP	1			93.850	437.5	400	130.4373	25.97959	317.430	218.750	**P10-210**	101.824	Aman
AS Y-7 & AS Y-15	Lantai 1	5.95	Pada SP	0-1	166.185	75.153	166.185	437.5	400	0	276.975	119.097	109.375	**4P10-105**	188.496	Aman
			Kritis	0.4375			159.491	437.5	400	130.4373	135.3818	121.829	109.375	**2P10-105**	172.510	Aman
			Luar SP	1			150.886	437.5	400	130.4373	121.0385	136.266	218.750	**2P10-135**	151.566	Aman
	Lantai 2	5.65	Pada SP	0-1	146.534	80.822	146.534	437.5	400	0	244.2233	67.534	109.375	**2P10-65**	152.247	Aman
			Kritis	0.4375			141.446	437.5	400	130.4373	105.3055	78.312	109.375	**P10-75**	144.236	Aman
			Luar SP	1			134.904	437.5	400	130.4373	94.40196	87.357	218.750	**P10-85**	136.474	Aman
	Tribun	7.092	Pada SP	0-1	118.231	41.016	118.231	437.5	400	0	197.0517	83.701	109.375	**2P10-80**	123.701	Aman
			Kritis	0.4375			113.468	437.5	400	130.4373	58.67548	140.548	109.375	**P10-105**	125.386	Aman
			Luar SP	1			107.343	437.5	400	130.4373	48.46833	170.146	218.750	**P10-170**	107.368	Aman
AS Y-8 & AS Y-14	Lantai 1	5.95	Pada SP	0-1	137.6	55.826	137.600	437.5	400	0	229.3333	71.919	109.375	**2P10-70**	141.372	Aman
			Kritis	0.4375			131.587	437.5	400	130.4373	88.87471	92.790	109.375	**P10-90**	133.240	Aman
			Luar SP	1			123.856	437.5	400	130.4373	75.99015	108.523	218.750	**P10-105**	125.386	Aman

Tabel 7.5.a Lanjutan

Portal	Balok	ln (m)	Lokasi	Jarak (m)	Vu,b1 (kN)	Vu,b2 (kN)	Vu,b terpakai (kN)	d (mm)	bw (mm)	Vc (kN)	Vs (kN)	S (mm)	Smaks (mm)	Tul geser terpakai	0.6(Vs+Vc) ≥ Vu,b' (kN)	Keterangan
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]
AS Y-8 & AS Y-14	Lantai 2	5.65	Pada SP	0-1	-47.019	-104.245	-47.019	437.5	400	0	-78.365	-105.234	109.375	**P10-105**	47.124	Aman
			Kritis	0.4375			-51.450	437.5	400	130.4373	-216.1877	-38.146	109.375	**P10-105**	125.386	Aman
			Luar SP	1			-57.147	437.5	400	130.4373	-225.6831	-36.541	218.750	**P10-210**	101.824	Aman
	Tribun	7.092	Pada SP	0-1	127.528	57.85	127.528	437.5	400	0	212.5467	77.599	109.375	**2P10-75**	131.947	Aman
			Kritis	0.4375			123.230	437.5	400	130.4373	74.9454	110.036	109.375	**P10-105**	125.386	Aman
			Luar SP	1			117.703	437.5	400	130.4373	65.73458	125.455	218.750	**P10-125**	117.847	Aman
AS Y-9 & AS Y-13	Lantai 1	5.95	Pada SP	0-1	83.211	54.86	83.211	437.5	400	0	138.685	118.927	109.375	**2P10-105**	94.248	Aman
			Kritis	0.4375			81.126	437.5	400	130.4373	4.773314	1727.668	109.375	**P10-105**	125.386	Aman
			Luar SP	1			78.446	437.5	400	130.4373	0.306245	26928.46	218.750	**P10-210**	101.824	Aman
	Lantai 2	5.65	Pada SP	0-1	85.196	27.03	85.196	437.5	400	0	141.9933	116.156	109.375	**2P10-105**	94.248	Aman
			Kritis	0.4375			80.692	437.5	400	130.4373	4.049361	2036.544	109.375	**P10-105**	125.386	Aman
			Luar SP	1			74.901	437.5	400	130.4373	-5.602077	-1472.079	218.750	**P10-210**	101.824	Aman
	Tribun	7.092	Pada SP	0-1	124.912	54.174	124.912	437.5	400	0	208.1867	79.224	109.375	**2P10-75**	131.947	Aman
			Kritis	0.4375			120.548	437.5	400	130.4373	70.47641	117.014	109.375	**P10-105**	125.386	Aman
			Luar SP	1			114.938	437.5	400	130.4373	61.12547	134.914	218.750	**P10-130**	116.324	Aman
AS Y-10 & AS Y-12	Lantai 1	5.95	Pada SP	0-1	163.527	94.43	163.527	437.5	400	0	272.545	60.516	109.375	**2P10-60**	164.934	Aman
			Kritis	0.4375			158.449	437.5	400	130.4373	133.6436	123.413	109.375	**2P10-105**	172.510	Aman
			Luar SP	1			151.919	437.5	400	130.4373	122.7612	134.354	218.750	**2P10-130**	154.386	Aman
	Tribun	6.609	Pada SP	0-1	143.225	76.045	143.225	437.5	400	0	238.7083	69.094	109.375	**2P10-65**	152.247	Aman
			Kritis	0.4375			138.778	437.5	400	130.4373	100.8591	163.529	109.375	**2P10-105**	172.510	Aman
			Luar SP	1			133.060	437.5	400	130.4373	91.32949	180.592	218.750	**2P10-180**	133.240	Aman
AS Y-11	Lantai 1	5.95	Pada SP	0-1	170.909	77.904	170.909	437.5	400	0	284.8483	115.805	109.375	**4P10-105**	188.496	Aman
			Kritis	0.4375			164.070	437.5	400	130.4373	143.0134	115.328	109.375	**2P10-105**	172.510	Aman
			Luar SP	1			155.278	437.5	400	130.4373	128.3592	128.494	218.750	**2P10-125**	157.431	Aman
	Lantai 2	5.65	Pada SP	0-1	121.669	42.862	121.669	437.5	400	0	202.7817	81.336	109.375	**2P10-80**	123.701	Aman
			Kritis	0.4375			115.567	437.5	400	130.4373	62.17385	132.639	109.375	**P10-105**	125.386	Aman
			Luar SP	1			107.721	437.5	400	130.4373	49.09747	167.966	218.750	**P10-165**	108.250	Aman
	Tribun	7.092	Pada SP	0-1	116.075	54.005	116.075	437.5	400	0	193.4583	85.256	109.375	**2P10-85**	116.424	Aman
			Kritis	0.4375			112.246	437.5	400	130.4373	56.63928	145.600	109.375	**P10-105**	125.386	Aman
			Luar SP	1			107.323	437.5	400	130.4373	48.43418	170.266	218.750	**P10-170**	107.368	Aman

Keterangan Tabel 7.5.a :

[1] Portal yang ditinjau

[2] Balok lantai 1 s/d 3, balok tribun dan balok atap

[3] In = bentang bersih balok

[4] Lokasi; SP = daerah sendi plastis

Kritis = daerah sepanjang tinggi efektif balok (d) sampai ujung sendi plastis,

Luar Sp = daerah di luar sendi plastis sampai ujung balok.

[5] Jarak = jarak penulangan dari ujung ke tengah bentang balok.

[6] Vu,b1 = gaya geser pada ujung 1 (dari Tabel 7.3.a)

[7] Vu,b2 = gaya geser pada ujung 2 (dari Tabel 7.3.a)

[8] Vu,b terpakai = gaya geser terpakai sesuai lokasi tulangan

[9] d = tinggi efektif balok

[10] bw = lebar badan balok

[11] Vc = 1/6.f'c^0,5.d.bw (untuk luar sendi plastis), Vc = 0 (pada sendi plastis)

[12] Vs = (Vu,b terpakai/0,6) - Vc

[13] S = (Av.fy.d)/Vs, dengan diameter yulangan geser 10 mm (P10)

jika S > Smaks dipakai Smaks

[14] Smaks = d/4 (pada sendi plastis), Smaks = d/2 (luar sendi plastis)

[15] Tulangan geser terpakai

[16] Vu,b ≤ (Vc + Vs).0,6 dengan Vc = 1/6.f'c^0,5.d.bw; Vs = (Av.fy.d)/Sterpakai

fy = 240 Mpa, dan f'c = 20 Mpa

[17] Bila Vu,b ≤ (Vc + Vs).0,6 maka aman

Tabel 7.5.b Penulangan Geser Balok Portal B

Portal	Balok	ln (m)	Lokasi	Jarak (m)	Vu,b1 (kN)	Vu,b2 (kN)	Vu,b terpakai (kN)	d (mm)	bw (mm)	Vc (kN)	Vs (kN)	S (mm)	Smaks (mm)	Tul geser terpakai	0.6(Vs+Vc) ≥ Vu,b' (kN)	Keterangan
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]
AS Y-3	Lantai 1	6.5	Pada SP	0-0.9	142.341	50.262	142.341	387.5	350	0	237.235	61.578	96.875	**2P10-60**	146.084	Aman
			Kritis	0.3875			136.852	387.5	350	101.0889	126.9972	115.030	96.875	**2P10-95**	152.917	Aman
			Luar SP	0.9			129.592	387.5	350	101.0889	114.8971	127.144	193.750	**2P10-125**	130.774	Aman
AS Y-2	Lantai 1	6.5	Pada SP	0-0.9	130.83	55.888	130.830	387.5	350	0	218.05	133.992	96.875	**4P10-95**	184.528	Aman
			Kritis	0.3875			126.362	387.5	350	101.0889	109.5149	133.392	96.875	**2P10-95**	152.917	Aman
			Luar SP	0.9			120.453	387.5	350	101.0889	99.66679	146.573	193.750	**2P10-145**	121.102	Aman
	Lantai 2	6.5	Pada SP	0-0.9	217.413	25.732	217.413	387.5	350	0	362.355	80.631	96.875	**4P10-80**	219.127	Aman
			Kritis	0.3875			205.986	387.5	350	101.0889	242.221	120.621	96.875	**4P10-95**	245.181	Aman
			Luar SP	0.9			190.873	387.5	350	101.0889	217.032	134.620	193.750	**4P10-130**	195.500	Aman
AS Y-1	Lantai 1	6.5	Pada SP	0-1.4	128.762	2.782	128.762	637.5	250	0	214.6033	111.989	159.375	**2P10-110**	131.090	Aman
			Kritis	0.6375			116.406	637.5	250	118.7911	75.21934	159.754	159.375	**P10-155**	117.791	Aman
			Luar SP	1.4			101.628	637.5	250	118.7911	50.58863	237.536	318.750	**P10-230**	102.622	Aman
	Lantai 2	6.5	Pada SP	0-1.4	153.907	27.927	153.907	637.5	250	0	256.5117	93.693	159.375	**2P10-90**	160.222	Aman
			Kritis	0.6375			141.551	637.5	250	118.7911	117.1277	102.594	159.375	**P10-100**	143.374	Aman
			Luar SP	1.4			126.773	637.5	250	118.7911	92.49697	129.914	318.750	**P10-125**	128.954	Aman
	Lantai 3	6.5	Pada SP	0-1.4	98.854	-29.246	98.854	637.5	250	0	164.7567	72.936	159.375	**P10-70**	103.000	Aman
			Kritis	0.6375			86.290	637.5	250	118.7911	25.02613	480.163	159.375	**P10-155**	117.791	Aman
			Luar SP	1.4			71.263	637.5	250	118.7911	-0.01906	-630462.001	318.750	**P10-310**	94.533	Aman
	Balok atap	6.5	Pada SP	0-0.8	47.233	-12.083	47.233	337.5	400	0	78.72167	80.813	84.375	**P10-80**	47.713	Aman
			Kritis	0.3375			44.153	337.5	400	100.6231	-27.03451	-235.319	84.375	**P10-80**	108.087	Aman
			Luar SP	0.8			39.933	337.5	400	100.6231	-34.06878	-186.732	168.75	**P10-165**	83.507	Aman
AS X-4 & AS X-15	Lantai 1	5.95	Pada SP	0-1	98.992	42.213	98.992	437.5	400	0	164.9867	99.968	109.375	**2P10-95**	104.169	Aman
			Kritis	0.4375			94.817	437.5	400	130.4373	27.59116	298.889	109.375	**P10-105**	125.386	Aman
			Luar SP	1			89.449	437.5	400	130.4373	18.64489	442.304	218.750	**P10-210**	101.824	Aman
	Lantai 2	5.65	Pada SP	0-1	76.52	32.238	76.520	437.5	400	0	127.5333	64.663	109.375	**P10-60**	82.467	Aman
			Kritis	0.4375			73.091	437.5	400	130.4373	-8.618825	-956.824	109.375	**P10-105**	125.386	Aman
			Luar SP	1			68.682	437.5	400	130.4373	-15.9665	-516.500	218.750	**P10-210**	101.824	Aman
	Tribun	7.09	Pada SP	0-1	118.877	60.338	118.877	437.5	400	0	198.1283	83.246	109.375	**2P10-80**	123.701	Aman
			Kritis	0.4375			115.266	437.5	400	130.4373	61.67233	133.718	109.375	**P10-105**	125.386	Aman
			Luar SP	1			110.623	437.5	400	130.4373	53.93398	152.904	218.750	**P10-150**	111.249	Aman

Tabel 7.5.b Lanjutan

Portal	Balok	ln (m)	Lokasi	Jarak (m)	Vu,b1 (kN)	Vu,b2 (kN)	Vu,b terpakai (kN)	d (mm)	bw (mm)	Vc (kN)	Vs (kN)	S (mm)	Smaks (mm)	Tul geser terpakai	0.6(Vs+Vc) ≥ Vu,b' (kN)	Keterangan
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]
AS X-5 & AS X-14	Lantai 1	5.95	Pada SP	0-1	117.119	48.832	117.119	437.5	400	0	195.1983	84.496	109.375	**2P10-80**	123.701	Aman
			Kritis	0.4375			112.098	437.5	400	130.4373	56.39253	146.237	109.375	**P10-105**	125.386	Aman
			Luar SP	1			105.642	437.5	400	130.4373	45.63302	180.718	218.750	**P10-180**	105.751	Aman
	Lantai 2	5.65	Pada SP	0-1	78.233	30.668	78.233	437.5	400	0	130.3883	63.247	109.375	**P10-60**	82.467	Aman
			Kritis	0.4375			74.550	437.5	400	130.4373	-6.187516	-1332.797	109.375	**P10-105**	125.386	Aman
			Luar SP	1			69.814	437.5	400	130.4373	-14.07994	-585.706	218.750	**P10-210**	101.824	Aman
	Tribun	7.09	Pada SP	0-1	160.947	83.157	160.947	437.5	400	0	268.245	122.973	109.375	**4P10-105**	188.496	Aman
			Kritis	0.4375			156.148	437.5	400	130.4373	129.8097	127.058	109.375	**2P10-105**	172.510	Aman
			Luar SP	1			149.978	437.5	400	130.4373	119.5265	137.989	218.750	**2P10-135**	151.566	Aman
AS X-6 & AS X-13	Lantai 1	5.95	Pada SP	0-1	121.145	38.062	121.145	437.5	400	0	201.9083	81.688	109.375	**2P10-80**	123.701	Aman
			Kritis	0.4375			115.036	437.5	400	130.4373	61.28929	134.554	109.375	**P10-105**	125.386	Aman
			Luar SP	1			107.181	437.5	400	130.4373	48.19849	171.099	218.750	**P10-170**	107.368	Aman
	Lantai 2	5.65	Pada SP	0-1	88.261	41.805	88.261	437.5	400	0	147.1017	112.122	109.375	**2P10-105**	94.248	Aman
			Kritis	0.4375			84.664	437.5	400	130.4373	10.66894	772.963	109.375	**P10-105**	125.386	Aman
			Luar SP	1			80.039	437.5	400	130.4373	2.960533	2785.546	218.750	**P10-210**	101.824	Aman
	Tribun	7.09	Pada SP	0-1	144.272	71.855	144.272	437.5	400	0	240.4533	68.593	109.375	**2P10-65**	152.247	Aman
			Kritis	0.4375			139.805	437.5	400	130.4373	102.5705	160.801	109.375	**2P10-105**	172.510	Aman
			Luar SP	1			134.061	437.5	400	130.4373	92.99756	177.353	218.750	**2P10-175**	134.811	Aman
AS X-7 & AS X-12	Lantai 1	5.95	Pada SP	0-1	184.421	85.376	184.421	437.5	400	0	307.3683	107.320	109.375	**4P10-105**	188.496	Aman
			Kritis	0.4375			177.138	437.5	400	130.4373	164.7932	200.171	109.375	**4P10-105**	266.758	Aman
			Luar SP	1			167.775	437.5	400	130.4373	149.1873	221.110	218.750	**4P10-215**	170.319	Aman
	Lantai 2	5.65	Pada SP	0-1	80.42	34.984	80.420	437.5	400	0	134.0333	61.527	109.375	**P10-60**	82.467	Aman
			Kritis	0.4375			76.902	437.5	400	130.4373	-2.267756	-3636.502	109.375	**P10-105**	125.386	Aman
			Luar SP	1			72.378	437.5	400	130.4373	-9.806915	-840.907	218.750	**P10-210**	101.824	Aman
	Tribun	7.09	Pada SP	0-1	145.124	70.37	145.124	437.5	400	0	241.8733	68.190	109.375	**2P10-65**	152.247	Aman
			Kritis	0.4375			140.512	437.5	400	130.4373	103.7502	158.972	109.375	**2P10-105**	172.510	Aman
			Luar SP	1			134.583	437.5	400	130.4373	93.86835	175.708	218.750	**2P10-175**	134.811	Aman
AS X-8 & AS X-11	Lantai 1	5.95	Pada SP	0-1	149.783	71.797	149.783	437.5	400	0	249.6383	66.069	109.375	**2P10-65**	152.247	Aman
			Kritis	0.4375			144.049	437.5	400	130.4373	109.6439	150.427	109.375	**2P10-105**	172.510	Aman
			Luar SP	1			136.676	437.5	400	130.4373	97.35622	169.413	218.750	**2P10-165**	138.238	Aman

Tabel 7.5.b Lanjutan

Portal	Balok	ln (m)	Lokasi	Jarak (m)	Vu,b1 (kN)	Vu,b2 (kN)	Vu,b terpakai (kN)	d (mm)	bw (mm)	Vc (kN)	Vs (kN)	S (mm)	Smaks (mm)	Tul geser terpakai	0.6(Vs+Vc) ≥ Vu,b' (kN)	Keterangan
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]
AS X-8 & AS X-11	Lantai 2	5.65	Pada SP	0-1	129.219	129.597	129.219	437.5	400	0	215.365	76.583	109.375	**2P10-75**	131.947	Aman
			Kritis	0.4375			129.248	437.5	400	130.4373	84.97648	194.094	109.375	**2P10-105**	172.510	Aman
			Luar SP	1			129.286	437.5	400	130.4373	85.03921	193.951	218.750	**2P10-190**	130.347	Aman
	Tribun	7.09	Pada SP	0-1	245.237	129.597	245.237	437.5	400	0	408.7283	80.706	109.375	**4P10-80**	247.401	Aman
			Kritis	0.4375			238.103	437.5	400	130.4373	266.4015	123.824	109.375	**4P10-105**	266.758	Aman
			Luar SP	1			228.931	437.5	400	130.4373	251.1149	131.361	218.750	**4P10-130**	230.509	Aman
AS X-9 & AS X-10	Lantai 1	5.95	Pada SP	0-1	117.845	49.331	117.845	437.5	400	0	196.4083	83.975	109.375	**2P10-80**	123.701	Aman
			Kritis	0.4375			112.807	437.5	400	130.4373	57.57471	143.235	109.375	**P10-105**	125.386	Aman
			Luar SP	1			106.330	437.5	400	130.4373	46.77944	176.29	218.750	**P10-175**	106.537	Aman
	Lantai 2	5.65	Pada SP	0-1	110.765	46.084	110.765	437.5	400	0	184.6083	89.343	109.375	**2P10-85**	116.424	Aman
			Kritis	0.4375			105.757	437.5	400	130.4373	45.82356	179.966	109.375	**P10-105**	125.386	Aman
			Luar SP	1			99.317	437.5	400	130.4373	35.09109	235.008	218.750	**P10-210**	101.824	Aman
	Tribun	7.09	Pada SP	0-1	98.55	34.203	98.550	437.5	400	0	164.25	100.416	109.375	**2P10-100**	98.960	Aman
			Kritis	0.4375			94.580	437.5	400	130.4373	27.19684	303.223	109.375	**P10-105**	125.386	Aman
			Luar SP	1			89.477	437.5	400	130.4373	18.69073	441.219	218.750	**P10-210**	101.824	Aman

Keterangan Tabel 7.5.b :

[1] Portal yang ditinjau

[2] Balok lantai 1 s/d 3, balok tribun dan balok atap

[3] ln = bentang bersih balok

[4] Lokasi; SP = daerah sendi plastis

Kritis = daerah sepanjang tinggi efektif balok (d) sampai ujung sendi plastis,

Luar Sp = daerah di luar sendi plastis sampai ujung balok.

[5] Jarak = jarak penulangan dari ujung ke tengah bentang balok.

[6] Vu,b1 = gaya geser pada ujung 1 (dari Tabel 7.3.a)

[7] Vu,b2 = gaya geser pada ujung 2 (dari Tabel 7.3.a)

[8] Vu,b terpakai = gaya geser terpakai sesuai lokasi tulangan

[9] d = tinggi efektif balok

[10] bw = lebar badan balok

[11] Vc = 1/6.f'c^0,5.d.bw (untuk luar sendi plastis), Vc = 0 (pada sendi plastis)

[12] Vs = (Vu,b terpakai/0,6) - Vc

[13] S = (Av.fy.d)/Vs, dengan diameter yulangan geser 10 mm (P10)

jika S > Smaks dipakai Smaks

[14] Smaks = d/4 (pada sendi plastis), Smaks = d/2 (luar sendi plastis)

[15] Tulangan geser terpakai

[16] Vu,b ≤ (Vc + Vs).0,6 dengan Vc = 1/6.f'c^0,5.d.bw; Vs = (Av.fy.d)/Sterpakai

fy = 240 Mpa, dan f'c = 20 Mpa

[17] Bila Vu,b ≤ (Vc + Vs).0,6 maka aman

Tabel 7.6.a Momen Rencana Kolom Portal A

Kolom	Lt.	Letak momen	h	hn	Sejajar sumbu x								Sejajar sumbu y								Mu,k-x	Mu,k-y
					ME,k	α,κ	kiri			kanan			ME,k	α,κ	kiri			kanan				
							Mnak,b	l ki	ln ki	Mnak,b	l ka	ln ka			Mnak,b	l ki	ln ki	Mnak,b	l ka	ln ka		
			(m)	(m)	(kNm)		(kNm)	(m)	(m)	(kNm)	(m)	(m)	(kNm)		(kNm)	(m)	(m)	(kNm)	(m)	(m)	(kNm)	(kNm)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]
K1	1	atas	2.8	2.575	111.777	1.000	266.2873	0.919	0.669	266.2873	7	6.5	13.84232	1.000	0	0	0	1550.348	7.522	6.972	928.901	1,503.495
		bawah	2.8	2.575	206.3174	1.000	0	0	0	0	0	0	7.380396	1.000	0	0	0	0	0	0	0.000	0.000
K2	1	atas	2.8	2.575	91.239	1.000	266.2873	7	6.5	266.2873	6	5.5	0.192738	1.000	0	0	0	614.79	7.159	6.969	616.979	647.557
		bawah	2.8	2.575	155.0789	1.000	0	0	0	0	0	0	0.567555	1.000	0	0	0	0	0	0	0.000	0.000
K3	1	atas	2.8	2.575	69.4156	1.000	266.2873	6	5.5	266.2873	6	5.5	0.8938685	1.000	0	0	0	468.102	7.159	6.969	583.599	527.200
		bawah	2.8	2.575	117.6701	1.000	0	0	0	0	0	0	0.849788	1.000	0	0	0	0	0	0	0.000	0.000
K4	1	atas	2.8	2.575	62.5052	1.000	266.2873	6	5.5	266.2873	3	2.5	0.9542826	1.000	0	0	0	541.446	7.159	6.969	625.164	594.841
		bawah	2.8	2.575	93.34435	1.000	0	0	0	0	0	0	0.689662	1.000	0	0	0	0	0	0	0.000	0.000
K5	1	atas	2.8	2.575	68.1688	0.491	202.891	0.919	0.669	202.891	2.885	2.385	14.76096	1.000	160.272	6.23	5.68	160.272	6.04	5.39	248.970	412.508
		bawah	2.8	2.575	186.5283	1.000	0	0	0	139.117	0	0	10.96677	1.000	0	0	0	0	0	0	0.000	0.000
	2	atas	3	2.55	57.6083	1.000	519.128	0.919	0.669	519.128	2.885	2.385	5.60454	1.000	234.051	6.915	6.365	394.323	7.531	6.881	1150.459	809.328
		bawah	3	2.55	70.80228	0.509	202.891	0.919	0.669	202.891	2.885	2.385	12.25342	0.454	160.272	6.915	6.365	160.272	7.531	6.881	238.340	170.963
K6	1	atas	2.8	2.575	23.9155	0.265	202.891	2.885	2.385	202.891	2.31	1.81	7.897226	0.325	234.051	6.898	6.348	234.051	6.686	6.036	140.570	173.975
		bawah	2.8	2.575	50.51379	1.000	0	0	0	0	0	0	6.288603	1.000	0	0	0	0	0	0	0.000	0.000
	2	atas	3	2.55	83.2721	1.000	519.128	2.885	2.385	519.128	2.31	1.81	11.87086	1.000	380.528	7.522	6.972	540.8	8.06	7.41	1182.658	1,030.788
		bawah	3	2.55	66.22717	0.735	202.891	2.885	2.385	202.891	2.31	1.81	16.38943	0.675	234.051	7.522	6.972	234.051	8.06	7.41	358.726	330.458
K7	1	atas	2.8	2.575	34.8985	0.389	202.891	2.31	1.81	202.891	7	6.5	7.987301	0.408	234.051	6.5	5.95	234.051	6.3	5.65	197.978	216.661
		bawah	2.8	2.575	99.76875	1.000	0	0	0	0	0	0	5.330176	1.000	0	0	0	0	0	0	0.000	0.000
	2	atas	3	2.55	65.1869	1.000	519.128	2.31	1.81	519.128	7	6.5	9.647332	1.000	307.395	7.159	6.609	541.446	7.742	7.092	1114.739	959.828
		bawah	3	2.55	54.80968	0.611	202.891	2.31	1.81	202.891	7	6.5	11.58854	0.592	234.051	7.159	6.609	234.051	7.742	7.092	286.347	287.182
K8	1	atas	2.8	2.575	32.8762	0.504	202.891	7	6.5	202.891	6	5.5	7.987301	0.584	307.395	6.5	5.95	307.395	6.3	5.65	260.733	381.169
		bawah	2.8	2.575	95.07059	1.000	0	0	0	0	0	0	5.330176	1.000	0	0	0	0	0	0	0.000	0.000
	2	atas	3	2.55	40.0421	1.000	519.128	7	6.5	519.128	6	5.5	3.262864	1.000	307.395	7.159	6.609	614.79	7.742	7.092	1061.046	997.910
		bawah	3	2.55	32.4063	0.496	202.891	7	6.5	202.891	6	5.5	5.679675	0.416	307.395	7.159	6.609	307.395	7.742	7.092	236.433	247.421

Tabel 7.6.a Lanjutan

Kolom	Lt.	Letak momen	h (m)	hn (m)	Sejajar sumbu x									Sejajar sumbu y									Mu,k-x (kNm)	Mu,k-y (kNm)
					ME,k (kNm)	α,κ	kiri			kanan				ME,k (kNm)	α,κ	kiri			kanan					
							Mnak,b (kNm)	l ki (m)	ln ki (m)	Mnak,b (kNm)	l ka (m)	ln ka (m)				Mnak,b (kNm)	l ki (m)	ln ki (m)	Mnak,b (kNm)	l ka (m)	ln ka (m)			
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]		[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]		[22]	[23]
K9	1	atas	2.8	2.575	20.4309	0.415	202.891	6	5.5	202.891	6	5.5		2.184788	0.395	234.051	6.5	5.95	234.051	6.3	5.65		199.825	206.38284
		bawah	2.8	2.575	79.3458	1.000	0	0	0	0	0	0		1.021369	1.000	0	0	0	0	0	0		0.000	0.000
	2	atas	3	2.55	36.517	1.000	519.128	6	5.5	519.128	6	5.5		2.289248	1.000	234.051	7.159	6.609	468.102	7.742	7.092		1012.990	821.343
		bawah	3	2.55	28.74214	0.585	202.891	6	5.5	202.891	6	5.5		3.347674	0.605	234.051	7.159	6.609	234.051	7.742	7.092		258.829	288.851
K10	1	atas	2.8	2.575	25.7686	0.452	202.891	6	5.5	202.891	3	2.5		0.9643188	0.456	234.051	6.5	5.95	234.051	6.3	5.65		225.672	240.986
		bawah	2.8	2.575	68.3649	1.000	0	0	0	0	0	0		0.380527	1.000	0	0	0	0	0	0		0.000	0.000
	2	atas	3	2.55	39.0366	1.000	519.128	6	5.5	519.128	3	2.5		0.299769	1.000	307.395	7.159	6.609	467.667	7.742	7.092		1072.731	892.715
		bawah	3	2.55	31.18147	0.548	202.891	6	5.5	202.891	3	2.5		1.148335	0.544	234.051	7.159	6.609	234.051	7.742	7.092		251.464	262.155
K11	1	atas	2.8	2.575	28.4877	0.455	202.891	3	2.5	202.891	3	2.5		0.1421716	0.118	0	0	0	234.051	6.3	5.65		206.767	38.620
		bawah	2.8	2.575	66.84476	1.000	0	0	0	0	0	0		1.95E-02	1.000	0	0	0	0	0	0		0.000	0.000
	2	atas	3	2.55	43.282	1.000	519.128	3	2.5	519.128	3	2.5		0.77227	1.000	0	0	0	394.323	7.742	7.092		1022.691	598.150
		bawah	3	2.55	34.17785	0.545	202.891	3	2.5	202.891	3	2.5		1.063647	0.882	0	0	0	234.051	7.742	7.092		228.615	263.462
K12	1	atas	2.8	2.45	233.7666	0.643	233.964	0.919	0.669	233.964	5.827	5.327		16.44185	0.887	160.272	6.039	5.689	0	0	0		309.303	233.285
		bawah	2.8	2.45	38.3364	1.000	0	0	0	0	0	0		10.78961	1.000	0	0	0	0	0	0		0.000	0.000
	2	atas	3	2.3	49.95686	0.105	233.964	0.919	0.669	233.964	5.827	5.327		20.8613	0.635	160.272	6.039	5.689	0	0	0		57.789	190.214
		bawah	3	2.3	129.832	0.357	233.964	0.919	0.669	233.964	5.827	5.327		2.084434	0.113	160.272	6.039	5.689	0	0	0		195.670	33.687
	3	atas	4.5	3.8	67.1439	0.539	346.468	0.919	0.669	346.468	5.827	5.327		9.253029	0.550	234.051	7.531	7.181	0	0	0		480.312	265.265
		bawah	4.5	3.8	423.7525	0.895	233.964	0.919	0.669	233.964	5.827	5.327		11.97597	0.365	160.272	7.531	7.181	0	0	0		539.393	119.557
	atap	atas	2.4	1.85	528.0381	1.000	121.022	0.919	0.669	121.022	5.827	5.327		1.545114	1.000	0	0	0	0	0	0		201.419	60.426
		bawah	2.4	1.85	57.5424	0.461	346.468	0.919	0.669	346.468	5.827	5.327		7.565022	0.450	234.051	0	0	0	0	0		266.114	77.813
K13	1	atas	2.8	2.45	96.13036	0.810	233.964	5.827	5.327	233.964	4.55	4.05		10.82884	0.795	234.051	6.686	6.336	0	0	0		367.526	245.040
		bawah	2.8	2.45	31.4757	1.000	0	0	0	0	0	0		4.348018	1.000	0	0	0	0	0	0		0.000	0.000
	2	atas	3	2.3	59.01274	0.273	233.964	5.827	5.327	233.964	4.55	4.05		17.67244	0.408	160.272	6.686	6.336	0	0	0		135.790	115.551
		bawah	3	2.3	22.5955	0.190	233.964	5.827	5.327	233.964	4.55	4.05		2.793353	0.205	234.051	6.686	6.336	0	0	0		98.399	71.998
	3	atas	4.5	3.8	122.7445	0.914	346.468	5.827	5.327	346.468	4.55	4.05		16.01243	0.870	380.528	8.06	7.71	0	0	0		779.350	524.788
		bawah	4.5	3.8	156.83	0.727	233.964	5.827	5.327	233.964	4.55	4.05		25.64269	0.592	160.272	8.06	7.71	0	0	0		397.150	183.777
	atap	atas	2.4	1.85	32.7351	1.000	121.022	5.827	5.327	121.022	4.55	4.05		14.41886	1.000	0	0	0	0	0	0		180.993	54.298
		bawah	2.4	1.85	11.5304	0.086	346.468	5.827	5.327	346.468	4.55	4.05		2.401351	0.130	380.528	0	0	0	0	0		44.495	20.272

Tabel 7.6.a Lanjutan

Kolom	Lt.	Letak momen	h	hn	Sejajar sumbu x							Sejajar sumbu y								Mu,k-x	Mu,k-y
					ME,k	α,κ	kiri			kanan			ME,k	α,κ	kiri			kanan				
							Mnak,b	l ki	ln ki	Mnak,b	l ka	ln ka			Mnak,b	l ki	ln ki	Mnak,b	l ka	ln ka		
			(m)	(m)	(kNm)		(kNm)	(m)	(m)	(kNm)	(m)	(m)	(kNm)		(kNm)	(m)	(m)	(kNm)	(m)	(m)	(kNm)	(kNm)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]
K14	1	atas	2.8	2.45	28.9121	0.292	233.964	4.55	4.05	233.964	7	6.5	8.903308	0.560	234.051	6.3	5.95	0	0	0	131.834	172.528
		bawah	2.8	2.45	92.6776	1.000	0	0	0	0	0	0	9.73419	1.000	0	0	0	0	0	0	0.000	0.000
	2	atas	3	2.3	42.9976	0.289	233.964	4.55	4.05	233.964	7	6.5	0.420885	0.038	234.051	6.3	5.95	0	0	0	148.695	13.391
		bawah	3	2.3	70.01138	0.708	233.964	4.55	4.05	233.964	7	6.5	6.990044	0.440	234.051	6.3	5.95	0	0	0	363.628	154.288
	3	atas	4.5	3.8	126.355	0.840	346.468	4.55	4.05	346.468	7	6.5	14.77696	0.467	307.395	7.742	7.392	0	0	0	692.916	247.058
		bawah	4.5	3.8	105.5738	0.711	233.964	4.55	4.05	233.964	7	6.5	10.60485	0.962	234.051	7.742	7.392	0	0	0	401.586	369.163
	atap	atas	2.4	1.85	15.0374	1.000	121.022	4.55	4.05	121.022	7	6.5	4.801407	1.000	0	0	0	0	0	0	179.610	53.883
		bawah	2.4	1.85	24.0978	0.160	346.468	4.55	4.05	346.468	7	6.5	16.85975	0.533	307.395	0	0	0	0	0	82.358	82.207
K15	1	atas	2.8	2.45	21.451	0.253	233.964	7	6.5	233.964	6	5.5	8.903308	0.690	307.395	6.3	5.95	0	0	0	117.301	252.193
		bawah	2.8	2.45	86.91556	1.000	0	0	0	0	0	0	9.73419	1.000	0	0	0	0	0	0	0.000	0.000
	2	atas	3	2.3	39.7623	0.337	233.964	7	6.5	233.964	6	5.5	0.4399697	0.069	307.395	6.3	5.95	0	0	0	177.509	28.935
		bawah	3	2.3	63.23305	0.747	233.964	7	6.5	233.964	6	5.5	4.006814	0.310	307.395	6.3	5.95	0	0	0	393.858	129.278
	3	atas	4.5	3.8	93.6904	0.870	346.468	7	6.5	346.468	6	5.5	8.447604	0.489	307.395	7.742	7.392	0	0	0	708.651	257.185
		bawah	4.5	3.8	78.39172	0.663	233.964	7	6.5	233.964	6	5.5	5.893738	0.931	307.395	7.742	7.392	0	0	0	384.789	423.772
	atap	atas	2.4	1.85	15.6114	1.000	121.022	7	6.5	121.022	6	5.5	2.264924	1.000	0	0	0	0	0	0	176.953	53.086
		bawah	2.4	1.85	13.9591	0.130	346.468	7	6.5	346.468	6	5.5	8.81936	0.511	307.395	0	0	0	0	0	65.690	77.625
K16	1	atas	2.8	2.45	21.451	0.248	233.964	6	5.5	233.964	6	5.5	2.672363	0.533	234.051	6.3	5.95	0	0	0	110.958	163.750
		bawah	2.8	2.45	86.91556	1.000	0	0	0	0	0	0	2.861408	1.000	0	0	0	0	0	0	0.000	0.000
	2	atas	3	2.3	45.8437	0.390	233.964	6	5.5	233.964	6	5.5	0.1891872	0.048	234.051	6.3	5.95	0	0	0	198.941	16.928
		bawah	3	2.3	65.10941	0.752	233.964	6	5.5	233.964	6	5.5	2.337538	0.467	234.051	6.3	5.95	0	0	0	383.618	163.150
	3	atas	4.5	3.8	84.0781	0.996	346.468	6	5.5	346.468	6	5.5	5.194965	0.543	234.051	7.742	7.392	0	0	0	793.231	246.117
		bawah	4.5	3.8	71.68125	0.610	233.964	6	5.5	233.964	6	5.5	3.71863	0.952	234.051	7.742	7.392	0	0	0	342.150	364.043
	atap	atas	2.4	1.85	19.1173	1.000	121.022	6	5.5	121.022	6	5.5	1.194711	1.000	0	0	0	0	0	0	178.095	53.428
		bawah	2.4	1.85	0.37325	0.004	346.468	6	5.5	346.468	6	5.5	4.373106	0.457	234.051	0	0	0	0	0	2.253	69.910

Keterangan Tabel 7.6.a :

[1] Kolom yg ditinjau

[2] Tingkat lantai pada kolom yang ditinjau

[3] Letak momen pada kolom atas dan bawah

[4] *h* = tinggi kolom dari titik pertemuan ke titik pertemuan

[5] *hn* = tinggi bersih kolom

[6] *ME,k* = momen kolom akibat gempa sejajar sb-x

[7] α,*k atas* = (*ME,k lt i+1atas*)/(*ME,k lt i+1atas* + *ME,k lt i bawah*)

α,*k bawah* = (*ME,k lt i bawah*)/(*ME,k lt i+1atas* + *ME,k lt i bawah*)

(faktor distribusi momen dari kolom yang ditinjau sejajar sb-x)

[8] *Mnak,b-x kiri* = momen nominal aktual balok sebelah kiri kolom sejajar sumbu x

[9] *l ki* = bentang balok dari as ke as kiri kolom sejajar sumbu x

[10] *ln,ki* = bentang bersih balok kiri kolom sejajar sumbu x

[11] *Mnak,b-x kanan* = momen nominal aktual balok sebelah kanan kolom sejajar sumbu x

[12] *l ka* = bentang balok dari as ke as kanan kolom sejajar sumbu x

[13] *ln,ka* = bentang bersih balok kanan kolom sejajar sumbu x

[14] *ME,k* = momen kolom akibat gempa sejajar sb-y

[15] α,*k atas* = (ME,k lt i+1atas)/(ME,k lt i+1atas + ME,k lt i bawah)

α,*k bawah* = (*ME,k lt i bawah*)/(*ME,k lt i+1atas* + *ME,k lt i bawah*)

(faktor distribusi momen dari kolom yang ditinjau sejajar sb-y)

[16] *Mnak,b-y kiri* = momen nominal aktual balok sebelah kiri kolom sejajar sumbu y

[17] *l ki* = bentang balok dari as ke as kiri kolom sejajar sumbu y

[18] *ln,ki* = bentang bersih balok kiri kolom sejajar sumbu y

[19] *Mnak,b-y kanan* = momen nominal aktual balok sebelah kanan kolom sejajar sumbu y

[20] *l ka* = bentang balok dari as ke as kanan kolom sejajar sumbu y

[21] *ln,ka* = bentang bersih balok kanan kolom sejajar sumbu y

[22] *Mu,k-x* = *hn*/*h* .0,7.1,25.ω*d* .α [*l kix*/ *ln kix* . *Mnak ki,bx* + *l kax*/ *ln kax* . *Mnak ka,bx*+0,3(*l kiy*/ *ln kiy* . *Mnak ki,by* + *l kay*/ *ln kay* . *Mnak ka,by*)]

(momen rencana kolom sejajar sumbu x) dengan ωd = 1 untuk lantai 1 dan lantai atas, ωd = 1,3 untuk lantai 2,3

[23] *Mu,k-y* = *hn*/*h*.0,7.1,25.ω*d*. α [*l kiy*/ *ln kiy* . *Mnak ki,by* + *l kay*/ *ln kay* . *Mnak ka,by*+0,3(*l kix*/ *ln kix* . *Mnak ki,bx* + *l kax*/ *ln kax* . *Mnak ka,bx*)]

(momen rencana kolom sejajar sumbu y) dengan ωd = 1 untuk lantai 1 dan lantai atas, ωd = 1,3 untuk lantai 2,3

Tabel 7.6.b Momen Rencana Kolom Portal B

Kolom	Lt.	Letak momen	h	hn	Sejajar sumbu x								Sejajar sumbu y								Mu,k-x	Mu,k-y
					ME,k	α,κ	kiri			kanan			ME,k	α,κ	kiri			kanan				
							Mnak,b	l ki	ln ki	Mnak,b	l ka	ln ka			Mnak,b	l ki	ln ki	Mnak,b	l ka	ln ka		
			(m)	(m)	(kNm)		(kNm)	(m)	(m)	(kNm)	(m)	(m)	(kNm)		(kNm)	(m)	(m)	(kNm)	(m)	(m)	(kNm)	(kNm)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]
K1	1	atas	2.8	2.575	79.374	1.000	202.891	0.919	0.669	202.891	7	6.5	15.784	1.000	0	0	0	1550.348	7.522	6.972	803.885	1465.990
		bawah	2.8	2.575	118.5143	1.000	0	0	0	0	0	0	13.51532	1.000	0	0	0	0	0	0	0.000	0.000
K2	1	atas	2.8	2.575	82.836	1.000	202.891	7	6.5	202.891	6	5.5	5.200	1.000	0	0	0	614.79	7.159	6.969	506.389	614.380
		bawah	2.8	2.575	109.3507	1.000	0	0	0	0	0	0	7.354181	1.000	0	0	0	0	0	0	0.000	0.000
K3	1	atas	2.8	2.575	52.059	1.000	202.891	6	5.5	202.891	3	2.5	2.085	1.000	0	0	0	541.446	7.159	6.969	508.295	559.780
		bawah	2.8	2.575	83.55364	1.000	0	0	0	0	0	0	4.2944	1.000	0	0	0	0	0	0	0.000	0.000
K4	1	atas	2.8	2.575	37.798	1.000	202.891	3	2.5	202.891	6	5.5	1.917	1.000	0	0	0	467.667	7.159	6.969	489.998	498.793
		bawah	2.8	2.575	64.27597	1.000	0	0	0	0	0	0	2.075158	1.000	0	0	0	0	0	0	0.000	0.000
K5	1	atas	2.8	2.575	33.920	0.449	139.117	0.919	0.669	139.117	2.885	2.385	6.371	1.000	160.272	6.23	5.68	160.272	6.04	5.39	168.445	372.737
		bawah	2.8	2.575	112.7691	1.000	0	0	0	0	0	0	14.094	1.000	0	0	0	0	0	0	0.000	0.000
	2	atas	3	2.55	40.139	1.000	266.301	0.919	0.669	266.301	2.885	2.385	2.479917	1.000	234.051	6.915	6.365	394.323	7.531	5.39	691.326	752.388
		bawah	3	2.55	41.59195	0.551	139.117	0.919	0.669	139.117	2.885	2.385	14.694	0.698	160.272	6.915	6.365	320.544	7.531	5.39	223.665	378.630
K6	1	atas	2.8	2.575	28.518	0.456	139.117	2.885	2.385	139.117	2.31	1.81	0.520	0.042	234.051	6.898	6.348	234.051	6.686	6.036	183.299	20.710
		bawah	2.8	2.575	64.19022	1.000	0	0	0	0	0	0	7.941843	1.000	0	0	0	0	0	0	0.000	0.000
	2	atas	3	2.55	44.793	1.000	266.301	2.885	2.385	266.301	2.31	1.81	4.086083	1.000	380.528	7.522	6.972	540.8	8.06	7.41	715.212	890.554
		bawah	3	2.55	34.06693	0.544	139.117	2.885	2.385	139.117	2.31	1.81	11.964	0.958	160.272	7.522	6.972	320.544	8.06	7.41	203.357	445.697
K7	1	atas	2.8	2.575	27.174	0.466	139.117	2.31	1.81	139.117	7	6.5	7.597	0.753	234.051	6.5	5.95	234.051	6.3	5.65	180.820	372.545
		bawah	2.8	2.575	61.0735	1.000	0	0	0	0	0	0	9.59397	1.000	0	0	0	0	0	0	0.000	0.000
	2	atas	3	2.55	40.010	1.000	266.301	2.31	1.81	266.301	7	6.5	1.17289	1.000	307.395	7.159	6.609	541.446	7.742	7.092	672.249	827.082
		bawah	3	2.55	31.15878	0.534	139.117	2.31	1.81	139.117	7	6.5	2.493	0.247	160.272	7.159	6.609	320.544	7.742	7.092	192.451	114.241
K8	1	atas	2.8	2.575	21.291	0.467	139.117	7	6.5	139.117	6	5.5	4.202	0.732	307.395	6.5	5.95	307.395	6.3	5.65	189.890	453.022
		bawah	2.8	2.575	54.75865	1.000	0	0	0	0	0	0	6.163965	1.000	0	0	0	0	0	0	0.000	0.000
	2	atas	3	2.55	31.959	1.000	266.301	7	6.5	266.301	6	5.5	0.1598956	1.000	307.395	7.159	6.609	614.79	7.742	7.092	653.407	875.619
		bawah	3	2.55	24.28582	0.533	139.117	7	6.5	139.117	6	5.5	1.538	0.268	160.272	7.159	6.609	320.544	7.742	7.092	181.765	122.364

Tabel 7.6.b Lanjutan

Kolom	Lt.	Letak momen	*h*	*hn*	Sejajar sumbu x							Sejajar sumbu y							Mu,k-x	Mu,k-y
					ME,k	α,κ	kiri			kanan			*ME,k*	α,κ	kiri			kanan				
							Mnak,b	*l ki*	*ln ki*	*Mnak,b*	*l ka*	*ln ka*			*Mnak,b*	*l ki*	*ln ki*	*Mnak,b*	*l ka*	*ln ka*		
			(m)	(m)	(kNm)		(kNm)	(m)	(m)	(kNm)	(m)	(m)	(kNm)		(kNm)	(m)	(m)	(kNm)	(m)	(m)	(kNm)	(kNm)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]
K9	1	atas	2.8	2.575	17.32653	0.469	139.117	6	5.5	139.117	3	2.5	2.276387	0.660	234.051	6.5	5.95	234.051	6.3	5.65	178.876	325.228
		bawah	2.8	2.575	50.01011	1.000	0	0	0	0	0	0	3.857987	1.000	0	0	0	0	0	0	0.000	0.000
	2	atas	3	2.55	26.14409	1.000	266.301	6	5.5	266.301	3	2.5	0.399933	1.000	307.395	7.159	6.609	467.667	7.742	7.092	641.948	763.480
		bawah	3	2.55	19.59619	0.531	139.117	6	5.5	139.117	3	2.5	1.172126	0.340	160.272	7.159	6.609	320.544	7.742	7.092	187.800	156.517
K10	1	atas	2.8	2.575	13.05041	0.467	139.117	3	2.5	139.117	3	2.5	0.8165644	0.872	160.272	6.5	5.95	0	0	0	145.209	193.102
		bawah	2.8	2.575	44.53479	1.000	0	0	0	0	0	0	1.507671	1.000	0	0	0	0	0	0	0.000	0.000
	2	atas	3	2.55	21.04413	1.000	266.301	3	2.5	266.301	3	2.5	0.3982629	1.000	307.395	7.159	6.609	0	0	0	549.643	390.255
		bawah	3	2.55	14.89454	0.533	139.117	3	2.5	139.117	3	2.5	0.1200496	0.128	160.272	7.159	6.609	0	0	0	153.002	26.099
K11	1	atas	2.8	2.45	17.13306	0.356	233.964	3	2.5	233.964	3	2.5	3.877049	0.133	160.272	6.3	5.65	0	0	0	167.651	35.224
		bawah	2.8	2.45	156.1077	1.000	0	0	0	0	0	0	9.932476	1.000	0	0	0	0	0	0	0.000	0.000
	2	atas	3	2.3	75.25179	0.704	233.964	3	2.5	233.964	3	2.5	6.746276	0.457	160.272	7.742	7.092	0	0	0	289.910	105.167
		bawah	3	2.3	30.99613	0.644	233.964	3	2.5	233.964	3	2.5	25.37893	0.867	160.272	7.742	7.092	0	0	0	265.267	199.845
	3	atas	4.5	3.8	189.3051	0.432	311.822	0.919	0.669	311.822	5.827	5.327	16.89647	0.579	234.051	7.531	7.181	0	0	0	349.647	265.022
		bawah	4.5	3.8	31.66308	0.296	233.964	0.919	0.669	233.964	5.827	5.327	8.031864	0.543	160.272	7.531	7.181	0	0	0	178.575	178.168
	atap	atas	2.4	1.85	27.91066	1.000	121.022	0.919	0.669	121.022	5.827	5.327	1.594427	1.000	0	0	0	0	0	0	201.419	60.426
		bawah	2.4	1.85	249.146	0.568	311.822	0.919	0.669	311.822	5.827	5.327	12.27162	0.421	0	0	0	0	0	0	294.900	65.502
K12	1	atas	2.8	2.45	24.56463	0.388	233.964	0.919	0.669	233.964	5.827	5.327	6.699965	0.249	160.272	6.039	5.689	0	0	0	186.783	65.469
		bawah	2.8	2.45	70.11725	1.000	0	0	0	0	0	0	4.743261	1.000	0	0	0	0	0	0	0.000	0.000
	2	atas	3	2.3	22.88906	0.258	233.964	0.919	0.669	233.964	5.827	5.327	11.60629	0.559	160.272	6.039	5.689	0	0	0	141.337	167.503
		bawah	3	2.3	38.70524	0.612	233.964	0.919	0.669	233.964	5.827	5.327	20.20079	0.751	160.272	6.039	5.689	0	0	0	335.226	224.839
	3	atas	4.5	3.8	90.36086	0.773	311.822	0.919	0.669	311.822	5.827	5.327	17.86187	0.539	234.051	7.531	7.181	0	0	0	626.343	246.758
		bawah	4.5	3.8	65.85474	0.742	233.964	0.919	0.669	233.964	5.827	5.327	9.139861	0.441	160.272	7.531	7.181	0	0	0	447.460	144.422
	atap	atas	2.4	1.85	3.995464	1.000	121.022	0.919	0.669	121.022	5.827	5.327	2.048277	1.000	0	0	0	0	0	0	201.419	60.426
		bawah	2.4	1.85	26.46984	0.227	311.822	0.919	0.669	311.822	5.827	5.327	15.25499	0.461	0	0	0	0	0	0	117.581	71.718

