

## **BAB II**

### **TINJAUAN PUSTAKA**

#### **2.1 Pendahuluan**

Pekerjaan struktur secara umum dilaksanakan melalui 3 ( tiga ) tahap ( *Senol, Utku, Charles, John Benson, 1977* ), yaitu :

##### **1. Tahap Perencanaan ( *Planning Phase* )**

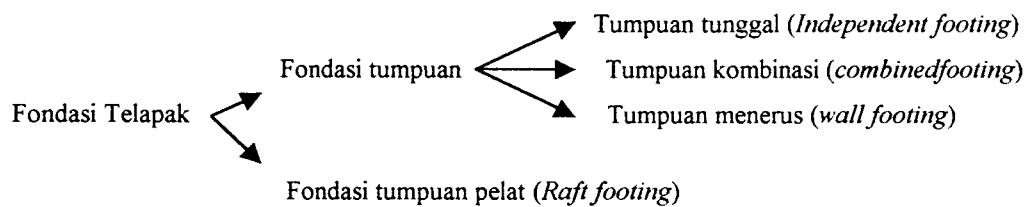
Meliputi pertimbangan terhadap hal-hal yang dibutuhkan dan factor-faktor yang mempengaruhi rancangan umum serta dimensi struktur yang nantinya menjadi dasar pemilihan satu atau beberapa alternatif dari jenis struktur. Pertimbangan utama adalah fungsi dari struktur itu nantinya. Pertimbangan kedua yang biasanya disertakan adalah aspek ekonomi, social, lingkungan, keuangan, dan factor lainnya.

##### **2. Tahap Disain ( *Design Phase* )**

Meliputi pertimbangan secara detail terhadap alternatif struktur yang direncanakan pada tahap perencanaan yang nantinya menjadi dasar penentuan ukuran yang tepat dari dimensi dan detail elemen struktur termasuk didalamnya sambungan struktur. Biasanya, sebelum tahap disain mencapai tahap akhir, telah didapatkan suatu bentuk perencanaan akhir yang akan dilaksanakan. Terkadang,

sedemikian rupa sehingga kapasitas atau daya dukung tanah tidak terlampaui (*Istimawan, 1994*).

Fondasi telapak adalah suatu fondasi yang mendukung bangunan secara langsung pada tanah fondasi, bilamana terdapat lapisan tanah yang cukup tebal dengan kualitas yang baik yang mampu mendukung bangunan itu pada permukaan tanah atau sedikit di bawah permukaan tanah. Fondasi telapak umumnya dibangun di atas tanah pendukung fondasi dengan membuat suatu tumpuan yang bentuk dan ukurannya (dimensi) sesuai dengan beban bangunan dan daya dukung tanah fondasi itu. Fondasi ini dibedakan (*Ir.Suyono.S dan Kazuto Nakazawa*) sebagai berikut.



Fondasi merupakan bagian dari struktur bangunan yang meneruskan beban bangunan pada lapisan tanah pendukung fondasi. Analisis disain fondasi telapak dengan anggapan sebagai berikut.

- a. Plat fondasi kaku sempurna.
- b. Desakan beton yang terjadi pada tanah di bawah dasar fondasi berbanding dengan penurunan fondasi.

## **BAB III**

### **LANDASAN TEORI**

#### **3.1 Perencanaan Atap**

Perencanaan rangka atap kuda-kuda baja dalam perencanaan Gedung Kampus Fakultas Teknik Industri Blok-C UII Yogyakarta ini menggunakan metode tegangan kerja (*working stress design method*) dari AISC. Menurut filosofi perencanaan tegangan kerja ini, elemen struktural harus direncanakan sedemikian rupa sehingga tegangan yang dihitung akibat beban kerja tidak melampaui tegangan ijin yang telah ditetapkan.

Tegangan ijin ini ditentukan untuk mendapatkan faktor keamanan terhadap tercapainya tegangan batas. Tegangan yang dihitung harus berada dalam keadaan elastis yaitu tegangan sebanding dengan regangan. (*Salmon dan Johnson, 1986*). Perencanaan ini meliputi sebagai berikut ini.

##### **3.1.1 Perencanaan gording**

Dalam perencanaan gording harus memenuhi syarat-syarat antara lain :

## 2) Lantai 3

- Beban mati :

Pelat lantai	$= 633,523 \cdot 4,69$	$= 2971,223 \text{ KN}$
Balok	$= 0,35 \cdot (0,7 - 0,12) \cdot 198,675 \cdot 24$	$= 967,945 \text{ KN}$
	$= 0,25 \cdot (0,45 \cdot 0,12) \cdot 271,050 \cdot 24$	$= 536,679 \text{ KN}$
Kolom	$= 0,4 \cdot 0,7 \cdot 3,9 \cdot 26 \cdot 24$	$= 681,408 \text{ KN}$
Dinding	$= 180,24 \cdot 3,9 \cdot 2,5$	$= 1757,34 \text{ KN} +$
		$\text{WD} = 6914,595 \text{ KN}$

- Beban hidup :

Beban Hidup pelat lantai (WL)	$= 0,5 \cdot 2,5 \cdot 633,523$	$= 791,904 \text{ KN}$
$\text{Wt}_2 = 6914,595 + 791,904 = 7706,498 \text{ KN}$		

## 3) Lantai 4

- Beban mati :

Pelat lantai	$= 633,523 \cdot 4,69$	$= 2971,223 \text{ KN}$
Balok	$= 0,35 \cdot (0,7 - 0,12) \cdot 198,675 \cdot 24$	$= 967,945 \text{ KN}$
	$= 0,25 \cdot (0,45 \cdot 0,12) \cdot 271,050 \cdot 24$	$= 536,679 \text{ KN}$
Kolom	$= 0,4 \cdot 0,7 \cdot 3,9 \cdot 26 \cdot 24$	$= 681,408 \text{ KN}$
Dinding	$= 180,24 \cdot 3,9 \cdot 2,5$	$= 1757,34 \text{ KN}$
	$= 37 \cdot 1,54 \cdot 2,5$	$= 142,450 \text{ KN} +$
		$\text{WD} = 7057,045 \text{ KN}$

- Beban hidup :

**e. Gaya Geser Horizontal Akibat Gempa (V)**

Gaya geser horizontal akibat gempa yang bekerja dapat dihitung dengan :

$$V = C \cdot I \cdot K \cdot W_t = 0,05 \cdot 1,0 \cdot 1,0 \cdot 27057,787 = 1352,889 \text{ KN}$$

**f. Distribusi gaya horizontal total akibat gempa ke sepanjang tinggi gedung**

1) Arah x

$$H/B = \frac{17,1}{47,875} = 0,357 < 3, \text{ maka :}$$

$$F_{ix} = \frac{W_i \cdot h_i}{\sum W_i \cdot h_i} \cdot V$$

2) Arah y

$$H/B = \frac{17,1}{15,125} = 1,131 < 3, \text{ maka :}$$

$$F_{iy} = \frac{W_i \cdot h_i}{\sum W_i \cdot h_i} \cdot V$$

**Tabel 4.9 Distribusi Gaya Geser Horizontal total akibat gempa arah x dan arah y**

Tinggi	$h_i$ (m)	$W_i$ (KN)	$V$ (KN)	$W_i \cdot h_i$ (KN.m)	$F_{ix}$ (KN)	$F_{iy}$ (KN)
Ring Balk	17,1	975,099	1352,889	16674,193	93,646	
Pelat atap	15,56	2757,275	1352,889	42903,199	240,953	
Lantai 4	11,66	7848,949	1352,889	91518,745	513,987	
Lantai 3	7,76	7706,498	1352,889	59802,424	335,862	
Lantai 2	3,86	7769,966	1352,889	29992,069	168,441	
				240890,630	1352,889	

$$= \frac{3,66}{4,36} \cdot 1,3 \cdot 0,419 \cdot 0,7 \cdot \left( \frac{4,5625}{3,9625} \cdot 749,7125 + \frac{8,75}{8,15} \cdot 932,3875 \right)$$

$$= 596,702 \text{ KNm}$$

$$\text{Mu}_{k,y} \text{ bawah} = \frac{hn}{h} \omega d \cdot \alpha \cdot 0,7 \cdot \left( \frac{l_{ki}}{l'_{ki}} M_{kap, ki} + \frac{l_{ka}}{l'_{ka}} M_{kap, ka} \right)$$

$$= \frac{3,66}{4,36} \cdot 1,3 \cdot 0,581 \cdot 0,7 \cdot \left( \frac{4,5625}{3,9625} \cdot 440,625 + \frac{8,75}{8,15} \cdot 440,625 \right)$$

$$= 435,130 \text{ kNm}$$

tidak perlu melebihi :

$$\text{Mu}_{k} = 1,05(M_{Dy} + M_{Ly} + \frac{4}{k} M_{Ey})$$

$$= 1,05 (67,2 + 23,81 + \frac{4}{1} (132,45) \cdot 0,3 \cdot 120,31)$$

$$= 20173,735 \text{ KNm}$$

#### b. Perhitungan Arah Y

- Atas

$$M_{kap(kiri)} = 1,25 \cdot M_{nak} = 1,25 \cdot 677,01 = 846,263 \text{ KNm}$$

$$M_{kap(kanan)} = 1,25 \cdot M_{nak} = 1,25 \cdot 258,66 = 323,325 \text{ KNm}$$

menghitung gaya aksial rencana :

$$\text{Pu}_{k,x} = 0,7 \cdot R_v \cdot \frac{M_{kap_{kiri}} + M_{kap_{kanan}}}{l} + 1,05 \cdot N_g$$

$$= 0,7 \cdot 1 \cdot \frac{323,325}{6,250} + \frac{846,263}{2,75} + 1,05(1211,26 + 267,15)$$

$$= 1803,927 \text{ KN}$$

tidak perlu melebihi :

$$\text{Jarak ( s )} < \frac{A_v \cdot f_y \cdot d}{V_s} = \frac{157.240.530}{7,45.10^3} = 2680,59 \text{ mm}$$

$$< d/2 = 265 \text{ mm}$$

$$< 16.D = 160 \text{ mm}$$

Digunakan sengkang P<sub>10-160 mm</sub>

#### 4.5.4 Perencanaan Tulangan Lentur Kolom Dengan Biaksial Momen

Perencanaan kolom biaksial momen ini hanya dijadikan cek. Sedangkan perencanaan sebenarnya pada kolom adalah dengan menghitung arah x dan arah y sebagaimana telah dijelaskan di muka. Adapun perhitungan kolom dengan cara biaksial momen adalah sebagai berikut :

$$P_u = 1803.927 \text{ KN}$$

$$M_{u_x} = 596.702 \text{ KNm}$$

$$M_{u_y} = 464.992 \text{ KNm}$$

$$P_n = \frac{P_u}{\phi} = \frac{1803,927}{0,7} = 2577.039 \text{ KN}$$

$$M_{n_x} = \frac{P_u}{\phi} = \frac{596,702}{0,7} = 852.431 \text{ KNm}$$

$$M_{n_y} = \frac{P_u}{\phi} = \frac{464,992}{0,7} = 664.274 \text{ KNm}$$

$$\frac{M_{n_x}}{M_{n_y}} = \frac{852,431}{664,274} = 1.283$$

Gunakan Mox Untuk perencanaan

$$M_{ox} = M_{n_x} + M_{n_y} \frac{h}{b} \cdot \frac{1-\beta}{\beta}$$

$$\frac{h-2e}{2d} = \frac{600-2.470}{2.530} = -0.321$$

$$1 - \frac{d'}{d} = 1 - \frac{70}{530} = 0.868$$

$$m = \frac{f_y}{0,85 \cdot f'c} = \frac{400}{0,85 \cdot 25} = 18,824$$

Kontrol tegangan pada daerah tarik :

$$\begin{aligned} P_n &= 0,85 \cdot f'c \cdot b \cdot d \cdot \left[ \frac{h-2e}{2d} + \sqrt{\left(\frac{h-2e}{2d}\right)^2 + 2m\rho \left(1 - \frac{d'}{d}\right)} \right] \\ &= 0,85 \cdot 25 \cdot 600 \cdot 530 \cdot \left[ -0,321 + \sqrt{(-0,321)^2 + 2 \cdot 18,824 \cdot 0,025 \cdot 0,868} \right] \\ &= 4.313 \cdot 10^6 \text{ N} > 2.578 \cdot 10^6 \text{ N} \end{aligned}$$

$$P_r = \phi \cdot P_n = 0,7 \cdot 4.313 \cdot 10^6 \text{ N} = 3018.693 \text{ KN}$$

$$P_r > 0,1 \cdot A_g \cdot f'c = 0,1 \cdot 600 \cdot 600 \cdot 25 = 900 \text{ KN. Maka tetap pakai } 0,7$$

Cek apakah benar tegangan pada tulangan desak  $f_s' > f_y$

$$a = \frac{P_n}{0,85 \cdot f'c \cdot b} = \frac{4313000}{0,85 \cdot 25 \cdot 600} = 338,275 \text{ mm}$$

$$c = \frac{a}{0,85} = \frac{338,275}{0,85} = 397,970 \text{ mm}$$

$$f_s' = 600 \cdot \frac{c-d'}{c} = 600 \cdot \frac{397,970-70}{397,970} = 494,464 \text{ Mpa} > f_y = 400 \text{ Mpa}$$

menghitung momen tahanan nominal aktual  $M_{oxn}$  Untuk lentur uniaksial

ekuivalen terhadap sumbu x bila  $M_{oy} = 0$

$$a = \frac{P_n}{0,85 \cdot f'c \cdot b} = \frac{2577039}{0,85 \cdot 25 \cdot 600} = 202,121 \text{ mm}$$



$$c = \frac{a}{\beta_1} = \frac{202,121}{0,85} = 237,789 \text{ mm}$$

$$f's = 600 \cdot \frac{c-d'}{c} = 600 \cdot \frac{237,789-70}{237,789} = 423,373 \text{ Mpa}$$

$f's > f_y$  ; maka dipakai  $f's' = f_y = 400 \text{ Mpa}$

$$M_{oxn} = P_n \cdot e$$

$$= 0,85 \cdot f'c \cdot ab \cdot \left( \frac{h}{2} - \frac{a}{2} \right) + A_s \cdot f's' \cdot \left( \frac{h}{2} - d' \right) + A_s \cdot f_y \cdot \left( d - \frac{h}{2} \right)$$

$$= 0,85 \cdot 25 \cdot 202,121 \cdot 600 \cdot \left( \frac{600}{2} - \frac{202,121}{2} \right) + 7850 \cdot 400 \cdot \left( \frac{600}{2} - 70 \right)$$

$$+ 7850 \cdot 400 \cdot \left( 530 - \frac{600}{2} \right)$$

$$= 1957,076 \text{ KNm} > M_{ox} = 1210,117 \text{ KNm}$$

Menghitung momen tahanan aktual  $M_{oyn}$  Untuk momen lentur uniaksial ekuivalen terhadap sumbu y dimana  $M_{ox} = 0$

Dengan coba – coba dan penyesuaian. Menentukan tinggi blok tegangan a atau tinggi garis netral sedemikian rupa sehingga  $P_n$  yang dihitung mendekati  $P_n$  yang diperlukan.

Dicoba :  $a = 180$  dan  $c = 180 / 0,85 = 211,765 \text{ mm}$

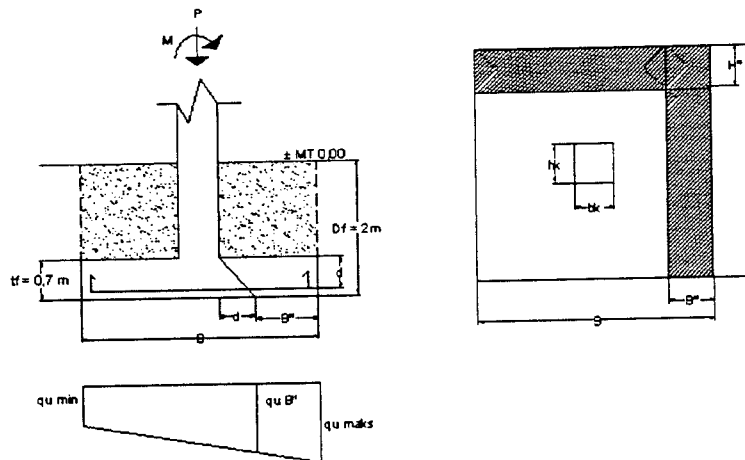
$$f's' = 600 \cdot \frac{c-d'}{c} = 600 \cdot \frac{211,765-70}{211,765} = 401,666 \text{ Mpa} > f_y$$

$$f_s = 600 \cdot \frac{d-c}{d} = 600 \cdot \frac{530-211,765}{530} = 360,266 \text{ Mpa} > f_y$$

digunakan  $f's' = 400 \text{ Mpa}$  dan  $f_s = 360,266 \text{ Mpa}$

$$P_n = 0,85 \cdot f'c \cdot ab + A_s' \cdot f's' - A_s \cdot f_s$$

#### 4.6.1.2 Perencanaan Geser Satu Arah



**Gambar 4.29** Pondasi dengan geser satu arah

→ Ditinjau pada arah momen terbesar.

$$P = 3533,40 \text{ KN}$$

$$M_x = 6,43 \text{ KNm}$$

$$M_y = 28,87 \text{ kNm}$$

$$H'' = \frac{H - hk - 2.d}{2} = \frac{3,6 - 0,6 - 2 \cdot 0,6155}{2} = 0,885 \text{ m}$$

$$B'' = \frac{B - bk - 2.d}{2} = \frac{3,6 - 0,6 - 2 \cdot 0,6155}{2} = 0,885 \text{ m}$$

• Tegangan kontak yang terjadi :

$$q_u = \frac{P}{A} \pm \frac{6.M_x}{B^2.H} \pm \frac{6.M_y}{B.H^2}$$

$$q_A = \frac{P}{A} + \frac{6.M_x}{B^2.H} + \frac{6.M_y}{B.H^2}$$

$$= \frac{3533,400}{12,96} + \frac{6 \cdot 6,43}{3,6^2 \cdot 3,6} + \frac{6 \cdot 28,87}{3,6 \cdot 3,6^2}$$

#### 4.6.1.4 Perencanaan Tulangan Lentur Pondasi

Arah B

$$l = \frac{B - bk}{2} = \frac{3,6 - 0,6}{2} = 1,5$$

$$q_{u \text{ mak}} = 277,178 \text{ KN/m}^2$$

$$M_u = 0,5 \cdot q_{u \text{ mak}} \cdot l^2 = 0,5 \cdot 277,178 \cdot 1,5^2 = 311,825 \text{ KNm}$$

$$\frac{M_u}{\phi} = \frac{311,825}{0,8} = 389,782 \text{ KNm}$$

Digunakan tulangan pokok D 19 mm, dengan luas tampang 1 tulangan :

$$A_1 = \frac{1}{4} \cdot \pi \cdot D^2 = \frac{1}{4} \cdot \pi \cdot 19^2 = 283,385 \text{ mm}^2$$

Tebal pelat pondasi :  $h = 700 \text{ mm}$ , selimut beton ( $P_b$ ) = 75 mm

$$d = h - P_b - 0,5 \cdot 19 = 700 - 75 - 0,5 \cdot 19 = 615,5 \text{ mm}$$

$$m = \frac{f_y}{b \cdot d^2} = \frac{400}{0,85 \cdot 25} = 18,824$$

Koefisien ketahanan ( $R_n$ ), diambil nilai  $b$  tiap 1000 mm :

$$R_n = \frac{M_u / \phi}{b \cdot d^2} = \frac{389,782 \cdot 10^6}{1000 \cdot 615,5^2} = 1,029 \text{ MPa}$$

Rasio Tulangan :

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

$$\rho_b = \frac{0,85 \cdot f'_c \cdot \beta_1}{f_y} \left( \frac{600}{600 + f_y} \right) = \frac{0,85 \cdot 25 \cdot 0,85}{400} \left( \frac{600}{600 + 400} \right) = 0,0271$$

$$\rho_{\max} = 0,75 \cdot \rho_b = 0,75 \cdot 0,027 = 0,0203$$

$$\rho_{\text{ada}} = \frac{1}{m} \left( 1 - \sqrt{1 - \frac{2m \cdot R_n}{f_y}} \right)$$

$$= \frac{1}{18,824} \left( 1 - \sqrt{1 - \frac{2.18,824.1,029}{400}} \right) = 0,00264 < \rho_{\max} = 0,020$$

$$< \rho_{\min} = 0,0035$$

$$1,33 \cdot 0,00264 = 0,0035$$

$$A_{S_{\text{perlu}}} = \rho_{\text{perlu}} \cdot b \cdot d = 0,0035 \cdot 1000 \cdot 615,5 = 2161,144 \text{ mm}^2$$

$$A_{S_{\text{tul susut}}} = 0,002 \cdot b \cdot h = 0,002 \cdot 1000 \cdot 700 = 1400 \text{ mm}^2$$

$$A_{S_{\text{perlu}}} > A_{S_{\text{tul susut}}} \text{ sehingga } A_{S_{\text{pakai}}} = 2161,144 \text{ mm}^2$$

Jarak antar tulangan :

$$s \leq \frac{A_{s1} \cdot b}{A_{S_{\text{perlu}}}} = \frac{283,529 \cdot 1000}{2161,144} = 131,127 \text{ mm}$$

$$s \leq 2 \cdot h = 2 \cdot 500 = 1000 \text{ mm}$$

$$s \leq 250 \text{ mm}$$

→ Dipakai Tulangan Pokok : D<sub>19</sub> – 130 mm

$$A_{S_{\text{ada}}} = \frac{A_{s1} \cdot 1000}{s} = \frac{283,529 \cdot 1000}{130} = 2179,85 \text{ mm}^2$$

• Kontrol Kapasitas Lentur Pelat pondasi :

$$a = \frac{A_{S_{\text{ada}}} \cdot f_y}{0,85 \cdot f'c \cdot b} = \frac{2179,850 \cdot 400}{0,85 \cdot 25 \cdot 1000} = 41,032 \text{ mm}$$

$$M_n = A_{S_{\text{ada}}} \cdot f_y \cdot \left( d - \frac{a}{2} \right)$$

$$= 2179,850 \cdot 400 \left( 615,5 - \frac{41,032}{2} \right)$$

$$= 518,791 \text{ KNm} \geq \frac{M_u}{\phi} = 389,782 \text{ KNm} \dots\dots\dots \text{Ok!}$$

$$= 1,671 + 0,3 = 1,971 \text{ m}$$

$$B = 2 \cdot x_1 = 2 \cdot 1,971 = 3,942 \text{ m}$$

Ambil  $B = 5 \text{ m}$ .

Agar  $P$  total berada ditengah mk ;

$$r_1 + r_2 = 3 \text{ m}$$

$$r_1 + 1,671 = 3, \quad r_1 = 1,329 \text{ m}$$

$$B = 2 \cdot x_1$$

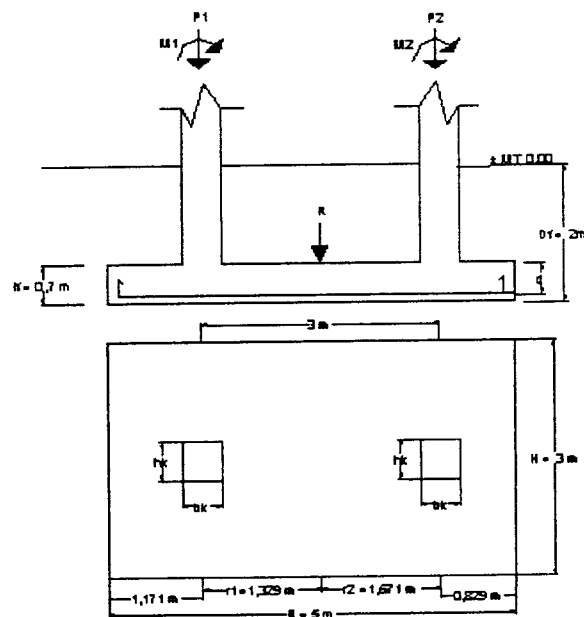
$$5 = 2 \cdot x_1, \quad x_1 = 5/2 = 2,5 \text{ m}$$

$$x_1 \text{ (kanan)} = r_2 + \Delta$$

$$2,5 \text{ m} = 1,671 + \Delta, \quad \Delta = 2,5 - 1,671 = 0,829 \text{ m}$$

$$x_1 \text{ (kiri)} = r_1 + \Delta, \quad \Delta = 2,5 - 1,329 = 1,171 \text{ m}$$

sehingga pondasi terlihat seperti gambar berikut ini :



Gambar 4.33 Pondasi telapak gabungan

$$M_{x_{tot}} = 17,23 + 21,65 = 38,880 \text{ KNm}$$

$$M_{y_{tot}} = 3,18 + 15,740 = 18,920 \text{ KNm}$$

Dimensi luas pelat pondasi : (terdapat momen yang bekerja pada arah x dan y)

$$\sigma_{\text{netto tanah}} = \frac{P}{B.H} + \frac{6.M_y}{H^2.B} + \frac{6.M_x}{B^2.H}$$

dicoba dengan nilai B = 5 m dan H = 3 m

$$\begin{aligned} \sigma_{\text{kontak max}} &= \frac{4101,7}{5.3} + \frac{6.38,88}{3^2.5} + \frac{6.18,92}{5^2.3} \\ &= 280,144 \text{ KN/m}^2 \leq 287,68 \text{ KN/m}^2 \text{ ..... Ok!} \end{aligned}$$

$$\begin{aligned} \sigma_{\text{kontak max}} &= \frac{4101,7}{5.3} - \frac{6.38,88}{3^2.5} - \frac{6.18,92}{5^2.3} \\ &= 266,750 \text{ KN/m}^2 \leq 287,68 \text{ KN/m}^2 \text{ ..... Ok!} \end{aligned}$$

jarak pusat tulangan tarik ke serat tekan beton :

$$d = h - P_b - \frac{1}{2}.D \text{ tul pokok} = 800 - 75 - \frac{1}{2}.19 = 715,5 \text{ m}$$

## 2. Tinjauan Terhadap Beban Sementara

$$M_{x_{tot}} = 17,23 + 21,65 = 38,880 \text{ KNm}$$

$$M_{y_{tot}} = 3,18 + 15,74 = 18,920 \text{ KNm}$$

$$P_{\text{total}} = 2298,2 + 1803,5 = 4101,7 \text{ KN}$$

Eksentrisitas yang terjadi :

$$e_x = \frac{M_{x_{tot}}}{R_{\text{total}}} = \frac{38,88}{4101,7} = 0,01 \text{ m}$$

$$e_y = \frac{M_{y_{tot}}}{P_{\text{total}}} = \frac{18,92}{4101,7} = 0,01 \text{ m}$$

Kontrol tegangan yang terjadi :

$$\begin{aligned}\sigma_{\text{terjadi}} &= \frac{P}{(H \cdot (B - 2 \cdot ex)) + (B(H - 2 \cdot ey))} \\ &= \frac{4101,700}{(3 \cdot (5 - 2 \cdot 0,01)) + (5(3 - 2 \cdot 0,01))} \\ &= 137,456 \text{ KN/m}^2 < 1,5 \cdot \sigma_{\text{netto}} = 1,5 \cdot 287,68 = 431,52 \text{ KN/m}^2 \text{ .....Ok!}\end{aligned}$$

#### 4.6.2.2 Perencanaan Geser Satu Arah

→ Ditinjau pada arah memanjang

$$P1 = 2298,2 \text{ KN}$$

$$P2 = 1803,5 \text{ KN}$$

- Tegangan kontak yang terjadi :

$$\begin{aligned}q_u &= \frac{P_{\text{tot}}}{A} \\ &= \frac{4101,7}{5,3} = 273,447 \text{ KN/m}^2\end{aligned}$$

$$q_u \cdot H = 273,447 \cdot 3 = 820,340 \text{ KN/m}^2$$

Pada gambar dibawah ini tampak bahwa kedudukan kolom relative dekat dengan ujung pondasi. dengan demikian pada arah memanjang struktur pondasi gabungan dapat berlaku senagai balok persegi lebar. Dengan menganggap kolom – kolom sebagai penopang dan pondasi akan menerima beban merata keatas yang berasal dari tekanan tanah. Dan untuk analisis geser dan momen yang terjadi dapat dianalisis dengan analisis balok sederhana.

$$\beta_c = \frac{\text{sisipanjang}}{\text{sisipendek}} = \frac{5}{3} = 1,667$$

$$b_o = 2 \cdot (x + y) = 2 \cdot (1315,5 + 1315,5) = 5262 \text{ mm}$$

$$\begin{aligned} V_{c1} &= (1 + \frac{2}{\beta_c}) \cdot (2 \cdot \sqrt{f'_c}) \cdot b_o \cdot d \\ &= (1 + \frac{2}{1,667}) \cdot (2 \cdot \sqrt{25}) \cdot 5262 \cdot 715,5 \cdot 10^{-3} \\ &= 82829,142 \text{ KN} \end{aligned}$$

$$\begin{aligned} V_{c2} &= 4 \cdot \sqrt{f'_c} \cdot b_o \cdot d \\ &= 4 \cdot \sqrt{25} \cdot 5262 \cdot 715,5 \cdot 10^{-3} = 75299,220 \text{ KN} \end{aligned}$$

$$\text{Jadi } V_c = 75299,220 \text{ KN} \geq \frac{V_u}{\phi} = 2216,548 \text{ KN} \dots\dots\dots \text{Ok !}$$

#### 4.6.2.4 Perencanaan Tulangan Lentur Pondasi Gabungan

##### 1. Arah Memanjang ( B )

$$M_{\text{mak}}^+ = 562,431 \text{ KNm}$$

$$M_{\text{mak}}^- = 528,099 \text{ KNm}$$

##### a. Momen Positif

$$M_u = 562,431 \text{ KNm}$$

$$\frac{M_u}{\phi} = \frac{562,431}{0,8} = 658,039 \text{ KNm}$$

- Digunakan tulangan pokok  $\varnothing_{19}$  mm, maka :  $A_{l\varnothing} = 283,529 \text{ mm}^2$
  - Tebal pelat pondasi :  $t_f = 800 \text{ mm}$ , selimut beton ( $P_b$ ) = 75 mm
- $$d = t_f - P_b - 0,5 \cdot \varnothing_{\text{tul. pokok}} = 800 - 75 - 0,5 \cdot 19 = 715,5 \text{ mm}$$

$$m = \frac{f_y}{0,85 \cdot f'_c} = \frac{400}{0,85 \cdot 25} = 18,824$$



Koefisien ketahanan ( $R_n$ ),  $b = 3000$  mm

$$R_n = \frac{M_u / \phi}{b \cdot d^2} = \frac{658,039 \cdot 10^6}{3000 \cdot 715,5^2} = 0,428 \text{ MPa}$$

Rasio Tulangan :

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

$$\rho_b = \frac{0,85 \cdot f'_c \cdot \beta_1}{f_y} \cdot \left( \frac{600}{600 + f_y} \right) = \frac{0,85 \cdot 25 \cdot 0,85}{400} \cdot \left( \frac{600}{600 + 400} \right) = 0,0271$$

$$\rho_{\max} = 0,75 \cdot \rho_b = 0,75 \cdot 0,0271 = 0,0203$$

$$\rho_{\text{pada}} = \frac{1}{m} \left( 1 - \sqrt{1 - \frac{2m \cdot R_n}{f_y}} \right)$$

$$= \frac{1}{18,824} \left( 1 - \sqrt{1 - \frac{2 \cdot 18,824 \cdot 0,428}{400}} \right) = 0,0011 < \rho_{\max} = 0,020$$

$$< \rho_{\min} = 0,0035$$

$1,33 \rho_{\text{pada}} = 0,0014 < \rho_{\min} = 0,0035$ , maka :

$$\rho_{\text{perlu}} = 0,0014$$

$$A_{S_{\text{perlu}}} = \rho_{\text{perlu}} \cdot b \cdot d = 0,0014 \cdot 3000 \cdot 715,5 = 3089,439 \text{ mm}^2$$

$$0,002 \cdot b \cdot h = 0,002 \cdot 3000 \cdot 800 = 4800 \text{ mm}^2 > A_{S_{\text{perlu}}}$$
, maka :

$$A_{S_{\text{perlu}}} = 4800 \text{ mm}^2$$

Jarak antar tulangan :

$$s \leq \frac{A_{01} \cdot b}{A_{S_{\text{perlu}}}} = \frac{283,385 \cdot 3000}{4800} = 177,116 \text{ mm}$$

$$s \leq 2 \cdot h = 2 \cdot 800 = 1600 \text{ mm}$$

$$s \leq 250 \text{ mm}$$

→ Dipakai Tulangan Pokok :  $D_{19} - 170$  mm

$$A_{Sada} = \frac{A_{1\phi} \cdot b}{s} = \frac{283,529 \cdot 3000}{170} = 5000,912 \text{ mm}^2$$

• Kontrol Kapasitas Lentur Pelat pondasi :

$$a = \frac{A_{sada} \cdot f_y}{0,85 \cdot f'_c \cdot b} = \frac{5000,912 \cdot 400}{0,85 \cdot 25 \cdot 3000} = 31,378 \text{ mm}$$

$$M_n = A_{sada} \cdot f_y \cdot (d - \frac{a}{2})$$

$$= 5000,912 \cdot 400 (715,5 - \frac{31,378}{2})$$

$$= 1399,877 \text{ KNm} \geq 1,33 \cdot \frac{M_u}{\phi} = 875,192 \text{ KNm} \dots\dots\dots \text{Ok!}$$

**b. Momen Negatif**

$$M_u = 528,099 \text{ KNm}$$

$$\frac{M_u}{\phi} = \frac{528,099}{0,8} = 660,124 \text{ KNm}$$

• Digunakan tulangan pokok  $\phi_{19}$  mm, maka :  $A_{1\phi} = 283,529 \text{ mm}^2$

• Tebal pelat pondasi :  $t_f = 800$  mm, selimut beton ( $P_b$ ) = 75 mm

$$d = t_f - P_b - 0,5 \cdot \phi_{tul. pokok} = 800 - 75 - 0,5 \cdot 19 = 715,5 \text{ mm}$$

$$m = \frac{f_y}{0,85 \cdot f'_c} = \frac{400}{0,85 \cdot 25} = 18,824$$

Koefisien ketahanan ( $R_n$ ),  $b = 3000$  mm

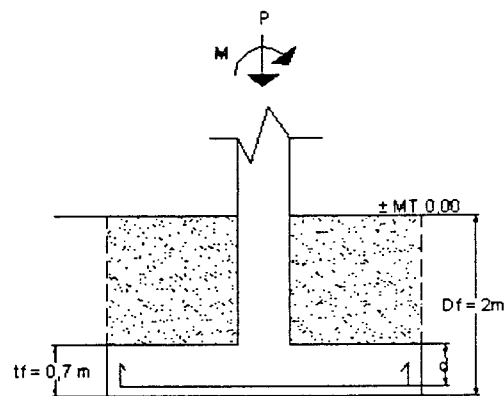
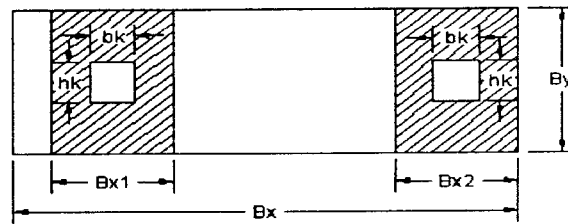
$$R_n = \frac{M_u / \phi}{b \cdot d^2} = \frac{660,124 \cdot 10^6}{3000 \cdot 715,5^2} = 0,430 \text{ MPa}$$

Rasio Tulangan :

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

$$\begin{aligned}
 M_n &= A_{sada} \cdot f_y \cdot (d - a/2) \\
 &= 5000,912 \cdot 400 (715,5 - 31,378/2) \\
 &= 1399,877 \text{ KNm} \geq 1,33 \cdot \frac{M_u}{\phi} = 877,965 \text{ KNm} \dots\dots \text{Ok!}
 \end{aligned}$$

## 2. Arah Memendek (y)



**Gambar 4.37** Penampang pondasi gabungan arah y

$$B_{x1} = B_{x2} = b_k + d = 0,600 + 0,7155 = 1,316 \text{ m}$$

### a. Kolom P1

$$q_u = \frac{P_1}{B_y \cdot B_x l} + \frac{6 \cdot M_x}{B_y^2 \cdot B_x l}$$

$$= \frac{2298,2}{3 \cdot 1,316} + \frac{6 \cdot 17,23}{3^2 \cdot 1,316}$$

$$q_u = 590,846 \text{ KN/m}^2$$

$$l = \frac{B_y - h_k}{2} = \frac{3 - 0,6}{2} = 1,2 \text{ m}$$

$$M_u = 0,5 \cdot q_u \cdot L^2 = 0,5 \cdot 590,846 \cdot 1,2^2 = 425,409 \text{ KNm}$$

$$\frac{M_u}{\phi} = \frac{425,409}{0,8} = 531,761 \text{ KNm}$$

- Digunakan tulangan pokok  $\varnothing_{19} \text{ mm}$ , maka :  $A_{1\varnothing} = 283,529 \text{ mm}^2$
  - Tebal pelat pondasi :  $t_f = 800 \text{ mm}$ , selimut beton ( $P_b$ ) =  $75 \text{ mm}$
- $$d = t_f - P_b - 0,5 \cdot \varnothing_{\text{tul. pokok}} = 800 - 75 - 0,5 \cdot 19 = 715,5 \text{ mm}$$

$$m = \frac{f_y}{0,85 \cdot f'_c} = \frac{400}{0,85 \cdot 25} = 18,824$$

Koefisien ketahanan ( $R_n$ ),  $b = 1000 \text{ mm}$

$$R_n = \frac{M_u / \phi}{b \cdot d^2} = \frac{531,761 \cdot 10^6}{1000 \cdot 715,5^2} = 1,039 \text{ MPa}$$

Rasio Tulangan :

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

$$\rho_b = \frac{0,85 \cdot f'_c \cdot \beta_1}{f_y} \left( \frac{600}{600 + f_y} \right) = \frac{0,85 \cdot 25 \cdot 0,85}{400} \left( \frac{600}{600 + 400} \right) = 0,0271$$

$$\rho_{\max} = 0,75 \cdot \rho_b = 0,75 \cdot 0,027 = 0,0203$$

$$\rho_{\text{ada}} = \frac{1}{m} \left( 1 - \sqrt{1 - \frac{2m.Rn}{f_y}} \right)$$

$$= \frac{1}{18,824} \left( 1 - \sqrt{1 - \frac{2 \cdot 18,824 \cdot 1,039}{400}} \right) = 0,00266 < \rho_{\text{maks}} = 0,020$$

$$< \rho_{\text{min}} = 0,0035$$

$$1,33 \rho_{\text{ada}} = 0,00354 > \rho_{\text{min}} = 0,0035, \text{ maka : } \rho_{\text{perlu}} = 0,0035$$

$$A_{S_{\text{perlu}}} = \rho_{\text{perlu}} \cdot b \cdot d = 0,0035 \cdot 1000 \cdot 715,5 = 2504,250 \text{ mm}^2$$

$$0,002 \cdot b \cdot h = 0,002 \cdot 1000 \cdot 800 = 1600 \text{ mm}^2 < A_{S_{\text{perlu}}}, \text{ maka :}$$

$$A_{S_{\text{perlu}}} = 2504,250 \text{ mm}^2$$

Jarak antar tulangan :

$$s \leq \frac{A_{\theta 1} \cdot b}{A_{S_{\text{perlu}}}} = \frac{283,529 \cdot 1000}{2504,250} = 113,219 \text{ mm}$$

$$s \leq 2 \cdot h = 2 \cdot 800 = 1600 \text{ mm}$$

$$s \leq 250 \text{ mm}$$

→ Dipakai Tulangan Pokok : D<sub>19</sub> – 110 mm

$$A_{S_{\text{ada}}} = \frac{A_{\theta 1} \cdot b}{s} = \frac{283,529 \cdot 1000}{110} = 2577,536 \text{ mm}^2$$

• Kontrol Kapasitas Lentur Pelat pondasi :

$$a = \frac{A_{S_{\text{ada}}} \cdot f_y}{0,85 \cdot f'c \cdot b} = \frac{2577,536 \cdot 400}{0,85 \cdot 25 \cdot 1000} = 48,518 \text{ mm}$$

$$M_n = A_{S_{\text{ada}}} \cdot f_y \cdot \left( d - \frac{a}{2} \right)$$

$$= 2577,536 \cdot 400 \left( 715,5 - \frac{48,518}{2} \right)$$

$$= 707,149 \text{ KNm} \geq \frac{M_u}{\phi} = 531,761 \text{ KNm} \dots\dots\dots \text{Ok!}$$

**KARTU PESERTA TUGAS AKHIR**

NO.	NAMA	NO. MHS.	BID. STUDI
1	Iih Suparjo	99511291	Teknik Sipil
2	Prasetyo	99511259	Teknik Sipil

**JUDUL TUGAS AKHIR :**

..... Disain ulang (Redesign) gedung kampus FM UII Blok C .....  
 ..... Yogyakarta.....

**PERIODE I : SEPTEMBER - FEBRUARI**

**TAHUN : 2003-2004**

No.	Kegiatan	Bulan Ke :					
		Sep.	Okt.	Nop.	Des.	Jan.	Peb.
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. H. Ilman Noor, MSCE  
 DOSEN PEMBIMBING II : .....



Yogyakarta, 04 September 2003  
 a.n. Dekan.

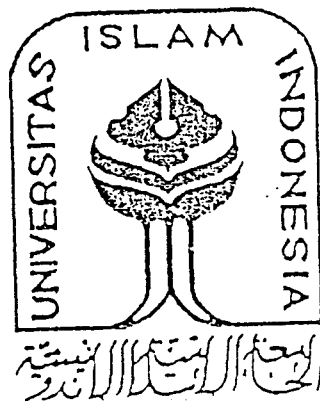
*(Signature)*  
 IR. H. Munadhir, MT.  
 (.....)

Catatan.

Seminar : .....  
 Sidang : .....  
 Pendadaran : .....

LAPORAN  
HASIL PENGUJIAN TANAH  
006/Kalab/01/Lab. Mektan/VI/2002

UNTUK  
PROYEK PEMBANGUNAN  
GEDUNG FAKULTAS TEKNOLOGI INDUSTRI  
UNIVERSITAS ISLAM INDONESIA  
Desa Umbulmartani, Ngemplak, Sleman,  
YOGYAKARTA



DIKERJAKAN OLEH :  
LABORATORIUM MEKANIKA TANAH  
FAKULTAS TEKNIK SIPIL DAN PERENCANAAN  
UNIVERSITAS ISLAM INDONESIA  
YOGYAKARTA

---

JALAN KALIURANG KM 14,4 TELP 895042 YOGYAKARTA



LABORATORIUM MEKANIKA TANAH  
JURUSAN TEKNIK FTSP-UII  
UNIVERSITAS ISLAM INDONESIA  
Jalan Kaliurang KM14.4 telp 895042 Yogyakarta

---


## PRAKATA

Memenuhi permintaan dari Bapak Ir. Ahmad Syaifudin Mutaqi, MT yang bertindak atas nama Koordinator Tim Perencana Gedung Fakultas Teknologi Industri, dengan surat no: 2/Tim TI/2001, tertanggal 15 Februari 2001, tentang permohonan Penyelidikan Tanah, pada Proyek Perencanaan Gedung Fakultas Teknologi Industri UII yang berlokasi di des Umbulmartani, Ngemplak, Sleman, Yogyakarta, maka pihak Laboratorium Mekanika Tanah, Jurusan Teknik Sipil, FTSP-UII telah melaksanakan pekerjaan tersebut.