Tabel 7.6.b Lanjutan

Kolom	Lt.	Letak momen	h	hn	Sejajar sumbu x									Sejajar sumbu y									Mu,k-x	Mu,k-y
					ME,k	α,κ	kiri			kanan				ME,K	α,κ	kiri			kanan					
							Mnak,b	l ki	ln ki	Mnak,b	l ka	ln ka				Mnak,b	l ki	ln ki	Mnak,b	l ka	ln ka		
			(m)	(m)	(kNm)		(kNm)	(m)	(m)	(kNm)	(m)	(m)	(kNm)			(kNm)	(m)	(m)	(kNm)	(m)	(m)	(kNm)	(kNm)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]
K13	1	atas	2.8	2.45	28.38971	0.355	233.964	5.827	5.327	233.964	4.55	4.05	1.684109	0.193	234.051	6.686	6.336	0	0	0	161.075	59.428
		bawah	2.8	2.45	69.22192	1.000	0	0	0	0	0	0	1.574712	1.000	0	0	0	0	0	0	0.000	0.000
	2	atas	3	2.3	41.68896	0.429	233.964	5.827	5.327	233.964	4.55	4.05	5.562413	0.628	160.272	6.686	6.336	0	0	0	213.241	177.955
		bawah	3	2.3	51.61325	0.645	233.964	5.827	5.327	233.964	4.55	4.05	7.051306	0.807	160.272	6.686	6.336	0	0	0	320.416	228.614
	3	atas	4.5	3.8	76.85547	0.839	311.822	5.827	5.327	311.822	4.55	4.05	10.02242	0.436	380.528	8.06	7.71	0	0	0	653.743	253.185
		bawah	4.5	3.8	62.67138	1.000	233.964	5.827	5.327	233.964	4.55	4.05	5.287257	1.000	160.272	8.06	7.71	0	0	0	546.592	310.432
	atap	atas	2.4	1.85	7.819001	1.000	121.022	5.827	5.327	121.022	4.55	4.05	5.158834	1.000	0	0	0	0	0	0	180.993	54.298
		bawah	2.4	1.85	14.69838	0.161	311.822	5.827	5.327	311.822	4.55	4.05	12.99065	0.564	0	0	0	0	0	0	74.868	78.973
K14	1	atas	2.8	2.45	27.01463	0.345	233.964	4.55	4.05	233.964	7	6.5	0.2624209	0.049	234.051	6.3	5.95	0	0	0	155.425	14.942
		bawah	2.8	2.45	66.71481	1.000	0	0	0	0	0	0	2.023894	1.000	0	0	0	0	0	0	0.000	0.000
	2	atas	3	2.3	42.58869	0.435	233.964	4.55	4.05	233.964	7	6.5	4.039336	0.551	234.051	6.3	5.95	0	0	0	223.288	193.331
		bawah	3	2.3	51.38677	0.655	233.964	4.55	4.05	233.964	7	6.5	5.146567	0.951	160.272	6.3	5.95	0	0	0	323.360	268.965
	3	atas	4.5	3.8	66.21671	0.895	311.822	4.55	4.05	311.822	7	6.5	6.365966	0.427	307.395	7.742	7.392	0	0	0	672.758	216.668
		bawah	4.5	3.8	55.40912	0.565	233.964	4.55	4.05	233.964	7	6.5	3.290159	0.449	160.272	7.742	7.392	0	0	0	306.948	138.973
	atap	atas	2.4	1.85	9.780692	1.000	121.022	4.55	4.05	121.022	7	6.5	3.511391	1.000	0	0	0	0	0	0	179.610	53.883
		bawah	2.4	1.85	7.78355	0.105	311.822	4.55	4.05	311.822	7	6.5	8.529398	0.573	0	0	0	0	0	0	48.676	79.499
K15	1	atas	2.8	2.45	21.99985	0.326	233.964	7	6.5	233.964	6	5.5	0.1085103	0.032	307.395	6.3	5.95	0	0	0	151.063	11.583
		bawah	2.8	2.45	62.78272	1.000	0	0	0	0	0	0	1.63836	1.000	0	0	0	0	0	0	0.000	0.000
	2	atas	3	2.3	36.82547	0.439	233.964	7	6.5	233.964	6	5.5	2.555597	0.603	307.395	6.3	5.95	0	0	0	231.788	251.163
		bawah	3	2.3	45.44017	0.674	233.964	7	6.5	233.964	6	5.5	3.317195	0.968	160.272	6.3	5.95	0	0	0	327.941	271.796
	3	atas	4.5	3.8	56.97652	0.933	311.822	7	6.5	311.822	6	5.5	3.330365	0.362	307.395	7.742	7.392	0	0	0	692.586	182.478
		bawah	4.5	3.8	46.9765	0.561	233.964	7	6.5	233.964	6	5.5	1.682707	0.397	160.272	7.742	7.392	0	0	0	300.217	122.044
	atap	atas	2.4	1.85	10.52899	1.000	121.022	7	6.5	121.022	6	5.5	1.80919	1.000	0	0	0	0	0	0	176.953	53.086
		bawah	2.4	1.85	4.072427	0.067	311.822	7	6.5	311.822	6	5.5	5.868859	0.638	0	0	0	0	0	0	30.414	87.262

Lanjutan

		h	hn	Sejajar sumbu x								Sejajar sumbu y								Mu,k-x	Mu,k-y
				ME,k	α,κ	kiri			kanan			ME,k	α,κ	kiri			kanan				
						Mnak,b	l ki	ln ki	Mnak,b	l ka	ln ka			Mnak,b	l ki	ln ki	Mnak,b	l ka	ln ka		
		(m)	(m)	(kNm)		(kNm)	(m)	(m)	(kNm)	(m)	(m)	(kNm)		(kNm)	(m)	(m)	(kNm)	(m)	(m)	(kNm)	(kNm)
		[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]
		2.8	2.45	16.5678	0.298	233.964	6	5.5	233.964	6	5.5	6.36E-02	0.068	234.051	6.3	5.95	0	0	0	133.635	20.861
		2.8	2.45	58.24402	1.000	0	0	0	0	0	0	0.4685613	1.000	0	0	0	0	0	0	0.000	0.000
		3	2.3	31.03601	0.443	233.964	6	5.5	233.964	6	5.5	0.6179533	0.502	234.051	6.3	5.95	0	0	0	225.761	175.439
		3	2.3	38.94309	0.702	233.964	6	5.5	233.964	6	5.5	0.8725956	0.932	160.272	6.3	5.95	0	0	0	343.451	262.411
		4.5	3.8	48.05381	0.979	311.822	6	5.5	311.822	6	5.5	1.355647	0.524	234.051	7.742	7.392	0	0	0	708.927	226.296
		4.5	3.8	39.07595	0.557	233.964	6	5.5	233.964	6	5.5	0.6136969	0.498	160.272	7.742	7.392	0	0	0	300.239	153.637
		2.4	1.85	10.63694	1.000	121.022	6	5.5	121.022	6	5.5	0.4650374	1.000	0	0	0	0	0	0	178.095	53.428
		2.4	1.85	1.031385	0.021	311.822	6	5.5	311.822	6	5.5	1.229385	0.476	0	0	0	0	0	0	9.642	65.469

Keterangan Tabel 7.6.b :

[1] Kolom yg ditinjau

[2] Tingkat lantai pada kolom yang ditinjau

[3] Letak momen pada kolom atas dan bawah

[4] *h* = tinggi kolom dari titik pertemuan ke titik pertemuan

[5] *hn* = tinggi bersih kolom

[6] *ME,k* = momen kolom akibat gempa sejajar sb-x

[7] α,*k atas* = (*ME,k lt i+1atas*)/(*ME,k lt i+1atas* + *ME,k lt i bawah*)

α,*k bawah* = (*ME,k lt i bawah*)/(*ME,k lt i+1atas* + *ME,k lt i bawah*)

(faktor distribusi momen dari kolom yang ditinjau sejajar sb-x)

[8] *Mnak,b-x kiri* = momen nominal aktual balok sebelah kiri kolom sejajar sumbu x

[9] *l ki* = bentang balok dari as ke as kiri kolom sejajar sumbu x

[10] *ln,ki* = bentang bersih balok kiri kolom sejajar sumbu x

[11] *Mnak,b-x kanan* = momen nominal aktual balok sebelah kanan kolom sejajar sumbu x

[12] *l ka* = bentang balok dari as ke as kanan kolom sejajar sumbu x

[13] *ln,ka* = bentang bersih balok kanan kolom sejajar sumbu x

[14] *ME,k* = momen kolom akibat gempa sejajar sb-y

[15] α,*k atas* = (ME,k lt i+1atas)/(ME,k lt i+1atas + ME,k lt i bawah)

α,*k bawah* = (*ME,k lt i bawah*)/(*ME,k lt i+1atas* + *ME,k lt i bawah*)

(faktor distribusi momen dari kolom yang ditinjau sejajar sb-y)

[16] *Mnak,b-y kiri* = momen nominal aktual balok sebelah kiri kolom sejajar sumbu y

[17] *l ki* = bentang balok dari as ke as kiri kolom sejajar sumbu y

[18] *ln,ki* = bentang bersih balok kiri kolom sejajar sumbu y

[19] *Mnak,b-y kanan* = momen nominal aktual balok sebelah kanan kolom sejajar sumbu y

[20] *l ka* = bentang balok dari as ke as kanan kolom sejajar sumbu y

[21] *ln,ka* = bentang bersih balok kanan kolom sejajar sumbu y

[22] *Mu,k-x* = *hn/h* .0,7.1,25.ω*d* .α [*l kix/ ln kix . Mnak ki,bx + l kax/ ln kax . Mnak ka,bx+0,3(l kiy/ ln kiy . Mnak ki,by + l kay/ ln kay . Mnak ka,by)*]

(momen rencana kolom sejajar sumbu x) dengan ωd = 1 untuk lantai 1 dan lartai atas, ωd = 1,3 untuk lantai 2,3

[23] *Mu,k-y* = *hn/h*.0,7.1,25.ω*d*. α [*l kiy/ ln kiy . Mnak ki,by + l kay/ ln kay . Mnak ka,by+0,3(l kix/ ln kix . Mnak ki,bx + l kax/ ln kax . Mnak ka,bx)*]

(momen rencana kolom sejajar sumbu y) dengan ωd = 1 untuk lantai 1 dan lartai atas, ωd = 1,3 untuk lantai 2,3

Tabel 7.7.a Momen Maksimum Kolom Portal A

Kolom	Lt	Letak	Sejajar sumbu x				Sejajar sumbu y				Gempa kiri		Gempa kanan	
		momen	*MD,kx* (kNm)	*ML,kx* (kNm)	*MEki,kx* (kNm)	*MEka,kx* (kNm)	*MD,ky* (kNm)	*ML,ky* (kNm)	*MEki,ky* (kNm)	*MEka,ky* (kNm)	*Mu,kx1* (kNm)	*Mu,ky1* (kNm)	*Mu,kx2* (kNm)	*Mu,ky2* (kNm)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]
K1	1	atas	30.28852	29.65755	-111.7767	20.96587	30.28852	29.65755	13.84232	-17.9447	-389.077	-19.758	128.390	13.993
		bawah	-8.530862	-10.07731	206.3174	-36.06014	-8.530862	-10.07731	-7.380396	14.32445	837.695	209.424	-152.942	-4.812
K2	1	atas	-25.77954	-33.47612	-91.23895	22.60857	-25.77954	-33.47612	-0.1927381	-2.038852	-445.665	-177.989	30.169	-42.295
		bawah	14.66796	17.04746	155.0789	-39.82176	14.66796	17.04746	-0.5675545	4.92472	683.917	226.317	-127.745	3.810
K3	1	atas	3.709008	16.93886	-69.41559	26.81198	3.709008	16.93886	0.8938685	-2.559601	-268.739	-62.029	131.065	44.713
		bawah	-0.25295	-6.73938	117.6701	-45.97948	-0.25295	-6.73938	-0.8497882	3.723159	485.802	137.353	-195.765	-49.639
K4	1	atas	-40.63621	-32.90585	-62.50516	37.99895	-40.63621	-32.90585	0.9542826	-2.078046	-338.538	-151.968	79.758	-38.068
		bawah	19.13381	15.43396	93.34435	-57.34612	19.13381	15.43396	-0.6896621	2.234837	427.473	151.013	-201.742	-26.574
K5	1	atas	5.02251	0.5019844	-68.16884	23.91747	5.02251	0.5019844	14.76096	-18.10053	-261.910	-18.096	83.447	-40.085
		bawah	0.155572	1.234165	186.5283	-50.51915	0.155572	1.234165	-10.96677	19.92302	771.060	190.424	-185.618	21.482
	2	atas	-37.88049	-23.89318	-57.60832	12.87045	-37.88049	-23.89318	-5.60454	1.469925	-313.879	-160.988	-8.954	-42.472
		bawah	15.8007	12.59168	70.80228	-3.624484	15.8007	12.59168	12.25342	-8.959399	342.621	170.487	3.300	-12.384
K6	1	atas	-4.948225	-0.4514508	-23.91554	68.16867	-4.948225	-0.4514508	7.897226	-8.78694	-96.164	-2.635	269.567	43.318
		bawah	-0.1746895	-1.253045	50.51379	-186.5293	-0.1746895	-1.253045	-6.288603	12.81255	202.735	35.736	-768.778	-182.713
	2	atas	-39.19076	1.469925	-83.27213	31.24383	-39.19076	1.469925	-11.87086	3.331262	-404.307	-194.387	95.815	13.752
		bawah	22.33227	-8.959399	66.22717	-23.63971	22.33227	-8.959399	16.38943	-8.571689	312.846	166.323	-96.046	-51.746
K7	1	atas	6.742098	3.100746	-34.89845	23.3034	6.742098	3.100746	7.987301	-9.055411	-126.175	-0.090	96.799	1.665
		bawah	-3.977154	-2.136737	99.76875	-52.12188	-3.977154	-2.136737	-5.330176	11.43122	405.893	96.902	-210.928	-24.082
	2	atas	111.0251	12.87045	-65.18686	27.7185	111.0251	12.87045	-9.647332	2.665958	-155.850	7.436	249.867	176.213
		bawah	-54.7106	-3.624484	54.80968	-21.3269	-54.7106	-3.624484	11.58854	-5.09744	183.550	56.480	-157.248	-109.533
K8	1	atas	21.46724	17.11813	-32.87624	21.76063	21.46724	17.11813	7.987301	-4.347311	-87.502	32.637	126.432	49.674
		bawah	-11.5905	-9.139884	95.07059	-51.66125	-11.5905	-9.139884	-5.330176	6.444803	370.814	75.635	-230.624	-59.792
	2	atas	-52.17709	-5.60454	-40.04213	21.25306	-52.17709	-5.60454	-3.262864	-0.1509404	-232.959	-124.828	28.402	-34.526
		bawah	24.35476	12.25342	32.4063	-15.25051	24.35476	12.25342	5.679675	-2.525872	181.701	103.125	-28.796	8.614
K9	1	atas	-2.077179	-2.71722	-20.43092	15.85977	-2.077179	-2.71722	2.184788	-2.589446	-88.091	-21.601	58.314	4.074
		bawah	2.509806	2.00914	79.3458	-50.37865	2.509806	2.00914	-1.021369	3.866685	336.710	100.431	-201.973	-42.492
	2	atas	8.429098	38.08491	-36.517	23.72008	8.429098	38.08491	-2.289248	-4.451258E-02	-107.416	-6.787	148.408	78.540
		bawah	-2.630451	-15.84073	28.74214	-17.33105	-2.630451	-15.84073	3.347674	-1.309797	105.540	30.881	-93.835	-46.733

Tabel 7.7.a Lanjutan

Kolom	Lt	Letak momen	Sejajar sumbu x				Sejajar sumbu y				Gempa kiri		Gempa kanan	
			MD,kx (kNm)	*ML,kx* (kNm)	*MEki,kx* (kNm)	*MEka,kx* (kNm)	*MD,ky* (kNm)	*ML,ky* (kNm)	*MEki,ky* (kNm)	*MEka,ky* (kNm)	*Mu,kx1* (kNm)	*Mu,ky1* (kNm)	*Mu,kx2* (kNm)	*Mu,ky2* (kNm)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]
K10	1	atas	-7.487914	-5.835544	-25.76863	22.89768	-7.487914	-5.835544	0.9643188	-1.39979	**-121.003**	**-42.408**	80.417	8.982
		bawah	6.047588	4.403905	68.3649	-58.24726	6.047588	4.403905	-0.3805272	1.915956	**297.627**	**95.516**	-231.250	-54.370
	2	atas	-76.58559	-52.23787	-39.03658	30.96797	-76.58559	-52.23787	-0.2997693	-1.40322	**-299.596**	**-185.710**	-6.967	-102.139
		bawah	33.06107	23.19423	31.18147	-24.21503	33.06107	23.19423	1.148335	0.2063584	**191.477**	**103.180**	-42.375	29.424
K11	1	atas	2.530479	0.9946075	-28.4877	26.76768	2.530479	0.9946075	0.1421716	-0.3863571	**-115.768**	-31.596	115.639	**35.806**
		bawah	9.985512E-02	0.388542	66.84476	-61.65296	9.985512E-02	0.388542	-1.946417E-02	0.8023506	**281.236**	**84.655**	-257.419	-73.800
	2	atas	4.581576	1.577411	-43.28201	38.83301	4.581576	1.577411	-0.7722701	-3.437123E-02	**-176.291**	-51.312	169.522	**55.252**
		bawah	-7.439947	-3.838978	34.17785	-30.38099	-7.439947	-3.838978	1.063647	-0.3962304	133.044	35.689	**-139.942**	**-51.787**
K12	1	atas	-12.74693	-6.770856	233.7666	-69.20786	-12.74693	-6.770856	-16.44185	11.97657	**940.609**	**204.996**	-296.076	-57.394
		bawah	33.67916	19.24898	-38.33643	16.49321	33.67916	19.24898	10.78961	-10.32028	-91.844	**52.587**	**111.842**	33.011
	2	atas	-40.69427	-22.31055	49.95686	-15.78054	-40.69427	-22.31055	20.8613	-25.97277	**169.949**	84.408	-165.159	**-195.124**
		bawah	32.63246	9.440773	-129.8316	16.83267	32.63246	9.440773	-2.084434	7.205282	**-503.742**	**-128.166**	123.953	95.648
	3	atas	-43.94053	-28.04274	-67.14392	-19.03565	-43.94053	-28.04274	9.253029	-7.229074	**-345.928**	-121.321	-164.641	**-129.929**
		bawah	68.92629	62.52227	423.7525	23.6753	68.92629	62.52227	-11.97597	14.04476	**1902.692**	**621.650**	255.154	226.840
	atap	atas	-31.43972	-37.20538	528.0381	0.7417653	-31.43972	-37.20538	1.545114	2.216377	**2147.630**	**599.740**	-66.169	-61.834
		bawah	12.26548	4.954929	-57.54241	4.332608	12.26548	4.954929	-7.565022	6.772642	**-233.129**	**-86.195**	44.812	51.986
K13	1	atas	-7.233074	-4.337829	96.13036	-77.28775	-7.233074	-4.337829	-10.82884	-2.975659	**377.954**	**63.494**	-340.507	-122.030
		bawah	11.99117	7.108261	-31.47571	20.42811	11.99117	7.108261	4.348018	2.942644	-106.665	-1.343	**109.560**	**58.153**
	2	atas	-6.905311	-6.266184	59.01274	-53.97082	-6.905311	-6.266184	17.67244	-22.91055	256.291	134.750	**-269.375**	**-178.058**
		bawah	1.645844	1.411453	-22.59552	43.14105	1.645844	1.411453	-2.793353	11.54398	-95.211	-36.992	**198.948**	**106.053**
	3	atas	-14.12169	-7.925804	122.7445	-48.5679	-14.12169	-7.925804	16.01243	-12.67913	**512.553**	**198.760**	-243.111	-137.598
		bawah	30.57674	21.30633	-156.83	54.4722	30.57674	21.30633	-25.64269	27.0229	**-636.519**	**-250.828**	317.309	236.608
	atap	atas	-10.54161	-8.508013	-32.73512	-13.97427	-10.54161	-8.508013	-14.41886	20.12732	**-175.657**	**-121.808**	-53.334	46.925
		bawah	2.471526	1.905744	-11.53035	18.55047	2.471526	1.905744	-2.401351	-6.145516E-02	-46.857	-20.018	**82.431**	**27.712**

Tabel 7.7.a Lanjutan

Kolom	Lt	Letak momen	Sejajar sumbu x				Sejajar sumbu y				Gempa kiri		Gempa kanan	
			MD,kx (kNm)	*ML,kx* (kNm)	*MEki,kx* (kNm)	*MEka,kx* (kNm)	*MD,ky* (kNm)	*ML,ky* (kNm)	*MEki,ky* (kNm)	*MEka,ky* (kNm)	*Mu,kx1* (kNm)	*Mu,ky1* (kNm)	*Mu,kx2* (kNm)	*Mu,ky2* (kNm)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]
K12	1	atas	18.25715	7.358725	-28.91208	24.11809	18.25715	7.358725	8.903308	-3.784307	-83.316	27.861	**123.424**	**41.391**
		bawah	-9.879223	-4.458389	92.6776	-79.21391	-9.879223	-4.458389	-9.73419	-0.9968293	**361.926**	60.836	-349.009	**-119.051**
	2	atas	24.46956	11.66234	-42.99763	47.00313	24.46956	11.66234	-0.4208848	7.244945	-143.182	-18.006	**244.480**	**127.591**
		bawah	-21.80336	-10.39601	70.01138	-58.49507	-21.80336	-10.39601	6.990044	-10.62192	269.046	83.763	**-292.872**	**-152.125**
	3	atas	38.43647	11.93434	-126.3548	60.49379	38.43647	11.93434	-14.77696	15.21182	**-496.420**	-168.381	326.130	**193.001**
		bawah	-28.25292	-9.104816	105.5738	-53.49475	-28.25292	-9.104816	10.60485	-7.711499	**417.546**	138.338	-273.620	**-139.017**
	atap	atas	4.58024	-4.29766	-15.03742	22.83411	4.58024	-4.29766	4.801407	-7.007443	-56.811	**1.515**	**87.371**	-0.364
		bawah	-22.12427	4.00951	-24.09777	-18.57271	-22.12427	4.00951	-16.85975	21.67531	**-141.474**	**-120.195**	-69.715	48.614
K15	1	atas	-7.443233	-3.385665	-21.45096	20.61819	-7.443233	-3.385665	8.903308	-1.631141	**-90.246**	-1.005	73.171	**7.758**
		bawah	2.500516	0.8070464	86.91556	-78.3882	2.500516	0.8070464	-9.73419	-1.8724	**356.253**	72.103	-328.117	**-103.160**
	2	atas	-10.55069	-4.353549	-39.76226	41.83579	-10.55069	-4.353549	0.4399697	3.829597	**-182.097**	**-63.902**	164.886	53.148
		bawah	10.59359	3.80003	63.23305	-54.47099	10.59359	3.80003	4.006814	-6.078109	**285.741**	**111.616**	-221.323	-79.048
	3	atas	-16.01725	0.527932	-93.69041	59.12865	-16.01725	0.527932	-8.447604	7.937887	**-420.407**	**-169.794**	242.078	91.577
		bawah	13.06281	3.374798	78.39172	-51.21576	13.06281	3.374798	5.893738	-3.519104	**353.931**	**140.787**	-202.281	-62.053
	atap	atas	-7.775877	-2.557463	-15.61139	20.26521	-7.775877	-2.557463	2.264924	-3.710775	**-73.564**	**-21.008**	69.588	-0.901
		bawah	31.46606	5.829887	-13.95907	-13.06142	31.46606	5.829887	-8.81936	12.50284	**-30.580**	-15.469	0.056	**75.215**
K16	1	atas	-7.811097	-3.385665	-21.45096	20.61819	-7.811097	-3.385665	2.672363	-0.5522192	**-98.483**	**-27.561**	74.144	11.903
		bawah	3.123216	0.8070464	86.91556	-78.3882	3.123216	0.8070464	-2.861408	-1.735488	**365.567**	101.622	-327.290	**-101.931**
	2	atas	-11.22957	-9.426441	-45.84369	45.26062	-11.22957	-9.426441	0.1891872	2.615881	**-213.994**	**-78.657**	171.702	46.326
		bawah	10.35327	9.471456	65.10941	-58.17075	10.35327	9.471456	2.337538	-3.80073	**297.221**	**112.671**	-228.290	-68.442
	3	atas	0.3064606	-6.213347	-84.07807	63.37592	0.3064606	-6.213347	-5.194965	5.276176	**-365.876**	**-133.959**	266.625	95.811
		bawah	5.878006	7.976829	71.68125	-55.22277	5.878006	7.976829	3.71863	-2.430782	**320.294**	**120.484**	-220.451	-65.242
	atap	atas	-2.163049	-2.100134	-19.11728	21.35596	-2.163049	-2.100134	1.194711	-1.998388	**-83.264**	**-23.546**	82.701	14.039
		bawah	1.348011	9.52561	-0.3732488	-13.6346	1.348011	9.52561	-4.373106	6.037952	4.340	-7.420	**-38.240**	**19.597**

Keterangan Tabel 7.7.a

[1] Kolom yg ditinjau

[2] Tingkat lantai pada kolom yang ditinjau

[3] Letak momen pada kolom atas dan bawah

[4] *MD,kx* = momen kolom akibat beban mati sejajar sb-x

[5] *ML,kx* = momen kolom akibat beban hidup sejajar sb-x

[6] *MEki,kx* = momen kolom akibat beban gempa kiri sejajar sb-x

[7] *MEka,kx* = momen kolom akibat beban gempa kanan sejajar sb-x

[8] *MD,ky* = momen kolom akibat beban mati sejajar sb-y

[9] *ML,ky* = momen kolom akibat beban hidup sejajar sb-y

[10] *MEki,ky* = momen kolom akibat beban gempa kiri sejajar sb-y

[11] *MEka,ky* = momen kolom akibat beban gempa kanan sejajar sb-y

[12] $Mu,kx1 = 1,05(MD,kx + ML,kx + 4/k(ME,kix + 0,3ME,kiy))$

(momen maksimum kolom sejajar sb-x akibat gempa kiri) dengan k= 1

[13] $Mu,ky1 = 1,05(MD,ky + ML,ky + 4/k(ME,kiy + 0,3ME,kix))$

(momen maksimum kolom sejajar sb-y akibat gempa kiri) dengan k= 1

[14] $Mu,kx1 = 1,05(MD,kx + ML,kx + 4/k(ME,kax + 0,3ME,kay))$

(momen maksimum kolom sejajar sb-x akibat gempa kanan) dengan k= 1

[15] $Mu,ky1 = 1,05(MD,ky + ML,ky + 4/k(ME,kay + 0,3ME,kax))$

(momen maksimum kolom sejajar sb-y akibat gempa kanan) dengan k= 1

NB : Cetak tebal adalah momen maksimum kolom pada perencanaan kolom portal A

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Tabel 7.7.b Momen Maksimum Kolom Portal B

Kolom	Lt.	Letak	Sejajar sumbu x				Sejajar sumbu y				gempa kiri		gempa kanan	
			MD,kx (kNm)	*ML,kx* (kNm)	*MEki,kx* (kNm)	*MEka,kx* (kNm)	*MD,ky* (kNm)	*ML,ky* (kNm)	*MEki,ky* (kNm)	*MEka,ky* (kNm)	*Mu,kx1* (kNm)	*Mu,ky1* (kNm)	*Mu,kx2* (kNm)	*Mu,ky2* (kNm)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]
K1	1	atas	30.28852	-6.35998	-79.3737	26.0799	30.28852	-6.35998	7.84509	-15.78429	-298.360	-41.937	114.772	-8.308
		bawah	-8.530862	4.567791	118.5143	-37.71339	-8.530862	4.567791	-4.371775	13.51532	488.090	126.805	-145.528	5.084
K2	1	atas	-25.77954	-2.87435	-82.83633	30.53009	-25.77954	-2.87435	0.3919198	-5.199726	-377.505	-132.814	91.588	-13.458
		bawah	14.66796	2.83162	109.3507	-41.1385	14.66796	2.83162	-0.7819688	7.354181	476.662	152.872	-145.141	-2.572
K3	1	atas	3.709008	22.69753	-52.05944	26.65861	3.709008	22.69753	-0.2752617	-2.085323	-191.270	-39.024	137.066	52.558
		bawah	-0 25295	-9.1381	83.55364	-42.72607	-0.25295	-9.1381	-0.295534	4.2944	340.692	94.176	-183.899	-45.659
K4	1	atas	-40.63621	-16.8094	-37.79846	30.24796	-40.63621	-16.8094	0.9922786	-1.916858	-217.821	-103.776	64.308	-30.256
		bawah	19.13381	8.203321	64.27597	-51.53471	19.13381	8.203321	-0.6545148	2.075158	297.838	106.943	-185.127	-27.514
K5	1	atas	5.356224	-6.710702	-33.92041	19.3253	5.356224	-6.710702	3.558771	-6.370828	-139.404	-29.215	71.717	-3.830
		bawah	0.9673713	4.826258	112.7691	-40.6996	0.9673713	4.826258	-5.955679	14.094	472.209	123.159	-147.097	13.997
	2	atas	-40.13797	-22.24233	-40.13868	10.13348	-40.13797	-22.24233	-2.750672	2.479917	-237.548	-127.627	-19.814	-42.315
		bawah	12 70678	14.39477	41.59195	-2.103645	12.70678	14.39477	12.22342	-14.69377	218.544	132.201	1.107	-35.908
K6	1	atas	-4 684322	-6.265684	-28.51757	18.74417	-4.684322	-6.265684	0.3668087	-0.5204557	-130.809	-45.889	66.572	9.934
		bawah	5.044564	4.269382	64.19022	-40.21687	5.044564	4.269382	-3.958657	7.941843	274.391	74.033	-149.124	-7.538
	2	atas	-36.12322	-19.57832	-44.793	23.48319	-36.12322	-19.57832	-5.006877	4.086083	-252.926	-135.955	45.291	-11.736
		bawah	20.5879	14.98741	34.06693	-18.06042	20.5879	14.98741	10.8603	-11.96353	194.119	125.892	-53.574	-35.649
K7	1	atas	3.282592	3.764677	-27.17424	18.95981	3.282592	3.764677	5.249883	-7.597202	-100.117	-4.790	77.458	-0.619
		bawah	1.150428	-0.4477473	61.0735	-40.6728	1.150428	-0.4477473	-5.264506	9.59397	250.613	55.579	-158.000	-10.215
	2	atas	6.123096	7.122964	-40.01031	23.98124	6.123096	7.122964	-2.866355	1.17289	-157.747	-48.543	116.107	49.051
		bawah	-3.624389	-4.015733	31.15878	-18.55868	-3.624389	-4.015733	3.919874	-2.492699	127.784	47.701	-89.109	-41.875
K8	1	atas	14.05177	10.48649	-21.29102	16.40956	14.05177	10.48649	2.892092	-4.202347	-60.013	11.085	89.390	28.791
		bawah	-3.981608	-3.603662	54.75865	-40.33261	-3.981608	-3.603662	-3.208559	6.163965	217.979	47.555	-169.595	-32.895
	2	atas	-4.98871	-3.99088	-31.95948	21.51191	-4 98871	-3.99088	-1.387136	0.1598956	-145.406	-55.523	81.123	18.348
		bawah	-5.393417	-3.387563	24.28582	-16.10809	-5.393417	-3.387563	2.502627	-1.538171	95.934	31.891	-78.812	-35.977
K9	1	atas	37.53584	21.43884	-17.32653	14.65005	37.53584	21.43884	1.555344	-2.276387	-8.888	46.624	120.585	70.822
		bawah	-15.37133	-9.102448	50.01011	-40.63294	-15.37133	-9.102448	-1.948225	3.857987	181.890	29.133	-191.495	-60.691

Tabel 7.7.b Lanjutan

Kolom	Lantai	Letak	Sejajar sumbu x				Sejajar sumbu y				gempa kiri		gempa kanan	
			MD,kx (kNm)	*ML,kx* (kNm)	*MEki,kx* (kNm)	*MEka,kx* (kNm)	*MD,ky* (kNm)	*ML,ky* (kNm)	*MEki,ky* (kNm)	*MEka,ky* (kNm)	*Mu,kx1* (kNm)	*Mu,ky1* (kNm)	*Mu,kx2* (kNm)	*Mu,ky2* (kNm)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]
K9	2	atas	65.15815	47.92829	-26.14409	20.41405	65.15815	47.92829	-1.176472	0.399933	7.453	80.858	**204.984**	**146.142**
		bawah	-52.66566	-33.75468	19.59619	-14.94127	-52.66566	-33.75468	1.780522	-1.172126	-6.194	-58.572	**-154.972**	**-114.480**
K10	1	atas	14.46965	5.435884	-13.05041	12.38509	14.46965	5.435884	0.6372551	-0.8165644	-33.108	7.134	**71.889**	**33.076**
		bawah	-3.526464	-0.645883	44.53479	-41.70696	-3.526464	-0.645883	-0.8802878	1.507671	**181.556**	48.036	-177.651	**-50.600**
	2	atas	-40.95473	-34.65344	-21.04413	19.50821	-40.95473	-34.65344	-1.12E-02	-0.3982629	**-167.788**	**-105.951**	2.044	-56.481
		bawah	6.515549	10.72231	14.89454	-13.70042	6.515549	10.72231	0.3800841	-0.1200496	**81.136**	**38.463**	-39.593	0.333
K11	1	atas	30.33776	19.69648	-17.13306	11.5211	30.33776	19.69648	4.946413	-3.877049	-13.190	**51.723**	**96.039**	50.769
		bawah	-11.51748	-6.837883	66.84476	-50.64715	-11.51748	-6.837883	-9.703673	9.932476	**249.248**	24.196	-219.476	**-41.372**
	2	atas	38.21121	5.252464	-43.28201	11.50722	38.21121	5.252464	1.177387	6.746276	**-134.664**	-3.953	102.467	**88.470**
		bawah	-40.19931	-21.5801	30.99613	-7.840331	-40.19931	-21.5801	17.6869	-25.37893	87.601	48.472	**-129.775**	**-181.339**
	3	atas	68.48191	53.91945	189.3051	15.78141	68.48191	53.91945	-37.26248	16.89647	**876.652**	210.543	216.093	**219.371**
		bawah	-49.46076	-21.48361	-31.66308	-10.79359	-49.46076	-21.48361	12.27799	-8.031864	**-192.006**	-62.820	-129.945	**-121.825**
	atap	atas	12.32565	5.029025	-27.91066	2.678238	12.32565	5.029025	-4.912804	1.594427	**-105.192**	**-37.579**	31.480	28.294
		bawah	-30.84226	-25.33109	249.146	1.117034	-30.84226	-25.33109	-29.97511	12.27162	**949.663**	**129.046**	-38.828	-6.034
K12	1	atas	9.733707	6.993403	-24.56463	14.37482	9.733707	6.993403	-0.3542235	6.699965	-86.054	-14.876	**86.380**	**63.816**
		bawah	-3.253281	-1.918799	70.11725	-53.22389	-3.253281	-1.918799	-4.932892	-4.743261	282.846	**62.199**	**-234.948**	-92.414
	2	atas	1.752611	-2.009465	-22.88906	27.68354	1.752611	-2.009465	-2.880499	11.60629	**-100.033**	-41.208	130.625	**83.358**
		bawah	-7.334563	-6.376909	38.70524	-33.86208	-7.334563	-6.376909	12.59034	-20.20079	164.029	87.251	**-182.071**	**-141.907**
	3	atas	28.55561	21.2954	-90.36086	37.30375	28.55561	21.2954	-16.15767	17.86187	**-347.531**	-129.373	231.525	**174.366**
		bawah	-14.73546	-7.136195	65.85474	-31.42385	-14.73546	-7.136195	11.02866	-9.139861	**267.521**	**106.332**	-166.462	-100.947
	atap	atas	2.788575	3.401767	-3.995464	10.97133	2.788575	3.401767	-5.152949	-2.048277	-16.774	**-20.177**	**49.999**	11.721
		bawah	-16.11146	-14.62637	-26.46984	-5.751697	-16.11146	-14.62637	-4.69769	15.25499	**-149.367**	**-85.357**	-37.211	24.549
K13	1	atas	-5.574888	-4.266862	-28.38971	22.36163	-5.574888	-4.266862	4.811912	-1.684109	**-123.508**	**-25.895**	81.463	10.769
		bawah	3.876939	2.938173	69.22192	-57.21207	3.876939	2.938173	-5.164103	-1.574712	**291.381**	**72.686**	-235.119	-71.545
	2	atas	-8.158575	-1.733236	-41.68896	37.87045	-8.158575	-1.733236	-0.2941875	5.562413	**-185.851**	**-64.150**	155.678	60.693
		bawah	7.918242	2.731295	51.61325	-43.80716	7.918242	2.731295	3.511829	-7.051306	**232.383**	**90.964**	-181.693	-73.630
	3	atas	-0.195073	0.3952751	-76.85547	45.51274	-0.195073	0.3952751	-8.923476	10.02242	**-333.826**	**-134.106**	203.992	99.650
		bawah	1.888391	-2.67E-02	62.67138	-40.04031	1.888391	-2.67E-02	6.992081	-5.287257	**273.985**	**110.287**	-172.876	-70.703

Tabel 7.7.b Lanjutan

Kolom	Lantai	Letak	Sejajar sumbu x				Sejajar sumbu y				gempa kiri		*gempa kanan*	
			MD,kx (kNm)	*ML,kx* (kNm)	*MEki,kx* (kNm)	*MEka,kx* (kNm)	*MD,ky* (kNm)	*ML,ky* (kNm)	*MEki,ky* (kNm)	*MEka,ky* (kNm)	*Mu,kx1* (kNm)	*Mu,ky1* (kNm)	*Mu,kx2* (kNm)	*Mu,ky2* (kNm)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]
K13	atap	atas	-6.906629	-4.347995	-7.819001	16.2109	-6.906629	-4.347995	2.382091	-5.158834	-41.656	-11.665	**49.768**	**-13.059**
		bawah	16.07074	12.37953	-14.69838	-11.87778	16.07074	12.37953	-7.451898	12.99065	**-41.250**	-19.945	-3.646	**69.468**
K14	1	atas	10.45731	6.617674	-27.01463	23.35725	10.45731	6.617674	2.872871	-0.2624209	-91.913	-4.044	**115.699**	**46.257**
		bawah	-2.916785	-1.702437	66.71481	-58.13913	-2.916785	-1.702437	-3.163826	-2.023894	**271.366**	65.922	-251.585	**-86.606**
	2	atas	-0.4015243	0.7751815	-42.58869	39.35637	-0.4015243	0.7751815	-9.045991E-02	4.039336	**-178.594**	-53.649	170.779	**66.947**
		bawah	-7.39093	-6.22166	51.38677	-45.20595	-7.39093	-6.22166	2.451723	-5.146567	204.620	60.751	**-210.643**	**-92.868**
	3	atas	2.674402	1.569011	-66.21671	47.51258	2.674402	1.569011	-5.803407	6.365966	**-280.967**	**-103.352**	212.030	91.058
		bawah	-0.5632633	8.18E-02	55.40912	-41.94323	-0.5632633	8.18E-02	4.624427	-3.290159	**238.040**	**88.733**	-180.813	-67.173
	atap	atas	-3.125808	-2.74753	-9.780692	16.5513	-3.125808	-2.74753	1.473219	-3.511391	-45.390	**-12.303**	**58.924**	-0.060
		bawah	7.650473	5.891642	-7.78355	-11.56206	7.650473	5.891642	-4.726512	8.529398	**-24.427**	-15.439	-23.594	**35.474**
K15	1	atas	39.52607	20.74704	-21.99985	20.14868	39.52607	20.74704	1.50706	0.1085103	-27.214	41.897	**148.048**	**89.130**
		bawah	-15.65994	-7.819944	62.78272	-57.24819	-15.65994	-7.819944	-1.817169	-1.63836	236.744	46.820	**-267.161**	**-103.668**
	2	atas	30.96556	11.88077	-36.82547	34.94095	30.96556	11.88077	-5.43E-03	2.555597	-109.685	-1.434	**194.961**	**99.748**
		bawah	-42.59286	-21.49037	45.44017	-41.47338	-42.59286	-21.49037	1.709749	-3.317195	125.716	-2.852	**-245.655**	**-133.476**
	3	atas	21.3926	8.118122	-56.97652	45.60363	21.3926	8.118122	-3.141392	3.330365	-212.273	-53.998	**226.718**	**102.434**
		bawah	-20.88316	-6.330142	46.9765	-39.15386	-20.88316	-6.330142	2.673102	-1.682707	172.095	41.843	**-195.140**	**-84.975**
	atap	atas	5.320175	-0.9397582	-10.52899	14.08548	5.320175	-0.9397582	0.7296062	-1.80919	-38.703	-5.603	**61.479**	**14.749**
		bawah	-13.97652	-3.329959	-4.072427	-7.471549	-13.97652	-3.329959	-3.413657	5.868859	-39.577	**-37.640**	**-42.158**	-2.937
K6	1	atas	-5.095322	-6.325726	-16.5678	16.10259	-5.095322	-6.325726	0.5379174	-6.36E-02	**-80.899**	**-30.608**	55.559	8.030
		bawah	4.434132	4.123786	58.24402	-56.4755	4.434132	4.123786	-0.634165	-0.4685613	**252.812**	**79.710**	-228.802	-64.141
	2	atas	-27.9923	-16.05463	-31.03601	30.53038	-27.9923	-16.05463	9.55E-02	0.6179533	**-176.480**	**-84.954**	82.757	-5.186
		bawah	14.48599	10.50472	38.94309	-37.76238	14.48599	10.50472	0.4564809	-0.8725956	**190.376**	**77.226**	-133.461	-25.005
	3	atas	-1.364954	3.606876	-48.05381	44.59697	-1.364954	3.606876	-1.205627	1.355647	**-200.991**	-63.257	191.369	**64.240**
		bawah	14.8215	5.997788	39.07595	-36.79162	14.8215	5.997788	0.9416966	-0.6136969	**187.166**	**75.051**	-133.438	-27.075
	atap	atas	0.1120445	0.1676216	-10.63694	11.52118	0.1120445	0.1676216	0.1706336	-0.4650374	-44.167	-12.392	**48.097**	**12.857**
		bawah	-7.155187	-9.548785	-1.031385	-2.422655	-7.155187	-9.548785	-0.6633452	1.229385	-22.707	**-21.625**	**-26.165**	-15.428

Keterangan Tabel 7.7.b :

[1] Kolom yg ditinjau

[2] Tingkat lantai pada kolom yang ditinjau

[3] Letak momen pada kolom atas dan bawah

[4] MD,kx = momen kolom akibat beban mati sejajar sb-x

[5] ML,kx = momen kolom akibat beban hidup sejajar sb-x

[6] $MEki,kx$ = momen kolom akibat beban gempa kiri sejajar sb-x

[7] $MEka,kx$ = momen kolom akibat beban gempa kanan sejajar sb-x

[8] MD,ky = momen kolom akibat beban mati sejajar sb-y

[9] ML,ky = momen kolom akibat beban hidup sejajar sb-y

[10] $MEki,ky$ = momen kolom akibat beban gempa kiri sejajar sb-y

[11] $MEka,ky$ = momen kolom akibat beban gempa kanan sejajar sb-y

[12] $Mu,kx1 = 1{,}05(MD,kx + ML,kx + 4/k\,(ME,kix + 0{,}3ME,kiy))$
(momen maksimum kolom sejajar sb-x akibat gempa kiri) dengan $k = 1$

[13] $Mu,ky1 = 1{,}05(MD,ky + ML,ky + 4/k\,(ME,kiy + 0{,}3ME,kix))$
(momen maksimum kolom sejajar sb-y akibat gempa kiri) dengan $k = 1$

[14] $Mu,kx1 = 1{,}05(MD,kx + ML,kx + 4/k\,(ME,kax + 0{,}3ME,kay))$
(momen maksimum kolom sejajar sb-x akibat gempa kanan) dengan $k = 1$

[15] $Mu,ky1 = 1{,}05(MD,ky + ML,ky + 4/k\,(ME,kay + 0{,}3ME,kax))$
(momen maksimum kolom sejajar sb-y akibat gempa kanan) dengan $k = 1$

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abel 7.8.a Momen Terpakai Kolom Portal A

olom	Lt	Letak Momen	Rencana		Maksimum		Terpakai	
			Mu,k-x (kNm)	*Mu,k-y* (kNm)	*Mu,k-x* (kNm)	*Mu,k-y* (kNm)	*Mu,k-x* (kNm)	*Mu,k-y* (kNm)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
K1	1	atas	928.901	1,503.50	-389.077	-19.758	-389.077	-19.758
		bawah	0.000	0	837.695	209.424	0.000	0.000
K2	1	atas	616.979	647.557	-445.665	-177.989	-445.665	-177.989
		bawah	0.000	0	683.917	683.917	0.000	0.000
K3	1	atas	583.599	527.2	-268.739	-62.029	-268.739	-62.029
		bawah	0.000	0	485.802	137.353	0.000	0.000
K4	1	atas	625.164	594.841	-338.538	-151.968	-338.538	-151.968
		bawah	0.000	0	427.473	151.013	0.000	0.000
K5	1	atas	248.970	412.508	-261.910	-40.085	-261.910	-40.085
		bawah	0.000	0	771.060	190.424	0.000	0.000
	2	atas	1150.459	809.328	-313.879	-160.988	-313.879	-160.988
		bawah	238.340	170.963	342.621	170.487	238.340	170.487
K6	1	atas	140.570	173.975	269.567	43.318	140.570	43.318
		bawah	0.000	0	-768.778	-182.713	0.000	0.000
	2	atas	1182.658	1,030.79	-404.307	-194.387	-404.307	-194.387
		bawah	358.726	330.458	312.846	166.323	312.846	166.323
K7	1	atas	197.978	216.661	-126.175	1.665	-126.175	1.665
		bawah	0.000	0	405.893	96.902	0.000	0.000
	2	atas	1114.739	959.828	249.867	176.213	249.867	176.213
		bawah	286.347	287.182	183.550	-109.533	183.550	-109.533
K8	1	atas	260.733	381.169	126.432	49.674	126.432	49.674
		bawah	0.000	0	370.814	75.635	0.000	0.000
	2	atas	1061.046	997.91	-232.959	-124.828	-232.959	-124.828
		bawah	236.433	247.421	181.701	103.125	181.701	103.125
K9	1	atas	199.825	206.383	-88.091	-21.601	-88.091	-21.601
		bawah	0.000	0	336.710	100.431	0.000	0.000
	2	atas	1012.990	821.343	148.408	78.540	148.408	78.540
		bawah	258.829	288.851	105.540	-46.733	105.540	-46.733
K10	1	atas	225.672	240.986	-121.003	-42.408	-121.003	-42.408
		bawah	0.000	0	297.627	95.516	0.000	0.000
	2	atas	1072.731	892.715	-299.596	-185.710	-299.596	-185.710
		bawah	251.464	262.155	191.477	103.180	191.477	103.180
K11	1	atas	206.767	38.62	-115.768	35.806	-115.768	35.806
		bawah	0.000	0	281.236	84.655	0.000	0.000
	2	atas	1022.691	598.15	-176.291	55.252	-176.291	55.252
		bawah	228.615	263.462	-139.942	-51.787	-139.942	-51.787
K12	1	atas	309.303	233.285	940.609	204.996	309.303	204.996
		bawah	0.000	0	111.842	52.587	0.000	0.000
	2	atas	57.789	190.214	169.949	-195.124	57.789	-195.124
		bawah	195.670	33.687	-503.742	-128.166	195.670	33.687
	3	atas	480.312	265.265	-345.928	-129.929	-345.928	-129.929
		bawah	539.393	119.557	1902.692	621.650	539.393	119.557
	Atap	atas	201.419	60.426	2147.630	599.740	201.419	60.426
		bawah	266.114	77.813	-233.129	-86.195	-233.129	77.813
K13	1	atas	367.526	245.04	377.954	63.494	367.526	63.494
		bawah	0.000	0	109.560	58.153	0.000	0.000

Tabel 7.8.a Lanjutan

Kolom	Lt	Letak Momen	Rencana		Maksimum		Terpakai	
			Mu,k-x (kNm)	*Mu,k-y* (kNm)	*Mu,k-x* (kNm)	*Mu,k-y* (kNm)	*Mu,k-x* (kNm)	*Mu,k-y* (kNm)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
K13	2	atas	135.790	115.551	-269.375	-178.058	135.790	115.551
		bawah	98.399	71.998	198.948	106.053	98.399	71.998
	3	atas	779.350	524.788	512.553	198.760	512.553	198.760
		bawah	397.150	183.777	-636.519	-250.828	397.150	183.777
	Atap	atas	180.993	54.298	-175.657	-121.808	-175.657	54.298
		bawah	44.495	20.272	82.431	27.712	44.495	20.272
K14	1	atas	131.834	172.528	123.424	41.391	123.424	41.391
		bawah	0.000	0	361.926	-119.051	0.000	0.000
	2	atas	148.695	13.391	244.480	127.591	148.695	13.391
		bawah	363.628	154.288	-292.872	-152.125	-292.872	-152.125
	3	atas	692.916	247.058	-496.420	193.001	-496.420	193.001
		bawah	401.586	369.163	417.546	-139.017	401.586	-139.017
	Atap	atas	179.610	53.883	87.371	1.515	87.371	1.515
		bawah	82.358	82.207	-141.474	-120.195	82.358	82.207
K15	1	atas	117.301	252.193	-90.246	7.758	-90.246	7.758
		bawah	0.000	0	356.253	-103.160	0.000	0.000
	2	atas	177.509	28.935	-182.097	-63.902	177.509	28.935
		bawah	393.858	129.278	285.741	111.616	285.741	111.616
	3	atas	708.651	257.185	-420.407	-169.794	-420.407	-169.794
		bawah	384.789	423.772	353.931	140.787	353.931	140.787
	Atap	atas	176.953	53.086	-73.564	-21.008	-73.564	-21.008
		bawah	65.690	77.625	-30.580	75.215	-30.580	75.215
K16	1	atas	110.958	163.75	-98.483	-27.561	-98.483	-27.561
		bawah	0.000	0	365.567	-101.931	0.000	0.000
	2	atas	198.941	16.928	-213.994	-78.657	198.941	16.928
		bawah	383.618	163.15	297.221	112.671	297.221	112.671
	3	atas	793.231	246.117	-365.876	-133.959	-365.876	-133.959
		bawah	342.150	364.043	320.294	120.484	320.294	120.484
	Atap	atas	178.095	53.428	-83.264	-23.546	-83.264	-23.546
		bawah	2.253	69.91	-38.240	19.597	2.253	19.597

Keterangan Tabel 7.8.a :

[1] Kolom yang ditinjau

[2] Tingkat lantai pada kolom yang ditinjau

[3] Letak momen pada kolom atas dan bawah

[4] *Mu,k-x* = Momen kolom rencana sejajar sumbu-x

[5] *Mu,k-y* = Momen kolom rencana sejajar sumbu-y

[6] *Mu,k-x* = Momen kolom maksimum sejajar sumbu-x

[7] *Mu,k-y* = Momen kolom maksimum sejajar sumbu-y

[8] *Mu,k-x* = Momen kolom terpakai sejajar sumbu-x

[9] *Mu,k-y* = Momen kolom terpakai sejajar sumbu-y

abel 7.8.b Momen Terpakai Kolom Portal B

olom	Lt	Letak Momen	Rencana		Maksimum		Terpakai	
			Mu,k-x (kNm)	*Mu,k-y* (kNm)	*Mu,k-x* (kNm)	*Mu,k-y* (kNm)	*Mu,k-x* (kNm)	*Mu,k-y* (kNm)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
K1	1	atas	803.885	1465.990	-298.360	-41.937	-298.360	-41.937
		bawah	0.000	0.000	488.090	126.805	0.000	0.000
K2	1	atas	506.389	614.380	-377.505	-132.814	-377.505	-132.814
		bawah	0.000	0.000	476.662	152.872	0.000	0.000
K3	1	atas	508.295	559.780	-191.270	-39.024	-191.270	-39.024
		bawah	0.000	0.000	340.692	94.176	0.000	0.000
K4	1	atas	489.998	498.793	-217.821	-103.776	-217.821	-103.776
		bawah	0.000	0.000	297.838	106.943	0.000	0.000
K5	1	atas	168.445	372.737	-139.404	-29.215	-139.404	-29.215
		bawah	0.000	0.000	472.209	123.159	0.000	0.000
	2	atas	691.326	752.388	-237.548	-127.627	-237.548	-127.627
		bawah	223.665	378.630	218.544	132.201	218.544	132.201
K6	1	atas	183.299	20.710	-130.809	-45.889	-130.809	20.710
		bawah	0.000	0.000	274.391	74.033	0.000	0.000
	2	atas	715.212	890.554	-252.926	-135.955	-252.926	-135.955
		bawah	203.357	445.697	194.119	125.892	194.119	125.892
K7	1	atas	180.820	372.545	-100.117	-4.790	-100.117	-4.790
		bawah	0.000	0.000	250.613	55.579	0.000	0.000
	2	atas	672.249	827.082	-157.747	49.051	-157.747	49.051
		bawah	192.451	114.241	127.784	47.701	127.784	47.701
K8	1	atas	189.890	453.022	89.390	28.791	89.390	28.791
		bawah	0.000	0.000	217.979	47.555	0.000	0.000
	2	atas	653.407	875.619	-145.406	-55.523	-145.406	-55.523
		bawah	181.765	122.364	95.934	-35.977	95.934	-35.977
K9	1	atas	178.876	325.228	120.585	70.822	120.585	70.822
		bawah	0.000	0.000	-191.495	-60.691	0.000	0.000
	2	atas	641.948	763.480	204.984	146.142	204.984	146.142
		bawah	187.800	156.517	-154.972	-114.490	-154.972	-114.490
K10	1	atas	145.209	193.102	71.889	33.076	71.889	33.076
		bawah	0.000	0.000	181.556	-50.600	0.000	0.000
	2	atas	549.643	390.255	-167.788	-105.951	-167.788	-105.951
		bawah	153.002	26.099	81.136	38.463	81.136	26.099
K11	1	atas	167.651	35.224	96.039	51.723	96.039	35.224
		bawah	0.000	0.000	249.248	-41.372	0.000	0.000
	2	atas	289.910	105.167	-134.664	88.470	-134.664	88.470
		bawah	265.267	199.845	-129.775	-181.339	-129.775	-181.339
	3	atas	349.647	265.022	876.652	219.371	349.647	219.371
		bawah	178.575	178.168	-192.006	-121.825	178.575	-121.825
	Atap	atas	201.419	60.426	-105.192	-37.579	-105.192	-37.579
		bawah	294.900	65.502	949.663	129.046	294.900	65.502
K12	1	atas	186.783	65.469	86.380	63.816	86.380	63.816
		bawah	0.000	0.000	-234.948	62.199	0.000	0.000
	2	atas	141.337	167.503	-100.033	83.358	-100.033	83.358
		bawah	335.226	224.839	-182.071	-141.907	-182.071	-141.907
	3	atas	626.343	246.758	-347.531	174.366	-347.531	174.366
		bawah	447.460	144.422	267.521	106.332	267.521	106.332
	Atap	atas	201.419	60.426	49.999	-20.177	49.999	-20.177
		bawah	117.581	71.718	-149.367	-85.357	105.657	64.445

bel 7.8.b Lanjutan

lom	Lt	Letak Momen	Rencana		Maksimum		Terpakai	
			Mu,k-x (kNm)	*Mu,k-y* (kNm)	*Mu,k-x* (kNm)	*Mu,k-y* (kNm)	*Mu,k-x* (kNm)	*Mu,k-y* (kNm)
1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
K13	1	atas	161.075	59.428	-123.508	-25.895	-123.508	-25.895
		bawah	0.000	0.000	291.381	72.686	0.000	0.000
	2	atas	213.241	177.955	-185.851	-64.150	-185.851	-64.150
		bawah	320.416	228.614	232.383	90.964	232.383	90.964
	3	atas	653.743	253.185	-333.826	-134.106	-333.826	-134.106
		bawah	546.592	310.432	273.985	110.287	273.985	110.287
	Atap	atas	180.993	54.298	49.768	-13.059	49.768	-13.059
		bawah	74.868	78.973	-41.250	69.468	-41.250	69.468
K14	1	atas	155.425	14.942	115.699	46.257	115.699	14.942
		bawah	0.000	0.000	271.366	-86.606	0.000	0.000
	2	atas	223.288	193.331	-178.594	66.947	-178.594	66.947
		bawah	323.360	268.965	-210.643	-92.868	-210.643	-92.868
	3	atas	672.758	216.668	-280.967	-103.352	-280.967	-103.352
		bawah	306.948	138.973	238.040	88.733	238.040	88.733
	Atap	atas	179.610	53.883	58.924	-12.303	58.924	-12.303
		bawah	48.676	79.499	-24.427	35.474	-24.427	35.474
K15	1	atas	151.063	11.583	148.048	89.130	148.048	11.583
		bawah	0.000	0.000	-267.161	-103.668	0.000	0.000
	2	atas	231.788	251.163	194.961	99.748	194.961	99.748
		bawah	327.941	271.796	-245.655	-133.476	-245.655	-133.476
	3	atas	692.586	182.478	226.718	102.434	226.718	102.434
		bawah	300.217	122.044	-195.140	-84.975	-195.140	-84.975
	Atap	atas	176.953	53.086	61.479	14.749	61.479	14.749
		bawah	30.414	87.262	-42.158	-37.640	30.414	-37.640
K16	1	atas	133.635	20.861	-80.899	-30.608	-80.899	20.861
		bawah	0.000	0.000	252.812	79.710	0.000	0.000
	2	atas	225.761	175.439	-176.480	-84.954	-176.480	-84.954
		bawah	343.451	262.411	190.376	77.226	190.376	77.226
	3	atas	708.927	226.296	-200.991	64.240	-200.991	64.240
		bawah	300.239	153.637	187.166	75.051	187.166	75.051
	Atap	atas	178.095	53.428	48.097	12.857	48.097	12.857
		bawah	9.642	65.469	-26.165	-21.625	9.642	-21.625

Keterangan Tabel 7.8.b :

[1] Kolom yang ditinjau

[2] Tingkat lantai pada kolom yang ditinjau

[3] Letak momen pada kolom atas dan bawah

[4] *Mu,k-x* = Momen kolom rencana sejajar sumbu-x

[5] *Mu,k-y* = Momen kolom rencana sejajar sumbu-y

[6] *Mu,k-x* = Momen kolom maksimum sejajar sumbu-x

[7] *Mu,k-y* = Momen kolom maksimum sejajar sumbu-y

[8] *Mu,k-x* = Momen kolom terpakai sejajar sumbu-x

[9] *Mu,k-y* = Momen kolom terpakai sejajar sumbu-y

Tabel 7.9.a Gaya Aksial Rencana Kolom Portal A

Kolom	Lt.	Arah portal	Gaya aksial			*Mnak,b kiri*			*Mnak,b kanan*			*Nu,k*
			ND,k (kN)	*NL,k* (kN)	*1,05Ng,k* (kN)	*Mnak,b* (kNm)	*Mnak',b* (kNm)	*ln,b* (m)	*Mnak,b* (kNm)	*Mnak',b* (kNm)	*ln,b* (m)	(kN)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
K1	1	sb-x	-293.3685	-166.5289	-482.89227	266.287	139.117	0.669	266.287	139.117	6.5	196.496
		sb-y	-293.3685	-166.5289	-482.89227	0	0	0	1550.348	961.632	6.972	7.809
K2	1	sb-x	-235.8981	-133.7603	-388.14132	266.287	139.117	6.5	266.287	139.117	5.5	-233.841
		sb-y	-235.8981	-133.7603	-388.14132	0	0	0	614.79	320.544	6.969	-234.984
K3	1	sb-x	-214.7479	-116.4319	-347.73879	266.287	139.117	5.5	266.287	139.117	5.5	-186.278
		sb-y	-214.7479	-116.4319	-347.73879	0	0	0	541.446	320.544	6.969	-200.813
K4	1	sb-x	-173.4274	-104.6536	-291.98505	266.287	139.117	5.5	266.287	139.117	2.5	-55.908
		sb-y	-173.4274	-104.6536	-291.98505	0	0	0	467.667	320.544	6.969	-131.104
K5	1	sb-x	-318.7468	-177.4872	-521.0457	202.891	139.117	0.669	202.891	139.117	2.385	82.174
		sb-y	-318.7468	-177.4872	-521.0457	160.272	160.272	5.68	160.272	160.272		
	2	sb-x	-204.9732	-133.2641	-355.149165	519.128	139.117	0.669				
		sb-y	-204.9732	-133.2641	-355.149165	234.051	160.272	6.365				
K6	1	sb-x	-370.7237	-207.6096	-607.249965	202.891	139.117	2.385				
		sb-y	-370.7237	-207.6096	-607.249965	234.051	160.272	6.348				
	2	sb-x	-245.2101	-156.0859	-421.3608	519.128	139.117	2.385				
		sb-y	-245.2101	-156.0859	-421.3608	380.528	160.272	6.972				
K7	1	sb-x	-587.2487	-352.6946	-986.940465	202.891	139.117	1.81				
		sb-y	-587.2487	-352.6946	-986.940465	234.051	160.272	5.95				
	2	sb-x	-388.7129	-245.516	-665.940345	519.128	139.117	1.81				
		sb-y	-388.7129	-245.516	-665.940345	307.395	160.272	6.609				
K8	1	sb-x	-719.7737	-456.8729	-1235.47393	202.891	139.117	6.5				
		sb-y	-719.7737	-456.8729	-1235.47893	307.395	160.272	5.95				
	2	sb-x	-460.9577	-302.7502	-801.893295	519.128	139.117	6.5				
		sb-y	-460.9577	-302.7502	-801.893295	307.395	160.272	6.609				
K9	1	sb-x	-651.4821	-413.4699	-1118.1996	202.891	139.117	5.5				
		sb-y	-651.4821	-413.4699	-1118.1996	234.051	160.272	5.95				
	2	sb-x	-419.2507	-280.8607	-735.11697	519.128	139.117	5.5				
		sb-y	-419.2507	-280.8607	-735.11697	307.395	160.272	6.609				

Tabel 7.9.a Lanjutan

Kolom	Lt.	Arah portal	Gaya aksial			Mnak,b kiri			Mnak,b kanan			Nu,k
			ND,k (kN)	NL,k (kN)	1,05Ng,k (kN)	Mnak,b (kNm)	Mnak',b (kNm)	ln,b (m)	Mnak,b (kNm)	Mnak',b (kNm)	ln,b (m)	(kN)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
K10	1	sb-x	-543.2621	-318.3761	-904.72011	202.891	139.117	5.5	202.891	139.117	2.5	-716.465
		sb-y	-543.2621	-318.3761	-904.72011	160.272	160.272	5.95	0	0	0	-805.347
	2	sb-x	-341.9973	-207.6444	-577.123785	519.128	139.117	5.5	519.128	139.117	2.5	-223.442
		sb-y	-341.9973	-207.6444	-577.123785	307.395	160.272	6.609	0	0	0	-414.675
K11	1	sb-x	-303.7794	-152.6037	-479.202255	202.891	139.117	2.5	202.891	139.117	2.5	-221.476
		sb-y	-303.7794	-152.6037	-479.202255	0	0	0	234.051	160.272	5.65	-346.313
	2	sb-x	-155.6001	-89.9422	-257.819415	519.128	139.117	2.5	519.128	139.117	2.5	229.412
		sb-y	-155.6001	-89.9422	-257.819415	0	0	0	394.323	320.544	7.092	-31.389
K12	1	sb-x	-474.4848	-210.0099	-718.719435	233.964	233.964	0.669	233.964	233.964	5.327	-15.055
		sb-y	-474.4848	-210.0099	-718.719435	160.272	160.272	5.689	0	0	0	-462.756
	2	sb-x	-346.0777	-163.2386	-534.782115	233.964	233.964	0.669	233.964	233.964	5.327	168.882
		sb-y	-346.0777	-163.2386	-534.782115	160.272	160.272	5.689	0	0	0	-278.818
	3	sb-x	-205.1038	-120.9803	-342.388305	346.468	233.964	0.669	346.468	233.964	5.327	526.526
		sb-y	-205.1038	-120.9803	-342.388305	234.051	160.272	7.181	0	0	0	-37.990
	atap	sb-x	-46.98863	-2.481352	-51.9434811	121.022	121.022	0.669	121.022	121.022	5.327	304.389
		sb-y	-46.98863	-2.481352	-51.9434811	0	0	0	0	0	0	54.956
K13	1	sb-x	-630.1398	-276.6741	-952.154595	233.964	233.964	5.327	233.964	233.964	4.05	-757.862
		sb-y	-630.1398	-276.6741	-952.154595	234.051	160.272	6.336	0	0	0	-844.312
	2	sb-x	-477.2287	-218.8918	-730.926525	233.964	233.964	5.327	233.964	233.964	4.05	-539.690
		sb-y	-477.2287	-218.8918	-730.926525	160.272	160.272	6.336	0	0	0	-633.273
	3	sb-x	-309.0247	-168.1362	-501.018945	346.468	233.964	5.327	346.468	233.964	4.05	-261.864
		sb-y	-309.0247	-168.1362	-501.018945	380.528	160.272	7.71	0	0	0	-373.421
	atap	sb-x	-126.0656	-14.13868	-147.214494	121.022	121.022	5.327	121.022	121.022	4.05	-55.163
		sb-y	-126.0656	-14.13868	-147.214494	0	0	0	0	0	0	-119.599
K14	1	sb-x	-734.783	-286.2909	-1072.127595	233.964	233.964	4.05	233.964	233.964	6.5	-890.645
		sb-y	-734.783	-286.2909	-1072.127595	234.051	160.272	5.95	0	0	0	-964.913
	2	sb-x	-554.1492	-211.8189	-804.266505	233.964	233.964	4.05	233.964	233.964	6.5	-622.784
		sb-y	-554.1492	-211.8189	-804.266505	234.051	160.272	5.95	0	0	0	-697.052

Tabel 7.9.a Lanjutan

Kolom	Lt.	Arah portal	Gaya aksial			*Mnak,b kiri*			*Mnak,b kanan*			*Nu,k*
			ND,k (kN)	*NL,k* (kN)	*1,05Ng,k* (kN)	*Mnak,b* (kNm)	*Mnak',b* (kNm)	*ln,b* (m)	*Mnak,b* (kNm)	*Mnak',b* (kNm)	*ln,b* (m)	(kN)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
K14	3	sb-x	-352.4517	-141.3961	-518.54019	346.468	233.964	4.05	346.468	233.964	6.5	-298.396
		sb-y	-352.4517	-141.3961	-518.54019	307.395	160.272	7.392	0	0	0	-402.121
	atap	sb-x	-146.2372	-19.00794	-173.507397	121.022	121.022	4.05	121.022	121.022	6.5	-88.631
		sb-y	-146.2372	-19.00794	-173.507397	0	0	0	0	0	0	-148.045
K15	1	sb-x	-806.7585	-297.2614	-1159.220895	233.964	233.964	6.5	233.964	233.964	5.5	-1001.155
		sb-y	-806.7585	-297.2614	-1159.220895	307.395	160.272	5.95	0	0	0	-1049.216
	2	sb-x	-608.369	-214.0572	-863.54751	233.964	233.964	6.5	233.964	233.964	5.5	-705.482
		sb-y	-608.369	-214.0572	-863.54751	307.395	160.272	5.95	0	0	0	-753.543
	3	sb-x	-379.5725	-127.9848	-532.935165	346.468	233.964	6.5	346.468	233.964	5.5	-345.851
		sb-y	-379.5725	-127.9848	-532.935165	307.395	160.272	7.392	0	0	0	-426.434
	atap	sb-x	-174.2204	-17.94496	-201.773628	121.022	121.022	6.5	121.022	121.022	5.5	-130.684
		sb-y	-174.2204	-17.94496	-201.773628	0	0	0	0	0	0	-180.447
K16	1	sb-x	-713.5085	-231.9043	-992.68344	233.964	233.964	5.5	233.964	233.964	5.5	-826.401
		sb-y	-713.5085	-231.9043	-992.68344	234.051	160.272	5.95	0	0	0	-890.029
	2	sb-x	-560.703	-186.1861	-784.233555	233.964	233.964	5.5	233.964	233.964	5.5	-617.951
		sb-y	-560.703	-186.1861	-784.233555	234.051	160.272	5.95	0	0	0	-681.579
	3	sb-x	-379.1403	-136.9096	-541.852395	346.468	233.964	5.5	346.468	233.964	5.5	-343.167
		sb-y	-379.1403	-136.9096	-541.852395	234.051	160.272	7.392	0	0	0	-439.771
	atap	sb-x	-185.9546	-20.66953	-216.9553365	121.022	121.022	5.5	121.022	121.022	5.5	-139.941
		sb-y	-185.9546	-20.66953	-216.9553365	0	0	0	0	0	0	-193.851

Keterangan Tabel 7.9.a :

[1] Kolom yg ditinjau

[2] Tingkat lantai pada kolom yang ditinjau

[3] Arah portal yang ditinjau sejajar sb-x dan sb-y

[4] ND,k = gaya aksial kolom akibat beban mati

[5] NL,k = gaya aksial kolom akibat beban hidup

[6] $1,05Ng,k = 1,05(ND,k + NL,k)$

[7] $Mnak,b\ kiri$ = momen nominal aktual balok negatif sebelah kiri kolom

[8] $Mnak,b'\ kiri$ = momen nominal aktual balok positif sebelah kiri kolom

[9] $In,b\ ki$ = bentang bersih balok sebelah kiri kolom

[10] $Mnak,b\ kanan$ = momen nominal aktual balok negatif sebelah kanan kolom

[11] $Mnak,b'\ kanan$ = momen nominal aktual balok positif sebelah kanan kolom

[12] $In,b\ ka$ = bentang bersih balok sebelah kanan kolom

[13] ***Nu,k*** :

$$Nu,kx = 1,05(Ng,kx) + 0,7.Rv.1,25\{(\Sigma Mnak,b\text{-}x\ ki/In,b\text{-}x\ ki) + (\Sigma Mnak,b\text{-}x\ ka/In,b\text{-}x\ ka) + 0,3[(\Sigma Mnak,b\text{-}y\ ki/In,b\text{-}y\ ki) + (\Sigma Mnak,b\text{-}y\ ka/In,b\text{-}y\ ka)]\}$$

(Gaya aksial rencana kolom tinjauan sumbu x)

$$Nu,ky = 1,05(Ng,ky) + 0,7.Rv.1,25\{(\Sigma Mnak,b\text{-}y\ ki/In,b\text{-}y\ ki) + (\Sigma Mnak,b\text{-}y\ ka/In,b\text{-}y\ ka) + 0,3[(\Sigma Mnak,b\text{-}x\ ki/In,b\text{-}x\ ki) + (\Sigma Mnak,b\text{-}x\ ka/In,b\text{-}x\ ka)]\}$$

(Gaya aksial rencana kolom tinjauan sumbu y)

dengan : Rv =1 untuk 1<n<4, Rv = 1,1-0,025n untuk 4<n<20, dan Rv = 0,6 untuk n >20

Tabel 7.9.b Gaya Aksial Rencana Kolom Portal B

Kolom	Lt.	Arah portal	Gaya aksial			*Mnak,b kiri*			*Mnak,b kanan*			*Nu,k*
			ND,k (kN)	*NL,k* (kN)	*1,05Ng,k* (kN)	*Mnak,b* (kNm)	*Mnak',b* (kNm)	*ln,b* (m)	*Mnak,b* (kNm)	*Mnak',b* (kNm)	*ln,b* (m)	(kN)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
K1	1	sb-x	-248.6577	-117.8181	-384.79959	202.891	139.117	0.669	202.891	139.117	3.5	239.822
		sb-y	-248.6577	-117.8181	-384.79959	0	0	0	1476.569	961.632	6.972	81.046
K2	1	sb-x	-160.6367	-96.98836	-270.506313	202.891	139.117	3.5	202.891	139.117	3.5	-61.517
		sb-y	-160.6367	-96.98836	-270.506313	0	0	0	687.923	320.544	6.969	-92.586
K3	1	sb-x	-178.2258	-116.3643	-309.319605	202.891	139.117	3.5	202.891	139.117	5.5	-136.939
		sb-y	-178.2258	-116.3643	-309.319605	0	0	0	541.446	320.544	6.969	-159.118
K4	1	sb-x	-190.1994	-100.3602	-305.08758	202.891	139.117	5.5	202.891	139.117	5.5	-169.340
		sb-y	-190.1994	-100.3602	-305.08758	0	0	0	394.323	320.544	6.969	-182.685
K5	1	sb-x	-325.3297	-173.8259	-524.11338	139.1170159	139.1170159	0.669	139.1170159	139.1170159	2.385	-27.703
		sb-y	-325.3297	-173.8259	-524.11338	160.272	160.272	5.68	160.272	160.272	5.39	-282.902
	2	sb-x	-202.7979	-137.6283	-357.44751	266.301	139.1170159	0.919	266.301	139.1170159	2.385	220.832
		sb-y	-202.7979	-137.6283	-357.44751	234.051	160.272	6.365	394.323	320.544	6.881	-51.912
K6	1	sb-x	-392.3981	-217.0259	-639.8952	139.1170159	139.1170159	2.385	139.1170159	139.1170159	1.81	-369.858
		sb-y	-392.3981	-217.0259	-639.8952	234.051	160.272	6.348	234.051	160.272	6.036	-457.405
	2	sb-x	-268.9118	-156.4142	-446.5923	266.301	139.1170159	2.385	266.301	139.1170159	1.81	-50.990
		sb-y	-268.9118	-156.4142	-446.5923	380.528	160.272	6.972	540.8	320.544	7.41	-173.592
K7	1	sb-x	-420.1457	-229.9613	-682.61235	139.1170159	139.1170159	1.81	139.1170159	139.1170159	3.5	-449.514
		sb-y	-420.1457	-229.9613	-682.61235	160.272	160.272	5.95	160.272	160.272	5.65	-524.613
	2	sb-x	-264.8323	-153.3676	-439.109895	266.301	139.1170159	1.81	266.301	139.1170159	3.5	-94.016
		sb-y	-264.8323	-153.3676	-439.109895	307.395	160.272	6.609	467.667	320.544	7.092	-190.742
K8	1	sb-x	-500.1923	-295.2556	-835.220295	139.1170159	139.1170159	3.5	139.1170159	139.1170159	3.5	-647.119
		sb-y	-500.1923	-295.2556	-835.220295	380.528	160.272	5.95	380.528	160.272	5.65	-630.204
	2	sb-x	-278.0646	-164.7881	-464.995335	266.301	139.1170159	3.5	266.301	139.1170159	3.5	-214.537
		sb-y	-278.0646	-164.7881	-464.995335	307.395	160.272	6.609	467.667	320.544	7.092	-245.018

Tabel 7.9.b Lanjutan

Kolom	Lt.	Arah portal	Gaya aksial			Mnak,b kiri			Mnak,b kanan			Nu,k
			ND,k (kN)	NL,k (kN)	1,05Ng,k (kN)	Mnak,b (kNm)	Mnak',b (kNm)	ln,b (m)	Mnak,b (kNm)	Mnak',b (kNm)	ln,b (m)	(kN)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
K9	1	sb-x	-583.9921	-342.561	-972.880755	139.1170159	139.1170159	3.5	139.1170159	139.1170159	5.5	-823.341
		sb-y	-583.9921	-342.561	-972.880755	234.051	160.272	5.95	234.051	160.272	5.65	-819.677
	2	sb-x	-360.9543	-224.0096	-614.212095	266.301	139.1170159	3.5	266.301	139.1170159	5.5	-397.879
		sb-y	-360.9543	-224.0096	-614.212095	307.395	160.272	6.609	541.446	320.544	7.092	-396.188
K10	1	sb-x	-592.8292	-297.37	-934.70916	139.1170159	139.1170159	5.5	139.1170159	139.1170159	5.5	-817.146
		sb-y	-592.8292	-297.37	-934.70916	160.272	160.272	5.95	160.272	160.272	5.65	-811.370
	2	sb-x	-368.938	-199.0719	-596.410395	266.301	139.1170159	5.5	266.301	139.1170159	5.5	-422.561
		sb-y	-368.938	-199.0719	-596.410395	234.051	160.272	6.609	468.102	320.544	7.092	-408.203
K11	1	sb-x	-481.9294	-170.3536	-684.89715	233.964	233.964	0.669	233.964	233.964	5.327	18.767
		sb-y	-481.9294	-170.3536	-684.89715	160.272	160.272	5.689	0	0	0	-428.933
	2	sb-x	-358.1437	-123.1908	-505.401225	160.272	160.272	0.669	160.272	160.272	5.327	-18.712
		sb-y	-358.1437	-123.1908	-505.401225	160.272	160.272	5.689	0	0	0	-314.530
	3	sb-x	-203.7077	-87.81078	-306.094404	311.822	233.964	0.669	311.822	233.964	5.327	511.815
		sb-y	-203.7077	-87.81078	-306.094404	234.051	160.272	7.181	0	0	0	-16.998
	atap	sb-x	-47.05534	-5.649886	-55.3404873	121.022	121.022	0.669	121.022	121.022	5.327	300.992
		sb-y	-47.05534	-5.649886	-55.3404873	0	0	0	0	0	0	51.559
K12	1	sb-x	-573.6038	-195.3931	-807.446745	233.964	233.964	5.327	233.964	233.964	4.05	-613.154
		sb-y	-573.6038	-195.3931	-807.446745	234.051	160.272	6.336	0	0	0	-699.604
	2	sb-x	-422.087	-135.5562	-585.52536	160.272	160.272	5.327	160.272	160.272	4.05	-450.340
		sb-y	-422.087	-135.5562	-585.52536	160.272	160.272	6.336	0	0	0	-504.687
	3	sb-x	-223.1261	-90.68279	-329.4993345	311.822	233.964	5.327	311.822	233.964	4.05	-102.164
		sb-y	-223.1261	-90.68279	-329.4993345	380.528	160.272	7.181	0	0	0	-201.333
	atap	sb-x	-38.6649	3.702441	-35.71058195	121.022	121.022	5.327	121.022	121.022	4.05	55.340
		sb-y	-38.6649	3.702441	-35.71058195	0	0	0	0	0	0	-9.095

Tabel 7.9.b Lanjutan

Kolom	Lt.	Arah portal	Gaya aksial			Mnak,b kiri			Mnak,b kanan			Nu,k
			ND,k (kN)	NL,k (kN)	1,05Ng,k (kN)	Mnak,b (kNm)	Mnak',b (kNm)	ln,b (m)	Mnak,b (kNm)	Mnak',b (kNm)	ln,b (m)	(kN)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
K13	1	sb-x	-543.2881	-176.7352	-756.024465	233.964	233.964	4.05	233.964	233.964	3.5	-523.805
		sb-y	-543.2881	-176.7352	-756.024465	160.272	160.272	5.95	0	0	0	-643.462
	2	sb-x	-404.1249	-122.6002	-553.061355	160.272	160.272	4.05	160.272	160.272	3.5	-389.530
		sb-y	-404.1249	-122.6002	-553.061355	160.272	160.272	5.95	0	0	0	-461.106
	3	sb-x	-216.4783	-83.55833	-315.0384615	311.822	233.964	4.05	311.822	233.964	3.5	-44.068
		sb-y	-216.4783	-83.55833	-315.0384615	307.395	160.272	7.392	0	0	0	-183.371
	atap	sb-x	-48.27242	-4.581618	-55.4967399	121.022	121.022	4.05	121.022	121.022	3.5	57.308
		sb-y	-48.27242	-4.581618	-55.4967399	0	0	0	0	0		-21.655
K14	1	sb-x	-547.3592	-183.6533	-767.563125	233.964	233.964	3.5	233.964	233.964	3.5	-509.740
		sb-y	-547.3592	-183.6533	-767.563125	380.528	160.272	5.95	0	0	0	-617.845
	2	sb-x	-381.9885	-109.7294	-516.303795	160.272	160.272	3.5	160.272	160.272	3.5	-341.890
		sb-y	-381.9885	-109.7294	-516.303795	160.272	160.272	5.95	0	0	0	-421.083
	3	sb-x	-207.0543	-74.39618	-295.523004	311.822	233.964	3.5	311.822	233.964	3.5	-6.023
		sb-y	-207.0543	-74.39618	-295.523004	307.395	160.272	7.392	0	0	0	-158.297
	atap	sb-x	-50.28576	-6.184718	-59.2940019	121.022	121.022	3.5	121.022	121.022	3.5	61.728
		sb-y	-50.28576	-6.184718	-59.2940019	0	0	0	0	0	0	-22.987
K15	1	sb-x	-620.9833	-191.4286	-853.032495	233.964	233.964	3.5	233.964	233.964	5.5	-644.211
		sb-y	-620.9833	-191.4286	-853.032495	234.051	160.272	5.95	0	0	0	-737.616
	2	sb-x	-449.0864	-126.8987	-604.784355	160.272	160.272	3.5	160.272	160.272	5.5	-456.256
		sb-y	-449.0864	-126.8987	-604.784355	234.051	160.272	5.95	0	0	0	-507.456
	3	sb-x	-219.0724	-67.55337	-300.9570585	311.822	233.964	3.5	311.822	233.964	5.5	-61.073
		sb-y	-219.0724	-67.55337	-300.9570585	307.395	160.272	7.392	0	0	0	-178.616
	atap	sb-x	-58.3731	-6.708295	-68.33546475	121.022	121.022	3.5	121.022	121.022	5.5	30.683
		sb-y	-58.3731	-6.708295	-68.33546475	0	0	0	0	0	0	-38.630

Tabel 7.9.b Lanjutan

Kolom	Lt.	Arah portal	Gaya aksial			Mnak,b kiri			Mnak,b kanan			Nu,k
			ND,k (kN)	NL,k (kN)	1,05Ng,k (kN)	Mnak,b (kNm)	Mnak',b (kNm)	ln,b (m)	Mnak,b (kNm)	Mnak',b (kNm)	ln,b (m)	(kN)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
K16	1	sb-x	-607.2943	-155.3257	-800.751	233.964	233.964	5.5	233.964	233.964	5.5	-637.723
		sb-y	-607.2943	-155.3257	-800.751	160.272	160.272	5.95	0	0	0	-708.946
	2	sb-x	-480.5912	-127.5499	-638.548155	160.272	160.272	5.5	160.272	160.272	5.5	-519.160
		sb-y	-480.5912	-127.5499	-638.548155	234.051	160.272	5.95	0	0	0	-549.962
	3	sb-x	-268.6354	-86.46978	-372.860439	311.822	233.964	5.5	311.822	233.964	5.5	-185.198
		sb-y	-268.6354	-86.46978	-372.860439	234.051	160.272	7.392	0	0	0	-274.086
	atap	sb-x	-64.04116	-7.085048	-74.6825184	121.022	121.022	5.5	121.022	121.022	5.5	2.331
		sb-y	-64.04116	-7.085048	-74.6825184	0	0	0	0	0	0	-51.578

Keterangan Tabel 7.9.b :

[1] Kolom yg ditinjau

[2] Tingkat lantai pada kolom yang ditinjau

[3] Arah portal yang ditinjau sejajar sb-x dan sb-y

[4] *ND,k* = gaya aksial kolom akibat beban mati

[5] *NL,k* = gaya aksial kolom akibat beban hidup

[6] *1,05Ng,k* = 1,05(*ND,k* + *NL,k*)

[7] *Mnak,b kiri* = momen nominal aktual balok negatif sebelah kiri kolom

[8] *Mnak,b' kiri* = momen nominal aktual balok positif sebelah kiri kolom

[9] *ln,b ki* = bentang bersih balok sebelah kiri kolom

[10] *Mnak,b kanan* = momen nominal aktual balok negatif sebelah kanan kolom

[11] *Mnak,b' kanan* = momen nominal aktual balok positif sebelah kanan kolom

[12] *ln,b ka* = bentang bersih balok sebelah kanan kolom

[13] ***Nu,k*** :

$$Nu,kx = 1,05(Ng,kx) + 0,7.Rv.1,25\{(\Sigma Mnak,b\text{-}x\ ki/ln,b\text{-}x\ ki) + (\Sigma Mnak,b\text{-}x\ ka/ln,b\text{-}x\ ka) + 0,3[(\Sigma Mnak,b\text{-}y\ ki/ln,b\text{-}y\ ki) + (\Sigma Mnak,b\text{-}y\ ka/ln,b\text{-}y\ ka)]\}$$

(Gaya aksial rencana kolom tinjauan sumbu x)

$$Nu,ky = 1,05(Ng,ky) + 0,7.Rv.1,25\{(\Sigma Mnak,b\text{-}y\ ki/ln,b\text{-}y\ ki) + (\Sigma Mnak,b\text{-}y\ ka/ln,b\text{-}y\ ka) + 0,3[(\Sigma Mnak,b\text{-}x\ ki/ln,b\text{-}x\ ki) + (\Sigma Mnak,b\text{-}x\ ka/ln,b\text{-}x\ ka)]\}$$

(Gaya aksial rencana kolom tinjauan sumbu y)

dengan : Rv =1 untuk 1<n<4, Rv = 1,1-0,025n untuk 4<n<20, dan Rv = 0,6 untuk n >20

Tabel 7.10.a Gaya Aksial Maksimum Kolom Portal A

Kolom	Lt.	Sejajar sumbu x				Sejajar sumbu y				Gempa kiri		Gempa kanan	
		ND,kx (kN)	*NL,kx* (kN)	*NEki,kx* (kN)	*NEka,kx* (kN)	*ND,ky* (kN)	*NL,ky* (kN)	*NEki,ky* (kN)	*NEka,ky* (kN)	*Nu,kx1* (kN)	*Nu,ky1* (kN)	*Nu,kx2* (kN)	*Nu,ky2* (kN)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
K1	1	-293.3685	-166.5289	-146.5871	14.3834	-293.3685	-166.5289	187.1897	-212.1884	**-862.699**	118.605	-535.719	**-1355.960**
K2	1	-235.8981	-133.7603	0.4628757	-1.213712	-235.8981	-133.7603	56.95178	-65.78996	**-314.438**	-148.361	-227.955	**-665.988**
K3	1	-214.7479	-116.4319	-3.143293	0.3239921	-214.7479	-116.4319	59.84856	-74.38675	**-285.531**	-100.335	-217.920	**-659.755**
K4	1	-173.4274	-104.6536	14.72288	-11.58478	-173.4274	-104.6536	52.31987	-60.62032	-164.226	-53.691	**-219.465**	**-561.187**
K5	1	-318.7468	-177.4872	4.865222	-28.01307	-318.7468	-177.4872	21.29077	-26.06567	**-473.785**	-425.494	-331.751	**-665.818**
	2	-204.9732	-133.2641	-41.74009	-14.44666	-204.9732	-133.2641	-2.245283	-9.271568	**-533.287**	**-417.172**	-256.113	-412.293
K6	1	-370.7237	-207.6096	21.65465	36.27251	-370.7237	-207.6096	-9.464594	-23.07858	**-528.226**	-619.716	-71.987	**-658.477**
	2	-245.2101	-156.0859	14.43458	-2.721074	-245.2101	-156.0859	6.33704	-26.63581	**-352.751**	-376.558	-193.724	**-536.660**
K7	1	-587.2487	-352.6946	-89.9761	-0.2312936	-587.2487	-352.6946	2.145546	-37.27169	**-1362.137**	-1091.299	-512.738	**-1143.773**
	2	-388.7129	-245.516	-37.46044	-22.83607	-388.7129	-245.516	3.757863	-26.1098	**-818.539**	-697.357	-425.935	**-804.375**
K8	1	-719.7737	-456.8729	1.055617	-0.1795586	-719.7737	-456.8729	16.04031	21.07623	**-1210.835**	**-1166.780**	-452.806	-1147.185
	2	-460.9577	-302.7502	-0.1955243	-12.54034	-460.9577	-302.7502	16.06651	-3.386302	-782.471	-734.660	-375.029	**-831.917**
K9	1	-651.4821	-413.4699	-2.93201	-5.086628	-651.4821	-413.4699	16.34595	-28.22304	**-1109.918**	-1053.241	-494.147	**-1243.146**
	2	-419.2507	-280.8607	-1.581511	13.9223	-419.2507	-280.8607	16.37661	-20.29765	-721.125	-668.328	-263.666	**-802.825**
K10	1	-543.2621	-318.3761	24.44904	-0.9805328	-543.2621	-318.3761	17.138	-26.53009	-780.440	-801.935	-346.170	**-1017.382**
	2	-341.9973	-207.6444	9.686237	-0.1288287	-341.9973	-207.6444	17.51417	-37.0812	**-514.374**	-491.360	-255.119	**-733.027**
K11	1	-303.7794	-152.6037	-4.002545	-9.154838	-303.7794	-152.6037	-18.85146	-26.69164	**-519.766**	-563.422	-236.518	**-602.842**
	2	-155.6001	-89.9422	-1.655927	-0.2074109	-155.6001	-89.9422	-13.65339	15.87233	-281.978	**-317.250**	-77.050	-191.417
K12	1	-474.4848	-210.0099	604.0346	-46.3436	-474.4848	-210.0099	-12.43003	24.63234	**1802.564**	-9.842	250.120	**-673.657**
	2	-346.0777	-163.2386	564.9473	-48.26994	-346.0777	-163.2386	-17.52011	151.0387	**1815.921**	**103.467**	409.369	38.760
	3	-205.1038	-120.9803	534.0515	39.94275	-205.1038	-120.9803	-22.68308	94.64087	**1872.047**	**235.248**	720.732	105.431
	atap	-46.98863	-2.481352	14.89816	-12.19007	-46.98863	-2.481352	3.403897	92.28535	14.918	-18.875	**78.119**	**320.296**
K13	1	-630.1398	-276.6741	-239.7285	-0.7212569	-630.1398	-276.6741	-114.6075	111.399	**-2103.420**	**-1735.564**	-404.889	-485.188
	2	-477.2287	-218.8918	-247.6424	-31.49561	-477.2287	-218.8918	-94.05265	32.14161	**-1889.531**	**-1437.977**	-581.644	-635.616
	3	-309.0247	-168.1362	-259.9577	-37.44777	-309.0247	-168.1362	-89.82675	128.2935	**-1706.023**	**-1205.838**	-445.129	-9.370
	atap	-126.0656	-14.13868	-11.21782	27.98939	-126.0656	-14.13868	-4.99368	83.72289	-200.621	-182.322	196.422	**239.688**

Tabel 7.10.a Lanjutan

Kolom	Lt.	Sejajar sumbu x				Sejajar sumbu y				Gempa kiri		Gempa kanan	
		ND,kx (kN)	*NL,kx* (kN)	*NEki,kx* (kN)	*NEka,kx* (kN)	*ND,ky* (kN)	*NL,ky* (kN)	*NEki,ky* (kN)	*NEka,ky* (kN)	*Nu,kx1* (kN)	*Nu,ky1* (kN)	*Nu,kx2* (kN)	*Nu,ky2* (kN)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
K14	1	-734.783	-286.2909	-86.32742	-8.626381	-734.783	-286.2909	-73.13311	84.88785	**-1526.850**	**-1488.059**	-320.521	-726.468
	2	-554.1492	-211.8189	-66.09639	-0.5315199	-554.1492	-211.8189	-64.5835	103.1499	**-1163.247**	**-1158.799**	-164.075	-371.707
	3	-352.4517	-141.3961	-41.16319	-15.00861	-352.4517	-141.3961	-61.71022	38.57285	**-769.180**	**-829.589**	-206.122	-375.445
	atap	-146.2372	-19.00794	-1.843383	-27.15432	-146.2372	-19.00794	1.171434	123.7277	**-179.774**	-170.910	19.955	**311.934**
K15	1	-806.7585	-297.2614	12.85193	14.46661	-806.7585	-297.2614	-72.79453	79.94297	**-1196.964**	**-1448.764**	-137.142	-805.232
	2	-608.369	-214.0572	9.562605	-4.265689	-608.369	-214.0572	-66.1841	85.28316	**-906.777**	**-1129.472**	-125.178	-510.733
	3	-379.5725	-127.9848	5.523746	-0.1640449	-379.5725	-127.9848	-66.70986	104.0052	**-593.790**	**-806.157**	1.773	-96.320
	atap	-174.2204	-17.94496	1.150301	-2.27821	-174.2204	-17.94496	0.1307449	-2.997021	**-196.778**	-199.775	-30.979	**-217.232**
K16	1	-713.5085	-231.9043	-1.558824	-3.603113	-713.5085	-231.9043	-76.52365	5.236128	**-1095.650**	**-1316.047**	-253.672	-975.232
	2	-560.703	-186.1861	-0.9915574	3.147549	-560.703	-186.1861	-69.79333	-1.601372	**-876.338**	**-1078.615**	-185.335	-786.993
	3	-379.1403	-136.9096	0.2120214	-0.8262491	-379.1403	-136.9096	-70.12891	-0.1194814	**-629.324**	**-836.127**	-147.153	-543.395
	atap	-185.9546	-20.66953	0.3576551	-0.00371039	-185.9546	-20.66953	0.1307449	-0.3466563	-215.288	-215.956	-21.780	**-218.416**

Keterangan Tabel 7.10.a :

[1] Kolom yg ditinjau

[2] Tingkat lantai pada kolom yang ditinjau

[3] *ND,kx* = gaya aksial kolom akibat beban mati sejajar sb-x

[4] *NL,kx* = gaya aksial kolom akibat beban hidup sejajar sb-x

[5] *NEki,kx* = gaya aksial kolom akibat beban gempa kiri sejajar sb-x

[6] *NEka,kx* = gaya aksial kolom akibat beban gempa kanan sejajar sb-x

[7] *ND,ky* = gaya aksial kolom akibat beban mati sejajar sb-y

[8] *NL,ky* = gaya aksial kolom akibat beban hidup sejajar sb-y

[9] *NEki,ky* = gaya aksial kolom akibat beban gempa kiri sejajar sb-y

[10] *NEka,ky* = gaya aksial kolom akibat beban gempa kanan sejajar sb-y

[11] $Nu,kx1 = 1,05(Ng,kx + 4/k(NE,kix + 0,3NE,kiy))$

(gaya aksial maksimum kolom sejajar sb-x akibat gempa kiri) dengan k= 1

[12] $Nu,ky1 = 1,05(Ng,ky + 4/k(NE,kiy + 0,3NE,kix))$

(gaya aksial maksimum kolom sejajar sb-y akibat gempa kiri) dengan k= 1

[13] $Nu,kx2 = 1,05(Ng,kx + 4/k(NE,kax + 0,3NE,kay))$

(gaya aksial maksimum kolom sejajar sb-x akibat gempa kanan) dengan k= 1

[14] $Nu,ky2 = 1,05(Ng,ky + 4/k(NE,kay + 0,3NE,kax))$

(gaya aksial maksimum kolom sejajar sb-y akibat gempa kanan) dengan k= 1

NB : Cetak tebal adalah gaya aksial maksimum yang dipakai dalam perencanaan

Tabel 7.10.b Gaya Aksial Maksimum Kolom Portal B

Kolom	Lt.	Sejajar sumbu x				Sejajar sumbu y				gempa kiri		gempa kanan	
		ND,kx (kN)	*NL,kx* (kN)	*NEki,kx* (kN)	*NEka,kx* (kN)	*ND,ky* (kN)	*NL,ky* (kN)	*NEki,ky* (kN)	*NEka,ky* (kN)	*Nu,kx1* (kN)	*Nu,ky1* (kN)	*Nu,kx2* (kN)	*Nu,ky2* (kN)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
K1	1	-248.6577	-117.8181	-77.42703	4.542373	-248.6577	-117.8181	135.6031	-190.784	**-539.133**	87.175	-426.317	**-1180.369**
K2	1	-160.6367	-96.98836	-13.36633	2.816418	-160.6367	-96.98836	54.09169	-65.09003	**-258.489**	-60.163	-186.057	**-540.336**
K3	1	-178.2258	-116.3643	-5.736248	1.582112	-178.2258	-116.3643	50.30612	-58.7315	**-270.026**	-105.262	-195.562	**-553.998**
K4	1	-190.1994	-100.3602	-1.284067	-0.4570001	-190.1994	-100.3602	50.49874	-59.19576	**-246.852**	-94.611	-183.233	**-554.286**
K5	1	-325.3297	-173.8259	28.23307	-23.9651	-325.3297	-173.8259	39.28662	-30.83	**-356.033**	-323.536	-292.372	**-683.795**
	2	-202.7979	-137.6283	0.4262254	-9.367901	-202.7979	-137.6283	-7.601951	5.582588	**-365.236**	**-388.839**	-176.373	-345.804
K6	1	-392.3981	-217.0259	-34.09056	17.55213	-392.3981	-217.0259	1.288314	-16.27081	**-781.452**	-677.438	-210.455	**-686.117**
	2	-268.9118	-156.4142	-3.086557	-0.03756193	-268.9118	-156.4142	-1.576261	-12.97008	**-461.542**	-457.102	-183.976	**-501.114**
K7	1	-420.1457	-229.9613	-10.766	6.221504	-420.1457	-229.9613	-0.455704	-13.09844	**-728.404**	-698.091	-243.137	**-729.787**
	2	-264.8323	-153.3676	-0.8158128	-0.8431491	-264.8323	-153.3676	-0.5058218	-11.88264	**-443.174**	-442.262	-180.406	**-490.079**
K8	1	-500.1923	-295.2556	-4.676326	-9.855027	-500.1923	-295.2556	19.09604	-3.505453	**-830.800**	-760.909	-360.737	**-862.361**
	2	-278.0646	-164.7881	5.111779	-5.345592	-278.0646	-164.7881	11.89124	-22.10237	**-428.543**	-408.611	-217.961	**-564.561**
K9	1	-583.9921	-342.561	-14.64982	6.607114	-583.9921	-342.561	-0.3642563	-12.76544	**-1034.869**	-992.869	-363.406	**-1018.171**
	2	-360.9543	-224.0096	-1.563229	-0.1388022	-360.9543	-224.0096	-1.576935	-12.83735	**-622.765**	-622.805	-253.610	**-668.304**
K10	1	-592.8292	-297.37	-5.043542	2.543437	-592.8292	-297.37	-0.7050779	-12.45961	**-956.780**	-944.025	-322.551	**-983.835**
	2	-368.938	-199.0719	-0.5051775	-0.3616802	-368.938	-199.0719	-0.5166507	-11.67605	**-599.183**	-599.217	-225.787	**-645.906**
K11	1	-481.9294	-170.3536	350.0987	-29.13961	-481.9294	-170.3536	-20.63618	27.11524	**759.516**	-330.445	100.511	**-607.729**
	2	-358.1437	-123.1908	-145.6882	-30.97134	-358.1437	-123.1908	-90.28803	125.2735	**-1231.055**	**-1068.178**	-254.558	-18.276
	3	-203.7077	-87.81078	-10.58142	-8.878666	-203.7077	-87.81078	-56.03429	80.56705	**-421.140**	**-554.771**	-39.088	21.100
	atap	-47.05534	-5.649886	-0.8041624	-0.0682964	-47.05534	-5.649886	-53.2857	77.52361	-125.858	**-280.154**	90.616	270.173
K12	1	-573.6038	-195.3931	-29.58489	26.74538	-573.6038	-195.3931	-50.21267	71.46342	**-994.971**	**-1055.617**	-33.852	-473.601
	2	-422.087	-135.5562	-0.5450789	-0.7708987	-422.087	-135.5562	-49.92403	70.84698	**-650.719**	**-795.893**	-56.877	-288.939
	3	-223.1261	-90.68279	328.7374	-20.11901	-223.1261	-90.68279	-26.80024	37.43061	**1017.429**	-27.851	212.620	**-197.641**
	atap	-38.6649	3.702441	-150.5938	-23.37746	-38.6649	3.702441	-76.95663	105.8693	**-766.170**	**-549.677**	-119.026	378.485
K13	1	-543.2881	-176.7352	-11.31448	-6.108054	-543.2881	-176.7352	-49.60065	71.67694	**-866.042**	**-978.603**	-132.793	-462.677
	2	-404.1249	-122.6002	0.8005992	-0.2901721	-404.1249	-122.6002	-47.1419	70.09696	**-609.098**	**-750.049**	-40.786	-259.020
	3	-216.4783	-83.55833	-19.74615	18.56364	-216.4783	-83.55833	-44.58454	64.48605	**-454.149**	**-527.174**	50.750	-20.807
	atap	-48.27242	-4.581618	-0.3367694	-0.3345797	-48.27242	-4.581618	-43.98867	64.11893	**-112.337**	**-240.673**	74.220	213.381

Tabel 7.10.b Lanjutan

Kolom	Lt.	Sejajar sumbu x				Sejajar sumbu y				gempa kiri		gempa kanan	
		ND,kx (kN)	*NL,kx* (kN)	*NEki,kx* (kN)	*NEka,kx* (kN)	*ND,ky* (kN)	*NL,ky* (kN)	*NEki,ky* (kN)	*NEka,ky* (kN)	*Nu,kx1* (kN)	*Nu,ky1* (kN)	*Nu,kx2* (kN)	*Nu,ky2* (kN)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
K14	1	-547.3592	-183.6533	308.4748	-9.681818	-547.3592	-183.6533	-31.83641	44.26056	**487.917**	-512.598	146.167	**-593.868**
	2	-381.9885	-109.7294	-156.3285	-16.62577	-381.9885	-109.7294	-72.85593	99.60629	**-1264.682**	**-1019.273**	-223.685	-118.906
	3	-207.0543	-74.39618	-12.20182	-2.569623	-207.0543	-74.39618	-48.16051	69.92976	**-407.453**	**-513.171**	-13.609	-5.056
	atap	-50.28576	-6.184718	1.817067	0.1018171	-50.28576	-6.184718	-46.22094	68.95506	**-109.901**	**-251.132**	82.725	230.446
K15	1	-620.9833	-191.4286	-7.500302	8.828166	-620.9833	-191.4286	-43.44133	62.85685	**-939.270**	**-1044.936**	-92.597	-577.910
	2	-449.0864	-126.8987	0.02393339	0.2501438	-449.0864	-126.8987	-43.529	63.45978	**-659.530**	**-787.576**	-52.209	-337.938
	3	-219.0724	-67.55337	7.061492	-1.385731	-219.0724	-67.55337	2.919417	-0.7335219	**-267.620**	-279.798	-70.261	**-305.784**
	atap	-58.3731	-6.708295	-5.575405	-2.04714	-58.3731	-6.708295	-3.636262	2.087452	**-96.334**	**-90.633**	-18.866	-62.148
K16	1	-607.2943	-155.3257	0.6405198	-0.8099882	-607.2943	-155.3257	0.2253928	-0.2133047	**-797.777**	-798.997	-166.090	**-802.667**
	2	-480.5912	-127.5499	0.5689608	0.1807651	-480.5912	-127.5499	0.2200981	-0.4809555	**-635.881**	-636.907	-133.177	**-640.340**
	3	-268.6354	-86.46978	-1.015384	2.082516	-268.6354	-86.46978	0.2070268	-0.4935365	**-376.864**	**-373.270**	-83.735	-372.309
	atap	-64.04116	-7.085048	0.1592516	0.1392075	-64.04116	-7.085048	0.06617476	-0.169557	**-73.930**	-74.204	-6.901	**-75.219**