Buku ini merupakan Laporan Hasil Penyelidikan Tanah yang telah dilaksanakan, yang diharapkan dapat digunakan sebagai dasar Perancangan Fondasi Bangunan tersebut.

Atas kepercayaan yang diberikan kepada Laboratorium Mekanika Tanah, Jurusan Teknik Sipil, FTSP UII untuk melaksanakan pekerjaan tersebut, dengan ini sampaikan ucapan terima kasih. Kepada semua pihak yang telah membantu terlaksanya pekerjaan penyelidikan, baik secara langsung maupun tidak langsung disampaikan pula ucapan terima kasih.

Mengetahui Kalab. Jurusan,

  
Ir. Subarkah, MT

Yogyakarta, 5 Juni 2002

Kepala Operasional,

  
Ir. H. A. Halim Hasmar, MT



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## I. PENDAHULUAN

### 1.1 Latar Belakang

Fondasi merupakan struktur suatu bangunan yang berfungsi untuk meneruskan berat dan beban bangunan pada tanah dasar, dimensi fondasi harus sedemikian, sehingga tanah dasar mampu mendukung beban yang berada di atasnya, dan penurunan yang terjadi masih dalam toleransi yang aman bagi bangunan.

Data mengenai kondisi dan sifat-sifat propertis tanah, serta data teknis tanah dasar merupakan faktor yang sangat penting dalam perancangan jenis, kedalaman dan daya dukung fondasi. Hasil penyelidikan tanah yang telah dilaksanakan diharapkan dapat menyajikan data-data serta informasi-informasi yang diperlukan sehubungan dengan pekerjaan yang akan dilaksanakan .

### 1.2 Tujuan Penyelidikan

Penyelidikan tanah yang telah dilaksanakan bertujuan untuk mengetahui keadaan kekompakan atau tingkat kepadatan tanah, sifat-sifat, index propertis dan parameter-parameter teknis tanah dasar bangunan. Data tersebut akan digunakan untuk analisis penentuan kedalaman fondasi, daya dukung tanah ijin serta perkiraan penurunan yang terjadi.

### 1.3 Waktu Pelaksanaan

Pekerjaan penyelidikan tanah yang terdiri atas pekerjaan di lapangan dan pekerjaan pengujian di laboratorium telah dilaksanakan mulai tanggal 12 Mei 2002 sampai tanggal 4 Juni 2002

## II. UMUM

### 2.1 Lokasi Bangunan.

Pembangunan Gedung Keliah Fakultas Teknologi Industri Universitas Islam Indonesia berlokasi di Desa Umbumartani, Ngemplak, Sleman, Yogyakarta. Bangunan Gedung ini direncanakan terdiri dari 5 lantai. Luas lahan rencana proyek ini  $\pm 10.000 \text{ m}^2$  dan merupakan tanah tegalan yang dulunya pernah digali sedalam  $\pm 1,00$  meter sejajar dengan permukaan tanah. Kondisi permukaan tanah pada lokasi bangunan yang akan direncanakan ini miring kearah selatan dengan kemiringan rata-rata 1%. Pada bagian selatan saat penyelidikan digunakan sebagai arel parkir mobil dan disebelh selatannya lagi terdapat jalan lingkungan kampus. Sedangkan di sebelah utaranya berbatasan langsung dengan jalan kampung yang sudah diperkeras dengan aspal.

### 2.2 Lingkup Pekerjaan

Pekerjaan penyelidikan tanah yang telah dilaksanakan meliputi pekerjaan dilapangan dan pekerjaan laboratorium .

#### 2.2.1 Pekerjaan di lapangan.

Kegiatan penyelidikan di lapangan meliputi :

- a. Enam titik pengujian sondir dengan menggunakan sondir kapasitas 2,5 ton sampai mencapai kapasitas tanah dengan nilai sondir  $200 \text{ Kg/Cm}^2$ . Sedang pembacaan perlawanan konus dilakukan setiap interval kedalaman 0,20 meter.
- b. dua titik boring (test Pit) guna mengetahui struktur perlapisan tanah serta pengambilan yang akan dipakai sebagai sampei pengujian di Laboratorium. Pengambilan sampel tanah dilaksanakan pada kedalaman 0,75 meter, 1,50 meter, 2,50 meter, 3,50 meter, 4,50 meter, dan 5,50 meter. Sedangkan pengeborannya sendiri hingga mencapai kedalaman

6,00 meter pada borhole 1 dan 3 meter pada bore hole 2, dari muk tanah setempat

c. Pengamatan secara visual terhadap permukaan tanah di Lapangan.

Lokasi titik-titik pengujian sondir dan pengujian boring dapat dilihat pada lampiran laporan ini.

### 2.2.2 Kegiatan laboratorium.

Untuk mengetahui parameter-parameter dan sifat karakteristik tanah, dilakukan percobaan mekanika tanah di laboratorium meliputi :

1. Kadar air ( $w$ )
2. Berat volume tanah basah ( $\gamma_b$ )
3. Berat volume tanah kering ( $\gamma_k$ )
4. Berat jenis tanah ( $G_s$ )
5. Sudut geser dalam ( $\phi$ )
6. Kohesi tanah ( $c$ )
7. Gradasi

Karena jenis tanah pada lokasi penyelidikan sebagian besar lanau berpasir maka pengujian khas untuk tanah lempung seperti: batas konsistensi Atterberg dan konsolidasi tidak dilaksanakan. Sedangkan parameter mekanis tanah ( $c$  &  $\phi$ ) diuji dengan menggunakan alat uji Geser Langsung (Direct Shear Test).

### 2.3. Elevasi Dasar

Sebagai elevasi dasar penyelidikan ini, digunakan permukaan jalan lingkungan kampus. Pada permukaan jalan ini dianggap mempunyai elevasi 0,00 meter.

Elevasi permukaan tanah yang tercantum pada gambar, bagi setiap titik penyelidikan diukur terhadap elevasi dasar tersebut. Sedangkan kedalaman lapisan-lapisan tanah diukur terhadap permukaan pada masing-masing titik pengujian.

### III. HASIL PENYELIDIKAN

#### 3.1 Hasil Penyelidikan Lapangan.

##### 3.1.1 Hasil sondir dan boring

Hasil penyelidikan yang telah dilaksanakan terhadap 6 (enam) buah titik sondir dan satu buah titik boring menunjukkan bahwa kondisi per lapisan tanah pada lokasi ini, penyebaran relatif merata, baik ditinjau dari kekompakannya maupun penyebaran jenis tanahnya. Secara detail hasil pengujian sondir dan boring dapat dilihat pada lampiran 3, 4, 5, 6, 7, 8 dan 9.

##### 3.1.2 Muka Air Tanah

Pada saat dilakukan penyelidikan di lapangan pada tanggal 14 Mei 2002, hingga mencapai kedalaman 6,00 meter dari muka tanah belum dijumpai muka air tanah. Pada saat dilaksanakan pekerjaan penyelidikan tanah cuaca cerah.

#### 3.2 Hasil Penyelidikan Laboratorium .

Hasil pengujian tanah di laboratorium yang telah dilakukan terhadap sampel tanah yang diambil, dapat dilihat pada tabel terlampir (lampiran 10).

## V. PENUTUP

Apabila dalam pelaksanaan pekerjaan nanti terdapat keadaan yang menyimpang, meragukan atau tidak terduga sebelumnya, maka perlu diadakan penyesuaian dengan keadaan tersebut, dan keputusan hendaknya ditetapkan oleh pihak-pihak yang mengusai permasalahan.

#### IV. PEMBAHASAN FONDASI

Berdasarkan data hasil pengujian di lapangan dan pengujian di laboratorium, pada Proyek Pembangunan Gedung Kuliah Fakultas Teknologi Industri UII yang berlokasi di Desa Umbulmartani, Ngemplak, Sleman, Yogyakarta, maka alternatif fondasi yang disarankan adalah dengan menggunakan fondasi telapak individual atau menerus yang bagian bawahnya diberi pasangan batu kali dengan campuran 1PC : 4PS setebal 1,00 m, dengan lebar fondasi menyesuaikan dengan beban-beban yang bekerja. Sebagai dasar perhitungan dapat digunakan kapasitas daya dukung tanah sebagai berikut :

No.	Kedalaman (m)	Daya Dukung tanah ( $\sigma$ ) Kg/cm <sup>2</sup>
1	1,00	3,25
	1.50	3.45
	2.00	3.25
	2,50	3,15
	3,00	3.25
	3,50	3.15
	4,00	0.50
	4,50	3.00
	5,00	3,15

Keterangan: kedalaman diukur dari titik nol lokal

Bagi elemen bangunan lainnya yang non struktural atau memikul beban yang ringan dapat disarankan menggunakan fondasi menerus pasangan batu kali dengan spesi 1 PC : 4 Ps pada kedalaman 1,00 meter dengan kapasitas dukung 0,85 Kg/cm<sup>2</sup>.

Dalam perhitungan, besar daya dukung tanah tersebut masih harus dikurangi dengan berat fondasi dan berat tanah urugnya.

Mush

## LAMPIRAN – LAMPIRAN

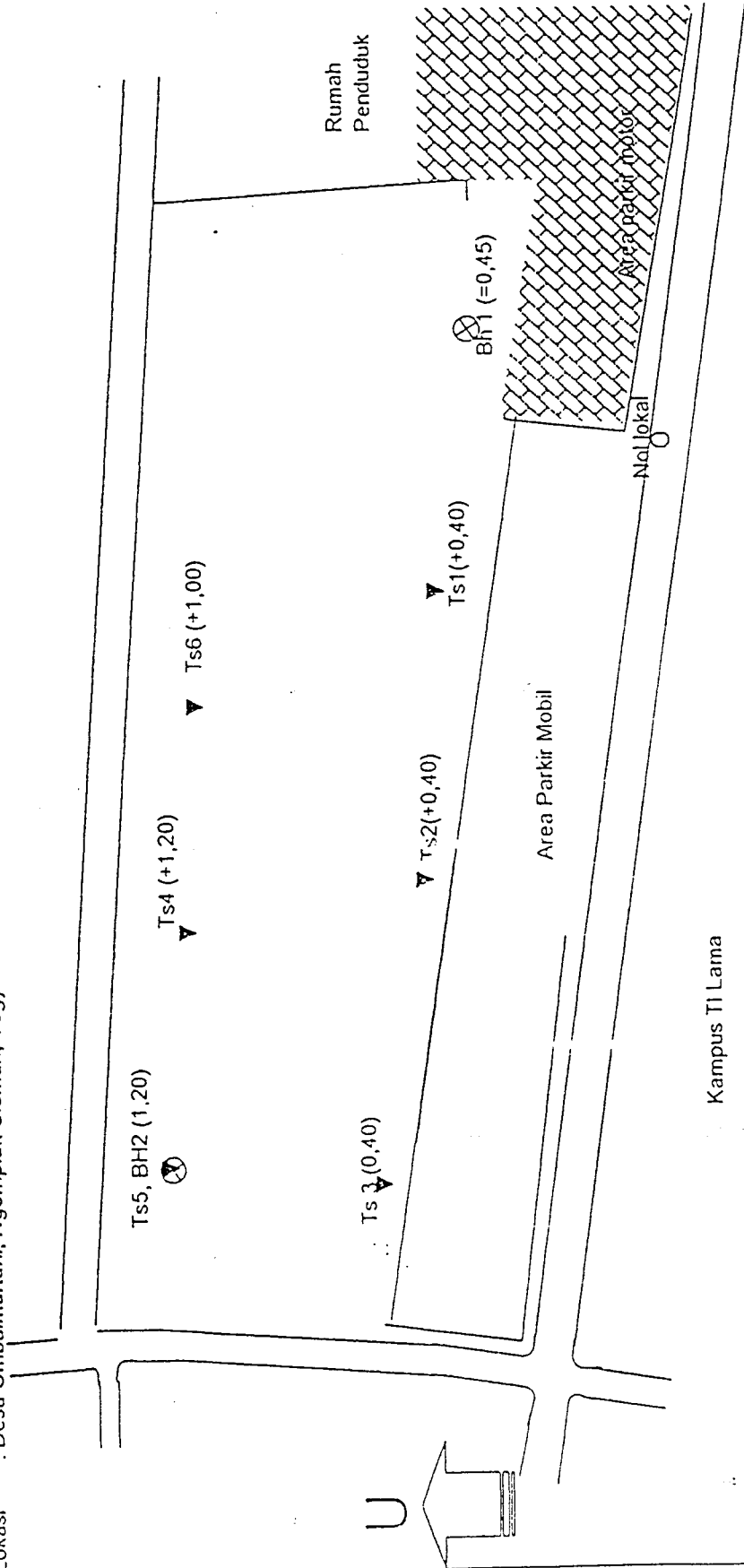




LABORATORIUM MEKANIKA TANAH  
JURUSAN TEKNIK SIPIL-FTSP  
UNIVERSITAS ISLAM INDONESIA

DENAH LOKASI TITIK SONDIR DAN BORING

Proyek : Pembangunan Gedung Fakultas Teknologi Industri Uli  
Lokasi : Desa Umbulmartani, Ngemplak Sleman, Yogyakarta





LABORATORIUM MEKANIKA TANAH  
JURUSAN TEKNIK SIPIL-FTSP  
UNIVERSITAS ISLAM INDONESIA

BORE HOLE LOG  
HAND AUGER

Objek : Pembangunan Gedung Ruang Kuliah Fakultas Teknologi Industri UII  
Lokasi : Umbulmartani, Ngemplak Sleman Yogyakarta  
Titik No : Bh1  
Tinggi : 0,00 dari muka tanah

Tanggal : 14 Mei 2002  
dikerjakan : Sugiyana

Scale (m)	Depth (m)	Log	Description of soil	Sample	Gwt (m)	Note
	0.00					
			Pasir sedang hingga kasar berkerkil abu-abu lepas			
1.00	1.20		Pasir halus berlanau kurang padat			
2.00	1.80		Pasir kasar berkerkil pada			
3.00	2.50		Pasir kasar berbatu-batu padat			
4			akhir pengeboran			

Mengetahui  
Ka. Op Lab.

Ir. H. A. Halim Hasmar, MT

Yogyakarta, 4 H25 Juni 2002  
Laboran

Sugiyana



LABORATORIUM MEKANIKA TANAH  
JURUSAN TEKNIK SIPIL-FTSP  
UNIVERSITAS ISLAM INDONESIA

BORE HOLE LOG  
HAND AUGER

Project : Pembangunan Gedung Ruang Kuliah Fakultas Teknologi Industri UII  
Location : Umbulmartani, Ngemplak Sleman Yogyakarta  
Test poin No : BH2  
Elevation : 0,00 dari muka tanah

Tanggal : 14 Mei 2002  
dikerjakan : Sugiyana

Scale (m)	Depth (m)	Log	Description of soil	Sample	Gwl (m)	Note
	0.00					
			Pasir sedang hingga kasar berkerkil abu-abu lepas			
	0.5					
	0.7		Pasir halus berlanau kurang padat abu-abu			
1.00						
			Pasir sedang hingga kasar abu-abu padat			
2.00	2.00					
			Pasir sedang hingga kasar berkerkil padat			
	2.50					
3.00	3.00		pasir halus berlanau kurang padat			
			Pasir kasar berkerkil sangat keras			
4.00						
5.00						
			Pasir halus bertumpur coklat muda			
6.00						
			Akhir Pengeboran			

Mengotahul  
Ka. Op Lab.

Ir. H. A. Halim Hasmar, MT

Yogyakarta, 4 Mei 2002  
Laboran.

Sugiyana

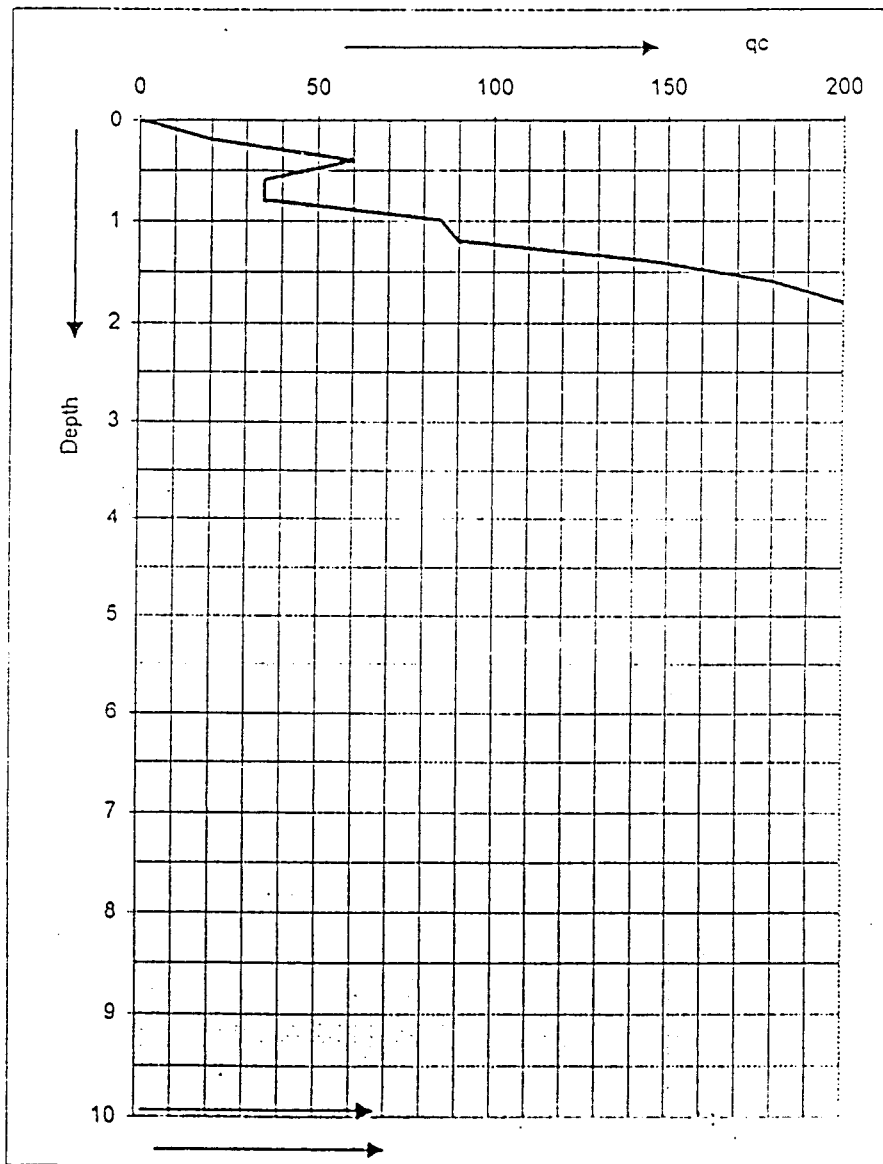


LABORATORIUM MEKANIKA TANAH  
JURUSAN TEKNIK SIPIL-FTSP  
UNIVERSITAS ISLAM INDONESIA

GRAFIK SONDIR

Proyek : Pembangunan Gedung Kuliah FTI Uli  
Lokasi : Umbulmartani, Ngemplak Sleman, Yogyakarta  
No. Titik : Ts. 1  
Elevasi : 0,40 dari jalan sebelah selatan

Tanggal : 14 Mei 2002  
dikerjakan : Sugiyana



Diperiksa oleh:  
Laboran

*Halim Hasmar*  
: H. A. Halim Hasmar, MT)

Dikerjakan oleh:  
Laboran

*Sugiyana*  
(Sugiyana)

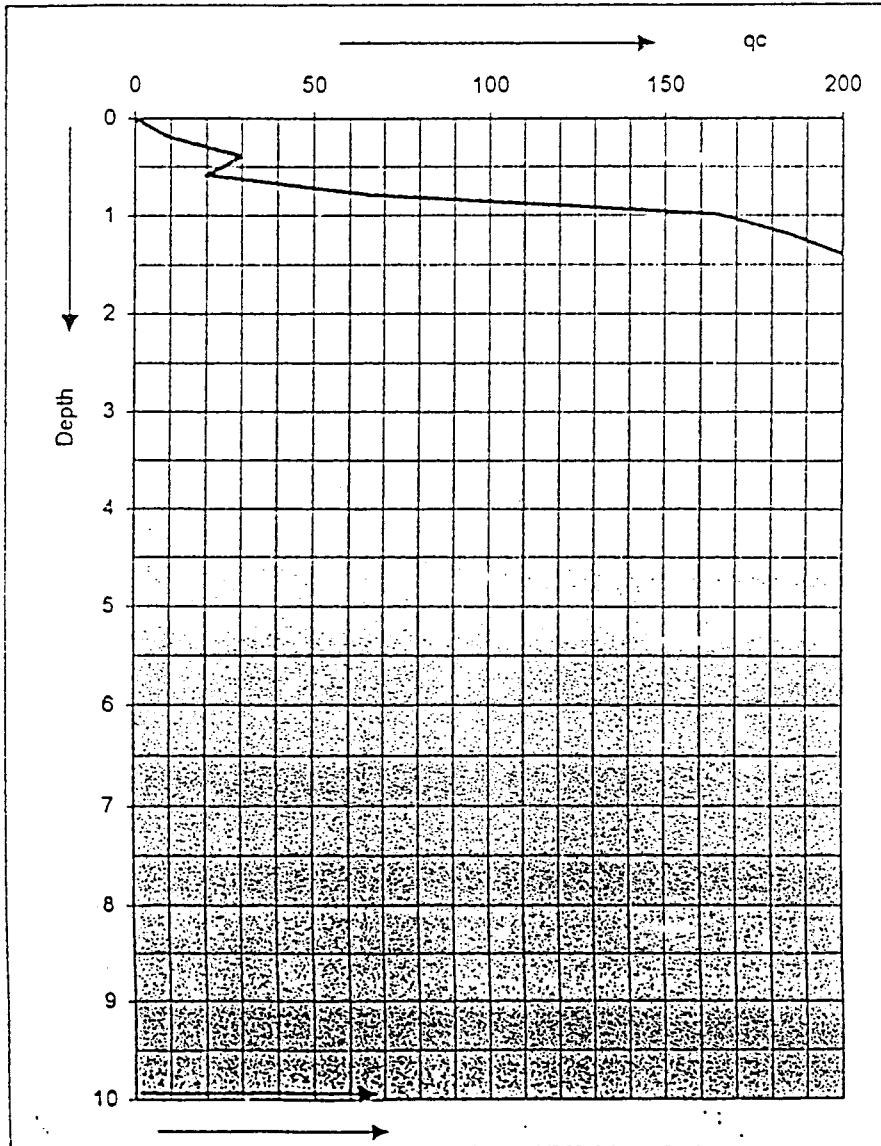


LABORATORIUM MEKANIKA TANAH  
JURUSAN TEKNIK SIPIL-FTSP  
UNIVERSITAS ISLAM INDONESIA

GRAFIK SONDIR

Proyek : Pembangunan Gedung Kuliah FTI UII  
Lokasi : Umbulmertani, Ngemplak Sleman, Yogyakarta  
No. Titik : Ts. 2  
Elevasi : 0,40 dari jalan sebelah selatan

Tanggal : 14 Mei 2002  
dikerjakan : Sugiyana



Diperiksa oleh;  
Ka.Op Lab.

(Ir. H. A. Halim Hasmar, MT)

Dikerjakan oleh;  
Laboran

(Sugiyana)

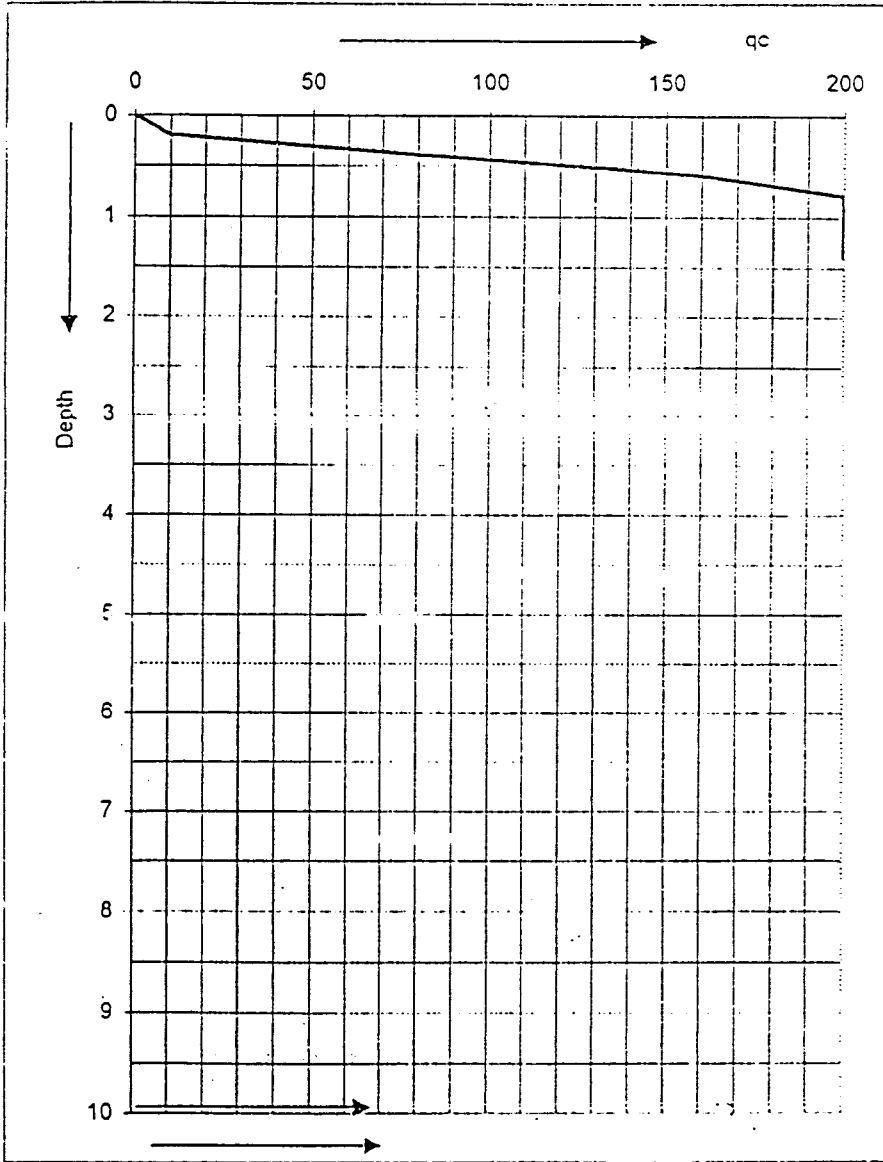


LABORATORIUM MEKANIKA TANAH  
JURUSAN TEKNIK SIPIL-FTSP  
UNIVERSITAS ISLAM INDONESIA

GRAFIK SONDIR

Proyek : Pembangunan Gedung Kuliah FTI UII  
Lokasi : Umbulmartani, Ngemplak Sleman, Yogyakarta  
No. Titik : Ts. 3  
Elevasi : 0,40 dari jalan sebelah selatan

Tanggal : 14 Mei 2002  
dikerjakan : Sugiyana



Diperiksa oleh;  
Ka.Op Lab.

*Hasmar*  
(Ir. H. A. Halin. Hasmar, MT)

Dikerjakan oleh;  
Laboran

*Sugiyana*  
(Sugiyana)

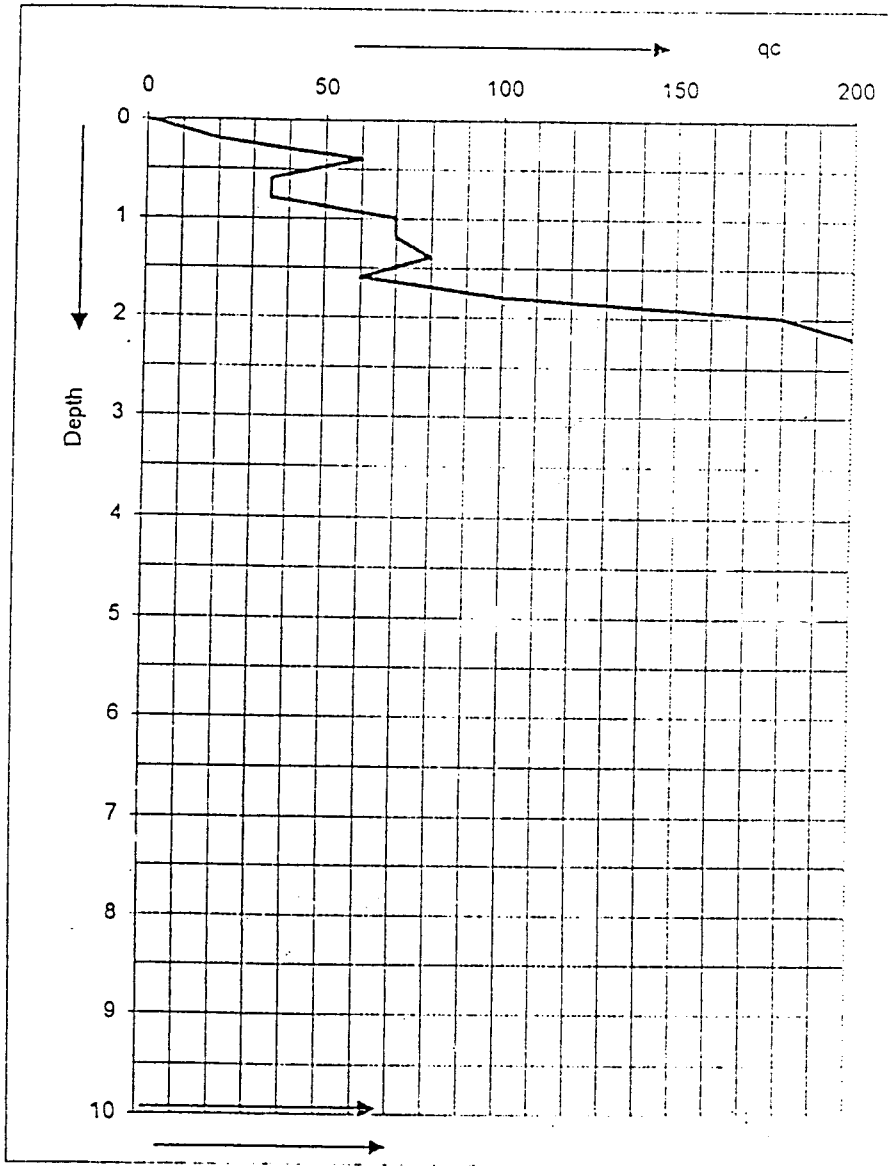


LABORATORIUM MEKANIKA TANAH  
JURUSAN TEKNIK SIPIL-FTSP  
UNIVERSITAS ISLAM INDONESIA

GRAFIK SONDIR

Proyek : Pembangunan Gedung Kuliah FTI UII  
Lokasi : Umbulmartani, Ngemplak Sleman, Yogyakarta  
No. Titik : Ts. 4  
Elevasi : 1,20 dari jalan sebelah selatan

Tanggal : 14 Mei 2002  
dikerjakan : Sugiyana



Diperiksa oleh;  
Ka.Op Lab.

(ir. H. A. Halim Hasmar, MT)

Dikerjakan oleh:  
Laboran

(Sugiyana)

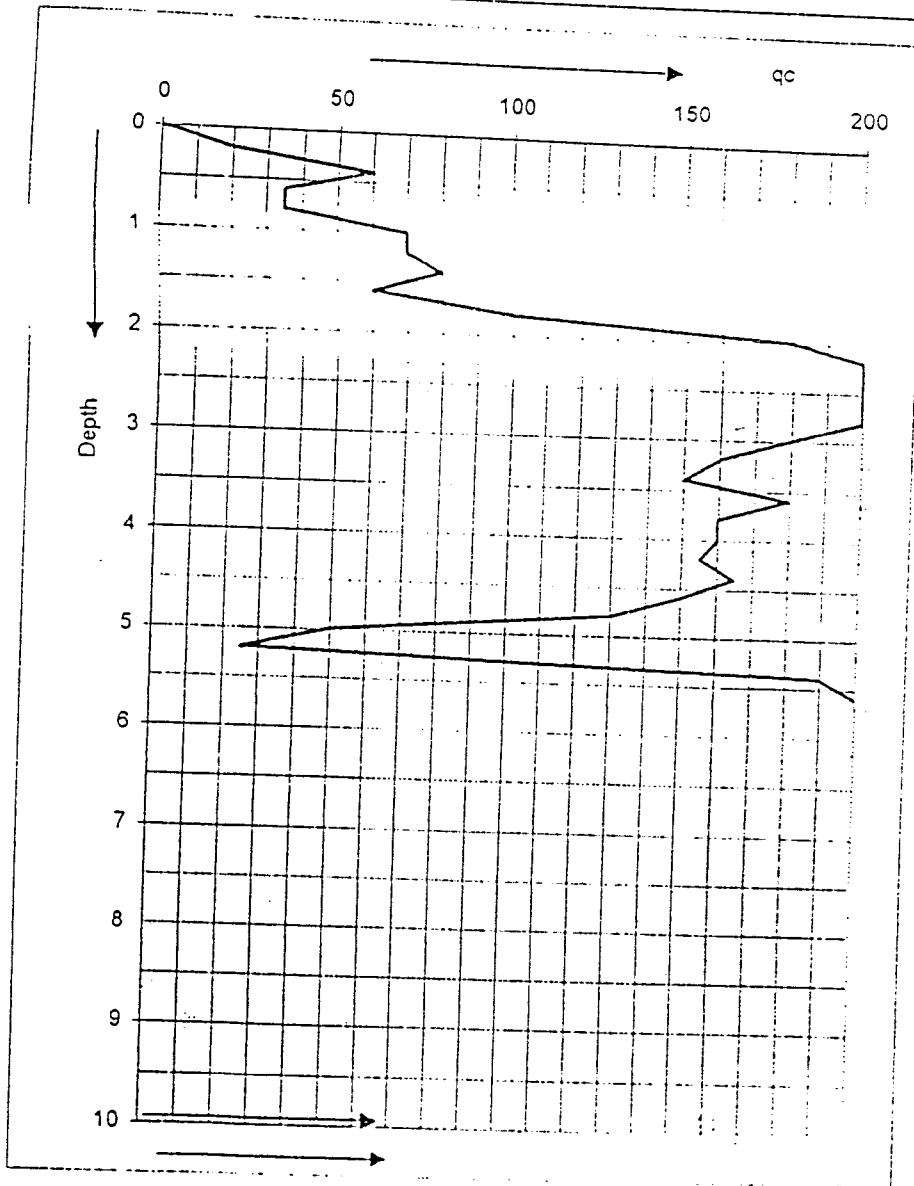


LABORATORIUM MEKANIKA TANAH  
JURUSAN TEKNIK SIPIL-FTSP  
UNIVERSITAS ISLAM INDONESIA

GRAFIK SONDIR

Proyek : Pembangunan Gedung Kuliah FTI UII  
Lokasi : Umbulmartani, Ngemplak Sleman, Yogyakarta  
No. Titik : 1s. 5  
Elevasi : 1,20 dari jalan sebelah selatan

Tanggal : 14 Mei 2002  
dikerjakan : Sugiyana



Diperiksa oleh;  
Ka.Op.Lab.

*Halim Hasmar*

(ir. H. A. Halim Hasmar, MT)

Dikerjakan oleh;  
Laboran

*Sugiyana*

(Sugiyana)





FAKULTAS TEKNIK SIPIL DAN PERENCANAAN  
UNIVERSITAS ISLAM INDONESIA

Jl. Kaliurang KM 14,4 Telp (0274) 895042, 895707 Fax. (0274) 895330 Yogyakarta

**KESIMPULAN HASIL UJI DI LABORATORIUM**  
 Proyek Pembangunan Gedung Fakultas Teknologi Industri UII  
 Lokasi : Desa Umbulmartani, Ngemplak, Sleman, Yogyakarta

Lokasi	Kedalaman m	$\gamma_b$ $t/m^3$	w %	$\gamma_k$ $t/m^3$	Gs	Parameter tegangan	
						c kg/cm <sup>2</sup>	$\phi$
Bh2	0.75	1.468	13.660	1.292	2.679	0.326	27
	1.50	1.486	5.687	1.406	2.737	0.043	36
	2.50	1.510	7.798	1.401	2.658	0.710	43
	3.50	1.448	7.797	1.343	2.710	0.168	35
	4.50	1.778	25.400	1.418	2.725	0.146	19
	5.50	1.536	10.910	1.385	2.684	0.069	15
		Berat volume basah	Kadar air	Berat volume kering	Berat jenis	Cohesi tanah	Sudut geser dalam

## PENGUJIAN BERAT JENIS AGREGAT

Proyek : Pembangunan Gedung Kulian FTI UII  
 Lokasi : Umbulmartani, Ngemplak, Sleman, Yk  
 Kode sampel : BH 2 (0,00)  
 Kadalaman : 0.75 m

### AGREGAT KASAR (tertahan # 10)

A	Berat benda uji kering oven		
B	Berat benda uji kering permukaan jenuh		
C	Berat benda uji dalam air		
*	Berat jenis kering oven (SG)		
*	Berat jenis kering permukaan jenuh (SSD)		
*	Berat jenis semu (Apperen)		
*	Penyerapan (Absorsi)		

### AGREGAT HALUS (lolos #10)

1	No pengujian	1	2
2	Berat Picknometer (W1)	18.02	18.67
3	Berat Picknometer + tanah kering (W2)	34.25	44.54
4	Berat Picknometer + tanah + air (W3)	53.01	59.95
5	Berat Picknometer + air (W4)	42.83	43.75
6	Temperatur (to)	27.00	27.00
7	Berat tanah kering (Wt)	16.23	25.87
8	$A = Wt + W4$	59.06	69.62
9	$I = A - W3$	6.05	9.67
10	Berat Jenis tanah, $G_s = Wt / I$	2.68	2.68
12	Berat jenis rata-rata		2.679

LABORATORIUM MEKANIKA TANAH  
 JURUSAN TEKNIK SIPIL FTSP  
 UNIVERSITAS ISLAM INDONESIA

## PENGUJIAN BERAT JENIS AGREGAT

Proyek : Pembangunan Gedung Kulian FTI UII  
 Lokasi : Umbulmartani, Ngemplak, Sleman, Yk  
 Kode sampel : BH 2 (0,00)  
 Kadalaman : 1.50 m

### AGREGAT KASAR (tertahan # 10)

A	Berat benda uji kering oven		
B	Berat benda uji kering permukaan jenuh		
C	Berat benda uji dalam air		
*	Berat jenis kering oven (SG)		
*	Berat jenis kering permukaan jenuh (SSD)		
*	Berat jenis semu (Apperen)		
*	Penyerapan (Absorsi)		

### AGREGAT HALUS (lolos #10)

1	No pengujian	1	2
2	Berat Picknometer (W1)	16.90	17.24
3	Berat Picknometer + tanah kering (W2)	44.40	44.32
4	Berat Picknometer + tanah + air (W3)	59.20	57.55
5	Berat Picknometer + air (W4)	41.60	40.52
6	Temperatur (to)	27.00	27.00
7	Berat tanah kering (Wt)	27.50	27.03
8	$A = Wt + W4$	69.10	67.60
9	$l = A - W3$	9.90	10.04
10	Berat Jenis tanah, $G_s = Wt / l$	2.78	2.70
12	Berat jenis rata-rata		2.737

LABORATORIUM MEKANIKA TANAH  
 JURUSAN TEKNIK SIPIL FTSP  
 UNIVERSITAS ISLAM INDONESIA

## PENGUJIAN BERAT JENIS AGREGAT

Proyek : Pembangunan Gedung Kulian FTI UII  
 Lokasi : Umbulmartani, Ngemplak, Sleman, Yk  
 Kode sampel : BH 2 (0,00)  
 Kadalaman : 2.50 m

### AGREGAT KASAR (tertahan # 10)

A	Berat benda uji kering oven		
B	Berat benda uji kering permukaan jenuh		
C	Berat benda uji dalam air		
*	Berat jenis kering oven (SG)		
*	Berat jenis kering permukaan jenuh (SSD)		
*	Berat jenis semu (Apperen)		
*	Penyerapan (Absorsi)		

### AGREGAT HALUS (lolos #10)

1	No pengujian	1	2
2	Berat Picknometer (W1)	18.54	18.47
3	Berat Picknometer + tanah kering (W2)	29.80	37.55
4	Berat Picknometer + tanah + air (W3)	50.07	55.70
5	Berat Picknometer + air (W4)	43.01	43.86
6	Temperatur (to)	27.00	27.00
7	Berat tanah kering (Wt)	11.26	19.08
8	$A = Wt + W4$	54.27	62.94
9	$I = A - W3$	4.20	7.24
10	Berat Jenis tanah, $G_s = Wt / I$	2.68	2.64
12	Berat jenis rata-rata		2.658

LABORATORIUM MEKANIKA TANAH  
 JURUSAN TEKNIK SIPIL FTSP  
 UNIVERSITAS ISLAM INDONESIA

## PENGUJIAN BERAT JENIS AGREGAT

Proyek : Pembangunan Gedung Kulian FTI UII  
 Lokasi : Umbulmartani, Ngemplak, Sleman, Yk  
 Kode sampel : BH 2 (0,00)  
 Kadalaman : 5.50 m

### AGREGAT KASAR (tertahan # 10)

A	Berat benda uji kering oven		
B	Berat benda uji kering permukaan jenuh		
C	Berat benda uji dalam air		
*	Berat jenis kering oven (SG)		
*	Berat jenis kering permukaan jenuh (SSD)		
*	Berat jenis semu (Apperen)		
*	Penyerapan (Absorsi)		

### AGREGAT HALUS (lolos #10)

1	No pengujian	1	2
2	Berat Picknometer (W1)	28.10	21.87
3	Berat Picknometer + tanah kering (W2)	42.60	37.08
4	Berat Picknometer + tanah + air (W3)	51.30	81.90
5	Berat Picknometer + air (W4)	42.21	72.35
6	Temperatur (to)	27.00	27.00
7	Berat tanah kering (Wt)	14.50	15.21
8	$A = Wt + W4$	56.71	87.56
9	$I = A - W3$	5.41	5.66
10	Berat Jenis tanah, $G_s = Wt / I$	2.68	2.69
12	Berat jenis rata-rata		2.684

LABORATORIUM MEKANIKA TANAH  
 JURUSAN TEKNIK SIPIL FTSP  
 UNIVERSITAS ISLAM INDONESIA

## PENGUJIAN BERAT JENIS AGREGAT

Proyek : Pembangunan Gedung Kulian FTI UII  
 Lokasi : Umbulmartani, Ngemplak, Sleman, Yk  
 Kode sampel : BH 2 (0,00)  
 Kadalaman : 4.50 m

### AGREGAT KASAR (tertahan # 10)

A	Berat benda uji kering oven		
B	Berat benda uji kering permukaan jenuh		
C	Berat benda uji dalam air		
*	Berat jenis kering oven (SG)		
*	Berat jenis kering permukaan jenuh (SSD)		
*	Berat jenis semu (Apperen)		
*	Penyerapan (Absorsi)		

### AGREGAT HALUS (lolos #10)

1	No pengujian	1	2
2	Berat Picknometer (W1)	19.15	13.30
3	Berat Picknometer + tanah kering (W2)	29.62	26.95
4	Berat Picknometer + tanah + air (W3)	50.02	45.90
5	Berat Picknometer + air (W4)	43.50	37.20
6	Temperatur (to)	27.00	27.00
7	Berat tanah kering (Wt)	10.47	13.65
8	$A = Wt + W4$	53.97	50.85
9	$I = A - W3$	3.89	4.95
10	Berat Jenis tanah, $G_s = Wt / I$	2.69	2.76
12	Berat jenis rata-rata		2.725

LABORATORIUM MEKANIKA TANAH  
 JURUSAN TEKNIK SIPIL FTSP  
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## PENGUJIAN BERAT JENIS AGREGAT

Proyek : Pembangunan Gedung Kulian FTI Ull  
 Lokasi : Umbulmartani, Ngemplak, Sleman, Yk  
 Kode sampel : BH 2 (0,00)  
 Kadalaman : 5.50 m

### AGREGAT KASAR (tertahan # 10)

A	Berat benda uji kering oven		
B	Berat benda uji kering permukaan jenuh		
C	Berat benda uji dalam air		
*	Berat jenis kering oven (SG)		
*	Berat jenis kering permukaan jenuh (SSD)		
*	Berat jenis semu (Apperen)		
*	Penyerapan (Absorsi)		

### AGREGAT HALUS (lolos #10)

1	No pengujian	1	2
2	Berat Picknometer (W1)	28.10	21.87
3	Berat Picknometer + tanah kering (W2)	42.60	37.08
4	Berat Picknometer + tanah + air (W3)	51.30	81.90
5	Berat Picknometer + air (W4)	42.21	72.35
6	Temperatur (to)	27.00	27.00
7	Berat tanah kering (Wt)	14.50	15.21
8	$A = Wt + W4$	56.71	87.56
9	$I = A - W3$	5.41	5.66
10	Berat Jenis tanah, $G_s = Wt / I$	2.68	2.69
12	Berat jenis rata-rata		2.684

LABORATORIUM MEKANIKA TANAH  
 JURUSAN TEKNIK SIPIL FTSP  
 UNIVERSITAS ISLAM INDONESIA



**LABORATORIUM MEKANIKA TANAH**  
**FAKULTAS TEKNIK SIPIL DAN PERENCANAAN UII**  
 Jl. Kallurang KM. 14,4 Telp. (0274) 895042 Yogyakarta 55584.