Keterangan Tabel 7.10.b :

[1] Kolom yg ditinjau

[2] Tingkat lantai pada kolom yang ditinjau

[3] *ND,kx* = gaya aksial kolom akibat beban mati sejajar sb-x

[4] *NL,kx* = gaya aksial kolom akibat beban hidup sejajar sb-x

[5] *NEki,kx* = gaya aksial kolom akibat beban gempa kiri sejajar sb-x

[6] *NEka,kx* = gaya aksial kolom akibat beban gempa kanan sejajar sb-x

[7] *ND,ky* = gaya aksial kolom akibat beban mati sejajar sb-y

[8] *NL,ky* = gaya aksial kolom akibat beban hidup sejajar sb-y

[9] *NEki,ky* = gaya aksial kolom akibat beban gempa kiri sejajar sb-y

[10] *NEka,ky* = gaya aksial kolom akibat beban gempa kanan sejajar sb-y

[11] $Nu,kx1 = 1,05(Ng,kx + 4/k(NE,kix + 0,3NE,kiy))$
(gaya aksial maksimum kolom sejajar sb-x akibat gempa kiri) dengan k= 1

[12] $Nu,ky1 = 1,05(Ng,ky + 4/k(NE,kiy + 0,3NE,kix))$
(gaya aksial maksimum kolom sejajar sb-y akibat gempa kiri) dengan k= 1

[13] $Nu,kx2 = 1,05(Ng,kx+ 4/k(NE,kax + 0,3NE,kay))$
(gaya aksial maksimum kolom sejajar sb-x akibat gempa kanan) dengan k= 1

[14] $Nu,ky2 = 1,05(Ng,ky + 4/k(NE,kay + 0,3NE,kax))$
(gaya aksial maksimum kolom sejajar sb-y akibat gempa kanan) dengan k= 1

NB : Cetak tebal adalah gaya aksial maksimum yang dipakai dalam perencanaan

el 7.11.a Gaya Aksial Terpakai Kolom Portal A

om	Lantai	Gaya aksial rencana		Gaya aksial maksimum		Gaya aksial terpakai	
		Nu,kx (kN)	*Nu,ky* (kN)	*Nu,kx* (kN)	*Nu,ky* (kN)	*Nu,kx* (kN)	*Nu,ky* (kN)
]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
1	1	196.496	7.809	-862.699	-1355.960	**196.496**	7.809
2	1	-233.841	-234.984	-314.438	-665.988	-233.841	**-234.984**
3	1	-186.278	-200.813	-285.531	-659.755	-186.278	**-200.813**
4	1	-55.908	-131.104	-219.465	-561.187	-55.908	**-131.104**
5	1	82.174	-247.791	-473.785	-665.818	82.174	**-247.791**
	2	-133.814	-133.814	-533.287	-417.172	-133.814	**-133.814**
6	1	-282.985	-408.492	-528.226	-658.477	-282.985	**-408.492**
	2	189.221	-83.867	-352.751	-536.660	**189.221**	-83.867
K7	1	-739.849	-804.472	-1362.137	-1143.773	-739.849	**-804.472**
	2	-208.638	-375.626	-818.539	-804.375	-208.638	**-375.626**
K8	1	-1092.669	-1064.143	-1210.835	-1166.780	**-1092.669**	-1064.143
	2	-555.368	-566.577	-782.471	-831.917	-555.368	**-566.577**
K9	1	-973.662	-966.497	-1109.918	-1243.146	**-973.662**	-966.497
	2	-477.926	-513.119	-721.125	-802.825	-477.926	**-513.119**
K10	1	-716.465	-805.347	-780.440	-1017.382	-716.465	**-805.347**
	2	-223.442	-414.675	-514.374	-733.027	-223.442	**-414.675**
K11	1	-221.476	-346.313	-519.766	-602.842	-221.476	**-346.313**
	2	229.412	-31.389	-281.978	-317.250	**229.412**	-31.389
K12	1	-15.055	-462.756	1802.564	-673.657	-15.055	**-462.756**
	2	168.882	-278.818	1815.921	103.467	**168.882**	103.467
	3	526.526	-37.990	1872.047	235.248	**526.526**	-37.990
	atap	304.389	54.956	78.119	320.296	**78.119**	54.956
K13	1	-757.862	-844.312	-2103.420	-1735.564	-757.862	**-844.312**
	2	-539.690	-633.273	-1889.531	-1437.977	-539.690	**-633.273**
	3	-261.864	-373.421	-1706.023	-1205.838	-261.864	**-373.421**
	atap	-55.163	-119.599	-200.621	239.688	-55.163	**-119.599**
K14	1	-890.645	-964.913	-1526.850	-1488.059	-890.645	**-964.913**
	2	-622.784	-697.052	-1163.247	-1158.799	-622.784	**-697.052**
	3	-298.396	-402.121	-769.180	-829.589	-298.396	**-402.121**
	atap	-88.631	-148.045	-179.774	-311.934	-88.631	**-148.045**
K15	1	-1001.155	-1049.216	-1196.964	-1448.764	-1001.155	**-1049.216**
	2	-705.482	-753.543	-906.777	-1129.472	-705.482	**-753.543**
	3	-345.851	-426.434	-593.790	-806.157	-345.851	**-426.434**
	atap	-130.684	-180.447	-196.778	-217.232	-130.684	**-180.447**
K16	1	-826.401	-890.029	-1095.650	-1316.047	-826.401	**-890.029**
	2	-617.951	-681.579	-876.338	-1078.615	-617.951	**-681.579**
	3	-343.167	-439.771	-629.324	-836.127	-343.167	**-439.771**
	atap	-139.941	-193.851	-215.288	-218.416	-139.941	**-193.851**

Keterangan Tabel 7.10.a :

[1] Kolom yg ditinjau

[2] Tingkat lantai pada kolom yang ditinjau

[3] Nu,kx = Gaya aksial kolom rencana sejajar sb-x

[4] Nu,ky = Gaya aksial kolom rencana sejajar sb-y

[5] Nu,kx = Gaya aksial kolom maksimum sejajar sb-x

[6] Nu,ky = Gaya aksial kolom maksimum sejajar sb-y

[7] Nu,kx = Gaya aksial kolom terpakai sejajar sb-x

[8] Nu,ky = Gaya aksial kolom terpakai sejajar sb-y

NB : cetak tebal adalah gaya aksial yang dipakai dalam perencanaan kolom

ıbel 7.11.b Gaya Aksial Terpakai Kolom Portal B

·olom	Lantai	Gaya aksial rencana		Gaya aksial maksimum		Gaya aksial terpakai	
		Nu,kx (kN)	*Nu,ky* (kN)	*Nu,kx* (kN)	*Nu,ky* (kN)	*Nu,kx* (kN)	*Nu,ky* (kN)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
K1	1	239.822	81.046	-539.133	-1180.369	**239.822**	81.046
K2	1	-61.517	-92.586	-258.489	-540.336	-61.517	**-92.586**
K3	1	-136.939	-159.118	-270.026	-553.998	-136.939	**-159.118**
K4	1	-169.340	-182.685	-246.852	-554.286	-169.340	**-182.685**
K5	1	-27.703	-282.902	-356.033	-683.795	-27.703	**-282.902**
	2	220.832	-51.912	-365.236	-388.839	**220.832**	-51.912
K6	1	-369.858	-457.405	-781.452	-686.117	-369.858	**-457.405**
	2	-50.990	-173.592	-461.542	-501.114	-50.990	**-173.592**
K7	1	-449.514	-524.613	-728.404	-729.787	-449.514	**-524.613**
	2	-94.016	-190.742	-443.174	-490.079	-94.016	**-190.742**
K8	1	**-647.119**	**-630.204**	-830.800	-862.361	**-647.119**	-630.204
	2	-214.537	-245.018	-428.543	-564.561	-214.537	**-245.018**
K9	1	-823.341	-819.677	-1034.869	-1018.171	**-823.341**	-819.677
	2	-397.879	-396.188	-622.765	-668.304	**-397.879**	-396.188
K10	1	-817.146	-811.370	-956.780	-983.835	**-817.146**	-811.370
	2	-422.561	-408.203	-599.183	-645.906	**-422.561**	-408.203
K11	1	18.767	-428.933	759.516	-607.729	18.767	**-428.933**
	2	-18.712	-314.530	-1231.055	-1068.178	-18.712	**-314.530**
	3	511.815	-16.998	-421.140	-554.771	**511.815**	-16.998
	atap	300.992	51.559	-125.858	-280.154	**-125.858**	51.559
K12	1	-613.154	-699.604	-994.971	-1055.617	-613.154	**-699.604**
	2	-450.340	-504.687	-650.719	-795.893	-450.340	**-504.687**
	3	-102.164	-201.333	1017.429	-197.641	-102.164	**-197.641**
	atap	55.340	-9.095	-766.170	-549.677	**55.340**	-9.095
K13	1	-523.805	-643.462	-866.042	-978.603	-523.805	**-643.462**
	2	-389.530	-461.106	-609.098	-750.049	-389.530	**-461.106**
	3	-44.068	-183.371	-454.149	-527.174	-44.068	**-183.371**
	atap	57.308	-21.655	-112.337	-240.673	**57.308**	-21.655
K14	1	-509.740	-617.845	487.917	-593.868	487.917	**-593.868**
	2	-341.890	-421.083	-1264.682	-1019.273	-341.890	**-421.083**
	3	-6.023	-158.297	-407.453	-513.171	-6.023	**-158.297**
	atap	61.728	-22.987	-109.901	-251.132	**61.728**	-22.987
K15	1	-644.211	-737.616	-939.270	-1044.936	-644.211	**-737.616**
	2	-456.256	-507.456	-659.530	-787.576	-456.256	**-507.456**
	3	-61.073	-178.616	-267.620	-305.784	-61.073	**-178.616**
	atap	30.683	-38.630	-96.334	-90.633	30.683	**-38.630**
K6	1	-637.723	-708.946	-797.777	-802.667	-637.723	**-708.946**
	2	-519.160	-549.962	-635.881	-640.340	-519.160	**-549.962**
	3	-185.198	-274.086	-376.864	-373.270	-185.198	**-274.086**
	atap	2.331	-51.578	-73.930	-75.219	2.331	**-51.578**

Keterangan Tabel 7.11.b :

[1] Kolom yg ditinjau

[2] Tingkat lantai pada kolom yang ditinjau

[3] Nu,kx = Gaya aksial kolom rencana sejajar sb-x

[4] Nu,ky = Gaya aksial kolom rencana sejajar sb-y

[5] Nu,kx = Gaya aksial kolom maksimum sejajar sb-x

[6] Nu,ky = Gaya aksial kolom maksimum sejajar sb-y

[6] Nu,ky = Gaya aksial kolom maksimum sejajar sb-y

[7] Nu,kx = Gaya aksial kolom terpakai sejajar sb-x

[8] Nu,ky = Gaya aksial kolom terpakai sejajar sb-y

NB : cetak tebal adalah gaya aksial yang dipakai dalam perencanaan kolom

Tabel 7.12.a Perhitungan Diagram Interaksi Kolom Ukuran 500 mm x 500 mm

Tulangan 8D22			kondisi	1	2	3	4	5	6	7	8	9	10	11	12
ρ = 0.012			x	-	400	350	300	264	200	150	100	50	10	5	1
n	Asi	d'	a	500	340	297.5	255	224.4	170	127.5	85	42.5	8.5	4.25	0.85
3	1139.82	60.0	*fs1*	600	510	497.142857	480	463.636364	420	360	240	-120	-3000	-6600	-35400
2	759.88	250.0	*fs2*	600	225	171.428571	100	31.8181818	-150	-400	-900	-2400	-14400	-29400	-149400
3	1139.82	440.0	*fs3*	600	-60	-154.28571	-280	-400	-720	-1160	-2040	-4680	-25800	-52200	-263400
			Cs1	436551.1	436551.1	436551.1	436551.1	436551.1	436551.1	390958.3	254179.9	-136778.4	-455928.0	-455928.0	-455928.0
			Cs2	291034.0	158055.0	117347.2	63070.0	24178.0	-113982.0	-303952.0	-303952.0	-303952.0	-303952.0	-303952.0	-303952.0
			Cs3	436551.1	-68389.2	-175857.9	-319149.6	-455928.0	-455928.0	-455928.0	-455928.0	-455928.0	-455928.0	-455928.0	-455928.0
			Cc	4250000.0	2890000.0	2528750.0	2167500.0	1907400.0	1445000.0	1083750.0	722500.0	361250.0	72250.0	36125.0	7225.0
			0.65Pn	3519.2	2220.5	1889.4	1526.2	1242.9	852.6	464.6	140.9	-348.0	-743.3	-766.8	-785.6
			0.65Mn	0.0	212.6	242.1	265.9	281.1	265.2	235.8	185.1	93.1	11.5	5.8	1.2

Tulangan 8D25			kondisi	1	2	3	4	5	6	7	8	9	10	11	12
ρ = 0.016			x	-	400	350	300	264	200	150	100	50	10	5	1
n	Asi	d'	a	500	340	297.5	255	224.4	170	127.5	85	42.5	8.5	4.25	0.85
3	1471.88	60.0	*fs1*	600	510	497.142857	480	463.636364	420	360	240	-120	-3000	-6600	-35400
2	981.25	250.0	*fs2*	600	225	171.428571	100	31.8181818	-150	-400	-900	-2400	-14400	-29400	-149400
3	1471.88	440.0	*fs3*	600	-60	-154.28571	-280	-400	-720	-1160	-2040	-4680	-25800	-52200	-263400
			Cs1	563728.1	563728.1	563728.1	563728.1	563728.1	563728.1	504853.1	328228.1	-176625.0	-588750.0	-588750.0	-588750.0
			Cs2	375818.8	204100.0	151533.0	81443.8	31221.6	-147187.5	-392500.0	-392500.0	-392500.0	-392500.0	-392500.0	-392500.0
			Cs3	563728.1	-88312.5	-227089.3	-412125.0	-588750.0	-588750.0	-588750.0	-588750.0	-588750.0	-588750.0	-588750.0	-588750.0
			Cc	4250000.0	2890000.0	2528750.0	2167500.0	1907400.0	1445000.0	1083750.0	722500.0	361250.0	72250.0	36125.0	7225.0
			0.65Pn	3739.6	2320.2	1961.0	1560.4	1243.8	827.3	394.8	45.2	-517.8	-973.5	-997.0	-1015.8

0.65Pn	4228.2	2555.9	2132.4	1657.0	**1247.9**	715.4	283.1	-266.4	-938.8	-1483.8	-1507.3	-1526.1
0.65Mn	0.0	265.3	305.4	342.8	**371.6**	359.4	321.5	248.4	121.6	11.5	5.8	1.2

Tabel 7.12.a Lanjutan

Tulangan 20D22			kondisi	1	2	3	4	5	6	7	8	9	10	11	12
ρ = 0,03			x	-	400	350	300	**264**	200	150	100	50	10	5	1
n	Asi	d'	a	500	340	297.5	255	**224.4**	170	127.5	85	42.5	8.5	4.25	0.85
6	2279.64	60.0	*fs1*	600	510	497.142857	480	**463.636364**	420	360	240	-120	-3000	-6600	-35400
2	759.88	136.0	*fs2*	600	396	365.857143	328	**290.909091**	192	56	-216	-1032	-7560	-15720	-81000
2	759.88	212.0	*fs3*	600	282	236.571429	176	**118.181818**	-36	-248	-672	-1944	-12120	-24840	-126600
2	759.88	288.0	*fs4*	600	168	106.285714	24	**-54.5454545**	-264	-552	-1128	-2856	-16680	-33960	-172200
2	759.88	364.0	*fs5*	600	54	-24	-128	**-227.272727**	-492	-856	-1584	-3768	-21240	-43080	-217800
6	2279.64	440.0	*fs6*	600	-60	-154.28571	-280	**-400**	-720	-1160	-2040	-4680	-25800	-52200	-263400
			Cs1	873102.1	873102.1	873102.1	873102.1	**873102.1**	873102.1	781916.5	508359.7	-273556.8	-911856.0	-911856.0	-911856.0
			Cs2	291034.0	287994.5	265849.4	236322.7	**208138.0**	132979.0	29635.3	-164134.1	-303952.0	-303952.0	-303952.0	-303952.0
			Cs3	291034.0	201368.2	166847.9	120820.9	**76886.0**	-27355.7	-188450.2	-303952.0	-303952.0	-303952.0	-303952.0	-303952.0
			Cs4	291034.0	114741.9	67846.4	5319.2	**-41448.0**	-200608.3	-303952.0	-303952.0	-303952.0	-303952.0	-303952.0	-303952.0
			Cs5	291034.0	28115.6	-18237.1	-97264.6	**-172700.0**	-303952.0	-303952.0	-303952.0	-303952.0	-303952.0	-303952.0	-303952.0
			Cs6	873102.1	-136778.4	-351715.9	-638299.2	**-911856.0**	-911856.0	-911856.0	-911856.0	-911856.0	-911856.0	-911856.0	-911856.0
			Cc	4250000.0	2890000.0	2528750.0	2167500.0	**1907400.0**	1445000.0	1083750.0	722500.0	361250.0	72250.0	36125.0	7225.0
			0.65Pn	4654.2	2768.1	2296.1	1733.9	**1260.7**	654.8	121.6	-492.0	-1326.0	-1928.7	-1952.2	-1971.0
			0.65Mn	0.0	296.4	341.2	386.8	**422.4**	412.1	368.0	283.2	132.5	11.5	5.8	1.2

0.65Pn	4228.2	2555.9	2132.4	1657.0	**1247.9**	715.4	283.1	-266.4	-938.8	-1483.8	-1507.3	-1526.1
0.65Mn	0.0	265.3	305.4	342.8	**371.6**	359.4	321.5	248.4	121.6	11.5	5.8	1.2

Tabel 7.12.a Lanjutan

Tulangan 20D22			kondisi	1	2	3	4	**5**	6	7	8	9	10	11	12
			x	-	400	350	300	**264**	200	150	100	50	10	5	1
n	Asi	d'	a	500	340	297.5	255	**224.4**	170	127.5	85	42.5	8.5	4.25	0.85
6	2279.64	60.0	*fs1*	600	510	497.142857	480	**463.636364**	420	360	240	-120	-3000	-6600	-35400
2	759.88	136.0	*fs2*	600	396	366.857143	328	**290.909091**	192	56	-216	-1032	-7560	-15720	-81000
2	759.88	212.0	*fs3*	600	282	236.571429	176	**118.181818**	-36	-248	-672	-1944	-12120	-24840	-126600
2	759.88	288.0	*fs4*	600	168	106.285714	24	**-54.5454545**	-264	-552	-1128	-2856	-16680	-33960	-172200
2	759.88	364.0	*fs5*	600	54	-24	-128	**-227.272727**	-492	-856	-1584	-3768	-21240	-43080	-217800
6	2279.64	440.0	*fs6*	600	-60	-154.28571	-280	**-400**	-720	-1160	-2040	-4680	-25800	-52200	-263400
			Cs1	873102.1	873102.1	873102.1	873102.1	**873102.1**	873102.1	781916.5	508359.7	-273556.8	-911856.0	-911856.0	-911856.0
			Cs2	291034.0	287994.5	265849.4	236322.7	**208138.0**	132979.0	29635.3	-164134.1	-303952.0	-303952.0	-303952.0	-303952.0
			Cs3	291034.0	201368.2	166847.9	120820.9	**76886.0**	-27355.7	-188450.2	-303952.0	-303952.0	-303952.0	-303952.0	-303952.0
			Cs4	291034.0	114741.9	67846.4	5319.2	**-41448.0**	-200608.3	-303952.0	-303952.0	-303952.0	-303952.0	-303952.0	-303952.0
			Cs5	291034.0	28115.6	-18237.1	-97264.6	**-172700.0**	-303952.0	-303952.0	-303952.0	-303952.0	-303952.0	-303952.0	-303952.0
			Cs6	873102.1	-136778.4	-351715.9	-638299.2	**-911856.0**	-911856.0	-911856.0	-911856.0	-911856.0	-911856.0	-911856.0	-911856.0
			Cc	4250000.0	2890000.0	2528750.0	2167500.0	**1907400.0**	1445000.0	1083750.0	722500.0	361250.0	72250.0	36125.0	7225.0
			0.65Pn	4654.2	2768.1	2296.1	1733.9	**1260.7**	654.8	121.6	-492.0	-1326.0	-1928.7	-1952.2	-1971.0
			0.65Mn	0.0	296.4	341.2	386.8	**422.4**	412.1	368.0	283.2	132.5	11.5	5.8	1.2

Tabel 7.12.a Lanjutan

Tulangan 24D25			kondisi	1	2	3	4	5	6	7	8	9	10	11	12
ρ = 0,047			x	-	400	350	300	264	200	150	100	50	10	5	1
n	Asl	d'	a	500	340	297.5	255	224.4	170	127.5	85	42.5	8.5	4.25	0.85
7	3434.38	60.0	*fs1*	600	510	497.142857	480	**463.636364**	420	360	240	-120	-3000	-6600	-35400
2	981.25	123.3	*fs2*	600	415	388.571429	353.333333	**319.69697**	230	106.6666667	-140	-880	-6800	-14200	-73400
2	981.25	186.7	*fs3*	600	320	280	226.666667	**175.757576**	40	-146.6666667	-520	-1640	-10600	-21800	-111400
2	981.25	250.0	*fs4*	600	225	171.428571	100	**31.8181818**	-150	-400	-900	-2400	-14400	-29400	-149400
2	981.25	313.3	*fs5*	600	130	62.8571429	-26.666667	**-112.121212**	-340	-653.3333333	-1280	-3160	-18200	-37000	-187400
2	981.25	376.7	*fs6*	600	35	-45.714286	-153.33333	**-256.060606**	-530	-906.6666667	-1660	-3920	-22000	-44600	-225400
7	3434.38	440.0	*fs7*	600	-60	-154.28571	-280	**-400**	-720	-1160	-2040	-4680	-25800	-52200	-263400
			Cs1	1315365.6	1315365.6	1315365.6	1315365.6	**1315365.6**	1315365.6	1177990.6	765865.6	-412125.0	-1373750.0	-1373750.0	-1373750.0
			Cs2	375818.8	375818.8	364604.5	330027.1	**297021.4**	209006.3	87985.4	-137375.0	-392500.0	-392500.0	-392500.0	-392500.0
			Cs3	375818.8	297318.8	256068.8	205735.4	**155780.9**	22568.7	-143916.7	-392500.0	-392500.0	-392500.0	-392500.0	-392500.0
			Cs4	375818.8	204100.0	151533.0	81443.8	**31221.6**	-147187.5	-392500.0	-392500.0	-392500.0	-392500.0	-392500.0	-392500.0
			Cs5	375818.8	110881.3	44997.3	-26166.7	**-110018.9**	-333625.0	-392500.0	-392500.0	-392500.0	-392500.0	-392500.0	-392500.0
			Cs6	375818.8	17662.5	-44857.1	-150458.3	**-251259.5**	-392500.0	-392500.0	-392500.0	-392500.0	-392500.0	-392500.0	-392500.0
			Cs7	1315365.6	-206062.5	-529875.0	-961625.0	**-1373750.0**	-1373750.0	-1373750.0	-1373750.0	-1373750.0	-1373750.0	-1373750.0	-1373750.0
			Cc	4250000.0	2890000.0	2528750.0	2167500.0	**1907400.0**	1445000.0	1083750.0	722500.0	361250.0	72250.0	36125.0	7225.0
			0.65Pn	5693.9	3253.3	2657.6	1925.2	**1281.6**	484.2	-224.5	-1035.3	-2201.6	-3014.5	-3038.0	-3056.8
			0.65Mn	0.0	375.3	436.8	502.9	**559.0**	551.3	496.1	382.7	172.5	11.5	5.8	1.2

Tabel 7.12.a Lanjutan

Tulangan 24D25			kondisi	1	2	3	4	**5**	6	7	8	9	10	11	12
ρ = 0,047			x	-	400	350	300	**264**	200	150	100	50	10	5	1
n	Asi	d'	a	500	340	297.5	255	**224.4**	170	127.5	85	42.5	8.5	4.25	0.85
7	3434.38	60.0	*fs1*	600	510	497.142857	480	**483.636364**	420	360	240	-120	-3000	-6600	-35400
2	981.25	123.3	*fs2*	600	415	388.571429	353.333333	**319.69697**	230	106.6666667	-140	-880	-6800	-14200	-73400
2	981.25	186.7	*fs3*	600	320	280	226.666667	**175.757576**	40	-146.6666667	-520	-1640	-10600	-21800	-111400
2	981.25	250.0	*fs4*	600	225	171.428571	100	**31.8181818**	-150	-400	-900	-2400	-14400	-29400	-149400
2	981.25	313.3	*fs5*	600	130	62.8571429	-26.666667	**-112.121212**	-340	-653.3333333	-1280	-3160	-18200	-37000	-187400
2	981.25	376.7	*fs6*	600	35	-45.714286	-153.33333	**-256.060606**	-530	-906.6666667	-1660	-3920	-22000	-44600	-225400
7	3434.38	440.0	*fs7*	600	-60	-154.28571	-280	**-400**	-720	-1160	-2040	-4680	-25800	-52200	-263400
			Cs1	1315365.6	1315365.6	1315365.6	1315365.6	**1315365.6**	1315365.6	1177990.6	765865.6	-412125.0	-1373750.0	-1373750.0	-1373750.0
			Cs2	375818.8	375818.8	364604.5	330027.1	**297021.4**	209006.3	87985.4	-137375.0	-392500.0	-392500.0	-392500.0	-392500.0
			Cs3	375818.8	297318.8	258068.8	205735.4	**155780.9**	22568.7	-143916.7	-392500.0	-392500.0	-392500.0	-392500.0	-392500.0
			Cs4	375818.8	204100.0	151533.0	81443.8	**31221.6**	-147187.5	-392500.0	-392500.0	-392500.0	-392500.0	-392500.0	-392500.0
			Cs5	375818.8	110881.3	44997.3	-26166.7	**-110018.9**	-333625.0	-392500.0	-392500.0	-392500.0	-392500.0	-392500.0	-392500.0
			Cs6	375818.8	17662.5	-44857.1	-150458.3	**-251259.5**	-392500.0	-392500.0	-392500.0	-392500.0	-392500.0	-392500.0	-392500.0
			Cs7	1315365.6	-206062.5	-529875.0	-961625.0	**-1373750.0**	-1373750.0	-1373750.0	-1373750.0	-1373750.0	-1373750.0	-1373750.0	-1373750.0
			Cc	4250000.0	2890000.0	2528750.0	2167500.0	**1907400.0**	1445000.0	1083750.0	722500.0	361250.0	72250.0	36125.0	7225.0
			0.65Pn	5693.9	3253.3	2657.6	1925.2	**1281.6**	484.2	-224.5	-1035.3	-2201.6	-3014.5	-3038.0	-3056.8
			0.65Mn	0.0	375.3	436.8	502.9	**559.0**	551.3	496.1	382.7	172.5	11.5	5.8	1.2

Tabel 7.12.b Perhitungan Diagram Interaksi Kolom Ukuran 500 mm x 600 mm

Tulangan 8D22			kondisi	1	2	3	4	5	6	7	8	9	10	11	12
ρ = 0,010			x	-	500	400	350	324	250	200	150	100	50	10	1
n	Asi	d'	a	600	425	340	297.5	275.4	212.5	170	127.5	85	42.5	8.5	0.85
3	1139.82	60.0	*fs1*	600	528	510	497.1428571	488.888889	456	420	360	240	-120	-3000	-35400
2	759.88	300.0	*fs2*	600	240	150	85.71428571	44.4444444	-120	-300	-600	-1200	-3000	-17400	-179400
3	1139.82	540.0	*fs3*	600	-48	-210	-325.714286	-400	-696	-1020	-1560	-2640	-5880	-31800	-323400
			Cs1	436551.1	436551.1	436551.1	436551.1	436551.1	436551.1	436551.1	390958.3	254179.9	-136778.4	-455928.0	-455928.0
			Cs2	291034.0	169453.2	101064.0	52214.6	33772.4	-91185.6	-227964.0	-303952.0	-303952.0	-303952.0	-303952.0	-303952.0
			Cs3	436551.1	-54711.4	-239362.2	-371255.7	-455928.0	-455928.0	-455928.0	-455928.0	-455928.0	-455928.0	-455928.0	-455928.0
			Cc	5100000.0	3612500.0	2890000.0	2528750.0	2340900.0	1806250.0	1445000.0	1083750.0	722500.0	361250.0	72250.0	7225.0
			0.65Pn	4071.7	2706.5	2072.4	1720.1	1530.9	1102.2	778.5	464.6	140.9	-348.0	-743.3	-785.6
			0.65Mn	0.0	282.1	349.6	374.6	386.2	366.7	341.2	298.5	231.7	115.2	13.9	1.4
							eb =	0.252							

Tulangan 8D25			kondisi	1	2	3	4	5	6	7	8	9	10	11	12
ρ = 0,013			x	-	500	400	350	324	250	200	150	100	50	10	1
n	Asi	d'	a	600	425	340	297.5	275.4	212.5	170	127.5	85	42.5	8.5	0.85
3	1471.875	60.0	*fs1*	600	528	510	497.1428571	488.888889	456	420	360	240	-120	-3000	-35400
2	981.25	300.0	*fs2*	600	240	150	85.71428571	44.4444444	-120	-300	-600	-1200	-3000	-17400	-179400
3	1471.875	540.0	*fs3*	600	-48	-210	-325.714286	-400	-696	-1020	-1560	-2640	-5880	-31800	-323400
			Cs1	563728.1	563728.1	563728.1	563728.1	563728.1	563728.1	563728.1	504853.1	328228.1	-176625.0	-588750.0	-588750.0
			Cs2	375818.8	218818.8	130506.3	67425.9	43611.1	-117750.0	-294375.0	-392500.0	-392500.0	-392500.0	-392500.0	-392500.0
			Cs3	563728.1	-70650.0	-309093.8	-479410.7	-588750.0	-588750.0	-588750.0	-588750.0	-588750.0	-588750.0	-588750.0	-588750.0
			Cc	5100000.0	3612500.0	2890000.0	2528750.0	2340900.0	1806250.0	1445000.0	1083750.0	722500.0	361250.0	72250.0	7225.0
			0.65Pn	4292.1	2810.9	2128.8	1742.3	1533.7	1081.3	731.6	394.8	45.2	-517.8	-973.5	-1015.8
			0.65Mn	0.0	304.4	380.4	411.3	426.7	407.3	381.7	337.0	264.0	129.7	13.9	1.4
							eb =	0.278							

Tabel 7.12.b Lanjutan

Tulangan 12D22			kondisi	1	2	3	4	5	6	7	8	9	10	11	12
ρ = 0,015			x	-	500	400	350	**324**	250	200	150	100	50	10	1
n	Asi	d'	a	600	425	340	297.5	**275.4**	212.5	170	127.5	85	42.5	8.5	0.85
4	1519.76	60.0	*fs1*	600	528	510	497.1428571	**488.888889**	456	420	360	240	-120	-3000	-35400
2	759.88	220.0	*fs2*	600	336	270	222.8571429	**192.592593**	72	-60	-280	-720	-2040	-12600	-131400
2	759.88	380.0	*fs3*	600	144	30	-51.4285714	**-103.703704**	-312	-540	-920	-1680	-3960	-22200	-227400
4	1519.76	540.0	*fs4*	600	-48	-210	-325.714286	**-400**	-696	-1020	-1560	-2640	-5880	-31800	-323400
			Cs1	582068.1	582068.1	582068.1	582068.1	**582068.1**	582068.1	582068.1	521277.7	338906.5	-182371.2	-607904.0	-607904.0
			Cs2	291034.0	242401.7	192249.6	156426.7	**133429.3**	41793.4	-45592.8	-212766.4	-303952.0	-303952.0	-303952.0	-303952.0
			Cs3	291034.0	96504.8	9878.4	-39079.5	**-78802.4**	-237082.6	-303952.0	-303952.0	-303952.0	-303952.0	-303952.0	-303952.0
			Cs4	582068.1	-72948.5	-319149.6	-495007.5	**-607904.0**	-607904.0	-607904.0	-607904.0	-607904.0	-607904.0	-607904.0	-607904.0
			Cc	5100000.0	3612500.0	2890000.0	2528750.0	**2340900.0**	1806250.0	1445000.0	1083750.0	722500.0	361250.0	72250.0	7225.0
			0.65Pn	4450.0	2899.3	2180.8	1776.6	**1540.3**	1030.3	695.3	312.3	-100.4	-674.0	-1138.5	-1180.7
			0.65Mn	0.0	315.2	394.3	426.8	**443.6**	427.6	401.0	347.3	268.6	131.8	13.9	1.4
							eb =	**0.288**							

Tulangan 12D25			kondisi	1	2	3	4	5	6	7	8	9	10	11	12
ρ = 0,02			x	-	500	400	350	**324**	250	200	150	100	50	10	1
n	Asi	d'	a	600	425	340	297.5	**275.4**	212.5	170	127.5	85	42.5	8.5	0.85
4	1962.5	60.0	*fs1*	600	528	510	497.1428571	**488.888889**	456	420	360	240	-120	-3000	-35400
2	981.25	220.0	*fs2*	600	336	270	222.8571429	**192.592593**	72	-60	-280	-720	-2040	-12600	-131400
2	981.25	380.0	*fs3*	600	144	30	-51.4285714	**-103.703704**	-312	-540	-920	-1680	-3960	-22200	-227400
4	1962.5	540.0	*fs4*	600	-48	-210	-325.714286	**-400**	-696	-1020	-1560	-2640	-5880	-31800	-323400
			Cs1	751637.5	751637.5	751637.5	751637.5	**751637.5**	751637.5	751637.5	673137.5	437637.5	-235500.0	-785000.0	-785000.0
			Cs2	375818.8	313018.8	248256.3	201997.3	**172300.2**	53968.8	-58875.0	-274750.0	-392500.0	-392500.0	-392500.0	-392500.0
			Cs3	375818.8	124618.8	12756.3	-50464.3	**-101759.3**	-306150.0	-392500.0	-392500.0	-392500.0	-392500.0	-392500.0	-392500.0
			Cs4	751637.5	-94200.0	-412125.0	-639214.3	**-785000.0**	-785000.0	-785000.0	-785000.0	-785000.0	-785000.0	-785000.0	-785000.0
			Cc	5100000.0	3612500.0	2890000.0	2528750.0	**2340900.0**	1806250.0	1445000.0	1083750.0	722500.0	361250.0	72250.0	7225.0
			0.65Pn	4780.7	3059.9	2268.8	1815.3	**1545.8**	988.5	624.2	198.0	-266.4	-938.8	-1483.8	-1526.1
			0.65Mn	0.0	347.2	438.0	478.7	**500.9**	485.9	459.0	400.0	311.7	151.2	13.9	1.4
							eb =	**0.324**							

Tabel 7.12.b Lanjutan

Tulangan 20D22			kondisi	1	2	3	4	5	6	7	8	9	10	11	12
ρ = 0,025			x	-	500	400	350	324	250	200	150	100	50	10	1
n	Asi	d'	a	600	425	340	297.5	275.4	212.5	170	127.5	85	42.5	8.5	0.85
6	2279.64	60.0	*fs1*	600	528	510	497.1428571	**488.888889**	456	420	360	240	-120	-3000	-35400
2	759.88	156.0	*fs2*	600	412.8	366	332.5714286	**311.111111**	225.6	132	-24	-336	-1272	-8760	-93000
2	759.88	252.0	*fs3*	600	297.6	222	168	**133.333333**	-4.8	-156	-408	-912	-2424	-14520	-150600
2	759.88	348.0	*fs4*	600	182.4	78	3.428571429	**-44.4444444**	-235.2	-444	-792	-1488	-3576	-20280	-208200
2	759.88	444.0	*fs5*	600	67.2	-66	-161.142857	**-222.222222**	-465.6	-732	-1176	-2064	-4728	-26040	-265800
6	2279.64	540.0	*fs6*	600	-48	-210	-325.714286	**-400**	-696	-1020	-1560	-2640	-5880	-31800	-323400
			Cs1	873102.1	873102.1	873102.1	873102.1	**873102.1**	873102.1	873102.1	781916.5	508359.7	-273556.8	-911856.0	-911856.0
			Cs2	291034.0	291034.0	265198.1	239796.4	**223489.2**	158511.0	87386.2	-18237.1	-255319.7	-303952.0	-303952.0	-303952.0
			Cs3	291034.0	213222.3	155775.4	114741.9	**88399.4**	-3647.4	-118541.3	-303952.0	-303952.0	-303952.0	-303952.0	-303952.0
			Cs4	291034.0	125684.2	46352.7	-10312.7	**-33772.4**	-178723.8	-303952.0	-303952.0	-303952.0	-303952.0	-303952.0	-303952.0
			Cs5	291034.0	38146.0	-50152.1	-122449.2	**-168862.2**	-303952.0	-303952.0	-303952.0	-303952.0	-303952.0	-303952.0	-303952.0
			Cs6	873102.1	-109422.7	-478724.4	-742511.3	**-911856.0**	-911856.0	-911856.0	-911856.0	-911856.0	-911856.0	-911856.0	-911856.0
			Cc	5100000.0	3612500.0	2890000.0	2528750.0	**2340900.0**	1806250.0	1445000.0	1083750.0	722500.0	361250.0	72250.0	7225.0
			0.65Pn	5206.7	3278.8	2406.0	1872.7	**1567.4**	935.8	498.7	15.4	-551.3	-1326.0	-1928.7	-1971.0
			0.65Mn	0.0	385.1	488.0	538.5	**565.9**	554.7	522.8	457.4	347.0	165.0	13.9	1.4
							eb =	**0.361**							

Tabel 7.12.b Lanjutan

Tulangan 24D22			kondisi	1	2	3	4	5	6	7	8	9	10	11	12
ρ = 0,030			x	-	500	400	350	324	250	200	150	100	50	10	1
n	Asi	d'	a	600	425	340	297.5	275.4	212.5	170	127.5	85	42.5	8.5	0.85
7	2659.58	60.0	*fs1*	600	528	510	497.1428571	**488.888889**	456	420	360	240	-120	-3000	-35400
2	759.88	140.0	*fs2*	600	432	390	360	**340.740741**	264	180	40	-240	-1080	-7800	-83400
2	759.88	220.0	*fs3*	600	336	270	222.8571429	**192.592593**	72	-60	-280	-720	-2040	-12600	-131400
2	759.88	300.0	*fs4*	600	240	150	85.71428571	**44.4444444**	-120	-300	-600	-1200	-3000	-17400	-179400
2	759.88	380.0	*fs5*	600	144	30	-51.4285714	**-103.703704**	-312	-540	-920	-1680	-3960	-22200	-227400
2	759.88	460.0	*fs6*	600	48	-90	-188.571429	**-251.851852**	-504	-780	-1240	-2160	-4920	-27000	-275400
7	2659.58	540.0	*fs7*	600	-48	-210	-325.714286	**-400**	-696	-1020	-1560	-2640	-5880	-31800	-323400
			Cs1	1018619.1	1018619.1	1018619.1	1018619.1	**1018619.1**	1018619.1	1018619.1	912235.9	593086.3	-319149.6	-1063832.0	-1063832.0
			Cs2	291034.0	291034.0	283435.2	260638.8	**246004.1**	187690.4	123860.4	17477.2	-182371.2	-303952.0	-303952.0	-303952.0
			Cs3	291034.0	242401.7	192249.6	156426.7	**146347.3**	41793.4	-45592.8	-212766.4	-303952.0	-303952.0	-303952.0	-303952.0
			Cs4	291034.0	169453.2	101064.0	52214.6	**33772.4**	-91185.6	-227964.0	-303952.0	-303952.0	-303952.0	-303952.0	-303952.0
			Cs5	291034.0	96504.8	9878.4	-39079.5	**-78802.4**	-237082.6	-303952.0	-303952.0	-303952.0	-303952.0	-303952.0	-303952.0
			Cs6	291034.0	23556.3	-68389.2	-143291.7	**-191377.2**	-303952.0	-303952.0	-303952.0	-303952.0	-303952.0	-303952.0	-303952.0
			Cs7	1018619.1	-127659.8	-558511.8	-866263.2	**-1063832.0**	-1063832.0	-1063832.0	-1063832.0	-1063832.0	-1063832.0	-1063832.0	-1063832.0
			Cc	5100000.0	3612500.0	2890000.0	2528750.0	**2340900.0**	1806250.0	1445000.0	1083750.0	722500.0	361250.0	72250.0	7225.0
			0.65Pn	5585.1	3462.2	2514.4	1929.2	**1593.6**	882.9	417.4	-113.7	-745.2	-1652.0	-2323.9	-2366.1
			0.65Mn	0.0	419.7	536.3	594.8	**629.0**	618.0	584.7	512.9	392.1	181.6	13.9	1.4
							eb =	**0.395**							

Tabel 7.12.b Lanjutan

Tulangan 20D25			kondisi	1	2	3	4	5	6	7	8	9	10	11	12
ρ = 0,033			x	-	500	400	350	324	250	200	150	100	50	10	1
n	Asi	d'	a	600	425	340	297.5	275.4	212.5	170	127.5	85	42.5	8.5	0.85
6	2943.75	60.0	*fs1*	600	528	510	497.1428571	488.888889	456	420	360	240	-120	-3000	-35400
2	981.25	156.0	*fs2*	600	412.8	366	332.5714286	311.111111	225.6	132	-24	-336	-1272	-8760	-93000
2	981.25	252.0	*fs3*	600	297.6	222	163	133.333333	-4.8	-156	-408	-912	-2424	-14520	-150600
2	981.25	348.0	*fs4*	600	182.4	78	3.428571429	-44.4444444	-235.2	-444	-792	-1488	-3576	-20280	-208200
2	981.25	444.0	*fs5*	600	67.2	-66	-161.142857	-222.222222	-465.6	-732	-1176	-2064	-4728	-26040	-265800
6	2943.75	540.0	*fs6*	600	-48	-210	-325.714286	-400	-696	-1020	-1560	-2640	-5880	-31800	-323400
			Cs1	1127456.3	1127456.3	1127456.3	1127456.3	1127456.3	1127456.3	1127456.3	1009706.3	656456.3	-353250.0	-1177500.0	-1177500.0
			Cs2	375818.8	375818.8	342456.3	309654.5	288596.5	204688.8	112843.8	-23550.0	-329700.0	-392500.0	-392500.0	-392500.0
			Cs3	375818.8	275338.8	201156.3	148168.8	114152.1	-4710.0	-153075.0	-392500.0	-392500.0	-392500.0	-392500.0	-392500.0
			Cs4	375818.8	162298.8	59856.3	-13317.0	-43611.1	-230790.0	-392500.0	-392500.0	-392500.0	-392500.0	-392500.0	-392500.0
			Cs5	375818.8	49258.8	-64762.5	-158121.4	-218055.6	-392500.0	-392500.0	-392500.0	-392500.0	-392500.0	-392500.0	-392500.0
			Cs6	1127456.3	-141300.0	-618187.5	-958821.4	-1177500.0	-1177500.0	-1177500.0	-1177500.0	-1177500.0	-1177500.0	-1177500.0	-1177500.0
			Cc	5100000.0	3612500.0	2890000.0	2528750.0	2340900.0	1806250.0	1445000.0	1083750.0	722500.0	361250.0	72250.0	7225.0
			0.65Pn	5757.8	3549.9	2559.7	1939.5	1580.8	866.4	370.3	-185.3	-848.7	-1780.7	-2504.3	-2546.6
			0.65Mn	0.0	437.5	559.0	622.9	658.9	650.0	616.3	542.2	412.9	194.0	13.9	1.4
							eb =	0.417							

Tabel 7.12.b Lanjutan

Tulangan 24D25			kondisi	1	2	3	4	5	6	7	8	9	10	11	12
ρ = 0.039			x	-	500	400	350	324	250	200	150	100	50	10	1
n	Asi	d'	a	600	425	340	297.5	275.4	212.5	170	127.5	85	42.5	8.5	0.85
7	3434.375	60.0	*fs1*	600	528	510	497.1428571	**488.888889**	456	420	360	240	-120	-3000	-35400
2	981.25	140.0	*fs2*	600	432	390	360	**340.740741**	264	180	40	-240	-1080	-7800	-83400
2	981.25	220.0	*fs3*	600	336	270	222.8571429	**192.592593**	72	-60	-280	-720	-2040	-12600	-131400
2	981.25	300.0	*fs4*	600	240	150	85.71428571	**44.4444444**	-120	-300	-600	-1200	-3000	-17400	-179400
2	981.25	380.0	*fs5*	600	144	30	-51.4285714	**-103.703704**	-312	-540	-920	-1680	-3960	-22200	-227400
2	981.25	460.0	*fs6*	600	48	-90	-188.571429	**-251.851852**	-504	-780	-1240	-2160	-4920	-27000	-275400
7	3434.375	540.0	*fs7*	600	-48	-210	-325.714286	**-400**	-696	-1020	-1560	-2640	-5880	-31800	-323400
			Cs1	1315365.6	1315365.6	1315365.6	1315365.6	**1315365.6**	1315365.6	1315365.6	1177990.6	765865.6	-412125.0	-1373750.0	-1373750.0
			Cs2	375818.8	375818.8	366006.3	336568.8	**317670.6**	242368.8	159943.8	22568.8	-235500.0	-392500.0	-392500.0	-392500.0
			Cs3	375818.8	313018.8	248256.3	201997.3	**188981.5**	53968.8	-58875.0	-274750.0	-392500.0	-392500.0	-392500.0	-392500.0
			Cs4	375818.8	218818.8	130506.3	67425.9	**43611.1**	-117750.0	-294375.0	-392500.0	-392500.0	-392500.0	-392500.0	-392500.0
			Cs5	375818.8	124618.8	12756.3	-50464.3	**-101759.3**	-306150.0	-392500.0	-392500.0	-392500.0	-392500.0	-392500.0	-392500.0
			Cs6	375818.8	30418.8	-88312.5	-185035.7	**-247129.6**	-392500.0	-392500.0	-392500.0	-392500.0	-392500.0	-392500.0	-392500.0
			Cs7	1315365.6	-164850.0	-721218.8	-1118625.0	**-1373750.0**	-1373750.0	-1373750.0	-1373750.0	-1373750.0	-1373750.0	-1373750.0	-1373750.0
			Cc	5100000.0	3612500.0	2890000.0	2528750.0	**2340900.0**	1806250.0	1445000.0	1083750.0	722500.0	361250.0	72250.0	7225.0
			0.65Pn	6246.4	3786.7	2699.7	2012.4	**1614.5**	798.1	265.4	-352.1	-1099.1	-2201.6	-3014.5	-3056.8
			0.65Mn	0.0	482.1	621.4	695.7	**740.3**	731.7	696.2	613.8	471.0	215.5	13.9	1.4
							eb =	**0.459**							

Tabel 7.12.c Perhitungan Diagram Interaksi Kolom Ukuran 500 mm x 700 mm

Tulangan 8D25			kondisi	1	2	3	4	5	6	7	8	9	10	11	12
ρ = 0.01			x	-	600	500	400	**384**	300	250	200	150	100	50	10
n	Asi	d'	a	700	510	425	340	**326.4**	255	212.5	170	127.5	85	42.5	8.5
3	1471.875	60.0	*fs1*	600	540	528	510	**506.25**	480	456	420	360	240	-120	-3000
2	981.25	350.0	*fs2*	600	250	180	75	**53.125**	-100	-240	-450	-800	-1500	-3600	-20400
3	1471.875	640.0	*fs3*	600	-40	-168	-360	**-400**	-680	-936	-1320	-1960	-3240	-7080	-37800
			Cs1	563728.1	563728.1	563728.1	563728.1	**563728.1**	563728.1	563728.1	563728.1	504853.1	328228.1	-176625.0	-588750.0
			Cs2	375818.8	228631.3	159943.8	56912.5	**52128.9**	-98125.0	-235500.0	-392500.0	-392500.0	-392500.0	-392500.0	-392500.0
			Cs3	563728.1	-58875.0	-247275.0	-529875.0	**-588750.0**	-588750.0	-588750.0	-588750.0	-588750.0	-588750.0	-588750.0	-588750.0
			Cc	5950000.0	4335000.0	3612500.0	2890000.0	**2774400.0**	2167500.0	1806250.0	1445000.0	1083750.0	722500.0	361250.0	72250.0
			0.65Pn	4844.6	3294.5	2657.8	1937.5	**1821.0**	1328.8	1004.7	667.9	394.8	45.2	-517.8	-973.5
			0.65Mn	0.0	385.0	475.7	544.3	**554.1**	530.7	503.4	466.1	407.8	317.3	154.9	16.2
							eb =	**0.304**							

Tulangan 12D22			kondisi	1	2	3	4	5	6	7	8	9	10	11	12
ρ = 0.013			x	-	600	500	400	**384**	300	250	200	150	100	50	10
n	Asi	d'	a	700	510	425	340	**326.4**	255	212.5	170	127.5	85	42.5	8.5
4	1519.76	60.0	*fs1*	600	540	528	510	**506.25**	480	456	420	360	240	-120	-3000
2	759.88	253.3	*fs2*	600	346.666667	296	220	**204.1666667**	93.3333333	-8	-160	-413.333333	-920	-2440	-14600
2	759.88	446.7	*fs3*	600	153.333333	64	-70	**-97.9166667**	-293.33333	-472	-740	-1186.66667	-2080	-4760	-26200
4	1519.76	640.0	*fs4*	600	-40	-168	-360	**-400**	-680	-936	-1320	-1960	-3240	-7080	-37800
			Cs1	582068.1	582068.1	582068.1	582068.1	**582068.1**	582068.1	582068.1	582068.1	521277.7	338906.5	-182371.2	-607904.0
			Cs2	291034.0	250507.1	212005.5	154255.6	**142224.2**	58004.2	-6079.0	-121580.8	-303952.0	-303952.0	-303952.0	-303952.0
			Cs3	291034.0	103597.0	35714.4	-53191.6	**-74404.9**	-222898.1	-303952.0	-303952.0	-303952.0	-303952.0	-303952.0	-303952.0
			Cs4	582068.1	-60790.4	-255319.7	-547113.6	**-607904.0**	-607904.0	-607904.0	-607904.0	-607904.0	-607904.0	-607904.0	-607904.0
			Cc	5950000.0	4335000.0	3612500.0	2890000.0	**2774400.0**	2167500.0	1806250.0	1445000.0	1083750.0	722500.0	361250.0	72250.0
			0.65Pn	5002.5	3386.7	2721.5	1966.9	**1830.6**	1284.9	955.7	645.9	253.0	-100.4	-674.0	-1138.5
			0.65Mn	0.0	398.1	491.8	564.0	**574.8**	555.4	529.2	484.7	414.5	322.9	157.4	16.2
							eb =	**0.314**							

Tabel 7.12.c Lanjutan

Tulangan 12D25			kondisi	1	2	3	4	5	6	7	8	9	10	11	12
ρ = 0,017			x	-	600	500	400	384	300	250	200	150	100	50	10
n	Asi	d'	a	700	510	425	340	326.4	255	212.5	170	127.5	85	42.5	8.5
4	1962.5	60.0	*fs1*	600	540	528	510	506.25	480	456	420	360	240	-120	-3000
2	981.25	253.3	*fs2*	600	346.666667	296	220	204.1666667	93.3333333	-8	-160	-413.333333	-920	-2440	-14600
2	981.25	446.7	*fs3*	600	153.333333	64	-70	-97.9166667	-293.33333	-472	-740	-1186.66667	-2080	-4760	-26200
4	1962.5	640.0	*fs4*	600	-40	-168	-360	-400	-680	-936	-1320	-1960	-3240	-7080	-37800
			Cs1	751637.5	751637.5	751637.5	751637.5	751637.5	751637.5	751637.5	751637.5	673137.5	437637.5	-235500.0	-785000.0
			Cs2	375818.8	323485.4	273768.8	199193.8	183657.3	74902.1	-7850.0	-157000.0	-392500.0	-392500.0	-392500.0	-392500.0
			Cs3	375818.8	133777.1	46118.8	-68687.5	-96080.7	-287833.3	-392500.0	-392500.0	-392500.0	-392500.0	-392500.0	-392500.0
			Cs4	751637.5	-78500.0	-329700.0	-706500.0	-785000.0	-785000.0	-785000.0	-785000.0	-785000.0	-785000.0	-785000.0	-785000.0
			Cc	5950000.0	4335000.0	3612500.0	2890000.0	2774400.0	2167500.0	1806250.0	1445000.0	1083750.0	722500.0	361250.0	72250.0
			0.65Pn	5333.2	3552.5	2830.3	1992.7	1838.6	1248.8	892.1	560.4	121.5	-266.4	-938.8	-1483.8
			0.65Mn	0.0	436.1	541.0	629.8	644.1	625.9	600.0	553.4	476.5	374.9	180.8	16.2
							eb =	0.350							

Tulangan 20D22			kondisi	1	2	3	4	5	6	7	8	9	10	11	12
ρ = 0,022			x	-	600	500	400	384	300	250	200	150	100	50	10
n	Asi	d'	a	700	510	425	340	326.4	255	212.5	170	127.5	85	42.5	8.5
6	2279.64	60.0	*fs1*	600	540	528	510	506.25	480	456	420	360	240	-120	-3000
2	759.88	176.0	*fs2*	600	424	388.8	336	325	248	177.6	72	-104	-456	-1512	-9960
2	759.88	292.0	*fs3*	600	308	249.6	162	143.75	16	-100.8	-276	-568	-1152	-2904	-16920
2	759.88	408.0	*fs4*	600	192	110.4	-12	-37.5	-216	-379.2	-624	-1032	-1848	-4296	-23880
2	759.88	524.0	*fs5*	600	76	-28.8	-186	-218.75	-448	-657.6	-972	-1496	-2544	-5688	-30840
6	2279.64	640.0	*fs6*	600	-40	-168	-360	-400	-680	-936	-1320	-1960	-3240	-7080	-37800
			Cs1	873102.1	873102.1	873102.1	873102.1	873102.1	873102.1	873102.1	873102.1	781916.5	508359.7	-273556.8	-911856.0
			Cs2	291034.0	291034.0	282523.4	242401.7	234043.0	175532.3	122036.7	41793.4	-79027.5	-303952.0	-303952.0	-303952.0
			Cs3	291034.0	221125.1	176748.1	110182.6	96314.8	-759.9	-76595.9	-209726.9	-303952.0	-303952.0	-303952.0	-303952.0
			Cs4	291034.0	132979.0	70972.8	-9118.6	-28495.5	-164134.1	-288146.5	-303952.0	-303952.0	-303952.0	-303952.0	-303952.0
			Cs5	291034.0	44832.9	-21884.5	-141337.7	-166223.8	-303952.0	-303952.0	-303952.0	-303952.0	-303952.0	-303952.0	-303952.0
			Cs6	873102.1	-91185.6	-382979.5	-820670.4	-911856.0	-911856.0	-911856.0	-911856.0	-911856.0	-911856.0	-911856.0	-911856.0
			Cc	5950000.0	4335000.0	3612500.0	2890000.0	2774400.0	2167500.0	1806250.0	1445000.0	1083750.0	722500.0	361250.0	72250.0
			0.65Pn	5759.2	3774.5	2997.1	2044.0	1866.3	1193.0	793.5	409.8	-24.1	-582.9	-1326.0	-1928.7
			0.65Mn	0.0	480.6	598.1	705.3	723.3	710.3	678.8	628.0	546.4	412.1	197.5	16.2

Tabel 7.12.c Lanjutan

Tulangan 24D22			kondisi	1	2	3	4	5	6	7	8	9	10	11	12
ρ = 0,026			x	-	600	500	400	**384**	300	250	200	150	100	50	10
n	Asi	d'	a	700	510	425	340	**326.4**	255	212.5	170	127.5	85	42.5	8.5
7	2659.58	60.0	*fs1*	600	540	528	510	**506.25**	480	456	420	360	240	-120	-3000
2	759.88	156.7	*fs2*	600	443.333333	412	365	**355.2083333**	286.666667	224	130	-26.6666667	-340	-1280	-8800
2	759.88	253.3	*fs3*	600	346.666667	296	220	**204.1666667**	93.3333333	-8	-160	-413.333333	-920	-2440	-14600
2	759.88	350.0	*fs4*	600	250	180	75	**53.125**	-100	-240	-450	-800	-1500	-3600	-20400
2	759.88	446.7	*fs5*	600	153.333333	64	-70	**-97.9166667**	-293.33333	-472	-740	-1186.66667	-2080	-4760	-26200
2	759.88	543.3	*fs6*	600	56.6666667	-52	-215	**-248.958333**	-486.66667	-704	-1030	-1573.33333	-2660	-5920	-32000
7	2659.58	640.0	*fs7*	600	-40	-168	-360	**-400**	-680	-936	-1320	-1960	-3240	-7080	-37800
			Cs1	1018619.1	1018619.1	1018619.1	1018619.1	**1018619.1**	1018619.1	1018619.1	1018619.1	912235.9	593086.3	-319149.6	-1063832.0
			Cs2	291034.0	291034.0	291034.0	264438.2	**256997.7**	204914.3	157295.2	85866.4	-20263.5	-258359.2	-303952.0	-303952.0
			Cs3	291034.0	250507.1	212006.5	154255.6	**142224.2**	58004.2	-6079.0	-121580.8	-303952.0	-303952.0	-303952.0	-303952.0
			Cs4	291034.0	177052.0	123860.4	44073.0	**40368.6**	-75988.0	-182371.2	-303952.0	-303952.0	-303952.0	-303952.0	-303952.0
			Cs5	291034.0	103597.0	35714.4	-53191.6	**-74404.9**	-222898.1	-303952.0	-303952.0	-303952.0	-303952.0	-303952.0	-303952.0
			Cs6	291034.0	30141.9	-39513.8	-163374.2	**-189178.5**	-303952.0	-303952.0	-303952.0	-303952.0	-303952.0	-303952.0	-303952.0
			Cs7	1018619.1	-106383.2	-446809.4	-957448.6	**-1063832.0**	-1063832.0	-1063832.0	-1063832.0	-1063832.0	-1063832.0	-1063832.0	-1063832.0
			Cc	5950000.0	4335000.0	3612500.0	2890000.0	**2774400.0**	2167500.0	1806250.0	1445000.0	1083750.0	722500.0	361250.0	72250.0
			0.65Pn	6137.6	3964.7	3124.8	2078.3	**1888.4**	1158.5	729.3	293.9	-197.5	-794.6	-1652.0	-2323.9
			0.65Mn	0.0	521.8	651.7	777.4	**799.1**	787.6	755.4	701.9	609.8	462.5	217.6	16.2
							eb =	**0.423**							

Tabel 7.12.c Lanjutan

Tulangan 20D25			kondisi	1	2	3	4	5	6	7	8	9	10	11	12
ρ = 0,028			x	-	600	500	400	**384**	300	250	200	150	100	50	10
n	Asi	d'	a	700	510	425	340	**326.4**	255	212.5	170	127.5	85	42.5	8.5
6	2943.75	60.0	*fs1*	600	540	528	510	**506.25**	480	456	420	360	240	-120	-3000
2	981.25	176.0	*fs2*	600	424	388.8	336	**325**	248	177.6	72	-104	-456	-1512	-9960
2	981.25	292.0	*fs3*	600	308	249.6	162	**143.75**	16	-100.8	-276	-568	-1152	-2904	-16920
2	981.25	408.0	*fs4*	600	192	110.4	-12	**-37.5**	-216	-379.2	-624	-1032	-1848	-4296	-23880
2	981.25	524.0	*fs5*	600	76	-28.8	-186	**-218.75**	-448	-657.6	-972	-1496	-2544	-5688	-30840
6	2943.75	640.0	*fs6*	600	-40	-168	-360	**-400**	-680	-936	-1320	-1960	-3240	-7080	-37800
			Cs1	1127456.3	1127456.3	1127456.3	1127456.3	**1127456.3**	1127456.3	1127456.3	1127456.3	1009706.3	656456.3	-353250.0	-1177500.0
			Cs2	375818.8	375818.8	364828.8	313018.8	**302225.0**	226668.8	157588.8	53968.8	-102050.0	-392500.0	-392500.0	-392500.0
			Cs3	375818.8	285543.8	228238.8	142281.3	**124373.4**	-981.3	-98910.0	-270825.0	-392500.0	-392500.0	-392500.0	-392500.0
			Cs4	375818.8	171718.8	91648.8	-11775.0	**-36796.9**	-211950.0	-372090.0	-392500.0	-392500.0	-392500.0	-392500.0	-392500.0
			Cs5	375818.8	57893.8	-28260.0	-182512.5	**-214648.4**	-392500.0	-392500.0	-392500.0	-392500.0	-392500.0	-392500.0	-392500.0
			Cs6	1127456.3	-117750.0	-494550.0	-1059750.0	**-1177500.0**	-1177500.0	-1177500.0	-1177500.0	-1177500.0	-1177500.0	-1177500.0	-1177500.0
			Cc	5950000.0	4335000.0	3612500.0	2890000.0	**2774400.0**	2167500.0	1806250.0	1445000.0	1083750.0	722500.0	361250.0	72250.0
			0.65Pn	6310.3	4053.2	3186.2	2092.2	**1884.7**	1130.2	682.7	255.5	-236.3	-889.6	-1780.7	-2504.3
			0.65Mn	0.0	542.7	678.2	812.3	**835.9**	825.9	793.2	738.5	646.8	490.1	232.6	16.2
							eb =	**0.444**							

Tabel 7.12.c Lanjutan

Tulangan 24D25			kondisi	1	2	3	4	5	6	7	8	9	10	11	12
ρ = 0,034			x	-	600	500	400	**384**	300	250	200	150	100	50	10
n	Asi	d'	a	700	510	425	340	**326.4**	255	212.5	170	127.5	85	42.5	8.5
7	3434.375	60.0	*fs1*	600	540	528	510	**506.25**	480	456	420	360	240	-120	-3000
2	981.25	156.7	*fs2*	600	443.333333	412	365	**355.2083333**	286.666667	224	130	-26.6666667	-340	-1280	-8800
2	981.25	253.3	*fs3*	600	346.666667	296	220	**204.1666667**	93.3333333	-8	-160	-413.333333	-920	-2440	-14600
2	981.25	350.0	*fs4*	600	250	180	75	**53.125**	-100	-240	-450	-800	-1500	-3600	-20400
2	981.25	446.7	*fs5*	600	153.333333	64	-70	**-97.9166667**	-293.33333	-472	-740	-1186.66667	-2080	-4760	-26200
2	981.25	543.3	*fs6*	600	56.6666667	-52	-215	**-248.958333**	-486.66667	-704	-1030	-1573.33333	-2660	-5920	-32000
7	3434.375	640.0	*fs7*	600	-40	-168	-360	**-400**	-680	-936	-1320	-1960	-3240	-7080	-37800
			Cs1	1315365.6	1315365.6	1315365.6	1315365.6	**1315365.6**	1315365.6	1315365.6	1315365.6	1177990.6	765865.6	-412125.0	-1373750.0
			Cs2	375818.8	375818.8	375818.8	341475.0	**331866.9**	264610.4	203118.8	110881.3	-26166.7	-333625.0	-392500.0	-392500.0
			Cs3	375818.8	323485.4	273768.8	199193.8	**183657.3**	74902.1	-7850.0	-157000.0	-392500.0	-392500.0	-392500.0	-392500.0
			Cs4	375818.8	228631.3	159943.8	56912.5	**52128.9**	-98125.0	-235500.0	-392500.0	-392500.0	-392500.0	-392500.0	-392500.0
			Cs5	375818.8	133777.1	46118.8	-68687.5	**-96080.7**	-287833.3	-392500.0	-392500.0	-392500.0	-392500.0	-392500.0	-392500.0
			Cs6	375818.8	38922.9	-51025.0	-210968.8	**-244290.4**	-392500.0	-392500.0	-392500.0	-392500.0	-392500.0	-392500.0	-392500.0
			Cs7	1315365.6	-137375.0	-576975.0	-1236375.0	**-1373750.0**	-1373750.0	-1373750.0	-1373750.0	-1373750.0	-1373750.0	-1373750.0	-1373750.0
			Cc	5950000.0	4335000.0	3612500.0	2890000.0	**2774400.0**	2167500.0	1806250.0	1445000.0	1083750.0	722500.0	361250.0	72250.0
			0.65Pn	6798.9	4298.9	3351.1	2136.5	**1913.1**	1085.6	599.7	105.9	-460.3	-1162.9	-2201.6	-3014.5
			0.65Mn	0.0	595.8	747.5	905.4	**933.7**	925.7	892.1	833.9	728.7	555.1	258.5	16.2
							eb =	**0.488**							

Tabel 7.13.a Perhitungan Kelangsingan dan Faktor Pembesaran Momen Kolom Portal A

Klm	Lt	Arah	Ib,a (mm^4)	Ib,b mm^4)	Ik (mm^4)	βd	Eb,a (Nmm^2)	Eb,b (Nmm^2)	Ek (Nmm^2)	ΨA	ΨB	k	kL/r	Pu (kN)	Pc (kN)	ΣPu (kN)	ΣPc (kN)	δb	δs
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]
Kolom 500 mm x 500 mm																			
K1	1	Sb-x	2.658E+09	0	5.208E+09	0.433735	7.793E-12	0	3.0542E+13	0.923	0	1.15	20.516	196.4958	34340.9259	1451.271	271332.595	1.0089	1.008
		Sb-y	4.167E+09	0	5.208E+09	0.433735	1.222E+13	0	3.0542E+13	6.835	0	1.58	27.914	7.809425	18551.0123	1392.993	194502.7	1.0006	1.011
K2	1	Sb-x	2.658E+09	0	5.208E+09	0.366112	8.179E+12	0	3.2054E+13	4.534	0	1.48	26.403	233.8406	21760.3928	1451.271	271332.595	1.0168	1.008
		Sb-y	4.167E+09	0	5.208E+09	0.366112	1.282E+13	0	3.2054E+13	6.832	0	1.58	27.914	234.9836	19469.2891	1392.993	194502.7	1.0189	1.011
K3	1	Sb-x	2.658E+09	0	5.208E+09	0.141058	9.792E-12	0	3.8376E+13	4.186	0	1.35	24.084	189.0408	31311.2991	1451.271	271332.595	1.0094	1.008
		Sb-y	4.167E+09	0	5.208E+09	0.141058	1.535E+13	0	3.8376E+13	6.832	0	1.58	27.914	210.0219	23309.2638	1392.993	194502.7	1.0141	1.011
K4	1	Sb-x	2.658E+09	0	5.208E+09	0.480841	7.545E+12	0	2.9571E+13	2.616	0	1.35	24.084	53.12915	24126.8398	1451.271	271332.595	1.0034	1.008
		Sb-y	4.167E+09	0	5.208E+09	0.480841	1.183E+13	0	2.9571E+13	6.832	0	1.58	27.914	121.8408	17960.8923	1392.993	194502.7	1.0105	1.011
Kolom 500 mm x 600 mm																			
K5	1	Sb-x	2.658E+09	0	9E+09	0.882408	5.935E+12	0	4.0198E+13	1.374	0	1.2	17.84	82.1736	41509.1579	8396.886	512786.789	1.0031	1.026
		Sb-y	4.167E+09	0	9E+09	0.882408	9.305E+12	0	4.0198E+13	4.685	0	1.496	22.025	247.7914	27234.3701	9488.587	458143.224	1.0142	1.033
	2	Sb-x	2.658E+09	2.66E+09	9E+09	0.543182	7.24E+12	7.24E+12	4.9034E+13	1.388	2.762	1.5	22.084	133.8142	33044.144	4212.497	219020.511	1.0063	1.03
		Sb-y	4.167E+09	4.17E+09	9E+09	0.543182	1.135E+13	1.14E+13	4.9034E+13	5.714	11.32	2.6	37.528	133.8142	11442.7569	4094.339	140790.207	1.0183	1.047
K6	1	Sb-x	2.658E+09	0	9E+09	0.891546	5.907E+12	0	4.0004E+13	2.706	0	1.35	20.07	282.9853	32638.9091	8396.886	512786.789	1.0135	1.026
		Sb-y	4.167E+09	0	9E+09	0.891546	9.26E+12	0	4.0004E+13	5.242	0	1.52	22.378	408.4915	26253.6748	9488.587	458143.224	1.0245	1.033
	2	Sb-x	2.658E+09	2.66E+09	9E+09	1.052642	5.443E+12	5.44E+12	3.6864E+13	2.733	5.466	2	29.445	189.2207	13974.0125	4212.497	219020.511	1.0213	1.03
		Sb-y	4.167E+09	4.17E+09	9E+09	1.052642	8.533E+12	8.53E+12	3.6864E+13	5.346	10.59	2.6	37.528	83.8666	8602.6998	4094.339	140790.207	1.0152	1.047
K7	1	Sb-x	2.658E+09	0	9E+09	0.619882	6.897E+12	0	4.6712E+13	3.724	0	1.43	21.259	739.8486	33967.5949	8396.886	512786.789	1.0347	1.026
		Sb-y	4.167E+09	0	9E+09	0.619882	1.081E+13	0	4.6712E+13	4.91	0	1.5	22.084	804.4716	31479.546	9488.587	458143.224	1.0409	1.033
	2	Sb-x	2.658E+09	2.66E+09	9E+09	0.866127	5.987E+12	5.99E+12	4.0548E+13	3.76	7.52	2.3	33.862	208.6377	11622.4428	4212.497	219020.511	1.0284	1.03
		Sb-y	4.167E+09	4.17E+09	9E+09	0.866127	9.386E+12	9.39E+12	4.0548E+13	5.911	11.71	2.7	38.971	375.6258	8774.57121	4094.339	140790.207	1.0705	1.047
K8	1	Sb-x	2.658E+09	0	9E+09	0.484682	7.525E+12	0	5.0966E+13	7.835	0	1.6	23.787	1092.669	29603.7582	8396.886	512786.789	1.0602	1.026
		Sb-y	4.167E+09	0	9E+09	0.484682	1.18E+13	0	5.0966E+13	4.91	0	1.5	22.084	1064.143	34346.1768	9488.587	458143.224	1.0501	1.033
	2	Sb-x	2.658E+09	2.66E+09	9E+09	0.874723	5.96E+12	5.96E+12	4.0363E+13	7.912	15.82	3.2	47.112	555.3675	5976.64023	4212.497	219020.511	1.1668	1.03
		Sb-y	4.167E+09	4.17E+09	9E+09	0.874723	9.343E+12	9.34E+12	4.0363E+13	5.911	11.71	2.7	38.971	566.5771	8734.33582	4094.339	140790.207	1.1109	1.047
K9	1	Sb-x	2.658E+09	0	9E+09	0.364408	8.189E+12	0	5.5459E+13	7.233	0	1.6	23.787	973.662	32213.344	8396.886	512786.789	1.0488	1.026
		Sb-y	4.167E+09	0	9E+09	0.364408	1.284E+13	0	5.5459E+13	4.91	0	1.5	22.084	966.497	37373.8091	9488.587	458143.224	1.0414	1.033

Tabel 7.13.a Lanjutan

Klm	Lt	Arah	Ib,a (mm^4)	Ib,b mm^4)	Ik (mm^4)	βd	Elb,a (Nmm^2)	Elb,b (Nmm^2)	Elk (Nmm^2)	ΨA	ΨB	k	kL/r	Pu (kN)	Pc (kN)	ΣPu (kN)	ΣPc (kN)	∂b	∂s
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]
K9	2	Sb-x	2.658E+09	2.66E+09	9E+09	0.142362	9.781E+12	9.78E+12	6.6239E+13	7.304	14.61	3	44.167	480.8229	11159.5865	4212.497	219020.511	1.071	1.03
		Sb-y	4.167E+09	4.17E+09	9E+09	0.142362	1.533E+13	1.53E+13	6.6239E+13	5.911	11.71	2.7	38.971	522.7761	14333.8688	4094.339	140790.207	1.0594	1.047
K10	1	Sb-x	2.658E+09	0	9E+09	0.490411	7.497E+12	0	5.077E+13	4.52	0	1.48	22.003	694.89	34465.978	8396.886	512786.789	1.032	1.026
		Sb-y	4.167E+09	0	9E+09	0.490411	1.175E-13	0	5.077E+13	4.91	0	1.5	22.084	733.4298	34214.1398	9488.587	458143.224	1.0341	1.033
	2	Sb-x	2.658E+09	2.66E+09	9E+09	0.523712	7.333E+12	7.33E+12	4.9661E+13	4.565	9.13	2.5	36.806	194.2677	12047.901	4212.497	219020.511	1.0254	1.03
		Sb-y	4.167E+09	4.17E+09	9E+09	0.523712	1.15E+13	1.15E+13	4.9661E+13	5.911	11.71	2.7	38.971	317.4267	10746.4302	4094.339	140790.207	1.0476	1.047
K11	1	Sb-x	2.658E+09	0	9E+09	0.656139	6.746E+12	0	4.569E+13	3.288	0	1.4	20.813	221.4763	34663.1016	8396.886	512786.789	1.0099	1.026
		Sb-y	4.167E+09	0	9E+09	0.656139	1.058E+13	0	4.569E+13	9.572	0	1.65	24.292	346.3129	25446.5968	9488.587	458143.224	1.0214	1.033
	2	Sb-x	2.658E+09	2.66E+09	9E+09	0.685373	6.629E+12	6.63E+12	4.4897E+13	3.32	6.64	2.17	31.948	229.4118	14457.0191	4212.497	219020.511	1.025	1.03
		Sb-y	4.167E+09	4.17E+09	9E+09	0.685373	1.039E+13	1.04E+13	4.4897E+13	12.25	24.27	3.7	53.405	31.38878	5173.62704	4094.339	140790.207	1.0094	1.047
Kolom 500 mm x 700 mm																			
K12	1	Sb-x	7.146E+09	0	1.429E+10	0.5854	1.895E+13	0	7.5791E+13	0.97	0	1.15	13.943	15.05483	94134.3956	9461.437	814565.144	1.0002	1.018
		Sb-y	4.167E+09	0	1.429E+10	0.5854	1.105E+13	0	7.5791E+13	15.3	0	1.75	22.084	462.7557	37524.9161	11092.54	466320.363	1.0193	1.038
	2	Sb-x	7.146E+09	7.15E+09	1.429E+10	0.577702	1.904E+13	1.9E+13	7.6161E+13	1.034	2.004	1.45	16.504	168.8825	67514.7185	7163.431	402891.307	1.0039	1.028
		Sb-y	4.167E+09	4.17E+09	1.429E+10	0.577702	1.11E+13	1.11E+13	7.6161E+13	15.61	30.92	4.2	51.962	278.8184	6811.01034	8133.267	85443.5429	1.0672	1.172
	3	Sb-x	7.146E+09	7.15E+09	1.429E+10	0.540269	1.95E+13	1.95E+13	7.8012E+13	0.626	1.659	1.38	25.951	526.5264	27970.0411	4581.107	205282.245	1.0298	1.036
		Sb-y	4.167E+09	4.17E+09	1.429E+10	0.540269	1.137E-13	1.14E+13	7.8012E+13	12.32	32.02	3.85	76.21	37.99023	3243.22463	4678.788	48084.4307	1.0184	1.176
	atap	Sb-x	2.133E+09	7.15E+09	1.429E+10	0.38792	6.462E+12	2.16E+13	8.6575E+13	4.305	1.911	1.8	16.479	304.3888	76977.1956	1857.441	354949.743	1.0061	1.008
		Sb-y	0	4.17E+09	1.429E+10	0.38792	0	1.26E+13	8.6575E+13	0	0	1	9.65	54.95621	224481.9	1975.349	2447134.79	1.0004	1.001
K13	1	Sb-x	7.146E+09	0	1.429E+10	0.55567	1.931E+13	0	7.7239E+13	3.756	0	1.43	17.338	757.8616	62043.0634	9461.437	814565.144	1.0192	1.018
		Sb-y	4.167E+09	0	1.429E+10	0.55567	1.126E+13	0	7.7239E+13	17.05	0	1.78	22.462	844.3118	36963.8425	11092.54	466320.363	1.0364	1.038
	2	Sb-x	7.146E+09	7.15E+09	1.429E+10	0.452504	2.068E+13	2.07E+13	8.2725E+13	4.001	7.758	2.32	26.406	539.6901	28646.1368	7163.431	402891.307	1.0298	1.028
		Sb-y	4.167E+09	4.17E+09	1.429E+10	0.452504	1.206E+13	1.21E+13	8.2725E+13	17.39	34.43	4.45	55.054	633.2726	6590.18587	8133.267	85443.5429	1.1735	1.172
	3	Sb-x	7.146E+09	7.15E+09	1.429E+10	0.571973	1.911E+13	1.91E+13	7.6438E+13	2.422	6.423	2	37.61	261.8642	13047.963	4581.107	205282.245	1.0319	1.036
		Sb-y	4.167E+09	4.17E+09	1.429E+10	0.571973	1.114E+13	1.11E+13	7.6438E+13	13.22	34.38	4	79.179	373.4214	2943.94665	4678.788	48084.4307	1.2425	1.176
	atap	Sb-x	2.133E+09	7.15E+09	1.429E+10	0.481668	6.053E+12	2.03E+13	8.1097E+13	16.66	7.397	3.15	28.839	55.16348	23545.044	1857.441	354949.743	1.0036	1.008
		Sb-y	0	4.17E+09	1.429E+10	0.481668	0	1.18E+13	8.1097E+13	0	0	1	9.65	119.5992	210278.489	1975.349	2447134.79	1.0009	1.001
K14	1	Sb-x	7.146E+09	0	1.429E+10	0.650443	1.82E+13	0	7.2804E+13	4.074	0	1.445	17.52	890.6451	57272.5565	9461.437	814565.144	1.0245	1.018
		Sb-y	4.167E+09	0	1.429E+10	0.650443	1.061E+13	0	7.2804E+13	16.01	0	1.77	22.336	964.9132	35236.076	11092.54	466320.363	1.044	1.038

Tabel 7.13.a Lanjutan

Klm	Lt	Arah	Ib,a (mm^4)	Ib,b mm^4)	Ik (mm^4)	βd	Elb,a (Nmm^2)	Elb,b (Nmm^2)	Elk (Nmm^2)	ΨA	ΨB	k	kL/r	Pu (kN)	Pc (kN)	∑Pu (kN)	∑Pc (kN)	∂b	∂s
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]
K14	2	Sb-x	7.146E+09	7.15E+09	1.429E+10	0.611443	1.864E+13	1.86E+13	7.4566E+13	4.34	8.413	2.4	27.317	622.784	24128.029	7163.431	402891.307	1.0414	1.028
		Sb-y	4.167E+09	4.17E+09	1.429E+10	0.611443	1.087E+13	1.09E+13	7.4566E+13	16.33	32.33	4.35	53.817	697.0521	6216.43605	8133.267	85443.5429	1.2085	1.172
	3	Sb-x	7.146E+09	7.15E+09	1.429E+10	0.707217	1.76E+13	1.76E+13	7.0383E+13	2.627	6.966	2.09	39.303	298.3956	11001.872	4581.107	205282.245	1.0435	1.036
		Sb-y	4.167E+09	4.17E+09	1.429E+10	0.707217	1.026E+13	1.03E+13	7.0383E+13	12.68	32.96	3.8	75.22	402.1208	3003.57982	4678.788	48084.4307	1.2594	1.176
	atap	Sb-x	2.133E+09	7.15E+09	1.429E+10	-3.98291	1.8E+12	6.03E+12	2.4114E+13	18.07	8.022	3.25	29.754	88.63109	6576.90883	1857.441	354949.743	1.0212	1.008
		Sb-y	0	4.17E+09	1.429E+10	-3.98291	0	3.52E+12	2.4114E+13	0	0	1	9.65	148.0445	62526.3069	1975.349	2447134.79	1.0037	1.001
K15	1	Sb-x	7.146E+09	0	1.429E+10	0.622476	1.851E+13	0	7.4059E+13	4.864	0	1.5	18.187	1001.155	54065.7125	9461.437	814565.144	1.0293	1.018
		Sb-y	4.167E+09	0	1.429E+10	0.622476	1.08E+13	0	7.4059E+13	16.01	0	1.78	22.462	1049.216	35441.8393	11092.54	466320.363	1.0477	1.038
	2	Sb-x	7.146E+09	7.15E+09	1.429E+10	0.645088	1.826E+13	1.83E+13	7.3041E+13	5.181	10.05	2.59	29.48	705.4817	20294.139	7163.431	402891.307	1.0565	1.028
		Sb-y	4.167E+09	4.17E+09	1.429E+10	0.645088	1.065E+13	1.06E+13	7.3041E+13	16.33	32.33	4.35	53.817	753.5429	6089.29899	8133.267	85443.5429	1.2352	1.172
	3	Sb-x	7.146E+09	7.15E+09	1.429E+10	1.045967	1.468E+13	1.47E+13	5.873E+13	3.136	8.317	2.2	41.371	345.8511	8285.21587	4581.107	205282.245	1.0686	1.036
		Sb-y	4.167E+09	4.17E+09	1.429E+10	1.045967	8.561E+12	8.56E+12	5.873E+13	12.68	32.96	3.8	75.22	426.4339	2506.2778	4678.788	48084.4307	1.3546	1.176
	atap	Sb-x	2.133E+09	7.15E+09	1.429E+10	0.695154	5.29E+12	1.77E+13	7.0884E+13	21.58	9.577	3.5	32.043	130.6838	16669.6401	1857.441	354949.743	1.0122	1.008
		Sb-y	0	4.17E+09	1.429E+10	0.695154	0	1.03E+13	7.0884E+13	0	0	1	9.65	180.4467	183796.207	1975.349	2447134.79	1.0015	1.001
K16	1	Sb-x	7.146E+09	0	1.429E+10	0.633744	1.839E+13	0	7.3548E+13	4.49	0	1.47	17.823	826.4007	55906.7375	9461.437	814565.144	1.0233	1.018
		Sb-y	4.167E+09	0	1.429E+10	0.633744	1.072E+13	0	7.3548E+13	16.01	0	1.78	22.462	890.0289	35197.4031	11092.54	466320.363	1.0405	1.038
	2	Sb-x	7.146E+09	7.15E+09	1.429E+10	0.471867	2.041E+13	2.04E+13	8.1637E+13	4.783	9.272	2.5	28.455	617.9508	24345.052	7163.431	402891.307	1.0406	1.028
		Sb-y	4.167E+09	4.17E+09	1.429E+10	0.471867	1.19E+13	1.19E+13	8.1637E+13	16.33	32.33	4.35	53.817	681.579	6805.93607	8133.267	85443.5429	1.1821	1.172
	3	Sb-x	7.146E+09	7.15E+09	1.429E+10	-0.03841	2.893E+13	2.89E+13	1.1571E+14	2.895	7.677	2.16	40.619	343.1665	16934.4121	4581.107	205282.245	1.0322	1.036
		Sb-y	4.167E+09	4.17E+09	1.429E+10	-0.03841	1.687E+13	1.69E+13	1.1571E+14	12.68	32.96	3.8	75.22	439.771	4938.07458	4678.788	48084.4307	1.1588	1.176
	atap	Sb-x	2.133E+09	7.15E+09	1.429E+10	0.435815	6.246E+12	2.09E+13	8.3687E+13	19.92	8.841	3.35	30.67	139.9413	21482.4331	1857.441	354949.743	1.0101	1.008
		Sb-y	0	4.17E+09	1.429E+10	0.435815	0	1.22E+13	8.3687E+13	0	0	1	9.65	193.8511	216993.796	1975.349	2447134.79	1.0014	1.001

Keterangan Tabel 7.13.a :

[1] Kolom yang ditinjau

[2] Lantai kolom yang ditinjau

[3] Arah bekerjanya momen

[4] Ib,a = Inersia balok atas; $I = 1/12.b.h\text{^}3$

[5] Ib,b = Inersia balok bawah

[6] Ik = Inersia kolom

[7] $\beta d = 1{,}2.MDI(1{,}2MD+1{,}6ML)$

[8] $Elb,a = [Ec(Ib,a/2{,}5)]/(1+\beta d)$

[9] $Elb,b = [Ec(Ib,b/2{,}5)]/(1+\beta d)$

[10] $Elk = [Ec(Ik/5)]/(1+\beta d)$

[11] $\Psi A = \sum[Elk/lk]/\sum[Elb,a/lb,a]$

[12] $\Psi B = \sum[Elk/lk]/\sum[Elb,b/lb,b]$

[13] k = faktor panjang efektif komponen struktur tekan

[14] kL/r > 22 kolom langsing r = $(L/A)\text{^}0{,}5$

[15] $Pu = Nu,k$ = gaya aksial terpakai kolom

[16] $Pc = [3{,}14\text{^}2.Elk]/[(k.L)\text{^}2]$

[17] $\sum Pu$ = Jumlah gaya-gaya aksial dalam lantai dan portal yang sama

[19] $\partial b = Cm/[1-(Pu/0{,}65Pc)]$ > 1 (faktor pembesaran momen) ; Cm = 1(faktor koreksi)

[20] $\partial s = 1/[1-(\sum Pu/0{,}65\sum Pc)]$ > 1 (faktor pembesaran momen)

Tabel 7.13.b Perhitungan Kelangsingan dan Faktor Pembesaran Momen Kolom Portal B

Klm	Lt.	Arah	Ib,a (mm^4)	Ib,b mm^4)	Ik (mm^4)	βd	Elb,a (Nmm^2)	Elb,b (Nmm^2)	Elk (Nmm^2)	ΨA	ΨB	k	kLr	Pu (kN)	Pc (kN)	∑Pu (kN)	∑Pc (kN)	∂b	∂s
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]
Kolom 500 mm x 500 mm																			
K1	1	Sb-x	2.658E+09	0	5.208E+09	0.612837	6.928E+12	0	2.7151E+13	0.85485	0	1.14	20.338	239.822	31065.3508	1215.235	191702.4246	1.012	1.01
		Sb-y	4.167E+09	0	5.208E+09	0.612837	1.086E+13	0	2.7151E+13	6.83529	0	1.57	27.737	81.0461	16701.7034	1030.871	137124.6106	1.008	1.012
K2	1	Sb-x	2.658E+09	0	5.208E+09	0.554007	7.19E+12	0	2.8179E+13	2.66358	0	1.35	24.084	61.51658	22990.9049	1215.235	191702.4246	1.004	1.01
		Sb-y	4.167E+09	0	5.208E+09	0.554007	1.127E+13	0	2.8179E+13	6.83235	0	1.57	27.737	92.586	17333.9845	1030.871	137124.6106	1.008	1.012
K3	1	Sb-x	2.658E+09	0	5.208E+09	0.534605	7.281E+12	0	2.8535E+13	3.25548	0	1.38	24.619	136.9388	22280.326	1215.235	191702.4246	1.01	1.01
		Sb-y	4.167E+09	0	5.208E+09	0.534605	1.141E+13	0	2.8535E+13	6.83235	0	1.57	27.737	159.1179	17553.1278	1030.871	137124.6106	1.014	1.012
K4	1	Sb-x	2.658E+09	0	5.208E+09	0.587012	7.04E+12	0	2.7593E+13	4.18562	0	1.45	25.868	169.3401	19514.6305	1215.235	191702.4246	1.014	1.01
		Sb-y	4.167E+09	0	5.208E+09	0.587012	1.104E+13	0	2.7593E+13	6.83235	0	1.57	27.737	182.6855	16973.4896	1030.871	137124.6106	1.017	1.012
Kolom 500 mm x 600 mm																			
K5	1	Sb-x	2.658E+09	0	9E+09	0.583973	7.054E+12	0	4.7771E+13	1.37409	0	1.2	17.84	27.70264	49329.8774	6269.36	434258.8743	1.001	1.023
		Sb-y	4.167E+09	0	9E+09	0.583973	1.106E+13	0	4.7771E+13	4.68525	0	1.48	21.789	282.9017	33069.163	7052.34	388733.6129	1.013	1.029
	2	Sb-x	2.658E+09	2.66E+09	9E+09	0.524972	7.327E+12	7.33E+12	4.962E+13	1.38757	2.7617	1.6	23.556	220.8316	29389.5171	2801.63	190874.6357	1.012	1.023
		Sb-y	4.167E+09	4.17E+09	9E+09	0.524972	1.149E+13	1.15E+13	4.962E+13	5.71359	11.315	2.7	38.971	51.91229	10737.5508	2931.309	125628.5576	1.007	1.037
K6	1	Sb-x	2.658E+09	0	9E+09	0.575561	7.091E+12	0	4.8026E+13	2.70649	0	1.35	20.07	369.8577	39184.774	6269.36	434258.8743	1.015	1.023
		Sb-y	4.167E+09	0	9E+09	0.575561	1.112E+13	0	4.8026E+13	5.24166	0	1.52	22.378	457.4049	31518.9552	7052.34	388733.6129	1.023	1.029
	2	Sb-x	2.658E+09	2.66E+09	9E+09	0.563208	7.147E+12	7.15E+12	4.8406E+13	2.73302	5.466	2	29.445	50.99002	18349.2114	2801.63	190874.6357	1.004	1.023
		Sb-y	4.167E+09	4.17E+09	9E+09	0.563208	1.121E+13	1.12E+13	4.8406E+13	6.20726	12.293	2.75	39.693	173.5919	10097.4649	2931.309	125628.5576	1.027	1.037
K7	1	Sb-x	2.658E+09	0	9E+09	0.578107	7.08E+12	0	4.7949E+13	3.13778	0	1.38	20.516	449.5143	37439.1074	6269.36	434258.8743	1.019	1.023
		Sb-y	4.167E+09	0	9E+09	0.578107	1.11E+13	0	4.7949E+13	4.90966	0	1.5	22.084	524.6126	32312.8487	7052.34	388733.6129	1.026	1.029
	2	Sb-x	2.658E+09	2.66E+09	9E+09	0.564286	7.143E+12	7.14E+12	4.8373E+13	3.16855	6.3371	2.1	30.917	94.01648	16631.8061	2801.63	190874.6357	1.009	1.023
		Sb-y	4.167E+09	4.17E+09	9E+09	0.564286	1.12E+13	1.12E+13	4.8373E+13	5.91148	11.707	2.7	38.971	190.7416	10467.6892	2931.309	125628.5576	1.029	1.037
K8	1	Sb-x	2.658E+09	0	9E+09	0.559583	7.164E+12	0	4.8518E+13	4.60266	0	1.49	22.151	647.1188	32496.6959	6269.36	434258.8743	1.032	1.023
		Sb-y	4.167E+09	0	9E+09	0.559583	1.123E+13	0	4.8518E+13	4.90966	0	1.5	22.084	630.2036	32696.6555	7052.34	388733.6129	1.031	1.029
	2	Sb-x	2.658E+09	2.66E+09	9E+09	0.558607	7.169E+12	7.17E+12	4.8549E+13	4.64779	9.2956	2.48	36.512	214.5368	11968.9011	2801.63	190874.6357	1.028	1.023
		Sb-y	4.167E+09	4.17E+09	9E+09	0.558607	1.124E+13	1.12E+13	4.8549E+13	5.91148	11.707	2.6	37.528	245.0175	11329.5142	2931.309	125628.5576	1.034	1.037
K9	1	Sb-x	2.658E+09	0	9E+09	0.561132	7.157E+12	0	4.847E+13	5.62547	0	1.52	22.597	823.3408	31195.612	6269.36	434258.8743	1.042	1.023
		Sb-y	4.167E+09	0	9E+09	0.561132	1.122E+13	0	4.847E+13	4.90966	0	1.495	22.01	819.6775	32883.0738	7052.34	388733.6129	1.04	1.029
	2	Sb-x	2.658E+09	2.66E+09	9E+09	0.547204	7.221E+12	7.22E+12	4.8907E+13	5.68063	11.361	2.625	38.646	397.8789	10761.8781	2801.63	190874.6357	1.06	1.023

Tabel 7.13.b Lanjutan

Klm	Lt.	Arah	Ib,a (mm^4)	Ib,b mm^4)	Ik (mm^4)	βd	Elb,a (Nmm^2)	Elb,b (Nmm^2)	Elk (Nmm^2)	ΨA	ΨB	k	kL/r	Pu (kN)	Pc (kN)	∑Pu (kN)	∑Pc (kN)	∂b	∂s
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]
K9		Sb-y	4.167E+09	4.17E+09	9E+09	0.547204	1.132E+13	1.13E+13	4.8907E+13	5.91148	11.707	2.75	39.693	396.1884	10201.9136	2931.309	125628.5576	1.064	1.037
K10	1	Sb-x	2.658E+09	0	9E+09	0.599227	6.986E+12	0	4.7316E+13	7.23275	0	1.6	23.787	817.146	27483.3703	6269.36	434258.8743	1.048	1.023
		Sb-y	4.167E+09	0	9E+09	0.599227	1.095E+13	0	4.7316E+13	4.90966	0	1.5	22.084	811.3699	31886.1102	7052.34	388733.6129	1.041	1.029
	2	Sb-x	2.658E+09	2.66E+09	9E+09	0.581584	7.064E+12	7.06E+12	4.7844E+13	7.30366	14.607	2.95	43.431	422.5612	8336.00404	2801.63	190874.6357	1.085	1.023
		Sb-y	4.167E+09	4.17E+09	9E+09	0.581584	1.107E+13	1.11E+13	4.7844E+13	5.91148	11.707	2.75	39.693	408.203	9980.14622	2931.309	125628.5576	1.067	1.037
Kolom 500 mm x 700 mm																			
K11	1	Sb-x	7.146E+09	0	1.429E+10	0.679666	1.788E+13	0	7.1537E+13	0.97038	0	1.15	13.943	18.76745	88851.3702	5851.155	766888.6423	1	1.012
		Sb-y	4.167E+09	0	1.429E+10	0.679666	1.043E+13	0	7.1537E+13	15.3045	0	1.76	22.21	428.9334	35017.5923	7624.861	411739.4651	1.019	1.029
	2	Sb-x	7.146E+09	7.15E+09	1.429E+10	0.685576	1.782E+13	1.78E+13	7.1287E+13	1.03366	2.004	1.45	16.504	18.71238	63193.8706	4351.779	383659.8874	1	1.018
		Sb-y	4.167E+09	4.17E+09	1.429E+10	0.685576	1.039E+13	1.04E+13	7.1287E+13	15.6106	30.915	4.3	53.199	314.5302	6082.04606	5517.649	68584.5884	1.086	1.141
	3	Sb-x	7.146E+09	7.15E+09	1.429E+10	0.635021	1.837E+13	1.84E+13	7.3491E+13	0.62564	1.6593	1.35	25.387	511.8151	27533.211	1820.683	281159.8416	1.029	1.01
		Sb-y	4.167E+09	4.17E+09	1.429E+10	0.635021	1.071E+13	1.07E+13	7.3491E+13	12.3154	32.02	3.95	78.19	16.99787	2902.53469	2018.017	63598.10054	1.009	1.051
	atap	Sb-x	2.133E+09	7.15E+09	1.429E+10	0.862001	4.816E+12	1.61E+13	6.4532E+13	4.30457	1.9107	1.82	16.662	125.858	56124.045	666.4962	950619.3836	1.003	1.001
		Sb-y	0	4.17E+09	1.429E+10	0.862001	0	9.41E+12	6.4532E+13	0	0	1	9.65	51.5592	167326.981	391.0113	6044711.503	1	1
K12	1	Sb-x	7.146E+09	0	1.429E+10	0.687669	1.78E+13	0	7.1198E+13	3.75636	0	1.425	17.277	613.1537	57592.4944	5851.155	766888.6423	1.017	1.012
		Sb-y	4.167E+09	0	1.429E+10	0.687669	1.038E+13	0	7.1198E+13	17.0451	0	1.76	22.21	699.604	34851.5493	7624.861	411739.4651	1.032	1.029
	2	Sb-x	7.146E+09	7.15E+09	1.429E+10	0.700177	1.767E+13	1.77E+13	7.0674E+13	4.00134	7.7577	2.3	26.179	450.3401	24900.5777	4351.779	383659.8874	1.029	1.018
		Sb-y	4.167E+09	4.17E+09	1.429E+10	0.700177	1.03E+13	1.03E+13	7.0674E+13	17.386	34.431	4.5	55.673	504.6868	5505.74029	5517.649	68584.5884	1.164	1.141
	3	Sb-x	7.146E+09	7.15E+09	1.429E+10	0.648554	1.822E+13	1.82E+13	7.2887E+13	2.42187	6.4232	2	37.61	102.1643	12441.8444	1820.683	281159.8416	1.013	1.01
		Sb-y	4.167E+09	4.17E+09	1.429E+10	0.648554	1.062E+13	1.06E+13	7.2887E+13	13.2227	34.379	4.1	81.159	197.6407	2671.92495	2018.017	63598.10054	1.128	1.051
	atap	Sb-x	2.133E+09	7.15E+09	1.429E+10	1.146363	4.178E+12	1.4E+13	5.5983E+13	16.6631	7.3965	3.15	28.839	55.34043	16253.5121	666.4962	950619.3836	1.005	1.001
		Sb-y	0	4.17E+09	1.429E+10	1.146363	0	8.16E+12	5.5983E+13	0	0	1	9.65	9.095278	145158.529	391.0113	6044711.503	1	1
K13	1	Sb-x	7.146E+09	0	1.429E+10	0.697475	1.77E+13	0	7.0787E+13	3.06528	0	1.365	16.55	523.8053	62404.231	5851.155	766888.6423	1.013	1.012
		Sb-y	4.167E+09	0	1.429E+10	0.697475	1.032E+13	0	7.0787E+13	16.0067	0	1.77	22.336	643.4624	34259.7835	7624.861	411739.4651	1.03	1.029
	2	Sb-x	7.146E+09	7.15E+09	1.429E+10	0.711999	1.755E+13	1.75E+13	7.0186E+13	3.26519	6.3305	2.11	24.016	389.5304	29382.6455	4351.779	383659.8874	1.021	1.018
		Sb-y	4.167E+09	4.17E+09	1.429E+10	0.711999	1.023E+13	1.02E+13	7.0186E+13	16.3268	32.333	4.4	54.436	461.1057	5719.07916	5517.649	68584.5884	1.142	1.141
	3	Sb-x	7.146E+09	7.15E+09	1.429E+10	0.660217	1.809E+13	1.81E+13	7.2375E+13	1.9763	5.2415	1.86	34.978	44.06774	14284.2345	1820.683	281159.8416	1.005	1.01
		Sb-y	4.167E+09	4.17E+09	1.429E+10	0.660217	1.055E+13	1.06E+13	7.2375E+13	12.6773	32.961	3.8	75.22	183.3712	3088.60861	2018.017	63598.10054	1.101	1.051
	atap	Sb-x	2.133E+09	7.15E+09	1.429E+10	0.887667	4.751E+12	1.59E+13	6.3655E+13	13.5975	6.0357	2.82	25.817	57.30772	23059.4015	666.4962	950619.3836	1.004	1.001

Tabel 7.13.b Lanjutan

Klm	Lt.	Arah	Ib,a (mm^4)	Ib,b mm^4)	Ik (mm^4)	βd	Elb,a (Nmm^2)	Elb,b (Nmm^2)	Elk (Nmm^2)	ΨA	ΨB	k	kL/r	Pu (kN)	Pc (kN)	∑Pu (kN)	∑Pc (kN)	∂b	∂s
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]
K13	atap	Sb-y	0	4.17E+09	1.429E+10	0.887667	0	9.28E-12	6.3655E+13	0	0	1	9.65	21.6554	165051.882	391.0113	6044711.503	1	1
K14	1	Sb-x	7.146E+09	0	1.429E+10	0.690909	1.777E+13	0	7.1062E+13	2.85714	0	1.35	16.368	487.9172	64046.4441	5851.155	766888.6423	1.012	1.012
		Sb-y	4.167E+09	0	1.429E+10	0.690909	1.036E+13	0	7.1062E+13	16.0067	0	1.77	22.336	593.8679	34392.8238	7624.861	411739.4651	1.027	1.029
	2	Sb-x	7.146E+09	7.15E+09	1.429E+10	0.72306	1.743E+13	1.74E+13	6.9736E+13	3.04348	5.9006	2.15	24.471	341.8901	28117.8455	4351.779	383659.8874	1.019	1.018
		Sb-y	4.167E+09	4.17E+09	1.429E+10	0.72306	1.017E+13	1.02E+13	6.9736E+13	16.3268	32.333	4.4	54.436	421.0834	5682.36678	5517.649	68584.5884	1.129	1.141
	3	Sb-x	7.146E+09	7.15E+09	1.429E+10	0.676097	1.792E+13	1.79E+13	7.169E+13	1.84211	4.8856	1.84	34.601	6.022511	14458.1566	1820.683	281159.8416	1.001	1.01
		Sb-y	4.167E+09	4.17E+09	1.429E+10	0.676097	1.045E+13	1.05E+13	7.169E+13	12.6773	32.961	3.8	75.22	158.2968	3059.34593	2018.017	63598.10054	1.086	1.051
	atap	Sb-x	2.133E+09	7.15E+09	1.429E+10	0.859115	6.366E+13	2.13E+14	8.5289E+14	12.6742	5.6259	2.68	24.536	61.728	342087.4	666.4962	950619.3836	1	1.001
		Sb-y	0	4.17E+09	1.429E+10	0.859115	0	1.24E+14	8.5289E+14	0	0	1	9.65	22.9874	2211469.22	391.0113	6044711.503	1	1
K15	1	Sb-x	7.146E+09	0	1.429E+10	0.708706	1.758E+13	0	7.0322E+13	3.49206	0	1.4	16.974	644.2108	58933.1239	5851.155	766888.6423	1.017	1.012
		Sb-y	4.167E+09	0	1.429E+10	0.708706	1.025E-13	0	7.0322E+13	16.0067	0	1.77	22.336	737.6163	34034.6124	7624.861	411739.4651	1.034	1.029
	2	Sb-x	7.146E+09	7.15E+09	1.429E+10	0.726342	1.74E+13	1.74E+13	6.9603E+13	3.71981	7.2119	2.25	25.61	456.2561	25625.2059	4351.779	383659.8874	1.028	1.018
		Sb-y	4.167E+09	4.17E+09	1.429E+10	0.726342	1.015E+13	1.01E+13	6.9603E+13	16.3268	32.333	4.4	54.436	507.4562	5671.56223	5517.649	68584.5884	1.16	1.141
	3	Sb-x	7.146E+09	7.15E+09	1.429E+10	0.708643	1.758E+13	1.76E+13	7.0324E+13	2.25146	5.9713	1.94	36.482	61.07347	12758.3071	1820.683	281159.8416	1.007	1.01
		Sb-y	4.167E+09	4.17E+09	1.429E+10	0.708643	1.025E+13	1.03E+13	7.0324E+13	12.6773	32.961	3.8	75.22	178.6159	3001.0728	2018.017	63598.10054	1.101	1.051
	atap	Sb-x	2.133E+09	7.15E+09	1.429E+10	0.867131	4.803E+12	1.61E+13	6.4355E+13	15.4907	6.8761	2.95	27.008	30.68254	21303.585	666.4962	950619.3836	1.002	1.001
		Sb-y	0	4.17E+09	1.429E+10	0.867131	0	9.38E+12	6.4355E+13	0	0	1	9.65	38.63006	166867.192	391.0113	6044711.503	1	1
K16	1	Sb-x	7.146E+09	0	1.429E+10	0.7457	1.721E+13	0	6.8831E+13	4.4898	0	1.48	17.944	637.7232	51616.6576	5851.155	766888.6423	1.019	1.012
		Sb-y	4.167E+09	0	1.429E+10	0.7457	1.003E+13	0	6.8831E+13	16.0067	0	1.77	22.336	708.9463	33313.3713	7624.861	411739.4651	1.034	1.029
	2	Sb-x	7.146E+09	7.15E+09	1.429E+10	0.738624	1.728E+13	1.73E+13	6.9111E+13	4.78261	9.2724	2.5	28.455	519.1603	20609.7985	4351.779	383659.8874	1.04	1.018
		Sb-y	4.167E+09	4.17E+09	1.429E+10	0.738624	1.007E+13	1.01E+13	6.9111E+13	16.3268	32.333	4.4	54.436	549.9621	5631.49969	5517.649	68584.5884	1.177	1.141
	3	Sb-x	7.146E+09	7.15E+09	1.429E+10	0.699702	1E+14	1E+14	4.0013E+14	2.89474	7.6773	2.15	40.431	185.1983	59104.1672	1820.683	281159.8416	1.005	1.01
		Sb-y	4.167E+09	4.17E+09	1.429E+10	0.699702	5.833E+13	5.83E+13	4.0013E+14	12.6773	32.961	3.8	75.22	274.0862	17075.5633	2018.017	63598.10054	1.025	1.051
	atap	Sb-x	2.133E+09	7.15E+09	1.429E+10	0.871452	4.792E+12	1.61E+13	6.4206E+13	19.9166	8.8407	3.35	30.67	2.331482	16481.7487	666.4962	950619.3836	1	1.001
		Sb-y	0	4.17E+09	1.429E+10	0.871452	0	9.36E+12	6.4206E+13	0	0	1	9.65	51.57832	166481.943	391.0113	6044711.503	1	1