**PENGUJIAN GESER LANGSUNG**  
**(DIRECT SHEAR TEST)**

**DATA PROYEK**

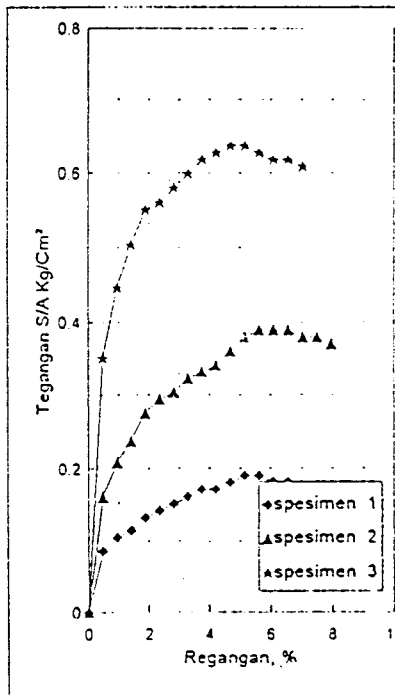
Proyek : Pembangunan Ruang Kuliah FTI UII  
 Lokasi : Umbulmartani, ngemplak sleman Yogyakarta  
 No Titik : BH2  
 Kedalaman : 0,75 meter  
 Dikerjakan : Yudi

**DIMENSI RING :**

Alat No. : 1  
 Diameter : 6.410 cm  
 Tinggi : 2.380 cm  
 Luas : 32.27052 cm<sup>2</sup>  
 Volume : 76.80 cm<sup>3</sup>  
 Kalibrasi proving ring : 0.307 kg/div

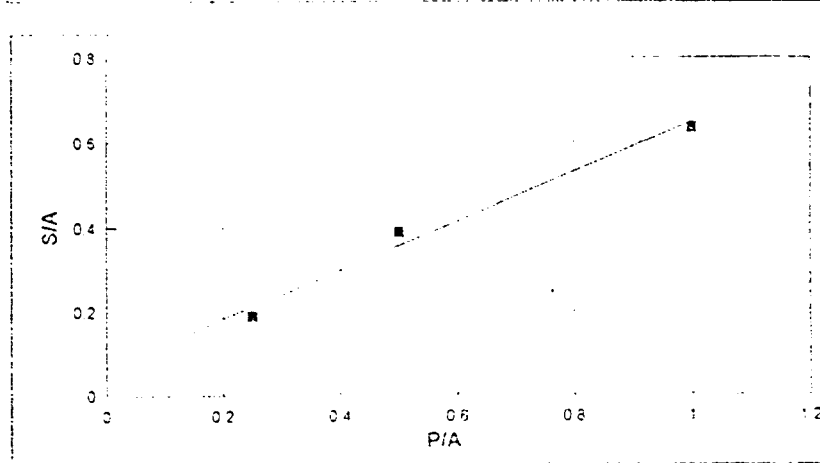
KADAR AIR			
No sampel	1	2	3
Berat cawan kosong (gram)	22.10	7.35	14.73
Berat cawan + tanah basah (gram)	71.43	43.63	57.53
Berat cawan + tanah kering (gram)	65.65	39.15	52.40
Berta Air (gram)	5.78	4.48	5.13
Berat tanah kering (gram)	43.55	31.80	37.68
Kadar air tanah (%)	13.27	14.09	13.62
Kadar air rata-rata (%)	13.6589		

**GRAFIK TEGANGAN -REGANGAN**



DIMENSI SAMPEL				
Specimen		1	2	3
Berat tanah + ring	gr	179.24	182.31	182.55
Berat ring	gr	69.54	69.54	69.54
Berat tanah	gr	109.7	112.77	113.02
Berat volume basah	gr/cm <sup>3</sup>	1.428	1.468	1.472
Berat volume kering	gr/cm <sup>3</sup>	1.251	1.287	1.295
Tegangan Normal	gr/cm <sup>2</sup>	0.25	0.50	1.00
Tegangan Geser Maksimum	gr/cm <sup>2</sup>	0.19002	0.38954	0.63656

**GRAFIK TEGANGAN NORMAL - TEGANGAN GESER**



sudut geser dalam : 30.153 °  
 Kohesi c : 0.0665 kg/cm<sup>2</sup>

Diperiksa

*Handwritten signature of Ir. H.A. Halim Hasmar, MT*

Ir. H.A. Halim Hasmar, MT  
 Kepala Operasional Laboratorium

Dikerjakan

*Handwritten signature of Yudi*

Yudi  
 Laboran





**LABORATORIUM MEKANIKA TANAH**  
**FAKULTAS TEKNIK SIPIL DAN PERENCANAAN UII**  
 Jl. Kallurang KM. 14,4 Telp. (0274) 895042 Yogyakarta 55584.

**PENGUJIAN GESER LANGSUNG**  
**(DIRECT SHEAR TEST)**

**DATA PROYEK**

Proyek : Pembangunan Ruang Kuliah FTI UII  
 Lokasi : Umbulmartani, ngemplak sleman Yogyakarta  
 No Titik : BH2

Kedalaman : 1,50 meter  
 Dikerjakan : Yudi

**DIMENSI RING :**

Alat No. : 1  
 Diameter : 6.410 cm  
 Tinggi : 2.380 cm  
 Luas : 32.27052 cm<sup>2</sup>  
 Volume : 76.80 cm<sup>3</sup>

Kalibrasi proving ring 0.307 kg/div

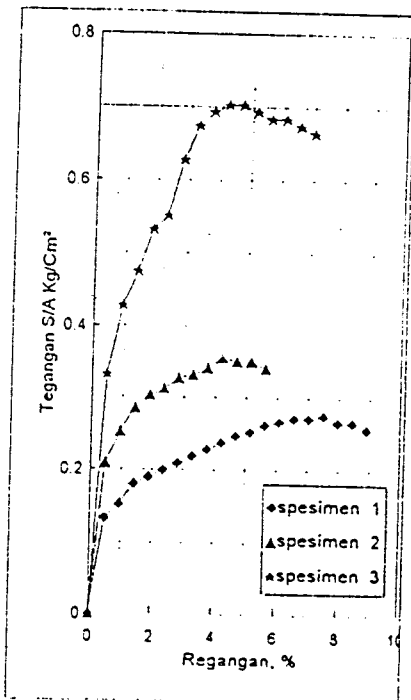
**KADAR AIR**

No sampel	1	2	3
Berat cawan kosong (gram)	21.53	7.56	14.55
Berat cawan + tanah basah (gram)	81.30	60.26	70.78
Berat cawan + tanah kering (gram)	78.00	57.50	67.75
Berta Air (gram)	3.30	2.76	3.03
Berat tanah kering (gram)	56.47	49.94	53.21
Kadar air tanah (%)	5.84	5.53	5.69
Kadar air rata-rata (%)	5.68847		

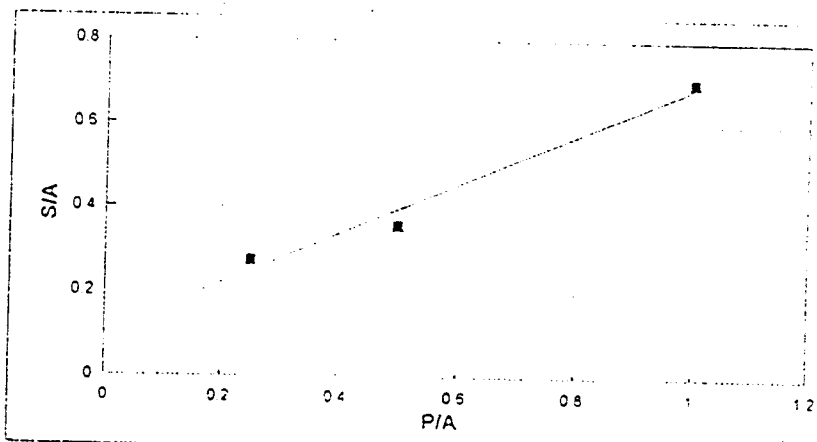
**DIMENSI SAMPEL**

Specimen		1	2	3
Berat tanah + ring	gr	182.3	183.67	183.41
Berat ring	gr	69.54	69.54	69.54
Berat tanah	gr	112.76	114.13	113.87
Berat volume basah	gr/cm <sup>3</sup>	1.468	1.486	1.483
Berat volume kering	gr/cm <sup>3</sup>	1.387	1.408	1.403
Tegangan Normal	gr/cm <sup>2</sup>	0.25	0.50	1.00
Tegangan Geser Maksimum	gr/cm <sup>2</sup>	0.27553	0.35628	0.70307

**GRAFIK TEGANGAN -REGANGAN**



**GRAFIK TEGANGAN NORMAL - TEGANGAN GESER**



sudut geser dalam  $30.443^\circ$   
 Kohesi c 0.1021 kg/cm<sup>2</sup>

Diperiksa

*Handwritten signature of H.A. Halim Hasmar*

Ir. H.A. Halim Hasmar, MT  
 Kepala Operasional Laboratorium

Dikerjakan

*Handwritten signature of Yudi*

Yudi  
 Laboran



**LABORATORIUM MEKANIKA TANAH**  
**FAKULTAS TEKNIK SIPIL DAN PERENCANAAN UII**  
 Jl. Kallurang KM. 14,4 Telp. (0274) 895042 Yogyakarta 55584.

**PENGUJIAN GESER LANGSUNG**  
**(DIRECT SHEAR TEST)**

**DATA PROYEK**

Proyek : Pembangunan Ruang Kuliah FTI UII  
 Lokasi : Umbulmartani, ngemplak sleman Yogyakarta  
 No Titik : BH2

Kedalaman : 2.50 meter  
 Dikerjakan : Yudi

**DIMENSI RING :**

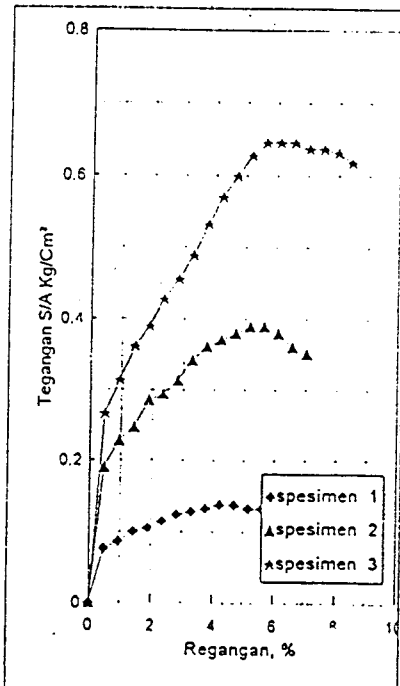
Alat No. : 1  
 Diameter : 6.410 cm  
 Tinggi : 2.380 cm  
 Luas : 32.27052 cm<sup>2</sup>  
 Volume : 76.80 cm<sup>3</sup>

Kalibrasi proving ring 0.307 kg/div

**KADAR AIR**

No sampel	1	2	3
Berat cawan kosong (gram)	21.59	7.70	14.65
Berat cawan + tanah basah (gram)	74.72	41.60	58.16
Berat cawan + tanah kering (gram)	71.01	39.05	55.03
Berta Air (gram)	3.71	2.55	3.13
Berat tanah kering (gram)	49.42	31.35	40.39
Kadar air tanah (%)	7.51	8.13	7.75
Kadar air rata-rata (%)	7.79715		

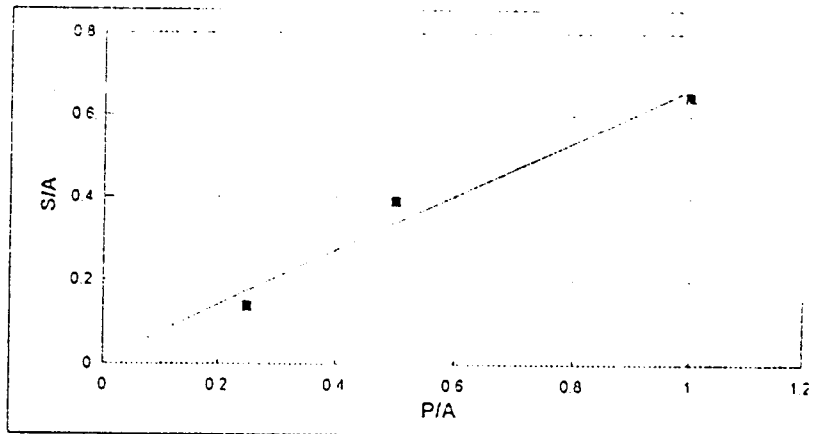
**GRAFIK TEGANGAN -REGANGAN**



**DIMENSI SAMPEL**

Specimen		1	2	3
Berat tanah + ring	gr	182.3	188.7	185.5
Berat ring	gr	69.54	69.54	69.54
Berat tanah	gr	112.76	119.16	115.96
Berat volume basah	gr/cm <sup>3</sup>	1.468	1.551	1.510
Berat volume kering	gr/cm <sup>3</sup>	1.366	1.435	1.401
Tegangan Normal	gr/cm <sup>2</sup>	0.25	0.50	1.00
Tegangan Geser Maksimum	gr/cm <sup>2</sup>	0.13776	0.38954	0.64606

**GRAFIK TEGANGAN NORMAL - TEGANGAN GESER**



sudut geser dalam  
 Cohesi c

33.193 °  
 0.0095 kg/cm<sup>2</sup>

Diperiksa

*Handwritten signature of Ir. H.A. Halim Hasmar, MT*

Ir. H.A. Halim Hasmar, MT  
 Kepala Operasional Laboratorium

Dikerjakan

*Handwritten signature of Yudi*

Yudi  
 Laboran



**LABORATORIUM MEKANIKA TANAH**  
**FAKULTAS TEKNIK SIPIL DAN PERENCANAAN UII**  
 Jl. Kallurang KM. 14,4 Telp. (0274) 895042 Yogyakarta 55584.

**PENGUJIAN GESER LANGSUNG**  
**(DIRECT SHEAR TEST)**

**DATA PROYEK**

Proyek : Pembangunan Ruang Kuliah FTI UII  
 Lokasi : Umbulmartani, ngemplak sleman Yogyakarta  
 No Titik : BH2

Kedalaman : 2,50 meter  
 Dikerjakan : Yudi

**DIMENSI RING :**

Alat No. : 1  
 Diameter : 6.410 cm  
 Tinggi : 2.380 cm  
 Luas : 32.27052 cm<sup>2</sup>  
 Volume : 76.80 cm<sup>3</sup>

Kalibrasi proving ring 0.307 kg/div

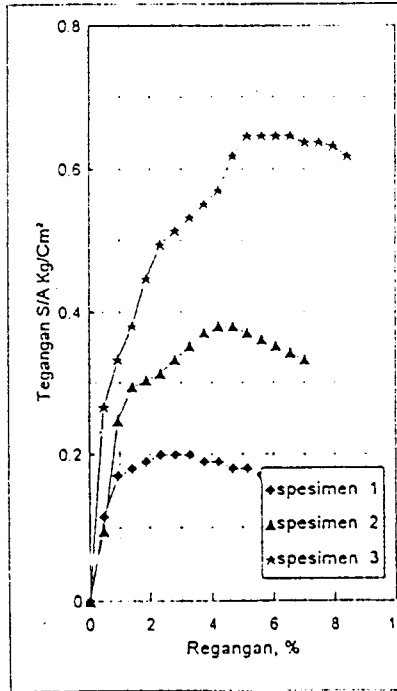
**KADAR AIR**

No sampel	1	2	3
Berat cawan kosong (gram)	21.59	7.70	14.65
Berat cawan + tanah basah (gram)	74.72	41.60	58.16
Berat cawan + tanah kering (gram)	71.01	39.05	55.03
Berta Air (gram)	3.71	2.55	3.13
Berat tanah kering (gram)	49.42	31.35	40.39
Kadar air tanah (%)	7.51	8.13	7.75
Kadar air rata-rata (%)	7.79715		

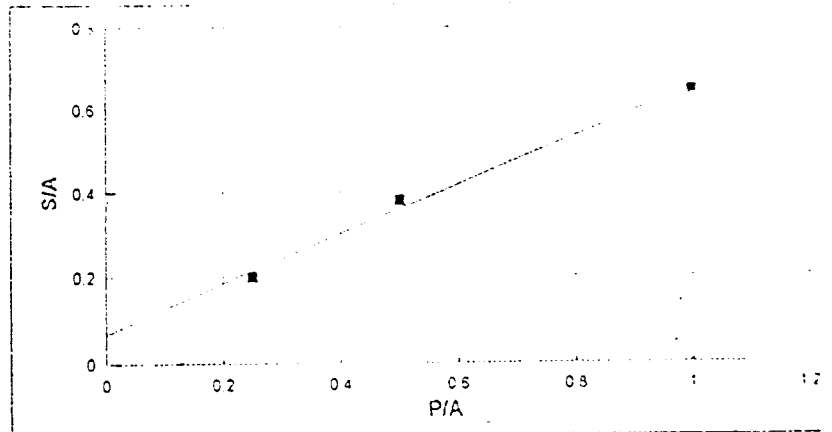
**DIMENSI SAMPEL**

Specimen		1	2	3
Berat tanah + ring	gr	180.72	180.72	178.32
Berat ring	gr	69.54	69.54	69.54
Berat tanah	gr	111.18	111.18	108.78
Berat volume basah	gr/cm <sup>3</sup>	1.448	1.443	1.416
Berat volume kering	gr/cm <sup>3</sup>	1.347	1.339	1.314
Tegangan Normal	gr/cm <sup>2</sup>	0.25	0.50	1.00
Tegangan Geser Maksimum	gr/cm <sup>2</sup>	0.19952	0.38004	0.64605

**GRAFIK TEGANGAN -REGANGAN**



**GRAFIK TEGANGAN NORMAL - TEGANGAN GESER**



sudut geser dalam **30.385°**  
 Kohesi c **0.0665 kg/cm<sup>2</sup>**

Diperiksa

*Ir. H.A. Halim Hasmar, MT*  
 Kepala Operasional Laboratorium

Dikerjakan

*Yudi*  
 Laboran



**LABORATORIUM MEKANIKA TANAH**  
**FAKULTAS TEKNIK SIPIL DAN PERENCANAAN UII**  
 Jl. Kaliurang KM. 14,4 Telp. (0274) 895042 Yogyakarta 55584.

**PENGUJIAN GESER LANGSUNG**  
**(DIRECT SHEAR TEST)**

**DATA PROYEK**

Proyek : Pembangunan Ruang Kuliah FTI UII  
 Lokasi : Umbulmartani, ngemplak sleman Yogyakarta  
 No Titik : BH2  
 Kedalaman : 4,50 meter  
 Dikerjakan : Yudi

**DIMENSI RING :**

Alat No. : 1  
 Diameter : 6.410 cm  
 Tinggi : 2.380 cm  
 Luas : 32.27052 cm<sup>2</sup>  
 Volume : 76.80 cm<sup>3</sup>  
 Kalibrasi proving ring : 0.307 kg/div

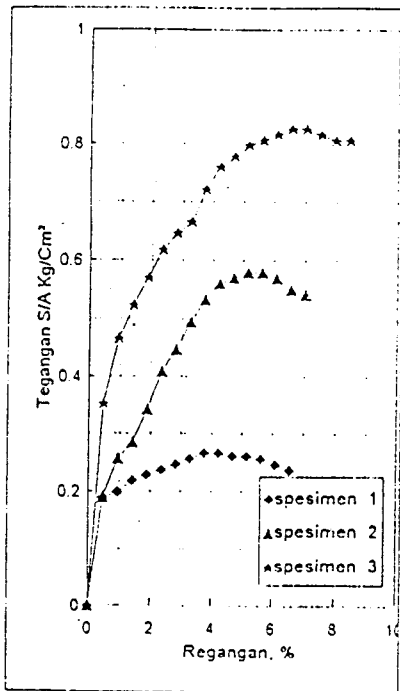
**KADAR AIR**

No sampel	1	2	3
Berat cawan kosong (gram)	7.75	7.65	7.70
Berat cawan + tanah basah (gram)	40.00	69.86	54.93
Berat cawan + tanah kering (gram)	33.50	57.39	45.45
Berta Air (gram)	6.50	12.47	9.49
Berat tanah kering (gram)	25.75	49.74	37.75
Kadar air tanah (%)	25.24	25.07	25.13
Kadar air rata-rata (%)	25.1474		

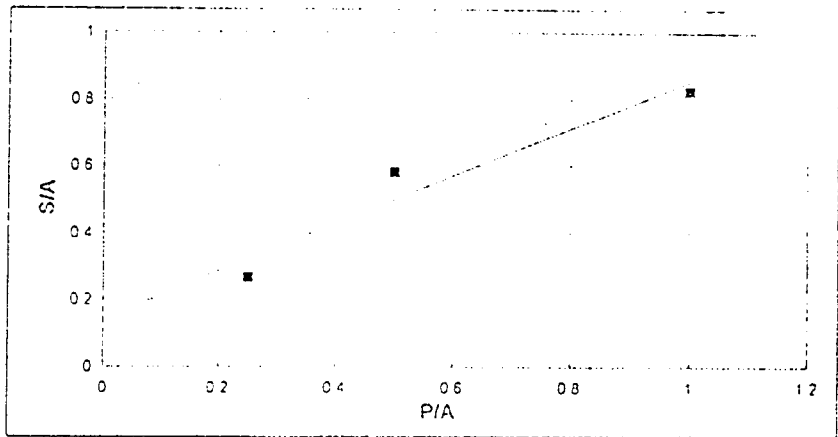
**DIMENSI SAMPEL**

Specimen		1	2	3
Berat tanah + ring	gr	200.39	206.12	210.72
Berat ring	gr	69.54	69.54	69.54
Berat tanah	gr	130.85	136.58	141.18
Berat volume basah	gr/cm <sup>3</sup>	1.704	1.778	1.838
Berat volume kering	gr/cm <sup>3</sup>	1.360	1.422	1.469
Tegangan Normal	gr/cm <sup>2</sup>	0.25	0.50	1.00
Tegangan Geser Maksimum	gr/cm <sup>2</sup>	0.26603	0.57956	0.82658

**GRAFIK TEGANGAN -REGANGAN**



**GRAFIK TEGANGAN NORMAL - TEGANGAN GESER**



sudut geser dalam : 35.421 °  
 Cohesi c : 0.1425 kg/cm<sup>2</sup>

Diperiksa

*Handwritten signature of Ir. H.A. Halim Hasmar, MT*

Ir. H.A. Halim Hasmar, MT  
 Kepala Operasional Laboratorium

Dikerjakan

*Handwritten signature of Yudi*

Yudi  
 Laboran



**LABORATORIUM MEKANIKA TANAH**  
**FAKULTAS TEKNIK SIPIL DAN PERENCANAAN UII**  
 Jl. Kallurang KM. 14,4 Telp. (0274) 895042 Yogyakarta 55584.

**PENGUJIAN GESER LANGSUNG**  
**(DIRECT SHEAR TEST)**

**DATA PROYEK**

Proyek : Pembangunan Ruang Kuliah FTI UII  
 Lokasi : Umbulmartani, ngemplak sleman Yogyakarta  
 No Titik : BH2

Kedalaman : 5,50 meter  
 Dikerjakan : Yudi

**DIMENSI RING :**

Alat No. : 1  
 Diameter : 6.410 cm  
 Tinggi : 2.380 cm  
 Luas : 32.27052 cm<sup>2</sup>  
 Volume : 76.80 cm<sup>3</sup>

Kalibrasi proving ring 0.307 kg/div

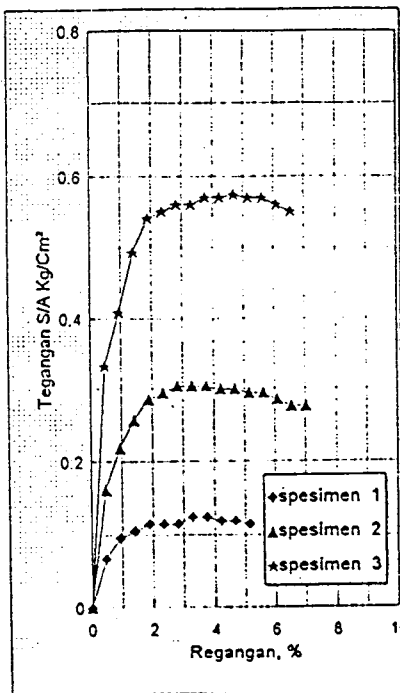
**KADAR AIR**

No sampel	1	2	3
Berat cawan kosong (gram)	22.50	7.55	15.03
Berat cawan + tanah basah (gram)	46.02	40.12	43.07
Berat cawan + tanah kering (gram)	43.19	37.58	40.39
Berta Air (gram)	2.83	2.54	2.68
Berat tanah kering (gram)	20.69	30.03	25.36
Kadar air tanah (%)	13.68	8.46	10.59
Kadar air rata-rata (%)	10.908		

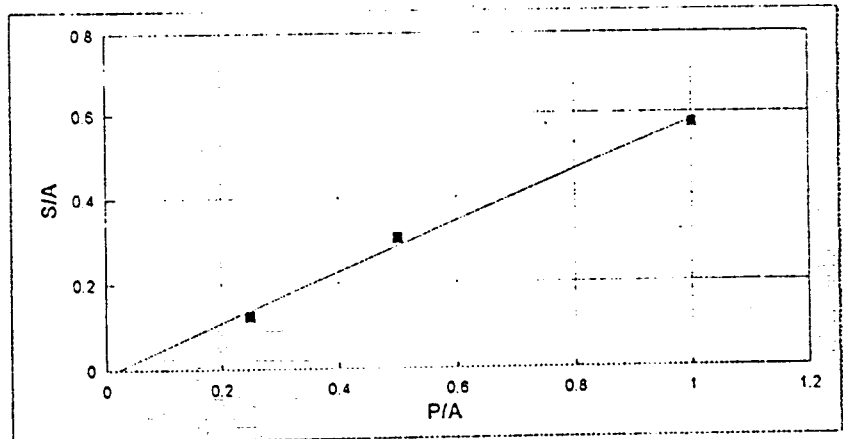
**DIMENSI SAMPEL**

Specimen		1	2	3
Berat tanah + ring	gr	188.65	186.32	187.54
Berat ring	gr	69.54	69.54	69.54
Berat tanah	gr	119.11	116.78	118
Berat volume basah	gr/cm <sup>3</sup>	1.551	1.520	1.536
Berat volume kering	gr/cm <sup>3</sup>	1.364	1.402	1.389
Tegangan Normal	gr/cm <sup>2</sup>	0.25	0.50	1.00
Tegangan Geser Maksimum	gr/cm <sup>2</sup>	0.12351	0.30403	0.57481

**GRAFIK TEGANGAN -REGANGAN**



**GRAFIK TEGANGAN NORMAL - TEGANGAN GESER**



sudut geser dalam  
 Cohesi c

30.673 °  
 0 kg/cm<sup>2</sup>

Diperiksa

*H.A. Halim*

Ir. H.A. Halim Hasmar, MT  
 Kepala Operasional Laboratorium

Dikerjakan

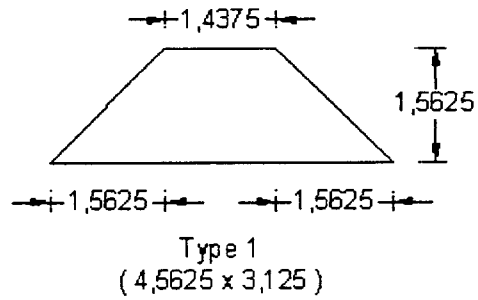
*Yudi*

Yudi  
 Laboran

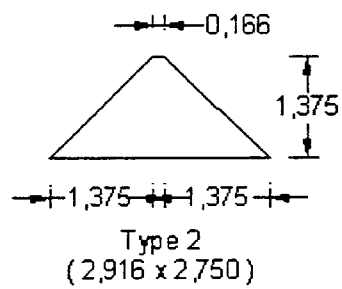
## A. Tipe Pembebanan

### 1. Tipe Pembebanan pada lantai

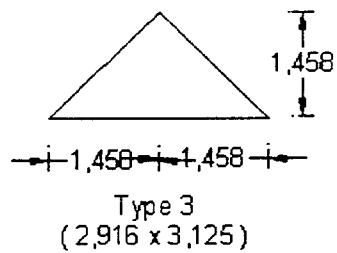
- Tipe 1



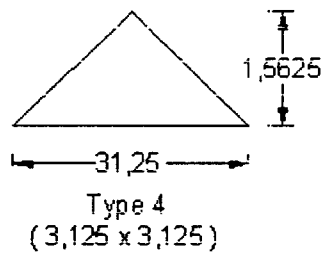
- Tipe 2



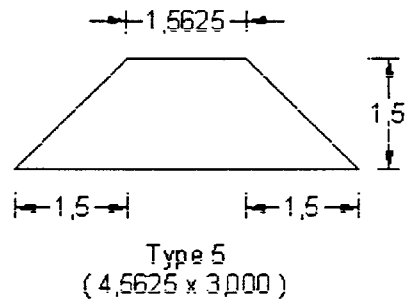
- Tipe 3



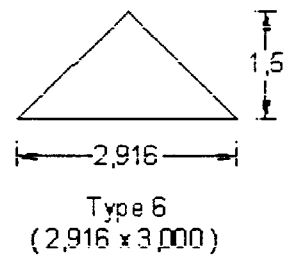
- Type 4



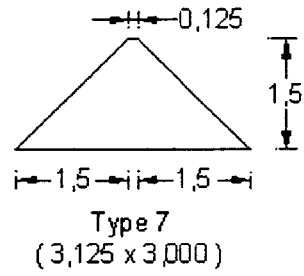
- Type 5



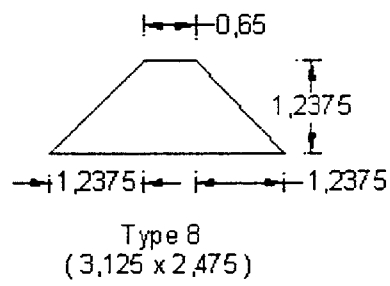
- Type 6



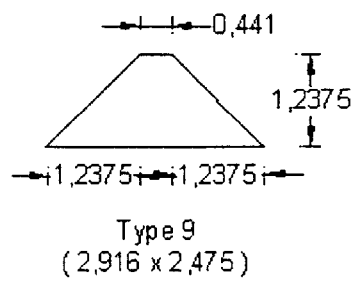
- Type 7



- Type 8

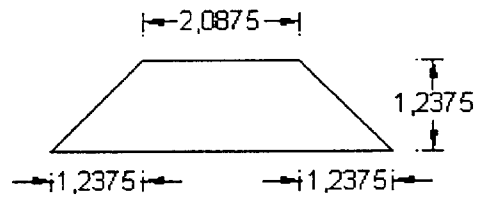


- Type 9



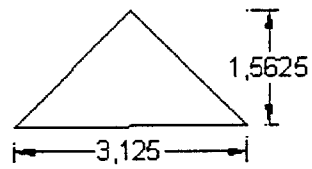


- Type 10



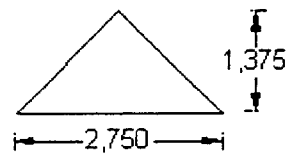
Type 10  
( 4,5625 x 2,475 )

- Type 11



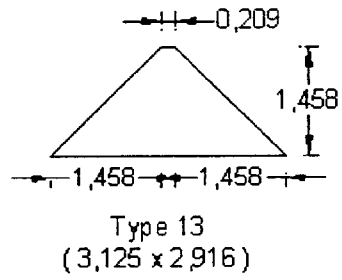
Type 11  
( 3,125 x 4,5625 )

- Type 12

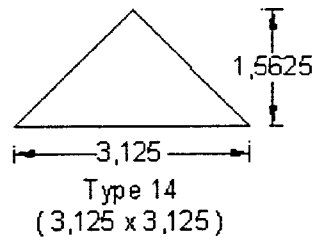


Type 12  
( 2,750 x 2,916 )

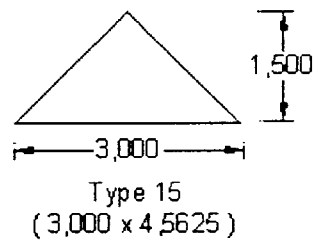
- Type 13



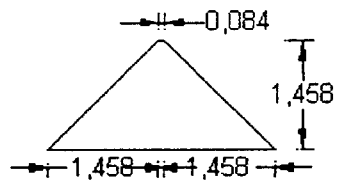
- Type 14



- Type 15

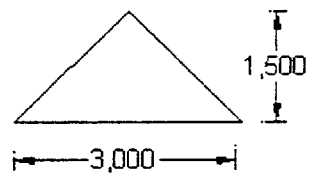


- Type 16



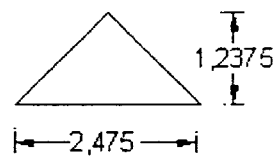
Type 16  
(3,000 x 2,916)

- Type 17



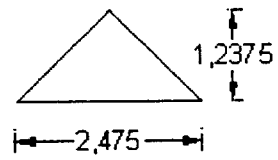
Type 17  
(3,000 x 3,125)

- Type 18



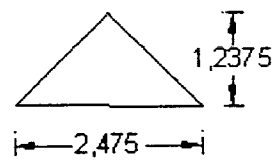
Type 18  
(2,475 x 3,125)

- Type 19



Type 19  
(2,475 x 2,916)

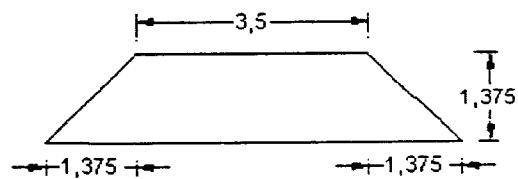
- Type 20



Type 20  
(2,475 x 4,5625)

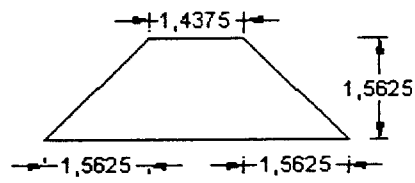
## 2. Tipe Pembebanan Pada Atap

- Type 1



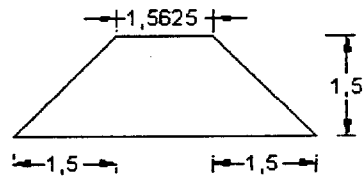
Type 1  
(6,250 x 2,750)

- Type 2



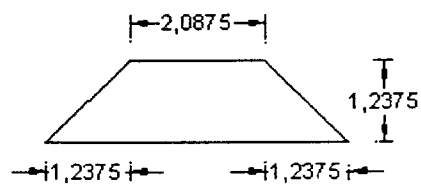
Type 2  
( 4,5625 x 3,125 )

- Type 3



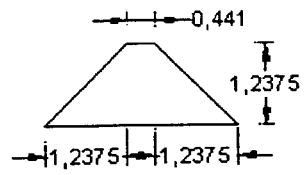
Type 3  
( 4,5625 x 3,000 )

- Type 4



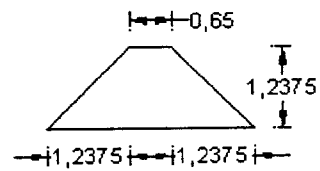
Type 4  
( 4,5625 x 2,475 )

- Type 5



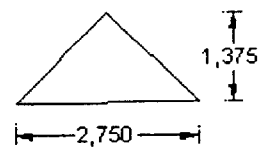
Type 5  
( 2,916 x 2,475 )

- Type 6



Type 6  
( 3,125 x 2,475 )

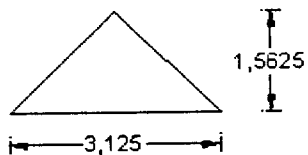
- Type 7



Type 7  
( 2,750 x 6,250 )

Type 11

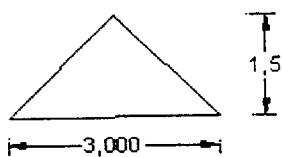
- Type 8



Type 8  
( 3,125 x 4,5625 )

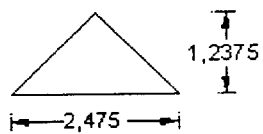
Type 1

- Type 9



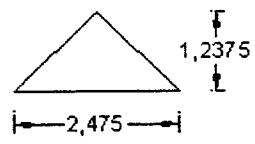
Type 9  
( 3,000 x 4,5625 )

- Type 10



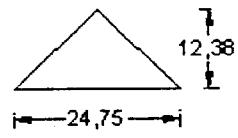
Type 10  
( 2,475 x 4,5625 )

- Type 11



Type 11  
( 2,475 x 2,916 )

- Type 12



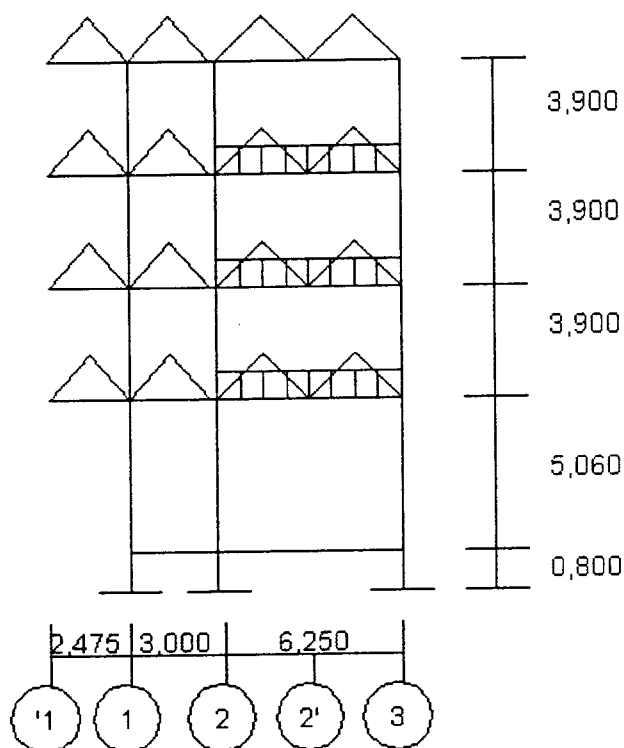
Type 12  
( 2,475 x 3,125 )



## B. Distribusi Pembebanan

### 1. Arah y

- Portal As A



### Atap

Beban merata bentang '1-1

Beban mati

$$\text{Pelat atap} = 1,2375 \cdot 3,24 = 4,0095 \text{ KN/m}^2 \text{ (segitiga)}$$

Beban hidup

$$\text{Pelat atap} = 1,2375 \cdot 1,00 = 1,2375 \text{ KN/m}^2 \text{ (segitiga)}$$

Beban merata bentang 1-2

Beban mati

$$\text{Pelat atap} = 1,50 \cdot 3,24 = 4,8600 \text{ KN/m}^2 \text{ (segitiga)}$$

Beban hidup

$$\text{Pelat atap} = 1,50 \cdot 1,00 = 1,5000 \text{ KN/m}^2 \text{ (segitiga)}$$

Beban merata bentang 2-2' = 2'-3

Beban mati

$$\text{Pelat atap} = 1,5625 \cdot 3,24 = 5,0625 \text{ KN/m}^2 \text{ (segitiga)}$$

Beban hidup

$$\text{Pelat atap} = 1,5625 \cdot 1,00 = 1,5625 \text{ KN/m}^2 \text{ (segitiga)}$$

#### **Lantai 2,3,4**

Beban merata bentang '1-1

Beban mati

$$\text{Pelat lantai} = 1,2375 \cdot 4,69 = 5,8038 \text{ KN/m}^2 \text{ (segitiga)}$$

Beban hidup

$$\text{Pelat lantai} = 1,2375 \cdot 2,50 = 3,0937 \text{ KN/m}^2 \text{ (segitiga)}$$

Beban merata bentang 1-2

Beban mati

$$\text{Pelat lantai} = 1,50 \cdot 4,69 = 7,0350 \text{ KN/m}^2 \text{ (segitiga)}$$

Beban hidup

$$\text{Pelat lantai} = 1,50 \cdot 2,50 = 3,7500 \text{ KN/m}^2 \text{ (segitiga)}$$

Beban merata bentang 2-2' = 2'-3

Beban mati

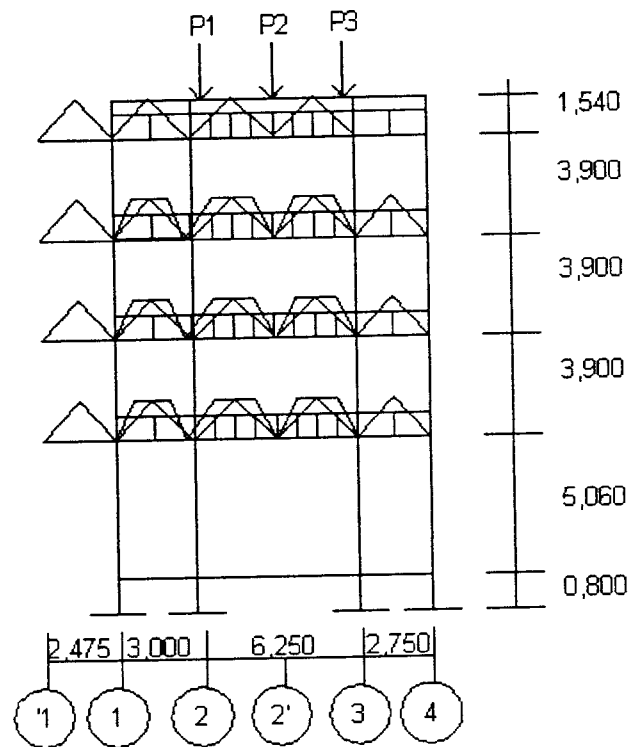
Pelat lantai =  $1,5625 \cdot 4,69 = 7,3281 \text{ KN/m}^2$  (segitiga)

Beban hidup

Pelat lantai =  $1,5625 \cdot 2,50 = 3,9062 \text{ KN/m}^2$  (segitiga)