Keterangan Tabel 7.13.b :

[1] Kolom yang ditinjau

[2] Lantai kolom yang ditinjau

[3] Arah bekerjanya momen

[4] Ib,a = Inersia balok atas; $I = 1/12.b.h\text{^}3$

[5] Ib,b = Inersia balok bawah

[6] Ik = Inersia kolom

[7] $\beta d = 1{,}2.MD/(1{,}2MD+1{,}6ML)$

[8] $EIb.a = [Ec(Ib,a/2{,}5)]/(1+\beta d)$

[9] $EIb.b = [Ec(Ib,b/2{,}5)]/(1+\beta d)$

[10] $EIk = [Ec(Ik/5)]/(1+\beta d)$

[11] $\Psi A = \sum[EIk/Ik]/\sum[EIb,a/Ib,a]$

[12] $\Psi B = \sum[EIk/Ik]/\sum[EIb,b/Ib,b]$

[13] k = faktor panjang efektif komponen struktur tekan

[14] $kL/r > 22$ kolom langsing $r = (L/A)\text{^}0{,}5$

[15] $Pu = Nu,k$ = gaya aksial terpakai kolom

[16] $Pc = [3{,}14\text{^}2.EIk]/[(k.L)\text{^}2]$

[17] $\sum Pu$ = Jumlah gaya-gaya aksial dalam lantai dan portal yang sama

[19] $\partial b = Cm/[1-(Pu/0{,}65Pc)] > 1$ (faktor pembesaran momen) ; $Cm = 1$(faktor koreksi)

[20] $\partial s = 1/[1-(\sum Pu/0{,}65\sum Pc)] > 1$ (faktor pembesaran momen)

Tabel 7.14.a Penulangan Kombinasi Lentur dan Aksial Kolom Portal A

Kolom	Lt.	Arah	Mu,k (kNm)	∂s	Mc (kNm)	Pu (kN)	eb (m)	e (m)	Tulangan total	Ast (mm^2)	ρg	As' (mm^2)	Cek rumus Whitney		ϕ Pn > Pu (kN)
													Patah tarik Pn(kN)	Patah desak Pn(kN)	
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]
Kolom ukuran 500 mm x 500 mm															
K1	1	sb-x	389.0774	1.0083	392.3056	196.4958	0.226	0.1017	8D22	3039.52	0.0122	1519.76		3333.004644	ok
		sb-y	19.75752	1.0111	19.97764	196.4958	0.335	1.9965	**20D22**	7598.8	0.0304	3799.4	327.0619167		ok
K2	1	sb-x	445.6649	1.0083	449.3626	234.984	0.226	0.7659	8D22	3039.52	0.0122	1519.76	426.9878027		ok
		sb-y	177.989	1.0111	179.972	234.984	0.371	1.9123	**24D22**	9118.56	0.0365	4559.28	410.9205378		ok
K3	1	sb-x	268.7389	1.0083	270.9687	200.813	0.226	0.3123	8D22	3039.52	0.0122	1519.76	1521.467309		ok
		sb-y	62.02913	1.0111	62.7202	200.813	0.262	1.3494	**12D25**	4559.28	0.0182	2279.64	310.0451569		ok
K4	1	sb-x	338.5384	1.0083	341.3473	131.104	0.226	1.1721	8D22	3039.52	0.0122	1519.76	246.6507664		ok
		sb-y	151.9677	1.0111	153.6607	131.104	0.335	2.6036	**20D22**	7598.8	0.0304	3799.4	243.8821		ok
Kolom ukuran 500 mm x 600 mm															
K5	1	sb-x	261.9096	1.0258	268.6762	247.7914	0.252	0.1671	8D22	3039.52	0.0101	1519.76		3429.919642	ok
		sb-y	40.08549	1.0329	41.40478	247.7914	0.288	1.0843	**12D22**	4559.28	0.0152	2279.64	405.6597017		ok
	2	sb-x	313.879	1.0305	323.4498	133.8142	0.252	1.3337	8D22	3039.52	0.0101	1519.76	277.8788107		ok
		sb-y	170.4872	1.0468	178.4721	133.8142	0.324	2.4172	**16D22**	6079.04	0.0203	3039.52	212.167713		ok
K6	1	sb-x	140.57	1.0258	144.2028	408.4915	0.252	0.1095	8D22	3039.52	0.0101	1519.76		4067.341325	ok
		sb-y	43.31772	1.0329	44.74338	408.4915	0.252	0.353	**8D22**	3039.52	0.0101	1519.76	1361.011782		ok
	2	sb-x	404.3071	1.0305	416.6352	189.2207	0.252	1.0754	8D22	3039.52	0.0101	1519.76	366.1351554		ok
		sb-y	194.3874	1.0468	203.4916	189.2207	0.361	2.2018	**20D22**	7598.8	0.0253	3799.4	293.7114101		ok
K7	1	sb-x	126.1745	1.0258	129.4353	804.4716	0.252	0.0021	8D22	3039.52	0.0101	1519.76		6233.602417	ok
		sb-y	1.664544	1.0329	1.719327	804.4716	0.252	0.1609	**8D22**	3039.52	0.0101	1519.76		3130.920304	ok
	2	sb-x	249.8671	1.0305	257.4861	375.6258	0.252	0.4911	8D22	3039.52	0.0101	1519.76	1132.318528		ok
		sb-y	176.2127	1.0468	184.4657	375.6258	0.278	0.6955	**8D25**	3925	0.0131	1962.5	639.0179596		ok
K8	1	sb-x	126.4317	1.0258	129.6991	1092.669	0.252	0.047	8D22	3039.52	0.0101	1519.76		5098.868712	ok
		sb-y	49.67433	1.0329	51.30919	1092.669	0.252	0.1187	**8D22**	3039.52	0.0101	1519.76		3605.897547	ok
	2	sb-x	232.9589	1.0305	240.0623	566.5771	0.252	0.2306	8D22	3039.52	0.0101	1519.76		2924.41716	ok
		sb-y	124.8278	1.0468	130.6742	566.5771	0.252	0.4237	**8D22**	3039.52	0.0101	1519.76	1030.295706		ok
K9	1	sb-x	88.09115	1.0258	90.36772	973.662	0.252	0.0229	8D22	3039.52	0.0101	1519.76		5650.29486	ok
		sb-y	21.60097	1.0329	22.31189	973.662	0.252	0.0928	**8D22**	3039.52	0.0101	1519.76		3976.195314	ok

Tabel 7.14.a Lanjutan

Kolom	Lt.	Arah	Mu,k (kNm)	∂s	Mc (kNm)	Pu (kN)	eb (m)	e (m)	Tulangan total	Ast (mm^2)	ρg	As' (mm^2)	Cek rumus Whitney		ϕ Pn > Pu (kN)
													Patah tarik Pn(kN)	Patah desak Pn(kN)	
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]
K9	2	sb-x	148.408	1.0305	152.9332	522.7761	0.252	0.1573	8D22	3039.52	0.0101	1519.76		3524.12526	ok
		sb-y	78.54006	1.0468	82.21853	522.7761	0.252	0.2925	8D22	3039.52	0.0101	1519.76	1779.850614		ok
K10	1	sb-x	121.0028	1.0258	124.13	733.4298	0.252	0.0597	8D22	3039.52	0.0101	1519.76		4847.83427	ok
		sb-y	42.40797	1.0329	43.80368	733.4298	0.252	0.1692	8D22	3039.52	0.0101	1519.76		3051.399032	ok
	2	sb-x	299.596	1.0305	308.7313	317.4267	0.252	0.6124	8D22	3039.52	0.0101	1519.76	810.2851827		ok
		sb-y	185.7098	1.0468	194.4076	317.4267	0.324	0.9726	12D25	5887.5	0.0196	2943.75	595.1856303		ok
K11	1	sb-x	115.7679	1.0258	118.7597	346.3129	0.252	0.1068	8D22	3039.52	0.0101	1519.76		4103.644368	ok
		sb-y	35.80592	1.0329	36.98435	346.3129	0.252	0.3429	8D22	3039.52	0.0101	1519.76	1420.884684		ok
	2	sb-x	176.2906	1.0305	181.666	229.4118	0.252	0.2521	8D22	3039.52	0.0101	1519.76		2785.660615	ok
		sb-y	55.25217	1.0468	57.83994	229.4118	0.252	0.7919	8D22	3039.52	0.0101	1519.76	411.0197958		ok
Kolom ukuran 500 mm x 700 mm															
K12	1	sb-x	309.3031	1.0182	314.9308	462.7557	0.304	0.4598	8D25	3925	0.0112	1962.5	1971.354127		ok
		sb-y	204.9965	1.038	212.7835	462.7557	0.314	0.6806	12D22	4559.28	0.013	2279.64	749.9076699		ok
	2	sb-x	195.67	1.0281	201.1728	168.8825	0.304	1.3536	8D25	3925	0.0112	1962.5	442.1998295		ok
		sb-y	195.1242	1.1716	228.6016	168.8825	0.304	1.1912	8D25	3925	0.0112	1962.5	312.5742506		ok
	3	sb-x	539.3929	1.0356	558.57	526.5264	0.304	0.2902	8D25	3925	0.0112	1962.5		3408.501272	ok
		sb-y	129.9295	1.1761	152.8039	526.5264	0.444	1.0609	20D25	9812.5	0.028	4906.25	879.6119598		ok
	atap	sb-x	233.1286	1.0081	235.0207	78.1189	0.304	0.9973	8D25	3925	0.0112	1962.5	663.3694862		ok
		sb-y	77.813	1.0012	77.90975	78.1189	0.314	3.0085	12D22	4559.28	0.013	2279.64	125.3742305		ok
K13	1	sb-x	367.5262	1.0182	374.2133	844.3118	0.304	0.0781	8D25	3925	0.0112	1962.5		5666.847586	ok
		sb-y	63.49368	1.038	65.90555	844.3118	0.35	0.4432	12D25	5887.5	0.0168	2943.75	1692.71126		ok
	2	sb-x	135.79	1.0281	139.6089	633.2726	0.304	0.2138	8D25	3925	0.0112	1962.5		3979.353008	ok
		sb-y	115.551	1.1716	135.376	633.2726	0.304	0.2205	8D25	3925	0.0112	1962.5		3150.507719	ok
	3	sb-x	512.5527	1.0356	530.7756	373.4214	0.304	0.626	8D25	3925	0.0112	1962.5	1293.279244		ok
		sb-y	198.7604	1.1761	233.7527	373.4214	0.444	1.4214	20D25	9812.5	0.028	4906.25	622.7297307		ok
	atap	sb-x	175.6574	1.0081	177.083	119.5992	0.304	0.4546	8D25	3925	0.0112	1962.5	2031.830363		ok
		sb-y	54.298	1.0012	54.36551	119.5992	0.304	1.4806	8D25	3925	0.0112	1962.5	240.4212332		ok

Tabel 7.14.a Lanjutan

Kolom	Lt.	Arah	Mu,k (kNm)	∂s	Mc (kNm)	Pu (kN)	eb (m)	e (m)	Tulangan total	Ast (mm^2)	ρg	As' (mm^2)	Cek rumus Whitney		ϕ Pn > Pu (kN)
													Patah tarik Pn(kN)	Patah desak Pn(kN)	
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]
K14	1	sb-x	123.4244	1.0182	125.6701	964.9132	0.304	0.0445	8D25	3925	0.0112	1962.5		6331.62432	ok
		sb-y	41.39137	1.038	42.96367	964.9132	0.304	0.1302	**8D25**	3925	0.0112	1962.5		4129.165948	ok
	2	sb-x	292.8723	1.0281	301.1088	697.0521	0.304	0.2557	8D25	3925	0.0112	1962.5		3644.615502	ok
		sb-y	152.1252	1.1716	178.2253	697.0521	0.314	0.432	**12D22**	4559.28	0.013	2279.64	1431.196225		ok
	3	sb-x	496.4198	1.0356	514.0691	402.1208	0.304	0.5645	8D22	3925	0.0112	1962.5	1503.22906		ok
		sb-y	193.0012	1.1761	226.9795	402.1208	0.444	1.2784	**20D25**	9812.5	0.028	4906.25	704.8605321		ok
	atap	sb-x	87.37059	1.0081	88.0797	148.0445	0.304	0.556	8D25	3925	0.0112	1962.5	1536.358144		ok
		sb-y	82.207	1.0012	82.30922	148.0445	0.304	0.595	**8D25**	3925	0.0112	1962.5	788.938739		ok
K15	1	sb-x	90.24621	1.0182	91.88822	1049.216	0.304	0.0077	8D25	3925	0.0112	1962.5		7270.294297	ok
		sb-y	7.757784	1.038	8.052472	1049.216	0.304	0.0876	**8D25**	3925	0.0112	1962.5		4841.033625	ok
	2	sb-x	285.7407	1.0281	293.7766	753.5429	0.304	0.1735	8D25	3925	0.0112	1962.5		4364.366763	ok
		sb-y	111.6156	1.1716	130.7654	753.5429	0.304	0.3899	**8D25**	3925	0.0112	1962.5	1477.246678		ok
	3	sb-x	420.4075	1.0356	435.3543	426.4339	0.304	0.4683	8D25	3925	0.0112	1962.5	1952.865824		ok
		sb-y	169.7936	1.1761	199.6862	426.4339	0.388	1.0209	**16D25**	7850	0.0224	3925	743.7345206		ok
	atap	sb-x	73.56404	1.0081	74.16109	180.4467	0.304	0.4173	8D25	3925	0.0112	1962.5	2267.940229		ok
		sb-y	75.21528	1.0012	75.30881	180.4467	0.304	0.411	**8D25**	3925	0.0112	1962.5	1365.968642		ok
K16	1	sb-x	98.48345	1.0182	100.2753	890.0289	0.304	0.0321	8D25	3925	0.0112	1962.5		6618.609729	ok
		sb-y	27.56089	1.038	28.60782	890.0289	0.304	0.1127	**8D25**	3925	0.0112	1962.5		4395.349433	ok
	2	sb-x	297.2208	1.0281	305.5796	681.579	0.304	0.1937	8D25	3925	0.0112	1962.5		4162.775536	ok
		sb-y	112.6715	1.1716	132.0025	681.579	0.304	0.4483	**8D25**	3925	0.0112	1962.5	1199.288024		ok
	3	sb-x	365.8758	1.0356	378.8838	439.771	0.304	0.3582	8D25	3925	0.0112	1962.5	2712.949243		ok
		sb-y	133.9595	1.1761	157.5433	439.771	0.35	0.8615	**12D25**	5887.5	0.0168	2943.75	698.1772478		ok
	atap	sb-x	83.26358	1.0081	83.93935	193.8511	0.304	0.1216	8D25	3925	0.0112	1962.5		4987.413226	ok
		sb-y	23.54633	1.0012	23.57561	193.8511	0.304	0.433	**8D25**	3925	0.0112	1962.5	1263.467842		ok

Keterangan Tabel 7.14.a :

[1] Kolom yang ditinjau

[2] Tingkat lantai pada kolom yang ditinjau

[3] Arah bekerjanya momen

[4] Mu,k = Momen rencana kolom terpakai

[5] ∂s = Faktor pembesaran momen

[6] $Mc = \partial s.Mu,k$ (Momen rencana yang telah diperbesar)

[7] $Pu = Nu,k$ = gaya aksial rencana kolom terpakai

[8] $eb = Mnb/Pnb$ (eksentrisitas kolom pada kondisi seimbang)

[9] $e = Mc/Pu$ (eksentrisitas kolom yang terjadi)

bila $e > eb$ (patah tarik), sedangkan $e < eb$ (patah desak)

[10] Tulangan total yang dipakai

(Cetak tebal adalah tulangan kolom yang dipakai dalam perencanaan)

[11] Ast = luas tulangan total kolom

[12] $\rho g = Ast/(b.h)$

[13] As' = luas tulangan desak kolom

[14] Patah tarik : $Pn = 0,85fc'.b.d.\{ 1-e'/d + [(1-e'/d)^0,5+2\rho m(1-d'/d)]^0,5\}$

[15] Patah desak : $Pn = \{b.h.fc'/[(3h.e/d^2)+1,18]\} + \{As'.fy/[(e/d-d')+0,5]\}$

[16] $\phi Pn > Pu$ (tulangan kolom terpasang aman digunakan)

$\phi = 0.65$

Tabel 7.14.b Penulangan Kombinasi Lentur dan Aksial Kolom Portal B

Kolom	Lt.	Arah	Mu,k (kNm)	δs	Mc (kNm)	Pu (kN)	eb (m)	e (m)	Tulangan total	Ast (mm^2)	ρg	As' (mm^2)	Cek rumus Whitney: Patah tarik Pn(kN)	Cek rumus Whitney: Patah desak Pn(kN)	ϕ Pn > Pu (kN)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]
Kolom ukuran 500 mm x 500 mm															
K1	1	sb-x	298.35976	1.0098	301.2982	239.822	0.226	0.1769	8D22	3039.52	0.0122	1519.76		2589.838179	ok
		sb-y	41.936517	1.0117	42.42722	239.822	0.298	1.2563	**12D25**	5887.5	0.0236	2943.75	433.6390465		ok
K2	1	sb-x	377.50535	1.0098	381.2233	92.586	0.226	1.4513	8D22	3039.52	0.0122	1519.76	190.5201116		ok
		sb-y	132.8143	1.0117	134.3684	92.586	0.355	4.1175	**20D22**	7598.8	0.0304	3799.4	148.9857611		ok
K3	1	sb-x	191.26961	1.0098	193.1534	159.118	0.226	0.2481	8D22	3039.52	0.0122	1519.76	1997.702125		ok
		sb-y	39.024129	1.0117	39.48075	159.118	0.252	1.2139	**8D25**	3925	0.0157	1962.5	303.8377326		ok
K4	1	sb-x	217.82115	1.0098	219.9664	182.685	0.226	0.5747	8D22	3039.52	0.0122	1519.76	637.7411516		ok
		sb-y	103.77638	1.0117	104.9907	182.685	0.252	1.2041	**8D25**	3925	0.0157	1962.5	306.8545788		ok
Kolom ukuran 500 mm x 600 mm															
K5	1	sb-x	139.40387	1.0227	142.5705	282.902	0.252	0.1062	8D22	3039.52	0.0101	1519.76		4111.15051	ok
		sb-y	29.21508	1.0287	30.0539	282.902	0.252	0.504	**8D25**	3039.52	0.0101	1519.76	789.3476604		ok
	2	sb-x	237.54762	1.0231	243.0357	220.832	0.252	0.6209	8D22	3039.52	0.0101	1519.76	793.7176609		ok
		sb-y	132.20085	1.0372	137.1232	220.832	0.288	1.1005	**12D22**	4559.28	0.0152	2279.64	398.25		ok
K6	1	sb-x	130.80912	1.0227	133.7805	457.405	0.252	0.0465	8D22	3039.52	0.0101	1519.76		5106.752508	ok
		sb-y	20.71	1.0287	21.30462	457.405	0.252	0.2925	**8D22**	3039.52	0.0101	1519.76	1780.371027		ok
	2	sb-x	252.92588	1.0231	258.7692	173.592	0.252	0.8123	8D22	3039.52	0.0101	1519.76	536.4801772		ok
		sb-y	135.95468	1.0372	141.0168	173.592	0.288	1.4907	**12D22**	4559.28	0.0152	2279.64	276.2717977		ok
K7	1	sb-x	100.11732	1.0227	102.3915	524.613	0.252	0.0094	8D22	3039.52	0.0101	1519.76		6016.60151	ok
		sb-y	4.7904014	1.0287	4.927943	524.613	0.252	0.1952	**8D22**	3039.52	0.0101	1519.76		2828.390932	ok
	2	sb-x	157.74655	1.0231	161.391	190.742	0.252	0.2667	8D22	3039.52	0.0101	1519.76	2527.858785		ok
		sb-y	49.050863	1.0372	50.87721	190.742	0.278	0.8461	**8D25**	3925	0.0131	1962.5	481.3471725		ok
K8	1	sb-x	89.390368	1.0227	91.42088	647.119	0.252	0.0458	8D22	3039.52	0.0101	1519.76		5123.576888	ok
		sb-y	28.791361	1.0287	29.61802	647.119	0.252	0.1413	**8D22**	3039.52	0.0101	1519.76		3335.169359	ok
	2	sb-x	145.40618	1.0231	148.7655	245.018	0.252	0.235	8D22	3039.52	0.0101	1519.76		2894.818678	ok
		sb-y	55.523486	1.0372	57.59083	245.018	0.252	0.6072	**8D22**	3039.52	0.0101	1519.76	597.7368695		ok
K9	1	sb-x	120.58538	1.0227	123.3245	823.341	0.252	0.0885	8D22	3039.52	0.0101	1519.76		4364.105176	ok
		sb-y	70.821652	1.0287	72.85507	823.341	0.252	0.1498	**8D22**	3039.52	0.0101	1519.76		3243.375289	ok

Tabel 7.14.b Lanjutan

Kolom	Lt.	Arah	Mu,k (kNm)	∂s	Mc (kNm)	Pu (kN)	eb (m)	e (m)	Tulangan total	Ast (mm^2)	ρg	As' (mm^2)	Cek rumus Whitney		ϕ Pn > Pu (kN)
													Patah tarik Pn(kN)	Patah desak Pn(kN)	
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]
K9	2	sb-x	204.98369	1.0231	209.7194	397.879	0.252	0.381	8D22	3039.52	0.0101	1519.76	1637.295		ok
		sb-y	146.14218	1.0372	151.5836	397.879	0.252	0.5271	**8D22**	3039.52	0.0101	1519.76	737.4568318		ok
K10	1	sb-x	71.889318	1.0227	73.5223	817.146	0.252	0.0416	8D22	3039.52	0.0101	1519.76		5211.305743	ok
		sb-y	33.076454	1.0287	34.02614	817.146	0.252	0.09	**8D22**	3039.52	0.0101	1519.76		4021.479764	ok
	2	sb-x	167.78803	1.0231	171.6644	422.561	0.252	0.2601	8D22	3039.52	0.0101	1519.76	2592.319357		ok
		sb-y	105.95121	1.0372	109.8962	422.561	0.252	0.4062	**8D22**	3039.52	0.0101	1519.76	1099.30907		ok
Kolom ukuran 500 mm x 700 mm															
K11	1	sb-x	96.03949	1.0119	97.1802	428.933	0.304	0.1046	8D25	3925	0.0112	1962.5		5233.043827	ok
		sb-y	43.570893	1.0293	44.84864	428.933	0.304	0.2266	**8D25**	3925	0.0112	1962.5		3100.790322	ok
	2	sb-x	134.66408	1.0178	137.0558	314.530	0.304	0.658	8D25	3925	0.0112	1962.5	1202.277766		ok
		sb-y	181.3387	1.1413	206.9532	314.530	0.304	0.4357	**8D25**	3925	0.0112	1962.5	1251.596583		ok
	3	sb-x	349.64706	1.0101	353.1655	511.815	0.304	0.4506	8D25	3925	0.0112	1962.5	2055.380646		ok
		sb-y	219.37118	1.0513	230.6297	511.815	0.35	0.69	**12D25**	5887.5	0.0168	2943.75	933.6386177		ok
	atap	sb-x	294.8999	1.0011	295.2183	125.858	0.304	0.5205	8D25	3925	0.0112	1962.5	1687.715041		ok
		sb-y	65.502	1.0001	65.50852	125.858	0.35	2.3456	**8D25**	5887.5	0.0168	2943.75	212.6077205		ok
K12	1	sb-x	86.379665	1.0119	87.40564	699.604	0.304	0.0939	8D25	3925	0.0112	1962.5		5399.379976	ok
		sb-y	63.815592	1.0293	65.68703	699.604	0.304	0.1249	**8D25**	3925	0.0112	1962.5		4206.030029	ok
	2	sb-x	182.07078	1.0178	185.3044	504.687	0.304	0.3209	8D25	3925	0.0112	1962.5	3040.47806		ok
		sb-y	141.90658	1.1413	161.9512	504.687	0.304	0.3672	**8D25**	3925	0.0112	1962.5	1612.965586		ok
	3	sb-x	347.53072	1.0101	351.0278	197.641	0.304	0.9275	8D25	3925	0.0112	1962.5	733.5656689		ok
		sb-y	174.36614	1.0513	183.3149	197.641	0.35	1.7761	**12D25**	5887.5	0.0168	2943.75	290.8707696		ok
	atap	sb-x	105.65685	1.0011	105.7709	55.340	0.304	1.1646	8D25	3925	0.0112	1962.5	538.0001592		ok
		sb-y	64.445	1.0001	64.45141	55.340	0.304	1.9113	**8D25**	3925	0.0112	1962.5	178.7524341		ok
K13	1	sb-x	123.50761	1.0119	124.9746	643.462	0.304	0.0414	8D25	3925	0.0112	1962.5		6401.155783	ok
		sb-y	25.894842	1.0293	26.65423	643.462	0.304	0.1942	**8D25**	3925	0.0112	1962.5		3383.625698	ok
	2	sb-x	232.38257	1.0178	236.5098	461.106	0.304	0.2251	8D25	3925	0.0112	1962.5		3882.618149	ok
		sb-y	90.964391	1.1413	103.8133	461.106	0.304	0.5129	**8D25**	3925	0.0112	1962.5	980.8302349		ok

Tabel 7.14.b Lanjutan

Kolom	Lt.	Arah	Mu,k (kNm)	∂s	Mc (kNm)	Pu (kN)	eb (m)	e (m)	Tulangan total	Ast (mm^2)	ρg	As' (mm^2)	Cek rumus Whitney		ϕ Pn > Pu (kN)
													Patah tarik Pn(kN)	Patah desak Pn(kN)	
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]
K13	3	sb-x	333.82634	1.0101	337.1855	183.371	0.304	0.7689	8D25	3925	0.0112	1962.5	940.053		ok
		sb-y	134.10628	1.0513	140.9889	183.371	0.387	1.8388	**20D22**	7598.8	0.0217	3799.4	360.0557645		ok
	atap	sb-x	49.768294	1.0011	49.82203	57.308	0.304	1.2123	8D25	3925	0.0112	1962.5	510.2434221		ok
		sb-y	69.467511	1.0001	69.47442	57.308	0.304	0.8694	**8D25**	3925	0.0112	1962.5	466.8289571		ok
K14	1	sb-x	115.69853	1.0119	117.0727	593.868	0.304	0.0259	8D25	3925	0.0112	1962.5		6773.486738	ok
		sb-y	14.941944	1.0293	15.38013	593.868	0.304	0.1971	**8D25**	3925	0.0112	1962.5		3356.039747	ok
	2	sb-x	210.64288	1.0178	214.384	421.083	0.304	0.2517	8D25	3925	0.0112	1962.5		3673.998393	ok
		sb-y	92.868298	1.1413	105.9862	421.083	0.304	0.5091	**8D25**	3925	0.0112	1962.5	991.7108615		ok
	3	sb-x	280.96689	1.0101	283.7942	158.297	0.304	0.6864	8D25	3925	0.0112	1962.5	1130.103457		ok
		sb-y	103.35178	1.0513	108.656	158.297	0.35	1.7928	**12D25**	5887.5	0.0168	2943.75	287.7696955		ok
	atap	sb-x	58.924102	1.0011	58.98773	61.728	0.304	0.5747	8D25	3925	0.0112	1962.5	1464.486313		ok
		sb-y	35.474497	1.0001	35.47803	61.728	0.304	0.9556	**8D25**	3925	0.0112	1962.5	412.6182568		ok
K15	1	sb-x	148.04794	1.0119	149.8064	737.616	0.304	0.0162	8D25	3925	0.0112	1962.5		7030.025133	ok
		sb-y	11.583336	1.0293	11.92303	737.616	0.304	0.2031	**8D25**	3925	0.0112	1962.5		3301.004673	ok
	2	sb-x	245.65525	1.0178	250.0182	507.456	0.304	0.3002	8D25	3925	0.0112	1962.5		3345.906652	ok
		sb-y	133.47607	1.1413	152.3299	507.456	0.304	0.4927	**8D25**	3925	0.0112	1962.5	1041.38681		ok
	3	sb-x	226.71776	1.0101	228.9992	178.616	0.304	0.6029	8D25	3925	0.0112	1962.5	1366.111744		ok
		sb-y	102.43436	1.0513	107.6915	178.616	0.304	1.2821	**8D25**	3925	0.0112	1962.5	285.7059851		ok
	atap	sb-x	61.478874	1.0011	61.54526	38.630	0.304	0.9745	8D25	3925	0.0112	1962.5	684.9018141		ok
		sb-y	37.64042	1.0001	37.64417	38.630	0.304	1.5932	**8D25**	3925	0.0112	1962.5	220.5605429		ok
K16	1	sb-x	80.899084	1.0119	81.85996	708.946	0.304	0.0303	8D25	3925	0.0112	1962.5		6663.86261	ok
		sb-y	20.861	1.0293	21.47246	708.946	0.304	0.1155	**8D25**	3925	0.0112	1962.5		4350.630833	ok
	2	sb-x	190.37639	1.0178	193.7575	549.962	0.304	0.1763	8D25	3925	0.0112	1962.5		4335.614212	ok
		sb-y	84.9537	1.1413	96.95362	549.962	0.304	0.3523	**8D25**	3925	0.0112	1962.5	1711.980168		ok
	3	sb-x	200.99107	1.0101	203.0136	274.086	0.304	0.2879	8D25	3925	0.0112	1962.5		3423.500007	ok
		sb-y	75.051075	1.0513	78.90284	274.086	0.304	0.7407	**8D25**	3925	0.0112	1962.5	579.1914744		ok
	atap	sb-x	48.096658	1.0011	48.14859	51.578	0.304	0.4193	8D25	3925	0.0112	1962.5	2254.712316		ok
		sb-y	21.624766	1.0001	21.62692	51.578	0.304	0.9335	**8D25**	3925	0.0112	1962.5	425.3076792		ok

Keterangan Tabel 7.14.b :

[1] Kolom yang ditinjau

[2] Tingkat lantai pada kolom yang ditinjau

[3] Arah bekerjanya momen

[4] Mu,k = Momen rencana kolom terpakai

[5] ∂s = Faktor pembesaran momen

[6] $Mc = \partial s.Mu,k$ (Momen rencana yang telah diperbesar)

[7] $Pu = Nu,k$ = gaya aksial rencana kolom terpakai

[8] $eb = Mnb/Pnb$ (eksentrisitas kolom pada kondisi seimbang)

[9] $e = Mc/Pu$ (eksentrisitas kolom yang terjadi)

bila $e > eb$ (patah tarik), sedangkan $e < eb$ (patah desak)

[10] Tulangan total yang dipakai

(Cetak tebal adalah tulangan kolom yang dipakai dalam perencanaan)

[11] Ast = luas tulangan total kolom

[12] $\rho g = Ast/(b.h)$

[13] As' = luas tulangan desak kolom

[14] Patah tarik : $Pn = 0,85fc'.b.d.\{ 1-e'/d + [(1-e'/d)^0,5+2\rho m(1-d'/d)]^0,5\}$

[15] Patah desak : $Pn = \{b.h.fc'/[(3h.e/d^2)+1,18]\} + \{As'.fy/[(e/d-d']+0,5]\}$

[16] $\phi Pn > Pu$ (tulangan kolom terpasang aman digunakan)

$\phi = 0.65$

Tabel 7.15.a Gaya Geser Kolom Rencana Portal A

Kolom	Lt.	Arah portal	h (m)	hn (m)	Pn (kN)	e (m)	*Mkap,k* (kNm)	*Muk,a* (kNm)	*Muk,b* (kNm)	*Vu,k rncna* (kN)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
K1	1	sb-x	2.8	2.575	3,333.005	0.102	423.581	389.077	0.000	519.184
		sb-y	2.8	2.575	327.062	1.997	816.227	19.758	0.000	732.662
K2	1	sb-x	2.8	2.575	424.181	0.770	408.081	445.665	0.000	545.701
		sb-y	2.8	2.575	408.686	1.922	981.696	177.989	0.000	857.569
K3	1	sb-x	2.8	2.575	1,610.934	0.299	601.354	268.739	0.000	589.978
		sb-y	2.8	2.575	327.067	1.290	527.474	62.029	0.000	549.810
K4	1	sb-x	2.8	2.575	225.496	1.261	355.483	338.538	0.000	459.837
		sb-y	2.8	2.575	225.165	2.802	788.522	151.968	0.000	695.275
K5	1	sb-x	2.8	2.575	3,429.920	0.167	716.404	261.910	0.000	448.654
		sb-y	2.8	2.575	405.660	1.084	549.817	40.085	0.000	343.067
	2	sb-x	3	2.55	277.879	1.3337	463.269	313.879	238.340	514.184
		sb-y	3	2.55	212.168	2.4172	641.053	160.988	170.487	611.791
K6	1	sb-x	2.8	2.575	4,067.341	0.110	556.886	140.570	0.000	345.873
		sb-y	2.8	2.575	1,361.012	0.353	600.569	43.318	0.000	331.310
	2	sb-x	3	2.55	366.135	1.0754	492.186	404.307	312.846	576.237
		sb-y	3	2.55	293.711	2.2018	808.385	194.387	166.323	749.836
K7	1	sb-x	2.8	2.575	6,233.602	0.002	16.653	126.175	0.000	129.022
		sb-y	2.8	2.575	3,130.920	0.161	629.686	1.665	0.000	261.825
	2	sb-x	3	2.55	1,132.319	0.4911	695.086	249.867	183.550	674.000
		sb-y	3	2.55	639.018	0.6855	547.547	176.213	109.533	592.998
K8	1	sb-x	2.8	2.575	5,098.869	0.047	299.289	126.432	0.000	233.448
		sb-y	2.8	2.575	3,605.898	0.119	535.022	49.674	0.000	276.665
	2	sb-x	3	2.55	2,924.417	0.2306	843.102	232.959	181.701	789.651
		sb-y	3	2.55	1,030.296	0.4237	545.678	124.828	103.125	626.360
K9	1	sb-x	2.8	2.575	5,650.295	0.023	161.849	88.091	0.000	153.324
		sb-y	2.8	2.575	3,976.195	0.093	461.299	21.601	0.000	216.653
	2	sb-x	3	2.55	3,524.125	0.1573	692.812	148.408	105.540	696.523
		sb-y	3	2.55	1,779.851	0.2925	650.848	78.540	46.733	673.484
K10	1	sb-x	2.8	2.575	4,847.834	0.060	361.918	121.003	0.000	267.692
		sb-y	2.8	2.575	3,051.399	0.169	645.546	42.408	0.000	323.429
	2	sb-x	3	2.55	810.285	0.6124	620.323	299.596	191.477	656.787
		sb-y	3	2.55	595.186	0.9726	723.602	185.710	103.180	713.489
K11	1	sb-x	2.8	2.575	4,103.644	0.107	547.809	115.768	0.000	332.831
		sb-y	2.8	2.575	1,420.885	0.343	609.073	35.806	0.000	327.748
	2	sb-x	3	2.55	2,785.661	0.2521	877.910	176.291	139.942	784.286
		sb-y	3	2.55	411.020	0.7919	406.847	55.252	51.787	525.662
K12	1	sb-x	2.8	2.45	1,971.354	0.4598	1133.081	309.303	0.000	691.945
		sb-y	2.8	2.45	749.908	0.6806	637.942	204.996	0.000	520.675
	2	sb-x	3	2.3	442.200	1.3536	748.209	57.789	195.670	140.045
		sb-y	3	2.3	312.574	1.1912	465.423	195.124	33.687	132.543
	3	sb-x	4.5	3.8	3,408.501	0.2902	1236.482	345.928	539.393	252.676
		sb-y	4.5	3.8	879.612	1.0609	1166.430	129.929	119.557	135.548
	atap	sb-x	2.4	1.85	663.369	0.9973	826.992	201.419	233.129	1046.959
		sb-y	2.4	1.85	125.374	3.0085	471.485	60.426	77.813	777.928

Tabel 7.15.a Lanjutan

Kolom	Lt.	Arah portal	h (m)	hn (m)	Pn (kN)	e (m)	*Mkap,k* (kNm)	*Muk,a* (kNm)	*Muk,b* (kNm)	*Vu,k mcna* (kN)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
K13	1	sb-x	2.8	2.45	5666.848	0.0781	552.931	367.526	0.000	498.304
		sb-y	2.8	2.45	1692.711	0.4432	937.798	63.494	0.000	521.399
	2	sb-x	3	2.3	3979.353	0.2138	1063.344	135.790	98.399	126.284
		sb-y	3	2.3	3150.508	0.2205	868.186	115.551	71.998	112.089
	3	sb-x	4.5	3.8	1293.279	0.626	1011.951	512.553	397.150	269.596
		sb-y	4.5	3.8	622.730	1.4214	1106.423	198.760	183.777	172.486
	atap	sb-x	2.4	1.85	2031.830	0.4546	1154.497	175.657	44.495	1392.419
		sb-y	2.4	1.85	240.421	1.4806	444.971	54.298	20.272	855.481
K14	1	sb-x	2.8	2.45	6331.624	0.0445	352.402	123.424	0.000	281.597
		sb-y	2.8	2.45	4129.166	0.1302	672.227	41.391	0.000	349.537
	2	sb-x	3	2.3	3644.616	0.2557	1164.839	148.695	292.872	213.575
		sb-y	3	2.3	1431.196	0.432	772.800	13.391	152.125	129.559
	3	sb-x	4.5	3.8	1503.229	0.5645	1060.633	496.420	401.586	262.529
		sb-y	4.5	3.8	704.861	1.2784	1126.362	193.001	139.017	158.268
	atap	sb-x	2.4	1.85	1536.358	0.556	1067.723	87.371	82.358	1344.585
		sb-y	2.4	1.85	788.939	0.595	586.728	1.515	82.207	980.589
K15	1	sb-x	2.8	2.45	7270.294	0.0077	69.747	90.246	0.000	131.146
		sb-y	2.8	2.45	4841.034	0.0876	529.960	7.758	0.000	239.068
	2	sb-x	3	2.3	4364.367	0.1735	946.708	177.509	285.741	219.745
		sb-y	3	2.3	1477.247	0.3899	719.900	28.935	111.616	121.533
	3	sb-x	4.5	3.8	1952.866	0.4683	1143.086	420.407	353.931	228.293
		sb-y	4.5	3.8	743.735	1.0209	949.116	169.794	140.787	142.864
	atap	sb-x	2.4	1.85	2267.940	0.4173	1183.146	73.564	30.580	1506.669
		sb-y	2.4	1.85	1365.969	0.411	701.743	21.008	75.215	1142.364
K16	1	sb-x	2.8	2.45	6618.610	0.0321	265.924	98.483	0.000	227.909
		sb-y	2.8	2.45	4395.349	0.1127	619.004	27.561	0.000	308.525
	2	sb-x	3	2.3	4162.776	0.1937	1007.764	198.941	297.221	232.627
		sb-y	3	2.3	1199.288	0.4483	672.112	16.928	112.671	121.064
	3	sb-x	4.5	3.8	2712.949	0.3582	1214.857	365.876	320.294	200.659
		sb-y	4.5	3.8	698.177	0.8615	751.891	133.959	120.484	121.130
	atap	sb-x	2.4	1.85	4987.413	0.1216	758.193	83.264	2.253	1041.463
		sb-y	2.4	1.85	1263.468	0.433	683.867	23.546	19.597	985.216

Keterangan Tabel 7.15.a :

[1] Kolom yg ditinjau

[2] Tingkat lantai pada kolom yang ditinjau

[3] Arah portal ditinjau sejajar sumbu x dan sejajar sumbu y

[4] *h* = tinggi kolom dari titik pertemuan ke titik pertemuan

[5] *hn* = tinggi bersih kolom

[6] Gaya aksial nominal (berdasarkan tulangan kolom terpasang)

[7] eksentrisitas kolom yang terjadi

[8] *Mkap,k = 1,25.Mnak,k = 1,25. Pn.e* (momen kapasitas kolom)

[9] *Muk,a* = momen rencana kolom atas

[10] *Muk,b* = momen rencana kolom bawah

[11] *Vu,kx mcna = [Mu,kx atas+Mu,kx bawah+0.3(Mu,ky atas+Mu,kybawah)]/hn*

Vu,ky mcna = [Mu,ky atas+Mu,ky bawah+0.3(Mu,kx atas+Mu,kxbawah)]/hn

kecuali; *Vu,k lantai dasar = [Mu,kx atas+Mkap,kx+0.3(Mu,ky atas+Mkap,ky)]/hn*

Vu,k lantai paling atas = [2Mkap,kx+0.3(2Mkap,ky)]/hn

(gaya geser rencana kolom)

'abel 7.15.b Gaya Geser Kolom Rencana Portal B

Kolom	Lt.	Arah portal	h (m)	hn (m)	Pn (kN)	e (m)	*Mkap,k* (kNm)	*Muk,a* (kNm)	*Muk,b* (kNm)	*Vu,k rncna* (kN)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
K1	1	sb-x	2.8	2.575	2589.838179	0.1769	572.714	298.360	0.000	603.506
		sb-y	2.8	2.575	433.6390465	1.2563	680.998	41.937	0.000	662.379
K2	1	sb-x	2.8	2.575	190.5201116	1.4513	345.623	377.505	0.000	447.120
		sb-y	2.8	2.575	148.9857611	4.1175	766.812	132.814	0.000	676.116
K3	1	sb-x	2.8	2.575	1997.702125	0.2481	619.594	191.270	0.000	588.664
		sb-y	2.8	2.575	303.8377326	1.2139	461.036	39.024	0.000	502.458
K4	1	sb-x	2.8	2.575	637.7411516	0.5747	458.143	217.821	0.000	463.453
		sb-y	2.8	2.575	306.8545788	1.2041	461.844	103.776	0.000	465.465
K5	1	sb-x	2.8	2.575	4111.15051	0.1062	545.932	139.404	0.000	327.485
		sb-y	2.8	2.575	789.3476604	0.504	497.247	29.215	0.000	284.296
	2	sb-x	3	2.55	793.7176609	0.6209	616.064	237.548	190.181	612.097
		sb-y	3	2.55	398.25	1.1005	547.866	127.627	132.201	574.655
K6	1	sb-x	2.8	2.575	5106.752508	0.0466	297.323	130.809	0.000	244.510
		sb-y	2.8	2.575	1780.371027	0.2925	650.897	20.710	0.000	310.698
	2	sb-x	3	2.55	536.4801772	0.8123	544.760	252.926	194.119	548.390
		sb-y	3	2.55	276.2717977	1.4907	514.790	135.955	125.892	531.935
K7	1	sb-x	2.8	2.575	6016.60151	0.0094	70.646	100.117	0.000	147.267
		sb-y	2.8	2.575	2828.390932	0.1952	690.041	4.790	0.000	289.732
	2	sb-x	3	2.55	2527.858785	0.2667	842.831	157.747	127.784	780.832
		sb-y	3	2.55	481.3471725	0.8461	509.099	49.051	47.701	597.607
K8	1	sb-x	2.8	2.575	5123.576888	0.0458	293.127	89.390	0.000	220.522
		sb-y	2.8	2.575	3335.169359	0.1413	588.965	28.791	0.000	284.470
	2	sb-x	3	2.55	2894.818678	0.235	850.526	145.406	95.934	773.821
		sb-y	3	2.55	597.7368695	0.6072	453.654	55.523	35.977	555.931
K9	1	sb-x	2.8	2.575	4364.105176	0.0885	482.709	120.585	0.000	313.289
		sb-y	2.8	2.575	3243.375289	0.1498	607.263	70.822	0.000	333.621
	2	sb-x	3	2.55	1637.295	0.381	779.719	204.984	154.972	725.871
		sb-y	3	2.55	737.4568318	0.5271	485.886	146.142	114.490	564.550
K10	1	sb-x	2.8	2.575	5211.305743	0.0416	271.250	71.889	0.000	189.805
		sb-y	2.8	2.575	4021.479764	0.09	452.288	33.076	0.000	228.469
	2	sb-x	3	2.55	2592.319357	0.2601	842.736	167.788	81.136	792.320
		sb-y	3	2.55	1099.30907	0.4062	558.239	105.951	38.463	636.126
K11	1	sb-x	2.8	2.45	5570.348069	0.0836	582.064	96.039	0.000	388.572
		sb-y	2.8	2.45	3100.790322	0.2266	878.153	34.835	0.000	455.681
	2	sb-x	3	2.3	1202.277766	0.658	988.837	134.664	129.775	150.166
		sb-y	3	2.3	1251.596583	0.4357	681.725	88.470	181.339	151.800
	3	sb-x	4.5	3.8	2055.380646	0.4506	1157.722	349.647	178.575	165.942
		sb-y	4.5	3.8	933.6386177	0.69	805.293	219.371	121.825	131.490
	atap	sb-x	2.4	1.85	1687.715041	0.5205	1098.060	105.192	294.900	1389.269
		sb-y	2.4	1.85	212.6077205	2.3456	623.378	37.579	65.502	1030.050

Tabel 7.15.b Lanjutan

Kolom	Lt.	Arah portal	h (m)	hn (m)	Pn (kN)	e (m)	*Mkap,k* (kNm)	*Muk,a* (kNm)	*Muk,b* (kNm)	*Vu,k rncna* (kN)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
K12	1	sb-x	2.8	2.45	5399.379976	0.0939	633.696	86.380	0.000	382.154
		sb-y	2.8	2.45	4206.030029	0.1249	656.855	63.816	0.000	382.324
	2	sb-x	3	2.3	3040.47806	0.3209	1219.591	100.033	182.071	152.036
		sb-y	3	2.3	1612.965586	0.3672	740.285	83.358	141.907	134.737
	3	sb-x	4.5	3.8	733.5656689	0.9275	850.492	347.531	267.521	184.016
		sb-y	4.5	3.8	290.8707696	1.7761	645.766	174.366	106.332	122.425
	atap	sb-x	2.4	1.85	538.0001592	1.1646	783.217	49.999	105.657	985.226
		sb-y	2.4	1.85	178.7524341	1.9113	427.057	20.177	64.445	715.700
K13	1	sb-x	2.8	2.45	6401.155783	0.0414	331.445	123.508	0.000	289.454
		sb-y	2.8	2.45	3383.625698	0.1942	821.468	25.895	0.000	401.571
	2	sb-x	3	2.3	3882.618149	0.2251	1092.666	185.851	232.383	202.073
		sb-y	3	2.3	980.8302349	0.5129	628.858	64.150	90.964	121.993
	3	sb-x	4.5	3.8	940.053	0.7689	903.475	333.826	273.985	179.244
		sb-y	4.5	3.8	360.0557645	1.8388	827.595	134.106	110.287	112.299
	atap	sb-x	2.4	1.85	510.2434221	1.2123	773.213	49.768	41.250	1000.440
		sb-y	2.4	1.85	466.8289571	0.8694	507.313	13.059	69.468	799.219
K14	1	sb-x	2.8	2.45	6520.128791	0.0363	295.593	115.699	0.000	271.701
		sb-y	2.8	2.45	3356.039747	0.1971	826.995	20.925	0.000	396.452
	2	sb-x	3	2.3	3673.998393	0.2517	1155.926	178.594	210.643	190.079
		sb-y	3	2.3	991.7108615	0.5091	631.131	66.947	92.868	120.255
	3	sb-x	4.5	3.8	1130.103457	0.6864	969.638	280.967	238.040	151.745
		sb-y	4.5	3.8	287.7696955	1.7928	644.891	103.352	88.733	91.523
	atap	sb-x	2.4	1.85	1464.486313	0.5747	1052.138	58.924	24.427	1297.298
		sb-y	2.4	1.85	412.6182568	0.9556	492.876	12.303	35.474	874.073
K15	1	sb-x	2.8	2.45	7098.316911	0.0137	121.491	148.048	0.000	213.833
		sb-y	2.8	2.45	3301.004673	0.2031	838.023	9.812	0.000	379.060
	2	sb-x	3	2.3	3345.906652	0.3002	1255.482	194.961	245.655	221.993
		sb-y	3	2.3	1041.38681	0.4927	641.350	99.748	133.476	158.873
	3	sb-x	4.5	3.8	1366.111744	0.6029	1029.574	226.718	195.140	125.811
		sb-y	4.5	3.8	285.7059851	1.2821	457.871	102.434	84.975	82.623
	atap	sb-x	2.4	1.85	684.9018141	0.9745	834.278	61.479	42.158	1044.380
		sb-y	2.4	1.85	220.5605429	1.5932	439.245	14.749	37.640	745.436
K16	1	sb-x	2.8	2.45	6522.820001	0.0362	294.782	80.899	0.000	233.280
		sb-y	2.8	2.45	4350.630833	0.1155	627.943	24.901	0.000	312.469
	2	sb-x	3	2.3	4335.614212	0.1763	955.415	176.480	190.376	180.657
		sb-y	3	2.3	1711.980168	0.3523	753.936	84.954	77.226	118.364
	3	sb-x	4.5	3.8	3423.500007	0.2879	1231.929	200.991	187.166	113.143
		sb-y	4.5	3.8	579.1914744	0.7407	536.253	64.240	75.051	67.299
	atap	sb-x	2.4	1.85	2254.712316	0.4193	1181.758	48.097	9.642	1438.533
		sb-y	2.4	1.85	425.3076792	0.9335	496.283	12.857	21.625	919.795

Keterangan Tabel 7.15.b :

[1] Kolom yg ditinjau

[2] Tingkat lantai pada kolom yang ditinjau

[3] Arah portal ditinjau sejajar sumbu x dan sejajar sumbu y

[4] *h* = tinggi kolom dari titik pertemuan ke titik pertemuan

[5] *hn* = tinggi bersih kolom

[6] Gaya aksial nominal (berdasarkan tulangan kolom terpasang)

[7] eksentrisitas kolom yang terjadi

[8] *Mkap,k = 1,25.Mnak,k = 1,25. Pn.e* (momen kapasitas kolom)

[9] *Muk,a* = momen rencana kolom atas

[10] *Muk,b* = momen rencana kolom bawah

[11] *Vu,kx rncna = [Mu,kx atas+Mu,kx bawah+0.3(Mu,ky atas+Mu,kybawah)]/hn*

Vu,ky rncna = [Mu,ky atas+Mu,ky bawah+0.3(Mu,kx atas+Mu,kxbawah)]/hn

kecuali; *Vu,k lantai dasar = [Mu,kx atas+Mkap,kx+0.3(Mu,ky atas+Mkap,ky)]/hn*

Vu,k lantai paling atas = [2Mkap,kx+0.3(2Mkap,ky)]/hn

(gaya geser rencana kolom)

Tabel 7.16.a Gaya Geser Maksimum Kolom Portal A

Kolom	Lt.	Letak gaya geser	h (m)	h' (m)	*VD* (kN)	*VL* (kN)	*VE,kx* (kN)	*VE,ky* (kN)	*Vu,kx maks* (kN)	*Vu,ky maks* (kN)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
K1	1	atas	2.8	2.575	13.86406	14.19102	-113.605	7.579542	-415.867	-76.550
		bawah	2.8	2.575	13.86406	14.19102	-113.605	7.579542	-415.867	-76.550
K2	1	atas	2.8	2.575	-14.44553	-18.04414	-87.97066	0.133863	-385.836	-139.143
		bawah	2.8	2.575	-14.44553	-18.04414	-87.97066	0.133863	-385.836	-139.143
K3	1	atas	2.8	2.575	1.414985	8.456516	-66.8163	0.6227345	-256.153	-67.324
		bawah	2.8	2.575	1.414985	8.456516	-66.8163	0.6227345	-256.153	-67.324
K4	1	atas	2.8	2.575	-21.34643	-17.26422	-55.66054	0.5871231	-262.479	-104.985
		bawah	2.8	2.575	-21.34643	-17.26422	-55.66054	0.5871231	-262.479	-104.985
K5	1	atas	2.8	2.575	1.738192	-0.2614932	-90.96326	9.188472	-351.276	-70.851
		bawah	2.8	2.575	1.738192	-0.2614932	-90.96326	9.188472	-351.276	-70.851
	2	atas	3	2.55	3.828305	1.870529	-48.09542	5.066368	-180.318	-31.465
		bawah	3	2.55	3.828305	1.870529	-48.09542	5.066368	-180.318	-31.465
K6	1	atas	2.8	2.575	11.80634	9.377863	-45.6953	4.756242	-154.830	-13.566
		bawah	2.8	2.575	11.80634	9.377863	-45.6953	4.756242	-154.830	-13.566
	2	atas	3	2.55	-1.638209	-1.687986	-35.63454	2.226007	-143.359	-37.350
		bawah	3	2.55	-1.638209	-1.687986	-35.63454	2.226007	-143.359	-37.350
K7	1	atas	2.8	2.575	-3.527545	-2.319059	-33.15477	1.145056	-137.384	-41.344
		bawah	2.8	2.575	-3.527545	-2.319059	-33.15477	1.145056	-137.384	-41.344
	2	atas	3	2.55	-4.834108	-3.656946	-33.61911	0.4803022	-142.816	-47.337
		bawah	3	2.55	-4.834108	-3.656946	-33.61911	0.4803022	-142.816	-47.337
K8	1	atas	2.8	2.575	0.8680799	0.216452	-34.04731	5.772706E-02	-134.981	-39.487
		bawah	2.8	2.575	0.8680799	0.216452	-34.04731	5.772706E-02	-134.981	-39.487
	2	atas	3	2.55	-17.89373	-12.16162	-42.80353	-5.952653	-209.915	-106.733
		bawah	3	2.55	-17.89373	-12.16162	-42.80353	-5.952653	-209.915	-106.733
K9	1	atas	2.8	2.575	-20.50768	-14.85213	-49.8331	-9.420098	-247.764	-134.608
		bawah	2.8	2.575	-20.50768	-14.85213	-49.8331	-9.420098	-247.764	-134.608
	2	atas	3	2.55	55.24524	38.17038	-39.99884	-7.078624	-70.403	21.773
		bawah	3	2.55	55.24524	38.17038	-39.99884	-7.078624	-70.403	21.773
K10	1	atas	2.8	2.575	-25.51062	-15.52569	-24.14948	-2.980846	-143.263	-83.991
		bawah	2.8	2.575	-25.51062	-15.52569	-24.14948	-2.980846	-143.263	-83.991
	2	atas	3	2.55	3.686516	1.929796	-21.75305	-1.878974	-83.370	-27.722
		bawah	3	2.55	3.686516	1.929796	-21.75305	-1.878974	-83.370	-27.722
K11	1	atas	2.8	2.575	-36.54889	-25.14403	-23.40602	-0.4827014	-158.981	-94.796
		bawah	2.8	2.575	-36.54889	-25.14403	-23.40602	-0.4827014	-158.981	-94.796
	2	atas	3	2.55	4.007174	1.805463	-25.81995	-0.6119725	-97.911	-27.329
		bawah	3	2.55	4.007174	1.805463	-25.81995	-0.6119725	-97.911	-27.329
K12	1	atas	2.8	2.45	-16.58075	-9.292799	97.17966	-9.725522	349.881	50.546
		bawah	2.8	2.45	-16.58075	-9.292799	97.17966	-9.725522	349.881	50.546
	2	atas	3	2.3	-6.865802	-4.087889	45.57359	-5.420305	164.289	21.506
		bawah	3	2.3	-6.865802	-4.087889	45.57359	-5.420305	164.289	21.506
	3	atas	4.5	3.8	10.04871	4.220398	-43.42488	6.656249	-150.729	-10.502
		bawah	4.5	3.8	10.04871	4.220398	-43.42488	6.656249	-150.729	-10.502
	atap	atas	2.4	1.85	-3.551339	-1.497397	-38.70233	3.540744	-155.862	-37.581
		bawah	2.4	1.85	-3.551339	-1.497397	-38.70233	3.540744	-155.862	-37.581
K13	1	atas	2.8	2.45	-3.905112	-3.997537	-38.8343	1.976347	-161.263	-46.994
		bawah	2.8	2.45	-3.905112	-3.997537	-38.8343	1.976347	-161.263	-46.994

Tabel 7.16.a Lanjutan

Kolom	Lt.	Letak gaya geser	h (m)	h' (m)	*VD* (kN)	*VL* (kN)	*VE,kx* (kN)	*VE,ky* (kN)	*Vu,kx maks* (kN)	*Vu,ky maks* (kN)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
K13	2	atas	3	2.3	-24.44224	-10.58377	59.92948	7.648579	212.119	65.732
		bawah	3	2.3	-24.44224	-10.58377	59.92948	7.648579	212.119	65.732
	3	atas	4.5	3.8	-2.850385	-2.559212	27.20275	6.82193	111.317	54.251
		bawah	4.5	3.8	-2.850385	-2.559212	27.20275	6.82193	111.317	54.251
	atap	atas	2.4	1.85	15.42431	7.352785	-37.66967	-2.47031	-129.727	-31.169
		bawah	2.4	1.85	15.42431	7.352785	-37.66967	-2.47031	-129.727	-31.169
K14	1	atas	2.8	2.45	-7.048094	-2.71786	-34.33177	-1.188948	-149.008	-56.208
		bawah	2.8	2.45	-7.048094	-2.71786	-34.33177	-1.188948	-149.008	-56.208
	2	atas	3	2.3	-7.19428	-6.299299	-36.98436	-0.7161168	-162.965	-61.414
		bawah	3	2.3	-7.19428	-6.299299	-36.98436	-0.7161168	-162.965	-61.414
	3	atas	4.5	3.8	-25.08152	-20.12556	-109.0881	4.717555	-478.159	-159.503
		bawah	4.5	3.8	-25.08152	-20.12556	-109.0881	4.717555	-478.159	-159.503
	atap	atas	2.4	1.85	-9.932986	-6.496029	62.12768	9.256694	242.368	94.330
		bawah	2.4	1.85	-9.932986	-6.496029	62.12768	9.256694	242.368	94.330
K15	1	atas	2.8	2.45	14.81986	4.675369	-51.5397	-5.640402	-192.457	-63.939
		bawah	2.8	2.45	14.81986	4.675369	-51.5397	-5.640402	-192.457	-63.939
	2	atas	3	2.3	-6.462234	-0.6326368	-38.24047	-3.186965	-164.236	-66.086
		bawah	3	2.3	-6.462234	-0.6326368	-38.24047	-3.186965	-164.236	-66.086
	3	atas	4.5	3.8	-1.238121	-3.153372	-34.61318	-1.980799	-145.441	-54.070
		bawah	4.5	3.8	-1.238121	-3.153372	-34.61318	-1.980799	-145.441	-54.070
	atap	atas	2.4	1.85	-18.2105	-17.5668	243.9919	3.79589	942.957	270.408
		bawah	2.4	1.85	-18.2105	-17.5668	243.9919	3.79589	942.957	270.408
K16	1	atas	2.8	2.45	-5.422141	-4.339065	-8.835322	-5.007295	-51.599	-40.881
		bawah	2.8	2.45	-5.422141	-4.339065	-8.835322	-5.007295	-51.599	-40.881
	2	atas	3	2.3	11.12688	-3.461321	3.775143	9.025481	33.980	48.681
		bawah	3	2.3	11.12688	-3.461321	3.775143	9.025481	33.980	48.681
	3	atas	4.5	3.8	-16.35081	-3.49473	-0.6884656	4.618451	-18.050	-3.190
		bawah	4.5	3.8	-16.35081	-3.49473	-0.6884656	4.618451	-18.050	-3.190
	atap	atas	2.4	1.85	-1.462941	-4.84406	-7.810012	2.319924	-35.078	-6.715
		bawah	2.4	1.85	-1.462941	-4.84406	-7.810012	2.319924	-35.078	-6.715

Keterangan Tabel 7.16.a :

[1] Kolom yang ditinjau

[2] Tingkat lantai pada kolom yang ditinjau

[3] Letak gaya geser pada kolom atas dan bawah

[4] h = tinggi kolom

[5] h' = tinggi bersih kolom

[6] VD = Gaya geser kolom akibat beban mati

[7] VL = Gaya geser kolom akibat beban hidup

[8] VE,kx = Gaya geser kolom akibat beban gempa sejajar sumbu x

[9] VE,ky = Gaya geser kolom akibat beban gempa sejajar sumbu y

[10] $Vu,kx\ maks = 1{,}05.(VD+VL+4/k(VE,kx+0{,}3.VE,ky))$

[11] $Vu,ky\ maks = 1{,}05.(VD+VL+4/k(VE,ky+0{,}3.VE,kx))$

Tabel 7.16.b Gaya Geser Maksimum Kolom Portal B

Kolom	Lt.	Letak gaya geser	h (m)	h' (m)	VD (kN)	VL (kN)	VE,kx (kN)	VE,ky (kN)	Vu,kx maks (kN)	Vu,ky maks (kN)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
K1	1	atas	2.8	2.575	-12.82146	-3.902775	-70.67427	4.363166	-295.022	-84.917
		bawah	2.8	2.575	-12.82146	-3.902775	-70.67427	4.363166	-295.022	-84.917
K2	1	atas	2.8	2.575	-2.222197	-2.037846	-68.63821	0.4192459	-278.523	-85.162
		bawah	2.8	2.575	-2.222197	-2.037846	-68.63821	0.4192459	-278.523	-85.162
K3	1	atas	2.8	2.575	10.93768	11.36987	-48.43325	0.007240098	-170.301	-34.668
		bawah	2.8	2.575	10.93768	11.36987	-48.43325	0.007240098	-170.301	-34.668
K4	1	atas	2.8	2.575	-5.071632	-8.933115	-36.45515	0.5881405	-159.820	-56.099
		bawah	2.8	2.575	-5.071632	-8.933115	-36.45515	0.5881405	-159.820	-56.099
K5	1	atas	2.8	2.575	1.567447	-4.120343	-52.38913	3.398018	-208.159	-51.955
		bawah	2.8	2.575	1.567447	-4.120343	-52.38913	3.398018	-208.159	-51.955
	2	atas	3	2.55	-3.474602	-3.762524	-33.10992	1.544809	-138.185	-41.152
		bawah	3	2.55	-3.474602	-3.762524	-33.10992	1.544809	-138.185	-41.152
K6	1	atas	2.8	2.575	0.761487	1.504437	-31.51705	3.755139	-119.183	-20.421
		bawah	2.8	2.575	0.761487	1.504437	-31.51705	3.755139	-119.183	-20.421
	2	atas	3	2.55	6.440494	5.032197	-27.16059	2.178804	-93.981	-11.831
		bawah	3	2.55	6.440494	5.032197	-27.16059	2.178804	-93.981	-11.831
K7	1	atas	2.8	2.575	18.89542	10.9076	-24.0488	1.251275	-63.400	7.440
		bawah	2.8	2.575	18.89542	10.9076	-24.0488	1.251275	-63.400	7.440
	2	atas	3	2.55	6.427184	2.17206	-20.56614	0.5419796	-72.585	-13.482
		bawah	3	2.55	6.427184	2.17206	-20.56614	0.5419796	-72.585	-13.482
K8	1	atas	2.8	2.575	-17.61492	-12.21237	-27.24355	-4.991365	-146.282	-83.976
		bawah	2.8	2.575	-17.61492	-12.21237	-27.24355	-4.991365	-146.282	-83.976
	2	atas	3	2.55	-18.90371	-11.52191	-26.28664	-5.289059	-143.440	-84.647
		bawah	3	2.55	-18.90371	-11.52191	-26.28664	-5.289059	-143.440	-84.647
K9	1	atas	2.8	2.575	3.249162	3.712899	-23.72303	-2.262077	-90.296	-30.206
		bawah	2.8	2.575	3.249162	3.712899	-23.72303	-2.262077	-90.296	-30.206
	2	atas	3	2.55	0.1349021	-0.2011057	-18.74844	-1.296588	-76.619	-27.754
		bawah	3	2.55	0.1349021	-0.2011057	-18.74844	-1.296588	-76.619	-27.754
K10	1	atas	2.8	2.575	39.2746	27.22766	-15.24676	-0.9856647	7.658	47.589
		bawah	2.8	2.575	39.2746	27.22766	-15.24676	-0.9856647	7.658	47.589
	2	atas	3	2.55	-15.82343	-15.12525	-11.97956	-0.1304268	-80.571	-47.393
		bawah	3	2.55	-15.82343	-15.12525	-11.97956	-0.1304268	-80.571	-47.393
K11	1	atas	2.8	2.45	14.9483	9.476557	-61.87171	5.232173	-215.562	-27.671
		bawah	2.8	2.45	14.9483	9.476557	-61.87171	5.232173	-215.562	-27.671
	2	atas	3	2.3	4.63821	3.18293	-33.81496	1.635239	-125.085	-25.825
		bawah	3	2.3	4.63821	3.18293	-33.81496	1.635239	-125.085	-25.825
	3	atas	4.5	3.8	-3.375653	-2.573227	-34.86129	3.562862	-141.416	-33.828
		bawah	4.5	3.8	-3.375653	-2.573227	-34.86129	3.562862	-141.416	-33.828
	atap	atas	2.4	1.85	4.776463	2.971468	-33.4748	2.155963	-123.177	-23.411
		bawah	2.4	1.85	4.776463	2.971468	-33.4748	2.155963	-123.177	-23.411

Tabel 7.16.b Lanjutan

Kolom	Lt.	Letak gaya geser	h (m)	h' (m)	*VD* (kN)	*VL* (kN)	*VE,kx* (kN)	*VE,ky* (kN)	*Vu,kx maks* (kN)	*Vu,ky maks* (kN)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
K12	1	atas	2.8	2.45	19.70929	10.20249	-30.27949	1.187225	-88.286	-0.179
		bawah	2.8	2.45	19.70929	10.20249	-30.27949	1.187225	-88.286	-0.179
	2	atas	3	2.3	-3.403376	-3.731968	-26.71851	0.4186009	-113.864	-37.880
		bawah	3	2.3	-3.403376	-3.731968	-26.71851	0.4186009	-113.864	-37.880
	3	atas	4.5	3.8	26.13684	8.944189	-35.41597	-5.50317	-111.433	-27.677
		bawah	4.5	3.8	26.13684	8.944189	-35.41597	-5.50317	-111.433	-27.677
	atap	atas	2.4	1.85	3.029058	1.455815	-20.53144	-5.156947	-83.605	-40.556
		bawah	2.4	1.85	3.029058	1.455815	-20.53144	-5.156947	-83.605	-40.556
K13	1	atas	2.8	2.45	-5.358939	-1.488177	-31.10074	-1.268672	-133.115	-49.585
		bawah	2.8	2.45	-5.358939	-1.488177	-31.10074	-1.268672	-133.115	-49.585
	2	atas	3	2.3	2.329802	2.33228	-31.32516	-0.8473943	-121.422	-36.085
		bawah	3	2.3	2.329802	2.33228	-31.32516	-0.8473943	-121.422	-36.085
	3	atas	4.5	3.8	24.51947	11.12372	-27.42188	-0.5717281	-72.948	2.232
		bawah	4.5	3.8	24.51947	11.12372	-27.42188	-0.5717281	-72.948	2.232
	atap	atas	2.4	1.85	-14.15943	-8.853116	-23.32636	-0.1203389	-117.613	-52.636
		bawah	2.4	1.85	-14.15943	-8.853116	-23.32636	-0.1203389	-117.613	-52.636
K14	1	atas	2.8	2.45	26.20948	16.75624	49.10404	-11.00899	228.319	60.003
		bawah	2.8	2.45	26.20948	16.75624	49.10404	-11.00899	228.319	60.003
	2	atas	3	2.3	9.620237	6.318132	-34.71458	-6.041406	-129.373	-49.088
		bawah	3	2.3	9.620237	6.318132	-34.71458	-6.041406	-129.373	-49.088
	3	atas	4.5	3.8	-0.462992	0.09377838	-31.00597	-3.536791	-128.656	-51.742
		bawah	4.5	3.8	-0.462992	0.09377838	-31.00597	-3.536791	-128.656	-51.742
	atap	atas	2.4	1.85	0.7194811	0.3304871	-27.02796	-2.317296	-109.790	-40.600
		bawah	2.4	1.85	0.7194811	0.3304871	-27.02796	-2.317296	-109.790	-40.600
K15	1	atas	2.8	2.45	9.394611	3.210726	-23.10067	-1.29211	-80.718	-19.654
		bawah	2.8	2.45	9.394611	3.210726	-23.10067	-1.29211	-80.718	-19.654
	2	atas	3	2.3	-3.596989	-0.5313139	-19.36217	-0.477183	-82.356	-29.478
		bawah	3	2.3	-3.596989	-0.5313139	-19.36217	-0.477183	-82.356	-29.478
	3	atas	4.5	3.8	17.98663	12.65005	-115.4403	10.44263	-417.062	-64.589
		bawah	4.5	3.8	17.98663	12.65005	-115.4403	10.44263	-417.062	-64.589
	atap	atas	2.4	1.85	7.875014	7.511723	9.364323	-0.1896914	53.386	26.634
		bawah	2.4	1.85	7.875014	7.511723	9.364323	-0.1896914	53.386	26.634
K16	1	atas	2.8	2.45	-9.573903	-6.969802	2.866408	4.097496	-0.988	2.459
		bawah	2.8	2.45	-9.573903	-6.969802	2.866408	4.097496	-0.988	2.459
	2	atas	3	2.3	-4.490117	-3.599655	-0.8321426	2.583221	-8.723	0.840
		bawah	3	2.3	-4.490117	-3.599655	-0.8321426	2.583221	-8.723	0.840
	3	atas	4.5	3.8	8.040288	0.9959169	-2.690233	1.72636	0.799	13.165
		bawah	4.5	3.8	8.040288	0.9959169	-2.690233	1.72636	0.799	13.165
	atap	atas	2.4	1.85	3.028013	4.048503	-4.002316	0.3474912	-8.162	4.018
		bawah	2.4	1.85	3.028013	4.048503	-4.002316	0.3474912	-8.162	4.018

Keterangan Tabel 7.16.b :

[1] Kolom yang ditinjau

[2] Tingkat lantai pada kolom yang ditinjau

[3] Letak gaya geser pada kolom atas dan bawah

[4] h = tinggi kolom

[5] h' = tinggi bersih kolom

[6] *VD* = Gaya geser kolom akibat beban mati

[7] *VL* = Gaya geser kolom akibat beban hidup

[8] *VE,kx* = Gaya geser kolom akibat beban gempa sejajar sumbu x

[9] *VE,ky* = Gaya geser kolom akibat beban gempa sejajar sumbu y

[10] $Vu,kx\ maks = 1{,}05.(VD+VL+4/k(VE,kx+0{,}3.VE,ky))$

[11] $Vu,ky\ maks = 1{,}05.(VD+VL+4/k(VE,ky+0{,}3.VE,kx))$

l 7.17.a Gaya Geser Terpakai Kolom Portal A

m	Lt.	Gaya geser rencana		Gaya geser maksimum		Gaya geser terpakai	
		Vu,kx (kN)	*Vu,ky* (kN)	*Vu,kx* (kN)	*Vu,ky* (kN)	*Vu,kx* (kN)	*Vu,ky* (kN)
]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
l	1	519.184	732.662	-415.867	-76.550	**-415.867**	-76.550
2	1	545.701	857.569	-385.836	-139.143	**-385.836**	-139.143
3	1	589.978	549.810	-256.153	-67.324	**-256.153**	-67.324
4	1	459.837	695.275	-262.479	-104.985	**-262.479**	-104.985
:5	1	448.654	343.067	-351.276	-70.851	**-351.276**	-70.851
	2	514.184	611.791	-180.318	-31.465	**-180.318**	-31.465
<6	1	345.873	331.310	-154.830	-13.566	**-154.830**	-13.566
	2	576.237	749.836	-143.359	-37.350	**-143.359**	-37.350
<7	1	129.022	261.825	-137.384	-41.344	**129.022**	-41.344
	2	674.000	592.998	-142.816	-47.337	**-142.816**	-47.337
K8	1	233.448	276.665	-134.981	-39.487	**-134.981**	-39.487
	2	789.651	626.360	-209.915	-106.733	**-209.915**	-106.733
K9	1	153.324	216.653	-247.764	-134.608	**153.324**	-134.608
	2	696.523	673.484	-70.403	21.773	**-70.403**	21.773
K10	1	267.692	323.429	-143.263	-83.991	**-143.263**	-83.991
	2	656.787	713.489	-83.370	-27.722	**-83.370**	-27.722
K11	1	332.831	327.748	-158.981	-94.796	**-158.981**	-94.796
	2	784.286	525.662	-97.911	-27.329	**-97.911**	-27.329
K12	1	691.945	520.675	349.881	50.546	**349.881**	50.546
	2	140.045	132.543	164.289	21.506	**140.045**	21.506
	3	252.676	135.548	-150.729	-10.502	**-150.729**	-10.502
	atap	1046.959	777.928	-155.862	-37.581	**-155.862**	-37.581
K13	1	498.304	521.399	-161.263	-46.994	**-161.263**	-46.994
	2	126.284	112.089	212.119	65.732	**126.284**	65.732
	3	269.596	172.486	111.317	54.251	**111.317**	54.251
	atap	1392.419	855.481	-129.727	-31.169	**-129.727**	-31.169
K14	1	281.597	349.537	-149.008	-56.208	**-149.008**	-56.208
	2	213.575	129.559	-162.965	-61.414	**-162.965**	-61.414
	3	262.529	158.268	-478.159	-159.503	**326.876**	158.268
	atap	1344.585	980.589	242.368	94.330	**242.368**	94.330
K15	1	131.146	239.068	-192.457	-63.939	**131.146**	-63.939
	2	219.745	121.533	-164.236	-66.086	**-164.236**	-66.086
	3	228.293	142.864	-145.441	-54.070	**-145.441**	-54.070
	atap	1506.669	1142.364	942.957	270.408	**942.957**	270.408
K16	1	227.909	308.525	-51.599	-40.881	**-51.599**	-40.881
	2	232.627	121.064	33.980	48.681	33.980	**48.681**
	3	200.659	121.130	-18.050	-3.190	**-18.050**	-3.190
	atap	1041.463	985.216	-35.078	-6.715	**-35.078**	-6.715

Keterangan tabel 7.17.a :

[1] Kolom yg ditinjau

[2] Tingkat lantai pada kolom yang ditinjau

[3] Vu,kx = Gaya geser kolom rencana sejajar sb-x

[4] Vu,ky = Gaya geser kolom rencana sejajar sb-y

[5] Vu,kx = Gaya geser kolom maksimum sejajar sb-x

[6] Vu,ky = Gaya geser kolom maksimum sejajar sb-y

[7] Vu,kx = Gaya geser kolom terpakai sejajar sb-x

[8] Vu,ky = Gaya geser kolom terpakai sejajar sb-y

Cetak tebal adalah gaya geser yang dipakai dalam perencanaan

abel 7.17.b Gaya Geser Terpakai Kolom Portal B

Kolom	Lt.	Gaya geser rencana		Gaya geser maksimum		Gaya geser terpakai	
		Vu,kx (kN)	*Vu,ky* (kN)	*Vu,kx* (kN)	*Vu,ky* (kN)	*Vu,kx* (kN)	*Vu,ky* (kN)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
K1	1	603.506	662.379	-295.0217276	-84.91690675	**-295.0217**	-84.91690675
K2	1	447.120	676.116	-278.5227901	-85.16191355	**-278.5228**	-85.16191355
K3	1	588.664	502.458	-170.3013844	-34.66801211	**-170.3014**	-34.66801211
K4	1	463.453	465.465	-159.8198158	-56.09860235	**-159.8198**	-56.09860235
K5	1	327.485	284.296	-208.1594392	-51.9554248	**-208.1594**	-51.9554248
	2	612.097	574.655	-138.1848915	-41.1516503	**-138.1849**	-41.1516503
K6	1	244.510	310.698	-119.182813	-20.4206838	**-119.1828**	-20.4206838
	2	548.390	531.935	-93.98146965	-11.83116645	**-93.9815**	-11.83116645
K7	1	147.267	289.732	-63.400499	7.439711	**-63.4005**	7.439711
	2	780.832	597.607	-72.58497828	-13.4822434	**-72.5850**	-13.4822434
K8	1	220.522	284.470	-146.2824925	-83.9763745	**-146.2825**	-83.9763745
	2	773.821	555.931	-143.4403318	-84.647105	**-143.4403**	-84.647105
K9	1	313.289	333.621	-90.29644835	-30.20577995	**-90.2964**	-30.20577995
	2	725.871	564.550	-76.61917938	-27.75399378	**-76.6192**	-27.75399378
K10	1	189.805	228.469	7.65753536	47.5886022	7.6575	**47.5886022**
	2	792.320	636.126	-80.57086616	-47.3932932	**-80.5709**	-47.3932932
K11	1	388.572	455.681	-215.5621326	-27.67126015	**-215.5621**	-27.67126015
	2	150.166	151.800	-125.0853562	-25.824799	**-125.0854**	-25.824799
	3	165.942	131.490	-141.4160496	-33.828424	**-141.4160**	-33.828424
	atap	1389.269	1030.050	-123.1767169	-23.41058045	**-123.1767**	-23.41058045
K12	1	382.154	382.324	-88.285921	-0.179119	**-88.2859**	-0.179119
	2	152.036	134.737	-113.8638301	-37.8799196	**-113.8638**	-37.8799196
	3	184.016	122.425	-111.4326036	-27.67676355	**-111.4326**	-27.67676355
	atap	985.226	715.700	-83.60497975	-40.55639935	**-83.6050**	-40.55639935
K13	1	289.454	401.571	-133.1148382	-49.5850478	**-133.1148**	-49.5850478
	2	202.073	121.993	-121.4223271	-36.0845831	**-121.4223**	-36.0845831
	3	179.244	112.299	-72.94824422	2.2321811	**-72.9482**	2.2321811
	atap	1000.440	799.219	-117.61302	-52.6361609	**-117.6130**	-52.6361609
K14	1	271.701	396.452	228.319378	60.002894	**228.3194**	60.002894
	2	190.079	120.255	-129.3727198	-49.08783255	**-129.3727**	-49.08783255
	3	151.745	91.523	-128.6557035	-51.7420023	**-128.6557**	-51.7420023
	atap	1297.298	874.073	-109.7901286	-40.60026939	**-109.7901**	-40.60026939
K15	1	213.833	379.060	-80.71760815	-19.65364015	**-80.7176**	-19.65364015
	2	221.993	158.873	-82.35601765	-29.47805405	**-82.3560**	-29.47805405
	3	125.811	82.623	-417.06153	-64.589326	**125.811**	-64.589326
	atap	1044.380	745.436	53.38573617	26.63449585	**53.3857**	26.63449585
K16	1	233.280	312.469	-0.98826305	2.45878335	-0.9883	**2.45878335**
	2	180.657	118.364	-8.7229658	0.84005228	**-8.7230**	0.84005228
	3	113.143	67.299	0.798715145	13.16517555	0.7987	**13.16517555**
	atap	1438.533	919.795	-8.16193276	4.0175274	**-8.1619**	4.0175274

eterangan tabel 7.17.b :

1] Kolom yg ditinjau

2] Tingkat lantai pada kolom yang ditinjau

3] Vu,kx = Gaya geser kolom rencana sejajar sb-x

4] Vu,ky = Gaya geser kolom rencana sejajar sb-y

[5] Vu,kx = Gaya geser kolom maksimum sejajar sb-x

[6] Vu,ky = Gaya geser kolom maksimum sejajar sb-y

[7] Vu,kx = Gaya geser kolom terpakai sejajar sb-x

[8] Vu,ky = Gaya geser kolom terpakai sejajar sb-y

Cetak tebal adalah gaya geser yang dipakai dalam perencanaan

Tabel 7.18.a Penulangan Geser Kolom Portal A

Kolom	Lt.	*l* (m)	*ln* (m)	*b* (mm)	*h* (mm)	*Nu,k* (kN)	*0,3.Ag.fc'* (kN)	Lokasi	Jarak (mm)	*Vu,k* (kN)	*Vc* (kN)	*Vs* (kN)	*s* (mm)	*s maks* (mm)	Tulangan geser pakai	*Vu,k ≤ 0,6(Vc+Vs)* (kN)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]
K1	1	2.8	2.575	500	500	196.496	1500	pada *lo*	0-500	415.867	0	693.1111927	68.88951802	100	4P12-70	409.269
								luar *lo*	sisa	415.867	163.988	529.124	90.23995497	200	4P12-90	416.713
K2	1	2.8	2.575	500	500	234.984	1500	pada *lo*	0-500	385.836	0	643.0602632	74.25135518	100	4P12-70	409.269
								luar *lo*	sisa	385.836	163.989	479.071	99.6681127	200	4P12-100	384.882
K3	1	2.8	2.575	500	500	200.813	1500	pada *lo*	0-500	256.153	0	426.9214043	111.8428252	100	4P12-100	286.489
								luar *lo*	sisa	256.153	163.988	262.934	181.5974904	200	4P12-150	289.385
K4	1	2.8	2.575	500	500	131.104	1500	pada *lo*	0-500	262.479	0	437.464658	109.1473223	100	4P12-100	286.489
								luar *lo*	sisa	262.479	163.984	273.480	174.5943453	200	4P12-150	289.383
K5	1	2.8	2.575	500	600	247.791	1800	pada *lo*	0-600	351.276	0	585.4605664	100.092029	100	4P12-100	351.600
								luar *lo*	sisa	351.276	201.258	384.203	152.5235377	200	4P12-150	355.155
	2	3	2.55	500	600	133.814	1800	pada *lo*	0-600	180.318	0.000	300.530	146.241267	100	3P12-100	263.700
								luar *lo*	sisa	180.318	201.253	99.278	295.1307957	200	2P12-200	208.651
K6	1	2.8	2.575	500	600	408.492	1800	pada *lo*	0-600	154.830	0.000	258.050	113.5435454	100	2P12-100	175.800
								luar *lo*	sisa	154.830	201.266	56.785	358.3212224	200	2P10-200	181.801
	2	3	2.55	500	600	189.221	1800	pada *lo*	0-600	143.359	0.000	238.932	122.6286793	100	2P12-100	175.800
								luar *lo*	sisa	143.359	201.255	37.677	540.0395194	200	2P10-200	181.795
K7	1	2.8	2.575	500	600	804.472	1800	pada *lo*	0-600	129.022	0.000	215.037	136.2552087	100	2P12-100	175.800
								luar *lo*	sisa	129.022	201.285	13.753	1479.500334	200	2P10-200	208.671
	2	3	2.55	500	600	375.626	1800	pada *lo*	0-600	142.816	0.000	238.026	123.0955894	100	2P12-100	175.800
								luar *lo*	sisa	142.816	201.264	36.762	553.4842191	200	2P10-200	181.800
K8	1	2.8	2.575	500	600	1092.669	1800	pada *lo*	0-600	134.981	0.000	224.969	130.2402084	100	2P12-100	175.800
								luar *lo*	sisa	134.981	201.298	23.670	859.6122285	200	2P10-200	181.821
	2	3	2.55	500	600	566.577	1800	pada *lo*	0-600	209.915	0	349.8590352	125.6218865	100	3P12-100	263.700
								luar *lo*	sisa	209.915	201.273	148.586	197.1922894	200	2P12-200	208.664

Tabel 7.18.a Lanjutan

Kolom	Lt.	l (m)	ln (m)	b (mm)	h (mm)	*Nu,k* (kN)	*0,3.Ag.fc'* (kN)	Lokasi	Jarak (mm)	*Vu,k* (kN)	*Vc* (kN)	*Vs* (kN)	s (kN)	*s maks* (kN)	*Tulangan* geser pakai	*Vu,k* ≤ *0,6(Vc+Vs)* (kN)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]
K9	1	2.8	2.575	500	600	973.662	1800	pada *lo*	0-600	153.324	0	255.5404511	171.9882383	100	3P12-100	263.700
								luar *lo*	sisa	153.324	201.293	54.248	810.1720201	200	3P12-200	252.626
	2	3	2.55	500	600	513.119	1800	pada *lo*	0-600	70.403	0.000	117.339	173.4054888	100	2P10-100	122.083
								luar *lo*	sisa	70.403	201.271	-83.932	-242.4252298	200	2P10-200	181.804
K10	1	2.8	2.575	500	600	805.347	1800	pada *lo*	0-600	143.263	0.000	238.772	122.711191	100	2P12-100	175.800
								luar *lo*	sisa	143.263	201.285	37.487	542.7792799	200	2P10-200	181.812
	2	3	2.55	500	600	414.675	1800	pada *lo*	0-600	83.370	0.000	138.950	146.4356873	100	2P10-100	122.083
								luar *lo*	sisa	83.370	201.266	-62.316	-326.5151436	200	2P10-200	181.801
K11	1	2.8	2.575	500	600	346.313	1800	pada *lo*	0-600	158.981	0	264.9681461	110.579209	100	2P12-100	175.800
								luar *lo*	sisa	158.981	201.263	63.705	319.395044	200	2P10-200	181.799
	2	3	2.55	500	600	229.412	1800	pada *lo*	0-600	97.911	0.000	163.185	124.6880606	100	2P10-100	122.083
								luar *lo*	sisa	97.911	201.257	-38.072	-534.4360756	200	2P10-200	181.796
K12	1	2.8	2.45	500	700	462.756	2100	pada *lo*	0-700	349.881	0.000	583.135	119.1007541	100	4P12-100	416.711
								luar *lo*	sisa	349.881	238.536	344.598	201.5442202	200	4P12-200	351.477
	2	3	2.3	500	700	168.882	2100	pada *lo*	0-700	140.045	0	233.4077764	148.777768	100	2P12-100	208.355
								luar *lo*	sisa	140.045	238.522	-5.114	-4715.192415	200	2P10-200	215.459
	3	4.5	3.8	500	700	526.526	2100	pada *lo*	0-700	150.729	0.000	251.216	138.2313259	100	2P12-100	208.355
								luar *lo*	sisa	150.729	238.540	12.676	1902.397366	200	2P10-200	215.469
	atap	2.4	1.85	500	700	78.119	2100	pada *lo*	0-700	155.862	0.000	259.769	133.6797056	100	2P12-100	208.355
								luar *lo*	sisa	155.862	238.518	21.252	1134.746797	200	2P10-200	215.456
K13	1	2.8	2.45	500	700	844.312	2100	pada *lo*	0-700	161.263	0.000	268.772	129.2018977	100	2P12-100	208.355
								luar *lo*	sisa	161.263	238.555	30.217	798.0604594	200	2P10-200	215.479
	2	3	2.3	500	700	633.273	2100	pada *lo*	0-700	126.284	0.000	210.474	164.9890286	100	2P12-100	208.355
								luar *lo*	sisa	126.284	238.545	-28.071	-859.0842566	200	2P10-200	215.472
	3	4.5	3.8	500	700	373.421	2100	pada *lo*	0-700	111.317	0.000	185.529	187.1725616	100	2P12-100	208.355
								luar *lo*	sisa	111.317	238.532	-53.003	-454.9749088	200	2P10-200	215.465
	atap	2.4	1.85	500	700	119.599	2100	pada *lo*	0-700	129.727	0.000	216.212	160.6104849	100	2P12-100	208.355
								luar *lo*	sisa	129.727	238.520	-22.308	-1081.016037	200	2P10-200	215.457

Tabel 7.18.a Lanjutan

Kolom	Lt.	l (m)	ln (m)	b (mm)	h (mm)	*Nu,k* (kN)	*0,3.Ag.fc'* (kN)	Lokasi	Jarak (mm)	*Vu,k* (kN)	*Vc* (kN)	*Vs* (kN)	s (kN)	*s maks* (kN)	*Tulangan* geser pakai	*Vu,k ≤ 0,6(Vc+Vs)* (kN)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]
K14	1	2.8	2.45	500	700	964.913	2100	pada *lo*	0-700	149.008	0	248.3467822	139.828218	100	2P12-100	208.355
								luar *lo*	sisa	149.008	238.561	9.786	2464.281208	200	2P10-200	215.482
	2	3	2.3	500	700	697.052	2100	pada *lo*	0-700	162.965	0	271.6083969	127.8527778	100	2P12-100	208.355
								luar *lo*	sisa	162.965	238.548	33.061	729.4252664	200	2P10-200	215.474
	3	4.5	3.8	500	700	402.121	2100	pada *lo*	0-700	326.876	0.000	544.793	127.4828591	100	4P12-100	416.711
								luar *lo*	sisa	326.876	238.533	306.260	226.7742293	200	4P12-200	351.475
	atap	2.4	1.85	500	700	148.045	2100	pada *lo*	0-700	242.368	0.000	403.947	128.9496228	100	3P12-100	312.533
								luar *lo*	sisa	242.368	238.521	165.426	209.9179303	200	2P12-200	247.290
K15	1	2.8	2.45	500	700	1049.216	2100	pada *lo*	0-700	131.146	0.000	218.577	158.8723626	100	2P12-100	208.355
								luar *lo*	sisa	131.146	238.565	-19.988	-1206.501085	200	2P10-200	215.485
	2	3	2.3	500	700	753.543	2100	pada *lo*	0-700	164.236	0	273.7264206	126.8634863	100	2P12-100	208.355
								luar *lo*	sisa	164.236	238.551	35.176	685.5617795	200	2P10-200	215.476
	3	4.5	3.8	500	700	426.434	2100	pada *lo*	0-700	145.441	0.000	242.401	99.48463792	100	2P10-100	144.691
								luar *lo*	sisa	145.441	238.535	3.867	6236.846778	200	2P10-200	215.466
	atap	2.4	1.85	500	700	180.447	2100	pada *lo*	0-700	942.957	0.000	1571.594	44.19192769	100	4P12-40	1041.777
								luar *lo*	sisa	942.957	238.523	1333.071	52.0990641	200	4P12-50	976.535
K16	1	2.8	2.45	500	700	890.029	2100	pada *lo*	0-700	51.599	0.000	85.999	280.4130613	100	2P10-100	144.691
								luar *lo*	sisa	51.599	238.557	-152.558	-158.0719317	200	2P10-200	215.480
	2	3	2.3	500	700	681.579	2100	pada *lo*	0-700	48.681	0.000	81.135	297.2235584	100	2P10-100	144.691
								luar *lo*	sisa	48.681	238.547	-157.412	-153.197776	200	2P10-200	215.474
	3	4.5	3.8	500	700	439.771	2100	pada *lo*	0-700	18.050	0.000	30.083	801.6338058	100	2P10-100	144.691
								luar *lo*	sisa	18.050	238.535	-208.453	-115.6866427	200	2P10-200	215.467
	atap	2.4	1.85	500	700	193.851	2100	pada *lo*	0-700	35.078	0.000	58.464	412.4784133	100	2P10-100	144.691
								luar *lo*	sisa	35.078	238.523	-180.059	-133.9292831	200	2P10-200	215.460

Keterangan tabel 7.18.a :

[1] Kolom yg ditinjau

[2] Tingkat lantai pada kolom yang ditinjau

[3] *l* = panjang kolom

[4] *ln* = panjang bersih kolom

[5] *b* = lebar penampang kolom

[6] *h* = tinggi penampang kolom

[7] *Nu,k* = gaya aksial kolom terpakai

[8] *0,3.Ag.fc'* ; dengan *Ag* = *b.h* dan fc' = 20 MPa

[9] Daerah penulangan geser

[10] Jarak penulangan geser dari muka kolom

lo = h; untuk Nuk < 0,3.Ag.fc'

lo = 1,5h; untuk Nuk > 0,3.Ag.fc'

[11] *Vu,k* = gaya geser rencana kolom

[12] *Vc = [1+(Nuk/14Ag)](1/6.fc^0,5.b.d)*

(gaya geser beton)

[13] *Vs = (Vuk/0,6) - Vc*

[14] *s = (Av.fy.d)/Vs* ; ϕ sengkang =12mm dan 10mm

[15] *s maks* (pada lo) = 8d tulangan pokok

= 1/4.b

= 100mm

s maks (luar lo) = 200mm

[16] tulangan geser kolom terpasang

[17] *Vu,k* $\leq$ *0,6(Vs+Vc),* dinyatakan aman

Tabel 7.19.a Penulangan Geser Pertemuan Balok-Kolom Portal A

Klm	Lt.	Arah Portal	h	kiri			kanan			V kol	C ki	T ka	V jh	Nu,k	Penulangan Geser Horisontal				Penulangan Geser Vertikal			
				Mnak,b	l ki	ln ki	Mnak,b	l ka	ln ka						Vch	Vsh	Ajh	n	Vcv	Vsv	Ajv	As ≧ Ajv
			(m)	(kNm)	(m)	(m)	(kNm)	(m)	(m)	(kN)	(kN)	(kN)	(kN)	(kN)	(kN)	(kN)	(mm^2)		(kN)	(kN)	(mm^2)	(mm^2)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]
K1	1	sb-x	2.8	266.2873	0.919	0.669	266.2873	7	6.5	721.4767	665.718	1,828.479	1,509.346	196.496	0	1,509.346	6288.941	14	964.92356	712.1	2967	3039.52
		sb-y	2.8	0	0	0	1550.348	7.522	6.972	1167.763	199.715	4,075.585	1,509.346		0	1,509.346	6288.941	14	964.92356	712.1	2967	9118.56
K2	1	sb-x	2.8	266.2873	7	6.5	266.2873	6	5.5	479.2072	665.718	1,126.811	1,313.322	234.984	0	1,313.322	5472.174	12	849.71486	609.5	2540	3039.52
		sb-y	2.8	0	0	0	614.79	7.159	6.969	502.957	199.715	1,736.690	1,433.449		0	1,433.449	5972.704	13	927.43675	665.3	2772	11775
K3	1	sb-x	2.8	266.2873	6	5.5	266.2873	6	5.5	453.2811	665.718	1,016.795	1,229.232	200.813	0	1,229.232	5121.8	11	786.90833	578.9	2412	3039.52
		sb-y	2.8	0	0	0	468.102	7.159	6.969	409.4758	199.715	1,369.970	1,160.210		0	1,160.210	4834.209	11	742.72316	546.4	2277	5887.5
K4	1	sb-x	2.8	266.2873	6	5.5	266.2873	3	2.5	485.564	665.718	1,071.803	1,251.957	131.104	0	1,251.957	5216.488	12	784.00158	607.1	2529	3039.52
		sb-y	2.8	0	0	0	541.446	7.159	6.969	462.0124	199.715	1,553.330	1,291.034		0	1,291.034	5379.307	12	808.47213	626	2608	7598.8
K5	1	sb-x	2.8	202.891	0.919	0.669	202.891	2.885	2.385	190.3134	627.432	627.432	1,064.550	247.791	0	1,064.550	4435.623	10	682.69415	500.1	2084	3039.52
		sb-y	2.8	160.272	6.23	5.68	160.272	6.04	5.39	154.6734	552.848	552.848	951.023		0	951.023	3962.596	9	609.88977	446.8	1862	4559.28
	2	sb-x	3	519.128	0.919	0.669	519.128	2.885	2.385	904.1242	1,473.358	1,593.562	1,509.346	133.814	0	1,509.346	6288.941	14	939.26953	737.8	3074	3039.52
		sb-y	3	234.051	6.915	6.365	394.323	6.04	5.39	640.7775	974.474	1,375.154	1,509.346		0	1,509.346	6288.941	14	939.26953	737.8	3074	6079.04
K6	1	sb-x	2.8	202.891	2.885	2.385	202.891	2.31	1.81	198.6671	682.766	682.766	1,166.864	408.492	0	1,166.864	4861.935	11	779.56102	517	2154	3039.52
		sb-y	2.8	234.051	6.898	6.348	234.051	6.686	6.036	200.6145	737.296	737.296	1,273.977		0	1,273.977	5308.237	12	851.12095	564.4	2352	3039.52
	2	sb-x	3	519.128	2.885	2.385	519.128	2.31	1.81	927.5752	1,583.216	1,703.420	1,509.346	189.221	0	1,509.346	6288.941	14	953.20745	723.8	3016	3039.52
		sb-y	3	380.528	7.522	6.972	540.8	8.06	7.41	808.4611	1,340.666	1,741.346	1,509.346		0	1,509.346	6288.941	14	953.20745	723.8	3016	7598.8
K7	1	sb-x	2.8	202.891	2.31	1.81	202.891	7	6.5	190.821	682.766	682.766	1,174.711	804.472	123.836	1,050.874	4378.644	10	862.32987	442.9	1845	3039.52
		sb-y	2.8	234.051	6.5	5.95	234.051	6.3	5.65	199.106	737.296	737.296	1,275.486		123.836	1,151.649	4798.539	11	936.30663	480.9	2004	3039.52
	2	sb-x	3	519.128	2.31	1.81	519.128	7	6.5	874.305	1,528.366	1,703.905	1,509.346	375.626	0	1,509.346	6288.941	14	1000.0991	677	2821	3039.52
		sb-y	3	307.395	7.159	6.609	541.446	7.742	7.092	752.8056	1,157.834	1,742.961	1,509.346		0	1,509.346	6288.941	14	1000.0991	677	2821	3925
K8	1	sb-x	2.8	202.891	7	6.5	202.891	6	5.5	194.1306	737.774	737.774	1,281.417	1092.67	192.224	1,089.193	4538.303	10	1002.2109	421.6	1757	3039.52
		sb-y	2.8	307.395	6.5	5.95	307.395	6.3	5.65	244.5531	920.656	920.656	1,509.346		192.224	1,317.122	5488.007	12	1180.4767	496.6	2069	3039.52
	2	sb-x	3	519.128	7	6.5	519.128	6	5.5	832.1929	1,528.366	1,758.913	1,509.346	566.577	0	1,509.346	6288.941	14	1048.1343	628.9	2620	3039.52
		sb-y	3	307.395	7.159	6.609	614.79	7.742	7.092	782.6748	1,157.834	1,926.321	1,509.346		0	1,509.346	6288.941	14	1048.1343	628.9	2620	3039.52