Beban dinding =  $3,2000 \cdot 2,50 = 8,0000 \text{ KN/m}^2$

• **Portal As B**



**Beban terpusat**

$P1 = P2 = P3 = 6,9377 \text{ KN}$

## Atap

Beban merata bentang '1-1

Beban mati

$$\text{Pelat atap} = 1,2375 \cdot 3,24 \cdot (2) = 8,019 \text{ KN/m}^2 \text{ (segitiga)}$$

Beban hidup

$$\text{Pelat atap} = 1,2375 \cdot 1,00 \cdot (2) = 2,475 \text{ KN/m}^2 \text{ (segitiga)}$$

Beban merata bentang 1-2

Beban mati

$$\text{Pelat atap} = 1,50 \cdot 3,24 = 4,8600 \text{ KN/m}^2 \text{ (segitiga)}$$

Beban hidup

$$\text{Pelat atap} = 1,50 \cdot 1,00 = 1,5000 \text{ KN/m}^2 \text{ (segitiga)}$$

Beban merata bentang 2-2'=2'-3

Beban mati

$$\text{Pelat atap} = 1,5625 \cdot 3,24 = 5,0625 \text{ KN/m}^2 \text{ (segitiga)}$$

Beban hidup

$$\text{Pelat atap} = 1,5625 \cdot 1,00 = 1,5625 \text{ KN/m}^2 \text{ (segitiga)}$$

Beban dinding

$$\text{Beban dinding} = 1,5400 \cdot 2,50 = 3,8500 \text{ KN/m'}$$

Beban merata bentang 3-4

Beban dinding

$$\text{Beban dinding} = 1,5400 \cdot 2,50 = 3,8500 \text{ KN/m'}$$

### **Lantai 2,3,4**

Beban merata bentang '1-1

Beban mati

$$\text{Pelat lantai} = 1,2375 \cdot 4,69 \cdot (2) = 11,608 \text{ KN/m' (segitiga)}$$

Beban hidup

$$\text{Pelat lantai} = 1,2375 \cdot 2,50 \cdot (2) = 6,188 \text{ KN/m' (segitiga)}$$

Beban merata bentang 1-2

Beban mati

$$\text{Pelat lantai} = 1,50 \cdot 4,69 + 1,458 \cdot 4,69 = 13,873 \text{ KN/m' (segitiga \& tapesium)}$$

Beban hidup

$$\text{Pelat lantai} = 1,50 \cdot 2,50 + 1,458 \cdot 2,50 = 7,395 \text{ KN/m' (segitiga \& tapesium)}$$

Beban dinding

$$\text{Beban dinding} = 3.2000 \cdot 2,50 = 8,0000 \text{ KN/m'}$$

Beban merata bentang 2-2'=2'-3

Beban mati

Pelat lantai =  $1,5625 \cdot 4,69 + 1,458 \cdot 4,69 = 14,166 \text{ KN/m}^2$  (segitiga & tapesium)

Beban hidup

Pelat lantai =  $1,5625 \cdot 2,50 + 1,458 \cdot 2,50 = 7,551 \text{ KN/m}^2$  (segitiga & tapesium)

Beban dinding

Beban dinding =  $3.2000 \cdot 2,50 = 8,0000 \text{ KN/m}^2$

Beban merata bentang 3-4

Beban mati

Pelat lantai =  $1,375 \cdot 4,69 = 6,449 \text{ KN/m}^2$  (segitiga)

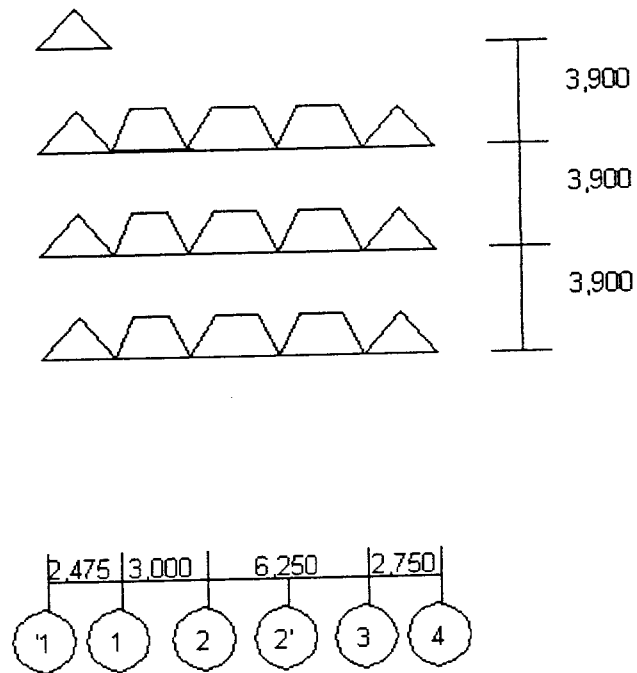
Beban hidup

Pelat lantai =  $1.375 \cdot 2,5 = 3,438 \text{ KN/m}^2$  (segitiga)

Beban dinding

Beban dinding =  $3.2000 \cdot 2,50 = 8,0000 \text{ KN/m}^2$

- Portal As B'



### Atap

Beban merata bentang '1-1

Beban mati

Pelat atap =  $1,2375 \cdot 3,24 \cdot (2) = 8,019 \text{ KN/m}^2$  (segitiga)

Beban hidup

Pelat atap =  $1,2375 \cdot 1,0 \cdot (2) = 2,475 \text{ KN/m}^2$  (segitiga)

### Lantai 2,3,4

Beban merata bentang '1-1

Beban mati

Pelat lantai =  $1,2375 \cdot 4,69 \cdot (2) = 11,608 \text{ KN/m}^2$  (segitiga)

Beban hidup

$$\text{Pelat lantai} = 1,2375 \cdot 2,5 \cdot (2) = 6,1875 \text{ KN/m}^2 \text{ (segitiga)}$$

Beban merata bentang 1-2

Beban mati

$$\text{Pelat lantai} = 1,458 \cdot 4,69 \cdot (2) = 13,676 \text{ KN/m}^2 \text{ (trapezium)}$$

Beban Hidup

$$\text{Pelat lantai} = 1,458 \cdot 2,5 \cdot (2) = 7,2900 \text{ KN/m}^2 \text{ (trapezium)}$$

Beban merata bentang 2-2'=2'-3

Beban mati

$$\text{Pelat lantai} = 1,458 \cdot 4,69 \cdot (2) = 13,676 \text{ KN/m}^2 \text{ (trapezium)}$$

Beban hidup

$$\text{Pelat lantai} = 1,458 \cdot 2,5 \cdot (2) = 7,2900 \text{ KN/m}^2 \text{ (trapezium)}$$

Beban merata bentang 3-4

Beban mati

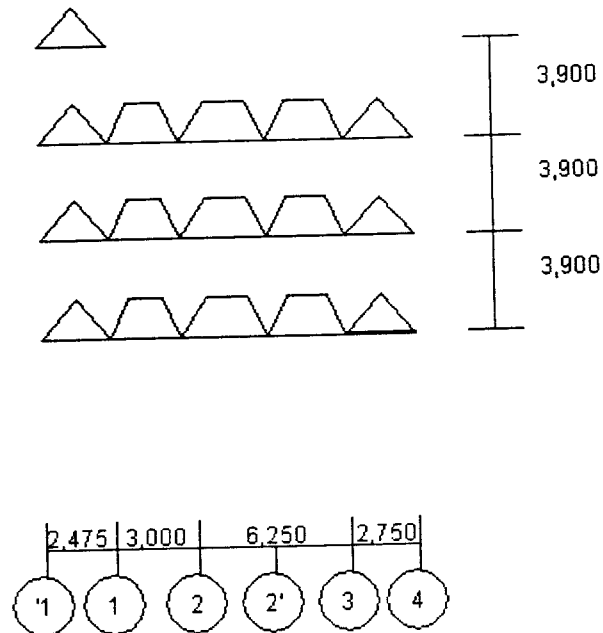
$$\text{Pelat lantai} = 1,375 \cdot 4,69 \cdot (2) = 12,898 \text{ KN/m}^2 \text{ (segitiga)}$$

Beban hidup

$$\text{Pelat lantai} = 1,375 \cdot 2,5 \cdot (2) = 6,8750 \text{ KN/m}^2 \text{ (segitiga)}$$



- **Portal As B''**



**Atap**

Beban merata bentang '1-1

Beban mati

Pelat atap =  $1,2375 \cdot 3,24 \cdot (2) = 8,019 \text{ KN/m' (segitiga)}$

Beban hidup

Pelat atap =  $1,2375 \cdot 1,0 \cdot (2) = 2,475 \text{ KN/m' (segitiga)}$

**Lantai 2,3,4**

Beban merata bentang '1-1

Beban mati

Pelat lantai =  $1,2375 \cdot 4,69 \cdot (2) = 11,608 \text{ KN/m' (segitiga)}$

Beban hidup

$$\text{Pelat lantai} = 1,2375 \cdot 2,5 \cdot (2) = 6,1875 \text{ KN/m}' \text{ (segitiga)}$$

Beban merata bentang 1-2

Beban mati

$$\text{Pelat lantai} = 1,458 \cdot 4,69 \cdot (2) = 13,676 \text{ KN/m}' \text{ (trapezium)}$$

Beban Hidup

$$\text{Pelat lantai} = 1,458 \cdot 2,5 \cdot (2) = 7,2900 \text{ KN/m}' \text{ (trapezium)}$$

Beban merata bentang 2-2'=2'-3

Beban mati

$$\text{Pelat lantai} = 1,458 \cdot 4,69 \cdot (2) = 13,676 \text{ KN/m}' \text{ (trapezium)}$$

Beban hidup

$$\text{Pelat lantai} = 1,458 \cdot 2,5 \cdot (2) = 7,2900 \text{ KN/m}' \text{ (trapezium)}$$

Beban merata bentang 3-4

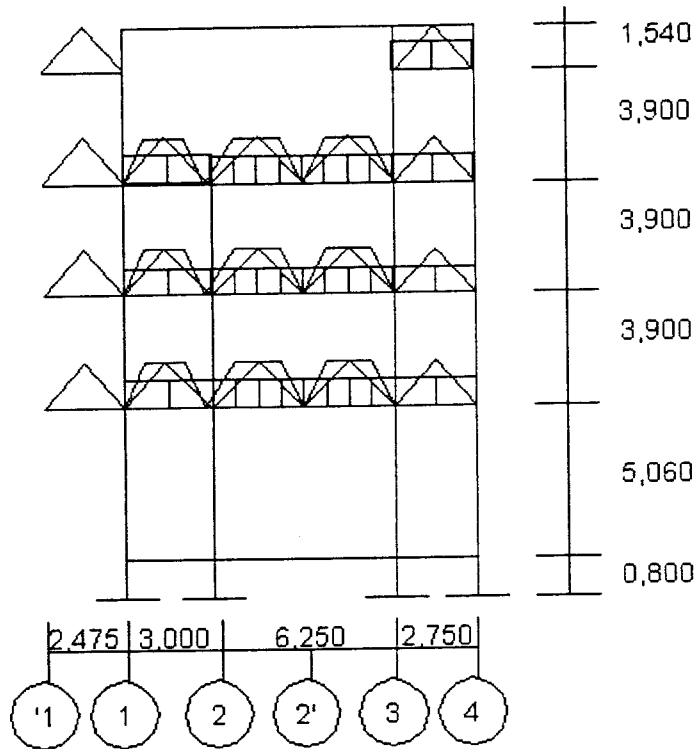
Beban mati

$$\text{Pelat lantai} = 1,375 \cdot 4,69 (2) = 12,898 \text{ KN/m}' \text{ (segitiga)}$$

Beban hidup

$$\text{Pelat lantai} = 1,375 \cdot 2,5 \cdot (2) = 6,8750 \text{ KN/m}' \text{ (segitiga)}$$

• **Portal As C**



**Atap**

Beban merata bentang '1-1

Beban mati

Pelat atap =  $1,2375 \cdot 3,24 \cdot (2) = 8,019 \text{ KN/m}^2$  (segitiga)

Beban hidup

Pelat atap =  $1,2375 \cdot 1,00 \cdot (2) = 2,475 \text{ KN/m}^2$  (segitiga)

Beban merata bentang 3-4

Beban mati

Pelat atap =  $1,375 \cdot 3,24 = 4,455 \text{ KN/m}^2$  (segitiga)

Beban hidup

Pelat atap =  $1,375 \cdot 1,00 = 1,375 \text{ KN/m}^2$  (segitiga)

Beban dinding

$$\text{Beban dinding} = 1,5400 \cdot 2,50 = 3,8500 \text{ KN/m'}$$

### **Lantai 2,3,4**

Beban merata bentang '1-1

Beban mati

$$\text{Pelat lantai} = 1,2375 \cdot 4,69 \cdot (2) = 11,608 \text{ KN/m' (segitiga)}$$

Beban hidup

$$\text{Pelat lantai} = 1,2375 \cdot 2,50 \cdot (2) = 6,188 \text{ KN/m' (segitiga)}$$

Beban merata bentang 1-2

Beban mati

$$\text{Pelat lantai} = 1,50 \cdot 4,69 + 1,458 \cdot 4,69 = 13,873 \text{ KN/m' (segitiga \& tapesium)}$$

Beban hidup

$$\text{Pelat lantai} = 1,50 \cdot 2,50 + 1,458 \cdot 2,50 = 7,3950 \text{ KN/m' (segitiga \& tapesium)}$$

Beban dinding

$$\text{Beban dinding} = 3.2000 \cdot 2,50 = 8,0000 \text{ KN/m'}$$

Beban merata bentang 2-2'=2'-3

Beban mati

$$\text{Pelat lantai} = 1,5625 \cdot 4,69 + 1,458 \cdot 4,69 = 14,166 \text{ KN/m' (segitiga \& tapesium)}$$

Beban hidup

Pelat lantai =  $1,5625 \cdot 2,50 + 1,458 \cdot 2,50 = 7,511 \text{ KN/m}'$  (segitiga & tapesium)

Beban dinding

Beban dinding =  $3.2000 \cdot 2,50 = 8,0000 \text{ KN/m}'$

Beban merata bentang 3-4

Beban mati

Pelat lantai =  $1,375 \cdot 4,69 = 6,449 \text{ KN/m}'$  (segitiga)

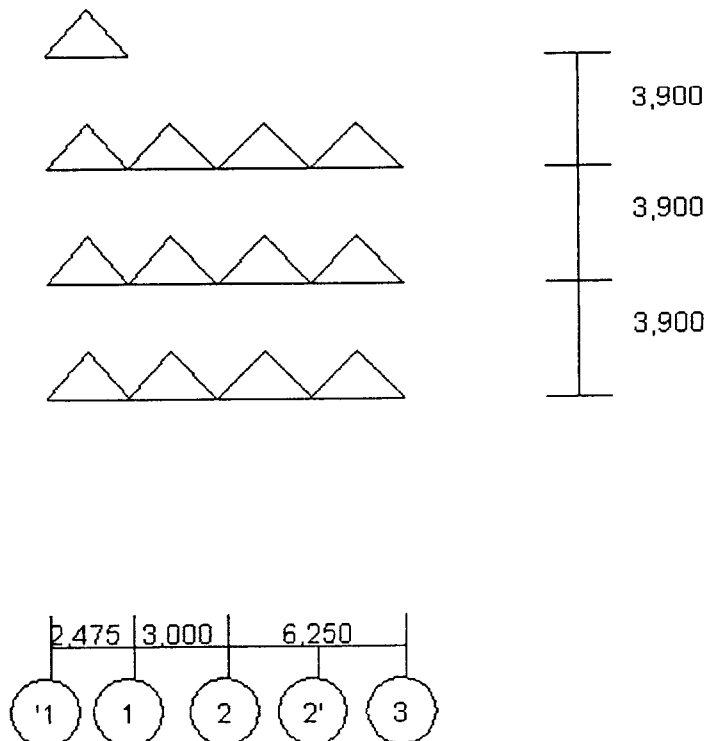
Beban hidup

Pelat lantai =  $1.375 \cdot 2,5 = 3,438 \text{ KN/m}'$  (segitiga)

Beban dinding

Beban dinding =  $3.2000 \cdot 2,50 = 8,0000 \text{ KN/m}'$

• **Portal As C'**



## **Atap**

Beban merata bentang '1-1

Beban mati

$$\text{Pelat atap} = 1,2375 \cdot 3,24 \cdot (2) = 8,019 \text{ KN/m}^{\prime} \text{ (segitiga)}$$

Beban hidup

$$\text{Pelat atap} = 1,2375 \cdot 1,00 \cdot (2) = 2,475 \text{ KN/m}^{\prime} \text{ (segitiga)}$$

## **Lantai 2,3,4**

Beban merata bentang '1-1

Beban mati

$$\text{Pelat lantai} = 1,2375 \cdot 4,69 \cdot (2) = 11,608 \text{ KN/m}^{\prime} \text{ (segitiga)}$$

Beban hidup

$$\text{Pelat lantai} = 1,2375 \cdot 2,50 \cdot (2) = 6,188 \text{ KN/m}^{\prime} \text{ (segitiga)}$$

Beban merata bentang 1-2

Beban mati

$$\text{Pelat lantai} = 1,50 \cdot 4,69 \cdot (2) = 14,070 \text{ KN/m}^{\prime} \text{ (segitiga)}$$

Beban hidup

$$\text{Pelat lantai} = 1,50 \cdot 2,50 \cdot (2) = 7,500 \text{ KN/m}^{\prime} \text{ (segitiga)}$$

Beban merata bentang 2-2'=2'-3

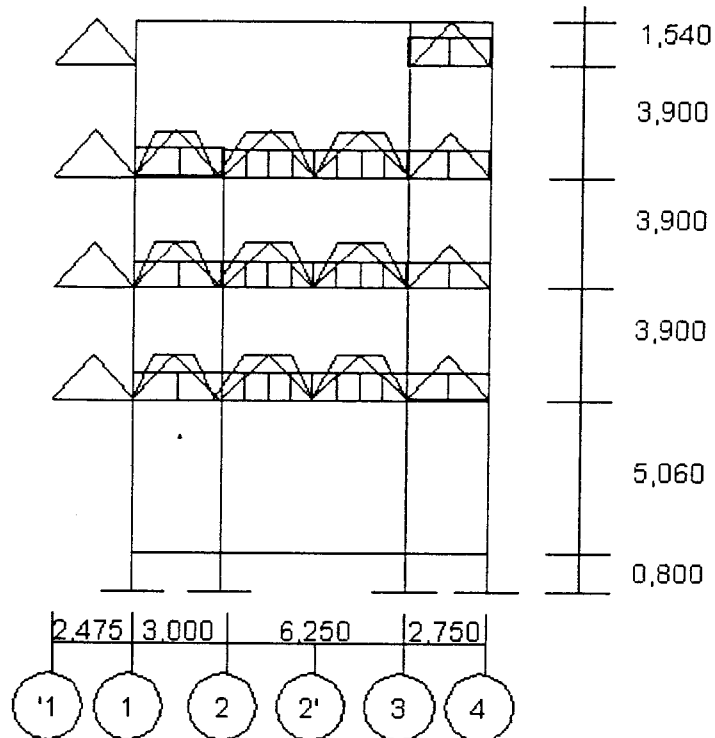
Beban mati

$$\text{Pelat lantai} = 1,5625 \cdot 4,69 \cdot (2) = 14,656 \text{ KN/m}^{\prime} \text{ (segitiga)}$$

Beban hidup

$$\text{Pelat lantai} = 1,5625 \cdot 2,50 \cdot (2) = 7,8125 \text{ KN/m}^{\prime} \text{ (segitiga)}$$

- **Portal As D**



**Atap**

Beban merata bentang '1-1

Beban mati

Pelat atap =  $1,2375 \cdot 3,24 \cdot (2) = 8,019 \text{ KN/m'}$  (segitiga)

Beban hidup

Pelat atap =  $1,2375 \cdot 1,00 \cdot (2) = 2,475 \text{ KN/m'}$  (segitiga)

Beban merata bentang 3-4

Beban mati

Pelat atap =  $1,375 \cdot 3,24 = 4,455 \text{ KN/m'}$  (segitiga)

Beban hidup

Pelat atap =  $1,375 \cdot 1,00 = 1,375 \text{ KN/m'}$  (segitiga)

Pelat lantai =  $1,5625 \cdot 2,50 + 1,458 \cdot 2,50 = 7,511 \text{ KN/m}^2$  (segitiga & trapesium)

Beban dinding

Beban dinding =  $3.2000 \cdot 2,50 = 8,0000 \text{ KN/m}^2$

Beban merata bentang 3-4

Beban mati

Pelat lantai =  $1,375 \cdot 4,69 = 6,449 \text{ KN/m}^2$  (segitiga)

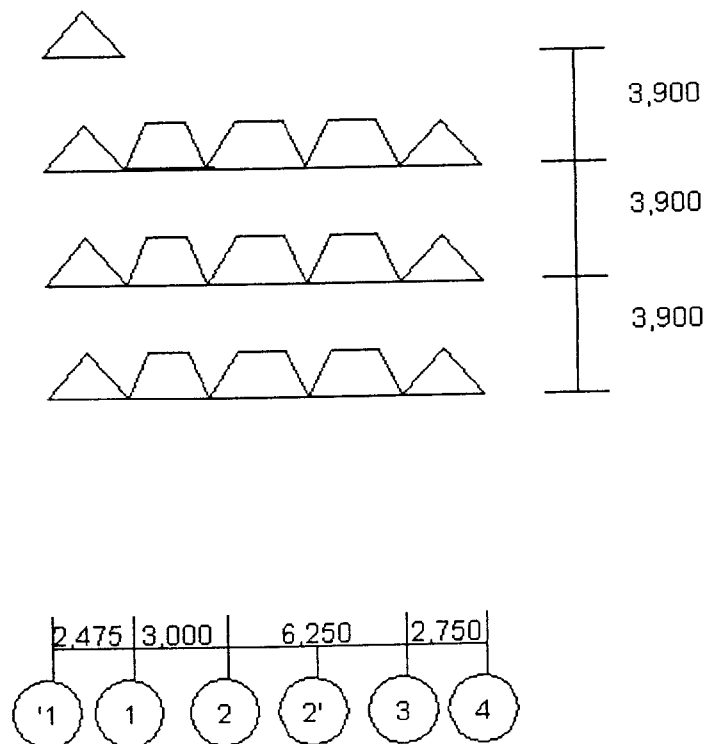
Beban hidup

Pelat lantai =  $1.375 \cdot 2,5 = 3,438 \text{ KN/m}^2$  (segitiga)

Beban dinding

Beban dinding =  $3.2000 \cdot 2,50 = 8,0000 \text{ KN/m}^2$

• **Portal As D'**





## **Atap**

Beban merata bentang '1-1

Beban mati

$$\text{Pelat atap} = 1,2375 \cdot 3,24 \cdot (2) = 8,019 \text{ KN/m}^{\prime} \text{ (segitiga)}$$

Beban hidup

$$\text{Pelat atap} = 1,2375 \cdot 1,0 \cdot (2) = 2,475 \text{ KN/m}^{\prime} \text{ (segitiga)}$$

## **Lantai 2,3,4**

Beban merata bentang '1-1

Beban mati

$$\text{Pelat lantai} = 1,2375 \cdot 4,69 \cdot (2) = 11,608 \text{ KN/m}^{\prime} \text{ (segitiga)}$$

Beban hidup

$$\text{Pelat lantai} = 1,2375 \cdot 2,5 \cdot (2) = 6,1875 \text{ KN/m}^{\prime} \text{ (segitiga)}$$

Beban merata bentang 1-2

Beban mati

$$\text{Pelat lantai} = 1,5 \cdot 4,69 \cdot (2) = 14,07 \text{ KN/m}^{\prime} \text{ (trapezium)}$$

Beban Hidup

$$\text{Pelat lantai} = 1,5 \cdot 2,5 \cdot (2) = 7,500 \text{ KN/m}^{\prime} \text{ (trapezium)}$$

Beban merata bentang 2-2'=2'-3

Beban mati

$$\text{Pelat lantai} = 1,5625 \cdot 4,69 \cdot (2) = 14,656 \text{ KN/m}^{\prime} \text{ (trapezium)}$$

Beban hidup

$$\text{Pelat lantai} = 1,5625 \cdot 2,5 \cdot (2) = 7,8125 \text{ KN/m}^{\prime} \text{ (trapezium)}$$

Beban merata bentang 3-4

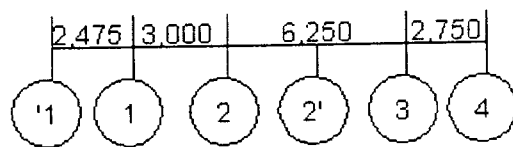
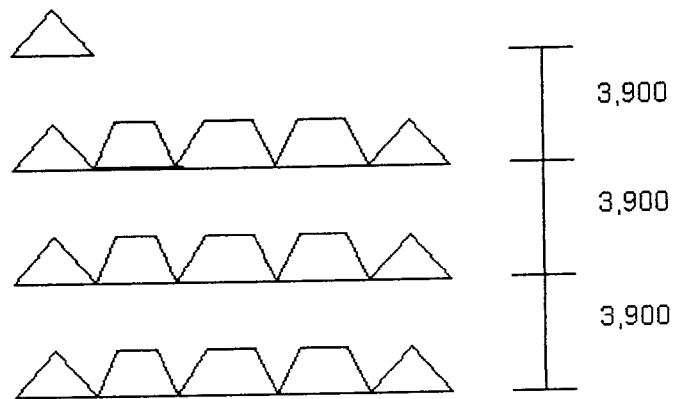
Beban mati

$$\text{Pelat lantai} = 1,375 \cdot 4,69 (2) = 12,898 \text{ KN/m}^2 \text{ (segitiga)}$$

Beban hidup

$$\text{Pelat lantai} = 1,375 \cdot 2,5 \cdot (2) = 6,8750 \text{ KN/m}^2 \text{ (segitiga)}$$

• **Portal As D''**



**Atap**

Beban merata bentang '1-1

Beban mati

$$\text{Pelat atap} = 1,2375 \cdot 3,24 \cdot (2) = 8,019 \text{ KN/m}^2 \text{ (segitiga)}$$

Beban hidup

$$\text{Pelat atap} = 1,2375 \cdot 1,0 \cdot (2) = 2,475 \text{ KN/m}^2 \text{ (segitiga)}$$

### **Lantai 2,3,4**

Beban merata bentang '1-1

Beban mati

$$\text{Pelat lantai} = 1,2375 \cdot 4,69 \cdot (2) = 11,608 \text{ KN/m}^2 \text{ (segitiga)}$$

Beban hidup

$$\text{Pelat lantai} = 1,2375 \cdot 2,5 \cdot (2) = 6,1875 \text{ KN/m}^2 \text{ (segitiga)}$$

Beban merata bentang 1-2

Beban mati

$$\text{Pelat lantai} = 1,5 \cdot 4,69 \cdot (2) = 14,07 \text{ KN/m}^2 \text{ (trapezium)}$$

Beban Hidup

$$\text{Pelat lantai} = 1,5 \cdot 2,5 \cdot (2) = 7,500 \text{ KN/m}^2 \text{ (trapezium)}$$

Beban merata bentang 2-2'=2'-3

Beban mati

$$\text{Pelat lantai} = 1,5625 \cdot 4,69 \cdot (2) = 14,656 \text{ KN/m}^2 \text{ (trapezium)}$$

Beban hidup

$$\text{Pelat lantai} = 1,5625 \cdot 2,5 \cdot (2) = 7,8125 \text{ KN/m}^2 \text{ (trapezium)}$$

Beban merata bentang 3-4

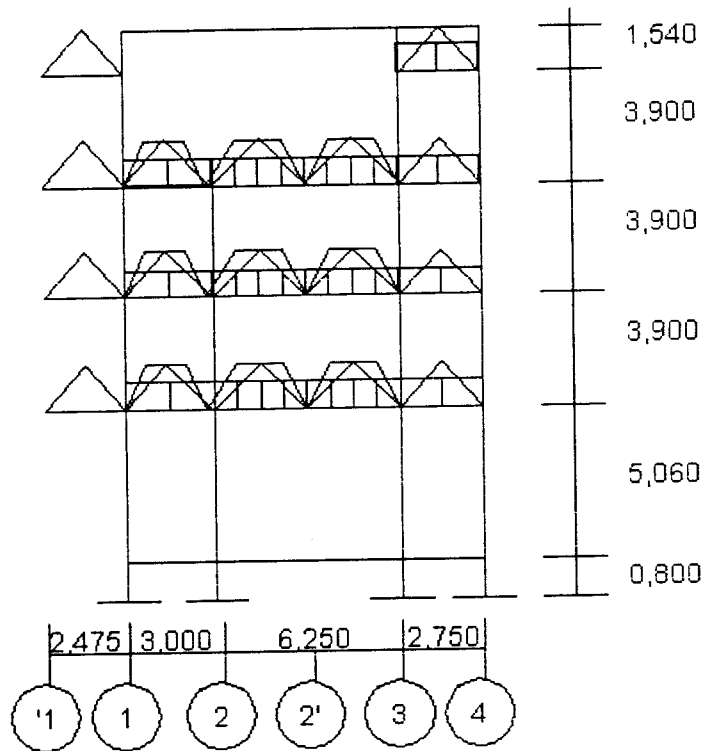
Beban mati

$$\text{Pelat lantai} = 1,375 \cdot 4,69 \cdot (2) = 12,898 \text{ KN/m}^2 \text{ (segitiga)}$$

Beban hidup

$$\text{Pelat lantai} = 1,375 \cdot 2,5 \cdot (2) = 6,8750 \text{ KN/m}^2 \text{ (segitiga)}$$

• Portal As E



**Atap**

Beban merata bentang '1-1

Beban mati

Pelat atap =  $1,2375 \cdot 3,24 \cdot (2) = 8,019 \text{ KN/m}^2$  (segitiga)

Beban hidup

Pelat atap =  $1,2375 \cdot 1,00 \cdot (2) = 2,475 \text{ KN/m}^2$  (segitiga)

Beban merata bentang 3-4

Beban mati

Pelat atap =  $1,375 \cdot 3,24 = 4,455 \text{ KN/m}^2$  (segitiga)

Beban hidup

Pelat atap =  $1,375 \cdot 1,00 = 1,375 \text{ KN/m}^2$  (segitiga)

Pelat lantai =  $1,5625 \cdot 2,50 + 1,458 \cdot 2,50 = 7,511 \text{ KN/m}^2$  (segitiga & trapesium)

Beban dinding

Beban dinding =  $3.2000 \cdot 2,50 = 8,0000 \text{ KN/m}^2$

Beban merata bentang 3-4

Beban mati

Pelat lantai =  $1,375 \cdot 4,69 = 6,449 \text{ KN/m}^2$  (segitiga)

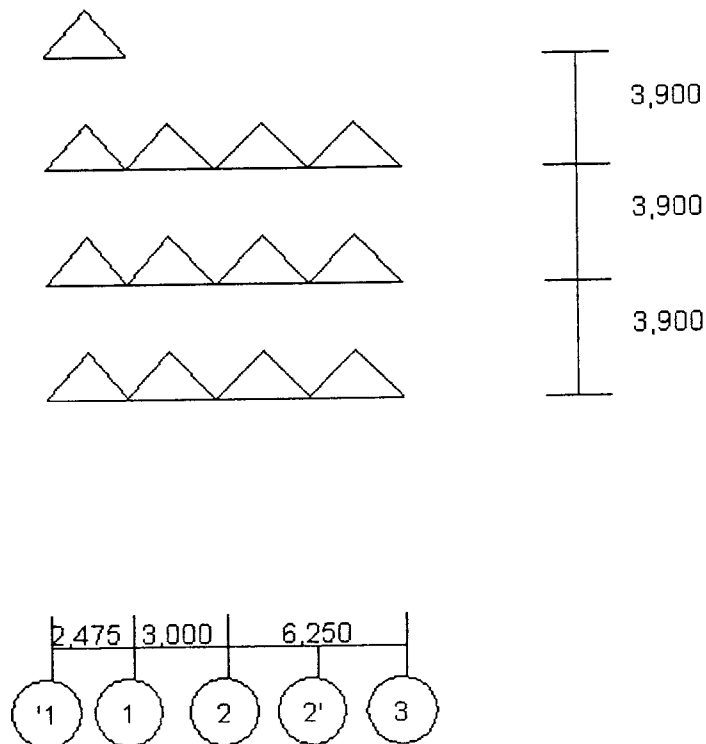
Beban hidup

Pelat lantai =  $1.375 \cdot 2,5 = 3,438 \text{ KN/m}^2$  (segitiga)

Beban dinding

Beban dinding =  $3.2000 \cdot 2,50 = 8,0000 \text{ KN/m}^2$

• **Portal As E'**



## **Atap**

Beban merata bentang '1-1

Beban mati

$$\text{Pelat atap} = 1,2375 \cdot 3,24 \cdot (2) = 8,019 \text{ KN/m'} \text{ (segitiga)}$$

Beban hidup

$$\text{Pelat atap} = 1,2375 \cdot 1,00 \cdot (2) = 2,475 \text{ KN/m'} \text{ (segitiga)}$$

## **Lantai 2,3,4**

Beban merata bentang '1-1

Beban mati

$$\text{Pelat lantai} = 1,2375 \cdot 4,69 \cdot (2) = 11,608 \text{ KN/m'} \text{ (segitiga)}$$

Beban hidup

$$\text{Pelat lantai} = 1,2375 \cdot 2,50 \cdot (2) = 6,188 \text{ KN/m'} \text{ (segitiga)}$$

Beban merata bentang 1-2

Beban mati

$$\text{Pelat lantai} = 1,50 \cdot 4,69 \cdot (2) = 14,070 \text{ KN/m'} \text{ (segitiga)}$$

Beban hidup

$$\text{Pelat lantai} = 1,50 \cdot 2,50 \cdot (2) = 7,500 \text{ KN/m'} \text{ (segitiga)}$$

Beban merata bentang 2-2'=2'-3

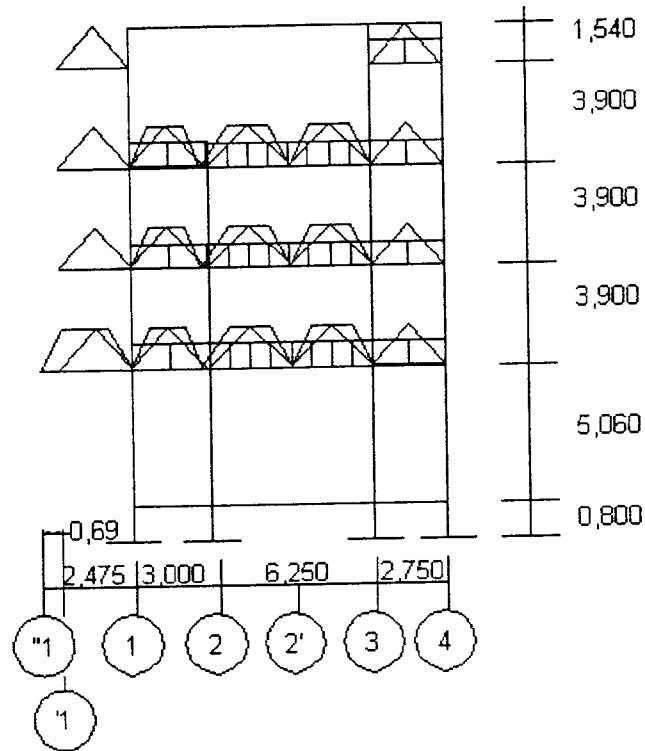
Beban mati

$$\text{Pelat lantai} = 1,5625 \cdot 4,69 \cdot (2) = 14,656 \text{ KN/m'} \text{ (segitiga)}$$

Beban hidup

$$\text{Pelat lantai} = 1,5625 \cdot 2,50 \cdot (2) = 7,8125 \text{ KN/m'} \text{ (segitiga)}$$

• **Portal As F**



**Atap**

Beban merata bentang '1-1

Beban mati

Pelat atap =  $1,2375 \cdot 3,24 \cdot (2) = 8,019 \text{ KN/m}^2$  (segitiga)

Beban hidup

Pelat atap =  $1,2375 \cdot 1,00 \cdot (2) = 2,475 \text{ KN/m}^2$  (segitiga)

Beban merata bentang 3-4

Beban mati

Pelat atap =  $1,375 \cdot 3,24 = 4,455 \text{ KN/m}^2$  (segitiga)

Beban hidup

Pelat atap =  $1,375 \cdot 1,00 = 1,375 \text{ KN/m}^2$  (segitiga)

Beban dinding

$$\text{Beban dinding} = 1,5400 \cdot 2,50 = 3,8500 \text{ KN/m'}$$

## **Lantai 2**

Beban merata bentang "1-1

Beban mati

$$\text{Pelat lantai} = 1,2375 \cdot 4,69 + 1,458 \cdot 4,69 = 12,642 \text{ KN/m' (segitiga \& trapesium)}$$

Beban hidup

$$\text{Pelat lantai} = 1,2375 \cdot 2,50 + 1,458 \cdot 2,50 = 6,7390 \text{ KN/m' (segitiga \& trapesium)}$$

Beban merata bentang 1-2

Beban mati

$$\text{Pelat lantai} = 1,50 \cdot 4,69 + 1,458 \cdot 4,69 = 13,873 \text{ KN/m' (segitiga \& trapesium)}$$

Beban hidup

$$\text{Pelat lantai} = 1,50 \cdot 2,50 + 1,458 \cdot 2,50 = 7,395 \text{ KN/m' (segitiga \& trapesium)}$$

Beban dinding

$$\text{Beban dinding} = 3.2000 \cdot 2,50 = 8,0000 \text{ KN/m'}$$

Beban merata bentang 2-2'=2'-3

Beban mati

$$\text{Pelat lantai} = 1,5625 \cdot 4,69 + 1,458 \cdot 4,69 = 14,166 \text{ KN/m' (segitiga \& trapesium)}$$



Beban hidup

Pelat lantai =  $1,5625 \cdot 2,50 + 1,458 \cdot 2,50 = 7,5510 \text{ KN/m}^2$  (segitiga & trapesium)

Beban dinding

Beban dinding =  $3.2000 \cdot 2,50 = 8,0000 \text{ KN/m}^2$

Beban merata bentang 3-4

Beban mati

Pelat lantai =  $1,375 \cdot 4,69 = 6,449 \text{ KN/m}^2$  (segitiga)

Beban hidup

Pelat lantai =  $1,375 \cdot 2,5 = 3,438 \text{ KN/m}^2$  (segitiga)

Beban dinding

Beban dinding =  $3.2000 \cdot 2,50 = 8,0000 \text{ KN/m}^2$

**Lantai 3,4**

Beban merata bentang '1-1

Beban mati

Pelat lantai =  $1,2375 \cdot 4,69 \cdot (2) = 11,608 \text{ KN/m}^2$  (segitiga)

Beban hidup

Pelat lantai =  $1,2375 \cdot 2,50 \cdot (2) = 6,188 \text{ KN/m}^2$  (segitiga)

Beban merata bentang 1-2

Beban mati

Pelat lantai =  $1,50 \cdot 4,69 + 1,458 \cdot 4,69 = 13,873 \text{ KN/m}^2$  (segitiga & trapesium)

Beban hidup

Pelat lantai =  $1,50 \cdot 2,50 + 1,458 \cdot 2,50 = 7,395 \text{ KN/m}^2$  (segitiga & tapesium)

Beban dinding

Beban dinding =  $3.2000 \cdot 2,50 = 8,0000 \text{ KN/m}^2$

Beban merata bentang 2-2'=2'-3

Beban mati

Pelat lantai =  $1,5625 \cdot 4,69 + 1,458 \cdot 4,69 = 14,166 \text{ KN/m}^2$  (segitiga & tapesium)

Beban hidup

Pelat lantai =  $1,5625 \cdot 2,50 + 1,458 \cdot 2,50 = 7,5510 \text{ KN/m}^2$  (segitiga & tapesium)

Beban dinding

Beban dinding =  $3.2000 \cdot 2,50 = 8,0000 \text{ KN/m}^2$

Beban merata bentang 3-4

Beban mati

Pelat lantai =  $1,375 \cdot 4,69 = 6,449 \text{ KN/m}^2$  (segitiga)

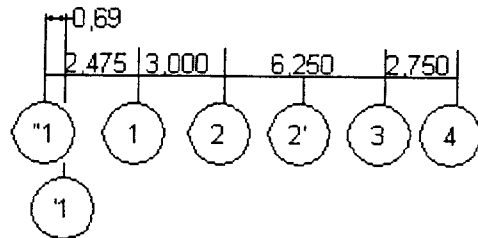
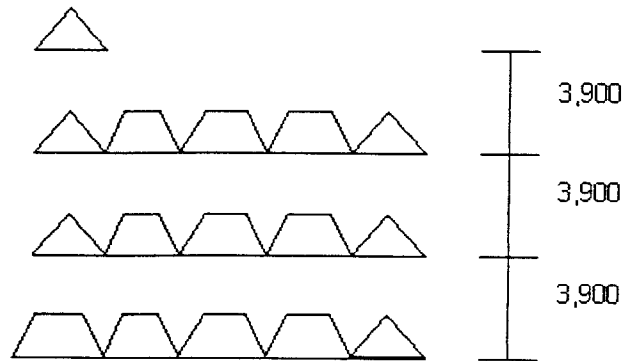
Beban hidup

Pelat lantai =  $1.375 \cdot 2,5 = 3,438 \text{ KN/m}^2$  (segitiga)

Beban dinding

Beban dinding =  $3.2000 \cdot 2,50 = 8,0000 \text{ KN/m}^2$

- Portal As F'



### Atap

Beban merata bentang '1-1

Beban mati

Pelat atap =  $1,2375 \cdot 3,24 \cdot (2) = 8,019 \text{ KN/m}^2$  (segitiga)

Beban hidup

Pelat atap =  $1,2375 \cdot 1,0 \cdot (2) = 2,475 \text{ KN/m}^2$  (segitiga)

### Lantai 2

Beban merata bentang ''1-1

Beban mati

Pelat lantai =  $1,458 \cdot 4,69 \cdot (2) = 13,676 \text{ KN/m}^2$  (trapesium)

Beban hidup

Pelat lantai =  $1,458 \cdot 2,5 \cdot (2)$  = 7,29 KN/m' (trapesium)

Beban merata bentang 1-2

Beban mati

Pelat lantai =  $1,458 \cdot 4,69 \cdot (2)$  = 13,676 KN/m' (trapezium)

Beban Hidup

Pelat lantai =  $1,458 \cdot 2,5 \cdot (2)$  = 7,29 KN/m' (trapezium)

Beban merata bentang 2-2'=2'-3

Beban mati

Pelat lantai =  $1,458 \cdot 4,69 \cdot (2)$  = 13,676 KN/m' (trapezium)

Beban hidup

Pelat lantai =  $1,458 \cdot 2,5 \cdot (2)$  = 7,29 KN/m' (trapezium)

Beban merata bentang 3-4

Beban mati

Pelat lantai =  $1,375 \cdot 4,69 (2)$  = 12,898 KN/m' (segitiga)

Beban hidup

Pelat lantai =  $1,375 \cdot 2,5 \cdot (2)$  = 6,8750 KN/m' (segitiga)

### **Lantai 3,4**

Beban merata bentang '1-1

Beban mati

Pelat lantai =  $1,2375 \cdot 4,69 \cdot (2)$  = 11,608 KN/m' (segitiga)

Beban hidup

Pelat lantai =  $1,2375 \cdot 2,5 \cdot (2)$  = 6,1875 KN/m' (segitiga)