bel 7.19.a Lanjutan

Lt.	Arah Portal	h	kiri			kanan			V kol	C ki	T ka	V jh	Nu,k	Penulangan Geser Horisontal				Penulangan Geser Vertikal			
			Mnak,b	l ki	ln ki	Mnak,b	l ka	ln ka						Vch	Vsh	Ajh	n	Vcv	Vsv	Ajv	As ≧ Ajv
		(m)	(kNm)	(m)	(m)	(kNm)	(m)	(m)	(kN)	(kN)	(kN)	(kN)	(kN)	(kN)	(kN)	(mm^2)		(kN)	(kN)	(mm^2)	(mm^2)
[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]
1	sb-x	2.8	202.891	6	5.5	202.891	6	5.5	149.413	627.432	507.228	985.246	973.662	167.406	817.840	3407.668	8	751.030	343.7	1432	3039.52
	sb-y	2.8	160.272	6.5	5.95	0	0	0	92.89737	552.848	152.168	612.119		167.406	444.713	1852.973	4	466.604	213.5	889.7	3039.52
2	sb-x	3	519.128	6	5.5	519.128	6	5.5	808.322	1,528.366	1,648.570	1,509.346	513.119	0	1,509.346	6288.941	14	1034.6866	642.4	2677	3039.52
	sb-y	3	307.395	7.159	6.609	467.667	7.742	7.092	690.2578	1,157.834	1,558.514	1,509.346		0	1,509.346	6288.941	14	1034.6866	642.4	2677	3039.52
1	sb-x	2.8	202.891	6	5.5	202.891	6	5.5	149.413	627.432	507.228	985.246	805.347	124.101	861.145	3588.104	8	723.392	371.3	1547	3039.52
	sb-y	2.8	160.272	6.5	5.95	0	0	0	92.89737	552.848	152.168	612.119		124.101	488.018	2033.409	4	449.433	230.7	961.2	3039.52
2	sb-x	3	519.128	3	2.5	519.128	3	2.5	785.0501	1,528.366	1,297.820	1,509.346	414.675	0	1,509.346	6288.941	14	1009.9222	667.1	2780	3039.52
	sb-y	3	307.395	7.159	6.609	0	0	0	412.27	1,157.834	389.346	1,134.910		0	1,134.910	4728.79	10	759.38214	501.6	2090	6079.04
1	sb-x	2.8	202.891	3	2.5	202.891	3	2.5	170.544	507.228	682.766	1,019.449	346.313	0	1,019.449	4247.705	9	670.51094	462.2	1926	3039.52
	sb-y	2.8	0	0	0	234.051	6.3	5.65	122.8194	152.168	737.296	766.645		0	766.645	3194.352	7	504.23654	347.6	1448	3039.52
2	sb-x	3	519.128	3	2.5	519.128	3	2.5	802.1104	1,297.820	1,297.820	1,509.346	229.412	0	1,509.346	6288.941	14	963.31783	713.7	2974	3039.52
	sb-y	3	0	0	0	394.323	7.742	7.092	469.1376	389.346	1,375.154	1,295.362		0	1,295.362	5397.341	12	826.7457	612.5	2552	3039.52
1	sb-x	2.8	233.964	0.919	0.669	233.964	5.827	5.327	189.5909	407.917	338.378	556.704	462.756	0	556.704	2319.6	5	370.82496	26.82	111.8	3039.52
	sb-y	2.8	160.272	6.039	5.689	0	0	0	103.5903	333.312	101.513	331.235		0	331.235	1380.144	3	220.63803	15.96	66.49	4559.28
2	sb-x	3	233.964	0.919	0.669	233.964	5.827	5.327	146.617	407.917	338.378	599.678	168.882	0	599.678	2498.658	6	374.27462	54.07	225.3	3039.52
	sb-y	3	160.272	6.039	5.689	0	0	0	80.10984	333.312	101.513	354.715		0	354.715	1477.98	3	221.38695	31.98	133.3	9812.5
3	sb-x	4.5	346.468	0.919	0.669	346.468	5.827	5.327	235.5058	602.641	501.090	868.225	526.526	0	868.225	3617.606	8	586.24145	33.92	141.3	3039.52
	sb-y	4.5	234.051	7.531	7.181	0	0	0	127.3029	488.831	150.327	511.855		0	511.855	2132.728	5	345.61352	20	83.32	9812.5
atap	sb-x	2.4	121.022	0.919	0.669	121.022	5.827	5.327	217.7498	341.594	341.594	465.439	78.1189	0	465.439	1939.329	4	284.45759	297.3	1239	3039.52
	sb-y	2.4	0	0	0	0	0	0	65.32493	102.478	102.478	139.632		0	139.632	581.7987	1	85.337276	89.2	371.7	4559.28
1	sb-x	2.8	233.964	5.827	5.327	233.964	4.55	4.05	178.8822	439.929	338.378	599.424	844.312	96.3182	503.106	2096.275	5	431.95469	0	0	3039.52
	sb-y	2.8	234.051	6.686	6.336	0	0	0	121.4777	440.017	101.513	420.052		96.3182	323.734	1348.893	3	302.6965	0	0	6079.04
2	sb-x	3	233.964	5.827	5.327	233.964	4.55	4.05	132.8857	407.917	338.378	613.409	633.273	0	613.409	2555.871	6	423.53909	14.61	60.88	3039.52
	sb-y	3	160.272	6.686	6.336	0	0	0	75.77668	333.312	101.513	359.048		0	359.048	1496.034	3	247.91117	8.552	35.63	4559.28
3	sb-x	4.5	346.468	5.827	5.327	346.468	4.55	4.05	345.1663	666.195	501.090	822.119	373.421	0	822.119	3425.496	8	537.12808	50.1	208.7	3039.52
	sb-y	4.5	380.528	8.06	7.71	0	0	0	244.3277	700.677	150.327	606.677		0	606.677	2527.82	6	396.36978	36.97	154	9812.5

bel 7.19.a Lanjutan

›m	Lt.	Arah Portal	h	kiri			kanan			V kol	C ki	T ka	V jh	Nu,k	Penulangan Geser Horisontal				Penulangan Geser Vertikal			
				Mnak,b	l ki	ln ki	Mnak,b	l ka	ln ka						Vch	Vsh	Ajh	n	Vcv	Vsv	Ajv	As ≥ Ajv
			(m)	(kNm)	(m)	(m)	(kNm)	(m)	(m)	(kN)	(kN)	(kN)	(kN)	(kN)	(kN)	(kN)	(mm^2)		(kN)	(kN)	(mm^2)	(mm^2)
]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]
3	atap	sb-x	2.4	121.022	5.827	5.327	121.022	4.55	4.05	195.6677	341.594	341.594	487.521	119.599	0	487.521	2031.337	4	300.84219	308.6	1286	3039.52
		sb-y	2.4	0	0	0	0	0	0	58.70031	102.478	102.478	146.256		0	146.256	609.4012	1	90.252656	92.57	385.7	3039.52
	1	sb-x	2.8	233.964	4.55	4.05	233.964	7	6.5	177.7624	439.929	338.378	600.544	964.913	130.5	470.045	1958.519	4	443.10827	0	0	3039.52
		sb-y	2.8	234.051	6.3	5.95	0	0	0	121.372	440.017	101.513	420.158		130.5	289.659	1206.911	3	310.01143	0	0	3039.52
	2	sb-x	3	233.964	4.55	4.05	233.964	7	6.5	137.4696	439.929	338.378	640.837	697.052	0	640.837	2670.154	6	448.31592	9.425	39.27	3039.52
		sb-y	3	234.051	6.3	5.95	0	0	0	93.86104	440.017	101.513	447.669		0	447.669	1865.288	4	313.17983	6.584	27.43	4559.28
14	3	sb-x	4.5	346.468	4.55	4.05	346.468	7	6.5	217.8487	634.464	501.090	917.705	402.121	0	917.705	3823.772	8	603.34157	52.16	217.3	3039.52
		sb-y	4.5	307.395	7.742	7.392	0	0	0	139.6597	594.907	150.327	605.574		0	605.574	2523.225	6	398.13206	34.42	143.4	9812.5
	atap	sb-x	2.4	121.022	4.55	4.05	121.022	7	6.5	194.173	341.594	341.594	489.016	148.045	0	489.016	2037.566	5	303.75174	307.5	1281	3039.52
		sb-y	2.4	0	0	0	0	0	0	58.25189	102.478	102.478	146.705		0	146.705	611.2697	1	91.125521	92.26	384.4	3039.52
	1	sb-x	2.8	233.964	7	6.5	233.964	6	5.5	182.4942	471.752	338.378	627.635	1049.22	149.832	477.803	1990.846	4	470.65604	0	0	3039.52
		sb-y	2.8	307.395	6.3	5.95	0	0	0	144.1141	546.093	101.513	503.492		149.832	353.660	1473.583	3	377.56264	0	0	3039.52
	2	sb-x	3	233.964	7	6.5	233.964	6	5.5	141.1288	471.752	338.378	669.000	753.543	58.6689	610.331	2543.048	6	473.41747	4.44	18.5	3039.52
15		sb-y	3	307.395	6.3	5.95	0	0	0	111.4483	546.093	101.513	536.158		58.6689	477.489	1989.537	4	379.41158	3.558	14.83	4559.28
	3	sb-x	4.5	346.468	7	6.5	346.468	6	5.5	214.9886	634.464	501.090	920.565	426.434	0	920.565	3835.689	8	608.41929	49.13	204.7	3039.52
		sb-y	4.5	307.395	7.742	7.392	0	0	0	138.8016	594.907	150.327	606.432		0	606.432	2526.8	6	400.80248	32.36	134.8	7598.8
	atap	sb-x	2.4	121.022	7	6.5	121.022	6	5.5	191.3008	341.594	341.594	491.888	180.447	0	491.888	2049.533	5	307.81268	307	1279	3039.52
		sb-y	2.4	0	0	0	0	0	0	57.39024	102.478	102.478	147.566		0	147.566	614.8599	1	92.343804	92.11	383.8	3039.52
	1	sb-x	2.8	233.964	6	5.5	233.964	6	5.5	365.5078	439.929	338.378	412.799	890.029	110.527	302.272	1259.466	3	300.16526	0	0	3039.52
		sb-y	2.8	234.051	6.3	5.95	0	0	0	250.5992	440.017	101.513	290.931		110.527	180.404	751.6843	2	211.54952	0	0	3039.52
	2	sb-x	3	233.964	6	5.5	233.964	6	5.5	136.4563	439.929	338.378	641.850	681.579	0	641.850	2674.376	6	447.60605	10.86	45.24	3039.52
16		sb-y	3	234.051	6.3	5.95	0	0	0	93.55705	440.017	101.513	447.973		0	447.973	1866.554	4	312.40228	7.578	31.58	4559.28
	3	sb-x	4.5	346.468	6	5.5	346.468	6	5.5	210.3728	602.641	501.090	893.358	439.771	0	893.358	3722.327	8	592.13976	45.97	191.6	3039.52
		sb-y	4.5	234.051	7.742	7.392	0	0	0	119.6878	488.831	150.327	519.470		0	519.470	2164.457	5	344.31723	26.73	111.4	6079.04
	atap	sb-x	2.4	121.022	6	5.5	121.022	6	5.5	192.535	341.594	341.594	490.654	193.851	0	490.654	2044.39	5	307.97991	305.3	1272	3039.52
		sb-y	2.4	0	0	0	0	0	0	57.7605	102.478	102.478	147.196		0	147.196	613.3171	1	92.393973	91.6	381.7	3039.52

erangan Tabel 7.19.a :

Kolom yg ditinjau

Tingkat lantai pada kolom yang ditinjau

Arah portal sejajar sumbu x dan sumbu y

h = tinggi kolom dari titik pertemuan ke titik pertemuan

Mnak,b kiri = momen nominal aktual balok sebelah kiri kolom

l ki = bentang balok dari as ke as kiri kolom

ln,ki = bentang bersih balok kiri kolom

Mnak,b kanan = momen nominal aktual balok sebelah kanan kolom

l ka = bentang balok dari as ke as kanan kolom

ln,ka = bentang bersih balok kanan kolom

Vkol x = 0,7.1,25. [l / ln . ΣMnak,b-x + 0,3(l / ln . ΣMnak,b-y)] / (0,5(ha+hb))

Vkol y = 0,7.1,25. [l / ln . ΣMnak,b-y + 0,3(l / ln . ΣMnak,b-x)] / (0,5(ha+hb))

C ki-x = 0,7.1,25. [Mnak,b ki-x + 0,3Mnak,b ki-y)] / Zki

C ki-y = 0,7.1,25. [Mnak,b ki-y + 0,3Mnak,b ki-x)] / Zki

T ka-x = 0,7.1,25. [Mnak,b ka-x + 0,3Mnak,b ka-y)] / Zka

T ka-y = 0,7.1,25. [Mnak,b ka-y + 0,3Mnak,b ka-x)] / Zka

V jh = C ki + T ka - Vkol; (tegangan geser horisontal nominal dalam join)

Vjh = Vjh/(bj.hc) < 1,5(fc')^0.5

Nu,k = gaya aksial rencana kolom

Vch = 2/3.[(Nu,k/Ag) - 0,1fc']^0,5.bj.hc; (tegangan geser beton horisontal)

Besarnya *Vch* harus diambil sama dengan nol, kecuali bila *Nu,k/Ag > 0,1fc'*

Vsh = Vjh - Vch

Ajh = Vsh / fy; (luas tulangan geser join horisontal)

n = Ajh / (4.0,25.3,14.D^2)

(jumlah lapis tulangan geser)

Cetak tebal adalah jumlah lapis tulangan geser horisontal yang dipakai

V cv = Vjh.As'/As.[0,6+(Nu,k/(Ag.fc'))]; (tegangan geser beton vertikal)

As = As'

Vsv = Vjv - Vcv; ——>*Vjv = hc/bj . Vjh*

Ajv = Vsv / fy; (luas tulangan geser join vertikal)

As = luas tulangan pokok kolom ≧ *Asv*

Tabel 7.19.b Penulangan Geser Pertemuan Balok-Kolom Portal B

Klm	Lt.	Arah Portal	h	kiri			kanan			V kol	C ki	T ka	V jh	Nu,k	Penulangan Geser Horisontal				Penulangan Geser Vertikal			
				Mnak,b	l ki	ln ki	Mnak,b	l ka	ln ka						Vch	Vsh	Ajh	n	Vcv	Vsv	Ajv	As ≥ Ajv
			(m)	(kNm)	(m)	(m)	(kNm)	(m)	(m)	(kN)	(kN)	(kN)	(kN)	(kN)	(kN)	(kN)	(mm^2)		(kN)	(kN)	(mm^2)	(mm^2)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]
K1	1	sb-x	2.8	202.891	0.919	0.669	202.891	7	6.5	624.377	507.228	1,669.989	1,509.346	239.822	0	1,509.346	6288.9412	14	978.002	699.0486	2912.7	3039.52
		sb-y	2.8	0	0	0	1550.35	7.522	6.972	1138.63	152.168	4,028.038	1,509.346		0	1,509.346	6288.9412	14	978.002	699.0486	2912.7	9118.56
K2	1	sb-x	2.8	202.891	7	6.5	202.891	6	5.5	393.312	507.228	968.320	1,082.236	92.586	0	1,082.236	4509.315	10	669.381	533.1027	2221.3	3039.52
		sb-y	2.8	0	0	0	614.79	7.159	6.969	477.188	152.168	1,689.143	1,364.123		0	1,364.123	5683.8462	13	843.734	671.9587	2799.8	11775
K3	1	sb-x	2.8	202.891	6	5.5	202.891	3	2.5	394.792	507.228	913.312	1,025.748	159.118	0	1,025.748	4273.948	9	648.091	491.628	2048.5	3039.52
		sb-y	2.8	0	0	0	541.446	7.159	6.969	434.781	152.168	1,505.783	1,223.171		0	1,223.171	5096.5448	11	772.828	586.2505	2442.7	5887.5
K4	1	sb-x	2.8	202.891	3	2.5	202.891	6	5.5	380.581	507.228	857.978	984.624	182.685	0	984.624	4102.5999	9	626.75	467.277	1947	3039.52
		sb-y	2.8	0	0	0	467.667	7.159	6.969	387.412	152.168	1,321.336	1,086.092		0	1,086.092	4525.3845	10	691.338	515.4312	2147.6	7598.8
K5	1	sb-x	2.8	139.117	0.919	0.669	139.117	2.885	2.385	140.604	467.997	467.997	795.389	282.902	0	795.389	3314.1191	7	514.736	369.0291	1537.6	3039.52
		sb-y	2.8	160.272	6.23	5.68	160.272	6.04	5.39	139.761	505.018	505.018	870.275		0	870.275	3626.145	8	563.199	403.7734	1682.4	4559.28
	2	sb-x	3	266.301	0.919	0.669	266.301	2.885	2.385	542.216	841.291	961.495	1,260.569	220.832	0	1,260.569	5252.371	12	802.737	597.8953	2491.2	3039.52
		sb-y	3	234.051	6.915	6.365	394.323	7.531	5.39	590.108	784.853	1,185.533	1,380.279		0	1,380.279	5751.1606	13	878.969	654.6742	2727.8	6079.04
K6	1	sb-x	2.8	139.117	2.885	2.385	139.117	2.31	1.81	150.833	523.331	523.331	895.828	457.405	0	895.828	3732.6176	8	605.79	389.5751	1623.2	3039.52
		sb-y	2.8	234.051	6.898	6.348	234.051	6.686	6.036	186.264	689.465	689.465	1,192.666		0	1,192.666	4969.4419	11	806.522	518.663	2161.1	3039.52
	2	sb-x	3	266.301	2.885	2.385	266.301	2.31	1.81	560.951	951.149	1,071.353	1,461.550	173.592	0	1,461.550	6089.7931	13	919.216	704.7291	2936.4	3039.52
		sb-y	3	380.528	7.522	6.972	540.8	8.06	7.41	698.474	1,151.046	1,551.726	1,509.346		0	1,509.346	6288.9412	14	949.276	727.7751	3032.4	7598.8
K7	1	sb-x	2.8	139.117	2.31	1.81	139.117	7	6.5	145.541	523.331	523.331	901.121	524.613	0	901.121	3754.6689	8	619.462	381.7829	1590.8	3039.52
		sb-y	2.8	234.051	6.5	5.95	234.051	6.3	5.65	185.522	689.465	689.465	1,193.409		0	1,193.409	4972.5355	11	820.391	505.6182	2106.7	3039.52
	2	sb-x	3	266.301	2.31	1.81	266.301	7	6.5	527.254	896.299	1,071.837	1,440.881	190.742	0	1,440.881	6003.6723	13	910.335	690.6445	2877.7	3039.52
		sb-y	3	307.395	7.159	6.609	541.446	7.742	7.092	648.691	968.213	1,553.341	1,509.346		0	1,509.346	6288.9412	14	953.59	723.4609	3014.4	3925
K8	1	sb-x	2.8	139.117	7	6.5	139.117	6	5.5	152.417	578.339	578.339	1,004.261	647.119	59.4467	944.814	3936.7249	9	710.869	404.9761	1687.4	3039.52
		sb-y	2.8	307.395	6.5	5.95	307.395	6.3	5.65	232.039	872.825	872.825	1,509.346		59.4467	1,449.899	6041.2466	13	1068.4	608.6558	2536.1	3039.52
	2	sb-x	3	266.301	7	6.5	266.301	6	5.5	512.476	896.299	1,126.845	1,509.346	245.018	0	1,509.346	6288.9412	14	967.244	709.8074	2957.5	3039.52
		sb-y	3	307.395	7.159	6.609	614.79	7.742	7.092	686.76	968.213	1,736.701	1,509.346		0	1,509.346	6288.9412	14	967.244	709.8074	2957.5	3039.52

bel 7.19.b Lanjutan

n	Lt.	Arah Portal	h (m)	kiri			kanan			V kol (kN)	C ki (kN)	T ka (kN)	V jh (kN)	Nu,k (kN)	Penulangan Geser Horisontal				Penulangan Geser Vertikal			
				Mnak,b (kNm)	l ki (m)	ln ki (m)	Mnak,b (kNm)	l ka (m)	ln ka (m)						Vch (kN)	Vsh (kN)	Ajh (mm^2)	n	Vcv (kN)	Vsv (kN)	Ajv (mm^2)	As ≧ Ajv (mm^2)
	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]
	1	sb-x	2.8	139.117	6	5.5	139.117	3	2.5	119.305	523.331	523.331	927.357	823.341	129.424	797.933	3324.7198	7	683.669	346.7272	1444.7	3039.52
		sb-y	2.8	234.051	6.5	5.95	234.051	6.3	5.65	105.995	689.465	689.465	1,272.936		129.424	1,143.512	4764.632	11	938.438	475.9349	1983.1	3039.52
	2	sb-x	3	266.301	6	5.5	266.301	3	2.5	503.489	896.299	1,016.503	1,409.313	397.879	0	1,409.313	5872.1372	13	939.044	626.8595	2611.9	3039.52
		sb-y	3	307.395	7.159	6.609	467.667	7.742	7.092	598.808	968.213	1,368.893	1,509.346		0	1,509.346	6288.9412	14	1005.7	671.354	2797.3	3039.52
	1	sb-x	2.8	139.117	3	2.5	139.117	3	2.5	116.588	467.997	347.793	699.201	817.146	127.616	571.584	2381.6012	5	514.745	262.1444	1092.3	3039.52
		sb-y	2.8	160.272	6.5	5.95	0	0	0	83.05	505.018	104.338	526.306		127.616	398.689	1661.2047	4	387.461	197.3225	822.18	3039.52
0	2	sb-x	3	266.301	3	2.5	266.301	3	2.5	431.092	896.299	665.753	1,130.959	422.561	0	1,130.959	4712.3291	10	758.225	498.3958	2076.6	3039.52
		sb-y	3	307.395	7.159	6.609	0	0	0	306.083	968.213	199.726	861.856		0	861.856	3591.0682	8	577.812	379.8065	1582.5	6079.04
	1	sb-x	2.8	233.964	3	2.5	233.964	3	2.5	185.599	407.917	338.378	560.696	428.933	0	560.696	2336.2346	5	370.775	29.72224	123.84	3039.52
		sb-y	2.8	160.272	6.3	5.65	0	0	0	104.748	333.312	101.513	330.077		0	330.077	1375.3211	3	218.272	17.49722	72.905	4559.28
	2	sb-x	3	233.964	3	2.5	233.964	3	2.5	143.267	407.917	338.378	603.028	314.530	0	603.028	2512.6156	6	388.912	41.82168	174.26	3039.52
		sb-y	3	160.272	7.742	7.092	0	0	0	80.1303	333.312	101.513	354.695		0	354.695	1477.8946	3	228.754	24.59908	102.5	9812.5
1	3	sb-x	4.5	311.822	0.919	0.669	311.822	5.827	5.327	213.823	552.533	450.982	789.692	511.815	0	789.692	3290.3839	7	531.555	32.51105	135.46	3039.52
		sb-y	4.5	234.051	7.531	7.181	0	0	0	120.798	473.798	135.295	488.295		0	488.295	2034.5613	4	328.679	20.10274	83.761	9812.5
	atap	sb-x	2.4	121.022	0.919	0.669	121.022	5.827	5.327	217.75	341.594	341.594	465.439	125.858	0	465.439	1939.3289	4	287.632	294.1669	1225.7	3039.52
		sb-y	2.4	0	0	0	0	0	0	65.3249	102.478	102.478	139.632		0	139.632	581.79867	1	86.2895	88.25006	367.71	4559.28
	1	sb-x	2.8	233.964	0.919	0.669	233.964	5.827	5.327	189.591	407.917	338.378	556.704	699.604	0	556.704	2319.5999	5	389.661	7.984411	33.268	3039.52
		sb-y	2.8	160.272	6.039	5.689	0	0	0	103.59	333.312	101.513	331.235		0	331.235	1380.1443	3	231.846	4.750664	19.794	4559.28
	2	sb-x	3	233.964	0.919	0.669	233.964	5.827	5.327	146.517	407.917	338.378	599.678	504.687	0	599.678	2498.658	6	403.042	25.29897	105.41	3039.52
2		sb-y	3	160.272	6.039	5.689	0	0	0	80.1098	333.312	101.513	354.715		0	354.715	1477.9796	3	238.403	14.96458	62.352	9812.5
	3	sb-x	4.5	311.822	0.919	0.669	311.822	5.827	5.327	213.823	552.533	450.982	789.692	197.641	0	789.692	3290.3839	7	496.112	67.95405	283.14	3039.52
		sb-y	4.5	234.051	7.531	7.181	0	0	0	120.798	473.798	135.295	488.295		0	488.295	2034.5613	4	306.764	42.01841	175.08	9812.5
	atap	sb-x	2.4	121.022	0.919	0.669	121.022	5.827	5.327	217.75	341.594	341.594	465.439	55.340	0	465.439	1939.3289	4	282.943	298.8557	1245.2	3039.52
		sb-y	2.4	0	0	0	0	0	0	65.3249	102.478	102.478	139.632		0	139.632	581.79867	1	84.8829	89.6567	373.57	4559.28

bel 7.19.b Lanjutan

Lt.	Arah Portal	h	kiri			kanan			V kol	C ki	T ka	V jh	Nu,k	Penulangan Geser Horisontal				Penulangan Geser Vertikal			
			Mnak,b	l ki	ln ki	Mnak,b	l ka	ln ka						Vch	Vsh	Ajh	n	Vcv	Vsv	Ajv	As ≧ Ajv
		(m)	(kNm)	(m)	(m)	(kNm)	(m)	(m)	(kN)	(kN)	(kN)	(kN)	(kN)	(kN)	(kN)	(mm^2)		(kN)	(kN)	(mm^2)	(mm^2)
[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]
1	sb-x	2.8	233.964	5.827	5.327	233.964	4.55	4.05	178.882	439.929	338.378	599.424	643.462	0	599.424	2497.601	6	414.756	0	0	3039.52
	sb-y	2.8	234.051	6.686	6.336	0	0	0	121.478	440.017	101.513	420.052		0	420.052	1750.2185	4	290.644	0	0	3039.52
2	sb-x	3	233.964	5.827	5.327	233.964	4.55	4.05	132.886	407.917	338.378	613.409	461.106	0	613.409	2555.8714	6	408.452	29.69726	123.74	3039.52
	sb-y	3	160.272	6.686	6.336	0	0	0	75.7767	333.312	101.513	359.048		0	359.048	1496.0345	3	239.08	17.38277	72.428	4559.28
3	sb-x	4.5	311.822	5.827	5.327	311.822	4.55	4.05	205.625	616.087	450.982	861.445	183.371	0	861.445	3589.3532	8	539.433	75.88452	316.19	3039.52
	sb-y	4.5	380.528	8.06	7.71	0	0	0	153.499	685.645	135.295	667.441		0	667.441	2781.0029	6	417.949	58.79474	244.98	9812.5
atap	sb-x	2.4	121.022	5.827	5.327	121.022	4.55	4.05	195.668	341.594	341.594	487.521	57.308	0	487.521	2031.3375	4	296.504	312.8974	1303.7	3039.52
	sb-y	2.4	0	0	0	0	0	0	58.7003	102.478	102.478	146.256		0	146.256	609.40125	1	88.9512	93.86922	391.12	3039.52
1	sb-x	2.8	233.964	4.55	4.05	233.964	7	6.5	177.762	439.929	338.378	600.544	593.868	0	600.544	2502.2669	6	411.276	0	0	3039.52
	sb-y	2.8	234.051	6.3	5.95	0	0	0	121.372	440.017	101.513	420.158		0	420.158	1750.6587	4	287.74	0	0	3039.52
2	sb-x	3	233.964	4.55	4.05	233.964	7	6.5	137.47	439.929	338.378	640.837	421.083	0	640.837	2670.1536	6	423.052	34.68911	144.54	3039.52
	sb-y	3	234.051	6.3	5.95	0	0	0	93.861	440.017	101.513	447.669		0	447.669	1865.2878	4	295.531	24.23275	100.97	4559.28
3	sb-x	4.5	311.822	4.55	4.05	311.822	7	6.5	198.514	584.356	450.982	836.824	158.297	0	836.824	3486.7686	8	521.018	76.71328	319.64	3039.52
	sb-y	4.5	307.395	7.742	7.392	0	0	0	133.859	579.874	135.295	581.310		0	581.310	2422.1236	5	361.931	53.28975	222.04	9812.5
atap	sb-x	2.4	121.022	4.55	4.05	121.022	7	6.5	194.173	341.594	341.594	489.016	61.728	0	489.016	2037.5655	5	297.722	313.5479	1306.4	3039.52
	sb-y	2.4	0	0	0	0	0	0	58.2519	102.478	102.478	146.705		0	146.705	611.26966	1	89.3165	94.06438	391.93	3039.52
1	sb-x	2.8	233.964	7	6.5	233.964	6	5.5	182.494	471.752	338.378	627.635	737.616	49.1751	578.460	2410.2499	5	442.717	0	0	3039.52
	sb-y	2.8	307.395	6.3	5.95	0	0	0	144.114	546.093	101.513	503.492		49.1751	454.317	1892.9871	4	355.15	0	0	3039.52
2	sb-x	3	233.964	7	6.5	233.964	6	5.5	141.129	471.752	338.378	669.000	507.456	0	669.000	2787.5017	6	449.899	27.95885	116.5	3039.52
	sb-y	3	307.395	6.3	5.95	0	0	0	111.448	546.093	101.513	536.158		0	536.158	2233.9912	5	360.563	22.4071	93.363	4559.28
3	sb-x	4.5	311.822	7	6.5	311.822	6	5.5	195.94	584.356	450.982	839.399	178.616	0	839.399	3497.4938	8	525.058	74.5127	310.47	3039.52
	sb-y	4.5	307.395	7.742	7.392	0	0	0	133.087	579.874	135.295	582.082		0	582.082	2425.3412	5	364.102	51.67092	215.3	7598.8
atap	sb-x	2.4	121.022	7	6.5	121.022	6	5.5	191.301	341.594	341.594	491.888	38.630	0	491.888	2049.533	5	297.847	317.0126	1320.9	3039.52
	sb-y	2.4	0	0	0	0	0	0	57.3902	102.478	102.478	147.566		0	147.566	614.85989	1	89.3542	95.10379	396.27	3039.52

Tabel 7.19.b Lanjutan

Klm	Lt.	Arah Portal	h	kiri			kanan			V kol	C ki	T ka	V jh	Nu,k	Penulangan Geser Horisontal				Penulangan Geser Vertikal			
				Mnak,b	l ki	ln ki	Mnak,b	l ka	ln ka						Vch	Vsh	Ajh	n	Vcv	Vsv	Ajv	As ≧ Ajv
			(m)	(kNm)	(m)	(m)	(kNm)	(m)	(m)	(kN)	(kN)	(kN)	(kN)	(kN)	(kN)	(kN)	(mm^2)		(kN)	(kN)	(mm^2)	(mm^2)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]
K16	1	sb-x	2.8	233.964	6	5.5	233.964	6	5.5	176.452	439.929	338.378	601.854	708.946	23.9817	577.873	2407.8029	5	422.067	0	0	3039.52
		sb-y	2.8	234.051	6.3	5.95	0	0	0	120.979	440.017	101.513	420.551		23.9817	396.570	1652.373	4	294.923	0	0	3039.52
	2	sb-x	3	233.964	6	5.5	233.964	6	5.5	136.456	439.929	338.378	641.850	549.962	0	641.850	2674.3757	6	435.538	22.9267	95.528	3039.52
		sb-y	3	234.051	6.3	5.95	0	0	0	93.557	440.017	101.513	447.973		0	447.973	1866.5545	4	303.979	16.00146	66.673	4559.28
	3	sb-x	4.5	311.822	6	5.5	311.822	6	5.5	191.201	552.533	450.982	812.314	274.086	0	812.314	3384.6432	7	519.195	61.02962	254.29	3039.52
		sb-y	4.5	234.051	7.742	7.392	0	0	0	113.936	473.798	135.295	495.157		0	495.157	2063.1522	5	316.482	37.20138	155.01	7598.8
	atap	sb-x	2.4	121.022	6	5.5	121.022	6	5.5	192.535	341.594	341.594	490.654	51.578	0	490.654	2044.3905	5	298.008	315.3096	1313.8	3039.52
		sb-y	2.4	0	0	0	0	0	0	57.7605	102.478	102.478	147.196		0	147.196	613.31714	1	89.4023	94.59288	394.14	3039.52

Keterangan Tabel 7.19.b :

[1] Kolom yg ditinjau

[2] Tingkat lantai pada kolom yang ditinjau

[3] Arah portal sejajar sumbu x dan sumbu y

[4] *h* = tinggi kolom dari titik pertemuan ke titik pertemuan

[5] *Mnak,b kiri* = momen nominal aktual balok sebelah kiri kolom

[6] *l ki* = bentang balok dari as ke as kiri kolom

[7] *ln,ki* = bentang bersih balok kiri kolom

[8] *Mnak,b kanan* = momen nominal aktual balok sebelah kanan kolom

[9] *l ka* = bentang balok dari as ke as kanan kolom

[10] *ln,ka* = bentang bersih balok kanan kolom

[11] *Vkol x = 0,7.1,25 [l / ln . ΣMnak,b-x + 0,3(l / ln . ΣMnak,b-y)] / (0,5(ha+hb);*
Vkol y = 0,7.1,25 [l / ln . ΣMnak,b-y + 0,3(l / ln . ΣMnak,b-x)] / (0,5(ha+hb);

[12] *C ki-x = 0,7.1,25. [Mnak,b ki-x + 0,3Mnak,b ki-y)] / Zki*
C ki-y = 0,7.1,25. [Mnak,b ki-y + 0,3Mnak,b ki-x)] / Zki

[13] *T ka-x = 0,7.1,25. [Mnak,b ka-x + 0,3Mnak,b ka-y)] / Zka*
T ka-y = 0,7.1,25. [Mnak,b ka-y + 0,3Mnak,b ka-x)] / Zka

[14] *V jh = C ki + T ka - Vkol;* (tegangan geser horisontal nominal dalam join)
Vjh = Vjh/(bj.hc) < 1,5(fc')^0.5

[15] *Nu,k* = gaya aksial rencana kolom

[16] *Vch = 2/3.[(Nu,k/Ag) - 0,1fc']^0,5.bj.hc*; (tegangan geser beton horisontal)
Besarnya *Vch* harus diambil sama dengan nol, kecuali bila *Nu,k/Ag > 0,1fc'*

[17] *Vsh = Vjh - Vch*

[18] *Ajh = Vsh / fy*; (luas tulangan geser join horisontal)

[19] n = Ajh / (4.0,25.3,14.D^2)
(jumlah lapis tulangan geser)
Cetak tebal adalah jumlah lapis tulangan geser horisontal yang dipakai

[20] *V cv = Vjh.As'/As.[0,6+(Nu,k/(Ag.fc'))]*; (tegangan geser beton vertikal)
As = As'

[21] *Vsv = Vjv - Vcv;* ------> *Vjv = hc/bj . Vjh*

Tabel 7.20.a. Kapasitas Tiang Tunggal dan Jumlah Tiang Pancang Portal A

Kolom	ND	NL	P	MD	ML	Mx	My	Qall	Asumsi Pile			Brt pile	P total	n	d opt	Lg	Bg
									b	h	tebal						
	(kN)	(kN)	(kN)	(kNm)	(kNm)	(kNm)	(kNm)	(kN)	(m)	(m)	(m)	(kN)	(kN)	(buah)	(m)	(m)	(m)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]
K1	293.369	166.5289	459.8974	8.530862	10.07731	18.608172	18.60817	176.808	3	3	0.5	108	567.8974	4	0.96	1.28	1.28
K2	235.898	133.7603	369.6584	14.66796	17.04746	31.71542	31.71542	176.808	3	3	0.5	108	477.6584	3	0.96	0.32	1.28
K3	214.748	116.4319	331.1798	0.25295	6.73938	6.99233	6.99233	176.808	3	3	0.5	108	439.1798	3	0.96	0.32	1.28
K4	173.427	104.6536	278.081	19.13381	15.43396	34.56777	34.56777	176.808	3	3	0.5	108	386.081	3	0.96	0.32	1.28
K5	318.747	177.4872	496.234	0.155572	1.234165	1.389737	1.389737	176.808	3	3	0.5	108	604.234	4	0.96	1.28	1.28
K6	370.724	207.6096	578.3333	0.1746895	1.253045	1.4277345	1.427735	176.808	3	3	0.5	108	686.3333	4	0.96	1.28	1.28
K7	587.249	352.6946	939.9433	3.977154	2.136737	6.113891	6.113891	176.808	3	3	0.5	108	1047.943	6	0.96	2.24	1.28
K8	719.774	456.8729	1176.6466	11.5905	9.139884	20.730384	20.73038	176.808	3	3	0.5	108	1284.647	8	0.96	2.24	2.24
K9	651.482	413.4699	1064.952	2.509806	2.00914	4.518946	4.518946	176.808	3	3	0.5	108	1172.952	7	0.96	2.24	2.24
K10	543.262	318.3761	861.6382	6.047588	4.403905	10.451493	10.45149	176.808	3	3	0.5	108	969.6382	6	0.96	2.24	1.28
K11	303.779	152.6037	456.3831	9.985512E-02	0.388542	0.4883971	0.488397	176.808	3	3	0.5	108	564.3831	4	0.96	1.28	1.28
K12	474.485	210.0099	684.4947	33.67916	19.24898	52.92814	52.92814	176.808	3	3	0.5	108	792.4947	5	0.96	1.28	1.28
K13	630.14	276.6741	906.8139	11.99117	7.108261	19.099431	19.09943	176.808	3	3	0.5	108	1014.814	6	0.96	2.24	1.28
K14	734.783	286.2909	1021.0739	9.879223	4.458389	14.337612	14.33761	176.808	3	3	0.5	108	1129.074	7	0.96	2.24	2.24
K15	806.759	297.2614	1104.0199	2.500516	0.8070464	3.3075624	3.307562	176.808	3	3	0.5	108	1212.02	7	0.96	2.24	2.24
K16	713.509	231.9043	945.4128	3.123216	0.8070464	3.9302624	3.930262	176.808	3	3	0.5	108	1053.413	6	0.96	2.24	1.28

Keterangan Tabel 7.20.a :

[1] Kolom yang ditinjau

[2] *ND* = Gaya aksial kolom akibat beban mati

[3] *NL* = Gaya aksial kolom akibat beban hidup

[4] *P = ND + NL*

[5] *MD* = Momen kolom akibat beban mati

[6] *ML* = Momen kolom akibat beban hidup

[7] *Mx* = Momen kolom akibat beban hidup dan beban mati sejajar sumbu x = *MD + ML*

[8] *My* = Momen kolom akibat beban hidup dan beban mati sejajar sumbu y = *MD + ML*

[9] *Qall* = Kapasitas tiang tunggal

[10] *b* = lebar pile cap (asumsi)

[11] *h* = panjang pile cup (asumsi)

[12] tebal pile cap

[13] *Berat pile cap = b.h.tebal* .24

[14] *P total = P + Berat pile cap*

[15] *n* = jumlah tiang pancang

[16] *d optimum* = 3*D*, (*D = diameter tiang*)

[17] *Lg* = (*n* 1-1).*d optimum* + 2(*D*/2)

[18] *Bg* = (*n* 2-1).*d optimum* + 2(*D*/2)

Tabel 7.20.b. Kapasitas Tiang Tunggal dan Jumlah Tiang Pancang Portal B

Kolom	ND	NL	P	MD	ML	Mx	My	Qall	Asumsi Pile			Brt pile	P total	n	d opt	Lg	Bg
									b	h	tebal						
	(kN)	(kN)	(kN)	(kNm)	(kNm)	(kNm)	(kNm)	(kN)	(m)	(m)	(m)	(kN)	(kN)	(buah)	(m)	(m)	(m)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]
K1	248.658	117.8181	366.4758	8.530862	4.567791	13.098653	13.09865	176.808	3	3	0.5	108	474.4758	3	0.96	0.32	1.28
K2	160.637	96.98836	257.62506	14.66796	2.83162	17.49958	17.49958	176.808	3	3	0.5	108	365.6251	3	0.96	0.32	1.28
K3	178.226	116.3643	294.5901	0.25295	9.1381	9.39105	9.39105	176.808	3	3	0.5	108	402.5901	3	0.96	0.32	1.28
K4	190.199	100.3602	290.5596	19.13381	8.203321	27.337131	27.33713	176.808	3	3	0.5	108	398.5596	3	0.96	0.32	1.28
K5	325.33	173.8259	499.1556	0.9673713	4.826258	5.7936293	5.793629	176.808	3	3	0.5	108	607.1556	4	0.96	1.28	1.28
K6	392.398	217.0259	609.424	5.044564	4.269382	9.313946	9.313946	176.808	3	3	0.5	108	717.424	5	0.96	1.28	1.28
K7	420.146	229.9613	650.107	1.150428	0.4477473	1.5981753	1.598175	176.808	3	3	0.5	108	758.107	5	0.96	1.28	1.28
K8	500.192	295.2556	795.4479	3.981608	3.603662	7.58527	7.58527	176.808	3	3	0.5	108	903.4479	6	0.96	2.24	1.28
K9	583.992	342.561	926.5531	15.37133	9.102448	24.473778	24.47378	176.808	3	3	0.5	108	1034.553	6	0.96	2.24	1.28
K10	592.829	297.37	890.1992	3.526464	0.645883	4.172347	4.172347	176.808	3	3	0.5	108	998.1992	6	0.96	2.24	1.28
K11	481.929	170.3536	652.283	11.51748	6.837883	18.355363	18.35536	176.808	3	3	0.5	108	760.283	5	0.96	1.28	1.28
K12	573.604	195.3931	768.9969	3.253281	1.918799	5.17208	5.17208	176.808	3	3	0.5	108	876.9969	5	0.96	1.28	1.28
K13	543.288	176.7352	720.0233	3.876939	2.938173	6.815112	6.815112	176.808	3	3	0.5	108	828.0233	5	0.96	1.28	1.28
K14	547.359	183.6533	731.0125	2.916785	1.702437	4.619222	4.619222	176.808	3	3	0.5	108	839.0125	5	0.96	1.28	1.28
K15	620.983	191.4286	812.4119	15.65994	7.819944	23.479884	23.47988	176.808	3	3	0.5	108	920.4119	6	0.96	2.24	1.28
K16	607.294	155.3257	762.62	4.434132	4.123786	8.557918	8.557918	176.808	3	3	0.5	108	870.62	5	0.96	1.28	1.28

Keterangan Tabel 7.20.b :

[1] Kolom yang ditinjau

[2] *ND* = Gaya aksial kolom akibat beban mati

[3] *NL* = Gaya aksial kolom akibat beban hidup

[4] *P* = *ND* + *NL*

[5] *MD* = Momen kolom akibat beban mati

[6] *ML* = Momen kolom akibat beban hidup

[7] *Mx* = Momen kolom akibat beban hidup dan beban mati sejajar sumbu x = *MD* + *ML*

[8] *My* = Momen kolom akibat beban hidup dan beban mati sejajar sumbu y = *MD* + *ML*

[9] *Qall* = Kapasitas tiang tunggal

[10] *b* = lebar pile cap (asumsi)

[11] *h* = panjang pile cup (asumsi)

[12] tebal pile cap

[13] *Berat pile cap* = *b.h.tebal* .24

[14] *P total* = *P* + *Berat pile cap*

[15] *n* = jumlah tiang pancang

[16] *d optimum* = 3*D*, (*D* = *diameter tiang*)

[17] *Lg* = (*n* 1-1).*d optimum* + 2(*D*/2)

[18] *Bg* = (*n* 2-1).*d optimum* + 2(*D*/2)

Tabel 7.21.a. Penurunan Kelompok Tiang Pancang Portal A

Kolom	Jml	Lg (m)	Bg (m)	m (m)	n (m)	∑Qu (kN)	∑Qu (kN)	∑Qu pk (kN)	x maks (m)	y maks (m)	∑x^2	∑y^2	P (kN)	Berat Pile (kN)	Berat tiang (kN)	Q (kN)	Δ P (kN/m^2)	P0 (kN/m^2)	Δ s (m)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]
K1	4	1.28	1.28	1.6	1.6	991.0733	3981.312	991.0733	0.48	0.48	0.4608	0.4608	180.7414	30.72	40.438537	531.0559	7.593047	77.496	0.096
K2	3	0.32	1.28	0.64	1.6	396.4293	995.328	396.4293	0	0.48	0	0.4608	159.2195	12.288	30.328902	412.2753	6.65913	77.496	0.085
K3	3	0.32	1.28	0.64	1.6	396.4293	995.328	396.4293	0	0.48	0	0.4608	146.3933	12.288	30.328902	373.7967	6.037618	77.496	0.077
K4	3	0.32	1.28	0.64	1.6	396.4293	995.328	396.4293	0	0.48	0	0.4608	128.6937	12.288	30.328902	320.6979	5.179958	77.496	0.066
K5	4	1.28	1.28	1.6	1.6	991.0733	3981.312	991.0733	0.48	0.48	0.4608	0.4608	153.9538	30.72	40.438537	567.3925	8.112588	77.496	0.102
K6	4	1.28	1.28	1.6	1.6	991.0733	3981.312	991.0733	0.48	0.48	0.4608	0.4608	174.5578	30.72	40.438537	649.4918	9.286445	77.496	0.116
K7	6	2.24	1.28	2.56	1.6	1585.717	6967.296	1585.717	0.96	0.48	1.8432	0.4608	184.2102	49.152	60.657805	1049.753	13.46385	77.496	0.164
K8	8	2.24	2.24	2.56	2.56	2537.148	12192.77	2537.148	0.96	0.96	1.8432	1.8432	182.175	78.6432	80.877073	1336.167	15.37267	77.496	0.186
K9	7	2.24	2.24	2.56	2.56	2537.148	12192.77	2537.148	0.96	0.96	1.8432	1.8432	172.2718	78.6432	70.767439	1214.363	13.97131	77.496	0.17
K10	6	2.24	1.28	2.56	1.6	1585.717	6967.296	1585.717	0.96	0.48	1.8432	0.4608	177.9368	49.152	60.657805	971.448	12.45953	77.496	0.153
K11	4	1.28	1.28	1.6	1.6	991.0733	3981.312	991.0733	0.48	0.48	0.4608	0.4608	142.1133	30.72	40.438537	527.5416	7.542799	77.496	0.095
K12	5	1.28	1.28	1.6	1.6	991.0733	3981.312	991.0733	0.48	0.48	0.4608	0.4608	268.7659	30.72	50.548171	765.7629	10.94889	77.496	0.136
K13	6	2.24	1.28	2.56	1.6	1585.717	6967.296	1585.717	0.96	0.48	1.8432	0.4608	198.9785	49.152	60.657805	1016.624	13.03894	77.496	0.159
K14	7	2.24	2.24	2.56	2.56	2537.148	12192.77	2537.148	0.96	0.96	1.8432	1.8432	176.2313	78.6432	70.767439	1170.485	13.46649	77.496	0.164
K15	7	2.24	2.24	2.56	2.56	2537.148	12192.77	2537.148	0.96	0.96	1.8432	1.8432	176.5911	78.6432	70.767439	1253.431	14.42079	77.496	0.175
K16	6	2.24	1.28	2.56	1.6	1585.717	6967.296	1585.717	0.96	0.48	1.8432	0.4608	181.7098	49.152	60.657805	1055.223	13.534	77.496	0.165

Keterangan Tabel 7.21.a :

[1] Kolom yang ditinjau

[2] Jumlah tiang pancang

[3] Lg = (n 1-1).d *optimum* + 2(D/2)

[4] Bg = (n 2-1).d *optimum* + 2(D/2)

[5] m = **Panjang pile cup**

[6] n = **Lebar pile cup**

[7] $\sum Qu$ = **Kapasitas tiang individual** = $m.n(Qp+Qs)$

[8] $\sum Qu$ = **Kapasitas kelompok tiang berdasarkan blok** = $Lg.Bg.cu.Nc+2(Lg+Bg)\sum cu.\Delta L$

[9] $\sum Qu$ **pakai adalah perbandingan nilai terkecil dari [7] dan [8]**

[10] $x\ maks$ = ((n 1-1)/2).d *optimum*

[11] $y\ maks$ = ((n 2-1)/2).d *optimum*

[12] $\sum(x^2)$ = 2.($x\ maks$)^2

[13] $\sum(y^2)$ = 2.($y\ maks$)^2

[14] P = ($P\ total/n$)+(($Mx.y\ maks$)/$\sum(y^2)$)+(($My.x\ maks$)/$\sum(x^2)$)

[15] *Berat pile cap = m.n.tebal pile cap .24*

[16] *Berat tiang = Luas penampang tiang.H .24.n*

[17] Q = P+*Berat pile cap+Berat tiang*

[18] $\Delta P = Q/((Bg+z\,1).(Lg+z\,1))$

[19] $P0 = \sum H.\partial$

[20] Δs = (($Cc.H$)/(1+$e0$)).log(($P0+\Delta p$)/$P0$)

Tabel 7.21.b. Penurunan Kelompok Tiang Pancang Portal B

Kolom	Jml	Lg (m)	Bg (m)	m (m)	n (m)	∑Qu (kN)	∑Qu (kN)	∑Qu pk (kN)	x maks (m)	y maks (m)	∑x^2	∑y^2	P (kN)	Berat Pile (kN)	Berat tiang (kN)	Q (kN)	Δ P (kN/m^2)	P0 (kN/m^2)	Δ s (m)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]
K1	3	0.32	1.28	0.64	1.6	396.429	995.328	396.429	0	0.48	0	0.4608	158.159	12.288	30.328902	409.0927	6.607724	77.496	0.084
K2	3	0.32	1.28	0.64	1.6	396.429	995.328	396.429	0	0.48	0	0.4608	121.875	12.288	30.328902	300.242	4.849551	77.496	0.062
K3	3	0.32	1.28	0.64	1.6	396.429	995.328	396.429	0	0.48	0	0.4608	134.197	12.288	30.328902	337.207	5.446616	77.496	0.07
K4	3	0.32	1.28	0.64	1.6	396.429	995.328	396.429	0	0.48	0	0.4608	132.853	12.288	30.328902	333.1765	5.381515	77.496	0.069
K5	4	1.28	1.28	1.6	1.6	991.073	3981.312	991.073	0.48	0.48	0.4608	0.4608	163.859	30.72	40.438537	570.3141	8.154361	77.496	0.103
K6	5	1.28	1.28	1.6	1.6	991.073	3981.312	991.073	0.48	0.48	0.4608	0.4608	162.889	30.72	50.548171	690.6922	9.875528	77.496	0.123
K7	5	1.28	1.28	1.6	1.6	991.073	3981.312	991.073	0.48	0.48	0.4608	0.4608	154.951	30.72	50.548171	731.3752	10.45721	77.496	0.13
K8	6	2.24	1.28	2.56	1.6	1585.72	6967.296	1585.72	0.96	0.48	1.8432	0.4608	162.427	49.152	60.657805	905.2577	11.61059	77.496	0.143
K9	6	2.24	1.28	2.56	1.6	1585.72	6967.296	1585.72	0.96	0.48	1.8432	0.4608	210.666	49.152	60.657805	1036.363	13.29211	77.496	0.162
K10	6	2.24	1.28	2.56	1.6	1585.72	6967.296	1585.72	0.96	0.48	1.8432	0.4608	172.886	49.152	60.657805	1000.009	12.82585	77.496	0.157
K11	5	1.28	1.28	1.6	1.6	991.073	3981.312	991.073	0.48	0.48	0.4608	0.4608	190.297	30.72	50.548171	733.5512	10.48833	77.496	0.13
K12	5	1.28	1.28	1.6	1.6	991.073	3981.312	991.073	0.48	0.48	0.4608	0.4608	186.175	30.72	50.548171	850.2651	12.1571	77.496	0.149
K13	5	1.28	1.28	1.6	1.6	991.073	3981.312	991.073	0.48	0.48	0.4608	0.4608	179.803	30.72	50.548171	801.2915	11.45688	77.496	0.141
K14	5	1.28	1.28	1.6	1.6	991.073	3981.312	991.073	0.48	0.48	0.4608	0.4608	177.426	30.72	50.548171	812.2807	11.614	77.496	0.143
K15	6	2.24	1.28	2.56	1.6	1585.72	6967.296	1585.72	0.96	0.48	1.8432	0.4608	190.089	49.152	60.657805	922.2217	11.82817	77.496	0.146
K16	5	1.28	1.28	1.6	1.6	991.073	3981.312	991.073	0.48	0.48	0.4608	0.4608	191.953	30.72	50.548171	843.8882	12.06593	77.496	0.148

Keterangan Tabel 7.21.b :

[1] Kolom yang ditinjau

[2] Jumlah tiang pancang

[3] $Lg = (n\,1\text{-}1).d\ optimum + 2(D/2)$

[4] $Bg = (n\,2\text{-}1).d\ optimum + 2(D/2)$

[5] m = Panjang pile cup

[6] n = Lebar pile cup

[7] $\sum Qu$ = Kapasitas tiang individual = $m.n(Qp+Qs)$

[8] $\sum Qu$ = Kapasitas kelompok tiang berdasarkan blok = $Lg.Bg.cu.Nc+2(Lg+Bg)\sum cu.\Delta L$

[9] $\sum Qu$ pakai adalah perbandingan nilai terkecil dari [7] dan [8]

[10] $x\ maks = ((n\,1\text{-}1)/2).d\ optimum$

[11] $y\ maks = ((n\,2\text{-}1)/2).d\ optimum$

[12] $\sum(x\text{^}2) = 2.(x\ maks)\text{^}2$

[13] $\sum(y\text{^}2) = 2.(y\ maks)\text{^}2$

[14] $P = (P\ total\ In)+((Mx.y\ maks)/\sum(y\text{^}2))+((My.x\ maks)/\sum(x\text{^}2))$

[15] *Berat pile cap = m.n.tebal pile cap .24*

[16] *Berat tiang = Luas penampang tiang.H .24.n*

[17] *Q = P+Berat pile cap+Berat tiang*

[18] $\Delta P = Q/((Bg+z\,1).(Lg+z\,1))$

[19] $P0 = \sum H.\partial$

[20] $\Delta s = ((Cc.H)/(1+e0)).\log((P0+\Delta p)/P0)$