Beban merata bentang 1-2

Beban mati

$$\text{Pelat lantai} = 1,458 \cdot 4,69 \cdot (2) = 13,676 \text{ KN/m}^{\prime} \text{ (trapezium)}$$

Beban Hidup

$$\text{Pelat lantai} = 1,458 \cdot 2,5 \cdot (2) = 7,29 \text{ KN/m}^{\prime} \text{ (trapezium)}$$

Beban merata bentang 2-2'=2'-3

Beban mati

$$\text{Pelat lantai} = 1,458 \cdot 4,69 \cdot (2) = 13,676 \text{ KN/m}^{\prime} \text{ (trapezium)}$$

Beban hidup

$$\text{Pelat lantai} = 1,458 \cdot 2,5 \cdot (2) = 7,29 \text{ KN/m}^{\prime} \text{ (trapezium)}$$

Beban merata bentang 3-4

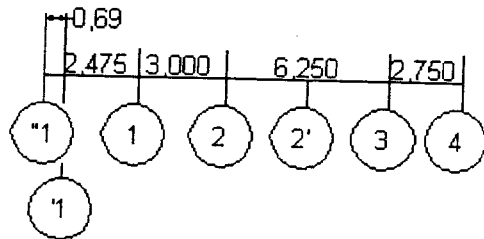
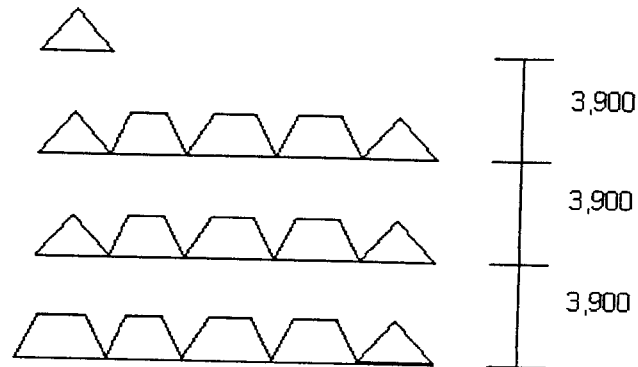
Beban mati

$$\text{Pelat lantai} = 1,375 \cdot 4,69 \cdot (2) = 12,898 \text{ KN/m}^{\prime} \text{ (segitiga)}$$

Beban hidup

$$\text{Pelat lantai} = 1,375 \cdot 2,5 \cdot (2) = 6,8750 \text{ KN/m}^{\prime} \text{ (segitiga)}$$

• **Portal As F''**



**Atap**

Beban merata bentang '1-1

Beban mati

Pelat atap =  $1,2375 \cdot 3,24 \cdot (2) = 8,019 \text{ KN/m}'$  (segitiga)

Beban hidup

Pelat atap =  $1,2375 \cdot 1,0 \cdot (2) = 2,475 \text{ KN/m}'$  (segitiga)

**Lantai 2**

Beban merata bentang ''1-1

Beban mati

Pelat lantai =  $1,458 \cdot 4,69 \cdot (2) = 13,676 \text{ KN/m}'$  (trapesium)

Beban hidup

Pelat lantai =  $1,458 \cdot 2,5 \cdot (2)$  = 7,29 KN/m' (trapesium)

Beban merata bentang 1-2

Beban mati

Pelat lantai =  $1,458 \cdot 4,69 \cdot (2)$  = 13,676 KN/m' (trapezium)

Beban Hidup

Pelat lantai =  $1,458 \cdot 2,5 \cdot (2)$  = 7,29 KN/m' (trapezium)

Beban merata bentang 2-2'=2'-3

Beban mati

Pelat lantai =  $1,458 \cdot 4,69 \cdot (2)$  = 13,676 KN/m' (trapezium)

Beban hidup

Pelat lantai =  $1,458 \cdot 2,5 \cdot (2)$  = 7,29 KN/m' (trapezium)

Beban merata bentang 3-4

Beban mati

Pelat lantai =  $1,375 \cdot 4,69 (2)$  = 12,898 KN/m' (segitiga)

Beban hidup

Pelat lantai =  $1,375 \cdot 2,5 \cdot (2)$  = 6,8750 KN/m' (segitiga)

### **Lantai 3,4**

Beban merata bentang '1-1

Beban mati

Pelat lantai =  $1,2375 \cdot 4,69 \cdot (2)$  = 11,608 KN/m' (segitiga)

Beban hidup

Pelat lantai =  $1,2375 \cdot 2,5 \cdot (2)$  = 6,1875 KN/m' (segitiga)

Beban merata bentang 1-2

Beban mati

$$\text{Pelat lantai} = 1,458 \cdot 4,69 \cdot (2) = 13,676 \text{ KN/m}^2 \text{ (trapezium)}$$

Beban Hidup

$$\text{Pelat lantai} = 1,458 \cdot 2,5 \cdot (2) = 7,29 \text{ KN/m}^2 \text{ (trapezium)}$$

Beban merata bentang 2-2' = 2'-3

Beban mati

$$\text{Pelat lantai} = 1,458 \cdot 4,69 \cdot (2) = 13,676 \text{ KN/m}^2 \text{ (trapezium)}$$

Beban hidup

$$\text{Pelat lantai} = 1,458 \cdot 2,5 \cdot (2) = 7,29 \text{ KN/m}^2 \text{ (trapezium)}$$

Beban merata bentang 3-4

Beban mati

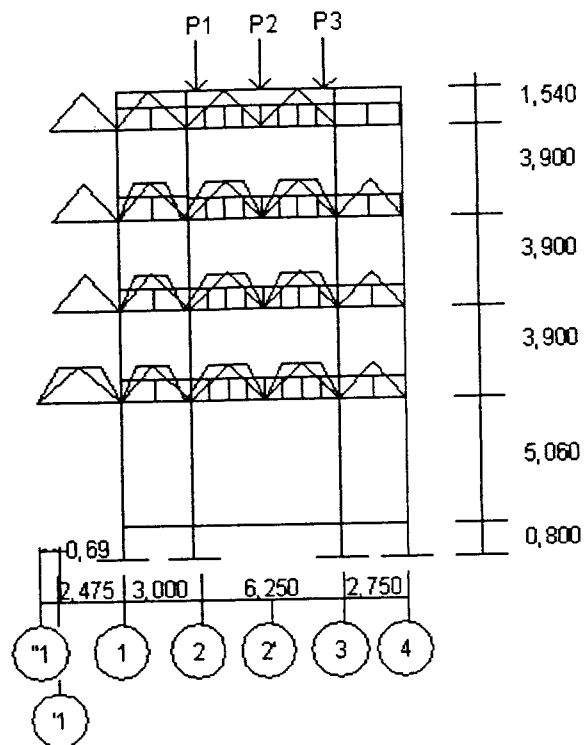
$$\text{Pelat lantai} = 1,375 \cdot 4,69 \cdot (2) = 12,898 \text{ KN/m}^2 \text{ (segitiga)}$$

Beban hidup

$$\text{Pelat lantai} = 1,375 \cdot 2,5 \cdot (2) = 6,8750 \text{ KN/m}^2 \text{ (segitiga)}$$



- Portal As G



**Beban terpusat**

$$P1 = P2 = P3 = 6,9377 \text{ KN}$$

**Atap**

Beban merata bentang 1-1

Beban mati

$$\text{Pelat atap} = 1,2375 \cdot 3,24 \cdot (2) = 8,019 \text{ KN/m}^2 \text{ (segitiga)}$$

Beban hidup

$$\text{Pelat atap} = 1,2375 \cdot 1,00 \cdot (2) = 2,475 \text{ KN/m}^2 \text{ (segitiga)}$$

Beban merata bentang 1-2

Beban mati

$$\text{Pelat atap} = 1,5 \cdot 3,24 = 4,860 \text{ KN/m}^2 \text{ (segitiga)}$$

Beban hidup

$$\text{Pelat atap} = 1,5 \cdot 1,00 = 1,500 \text{ KN/m}' \text{ (segitiga)}$$

Beban dinding

$$\text{Beban dinding} = 1,5400 \cdot 2,50 = 3,8500 \text{ KN/m}'$$

Beban merata bentang 2-2'=2'-3

Beban mati

$$\text{Pelat atap} = 1,5625 \cdot 3,24 = 5,0625 \text{ KN/m}' \text{ (segitiga)}$$

Beban hidup

$$\text{Pelat atap} = 1,5625 \cdot 1,00 = 1,5625 \text{ KN/m}' \text{ (segitiga)}$$

Beban dinding

$$\text{Beban dinding} = 1,5400 \cdot 2,50 = 3,8500 \text{ KN/m}'$$

Beban merata bentang 3-4

Beban dinding

$$\text{Beban dinding} = 1,5400 \cdot 2,50 = 3,8500 \text{ KN/m}'$$

## **Lantai 2**

Beban merata bentang "1-1

Beban mati

$$\text{Pelat lantai} = 1,5625 \cdot 4,69 + 1,458 \cdot 4,69 = 14,166 \text{ KN/m}' \text{ (segitiga \& trapesium)}$$

Beban hidup

$$\text{Pelat lantai} = 1,5625 \cdot 2,50 + 1,458 \cdot 2,5 = 7,551 \text{ KN/m}' \text{ (segitiga \& trapesium)}$$

Beban merata bentang 1-2

Beban mati

$$\text{Pelat lantai} = 1,50 \cdot 4,69 + 1,458 \cdot 4,69 = 13,873 \text{ KN/m}^2 \text{ (segitiga \& tapesium)}$$

Beban hidup

$$\text{Pelat lantai} = 1,50 \cdot 2,50 + 1,458 \cdot 2,50 = 7,395 \text{ KN/m}^2 \text{ (segitiga \& tapesium)}$$

Beban dinding

$$\text{Beban dinding} = 3.2000 \cdot 2,50 = 8,0000 \text{ KN/m}^2$$

Beban merata bentang 2-2' = 2' -3

Beban mati

$$\text{Pelat lantai} = 1,5625 \cdot 4,69 + 1,458 \cdot 4,69 = 14,166 \text{ KN/m}^2 \text{ (segitiga \& tapesium)}$$

Beban hidup

$$\text{Pelat lantai} = 1,5625 \cdot 2,50 + 1,458 \cdot 2,50 = 7,5510 \text{ KN/m}^2 \text{ (segitiga \& tapesium)}$$

Beban dinding

$$\text{Beban dinding} = 3.2000 \cdot 2,50 = 8,0000 \text{ KN/m}^2$$

Beban merata bentang 3-4

Beban mati

$$\text{Pelat lantai} = 1,375 \cdot 4,69 = 6,449 \text{ KN/m}^2 \text{ (segitiga)}$$

Beban hidup

$$\text{Pelat lantai} = 1,375 \cdot 2,5 = 3,438 \text{ KN/m}^2 \text{ (segitiga)}$$

Beban dinding

$$\text{Beban dinding} = 3.2000 \cdot 2,50 = 8,0000 \text{ KN/m'}$$

### **Lantai 3,4**

Beban merata bentang '1-1

Beban mati

$$\text{Pelat lantai} = 1,2375 \cdot 4,69 \cdot (2) = 11,608 \text{ KN/m' (segitiga)}$$

Beban hidup

$$\text{Pelat lantai} = 1,2375 \cdot 2,50 \cdot (2) = 6,188 \text{ KN/m' (segitiga)}$$

Beban merata bentang 1-2

Beban mati

$$\text{Pelat lantai} = 1,50 \cdot 4,69 + 1,458 \cdot 4,69 = 13,873 \text{ KN/m' (segitiga \& tapesium)}$$

Beban hidup

$$\text{Pelat lantai} = 1,50 \cdot 2,50 + 1,458 \cdot 2,50 = 7,395 \text{ KN/m' (segitiga \& tapesium)}$$

Beban dinding

$$\text{Beban dinding} = 3.2000 \cdot 2,50 = 8,0000 \text{ KN/m'}$$

Beban merata bentang 2-2'=2'-3

Beban mati

$$\text{Pelat lantai} = 1,5625 \cdot 4,69 + 1,458 \cdot 4,69 = 14,166 \text{ KN/m' (segitiga \& tapesium)}$$

Beban hidup

$$\text{Pelat lantai} = 1,5625 \cdot 2,50 + 1,458 \cdot 2,50 = 7,5510 \text{ KN/m' (segitiga \& tapesium)}$$

Beban dinding

$$\text{Beban dinding} = 3.2000 \cdot 2,50 = 8,0000 \text{ KN/m'}$$

Beban merata bentang 3-4

Beban mati

$$\text{Pelat lantai} = 1,375 \cdot 4,69 = 6,449 \text{ KN/m' (segitiga)}$$

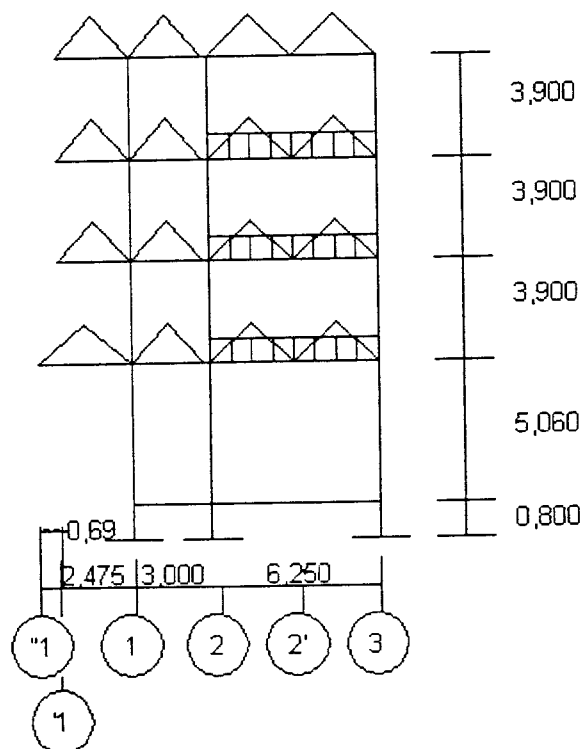
Beban hidup

$$\text{Pelat lantai} = 1.375 \cdot 2,5 = 3,438 \text{ KN/m' (segitiga)}$$

Beban dinding

$$\text{Beban dinding} = 3.2000 \cdot 2,50 = 8,0000 \text{ KN/m'}$$

• **Portal As H**



**Atap**

Beban merata bentang '1-1

Beban mati

$$\text{Pelat atap} = 1,2375 \cdot 3,24 = 4,0095 \text{ KN/m}^2 \text{ (segitiga)}$$

Beban hidup

$$\text{Pelat atap} = 1,2375 \cdot 1,00 = 1,2375 \text{ KN/m}^2 \text{ (segitiga)}$$

Beban merata bentang 1-2

Beban mati

$$\text{Pelat atap} = 1,50 \cdot 3,24 = 4,8600 \text{ KN/m}^2 \text{ (segitiga)}$$

Beban hidup

$$\text{Pelat atap} = 1,50 \cdot 1,00 = 1,5000 \text{ KN/m}^2 \text{ (segitiga)}$$

Beban merata bentang 2-2'=2'-3

Beban mati

$$\text{Pelat atap} = 1,5625 \cdot 3,24 = 5,0625 \text{ KN/m}^2 \text{ (segitiga)}$$

Beban hidup

$$\text{Pelat atap} = 1,5625 \cdot 1,00 = 1,5625 \text{ KN/m}^2 \text{ (segitiga)}$$

## **Lantai 2**

Beban merata bentang "1-1

Beban mati

$$\text{Pelat lantai} = 1,5625 \cdot 4,69 = 7,328 \text{ KN/m}^2 \text{ (segitiga)}$$

Beban hidup

$$\text{Pelat lantai} = 1,5625 \cdot 2,50 = 3,906 \text{ KN/m}^2 \text{ (segitiga)}$$

Beban merata bentang 1-2

Beban mati

$$\text{Pelat lantai} = 1,50 \cdot 4,69 = 7,0350 \text{ KN/m}^2 \text{ (segitiga)}$$

Beban hidup

$$\text{Pelat lantai} = 1,50 \cdot 2,50 = 3,7500 \text{ KN/m}^2 \text{ (segitiga)}$$

Beban merata bentang 2-2'=2'-3

Beban mati

$$\text{Pelat lantai} = 1,5625 \cdot 4,69 = 7,3281 \text{ KN/m}^2 \text{ (segitiga)}$$

Beban hidup

$$\text{Pelat lantai} = 1,5625 \cdot 2,50 = 3,9062 \text{ KN/m}^2 \text{ (segitiga)}$$

$$\text{Beban dinding} = 3,2000 \cdot 2,50 = 8,0000 \text{ KN/m}^2$$

### **Lantai 3,4**

Beban merata bentang '1-1

Beban mati

$$\text{Pelat lantai} = 1,2375 \cdot 4,69 = 5,8038 \text{ KN/m}^2 \text{ (segitiga)}$$

Beban hidup

$$\text{Pelat lantai} = 1,2375 \cdot 2,50 = 3,0937 \text{ KN/m}^2 \text{ (segitiga)}$$

Beban merata bentang 1-2

Beban mati

$$\text{Pelat lantai} = 1,50 \cdot 4,69 = 7,0350 \text{ KN/m}^2 \text{ (segitiga)}$$

Beban hidup

$$\text{Pelat lantai} = 1,50 \cdot 2,50 = 3,7500 \text{ KN/m}^2 \text{ (segitiga)}$$

Beban merata bentang 2-2'=2'-3

Beban mati

$$\text{Pelat lantai} = 1,5625 \cdot 4,69 = 7,3281 \text{ KN/m}^2 \text{ (segitiga)}$$

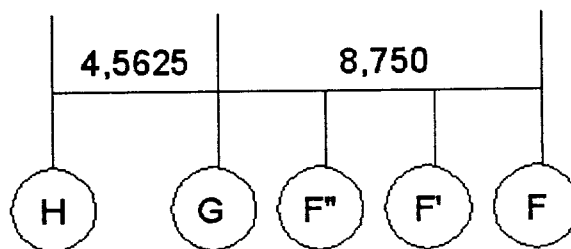
Beban hidup

$$\text{Pelat lantai} = 1,5625 \cdot 2,50 = 3,9062 \text{ KN/m}' \text{ (segitiga)}$$

$$\text{Beban dinding} = 3,2000 \cdot 2,50 = 8,0000 \text{ KN/m}'$$

## 2. Arah x

- Portal As "1"



Beban merata bentang F-F' = F''-F''' = F'''-G

Beban mati

$$\text{Pelat lantai} = 1,458 \cdot 4,69 = 6,840 \text{ KN/m}' \text{ (segitiga)}$$

Beban hidup

$$\text{Pelat lantai} = 1,458 \cdot 2,50 = 3,645 \text{ KN/m}' \text{ (segitiga)}$$

Beban merata bentang G-H

Beban mati

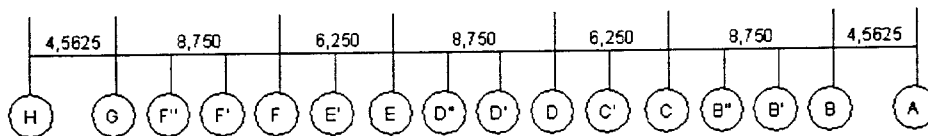
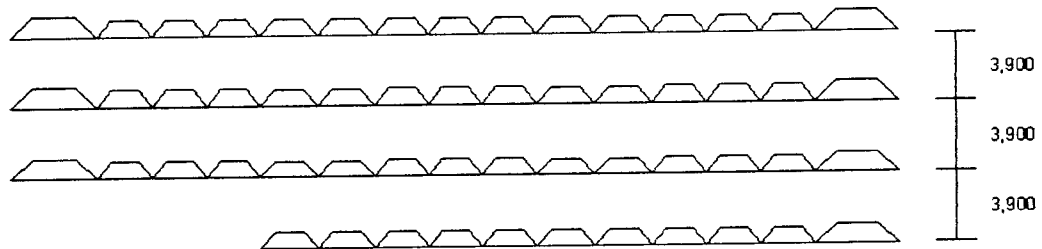
$$\text{Pelat lantai} = 1,5625 \cdot 4,69 = 7,328 \text{ KN/m}' \text{ (Trapesium)}$$



Beban hidup

Pelat lantai =  $1,5625 \cdot 2,50 = 3,906 \text{ KN/m}^2$  ( trapesium )

• **Portal As '1**



**Atap**

Beban merata bentang A-B=G-H

Beban mati

Pelat atap =  $1,2375 \cdot 3,24 = 4,010 \text{ KN/m}^2$  ( trapezium )

Beban hidup

Pelat atap =  $1,2375 \cdot 1,00 = 1,2375 \text{ KN/m}^2$  ( trapezium )

Beban merata bentang B-B'=B'-B''=B''-C=F-F'=F'-F''=F''-G

Beban mati

Pelat atap =  $1,2375 \cdot 3,24 = 4,010 \text{ KN/m}^2$  ( trapezium )

Beban hidup

Pelat atap =  $1,2375 \cdot 1,00 = 1,2375 \text{ KN/m}^2$  ( trapezium )

Beban merata bentang C-C'=C'-D=E-E'=E'-F

Beban mati

Pelat atap =  $1,2375 \cdot 3,24 = 4,010 \text{ KN/m}^2$  ( trapezium )

Beban hidup

Pelat atap =  $1,2375 \cdot 1,00 = 1,2375 \text{ KN/m}^2$  ( trapezium )

### **Lantai 2,3,4**

Beban merata bentang A-B=G-H

Beban mati

Pelat lantai =  $1,2375 \cdot 4,69 = 5,804 \text{ KN/m}^2$  ( trapezium )

Beban hidup

Pelat lantai =  $1,2375 \cdot 2,50 = 3,094 \text{ KN/m}^2$  ( trapezium )

Beban merata bentang B-B'=B'-B''=B''-C=F-F'=F'-F''=F''-G

Beban mati

Pelat lantai =  $1,2375 \cdot 4,69 = 5,804 \text{ KN/m}^2$  ( trapezium )

Beban hidup

Pelat lantai =  $1,2375 \cdot 2,50 = 3,094 \text{ KN/m}^2$  ( trapezium )

Beban merata bentang C-C'=C'-D=E-E'=E'-F

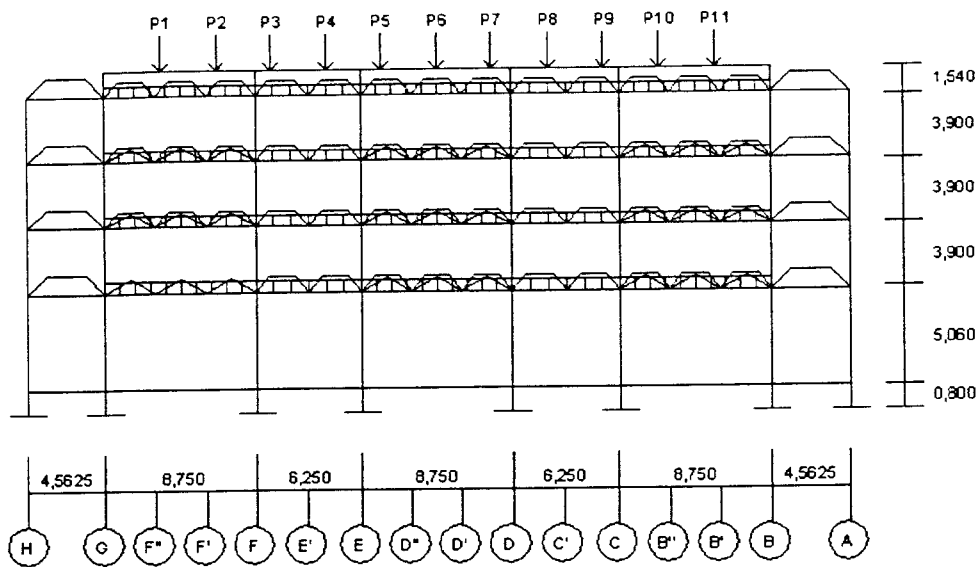
Beban mati

Pelat lantai =  $1,2375 \cdot 4,69 = 5,804 \text{ KN/m}^2$  ( trapezium )

Beban hidup

Pelat lantai =  $1,2375 \cdot 2,50 = 3,094 \text{ KN/m}^2$  ( trapezium )

• **Portal As 1**



**Beban terpusat**

$$P2 - P10 = 35,46 \text{ KN}$$

$$P1 = P11 = 30,97 \text{ KN}$$

**Atap**

Beban merata bentang A-B=G-H

Beban mati

$$\text{Pelat atap} = 1,2375 \cdot 3,24 + 1,5 \cdot 3,24 = 8,870 \text{ KN/m}' \text{ ( trapezium )}$$

Beban hidup

$$\text{Pelat atap} = 1,2375 \cdot 1,00 + 1,5 \cdot 1,00 = 2,73 \text{ KN/m}' \text{ ( trapezium )}$$

Beban merata bentang B-B'=B'-B''=B''-C=D-D'=D'-D''=D''-E=F-F'=F'-

F''=F''-G

Beban mati

$$\text{Pelat atap} = 1,2375 \cdot 3,24 = 4,010 \text{ KN/m}' \text{ ( trapezium )}$$

Beban hidup

$$\text{Pelat atap} = 1,2375 \cdot 1,00 = 1,2375 \text{ KN/m}^2 \text{ ( trapezium )}$$

Beban dinding

$$\text{Beban dinding} = 1,54 \cdot 2,50 = 3,85 \text{ KN/m}^2$$

Beban merata bentang C-C'=C'-D=E-E'=E'-F

Beban mati

$$\text{Pelat atap} = 1,2375 \cdot 3,24 = 4,010 \text{ KN/m}^2 \text{ ( trapezium )}$$

Beban hidup

$$\text{Pelat atap} = 1,2375 \cdot 1,00 = 1,2375 \text{ KN/m}^2 \text{ ( trapezium )}$$

Beban dinding

$$\text{Beban dinding} = 1,54 \cdot 2,50 = 3,85 \text{ KN/m}^2$$

## Lantai 2

Beban merata bentang A-B=G-H

Beban mati

$$\text{Pelat lantai} = 1,2375 \cdot 4,69 + 1,5 \cdot 4,69 = 12,839 \text{ KN/m}^2 \text{ ( trapezium )}$$

Beban hidup

$$\text{Pelat lantai} = 1,2375 \cdot 2,50 + 1,5 \cdot 2,50 = 6,843 \text{ KN/m}^2 \text{ ( trapezium )}$$

Beban dinding

$$\text{Beban dinding} = 3,2 \cdot 2,50 = 8,000 \text{ KN/m}^2$$

Beban merata bentang B-B'=B'-B''=B''-C=D-D'=D'-D''=D''-E

Beban mati

$$\text{Pelat lantai} = 1,2375 \cdot 4,69 + 1,458 \cdot 4,69 = 12,642 \text{ KN/m}^2 \text{ ( trapezium \& segitiga )}$$

Beban hidup

Pelat lantai =  $1,2375 \cdot 2,5 + 1,458 \cdot 2,5 = 9,5825$  KN/m' ( trapezium & segitiga)

Beban dinding

Beban dinding =  $3,2 \cdot 2,50 = 8,000$  KN/m'

Beban merata bentang F-F'=F'-F''=F''-G

Beban mati

Pelat lantai =  $1,458 \cdot 4,69 (2) = 13,676$  KN/m' ( segitiga)

Beban hidup

Pelat lantai =  $1,458 \cdot 2,5 (2) = 7,29$  KN/m' ( segitiga)

Beban dinding

Beban dinding =  $3,2 \cdot 2,50 = 8,000$  KN/m'

Beban merata bentang C-C'=C'-D=E-E'=E'-F

Beban mati

Pelat lantai =  $1,2375 \cdot 4,69 + 1,5 \cdot 4,69 = 18,174$  KN/m' ( trapezium )

Beban hidup

Pelat lantai =  $1,2375 \cdot 2,5 + 1,5 \cdot 2,5 = 9,6875$  KN/m' ( trapezium )

Beban dinding

Beban dinding =  $3,2 \cdot 2,50 = 8,000$  KN/m'

### **Lantai 3,4**

Beban merata bentang A-B=G-H

Beban mati

Pelat lantai =  $1,2375 \cdot 4,69 + 1,5 \cdot 4,69 = 12,839$  KN/m' ( trapezium )

Beban hidup

$$\text{Pelat lantai} = 1,2375 \cdot 2,50 + 1,5 \cdot 2,50 = 6,843 \text{ KN/m}^{\prime} \text{ ( trapezium )}$$

Beban dinding

$$\text{Beban dinding} = 3,2 \cdot 2,50 = 8,000 \text{ KN/m}^{\prime}$$

Beban merata bentang B-B'=B'-B''=B''-C=D-D'=D'-D''=D''-E=F-F'=F'-F''=F''-G

Beban mati

$$\text{Pelat lantai} = 1,2375 \cdot 4,69 + 1,458 \cdot 4,69 = 12,642 \text{ KN/m}^{\prime} \text{ ( trapezium \& segitiga )}$$

Beban hidup

$$\text{Pelat lantai} = 1,2375 \cdot 2,5 + 1,458 \cdot 2,5 = 9,5825 \text{ KN/m}^{\prime} \text{ ( trapezium \& segitiga )}$$

Beban dinding

$$\text{Beban dinding} = 3,2 \cdot 2,50 = 8,000 \text{ KN/m}^{\prime}$$

Beban merata bentang C-C'=C'-D=E-E'=E'-F

Beban mati

$$\text{Pelat lantai} = 1,2375 \cdot 4,69 + 1,5 \cdot 4,69 = 18,174 \text{ KN/m}^{\prime} \text{ ( trapezium )}$$

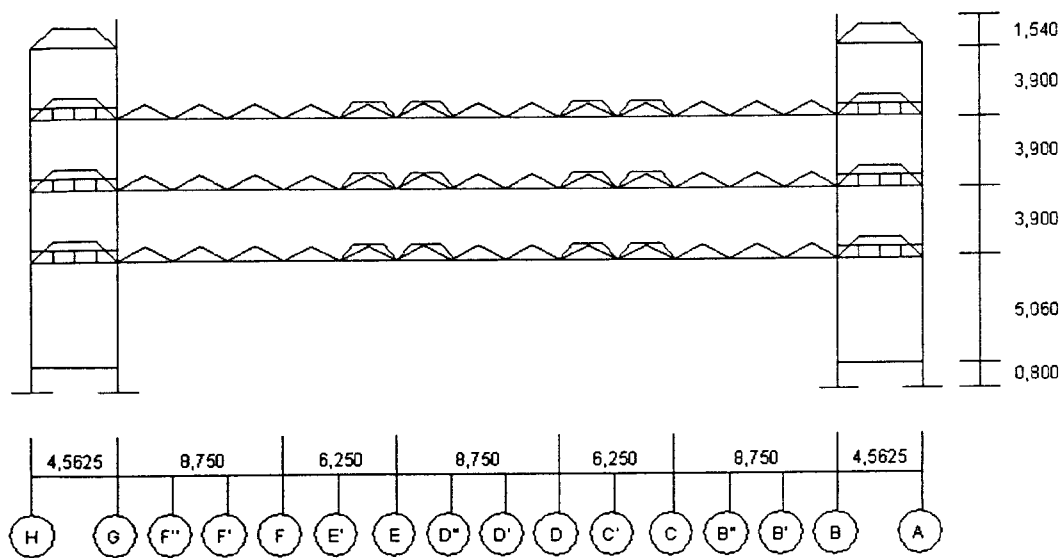
Beban hidup

$$\text{Pelat lantai} = 1,2375 \cdot 2,5 + 1,5 \cdot 2,5 = 9,6875 \text{ KN/m}^{\prime} \text{ ( trapezium )}$$

Beban dinding

$$\text{Beban dinding} = 3,2 \cdot 2,50 = 8,000 \text{ KN/m}^{\prime}$$

• **Portal As 2**



**Atap**

Beban merata bentang A-B=G-H

Beban mati

Pelat atap =  $1,5 \cdot 3,24 + 1,5625 \cdot 3,24 = 9,923 \text{ KN/m}^2$  (trapezium)

Beban hidup

Pelat atap =  $1,5 \cdot 1,0 + 1,5625 \cdot 1,0 = 3,063 \text{ KN/m}^2$  (trapezium)

**Lantai 2,3,4**

Beban merata bentang A-B=G-H

Beban mati

Pelat lantai =  $1,5 \cdot 4,69 + 1,5625 \cdot 4,69 = 14,363 \text{ KN/m}^2$  (trapezium)

Beban hidup

Pelat lantai =  $1,5 \cdot 2,5 + 1,5625 \cdot 2,5 = 7,656 \text{ KN/m}^2$  (trapezium)

Beban dinding

Beban dinding =  $3,2 \cdot 2,5 = 8,000 \text{ KN/m}^2$

Beban merata bentang B-B'=B'-B''=B''-C=D-D'=D'-D''=D''-E=F-F'=F'-  
F''=F''-G

Beban mati

Pelat lantai =  $1,458 \cdot 4,69 \cdot (2) = 13,676 \text{ KN/m' (segitiga)}$

Beban hidup

Pelat lantai =  $1,458 \cdot 2,50 \cdot (2) = 7,29 \text{ KN/m' (segitiga)}$

Beban merata bentang C-C'=C'-D=E-E'=E'-F

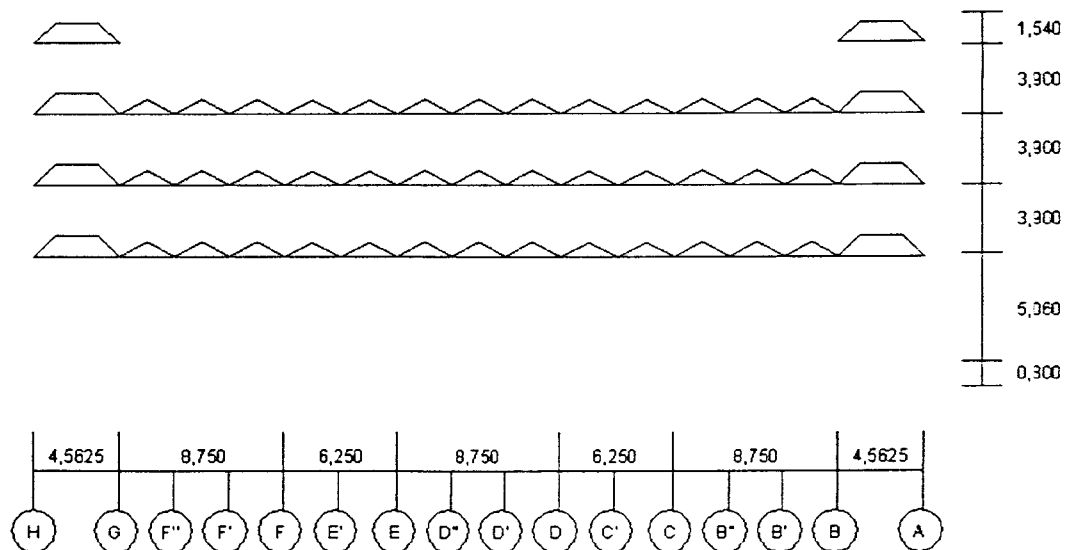
Beban mati

Pelat lantai =  $1,5625 \cdot 4,69 + 1,5 \cdot 4,69 = 14,363 \text{ KN/m' (segitiga \& trapezium)}$

Beban hidup

Pelat lantai =  $1,5625 \cdot 2,50 + 1,5 \cdot 2,50 = 7,6560 \text{ KN/m' (segitiga \& trapezium)}$

• **Portal As 2'**





## Atap

Beban merata bentang A-B=G-H

Beban mati

$$\text{Pelat atap} = 1,5625 \cdot 3,24 \cdot (2) = 10,125 \text{ KN/m}^2 \text{ ( trapezium)}$$

Beban hidup

$$\text{Pelat atap} = 1,5625 \cdot 1,0 \cdot (2) = 3,125 \text{ KN/m}^2 \text{ (trapezium)}$$

## Lantai 2,3,4

Beban merata bentang A-B=G-H

Beban mati

$$\text{Pelat lantai} = 1,5 \cdot 4,69 + 1,5625 \cdot 4,69 = 14,363 \text{ KN/m}^2 \text{ ( trapezium)}$$

Beban hidup

$$\text{Pelat lantai} = 1,5 \cdot 2,5 + 1,5625 \cdot 2,5 = 7,656 \text{ KN/m}^2 \text{ (trapezium)}$$

Beban dinding

$$\text{Beban dinding} = 3,2 \cdot 2,5 = 8,000 \text{ KN/m}^2$$

Beban merata bentang B-B'=B'-B''=B''-C=D-D'=D'-D''=D''-E=F-F'=F'-F''=F''-G

Beban mati

$$\text{Pelat lantai} = 1,458 \cdot 4,69 \cdot (2) = 13,676 \text{ KN/m}^2 \text{ (segitiga)}$$

Beban hidup

$$\text{Pelat lantai} = 1,458 \cdot 2,50 \cdot (2) = 7,29 \text{ KN/m}^2 \text{ (segitiga)}$$

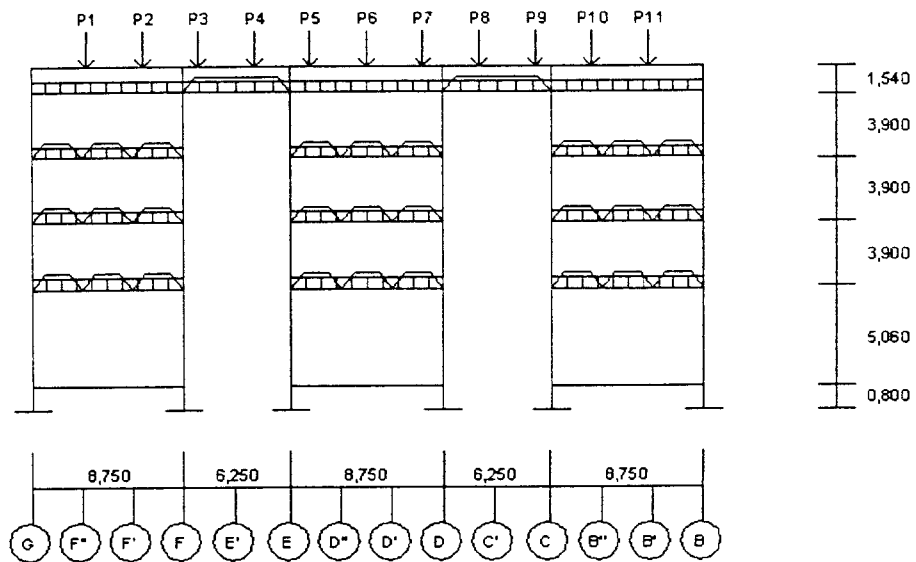
Beban merata bentang C-C'=C'-D=E-E'=E'-F

Beban mati

$$\text{Pelat lantai} = 1,5625 \cdot 4,69 \cdot (2) = 14,656 \text{ KN/m}^2 \text{ (segitiga)}$$

$$\text{Beban dinding} = 3,2 \cdot 2,50 = 8,000 \text{ KN/m}^2$$

• **Portal As 4**



**Beban Terpusat**

$$P2 - P10 = 35,46 \text{ KN}$$

$$P1 = P11 = 30,97 \text{ KN}$$

**Atap**

Beban merata bentang B-B'=B'-B''=B''-C=D-D'=D'-D''=D''-E=F-F'=F'-F''=F''-G

Beban dinding

$$\text{Beban dinding} = 1,54 \cdot 2,5 = 3,85 \text{ KN/m}^2$$

Beban merata bentang C-C'=C'-D=E-E'=E'-F

Beban mati

$$\text{Pelat atap} = 1,375 \cdot 3,24 = 4,455 \text{ KN/m}^2$$

Beban hidup

Tabel 1. Gaya batang pada Kuda - kuda K 1

Batang	Panjang ( m )	Tetap ( kg )	LWL ( kg )	RWL ( kg )	Beban Kombinasi			Beban Rencana ( kg )
					1,3 Tetap	Tetap + LWL	Tetap + RWL	
					( kg )	( kg )	( kg )	
<b>Atas</b>								
A1	0.934	241.160	20.910	-16.880	313.508	262.070	224.280	241.160
A2	1.268	-3233.530	-232.920	196.000	-4203.589	-3466.450	-3037.530	-3233.530
A3	1.800	-4468.850	-312.340	264.860	-5809.505	-4781.190	-4203.990	-4468.850
A4	1.800	-6225.310	-629.600	580.460	-8092.903	-6854.910	-5644.850	-6225.310
A5	1.800	-7273.310	-842.490	804.510	-9455.303	-8115.800	-6468.800	-7273.310
A6	1.800	-7597.620	-950.770	936.640	-9876.906	-8548.390	-6660.980	-7597.620
A7	1.800	-7597.620	-1023.680	1009.550	-9876.906	-8621.300	-6588.070	-7597.620
A8	1.800	-7273.310	-642.420	604.440	-9455.303	-7915.730	-6668.870	-7273.310
A9	1.800	-6225.310	-349.680	300.540	-8092.903	-6574.990	-5924.770	-6225.310
A10	1.800	-4468.850	-147.260	99.770	-5809.505	-4616.110	-4369.080	-4468.850
A11	1.268	-3233.530	-74.730	37.800	-4203.589	-3308.260	-3195.730	-3233.530
A12	0.934	241.160	-16.860	20.890	313.508	224.300	262.050	241.160
<b>Bawah</b>								
B1	0.660	-166.440	-30.400	24.590	-216.372	-196.840	-141.850	-166.440
B2	0.989	-183.680	542.900	-549.310	-238.784	359.220	-732.990	-732.990
B3	1.404	2518.720	704.450	-686.700	3274.336	3223.170	1832.020	2518.720
B4	1.800	4462.860	912.540	-892.960	5801.718	5375.400	3569.900	4462.860
B5	1.800	6215.730	1155.390	-1143.320	8080.449	7371.120	5072.410	6215.730
B6	1.800	7254.310	1293.070	-1301.210	9430.603	8547.380	5953.100	7254.310
B7	1.800	7254.310	880.950	-889.090	9430.603	8135.260	6365.220	7254.310
B8	1.800	6215.730	525.760	-513.690	8080.449	6741.490	5702.040	6215.730
B9	1.800	4462.860	258.640	-239.060	5801.718	4721.500	4223.800	4462.860
B10	1.404	2518.720	102.440	-84.700	3274.336	2621.160	2434.020	2518.720
B11	0.989	-183.680	26.370	-32.780	-238.784	-157.310	-216.460	-183.680
B12	0.660	-166.440	23.800	-29.610	-216.372	-142.640	-196.050	-166.440
<b>Vertikal</b>								
V1	0.660	-3431.400	-252.600	210.650	-4460.820	-3684.000	-3220.750	-3431.400
V2	1.139	-1669.970	-107.940	91.760	-2170.961	-1777.910	-1578.210	-1669.970
V3	1.818	-2277.240	-349.830	344.460	-2960.412	-2627.070	-1932.780	-2277.240
V4	1.818	-1561.600	-244.500	252.080	-2030.080	-1806.100	-1309.520	-1561.600
V5	1.818	-840.520	-138.430	158.820	-1092.676	-978.950	-681.700	-840.520
V6	1.818	10215.430	1385.490	-1377.000	13280.059	11600.920	8838.430	10215.430
V7	1.818	-840.520	-358.020	378.410	-1092.676	-1198.540	-462.110	-1198.540
V8	1.818	-1561.600	-269.400	276.980	-2030.080	-1831.000	-1284.620	-1561.600
V9	1.818	-2277.240	-177.970	172.590	-2960.412	-2455.210	-2104.650	-2277.240
V10	1.139	-1669.970	-50.810	34.630	-2170.961	-1720.780	-1635.340	-1669.970
V11	0.660	-3431.400	-31.470	-10.480	-4460.820	-3462.870	-3441.880	-3431.400
<b>Diagonal</b>								
D1	0.929	2527.990	151.350	-128.750	3286.387	2679.340	2399.240	2527.990
D2	1.385	949.890	7.540	-9.960	1234.857	957.430	939.930	949.890
D3	1.385	1350.960	187.120	-192.890	1756.248	1538.080	1158.070	1350.960
D4	1.385	801.500	106.010	-121.560	1041.950	907.510	679.940	801.500
D5	1.385	292.490	30.880	-56.260	380.237	323.370	236.230	292.490
D6	1.385	292.490	347.750	-373.130	380.237	640.240	-80.640	292.490
D7	1.385	801.500	273.540	-289.090	1041.950	1075.040	512.410	1075.040
D8	1.385	1350.960	205.490	-211.260	1756.248	1556.450	1139.700	1350.960
D9	1.385	949.890	97.900	-100.330	1234.857	1047.790	849.560	949.890
D10	0.929	2527.990	71.220	-48.620	3286.387	2599.210	2479.370	2527.990



**Tabel 2. Gaya batang pada Kuda - kuda K 2**

Batang	Panjang ( m )	Tetap ( kg )	LWL ( kg )	RWL ( kg )				Beban Rencana ( kg )
					1,3 Tetap ( kg )	Tetap + LWL ( kg )	Tetap + RWL ( kg )	
<b>Atas</b>								
A1	0.934	233.670	17.210	-13.840	303.771	250.880	219.830	233.670
A2	1.268	-2810.670	-184.580	157.450	-3653.871	-2995.250	-2653.220	-2810.670
A3	1.800	-3844.410	-245.570	211.500	-4997.733	-4089.980	-3632.910	-3844.410
A4	1.800	-5257.080	-429.870	399.960	-6834.204	-5686.950	-4857.120	-5257.080
A5	1.273	-4304.130	-276.470	247.170	-5595.369	-4580.600	-4056.960	-4304.130
A6	1.273	-4502.670	-207.470	178.180	-5853.471	-4710.140	-4324.490	-4502.670
A7	1.273	-4502.670	-207.330	178.040	-5853.471	-4710.000	-4324.630	-4502.670
A8	1.273	-4304.130	-138.100	108.800	-5595.369	-4442.230	-4195.330	-4304.130
A9	1.800	-5257.080	-143.940	114.030	-6834.204	-5401.020	-5143.050	-5257.080
A10	1.800	-3831.370	-30.010	-4.070	-4980.781	-3861.380	-3835.440	-3831.370
A11	1.268	-2810.670	-1.150	-25.980	-3653.871	-2811.820	-2836.650	-2810.670
A12	0.934	233.670	-13.820	17.180	303.771	219.850	250.850	233.670
<b>Bawah</b>								
B1	0.660	-161.400	-24.960	20.120	-209.820	-186.360	-141.280	-161.400
B2	0.989	-178.410	310.140	-315.490	-231.933	131.730	-493.900	-493.900
B3	1.404	2190.150	436.750	-424.770	2847.195	2626.900	1765.380	2190.150
B4	1.800	3832.870	562.180	-551.330	4982.731	4395.050	3281.540	3832.870
B5	1.273	3719.150	481.200	-485.970	4834.895	4200.350	3233.180	3719.150
B6	1.273	4304.320	412.480	-417.250	5595.616	4716.800	3887.070	4304.320
B7	1.273	4304.320	274.530	-279.300	5595.616	4578.850	4025.020	4304.320
B8	1.273	3719.150	205.870	-210.640	4834.895	3925.020	3508.510	3719.150
B9	1.800	3832.870	122.450	-111.600	4982.731	3955.320	3721.270	3832.870
B10	1.404	2190.150	37.690	-25.720	2847.195	2227.840	2164.430	2190.150
B11	0.989	-178.410	21.720	-27.070	-231.933	-156.690	-205.480	-178.410
B12	0.660	-161.400	19.630	-24.470	-209.820	-141.770	-185.870	-161.400
<b>Vertikal</b>								
V1	0.660	-3031.080	-201.970	170.290	-3940.404	-3233.050	-2860.790	-3031.080
V2	1.138	-1450.360	-84.680	73.080	-1885.468	-1535.040	-1377.280	-1450.360
V3	1.818	-1911.040	-213.080	211.830	-2484.352	-2124.120	-1699.210	-1911.040
V4	1.818	2453.150	360.740	-347.770	3189.095	2813.890	2105.380	2453.150
V5	1.818	-688.010	98.080	-98.050	-894.413	-589.930	-786.060	-688.010
V6	1.818	-418.490	-0.533	0.547	-544.037	-419.023	-417.943	-418.490
V7	1.818	-688.010	-97.660	97.700	-894.413	-785.670	-590.310	-688.010
V8	1.818	2453.150	35.600	-22.620	3189.095	2488.750	2430.530	2453.150
V9	1.818	-1911.040	-92.980	91.730	-2484.352	-2004.020	-1819.310	-1911.040
V10	1.138	-1450.360	-10.640	-0.963	-1885.468	-1461.000	-1451.323	-1450.360
V11	0.660	-3031.080	28.490	-60.170	-3940.404	-3002.590	-3091.250	-3031.080
<b>Diagonal</b>								
D1	0.929	2215.150	118.560	-102.350	2946.150	2333.710	2112.800	2215.150
D2	1.385	791.550	2.230	-5.680	1052.762	793.780	785.870	791.550
D3	1.385	1098.490	90.940	-104.470	1460.992	1189.430	994.020	1098.490
D4	2.219	1024.320	-119.140	119.120	1362.346	905.180	1143.440	1024.320
D5	2.219	349.040	-119.720	119.700	464.223	229.320	468.740	468.740
D6	2.219	349.040	120.380	-120.400	464.223	469.420	228.640	469.420
D7	2.219	1024.320	119.430	-119.440	1362.346	1143.750	904.880	1024.320
D8	1.385	1098.490	129.550	-143.080	1460.992	1228.040	955.410	1098.490
D9	1.385	791.550	57.080	-60.530	1052.762	848.630	731.020	791.550
D10	0.929	2215.150	14.950	1.260	2946.150	2230.100	2216.410	2215.150

**Tabel 3. Gaya batang pada Kuda - kuda K 3**

Batang	Panjang ( m )	Tetap ( kg )	LWL ( kg )	RWL ( kg )	Beban Kombinasi			Beban Rencana ( kg )
					1,3 Tetap ( kg )	Tetap + LWL ( kg )	Tetap + RWL ( kg )	
<b>Atas</b>								
A1	0.934	172.490	17.010	0.0	224.237	189.500	172.490	172.490
A2	1.268	-276.770	-78.240	0.0	-359.801	-355.010	-276.770	-276.770
A3	1.800	-121.480	-83.310	0.0	-157.924	-204.790	-121.480	-204.790
A4	1.800	412.340	-11.590	0.0	536.042	400.750	412.340	412.340
<b>Bawah</b>								
B1	0.660	-118.610	-24.350	0.0	-154.193	-142.960	-118.610	-118.610
B2	0.989	-131.830	-26.910	0.0	-171.379	-158.740	-131.830	-131.830
B3	1.404	213.400	15.060	0.0	277.420	228.460	213.400	213.400
B4	1.800	119.090	-32.560	0.0	154.817	86.530	119.090	119.090
<b>Vertikal</b>								
V1	0.660	-624.520	-106.990	0.0	-811.876	-731.510	-624.520	-624.520
V2	1.139	-152.290	-28.140	0.0	-197.977	-180.430	-152.290	-152.290
V3	1.818	168.100	45.050	0.0	218.530	213.150	168.100	168.100
V4	1.818	4.980	0.000	0.0	6.474	4.980	4.980	4.980
<b>Diagonal</b>								
D1	0.929	321.500	39.280	0.0	417.950	360.780	321.500	321.500
D2	1.385	-120.610	-39.900	0.0	-156.793	-160.510	-120.610	-156.793
D3	1.385	-403.400	-107.090	0.0	-524.420	-510.490	-403.400	-403.400

**Tabel 4. Gaya batang pada Kuda - kuda K 4**

Batang	Panjang ( m )	Tetap ( kg )	LWL ( kg )	RWL ( kg )	Beban Kombinasi			Beban Rencana ( kg )
					1,3 Tetap ( kg )	Tetap + LWL ( kg )	Tetap + RWL ( kg )	
<b>Atas</b>								
A1	1.800	-109.600	-3.030	0.0	-142.480	-112.630	-109.600	-109.600
A2	1.800	109.600	3.030	0.0	142.480	112.630	109.600	109.600
<b>Bawah</b>								
B1	1.800	-68.340	-8.400	0.0	-88.842	-76.740	-68.340	-68.340
B2	1.800	68.340	8.400	0.0	88.842	76.740	68.340	68.340
<b>Vertikal</b>								
V1	1.818	4.980	0.000	0.0	6.474	4.980	4.980	4.980
V2	1.818	-21.930	-16.980	0.0	-28.509	-38.910	-21.930	-38.910
V3	1.818	4.980	0.000	0.0	6.474	4.980	4.980	4.980
<b>Diagonal</b>								
D1	1.385	102.470	12.930	0.0	133.211	115.400	102.470	102.470
D2	1.385	-161.230	-48.650	0.0	-209.599	-209.880	-161.230	-209.880

Tabel 5. Perencanaan Batang Tekan K 1

	Atas	Bawah	Vertikal
Gaya Batang (kg)	7597.62	732.990	3431.4
Panjang (cm)	180	98.9	66.04
Fy (kg/cm <sup>2</sup> )	2531	2531	2531
Es (kg/cm <sup>2</sup> )	2.04E+09	2.04E+09	2.04E+09
Asumsi kL/r	50	50	50
Cc	128.009	128.009	128.009
Fa perlu (kg/cm <sup>2</sup> )	1294.533	1294.533	1294.533
A perlu (cm <sup>2</sup> )	5.869	0.576	2.651
Profil dipakai	2L 60x60x6	2L 40x40x4	2L 40x40x5
A profil (cm <sup>2</sup> )	13.82	6.16	7.56
r (cm)	1.82	1.21	1.2
bf (cm)	6	4	4
tf (cm)	0.6	0.4	0.5
Kontrol Local Buckling	Ok!	Ok!	Ok!
<b>Kontrol Beban</b>			
kL/r	98.901	81.736	55.033
Cc	128.009	128.009	128.009
Fa ada (kg/cm <sup>2</sup> )	936.123	1261.198	1370.172
P ada (kg)	12937.220	7768.980	10358.500
	Ok!	Ok!	Ok!

Tabel 6. Perencanaan Batang Tarik K1

	Batang Tarik			
	Atas	Bawah	Vertikal	Diagonal
Gaya Batang (kg)	241.16	7254.31	10215.43	2527.99
Panjang (cm)	93.4	180	181.8	92.9
Fy (kg/cm <sup>2</sup> )	2531	2531	2531	2531
Fu (kg/cm <sup>2</sup> )	4077	4077	4077	4077
r min (cm)	0.389	0.750	0.758	0.387
A netto perlu (cm <sup>2</sup> )	0.158	4.745	6.682	1.653
Profil dipakai	2L 60x60x6	2L 40x40x4	2L 40x40x5	2L 40x40x4
A profil (cm <sup>2</sup> )	13.82	6.16	7.58	6.16
r (cm)	1.82	1.21	1.2	1.21
tw (cm)	0.6	0.4	0.5	0.4
d baut (cm)	1.27	1.27	1.27	1.27
<b>Kontrol Kelangsingan :</b>				
$\lambda$ ada = $kL/r \leq 240$	51.319	148.760	151.500	76.777
	Ok!	Ok!	Ok!	Ok!
<b>Kontrol Tegangan :</b>				
<b>Batang tdk ada lubang</b>				
Fa (kg/cm <sup>2</sup> )	1518.6	1518.6	1518.6	1518.6
fa (kg/cm <sup>2</sup> )	17.450	1177.648	1347.682	410.388
	Ok!	Ok!	Ok!	Ok!
<b>Batang ada lubang</b>				
A netto profil (cm <sup>2</sup> )	11.915	4.890	5.993	4.890
A efektif (cm <sup>2</sup> )	8.936	3.668	4.494	3.668
Fa (kg/cm <sup>2</sup> )	2038.500	2038.500	2038.500	2038.500
fa (kg/cm <sup>2</sup> )	26.987	899.307	1270.700	310.919
	Ok!	Ok!	Ok!	Ok!

Tabel 7. Perencanaan Batang Tekan K 2

	Batang Tekan		
	Atas	Bawah	Vertikal
Gaya Batang (kg)	4502.670	493.900	3031.08
Panjang (cm)	180	98.9	66.04
Fy (kg/cm <sup>2</sup> )	2531	2531	2531
Es (kg/cm <sup>2</sup> )	2.04E+09	2.04E+09	2.04E+09
Asumsi kL/r	50	50	50
Cc	128.009	128.009	128.009
Fa perlu (kg/cm <sup>2</sup> )	1294.533	1294.533	1294.533
A perlu (cm <sup>2</sup> )	3.478	0.576	2.341
<b>Profil dipakai</b>	<b>2L 60x60x6</b>	<b>2L 40x40x4</b>	<b>2L 40x40x5</b>
A profil (cm <sup>2</sup> )	13.82	6.16	7.56
r (cm)	1.82	1.21	1.2
bf (cm)	6	4	4
tf (cm)	0.6	0.4	0.5
<b>Kontrol Local Buckling</b>	<b>Ok!</b>	<b>Ok!</b>	<b>Ok!</b>
<b>Kontrol Beban</b>			
kL/r	98.901	81.736	55.033
Cc	128.009	128.009	128.009
Fa ada (kg/cm <sup>2</sup> )	936.123	1261.198	1370.172
P ada (kg)	12937.220	7768.980	10358.500
	<b>Ok!</b>	<b>Ok!</b>	<b>Ok!</b>

Tabel 8. Perencanaan Batang Tarik K2

	Batang Tarik			
	Atas	Bawah	Vertikal	Diagonal
Gaya Batang (kg)	233.67	4304.32	2453.15	2215.15
Panjang (cm)	93.4	127.3	181.8	92.9
Fy (kg/cm <sup>2</sup> )	2531	2531	2531	2531
Fu (kg/cm <sup>2</sup> )	4077	4077	4077	4077
r min (cm)	0.389	0.530	0.758	0.387
A netto perlu (cm <sup>2</sup> )	0.153	2.815	1.605	1.449
<b>Profil dipakai</b>	<b>2L 60x60x6</b>	<b>2L 40x40x4</b>	<b>2L 40x40x5</b>	<b>2L 40x40x4</b>
A profil (cm <sup>2</sup> )	13.82	6.16	7.56	6.16
r (cm)	1.82	1.21	1.2	1.21
tw (cm)	0.6	0.4	0.5	0.4
d baut (cm)	1.27	1.27	1.27	1.27
<b>Kontrol Kelangsingan :</b>				
$\lambda$ ada = $kL/r \leq 240$	51.319	105.207	151.500	76.777
	<b>Ok!</b>	<b>Ok!</b>	<b>Ok!</b>	<b>Ok!</b>
<b>Kontrol Tegangan :</b>				
<b>Batang tdk ada lubang</b>				
Fa (kg/cm <sup>2</sup> )	1518.6	1518.6	1518.6	1518.6
fa (kg/cm <sup>2</sup> )	16.908	698.753	324.491	359.602
	<b>Ok!</b>	<b>Ok!</b>	<b>Ok!</b>	<b>Ok!</b>
<b>Batang ada lubang</b>				
A netto profil (cm <sup>2</sup> )	11.915	4.890	5.973	4.890
A efektif (cm <sup>2</sup> )	8.936	3.668	4.479	3.668
Fa (kg/cm <sup>2</sup> )	2038.500	2038.500	2038.500	2038.500
fa (kg/cm <sup>2</sup> )	26.149	899.307	1270.700	310.919
	<b>Ok!</b>	<b>Ok!</b>	<b>Ok!</b>	<b>Ok!</b>

Tabel 9. Perencanaan Batang Tekan K 3

	Batang Tekan			
	Atas	Bawah	Vertikal	Diagonal
Gaya Batang (kg)	276.77	131.830	624.52	403.4
Panjang (cm)	126.8	98.9	66.04	138.5
Fy (kg/cm <sup>2</sup> )	2531	2531	2531	2531
Es (kg/cm <sup>2</sup> )	2.04E+09	2.04E+09	2.04E+09	2.04E+09
Asumsi kL/r	50	50	50	50
Cc	128.009	128.009	128.009	128.009
Fa perlu (kg/cm <sup>2</sup> )	1294.533	1294.533	1294.533	1294.533
A perlu (cm <sup>2</sup> )	0.214	0.576	0.482	0.408
Profil dipakai	2L 60x60x6	2L 40x40x4	2L 40x40x5	2L 40x40x4
A profil (cm <sup>2</sup> )	13.82	6.16	7.56	6.16
r (cm)	1.82	1.21	1.2	1.21
bf (cm)	6	4	4	4
tf (cm)	0.6	0.4	0.5	0.4
Kontrol Local Buckling	Ok!	Ok!	Ok!	ok!
<b>Kontrol Beban</b>				
kL/r	69.670	81.736	55.033	76.099
Cc	128.009	128.009	128.009	128.009
Fa ada (kg/cm <sup>2</sup> )	936.123	1261.198	1370.172	1354.679
P ada (kg)	12937.220	7768.980	10358.500	18721.673
	Ok!	Ok!	Ok!	ok!

Tabel 10. Perencanaan Batang Tarik K3

	Batang Tarik			
	Atas	Bawah	Vertikal	Diagonal
Gaya Batang (kg)	412.34	213.400	168.100	321.500
Panjang (cm)	180	140.4	181.8	92.9
Fy (kg/cm <sup>2</sup> )	2531	2531	2531	2531
Fu (kg/cm <sup>2</sup> )	4077	4077	4077	4077
r min (cm)	0.750	0.585	0.758	0.387
A netto perlu (cm <sup>2</sup> )	0.270	0.140	0.110	0.210
Profil dipakai	2L 60x60x6	2L 40x40x4	2L 40x40x5	2L 40x40x4
A profil (cm <sup>2</sup> )	13.82	6.16	7.56	6.16
r (cm)	1.82	1.21	1.2	1.21
tw (cm)	0.6	0.4	0.5	0.4
d baut (cm)	1.27	1.27	1.27	1.27
<b>Kontrol Kelangsingan :</b>				
$\lambda$ ada = kL/r $\leq$ 240	98.901	116.033	151.500	76.777
	Ok!	Ok!	Ok!	Ok!
<b>Kontrol Tegangan :</b>				
<b>Batang tdk ada lubang</b>				
Fa (kg/cm <sup>2</sup> )	1518.6	1518.6	1518.6	1518.6
fa (kg/cm <sup>2</sup> )	29.836	34.643	22.235	52.192
	Ok!	Ok!	Ok!	Ok!
<b>Batang ada lubang</b>				
A netto profil (cm <sup>2</sup> )	11.915	4.890	5.973	4.890
A efektif (cm <sup>2</sup> )	8.936	3.668	4.479	3.668
Fa (kg/cm <sup>2</sup> )	2038.500	2038.500	2038.500	2038.500
fa (kg/cm <sup>2</sup> )	46.142	899.307	1270.700	310.919
	Ok!	Ok!	Ok!	Ok!



Tabel 11. Perencanaan Batang Tekan K 4

	Batang Tekan			
	Atas	Bawah	Vertikal	Diagonal
Gaya Batang (kg)	109.6	63.340	38.91	209.88
Panjang (cm)	180	180.0	181.8	138.5
Fy (kg/cm <sup>2</sup> )	2531	2531	2531	2531
Es (kg/cm <sup>2</sup> )	2.04E+09	2.04E+09	2.04E+09	2.04E+09
Asumsi kL/r	50	50	50	50
Cc	128.009	128.009	128.009	128.009
Fa perlu (kg/cm <sup>2</sup> )	1294.533	1294.533	1294.533	1294.533
A perlu (cm <sup>2</sup> )	0.085	0.576	0.030	0.408
<b>Profil dipakai</b>	<b>2L 60x60x6</b>	<b>2L 40x40x4</b>	<b>2L 40x40x5</b>	<b>2L 40x40x4</b>
A profil (cm <sup>2</sup> )	13.82	6.16	7.56	6.16
r (cm)	1.82	1.21	1.2	1.21
bf (cm)	6	4	4	4
tf (cm)	0.6	0.4	0.5	0.4
<b>Kontrol Local Buckling</b>	<b>Ok!</b>	<b>Ok!</b>	<b>Ok!</b>	<b>ok!</b>
<b>Kontrol Beban</b>				
kL/r	98.901	148.760	151.500	76.099
Cc	128.009	128.009	128.009	128.009
Fa ada (kg/cm <sup>2</sup> )	936.123	1261.198	1370.172	1354.679
P ada (kg)	12937.220	7768.980	10358.500	18721.673
	<b>Ok!</b>	<b>Ok!</b>	<b>Ok!</b>	<b>ok!</b>

Tabel 12. Perencanaan Batang Tarik K4

	Batang Tarik			
	Atas	Bawah	Vertikal	Diagonal
Gaya Batang (kg)	109.600	68.340	4.980	102.470
Panjang (cm)	180	180	181.8	138.5
Fy (kg/cm <sup>2</sup> )	2531	2531	2531	2531
Fu (kg/cm <sup>2</sup> )	4077	4077	4077	4077
r min (cm)	0.750	0.750	0.758	0.577
A netto perlu (cm <sup>2</sup> )	0.072	0.045	0.003	0.067
<b>Profil dipakai</b>	<b>2L 60x60x6</b>	<b>2L 40x40x4</b>	<b>2L 40x40x5</b>	<b>2L 40x40x4</b>
A profil (cm <sup>2</sup> )	13.82	6.16	7.56	6.16
r (cm)	1.82	1.21	1.2	1.21
tw (cm)	0.6	0.4	0.5	0.4
d baut (cm)	1.27	1.27	1.27	1.27
<b>Kontrol Kelangsingan :</b>				
$\lambda$ ada = $kL/r \leq 240$	98.901	148.760	151.500	114.463
	<b>Ok!</b>	<b>Ok!</b>	<b>Ok!</b>	<b>Ok!</b>
<b>Kontrol Tegangan :</b>				
<b>Batang tdk ada lubang</b>				
Fa (kg/cm <sup>2</sup> )	1518.6	1518.6	1518.6	1518.6
fa (kg/cm <sup>2</sup> )	7.931	11.094	0.659	16.635
	<b>Ok!</b>	<b>Ok!</b>	<b>Ok!</b>	<b>Ok!</b>
<b>Batang ada lubang</b>				
A netto profil (cm <sup>2</sup> )	11.915	4.890	5.973	4.890
A efektif (cm <sup>2</sup> )	8.936	3.668	4.479	3.668
Fa (kg/cm <sup>2</sup> )	2038.500	2038.500	2038.500	2038.500
fa (kg/cm <sup>2</sup> )	12.265	899.307	1270.700	310.919
	<b>Ok!</b>	<b>Ok!</b>	<b>Ok!</b>	<b>Ok!</b>







288	T. kiri	-52.14	-22.29	9.68	-10.07	8.51E-02	-7.47E-02	-98.23	-65.63	-86	-72.68	-78.95	-66.41	-65.21	-79.06	-72.56
	Lap	9.95	4.67	-1.07	1.16	-5.77E-02	5.53E-02	19.42	13.72	16.01	14.47	15.26	16.1	13.63	15.29	14.44
	T. kanan	-11.93	-5.63	-11.82	12.39	-2.00E-01	1.85E-01	-23.32	-30.32	-5.37	-21.78	-13.91	-4.77	-30.92	-13.75	-21.94
	T. kiri	-122.66	-46.73	17.81	-3.43	-17.36	3.27	-221.96	-155.33	-190.57	-170.95	-174.96	-190.16	-155.75	-174.99	-170.91
290-292	Lap	50.41	20.14	1.06E-01	-5.68E-01	-4.02E-02	5.45E-01	92.71	71.89	72.03	71.4	72.52	72.09	71.83	72.52	71.4
	T. kanan	-58.29	-25.03	-4.54	5.67	4.26	-5.44	-109.99	-87.83	-81.87	-80.33	-89.37	-82.1	-87.61	-89.22	-80.48
	T. kiri	-49.06	-21.27	4.31	3.97E+00	-4.3	-3.83E+00	-92.9	-65.84	-77.39	-66.09	-77.14	-77.34	-65.89	-76.99	-66.24
293-294	Lap	8.29	3.91	6.78E-01	-4.15E+00	2.59E-01	4.00E+00	16.2	11.89	13.83	8.53	16.75	13.87	11.83	16.62	8.06
	T. kanan	-53.58	-22.76	-5.2	4.69	5.02	-4.5	-100.7	-81.75	-73.77	-74.48	-81.04	-73.91	-81.61	-80.9	-74.62
	T. kiri	-67.67	-28.23	3.24	5.34	-3.35	-5.12	-126.38	-92.65	-102.82	-91.11	-104.36	-102.87	-92.6	-104.17	-91.3
295-297	Lap	45.6	18.82	3.36E-02	-2.15	4.75E-02	2.05	84.83	65.02	66.31	63.42	67.91	66.36	64.97	67.84	63.49
	T. kanan	-68.53	-28.48	-3.37	5.27	3.25	-5.05	-127.79	-100.74	-96.99	-94.4	-103.33	-97.04	-100.69	-103.14	-94.58
	T. kiri	-57.14	-23.85	4.89	4.39	-5.07	-4.21	-106.73	-76.02	-89.05	-76.38	-88.69	-89.19	-75.88	-86.56	-76.51
298-299	Lap	13.22	5.54	5.21E-01	-4.44E-01	-3.65	3.52	24.73	18.51	19.72	15.45	22.79	19.76	18.48	22.67	15.56
	T. kanan	-52.99	-22.73	-4.57	3.55	4.58	-3.42	-99.96	-80.81	-73.44	-74.83	-79.41	-73.39	-80.86	-79.27	-74.98
	T. kiri	-61.81	-26.47	4.01	-4.29	5.44	-5.22	-116.53	-83.99	-95.84	-82.94	-96.89	-96.07	-83.77	-96.75	-83.09
300-302	Lap	51.77	20.67	-2.75E-02	9.44E-02	-5.92E-01	5.68E-01	95.19	73.68	74.11	73.26	74.52	74.17	73.61	74.52	73.26
	T. kanan	-126.8	-48.22	-17.32	17.76	-3.32	3.16	-229.32	-197.95	-159.48	-187.66	-169.77	-159.07	-198.36	-169.8	-187.63
	T. kiri	-21.65	-5.35	1.15	70.38	-1.31E-01	-69.22	-34.53	-4.41	-51.15	46.48	-102.04	-49.72	-5.84	-100.5	44.94
176	Lap	2.72	-1.87E-01	-6.66E-02	-4.72	1.10E-02	4.71	2.96	1.12	4.23	-2.3	7.65	4.17	1.18	7.62	-2.28
	T. kanan	-4.59	6.38E-01	-1.28	-79.82	1.53E-01	78.64	-4.49	-30.7	22.27	-88.43	79.99	20.72	-29.15	78.4	-86.84
	T. kiri	-1.48E-01	4.51E-02	-1.24	5.76E-01	1.18	-5.52E-01	-1.05E-01	-1.23	1.01	1.01E-01	-3.26E-01	9.49E-01	-1.17	-3.21E-01	9.64E-02
186	Lap	-11.6	-3.99	3.08E-01	3.44E+00	-2.82E-01	-3.33	-20.3	-14.54	-17.35	-12.23	-19.66	-17.29	-14.6	-19.53	-12.36
	T. kanan	-60.24	-24.33	1.86	6.31	-1.74	-6.11	-111.23	-82.31	-90.19	-79.04	-93.46	-90	-82.5	-93.22	-79.29
	T. kiri	-57.62	-24.84	-1.36E-01	14.4	2.15E-01	-13.93	-108.89	-79.58	-88.37	-68.9	-99.05	-88.14	-79.81	-98.53	-69.41
183-185	Lap	31.62	13.76	3.72E-01	2.03	7.26E-01	-1.95	61.67	47.23	48.33	48.45	47.49	48.3	47.23	47.51	48.38
	T. kanan	-55.75	-19.31	2.41E-01	-9.12	-3.69E-01	8.88	-97.8	-79.41	-74.17	-86.29	-67.29	-74.38	-79.2	-67.58	-86
	T. kiri	-53.83	-14.44	-2.74	4.86	2.08	-4.77	-87.7	-71.51	-68.82	-65.92	-74.41	-69.48	-70.85	-74.52	-65.81
182	Lap	-14.54	-3.02	-7.83E-01	1.36E-01	5.98E-01	-1.30E-01	-22.28	-18.9	-17.34	-18.22	-18.02	-17.53	-18.71	-18.07	-18.17
	T. kanan	3.4	-2.78E-01	1.18	-4.59	-8.86E-01	4.51	3.64	3.1	3.52	-1.14	7.76	3.8	2.82	7.76	-1.15
	T. kiri	1.02	4.20E-01	7.44E-01	-3.78E-03	-7.08E-01	-1.26E-03	1.89	2.25	6.86E-01	1.7	1.24	7.22E-01	2.21	1.24	1.69
187	Lap	-13.91	-4.63	-1.22	3.91	1.15	-3.77	-24.09	-19.02	-18.93	-15.26	-22.69	-18.95	-18.99	-22.57	-15.38
	T. kanan	-60.03	-25.99	-3.17	7.81	3.01	-7.54	-120.82	-94.76	-93.02	-86.68	-101.09	-93.1	-94.67	-100.86	-86.92
	T. kiri	-78.46	-31.48	-3.96	16.71	3.68	-16.13	-144.53	-111.03	-113.24	-95.84	-128.43	-113.35	-110.92	-127.91	-96.36
188-189	Lap	44.41	17.03	2	1.54	-1.03	-5.30	81.82	68.03	60.93	65.72	61.24	60.99	65.96	61.35	65.61
	T. kanan	-69.4	-23.53	-2.2	-8.92	2.51	9.57	-120.83	-100.54	-89.66	-106.22	-84	-89.46	-100.76	-84.27	-105.95
	T. kiri	01.27	-10.04	1.33	6.5	-5.90E-01	-6.42	-100.14	-70.61	-83.5	-72.81	-87.3	-82.7	-77.41	-86.98	-73.13
189	Lap	-10.15	-4.12	1.24E-01	3.24E-01	1.11E-01	-3.32E-01	-20.37	-22.72	-23.18	-22.57	-23.33	-22.94	-22.96	-23.26	-22.64

172	T.kanan	3.61	-2.62E-01	-1.08	-5.85	8.13E-01	5.76	3.91	5.57E-01	6.52	-2.95	10.02	6.2	8.72E-01	9.84	-2.76
	T.kiri	-36.87	-10.19	-2.34	110.3	6.15E-01	-107.83	-60.55	-16.06	-80.63	66.74	-163.42	-81.67	-15.02	-161.38	64.69
	Lap	-3.1	-2.01	8.94E-02	-6.42	8.87E-03	6.39	-6.94	-7.08	-3.23	-11.86	1.55	-3.13	-7.18	1.56	-11.87
	T.kanan	-9.98E-01	1.84	2.52	-123.13	-5.98E-01	120.62	1.74	-35.45	36.83	-127.81	129.19	38.06	-36.68	127.15	-125.78
	T.kiri	6.74	2.39	-3.97E-01	5.58E-01	3.78E-01	-5.35E-01	11.91	9.09	9.58	9.79	8.87	9.56	9.11	8.89	9.78
202	Lap	-30.76	-10.12	9.27E-01	4.23E+00	-9.65E-01	-4.06	-53.11	-39.55	-44.17	-37.13	-46.6	-44.15	-39.57	-46.43	-37.29
	T.kanan	-84.24	-28.95	2.25	7.9	-2.31	-7.58	-147.41	-110.96	-120.67	-106.8	-124.82	-120.62	-111	-124.5	-107.12
	T.kiri	-74.15	-25.62	8.21E-01	24.44	-1.13	-23.52	-129.98	-93.51	-110.64	-76.15	-128	-110.67	-93.48	-127.13	-77.02
199-201	Lap	37.84	13.16	-8.93E-02	1.15	4.39E-02	-1.04	66.47	52.44	51.91	53.36	50.99	51.89	52.46	51.1	53.25
	T.kanan	-31	-10.87	3.41E-01	-19.92	1.77E-02	19.24	-54.59	-48.74	-36.91	-63.63	-22.02	-36.74	-48.9	-22.61	-63.04
	T.kiri	-37.78	-10.6	-6.15E-01	122.76	-1.26	-119.55	-62.3	-11.67	-44.17	79.01	-178.39	-88.67	-10.71	-175.62	76.24
203	Lap	-3.42	-2.12	4.71E-02	-7.18E+00	6.14E-02	7.11E+00	-7.49	-7.8	-3.38	-13.12	1.93	-3.29	-7.9	1.89	-13.08
	T.kanan	-7.19E-01	2.03	7.09E-01	-137.12	1.38	133.77	2.38	-41.29	43.61	-142.59	144.91	44.75	-42.43	142.06	-139.74
	T.kiri	-3.24	-1.05	-1.14	4.06E-01	1.13	-3.91E-01	-5.56	-5.46	-3.32	-4.32	-4.45	-3.33	-5.45	-4.44	-4.33
219	Lap	-15.9	-6.26	1.25	5.64	-1.32	-5.41	-29.09	-19.52	-25.7	-16.3	-28.92	-25.7	-19.52	-28.71	-16.51
	T.kanan	-44.55	-17.78	3.64	10.87	-3.76	-10.44	-81.91	-56.33	-70.83	-51.03	-76.14	-70.82	-56.34	-75.73	-51.44
	T.kiri	-66.11	-26.91	3.48	22.36	-3.78	-21.48	-122.39	-84.15	-105.54	-70.27	-119.42	-105.58	-84.11	-118.59	-71.1
216-218	Lap	51.08	20.12	-1.28	2.04	1.23	-1.91	93.48	71.94	73.34	74.38	70.9	73.33	71.95	71.03	74.26
	T.kanan	-73.31	-24.89	1.91	-12.76	-1.62	12.25	-127.79	-102.51	-98.48	-113.29	-87.7	-98.34	-102.65	-88.14	-112.85
	T.kiri	-65.01	-17.91	-1.21E+00	7.87E+00	1.18E+00	-7.72	-106.67	-83.97	-86.4	-77.3	-93.07	-86.37	-84	-92.92	-77.45
215	Lap	-20.33	-4.84	-1.66E-01	4.33E-01	2.01E-01	-4.41E-01	-32.14	-25.96	-25.88	-25.52	-26.32	-25.85	-25.99	-26.32	-25.52
	T.kanan	3.00E+00	-4.43E-01	8.75E-01	-7.01E+00	-7.84E-01	6.84	2.89	1.44	4.02	-4.35	9.81	4.06	1.4	9.67	-4.21
	T.kiri	-2.16	-6.97E-01	1.22	5.10E-01	-1.24	-4.92E-01	-3.7	-1.48	-4.37	-2	-3.84	-4.38	-1.47	-3.83	-2.02
220	Lap	-16.23	-6.37	-1.34	5.6	1.27	-5.38	-29.66	-22.7	-23.41	-17.59	-28.52	-23.42	-22.69	-28.31	-17.8
	T.kanan	-46.28	-18.35	-3.9	10.7	3.78	-10.27	-84.9	-66.67	-65.21	-55.94	-75.94	-65.21	-66.67	-75.54	-58.34
	T.kiri	-66.2	-26.95	-3.78	22.33	3.48	-21.45	-122.55	-91.91	-98.03	-72.72	-117.22	-98.08	-91.86	-116.4	-73.54
221-223	Lap	51.16	20.14	1.24	2.05	-1.29	-1.91	93.62	74.7	70.81	75.3	70.21	70.79	74.71	70.33	75.17
	T.kanan	-73.47	-24.95	-1.64	-12.76	1.93	12.26	-126.08	-106.46	-94.97	-114.63	-86.8	-94.83	-106.6	-87.24	-114.2
	T.kiri	-65.11	-17.94	1.17	7.85	-1.19	-7.7	-106.84	-81.62	-89.03	-76.71	-93.94	-89	-81.64	-93.79	-76.86
224	Lap	-20.39	-4.86	1.93E-01	4.28E-01	-1.58E-01	-4.36E-01	-32.24	-25.66	-26.34	-25.49	-26.51	-26.3	-25.7	-26.51	-25.49
	T.kanan	2.98	-4.50E-01	-7.85E-01	-7	8.78E-01	6.83	2.86	-3.25E-01	5.73	-4.89	10.3	5.78	-3.71E-01	10.15	-4.75
	T.kiri	-37.52	-10.49	-1.29E+00	1.22E+02	-6.37E-01	-119.29	-61.81	-12.09	-86.54	78.89	-177.52	-87.56	-11.07	-174.77	76.14
207	Lap	-3.61	-2.18	5.23E-02	-1.37E-02	6.03E-02	7.11E+00	-7.82	-8.06	-3.65	-13.37	1.67	-3.55	-8.16	1.63	-13.34
	T.kanan	-1.37E+00	1.8	1.40E+00	-1.37E+02	7.57E-01	133.51	1.23	-41.38	41.9	-142.98	143.5	43.11	-42.59	140.68	-140.16
	T.kiri	-1.62	-1.91E-01	-3.19E-02	-8.23E-01	3.34E-02	7.89E-01	-2.26	-2.18	-1.59	-2.76	-1.01	-1.6	-2.17	-1.05	-2.73
236	Lap	-12.28	-4	-3.04E-02	5.73	-3.85E-02	-5.52	-21.14	-14.91	-18.45	-10.67	-22.69	-18.46	-14.9	-22.49	-10.87
	T.kanan	-38.93	-14.13	-2.88E-02	12.29	-1.10E-01	-11.83	-69.32	-50.39	-58.07	-41.33	-67.12	-58.07	-50.39	-66.68	-41.78
	T.kiri	-54	-18.92	-1.68E-01	-1.84E-01	26.23	-25.25	-95.08	-66.5	-82.67	-47.1	-102.07	-82.73	-66.44	-101.16	-48.02

233-235	Lap	38.14	13.16	2.69E-02	-7.27E-02	1.15	-1.03	66.82	52.87	52.09	53.7	51.26	52.08	52.89	51.37	53.59
	T.kanan	-31.78	-11.05	1.27E-02	3.58E-01	-19.9	19.23	-55.82	-50.07	-37.56	-64.71	-22.92	-37.38	-50.25	-23.51	-64.12
	T.kiri	-36.28	-9.84	5.34E-01	109.8	-2.35	-107.36	-59.29	-12.25	-82.55	68.07	-182.86	-83.68	-11.11	-160.86	66.07
237	Lap	-3.43	-2.06	2.04E-02	-6.38	8.45E-02	6.36	-7.42	-7.54	-3.56	-12.25	1.14	-3.46	-7.65	1.15	-12.26
	T.kanan	-2.25	1.39	-4.93E-01	-122.57	2.52	120.08	-4.83E-01	-40.18	38.07	-129.91	127.8	39.42	-41.52	125.82	-127.93
	T.kiri	-1.78	-5.61E-01	-1.06	1.1	8.44E-02	-8.64E-02	-3.03	-3.48	-1.31	-2.64	-2.15	-1.27	-3.53	-2.14	-2.65
253	Lap	-16.18	-6.32	1.47	-1.56	4.16	-4.01	-29.53	-20.11	-25.82	-18.14	-27.79	-25.86	-20.07	-27.67	-18.26
	T.kanan	-46.58	-18.4	4	-4.22	8.23	-7.94	-85.33	-59.49	-73.09	-56.39	-76.19	-73.22	-59.36	-75.95	-56.63
	T.kiri	-67.71	-27.28	4	-4.3	16.78	-16.19	-124.89	-87.39	-106.36	-77.99	-115.75	-106.49	-87.25	-115.23	-78.51
250-252	Lap	45.65	18.22	-1.95	1.99	1.53	-1.43	83.93	63.58	66.72	66.14	64.16	66.78	63.51	64.27	66.03
	T.kanan	-70.52	-23.84	2.55	-2.23	-9.86	9.51	-122.76	-97	-96.14	-106.12	-87.02	-95.91	-97.23	-87.28	-105.86
	T.kiri	-61.76	-16.76	-5.81E-01	1.32	6.48	-6.4	-100.92	-79.25	-82.12	-74.06	-87.31	-81.32	-80.05	-86.99	-74.38
249	Lap	-18.45	-4.19	1.18E-01	1.16E-01	3.29E-01	-3.37E-01	-28.85	-23.11	-23.57	-22.96	-23.72	-23.32	-23.35	-23.65	-23.02
	T.kanan	3.49	-2.96E-01	8.18E-01	-1.08	-5.83	5.73	3.72	2.41	4.37	-2.47	9.25	4.06	2.72	9.06	-2.29
	T.kiri	-1.1	-3.45E-01	1.31	-1.38	8.78E-01	-8.44E-01	-1.87	1.67E-01	-3.13	-1.49E-01	-2.82	-3.2	2.30E-01	-2.8	-1.62E-01
258	Lap	-12.59	-5.16	-4.28E-01	4.65E-01	3.5	-3.38	-23.37	-17.45	-18.75	-14.57	-21.64	-18.68	-17.52	-21.51	-14.7
	T.kanan	-40.07	-16.3	-2.16	2.31	6.12	-5.92	-74.16	-57.82	-57.13	-51.74	-63.22	-56.92	-58.03	-62.97	-51.98
	T.kiri	-45.58	-20.15	1.20E-01	-3.75E-02	14.27	-13.81	-86.94	-62.28	-71.52	-51.88	-81.92	-71.29	-62.52	-81.41	-52.39
255-257	Lap	32.51	14.11	-3.86E-01	3.67E-01	3.68	-1.96	61.59	47.71	47.24	49.49	45.46	47.24	47.71	45.53	49.42
	T.kanan	-56.53	-19.62	-3.63E-01	2.36E-01	-9.09	8.85	-99.23	-81.14	-74.66	-87.55	-66.24	-74.86	-80.94	-68.53	-87.27
	T.kiri	-54.09	-14.52	2.09	-2.75	4.85	-4.76	-88.14	-66.8	-74.23	-64.76	-76.27	-74.9	-66.13	-76.38	-64.65
254	Lap	-14.73	-3.09	6.01E-01	-7.86E-01	1.38E-01	-1.32E-01	-22.62	-17.71	-19.06	-18.05	-18.72	-19.25	-17.52	-18.77	-18
	T.kanan	3.27	-3.22E-01	-8.84E-01	1.18	-4.58	4.5	3.41	7.59E-01	5.5	-1.96	8.21	5.78	4.76E-01	8.22	-1.96
	T.kiri	-19.77	-4.65	-1.38E-01	70.23	1.15	-69.07	-31.16	-3.17	-47.12	48.55	-98.84	-45.7	-4.6	-97.31	47.01
241	Lap	2.6	-2.32E-01	1.22E-02	-4.71	-6.72E-02	4.7	2.74	1.04	3.98	-2.43	7.44	3.92	1.1	7.42	-2.41
	T.kanan	-6.71	-1.49E-01	1.62E-01	-79.64	-1.28	78.47	-8.29	-32.1	17.73	-90.76	76.38	16.18	-30.56	74.8	-89.17
	T.kiri	-12.02	-4.36	7.87	-7.49	9.62E-01	-9.07E-01	-21.39	-8.16	-25.31	-13.24	-20.23	-24.89	-8.58	-20.05	-13.42
164	Lap	6.92	3.23	1.77	-1.69	-7.18E-02	8.31E-02	-21.39	12.16	8.48	10.8	9.84	8.58	12.07	9.88	10.77
	T.kanan	-23.15	-7.81	-4.33	4.12	-1.11	1.07	-40.28	-36.59	-26.79	-34.22	-29.16	-27.03	-36.35	-29.27	-34.11
	T.kiri	-31.06	-10.12	4.51	-4.46	-5.17E-01	5.57E-01	-53.45	-37.59	-46.74	-41.29	-43.04	-46.68	-37.66	-42.99	-41.35
165-167	Lap	31.8	10.23	-8.46E-01	8.50E-01	2.77	-2.68	54.54	43.05	43.08	45.71	40.41	43.11	43.01	40.51	45.61
	T.kanan	-25.28	-8.23	-5.76	5.72	-5.42	5.18	-43.49	-42.06	-26.55	-41.81	-26.81	-26.67	-41.95	-27.07	-41.55
	T.kiri	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
197-198	Lap	-34.44	-11.33	0	0	0	0	-59.45	-46.87	-46.87	-46.87	-46.87	-46.87	-46.87	-46.87	-46.87
	T.kanan	-44.18	-13.91	-4.59	4.6	-7.89	7.57	-75.27	-66.84	-52.22	-69.26	-49.81	-52.31	-66.75	-50.14	-68.93
	T.kiri	-36.85	-10.77	4.58	-4.48	-8.15	7.82	-61.46	-46.63	-51.12	-55.99	-41.77	-51.12	-46.64	-42.07	-55.68
212-214	Lap	19.79	5.47	8.19E-02	-9.31E-02	3.55	-3.41	32.5	27.15	24.74	29.69	22.2	24.77	27.12	22.34	29.55
	T.kanan	-26.52	-7.43	-4.01	4.1	-7.15	6.86	6.86	-41.34	-28.41	-43.64	-26.1	-28.4	-41.34	-26.38	-43.36

231-232	T.kiri	-24.61	-7.58	5.75	-5.77	-6.03	5.77	-41.65	-28.88	-37.14	-37.52	-28.48	-37.24	-28.76	-28.76	-37.24	-28.76	-37.24
	Lap	1.57	5.79E-01	4.43E-01	-4.57E-01	3.26	-3.14	2.81	3.69	7.06E-01	5.76	-1.36	7.30E-01	3.67	3.67	7.30E-01	-1.24	5.64
	T.kanan	1.54	5.62E-01	-5.19E-01	5.30E-01	2.87	-2.77	2.75	2.51	1.79	4.99	-6.98E-01	1.83	2.46	2.46	1.83	-5.93E-01	4.89
246-248	T.kiri	-31.95	-9.19	3.64	-3.6	-7.79	7.48	-53.03	-40.86	-43.59	-49.26	-35.19	-43.65	-40.8	-40.8	-35.51	-35.51	-48.94
	Lap	22.87	6.41	4.79E-01	-4.59E-01	2.64	-2.55	37.71	31.41	28.74	33	27.15	28.79	31.36	31.36	27.25	27.25	32.9
	T.kanan	-25.67	-7.33	-4.29	4.32	-1.23	1.24	-42.53	-38.77	-28.99	-36.52	-31.24	-28.95	-38.81	-38.81	-31.21	-31.21	-36.55
264	T.kiri	-21.59	-6.69	5.83	-6.13	-1.44	1.39	-36.61	-23.32	-34.66	-28.67	-29.31	-34.98	-22.99	-22.99	-29.46	-29.46	-28.52
	Lap	5.76	2.57	-1.59	1.67	-1.97E-01	2.01E-01	11.02	6.75	10.2	7.77	9.18	10.3	6.65	6.65	9.21	9.21	7.74
	T.kanan	-8.64	-2.92	-9	9.48	1.05	-9.91E-01	-15.05	-20.96	-2	-13.57	-10.1	-2.2	-21.47	-21.47	-9.89	-9.89	-13.78





342-344	T.kiri Lap	-46.54 3.20E+01	-20.43 13.98	6.22E-02 3.21E-01	-4.86E-02 -3.16E-01	1.11E+01 2.08E+00	-10.62 -2	-88.53 60.78	-64.61 47.81	-71.73 45.83	-56.51 49.11	-79.83 44.54	-71.56 45.86	-64.77 47.79	-79.33 44.62	-57 49.03
347-349	T.kanan	-55.83	-19.53	3.04E-01	-2.48E-01	-8.05E+00	7.79	-98.25	-79.3	-74.86	-85.44	-68.73	-74.89	-79.27	-68.98	-85.18
	T.kiri Lap	-69.73	-28.03	-3.44	3.19	14.18	-13.51	-128.52	-98.85	-100.55	-85.9	-113.51	-100.61	-98.79	-112.89	-86.52
345	T.kanan	4.48E+01	18.04	1.62	-1.56	1.29	-1.2	82.6	66.18	61.96	65.93	62.21	62.06	66.08	62.32	65.82
	T.kiri Lap	-69.67	-23.77	-1.87	1.93	-8.43	8.03	-121.64	-100.23	-91	-105.06	-86.17	-91.06	-100.18	-86.57	-104.66
346	T.kanan	-1.11	-3.66E-01	-1.11	1.04E+00	7.36E-01	-6.97E-01	-1.92	-2.44	-5.85E-01	-1.09	-1.94	-6.46E-01	-2.38	-1.92	-1.11
	T.kiri Lap	-1.30E+01	-5.27	4.06E-01	-3.81E-01	2.75E+00	-2.63	-23.98	-17.3	-19.88	-15.58	-21.6	-19.82	-17.36	-21.47	-15.71
322-324	T.kanan	-40.79	-16.49	1.92	-1.8	4.76	-4.56	-75.34	-54.9	-61.93	-52.82	-64.02	-61.74	-55.09	-63.78	-53.06
	T.kiri Lap	-1.58	-4.92E-01	8.92E-01	-8.52E-01	3.45E-02	-4.01E-02	-2.68	-1.17	-3.07	-1.8	-2.44	-3.03	-1.21	-2.43	-1.81
356-357	T.kanan	-1.68E+01	-6.54	-1.25	1.18	3.49	-3.33	-30.61	-24.02	-23.59	-20.54	-27.08	-23.62	-24	-26.93	-20.69
	T.kiri Lap	-47.99	-18.9	-3.4	3.21	6.95	-6.61	-87.83	-69.63	-66.87	-62.02	-74.47	-66.97	-69.53	-74.18	-62.32
361	T.kanan	-26.53	-7.63	3.85	-3.74	-1.05	1.08	-44.04	-31.36	-38.78	-34.96	-35.18	-38.65	-31.48	-35.11	-35.02
	T.kiri Lap	2.21E+01	6.13	-2.78E-01	2.99E-01	2.17E+00	-2.07	36.3	29.36	28.58	31.16	26.79	28.64	29.31	26.9	31.05
358-360	T.kanan	-30	-8.6	-3.14	3.1	-6.32	5.96	-49.77	-44.92	-34.35	-47.26	-32	-34.5	-44.76	-32.4	-46.86
	T.kiri Lap	-25.13	-7.73	4.59	-4.43	-3.61	3.43	-42.53	-30.01	-37.37	-36.04	-31.34	-37.26	-30.12	-31.48	-35.9
437-438	T.kanan	2.28E+00	8.13E-01	-3.73E-01	3.67E-01	2.73E+00	-2.59	4.04	3.63	2.7	5.91	4.14E-01	2.73	3.6	5.55E-01	5.77
	T.kiri Lap	-24.12	-7.38	-4.48	4.44	-5.18	4.89	-40.75	-38.63	-25.96	-39.15	-25.44	-26.09	-38.5	-25.77	-38.83
452-453	T.kiri Lap	-1.65	-2.06E-01	1.53E-02	-1.89E-02	-6.82E-01	6.42E-01	-2.31	-2.13	-1.73	-2.64	-1.22	-1.74	-2.11	-1.26	-2.6
	T.kanan	-1.26E+01	-4.12	-1.44E-02	-3.21E-02	4.83E+00	-4.58	-21.75	-15.65	-18.66	-12.09	-22.23	-18.63	-15.68	-21.98	-12.33
362	T.kanan	-39.59	-14.36	-4.42E-02	-4.53E-02	1.04E+01	-9.81	-70.48	-51.93	-58.35	-44.29	-65.99	-58.28	-52	-65.46	-44.82
	T.kiri Lap	-56.03	-19.66	-8.92E-02	-1.65E-01	2.22E+01	-21.02	-98.69	-70.53	-84.29	-54.18	-100.64	-84.2	-70.62	-98.53	-55.29
363-365	T.kanan	3.60E+01	12.5	-7.14E-02	2.62E-02	8.73E-01	-7.74E-01	63.22	49.83	49.43	50.52	48.73	49.41	49.84	48.82	50.43
	T.kiri Lap	-30.87	-10.81	2.88E-01	2.50E-02	-1.69E+01	16.13	-54.34	-47.67	-37.6	-60.33	-24.93	-37.52	-47.74	-25.69	-59.57
366	T.kiri Lap	-50.52	-21.92	3.19	-3.04	-4.26	4.08	-95.7	-71.75	-75.77	-77.23	-70.3	-75.67	-71.86	-70.43	-77.09
	T.kanan	1.56E+01	6.31	2.22E-01	-2.17E-01	3.59E+00	-3.42	28.84	23.72	21	26.2	18.52	21.06	23.66	18.7	26.02
364	T.kanan	-54.47	-23.21	-3.44	3.38	-5.16	4.9	-102.49	-84.36	-73.88	-85.63	-72.62	-74.02	-84.22	-72.91	-85.34
	T.kiri Lap	-52.83	-22.53	3.42	-3.39	2.96	-2.81	-99.43	-72.23	-81.28	-72.57	-80.94	-81.2	-72.31	-80.77	-72.74
365	T.kanan	1.44E+01	5.95	2.86E-01	-2.08E-01	-2.89E+00	2.75	26.83	20.16	21.38	17.82	23.72	21.42	20.12	23.6	17.94
	T.kiri Lap	-57.38	-23.97	-3.87	3.7	3.73	-3.52	-107.21	-85.79	-80.01	-80.21	-85.59	-80.13	-85.67	-85.43	-80.37
367	T.kiri Lap	-26.43	-6.31	4.66E-01	-1.92	96.06	-92.53	-41.8	-2.96	-64.46	67.31	-134.72	-64.87	-2.54	-131.46	64.05
	T.kanan	-6.31E-03	9.75E-01	1.64E-02	4.27E-02	-4.08	4.2	-1.57	-2.2	3.41E-01	-5.21	3.35	4.40E-01	-2.3	3.49	-5.35
368-369	T.kanan	-5.25	2.44E-02	-4.34E-01	2.01	-104.23	100.92	-6.26	-38.78	27.79	-115.07	104.08	28.41	-39.39	101.11	-112.09
	T.kiri Lap	-87.38	-14.14	20.04	-20.04	-7.56	7.34	-127.48	-86.45	-123.77	-106.74	-103.49	-123.84	-86.38	-103.72	-106.5
370-371	T.kanan	4.45E+01	7.65	-9.33E-03	-1.18E-02	3.58E+00	-3.48	65.63	55.07	52.83	57.71	50.19	52.84	55.06	50.3	57.61
	T.kiri Lap	-87.23	-14.08	-20.04	20.05	-7.55	7.32	-127.21	-128.33	-81.48	-119.14	-90.67	-81.55	-128.26	-90.9	-118.91
372-373	T.kanan	-25.86	-6.11	-1.89	4.54E-01	9.62E+01	-92.62	-40.83	-4.64	-61.26	67.42	-133.32	-61.65	-4.25	-130.06	64.16
	T.kiri Lap	2.70E-02	-9.62E-01	4.46E-02	1.31E-02	-4.08E+00	4.2	-1.51	-2.12	3.59E-01	-5.16	3.39	4.56E-01	-2.22	3.53	-5.3

	T.kanan	-5.73	-1.47E-01	1.98	-4.28E-01	-1.04E+02	101.02	-7.11	-36.94	24.63	-115.08	102.76	25.21	-37.53	99.78	-112.09
	T.kiri	-62.27	-17.11	-1.02	1.04	5.94	-5.76	-102.1	-60.76	-82.35	-75.64	-87.47	-82.27	-80.84	-87.27	-75.84
374	Lap	-1.88E+01	-4.39	-1.51E-01	1.91E-01	3.58E-01	-3.37E-01	-29.59	-23.94	-23.85	-23.57	-24.22	-23.8	-23.99	-24.19	-23.6
	T.kanan	3.29	-3.31E-01	7.20E-01	-6.62E-01	-5.23E+00	5.09	3.42	2.25	4.04	-2.12	8.41	4.05	2.24	8.28	-1.99
	T.kiri	-62.23	-17.09	1.05	-1.03	5.95E+00	-5.77	-102.02	-78.51	-84.47	-74.91	-88.07	-84.39	-78.59	-87.87	-75.11
383	Lap	-1.88E+01	-4.38	1.95E-01	-1.58E-01	3.58E-01	-3.39E-01	-29.56	-23.56	-24.19	-23.44	-24.31	-24.14	-23.6	-24.28	-23.47
	T.kanan	3.28	-3.35E-01	-6.62E-01	7.20E-01	-5.23E+00	5.09	3.4	7.83E-01	5.47	-2.58	8.83	5.49	7.88E-01	8.7	-2.44
	T.kiri	-69.57	-28.02	2.78	-3.02	18.89	-17.89	-128.32	-90.66	-108.4	-78.82	-120.24	-108.33	-90.73	-119.26	-79.8
375-377	Lap	4.98E+01	19.61	-1.02	9.83E-01	1.58E+00	-1.46	90.89	70.03	71.19	71.94	69.27	71.18	70.03	69.39	71.83
	T.kanan	-72.05	-24.6	1.48	-1.22	-11.24	10.63	-125.83	-100.89	-96.92	-110.23	-87.57	-96.84	-100.97	-88.13	-109.68
	T.kiri	-69.62	-28.05	-3.03	2.79	18.88	-17.88	-128.42	-96.84	-102.37	-80.73	-118.48	-102.3	-96.91	-117.5	-81.71
380-382	Lap	4.98E+01	19.61	9.78E-01	9.78E-01	1.58	-1.46	90.86	72.11	69.06	72.55	68.82	69.06	72.11	68.73	72.43
	T.kanan	-72.03	-24.61	-1.22	1.47	-11.23	10.63	-125.8	-103.7	-94.06	-111.06	-86.7	-93.99	-103.78	-87.26	-110.5
	T.kiri	-64.03	-28.43	2.95	-2.89	-6.95	6.62	-122.34	-93.2	-95.02	-100.48	-87.74	-95.06	-93.16	-88.07	-100.15
439-441	Lap	4.24E+01	18.7	-3.36E-04	1.53E-03	3.31E+00	-3.16	80.77	63.21	61.12	65.65	58.69	61.17	63.16	58.85	65.49
	T.kanan	-64.08	-28.4	-2.9	2.96	-6.97	6.63	-122.33	-99.35	-88.88	-102.35	-85.89	-88.92	-99.31	-86.22	-102.02
	T.kiri	-69.43	-28.82	2.73	-2.83	4.5	-4.25	-129.42	-95.85	-104.41	-94.55	-105.71	-104.43	-95.82	-105.48	-94.78
454-456	Lap	4.52E+01	18.65	3.61E-02	3.87E-02	-1.84E+00	1.73	84.02	64.5	65.58	63.12	66.95	65.62	64.45	66.87	63.21
	T.kanan	-69.49	-28.79	-2.83	2.73	4.47	-4.23	-129.45	-101.74	-96.61	-96.37	-103.97	-98.64	-101.71	-103.75	-96.6
	T.kiri	-26.93	-7.56	-3.26	3.33	-6.15	5.81	5.81	-40.78	-30.06	-42.91	-27.94	-30.1	-40.75	-28.27	-28.27
371-373	Lap	1.97E+01	5.44	-1.75E-03	1.87E-03	3.11E+00	-2.94	32.38	26.84	24.88	29.12	22.6	24.94	26.78	22.77	28.95
	T.kanan	-26.96	-7.57	3.34	-3.26	-6.14	5.8	-44.46	-33.89	-37.03	-40.86	-30.06	-37.06	-33.86	-30.39	-40.53
	T.kiri	-2.08	-6.69E-01	-9.76E-01	9.60E-01	4.34E-01	-4.13E-01	-3.57	-22.18	-1.93	-2.67	-2.97	-1.94	-3.7	-2.95	-2.69
378	Lap	-1.75E+01	-6.76	1.01	-1.06	4.72	-4.47	-31.77	-22.18	-27.26	-19.45	-29.99	-27.24	-22.2	-29.74	-19.7
	T.kanan	-48.81	-19.18	2.99	-3.07	9	-8.52	-89.26	-63.4	-75.35	-58.98	-79.77	-75.29	-63.46	-79.29	-59.46
	T.kiri	-2.06	-6.64E-01	9.62E-01	-9.77E-01	4.40E-01	-4.18E-01	-3.54	-1.65	-3.94	-2.03	-3.56	-3.95	-1.64	-3.54	-2.05
379	Lap	-1.75E+01	-6.77	-1.06	1.01	4.71	-4.46	-31.8	-24.38	-25.12	-20.13	-29.36	-25.09	-24.4	-28.11	-20.38
	T.kanan	-48.87	-19.2	-3.09	3	8.99	-8.51	-89.35	-69.86	-69.04	-60.98	-77.92	-68.98	-69.92	-77.44	-61.46
	T.kiri	-24.02	-7.36	4.47	-4.5	-5.14	4.85	-40.59	-29.1	-35.24	-36.16	-28.17	-35.36	-28.97	-28.49	-35.84
390-391	Lap	2.33E+00	8.33E-01	-3.84E-01	4.09E-01	2.42E+00	-2.3	4.12	3.59	2.87	5.64	8.14E-01	2.93	3.52	9.39E-01	5.52
	T.kanan	-25.2	-7.77	-4.46	4.61	-3.67	3.49	-42.69	-39.65	-27.97	-39.07	-28.55	-27.98	-39.75	-28.7	-38.93
	T.kiri	-1.65	-2.03E-01	-1.92E-02	1.42E-02	-6.87E-01	6.47E-01	-2.3	-2.16	-1.68	-2.65	-1.19	-1.7	-2.14	-1.24	-2.6
395	Lap	-1.26E+01	-4.11	-3.14E-02	-1.18E-02	4.85E+00	-4.6	-21.73	-15.65	-18.64	-12.07	-22.23	-18.61	-15.69	-21.98	-12.32
	T.kanan	-39.61	-14.33	-4.36E-02	-3.78E-02	1.04E+01	-9.84	-70.46	-51.91	-58.35	-44.24	-66.01	-58.27	-51.99	-65.48	-44.78
	T.kiri	-56.06	-19.57	-1.61E-01	-8.01E-02	2.22E+01	-21.07	-98.58	-70.53	-84.18	-54.1	-100.61	-84.07	-70.63	-99.5	-55.21
392-394	Lap	3.59E+01	12.4	2.88E-02	-7.37E-02	8.74E-01	-7.74E-01	62.95	49.75	49.14	50.37	48.51	49.12	49.76	48.6	50.28
	T.kanan	-30.91	-10.76	2.15E-02	2.84E-01	-1.70E+01	16.15	-54.29	-47.94	-37.29	-60.42	-24.8	-37.23	-37.23	-25.56	-59.66
	T.kiri	-54.48	-23.12	3.38	-3.43	-5.17	4.91	-102.37	-77.14	-80.97	-83.42	-74.69	-81.11	-77	-74.98	-83.13

442-443	Lap	1.56E+01	6.34	4.04E-01	-4.25E-01	3.81E+00	-3.62	28.86	23.99	20.75	26.49	18.24	20.78	23.95	18.44	26.3
	T.kanan	-50.58	-22.16	-3.03	3.18	-4.26	4.09	-96.16	-78.58	-69.53	-79.48	-68.62	-69.43	-78.68	-68.76	-79.35
	T.kiri	-57.35	-23.88	3.69	-3.86	3.71	-3.51	-107.02	-77.74	-87.82	-77.72	-87.84	-87.94	-77.62	-87.68	-77.88
457-458	Lap	1.45E+01	5.98	4.38E-01	-3.68E-01	-3.12E+00	2.96	26.96	20.34	21.39	17.73	24.01	21.41	20.32	23.86	17.87
	T.kanan	-52.92	-22.72	-3.38	3.41	2.98	-2.83	-99.86	-79.64	-74.43	-74.97	-79.1	-74.35	-79.72	-78.93	-75.14
	T.kiri	-25.1	-5.71	1.16	-2.24	85.85	-83.13	-39.25	-3.49	-60.01	58.76	-122.25	-60.29	-3.21	-119.74	56.24
396	Lap	6.20E+02	-9.10E-01	7.42E-04	4.31E-02	-3.62E+00	3.78	-1.38	-1.94	3.47E-01	-4.6	3.01	4.41E-01	-2.03	3.19	-4.77
	T.kanan	-6.45	-4.40E-01	-1.16	2.33	-93.09	90.68	-8.44	-37.73	23.36	-105.3	90.93	23.82	-38.2	88.76	-103.14
	T.kiri	-90.47	-15.4	1.93E+01	-21.22	-3.85	3.87	-133.2	-90.48	-128.62	-107.5	-111.59	-130.61	-88.48	-112.17	-106.92
397-399	Lap	4.64E+01	8.22	1.40E-01	-1.19E-01	2.54E+00	-2.49	68.79	57.4	55.5	59.16	53.74	55.54	57.36	53.79	59.11
	T.kanan	-92.25	-15.36	-19.96	21.85	-6.82	6.6	-135.27	-134.48	-88.27	-124.82	-97.93	-86.35	-136.4	-97.57	-125.18
	T.kiri	-13.25	-2.36	-1.84	2.47	51.13	-50.42	-19.67	-1.97	-30.31	36.97	-69.24	-29.43	-2.85	-68.31	36.03
400	Lap	3.83E+00	2.09E-01	4.29E-02	-5.66E-02	-2.61E+00	2.69	4.94	3.45	5	1.5	6.95	5.01	3.44	7.03	1.42
	T.kanan	-10.75	-1.55	1.93	-2.58	-56.35	55.8	-15.39	-28.48	2.97	-71.31	45.8	2.11	-27.62	45.02	-70.53
	T.kiri	-59.43	-16.09	-6.28E-01	8.02E-01	5.31E+00	-5.17	-97.05	-76.58	-78.61	-72.22	-82.97	-78.38	-76.81	-82.77	-72.42
408	Lap	-1.72E+01	-3.82	3.17E-02	2.72E-02	4.05E-01	-3.80E-01	-26.72	-21.48	-21.8	-21.2	-22.07	-21.73	-21.55	-22.03	-21.25
	T.kanan	3.72	-2.16E-01	6.92E-01	-7.48E-01	-4.50E+00	4.41	4.12	3.01	4.39	-8.03E-01	8.21	4.3	3.1	8.1	-6.96E-01
	T.kiri	-52.49	-14.16	1.57	-1.69	2.9	-2.86	-85.64	-65.93	-71.06	-64.96	-72.03	-71.17	-65.82	-72.03	-64.96
413	Lap	-1.39E+01	-2.88	4.52E-01	-4.76E-01	-9.08E-02	9.20E-02	-21.3	-16.88	-17.77	-17.28	-17.37	-17.8	-16.85	-17.38	-17.27
	T.kanan	3.32	-2.70E-01	-6.68E-01	7.38E-01	-3.08E+00	3.04	3.55	1.56	4.9	-2.15E-01	6.67	4.96	1.5	6.66	-2.00E-01
	T.kiri	-29.97	-8.6	3.09	-3.13	-6.38	6.01	-49.72	-38.36	-40.82	-45.32	-33.86	-40.99	-38.2	-34.27	-44.82
405-407	Lap	2.21E+01	6.15	3.03E-01	-2.79E-01	2.17E+00	-2.08	36.35	30.01	28.01	31.38	26.63	28.06	29.95	26.74	31.27
	T.kanan	-26.52	-7.64	-3.74	3.85	-1.03	1.06	-44.05	-39.32	-30.82	-37.33	-32.81	-30.69	-39.45	-32.74	-37.4
	T.kiri	-69.71	-27.91	3.2	-3.45	14.22	-13.55	-128.31	-91.73	-107.42	-83.63	-115.51	-107.47	-91.68	-114.89	-84.26
409-411	Lap	4.47E+01	17.93	-1.55	1.61	1.3	-1.21	82.37	62.69	65.14	64.78	63.04	65.23	62.6	63.16	64.67
	T.kanan	-69.67	-23.68	1.93	-1.86	-8.46	8.05	-121.49	-96.17	-94.89	-103.8	-87.26	-94.95	-96.11	-87.66	-103.4
	T.kiri	-46.75	-46.75	-4.95E-02	7.19E-02	1.11E+01	11.12	-88.91	-65.02	-71.92	-56.81	-80.12	-71.74	-65.19	-78.62	-57.31
414-416	Lap	3.21E+01	13.99	-3.13E-01	3.16E-01	2.08E+00	-2	60.88	47.23	46.58	48.99	44.82	46.61	47.2	44.9	48.91
	T.kanan	-55.97	-19.59	-2.50E-01	3.05E-01	-8.05E+00	7.79	-98.51	-80.08	-74.49	-85.82	-68.75	-74.51	-80.06	-69.01	-69.01
	T.kiri	-1.59	-4.96E-01	-8.55E-01	8.95E-01	3.05E-02	-3.63E-02	-2.7	-3.03	-1.25	-2.38	-1.9	-1.21	-3.07	-1.9	-2.38
412	Lap	-1.68E+01	-6.51	1.18	-1.25	3.5	-3.34	-30.56	-21.43	-26.12	-19.73	-27.83	-26.15	-21.41	-27.68	-19.88
	T.kanan	-47.97	-18.84	3.22	-8.55E-01	6.97	3.05E-02	-87.71	-62.59	-73.75	-1.25	-76.51	-73.84	-62.51	-76.21	-60.13
	T.kiri	-1.12	-3.66E-01	1.04	-1.11E+00	7.36E-01	-6.97E-01	-1.93	-2.00E-01	-2.85	-4.23E-01	-2.62	-2.91	-1.39E-01	-2.6	-4.42E-01
417	Lap	-1.30E+01	-5.28	-3.81E-01	4.09E-01	2.76E+00	-2.64	-24.05	-18.17	-19.11	-15.86	-21.41	-19.04	-18.24	-21.28	-16
	T.kanan	-40.86	-16.51	-3.66E-01	1.93	4.78	-4.58	-75.45	-58.89	-58.12	-54.06	-62.96	-57.93	-59.09	-62.71	-54.31
	T.kiri	-58.19	-26.74	3.49	-3.66	-6.2	5.94	-112.62	-84.67	-88.09	-91.79	-80.96	-88.35	-84.41	-81.29	-91.47
444-446	Lap	4.44E+01	19.22	-5.40E-01	5.83E-01	1.43E+00	-1.37	84.06	64.69	64.93	66.14	63.48	64.99	64.63	63.55	66.06
	T.kanan	-77.14	-32.67	-3.34	3.55E+00	1.27E-01	-1.16E-01	-144.83	-115.33	-108.4	-112.78	-110.94	-108.17	-115.56	-110.87	-112.86

459-461	T. Kiri	-62.99	-26.91	3.44	-3.72	4.61	-4.35	-118.65	-86.51	-96.64	-85.65	-97.49	-96.85	-86.3	-97.31	-85.83
	Lap	5.15E+01	20.51	-7.68E-02	1.34E-01	-7.21E-01	6.89E-01	94.56	94.56	73.71	72.63	74.19	73.76	73.05	74.17	72.64
423	T. kanan	-126.07	-126.07	-13.85	14.51	-1.83	-1.83	-227.89	-227.89	-162.5	-183.91	-171.33	-161.86	-193.38	-171.3	-183.94
	T. Kiri	-20.19	-6.38	4.23	-4.52	-1.24	1.19E+00	-34.44	-23.17	-31.28	-27.2	-27.26	-31.6	-22.86	-27.4	-27.05
	Lap	6.09E+00	2.66	-1.2	1.32E+00	-1.99E-01	2.06E-01	11.57	7.59	10.24	8.33	9.5	10.36	7.46	9.55	8.28
	T. kanan	-9.36	-3.05	-6.64	7.16E+00	8.43E-01	-7.77E-01	-16.12	-19.43	-6.01	-13.93	-11.51	-5.44	-19.99	-11.28	-14.16
447	T. Kiri	-50.6	-21.75	6.94	-7.34E+00	9.77E-02	-8.08E-02	-95.52	-66.36	-81	-71.39	-75.97	-81.42	-65.94	-76.08	-71.28
	Lap	1.05E+01	4.9	-8.54E+00	9.10E-01	1.93E-02	-1.78E-02	20.37	14.77	16.43	15.37	15.83	16.55	14.65	15.87	15.33
	T. kanan	-12.46	-5.73	-8.54	9.16E+00	-5.92E-02	4.51E-02	-24.12	-27.48	-9.52	-21.25	-15.75	-8.86	-28.14	-15.57	-21.44

Load Combinations

combo 1 = 1,2 MD + 1,6 ML

combo 2 = 1,05 (MD + 0,9 ML + Mex kiri) + 0,315 Mey kiri

combo 3 = 1,05 (MD + 0,9 ML - Mex kiri) - 0,315 Mey kiri

combo 4 = 1,05 (MD + 0,9 ML + Mey kiri) + 0,315 Mex kiri

combo 5 = 1,05 (MD + 0,9 ML - Mey kiri) - 0,315 Mex kiri

combo 6 = 1,05 (MD + 0,9 ML + Mex kanan) + 0,315 Mey kanan

combo 7 = 1,05 (MD + 0,9 ML - Mex kanan) - 0,315 Mey kanan

combo 8 = 1,05 (MD + 0,9 ML + Mey kanan) + 0,315 Mex kanan

combo 9 = 1,05 (MD + 0,9 ML - Mey kanan) - 0,315 Mex kanan

**Tabel 21. Kombinasi Momen Untuk Balok Anak Lantai 4**

Frame	Letak	Mati M3	Hidup M3	Ex,kiri M3	Ey,kiri M3	Ex,kanan M3	Ey,kanan M3	Comb1 M3	Comb2 M3	Comb3 M3	Comb4 M3	Comb5 M3	Comb6 M3	Comb7 M3	Comb8 M3	Comb9 M3
561	T.kiri	-11.58	-5.47	5.38	-4.41E+00	-2.31E-01	4.69E-01	-22.65	-11.75	-22.9	-15.87	-18.78	-21.88	-12.77	-18.46	-16.19
	Lap	9.77	4.65	6.26E-01	-6.05E-01	1.19E-01	-1.28E-01	19.18	15.35	13.97	14.98	14.34	13.99	15.34	14.34	14.98
	T.kanan	-52.84	-22.49	-4.13	3.20E+00	4.69E-01	-4.93E-01	-99.39	-80.92	-72.55	-77.54	-75.93	-73.54	-79.94	-76.25	-77.23
608	T.kiri	-10.25	-3.27	4.19	-4.15E+00	8.25E-02	-9.97E-02	-17.53	-9.43	-18.27	-12.44	-15.26	-18.24	-9.46	-15.26	-12.44
	Lap	5.98	2.62	9.37E-01	-9.05E-01	-1.75E-01	2.26E-01	11.36	9.68	7.82	8.86	8.64	7.87	9.63	8.7	8.8
	T.kanan	-19.54	-6.25	-2.31	2.34E+00	-4.32E-01	5.52E-01	-33.45	-28.99	-23.86	-27.61	8.64	-23.79	-29.06	-25.11	-27.74
485-487	T.kiri	-88.92	-15.01	-9.38	13.36	-6.49	6.3	-130.71	-119.44	-95.65	-117.32	-97.78	-91.54	-123.55	-96.72	-118.37
	Lap	46.91	8.42	1.08E-01	1.08E-01	1.05E+00	-1.03	69.77	57.66	56.77	58.35	56.08	56.98	57.45	56.15	58.27
	T.kanan	-92.53	-15.56	9.12	-13.37	1.67	-1.56	-135.93	-101.76	-121.96	-121.96	-118.49	-126.39	-97.33	-117.7	-108.02
562-564	T.kiri	-78.14	-32.95	2.58	-2.48E+00	6.27E-01	-6.82E-01	-146.48	-110.27	-116.09	-111.71	-114.85	-116	-110.38	-114.68	-111.68
	Lap	45.15	45.15	6.10E-01	-3.34E-01	5.75E-01	-5.52E-01	85.3	66.61	64.97	66.58	64.99	65.26	66.31	65.1	66.47
	T.kanan	-56.14	-25.97	-2.57	2.38	-3.79	3.65	-108.91	-87.38	-79.59	-88.28	-78.69	-79.83	-87.14	-78.9	-88.07
577-579	T.kiri	-126.9	-48.08	10.49	-8.62	-2.54E-02	-2.06E-01	-229.2	-167.67	-167.67	-175.4	-181.95	-187.79	-169.56	-181.61	-175.74
	Lap	52.15	20.74	1.41E-01	-4.58E-02	-7.82E-01	7.06E-01	95.76	74.25	74.45	73.58	75.13	74.53	74.18	74.18	73.63
	T.kanan	-61.65	-26.35	-2.65	2.42	2.61	-2.22	-116.14	-91.6	-87.67	-87.74	-91.54	-87.79	-91.48	-91.2	-88.07
609-611	T.kiri	-25.28	-7.18	3.03	-2.88E+00	-8.49E-01	1.08	-41.83	-30.42	-36.24	-33.27	-33.39	-36.01	-30.65	-33.1	-33.58
	Lap	22.67	6.36	-1.74E-01	1.49E-01	1.27E+00	-1.16	37.38	30.03	29.59	31.09	28.54	29.6	30.02	28.64	30.98
	T.kanan	-30.84	-8.93	-2.33	2.38	-3.21	2.65	-51.29	-44.27	-37.36	-44.92	-36.71	-37.48	-44.15	-37.28	-44.35
565-566	T.kiri	-50.13	-21.88	1.28	-1.43	-2.34	2.24	-95.17	-72.71	-73.92	-75.36	-71.26	-74.11	-72.52	-71.42	-75.21
	Lap	14.21	5.85	2.90E-02	-1.52E-01	2.12E+00	-1.94	26.42	21.15	19.76	22.69	18.22	19.68	21.22	18.37	22.54
	T.kanan	-54.2	-23.19	-1.61	1.67	-3.22	2.99	-102.15	-81.54	-76.12	-82.73	-74.94	-76.14	-76.14	-75.17	-82.5
580-581	T.kiri	-52.72	-22.54	1.93	-2.05	1.7	-1.48	-99.33	-74.1	-79.22	-74.27	-79.05	-79.27	-74.05	-78.86	-74.46
	Lap	13.85	5.68	1.15E-01	-1.28E-01	-1.68E+00	1.54	25.71	19.5	20.32	18.18	21.64	20.26	19.56	21.49	18.33
	T.kanan	-57.55	-24.02	-2.33	2.25	2.17	-1.92	-107.49	-84.88	-81.36	-81.57	-84.67	-81.36	-84.88	-84.43	-84.43
612-613	T.kiri	-25.85	-8.04	2.77	-2.74	-1.91	1.63	-43.88	-32.43	-37.05	-35.87	-33.61	-37.11	-32.37	-33.89	-35.59
	Lap	1.72	5.80E-01	2.59E-01	-2.53E-01	1.43E+00	-1.32	2.96	3.06	1.61	3.92	7.50E-01	1.65	3.01	8.69E-01	3.6
	T.kanan	-24.6	-24.6	-2.76	2.81	-3	2.67	-41.68	-36.86	-29.17	-37.03	-29	-29.22	-36.81	-29.32	-36.7

509-511	T.kiri	-84.79	-13.58	13.27	-13.11	-3.89	3.8	-123.48	-89.15	-114.58	-101.77	-101.97	-114.43	-89.3	-102	-101.73
	Lap	44.31	7.65	3.12E-02	3.16E-02	1.73E+00	-1.69	65.42	54.34	53.18	55.58	51.93	53.26	54.26	51.99	55.53
	T.kanan	-84.78	-13.57	-13.1	13.28	-3.82	3.74	-123.45	-116.8	-86.99	-109.98	-93.7	-86.72	-116.97	-93.73	-109.95
	T.kiri	-62.63	-28.06	1.98	-1.89	-3.95	3.7	-120.05	-91.45	-93.11	-95.81	-88.75	-93.1	-91.46	-88.99	-95.57
	Lap	42.47	18.81	5.26E-03	6.18E-03	2.02E+00	-1.91	81.06	63.01	61.72	64.49	60.24	61.77	61.77	60.37	64.37
	T.kanan	-62.62	-28	-1.89	1.98	-3.95	3.7	-119.94	-95.44	-88.98	-96.96	-87.46	-88.97	-95.45	-95.45	-96.72
	T.kiri	-68.97	-28.64	1.94	-1.98	2.66	-2.35	-128.57	-96.6	-102.34	-96.07	-102.88	-102.29	-96.65	-102.57	-96.38
	Lap	45.38	18.76	2.22E-02	2.23E-02	-1.07E+00	9.24E-01	84.48	65.07	65.7	64.27	64.27	65.7	65.07	66.36	64.41
	T.kanan	-68.97	-28.59	-1.98	1.94	2.66	-2.36	-128.51	-100.68	-98.2	-97.27	-101.61	-101.61	-100.73	-101.3	-97.57
	T.kiri	-27.12	-7.65	2.43	-2.36	-3.56	3.18	-44.78	-34.27	-37.13	-38.68	-32.72	-37.18	-34.23	-33.11	-38.29
	Lap	20.31	5.7	-8.53E-03	-7.01E-03	1.76E+00	-1.57E+00	33.49	27.25	26.16	28.55	24.86	26.21	27.21	25.06	28.36
	T.kanan	-27.13	-7.66	-2.36	2.43	-3.57	3.18	-44.81	-39.33	-32.13	-40.22	-31.23	-32.18	-39.28	-31.62	-39.84
	T.kiri	-54.2	-23.09	1.67	-1.61	-3.45E-01	2.99	-101.99	-78	-79.47	-81.59	-75.87	-79.48	-77.98	-76.1	-81.37
	Lap	14.17	5.87	2.17E-01	-3.45E-01	2.19E+00	-2	26.4	21.35	19.51	22.8	-75.87	19.44	21.42	18.22	22.64
	T.kanan	-50.13	-22.11	-1.43	1.28	-2.35	2.25	-95.53	-75.78	-71.29	-76.45	-70.61	-71.48	-75.58	-70.77	-76.29
	T.kiri	-57.54	-23.93	2.25	-2.32	2.17	-1.92	-107.33	-79.98	-86.07	-80.04	-86.01	-86.07	-79.98	-85.77	-80.28
	Lap	13.92	5.71	2.81E-01	-2.88E-01	-1.83E+00	1.67	25.84	19.73	20.29	18.17	21.85	20.24	19.79	21.67	18.35
	T.kanan	-52.74	-2.04	-2.04	1.93	1.71	1.71	-99.63	-78.44	-75.24	-75.68	-78	-75.29	-78.39	-77.8	-75.88
	T.kiri	-24.57	-7.61	2.81	-2.76	-3	2.67	-41.67	-30.99	-35	-35.25	-30.73	-35.05	-30.94	-31.06	-34.93
	Lap	1.71	5.85E-01	2.55E-01	-2.68E-01	1.63E+00	-1.49	2.99	3.13	1.57	4.15	5.55E-01	1.6	3.1	7.00E-01	4
	T.kanan	-25.85	-8.04	-2.74	2.77	-1.93	1.65	-43.89	-38.23	-31.25	-37.63	-31.85	-31.32	-38.17	-32.14	-37.35
	T.kiri	-89.03	-15.08	13.36	-9.38	-6.46	6.27	-190.97	-95.74	-119.73	-110.31	-105.16	-115.61	-99.86	-104.11	-111.36
	Lap	46.91	8.44	8.81E-02	1.08E-01	1.05E+00	-1.04	69.79	57.65	56.8	58.36	56.1	57.01	57.44	56.17	58.28
	T.kanan	-92.44	-15.54	-13.38	9.11	1.63	-1.51	-195.79	-125.28	-98.22	-114.25	-109.25	-102.65	-120.84	-110.47	-113.03
	T.kiri	-56.15	-26.2	2.38	-2.57	-3.81	3.67	-109.3	-82.42	-85.02	-86.97	-80.47	-85.26	-82.18	-80.67	-86.76
	Lap	45.15	19.48	-3.33E-01	6.10E-01	5.78E-01	-5.55E-01	85.34	65.64	65.98	66.31	65.31	66.28	65.35	65.42	66.2
	T.kanan	-78.12	-32.89	-2.48	2.58E+00	6.27E-01	-6.82E-01	-146.37	-115.52	-110.7	-113.23	-112.99	-110.62	-115.6	-113.01	-113.21
	T.kiri	-61.66	-26.51	2.43	-2.66	2.62	-2.23	-116.41	-86.42	-93.17	-86.28	-93.32	-93.29	-86.31	-92.98	-86.62
	Lap	52.1	20.74	-4.70E-02	1.42E-01	-7.84E-01	7.07E-01	95.71	74.02	74.61	73.47	75.15	74.68	73.94	75.1	73.52
	T.kanan	-126.73	-47.94	-8.62	10.49	-3.59E-02	-1.96E-01	-228.79	-187.44	-169.31	-181.13	-175.62	-167.43	-189.33	-175.28	-175.28
	T.kiri	-30.78	-8.91	2.38	-2.34	-3.23	2.68	-51.18	-39.26	-42.21	-43.37	-38.09	-42.35	-39.12	-38.66	-42.81
	Lap	22.65	6.36	1.49E-01	-1.73E-01	1.27E+00	-1.16	37.36	30.35	29.24	31.17	28.41	29.25	30.34	28.52	31.07
	T.kanan	-25.38	-7.25	-2.88	3.03E+00	-8.44E-01	1.08	-42.05	-36.79	-30.2	-35.29	-31.7	-29.97	-37.02	-31.41	-35.59
	T.kiri	-52.84	-22.46	3.2	-4.13E+00	4.69E-01	-4.93E-01	-99.34	-73.2	-80.21	-75.21	-78.21	-81.19	-72.22	-78.52	-15.39
	Lap	9.78	4.66	-6.05E-01	6.26E-01	1.19E-01	-1.28E-01	19.2	14.08	15.27	14.61	14.74	15.29	14.06	14.74	14.61
	T.kanan	-11.58	-5.48	-4.41	5.38E+00	-2.32E-01	2.38E-01	-22.66	-22.03	-18.96	-18.96	14.74	-11.61	-23.05	-15.39	-19.28
	T.kiri	-19.62	-6.3	2.34	-2.31E+00	-4.35E-01	5.55E-01	-33.63	-24.24	-28.88	-26.28	-26.84	-28.81	-24.31	-26.7	-26.41
	Lap	5.96	2.61	-9.06E-01	9.38E-01	-1.74E-01	2.25E-01	11.32	7.71	9.73	8.25	9.19	9.78	7.66	9.25	-26.41

	T.kanan	-10.2	-3.24	-4.15	4.19	8.73E-02	-1.05E-01	-17.43	-18.11	-9.44	-14.99	-12.56	-9.41	-18.14	-12.57	-14.99
488	T.kiri	-13.59	-2.34	3.05	29.07	-2.76	-28.22	-20.05	-4.12	-28.83	15	-47.96	-28.27	-4.69	-46.98	14.02
	Lap	3.12	-1.32E-01	-7.51E-02	-1.8	6.09E-02	1.66	3.53	2.5	3.79	1.24	5.06	3.73	2.56	4.91	1.38
	T.kanan	-11.85	-2.26	-3.2	-32.66	2.88	31.54	-17.83	-28.22	-9.29E-01	-49.87	20.73	-1.61	-27.54	19.45	-48.6
493	T.kiri	-51.23	-13.73	1.73E-01	-1.46E-01	1.17	4.97E-02	-83.44	-66.63	-66.9	-68.86	-68.66	-65.52	-68.01	-66.34	-67.18
	Lap	-13.51	-2.76	7.36E-02	-7.68E-01	3.47E-01	6.87E-01	-20.64	-16.96	-16.64	-17.58	-16.02	-16.22	-17.38	-15.97	-17.63
	T.kanan	2.84	-4.61E-01	-2.60E-02	-1.39	-4.78E-01	1.32	2.67	2.08	3.01	1.08	4.01	2.46	2.63	3.78	1.31
494-496	T.kiri	-46.19	-20.38	-1.84E-01	5.90E+00	-2.94E-01	-5.49	-88.03	-66.09	-68.42	-61.62	-73.89	-69.79	-65.72	-73.61	-61.9
	Lap	32.28	14.11	3.58E-01	1.64	-2.16E-01	-1.54	61.31	48.12	46.34	49.06	45.4	46.52	47.94	45.54	48.91
	T.kanan	-53.82	-18.94	4.92E-01	-5.94	9.81E-02	5.68	-94.89	-75.77	-73.05	-80.5	-68.32	-72.52	-76.3	-68.42	-80.4
625	T.kiri	-1	-3.36E-01	-7.13E-01	4.46E-01	6.80E-01	-3.82E-01	-1.74	-1.98	-7.63E-01	-1.13	-1.61	-7.78E-01	-1.96	-1.56	-1.18
	Lap	-12.86	-5.24	2.19E-01	1.48	-3.12E-01	-1.38	-23.82	-17.76	-19.16	-16.83	-20.08	-19.22	-17.69	-20.01	-16.91
	T.kanan	-40.7	-16.47	1.15	2.52	-1.3	-2.38	-75.19	-56.3	-60.3	-55.29	-61.31	-60.42	-56.18	-61.21	-55.39
706	T.kiri	-61.15	-16.51	2.25E-02	2.79	-8.44E-01	-2.85	-99.79	-78.91	-80.71	-78.87	-82.74	-81.59	-78.02	-83.06	-78.55
	Lap	-17.8	-4	-8.39E-02	-5.46E-02	-1.21E-01	-6.60E-02	-27.76	-22.57	-22.36	-22.55	-22.39	-22.62	-22.32	-22.58	-22.36
	T.kanan	4.19	-1.54E-01	-1.90E-01	-2.9	6.02E-01	2.72	4.78	3.14	5.36	1.15	7.35	5.74	2.76	7.29	1.21
497-499	T.kiri	-69.31	-27.81	-2.33	8.49	2.13	-7.74	-127.67	-98.83	-99.29	-90.87	-107.24	-99.26	-98.85	-106.51	-91.6
	Lap	46.1	18.45	1.07	7.59E-01	-9.77E-01	-5.65E-01	84.83	67.2	64.47	66.97	64.7	64.63	67.04	64.93	66.73
	T.kanan	-68.52	-23.4	-1.14	-5.46	9.59E-01	4.99	-119.66	-96.97	-91.14	-100.15	-87.96	-91.48	-96.64	-88.51	-99.8
626	T.kiri	-1.73	-5.52E-01	5.84E-01	2.02E-02	-5.87E-01	-4.44E-02	-2.96	-1.72	-2.95	-2.13	-2.54	-2.97	-1.71	-2.57	-2.1
	Lap	-16.6	-6.45	-8.57E-01	2.07	7.93E-01	-1.88	-30.24	-23.78	-23.28	-21.63	-25.43	-23.29	-23.77	-25.25	-21.8
	T.kanan	-47.46	-18.67	-2.3	4.11	2.17	-3.72	-86.82	-68.59	-66.35	-63.88	-71.07	-66.36	-68.58	-70.69	-64.28
484	T.kiri	-45.81	-10.99	-1.37	1.01	44.8	-42.78	-72.56	-45.82	-71.16	-11.88	-105.1	-70.9	-46.07	-103.09	-13.89
	Lap	-2.13	-1.69	-2.36E-02	4.24E-02	-2.69	2.24	-5.25	-4.7	-2.96	-6.66	-9.99E-01	-3.08	-4.58	-1.46	-6.2
	T.kanan	9.88	3.29	1.33	-9.24E-01	-50.18	47.26	17.12	-9.30E-01	27.9	-38.79	65.76	27.4	-4.33E-01	62.82	-35.85
505-507	T.kiri	-55.84	-19.51	4.44E-03	12.84	-1.40E-01	-11.54	-98.23	-73.03	-81.12	-63.59	-90.55	-80.86	-73.29	-89.24	-64.91
	Lap	38.85	13.39	-3.75E-02	3.99E-01	2.21E-02	-9.35E-02	68.05	53.53	53.36	53.85	53.04	53.44	53.45	53.36	53.54
	T.kanan	-29.48	-10.5	1.15E-01	-9.94	-3.20E-03	9.17	-52.17	-43.88	-37.86	-51.27	-30.48	-37.99	-43.76	-31.24	-50.51
628	T.kiri	-1.66	-2.05E-01	1.15E-02	-3.67E-01	-4.87E-03	3.12E-01	-2.32	-2.04	-1.83	-2.32	-1.56	-1.84	-2.03	-1.61	-2.26
	Lap	-12.63	-4.12	2.75E-03	2.79	-3.08E-02	-2.5	-21.75	-16.27	-18.04	-14.22	-20.09	-17.98	-16.33	-19.79	-14.52
	T.kanan	-39.59	-14.35	-6.02E-03	5.95	-5.67E-02	-5.32	-70.46	-53.26	-56.99	-48.88	-61.37	-56.86	-53.39	-60.73	-49.52
508	T.kiri	-47.41	-11.57	7.91E-01	49.43	-1.5	-46.88	-75.4	-44.31	-77.11	-8.56	-112.86	-77.05	-44.37	-110.4	-11.02
	Lap	-2.22	-1.73	4.18E-02	-2.96	8.52E-03	2.47	-5.44	-4.86	-3.08	-7.06	-8.79E-01	-3.18	-4.76	-1.37	-6.57
	T.kanan	11.3	3.77	-7.07E-01	-55.35	1.52	51.82	19.59	-2.75	33.61	-42.92	73.77	33.35	-2.49	70.32	-39.46
516	T.kiri	-64.66	-17.64	-1.01	2.57	9.59E-01	-2.68	-105.81	-84.81	-84.31	-82.18	-86.94	-84.4	-84.72	-87.08	-82.05
	Lap	-19.81	-4.63	-2.11E-01	-2.04E-01	2.14E-01	3.43E-02	-31.18	-25.46	-24.89	-25.46	-24.9	-24.94	-25.41	-25.07	-25.28
	T.kanan	3.00	-2.00E-01	6.06E-01	-2.90	-6.31E-01	2.76	3.05	3.27	3.91	6.48E-01	6.53	3.9	3.28	6.31	6.69E-01
	T.kiri	-68.61	-27.57	1.87	10.89	-2.05	-9.72	-129.45	-92.71	-103.49	-66.07	-110.12	-103.32	-92.88	-108.95	-87.24



517-519	Lap	51.66	20.25	-6.24E-01	7.66E-01	5.90E-01	-4.62E-01	94.4	72.97	73.79	73.99	72.77	73.85	72.91	73.08	73.68
	T.kanan	-70.91	-24.25	6.59E-01	-6.88	-5.29E-01	6.2	-123.89	-98.85	-95.9	-104.39	-90.36	-95.98	-98.77	-91.03	-103.72
	T.kiri	-2.11	-6.78E-01	-6.49E-01	2.53E-01	6.44E-01	-2.27E-01	-3.61	-3.45	-2.25	-2.79	-2.91	-2.25	-3.46	-2.89	-2.82
630	Lap	-17.16	-6.63	6.76E-01	2.72	-7.21E-01	-2.42	-31.19	-22.71	-25.84	-21.21	-27.34	-25.8	-22.76	-27.05	-21.51
	T.kanan	-48.2	-18.89	2	5.18	-2.09	-4.62	-88.06	-64.73	-72.19	-62.39	-74.53	-72.11	-64.81	-73.97	-62.95
	T.kiri	-1.01	-3.37E-01	6.80E-01	4.47E-01	-7.13E-01	-3.84E-01	-1.75	-5.22E-01	-2.23	-6.93E-01	-2.06	-2.25	-5.08E-01	-2	-7.49E-01
636	Lap	-12.87	-5.24	-3.13E-01	1.49	2.20E-01	-1.39	-23.84	-18.33	-18.61	-17.01	-19.93	-18.68	-18.27	-19.86	-17.09
	T.kanan	-40.72	-16.47	-1.3	2.52	1.15	-2.39	-75.22	-58.9	-57.75	-56.08	-60.56	-57.86	-58.78	-60.47	-56.18
	T.kiri	-64.66	-17.64	9.58E-01	2.56	-1.01	-2.68	-105.82	-82.75	-86.38	-81.58	-87.56	-86.47	-82.66	-87.69	-81.44
523	Lap	-19.81	-4.63	2.14E-01	-2.07E-01	-2.12E-01	3.69E-02	-31.18	-25.02	-25.34	-25.33	-25.03	-25.39	-24.97	-25.21	-25.15
	T.kanan	3.69	-2.96E-01	-5.30E-01	-2.97	5.85E-01	2.75	3.95	2.1	5.09	3.01E-01	6.88	5.07	2.11	6.66	5.21E-01
	T.kiri	-68.63	-27.58	-2.06	10.9	1.87	-9.73	-128.49	-96.86	-99.4	-87.34	-108.92	-99.23	-97.03	-107.75	-88.51
520-522	Lap	51.66	20.26	5.90E-01	7.66E-01	-6.24E-01	-4.63E-01	94.41	74.25	72.53	74.38	72.4	72.59	74.19	72.71	74.07
	T.kanan	-70.9	-24.25	-5.27E-01	-6.88	6.54E-01	6.21	-123.89	-100.09	-94.65	-104.76	-89.98	-94.73	-100.01	-90.65	-104.09
	T.kiri	-2.1	-6.78E-01	6.44E-01	2.52E-01	-6.49E-01	-2.26E-01	-3.61	-2.09	-3.6	-2.38	-3.31	-3.6	-2.09	-3.29	-2.4
631	Lap	-17.16	-6.63	-7.22E-01	2.72	6.77E-01	-2.42	-31.2	-24.19	-24.39	-21.66	-26.91	-24.34	-24.23	-26.62	-21.95
	T.kanan	-48.21	-18.9	-2.09	5.18	2	-4.62	-88.09	-69.04	-67.92	-63.7	-73.27	-67.83	-69.13	-72.7	-64.26
	T.kiri	-47.49	-11.57	-1.51	49.49	8.22E-01	-46.93	-75.49	-46.79	-74.79	-9.3	-112.28	-74.71	-46.87	-109.81	-11.77
512	Lap	-2.22	-1.73	8.91E-03	-2.96	4.04E-02	2.47	-5.44	-4.89	-3.05	-7.08	-8.61E-01	-3.15	-4.79	-1.36	-6.58
	T.kanan	11.38	3.77	1.53	-55.42	-7.41E-01	51.88	19.69	-3.39E-01	31.36	42.2	73.22	31.07	-5.45E-02	69.75	-36.73
	T.kiri	-55.85	-19.42	-1.36E-01	12.87	8.31E-03	-11.57	-98.09	-73.08	-80.9	-63.53	-90.46	-80.63	-73.36	-89.14	-64.85
529-531	Lap	38.86	13.3	2.23E-02	4.01E-01	-3.72E-02	-9.52E-02	67.92	53.52	53.23	53.8	52.95	53.31	53.44	53.26	53.49
	T.kanan	-29.46	-10.43	-6.71E-03	-9.96	1.12E-01	9.2	-52.03	-43.93	-37.64	-51.24	-30.32	-37.77	-43.8	-31.09	-50.48
	T.kiri	-1.66	-2.03E-01	-4.90E-03	-3.68E-01	1.11E-02	3.14E-01	-2.32	-2.05	-1.81	-2.32	-1.54	-1.82	-2.04	-1.6	-2.27
633	Lap	-12.64	-4.1	-3.00E-02	2.80E+00	3.67E-03	-2.51E+00	-21.72	-16.29	-17.99	-14.21	-20.07	-17.93	-16.35	-19.77	-14.5
	T.kanan	-39.6	-14.31	-5.51E-02	5.96	-3.79E-03	-5.34	-70.41	-53.28	-56.92	-48.86	-61.34	-56.78	-53.41	-60.7	-49.5
	T.kiri	-45.85	-1.09E+01	1.08E+00	4.50E+01	-1.38E+00	-4.30E+01	-72.4	-43.11	-73.7	-10.81	-106	-73.39	-43.42	-103.97	-12.85
532	Lap	-2.14	-1.64	4.00E-02	-2.70E+00	-2.35E-02	2.25E+00	-5.18	-4.6	-2.98	-6.61	-9.67E-01	-3.1	-4.47	-1.43	-6.15
	T.kanan	9.91	3.28	-9.81E-01	-50.41	1.33E+00	47.48	17.1	-3.43	30.39	-39.78	66.72	29.84	-2.87	63.76	-36.79
	T.kiri	-61.13	-1.64E+01	-8.42E-01	2.79E+00	2.13E-02	-2.85E+00	-99.66	-79.73	-79.72	-77.05	-82.39	-80.6	-78.85	-82.71	-76.73
540	Lap	-17.8	-3.96	-1.21E-01	-5.65E-02	-8.42E-02	-6.42E-02	-27.69	-22.57	-22.28	-22.53	-2.23E+01	-22.54	-22.32	-22.52	-22.34
	T.kanan	4.18	-1.52E-01	5.99E-01	-2.9	-1.90E-01	2.72	4.77	3.96	4.53	1.38	7.1	4.9	3.58	7.04	1.44
	T.kiri	-69.28	-2.77E+01	2.13E+00	8.52E+00	-2.33E+00	-7.76E+00	-127.45	-93.99	-103.84	-89.3	-108.54	-103.81	-94.03	-107.8	-90.03
541-543	Lap	46.13	18.35	-9.77E-01	7.60E-01	1.07E+00	-5.66E-01	84.72	64.99	66.56	66.27	6.53E+01	66.72	64.83	65.52	66.03
	T.kanan	-60.51	-2.33E+01	9.54E-01	-5.48	-1.14E+00	5.01	-119.48	-94.67	-93.22	-99.4	-88.49	-93.57	-94.33	-89.05	-98.85
	T.kiri	-1.73	-5.50E-01	-5.87E-01	1.84E-02	5.84E-01	-4.27E-02	-2.98	-2.95	-1.73	-2.5	-2.17	-1.74	-2.94	-2.2	-2.48
635	Lap	-10.50	-0.43	7.05E-01	2.07E+00	-0.57E-01	-1.00E+00	-30.2	-22.01	-24.99	-21.07	-2.59E+01	-24.99	-22	-25.75	-21.25
	T.kanan	-47.44	-1.80E+01	2.19E+00	4.13	-2.30E+00	-3.73	-86.73	-63.83	-71	-62.39	-72.43	-71	-63.83	-72.06	-62.77

	T.kiri	-51.23	-1.37E+01	1.17E+00	1.75E-01	-1.39E-01	4.31E-02	-83.43	-65.57	-67.95	-66.54	-66.98	-66.56	-66.96	-66.66	-66.88
544	Lap	-13.52	-2.76E+00	3.47E-01	7.39E-02	-7.67E-01	6.85E-01	-20.64	-16.68	-16.92	-17.5	-16.11	-16.51	-17.1	-16.06	-17.54
	T.kanan	2.83	-4.60E-01	-4.78E-01	-2.68E-02	-1.39E+00	1.33	2.66	1.6	3.48	9.23E-01	4.15	2.93	2.15	3.92	1.15
	T.kiri	-46.25	-2.04E+01	-2.95E-01	-1.80E-01	5.91E+00	-5.5	-88.16	-66.3	-69.41	-61.74	-73.97	-69.78	-65.93	-73.69	-62.02
545-547	Lap	32.36	1.41E+01	-2.16E-01	3.57E-01	1.64E+00	-1.54	61.42	47.61	47.03	48.97	45.67	47.21	47.43	45.81	48.82
	T.kanan	-53.87	-1.90E+01	9.70E-02	4.92E-01	-5.95E+00	5.68	-94.98	-76.25	-72.71	-80.69	-68.27	-72.17	-76.79	-68.36	-80.6
	T.kiri	-13.32	-2.24	-2.77	3.05	29.07	-28.22	-19.57	-9.86	-22.36	13.54	-45.75	-21.79	-10.43	-44.77	12.56
536	Lap	3.1	-1.37E-01	6.12E-02	-7.57E-02	-1.8	1.66	3.5	2.63	3.63	1.26	4.99	3.57	2.68	4.85	1.41
	T.kanan	-12.14	-2.36	2.89	-3.21	-32.66	31.53	-18.35	-22.24	-7.73	-48.36	18.4	-8.41	-21.55	17.12	-47.08

Load Combinations

combo 1 = 1,2 MD + 1,6 ML

combo 2 = 1,05 (MD + 0,9 ML + Mex kiri) + 0,315 Mey kiri

combo 3 = 1,05 (MD + 0,9 ML - Mex kiri) - 0,315 Mey kiri

combo 4 = 1,05 (MD + 0,9 ML + Mey kiri) + 0,315 Mex kiri

combo 5 = 1,05 (MD + 0,9 ML - Mey kiri) - 0,315 Mex kiri

combo 6 = 1,05 (MD + 0,9 ML + Mex kanan) + 0,315 Mey kanan

combo 7 = 1,05 (MD + 0,9 ML - Mex kanan) - 0,315 Mey kanan

combo 8 = 1,05 (MD + 0,9 ML + Mey kanan) + 0,315 Mex kanan

combo 9 = 1,05 (MD + 0,9 ML - Mey kanan) - 0,315 Mex kanan

**Tabel 22. Kombinasi Momen Untuk Balok anak it atap**

Frame	Letak	Mati M3	Hidup M3	Ex.kiri M3	Ey.kiri M3	Ex.kanan M3	Ey.kanan M3	Comb1 M3	Comb2 M3	Comb3 M3	Comb4 M3	Comb5 M3	Comb6 M3	Comb7 M3	Comb8 M3	Comb9 M3
648	T.kiri	-6.9	-1.46	2.22	-3.91E-01	-1.41	3.93E-01	-10.62	-6.42	-10.83	-8.34	-8.92	-9.99	-7.27	-8.66	-8.59
	Lap	10.34	2.42	-2.38E-01	-6.34E-02	9.98E-02	6.05E-02	16.28	12.87	13.41	13	13.29	13.27	13.02	13.24	13.05
	T.kanan	-5.6	-1.14	-2.69	2.64E-01	1.61E+00	-2.72E-01	-8.55	-9.71	-4.22	-7.53	-6.39	-5.36	-8.57	-6.74	-7.19
	T.kiri	-8.57	-1.48	1.52	-3.56E-01	-1.79	2.85E-01	-12.66	-8.92	-11.89	-10.3	-10.51	-12.19	-8.61	-10.67	-10.14
642	Lap	2.9	8.79E-01	6.32E-01	1.68E-01	-6.41E-01	-1.11E-01	4.88	4.59	3.15	4.25	3.5	3.16	4.58	3.55	4.19
	T.kanan	-18.82	-2.66	-2.56E-01	6.92E-01	5.09E-01	-5.08E-01	-26.84	-22.32	-22.22	-21.63	-22.92	-21.9	-22.65	-22.64	-21.9
	T.kiri	-35.13	-5.35	1.87	1.21	-1.96	-9.16E-01	-50.72	-39.6	-44.29	-40.08	-43.81	-44.29	-39.6	-43.52	-40.37
	Lap	22.61	3	2.60E-02	3.96E-02	-3.42E-02	2.93E-02	31.92	26.61	26.53	26.62	26.52	26.52	26.61	26.53	26.61
666-668	T.kanan	-28.61	-3.54	-1.63	-9.53E-01	1.76	7.16E-01	-40	-35.4	-31.38	-34.9	-31.87	-31.32	-35.46	-32.08	-34.69
	T.kiri	-24.27	-3.22	8.07E-01	-2.84E-02	-9.07E-01	-9.45E-03	-34.28	-27.69	-29.37	-28.3	-28.75	-29.48	-27.57	-28.82	-28.23
	Lap	7.95	1.17	9.54E-02	-1.75E-01	1.61E-01	1.30E-01	11.42	9.5	9.41	9.3	9.61	9.37	9.54	9.56	9.36
	T.kanan	-26.52	-3.63	-8.83E-01	-4.10E-01	9.92E-01	3.33E-01	-37.63	-32.33	-30.22	-31.98	-30.57	-30.13	-32.42	-30.61	-31.94
671-673	T.kiri	-34.14	-4.78	1.58	-1.69E-01	-1.55	1.37E-01	-48.82	-38.76	-41.97	-40.05	-40.69	-41.95	-38.78	-40.71	-40.02
	Lap	21.52	2.81	-1.01E-02	-6.22E-02	-9.41E-03	5.15E-02	30.33	25.23	25.29	25.19	25.33	25.27	25.25	25.31	25.21
	T.kanan	-34.14	-4.77	-1.55	-1.76E-01	1.58	1.44E-01	-48.61	-42.05	-38.67	-41.03	-39.68	-38.66	-42.06	-39.71	-41.01
	T.kiri	-26.51	-3.61	9.93E-01	-4.06E-01	-8.83E-01	3.30E-01	-37.58	-30.32	-32.15	-31.35	-31.13	-32.06	-30.42	-31.17	-31.31
674-675	Lap	7.96	1.17	1.60E-01	-1.76E-01	9.43E-02	1.30E-01	11.43	9.29	9.64	9.24	9.69	9.6	9.32	9.63	9.3
	T.kanan	-24.26	-3.24	-9.07E-01	-3.98E-02	8.05E-01	1.38E-03	-34.3	-29.5	-27.57	-28.86	-28.21	-27.69	-29.38	-28.28	-28.79
	T.kiri	-28.55	-3.54	1.76	-9.65E-01	-1.63	7.27E-01	-39.92	-31.78	-34.86	-33.78	-32.86	-34.81	-31.84	-33.08	-33.57
	Lap	22.6	2.99	-3.44E-02	3.91E-02	2.60E-02	-2.88E-02	31.9	26.53	26.57	26.58	26.52	26.57	26.53	26.53	26.57
676-678	T.kanan	-35.23	-5.38	-1.96	1.22	1.87	-9.23E-01	-50.88	-43.75	-40.4	-41.41	-42.74	-40.4	-43.75	-42.46	-41.7
	T.kiri	-18.91	-2.7	5.04E-01	6.92E-01	-2.51E-01	-5.06E-01	-27.01	-21.66	-23.15	-21.52	-23.29	-22.83	-21.98	-23.02	-21.8
	Lap	2.86	8.71E-01	-6.42E-01	1.70E-01	6.33E-01	-1.12E-01	4.83	3.21	4.45	3.81	3.85	4.46	3.2	3.91	3.75
	T.kanan	-8.54	-1.47	-1.79	-3.53E-01	1.52	2.82E-01	-12.59	-12.34	-8.36	-11.28	-9.41	-8.67	-12.03	-9.57	-11.12
679	T.kiri	-5.59	-1.14	1.61	2.65E-01	-2.69	-2.72E-01	-8.54	-5.18	-6.73	-6.17	-7.74	-9.87	-4.04	-8.09	-5.82
	Lap	10.34	2.42	9.98E-02	-6.32E-02	-2.38E-01	6.03E-02	16.28	13.23	13.06	13.11	13.18	12.91	13.37	13.13	13.15
	T.kanan	-6.91	-1.47	-1.41	-3.91E-01	2.22	3.93E-01	-10.64	-10.25	-7.03	-9.5	-7.78	-6.19	-11.09	-7.53	-9.75
	T.kiri	1.61	3.05E-01	-2.61E-01	1.88E-01	2.93E-01	-1.55E-01	2.42	1.76	2.19	2.09	1.86	2.24	1.72	1.91	2.05
702	Lap	-1.0	-5.07E-01	1.43E-01	-6.53E-02	-1.60E-01	5.56E-02	-2.97	-2.24	-2.5	-2.4	-2.35	-2.52	-2.22	-2.36	-2.38

	T.kanan	-17.54	-2.58	5.47E-01	-3.19E-01	-6.13E-01	2.66E-01	-25.18	-20.38	-21.33	-21.02	-20.69	-21.41	-20.29	-20.77	-20.94
701	T.kiri	1.97	4.09E-01	2.91E-01	-1.34E-01	-3.09E-01	1.12E-01	3.02	2.72	2.19	2.41	2.51	2.17	2.75	2.48	2.44
	Lap	-2.04	-5.48E-01	-1.90E-01	4.91E-02	1.99E-01	-4.31E-02	-3.32	-2.84	-2.47	-2.67	-2.65	-2.46	-2.85	-2.64	-2.68
	T.kanan	-18.37	-2.77	-6.70E-01	2.32E-01	7.07E-01	-1.99E-01	-26.47	-22.53	-21.27	-21.87	-21.94	-21.23	-22.58	-21.89	-21.92
699	T.kiri	-1.54	-9.95E-02	2.31E-03	-7.75E-02	1.17E-02	6.03E-02	-2.01	-1.73	-1.69	-1.79	-1.63	-1.68	-1.74	-1.64	-1.78
	Lap	-1.42	-3.88E-01	-1.94E-03	1.39E-02	-5.86E-03	-1.00E-02	-2.33	-1.86	-1.86	-1.85	-1.88	-1.87	-1.85	-1.87	-1.85
	T.kanan	-13.63	-1.94	-6.18E-03	1.05E-01	-2.34E-02	-8.04E-02	-19.46	-16.12	-16.17	-16.04	-16.25	-16.19	-16.09	-16.24	-16.05
697	T.kiri	1.44	3.11E-01	-2.85E-01	-3.08E-02	2.96E-01	2.50E-02	2.22	1.5	2.11	1.68	1.93	2.12	1.49	1.92	1.69
	Lap	-1.81	-5.14E-01	1.75E-01	1.27E-02	-1.81E-01	-1.02E-02	-3	-2.2	-2.57	-2.32	-2.46	-2.58	-2.19	-2.45	-2.32
	T.kanan	-17.38	-2.6	6.35E-01	5.63E-02	-6.58E-01	-4.54E-02	-25.02	-20.03	-21.39	-20.45	-20.97	-21.42	-20	-20.96	-20.45
696	T.kiri	1.44	3.13E-01	2.96E-01	-3.05E-02	-2.86E-01	2.48E-02	2.23	2.11	1.51	1.87	1.75	1.52	2.1	1.74	1.87
	Lap	-1.81	-5.15E-01	-1.81E-01	1.27E-02	1.75E-01	-1.01E-02	-3	-2.57	-2.2	-2.43	-2.34	-2.21	-2.57	-2.34	-2.43
	T.kanan	-17.39	-2.61	-6.58E-01	5.59E-02	6.35E-01	-4.50E-02	-25.03	-21.39	-20.04	-20.86	-20.57	-20.06	-21.37	-20.56	-20.87
694	T.kiri	-1.54	-9.91E-02	1.16E-02	-7.87E-02	2.11E-03	6.14E-02	-2	-1.72	-1.69	-1.79	-1.63	-1.69	-1.73	-1.64	-1.77
	Lap	-1.43	-3.88E-01	-5.86E-03	1.42E-02	-1.87E-03	-1.03E-02	-2.33	-1.87	-1.86	-1.85	-1.88	-1.87	-1.86	-1.88	-1.85
	T.kanan	-13.64	-1.94	-2.33E-02	1.07E-01	-5.85E-03	-8.21E-02	-19.47	-16.14	-16.16	-18.05	-16.26	-16.18	-16.12	-16.24	-16.06
691	T.kiri	1.97	4.07E-01	-3.09E-01	-1.35E-01	2.91E-01	1.14E-01	3.02	2.09	2.82	2.22	2.7	2.8	2.12	2.67	2.25
	Lap	-2.04	-5.47E-01	1.99E-01	4.97E-02	-1.90E-01	-4.36E-02	-3.32	-2.43	-2.88	-2.54	-2.77	-2.87	-2.44	-2.76	-2.55
	T.kanan	-18.37	-2.76	7.08E-01	2.35E-01	-6.70E-01	-2.01E-01	-26.46	-21.08	-22.72	-21.43	-22.37	-22.67	-21.13	-22.32	-21.48
690	T.kiri	1.6	3.03E-01	2.93E-01	1.89E-01	-2.61E-01	-1.56E-01	2.41	2.34	1.6	2.26	1.68	1.65	2.29	1.72	2.22
	Lap	-1.8	-5.07E-01	-1.60E-01	-6.55E-02	1.43E-01	5.58E-02	-2.97	-2.56	-2.18	-2.49	-2.25	-2.2	-2.54	-2.27	-2.47
	T.kanan	-17.53	-2.58	-6.14E-01	-3.20E-01	5.47E-01	2.66E-01	-25.16	-21.59	-20.1	-21.37	-20.31	-20.18	-21.5	-20.39	-21.3

Load Combinations

combo 1 = 1,2 MD + 1,6 ML

combo 2 = 1,05 (MD + 0,9 ML + Mex kiri) + 0,315 Mey kiri

combo 3 = 1,05 (MD + 0,9 ML - Mex kiri) - 0,315 Mey kiri

combo 4 = 1,05 (MD + 0,9 ML + Mey kiri) + 0,315 Mex kiri

combo 5 = 1,05 (MD + 0,9 ML - Mey kiri) - 0,315 Mex kiri

combo 6 = 1,05 (MD + 0,9 ML + Mex kanan) + 0,315 Mey kanan

combo 7 = 1,05 (MD + 0,9 ML - Mex kanan) - 0,315 Mey kanan

combo 8 = 1,05 (MD + 0,9 ML + Mey kanan) - 0,315 Mex kanan

combo 9 = 1,05 (MD + 0,9 ML - Mey kanan) - 0,315 Mex kanan

Tabel 24. Kombinasi Momen Untuk Balok induk Lantai 2

Frame	Letak	Mati M3	Hidup M3	Ex,kiri M3	Ey,kiri M3	Ex,kanan M3	Ey,kanan M3	Comb1 M3	Comb2 M3	Comb3 M3	Comb4 M3	Comb5 M3	Comb6 M3	Comb7 M3	Comb8 M3	Comb9 M3
177	T.kiri	-28.8	-2.9	152.22	-141.77	1.37	-1.38	-39.2	127.29	-193.25	16.41	-82.37	-182.28	116.32	-79.08	13.13
	Lap	5.95	-2.52	6.51E+00	-5.78	3.25E-01	-3.19E-01	3.1	10.8	-3.08	6.25	1.47	-2.31	10.03	1.71	6.02
	T.kanan	-75.61	-20.77	-139.2	130.22	-7.24E-01	7.39E-01	-123.97	-245.41	47.36	-143.63	-54.41	37.94	-235.98	-57.23	-140.82
265-267	T.kiri	-238.7	-79.82	7.79E+01	-73.8	3.42	-3.38	-414.15	-243.23	-408.89	-297.94	-354.18	-404.62	-247.5	-352.86	-299.26
	Lap	147.42	50.27	-2.78E-02	3.28E-01	-2.25E+00	2.25E+00	257.34	201.56	203.04	199.93	204.68	203.35	201.25	204.77	199.84
	T.kanan	-2.44E+02	-80.12	-8.20E+01	78.69	4.32	-4.35	-420.74	-416.4	-246.99	-352.98	-310.41	-250.44	-412.95	-311.48	-351.91
191-192	T.kiri	-109.74	-24.58	108.54	-105.3	-2.13	2.02	-171.02	-25.16	-251.75	-106.5	-170.41	-248.39	-28.52	-169.5	-107.41
	Lap	35.29	3.05	5.82E-01	-2.12E-01	2.29E+00	-2.22	47.23	41.27	38.61	42.53	37.36	39.02	40.86	37.54	42.34
	T.kanan	-112.77	-25.68	-107.87	105.58	-8.10E-02	3.92E-02	-176.42	-255.97	-29.4	-176.75	-108.62	-31.84	-253.53	-109.39	-175.98
268-270	T.kiri	-256.52	-84.55	80.2	6.53	-79.78	-6.49	-443.11	-262.99	-435.51	-317.13	-381.37	-435.06	-263.44	-381.19	-317.31
	Lap	154.29	52.82	1.82E-01	-3.51	1.72E-01	3.49	289.66	211.01	212.83	208.29	215.54	213.2	210.64	215.63	208.2
	T.kanan	-256.29	-84.44	-79.79	6.54	80.22	-6.49	-442.64	-430.62	-267.17	-367.16	-330.63	-266.71	-431.08	-330.44	-367.35
225-226	T.kiri	-113.17	-25.72	105.55	-107.87	-9.95E-02	5.58E-02	-176.96	-32.34	-253.93	-109.99	-176.28	-256.38	-29.88	-177.05	-109.21
	Lap	-12.01	-7.57	-52.35	54.15	1.40E-01	-1.58E-01	-26.53	-74.7	35.15	42.54	37.22	38.93	40.84	37.41	42.35
	T.kanan	-109.41	-24.49	-105.28	108.52	-2.08	1.97	-170.48	-249.22	-26.83	-173.37	-102.68	-23.45	-252.59	-101.77	-174.28
271-273	T.kiri	-244.89	-80.47	78.7	4.28	-81.99	-4.32	-422.61	-249.19	-417.16	-303.89	-362.46	-420.62	-245.73	-363.53	-302.82
	Lap	147.85	50.39	3.16E-01	-2.26	-1.42E-02	2.25	258.06	202.49	203.25	200.6	205.14	203.57	202.18	205.23	200.51
	T.kanan	-238.83	-79.77	-73.78	77.85	3.45	-3.41	-414.23	-402.54	-249.76	-345.77	-306.53	-245.48	-406.82	-305.2	-347.1
259	T.kiri	-76.58	-21.11	130.22	-7.69E-01	-139.21	7.81E-01	-125.67	36.13	-236.84	-60.15	-140.57	-246.28	45.57	-143.39	-57.32
	Lap	5.88	-2.54	-5.78	3.28E-01	6.51	-3.22E-01	2.99	-2.19	9.73	2.29	5.24	10.5	-2.97	5.48	2.06
	T.kanan	-27.96	-2.61	-141.77	1.43	152.24	-1.42	-37.73	-180.23	116.58	-74.99	11.33	127.57	-191.23	14.63	-78.29
289	T.kiri	-42.49	-9.23	157.8	-1.69	-153.64	1.62	-65.76	111.82	-218.49	-5.41	-101.27	-214.15	107.47	-100.03	-6.65
	Lap	22.03	4.1	1.95	-2.84E-01	-1.79	2.71E-01	33	28.97	25.05	27.33	26.7	25.22	28.8	26.73	27.29
	T.kanan	-63.3	-19.09	-153.9	1.13	150.06	-1.08	-106.5	-245.74	76.73	-131.8	-37.21	72.72	-241.73	-38.37	-130.64
303	T.kiri	-64.51	-19.5	150.06	1.08	-153.88	-1.04	-108.61	71.74	-244.07	-37.76	-134.57	-248.07	75.74	-135.72	-36.6
	Lap	21.67	3.97	-1.78	-2.71E-01	1.94	2.58E-01	32.36	24.55	28.46	25.66	27.35	28.63	24.39	27.39	25.63
	T.kanan	-42	-9.08	-153.62	157.77	-1.62	1.55	-64.93	-214.5	109.13	-102.78	-2.59	113.46	-218.83	-1.36	-104.01

304	T. kiri	-21.21	-6.32	162.63	-3.92E-02	-1.54E+02	6.41E-02	-35.56	142.5	-198.99	22.94	-79.43	-189.65	133.17	-76.6	20.12
	Lap	-9.75E-01	1.23	7.02	5.17E-01	-6.29E+00	-4.98E-01	8.00E-01	7.67	-7.39	2.89	-2.61	-6.62	6.9	-2.36	2.64
	T. kanan	-79.86	-27.74	-148.59	1.07	141.17	-1.06	-140.22	-263.75	45.62	-155.75	-64.39	37.83	-257.96	-66.71	-153.42
	Lap	-290.97	-87.69	82.72	6.21	-79.33	-6	-489.47	-299.57	-477.2	-355.8	-420.97	-473.57	-303.2	-419.68	-357.1
305-307	T. kanan	177.97	54.3	9.81E-01	-5.03	-6.78E-01	4.87	300.45	237.63	238.74	233.21	243.16	239.01	237.36	243.09	233.28
	Lap	-301.25	-90.1	-90.02	12.44	87.11	-12.05	-505.66	-492.06	-310.85	-416.76	-386.16	-313.78	-489.13	-386.67	-416.24
	T. kiri	-184.71	-52.94	115.38	-112.99	4.25	-4.1	-306.36	-121.48	-366.47	-203.17	-284.78	-363.9	-124.05	-283.87	-204.08
	Lap	97.57	28.24	-2	2.29	-3.46	3.33	162.26	125.94	132.32	124.87	133.39	132.59	125.67	133.35	124.91
308-309	T. kanan	-168.27	-46.57	-112.77	110.92	6.57	-6.33	-276.43	-337.03	-104.35	-249.31	-192.06	-106.22	-335.15	-192.4	-248.98
	Lap	-294.22	-85.67	86.91	-86.7	13.24	-12.74	-490.13	-294.46	-485.31	-348.61	-431.16	-484.93	-294.84	-430.57	-349.2
310-312	T. kiri	167.12	49.73	3.00E-01	6.43E-02	-7.26	6.98	280.11	220.49	224.44	214.94	229.99	224.73	220.2	229.82	215.11
	Lap	-289.45	-84.18	-86.79	86.94	13.69	-13.18	-482.04	-470.3	-296.66	-396.44	-370.51	-296.34	-470.62	-369.93	-397.03
	T. kanan	-156.25	-42.85	111.23	-113.04	7.98	-7.69	-256.06	-85.24	-323.86	-161.13	-247.97	-325.67	-83.43	-248.24	-160.87
	Lap	69.67	19.32	-6.45E-01	1.02	-6.62	6.38	114.51	88.64	94.17	84.25	98.56	94.49	88.32	98.42	84.39
313-314	T. kanan	-153.18	-41.99	-110.9	113.17	7.22	-6.97	-251	-314.59	-86.35	-227.87	-173.17	-83.89	-317.15	-172.19	-228.85
	Lap	-277	-80.03	87.49	13.52	-90.4	-13.1	-460.44	-270.35	-462.6	-324.71	-408.23	-465.52	-267.43	-408.7	-324.25
	T. kiri	162.77	47.78	-1	-5.48	1.32	5.3	271.78	213.29	218.84	209.99	222.14	219.12	213.01	222.05	210.08
	Lap	-267.93	-77.77	-78.97	82.35	7.04	-6.8	-445.94	-435.52	-274.11	-372.3	-337.33	-270.49	-439.14	-336.02	-373.62
	T. kanan	-70.43	-23.48	140.62	-148	1.05	-1.03	-122.09	51.83	-244.12	-50.75	-141.54	-251.87	59.58	-143.85	-48.44
	Lap	-4.64E-01	1.28	-6.25	6.98	5.51E-01	-5.31E-01	1.49	-5.67	7.11	-6.71E-01	2.11	7.88	-6.44	2.36	-9.21E-01
318	T. kanan	-22.34	-6.61	-153.12	161.95	5.68E-02	-2.92E-02	-37.39	-190.46	131.05	-77.88	18.47	140.34	-199.75	21.28	-80.69
	Lap	-94.47	-19.06	7.94E-02	3.03	114.19	-111.8	-143.86	-81.15	-153.26	2.71	-237.13	-149.25	-85.17	-233.64	-7.69E-01
	T. kiri	59.58	12.75	-4.09	3.62	-9.7	9.56	91.9	67.26	81.96	63.14	86.08	81.43	67.8	85.79	63.43
	Lap	-45.51	-5.09	7.18	-10.55	-133.62	130.93	-62.75	-87.14	-18.04	-190.63	85.44	-22.43	-82.75	81.56	-186.75
	T. kanan	-75.36	-20.78	-2.45	182.72	7.79	-178.59	-123.68	-43.77	-153.75	92.32	-289.85	-146.84	-50.69	-283.83	86.31
	Lap	-17.75	-4.58	9.72E-01	13.13	-5.82E-01	-12.79	-28.62	-17.8	-28.12	-8.86	-37.05	-27.6	-18.32	-36.58	-9.34
162	T. kanan	16.08	6	4.39	-156.45	-8.95	153.01	28.9	-22.11	67.23	-140.34	185.45	61.35	-16.24	180.39	-135.28
	Lap	-2.82	-29.02	8.09	2.28E-01	2.30E-01	-2.11E-01	-4.94	-4.09	-3.66	-3.73	-4.03	-3.7	-4.05	-4.03	-3.73
163	T. kiri	-38.38	-11.82	3.91	9.36E-01	-3.75	-8.89E-01	-64.97	-47.07	-55.87	-49.26	-53.68	-55.68	-47.26	-53.58	-49.36
	Lap	-100.23	-29.02	8.09	1.64	-7.72	-1.57	-166.71	-123.66	-141.68	-128.39	-136.94	-141.27	-124.06	-136.74	-128.59
	T. kanan	-167.23	-50.28	-3.81	5.19	134.02	-130.91	-281.11	-184.88	-261.31	-83.58	-362.62	-258.88	-187.31	-358.92	-87.28
	Lap	127.86	43.27	4.72	-7.77	-4.63	7.74	222.66	177.65	172.63	168.47	181.81	172.72	177.56	181.81	168.47
178-179	T. kanan	-101.59	-29.93	-2.74	9.33E-01	-149.72	146.56	-169.78	-184.99	-84.91	-293.02	23.12	-87.8	-182.09	19.24	-289.13
	Lap	-101.59	-32.44	-4.9	220.7	6.81	-214.58	-173.81	-72.95	-201.7	92.87	-367.52	-197.77	-76.89	-360.49	85.84
180	T. kiri	-30.83	-11.14	-6.22E-01	14.49	9.21E-01	-13.97	-54.82	-39.19	-46.6	-27.94	-57.85	-46.33	-39.46	-57.28	-28.52
	Lap	-19.89	-2.98	3.26	-191.72	-4.97	186.63	-28.64	-80.67	33.27	-223.98	176.58	29.87	-77.27	170.7	-218.1
	T. kanan	4.3	1.4	8.56E-01	-8.23E-01	4.16E-01	-3.95E-01	7.4	6.87	4.81	6.54	5.13	4.85	6.83	5.16	6.51
	Lap	-86.54	-27.84	-2.03	1.82	-2.23	2.18	-148.4	-120.01	-114.35	-120.16	-114.2	-114.58	-119.78	-114.31	-120.05

168	T.kanan	-218.97	-71.6	-4.91	4.47	-4.87	4.76	-377.33	-304.27	-290.89	-304.24	-290.92	-291.39	-303.77	-291.17	-303.99
	T.kiri	-2.34	-9.02E-01	-8.53E-02	-1.22	1.24E-01	1.16	-4.26	-3.79	-2.84	-4.62	-2.01	-2.82	-3.81	-2.06	-4.57
	Lap	-57.32	-16.6	-9.72E-01	-6.06	1.05	5.81	-95.35	-78.8	-72.95	-82.54	-69.21	-72.94	-78.81	-69.44	-82.31
	T.kanan	-151.41	-44.56	-1.86	-10.9	1.98	10.46	-252.98	-206.47	-195.7	-213.11	-189.05	-195.71	-206.46	-189.48	-212.89
	T.kiri	-358.67	-110.11	-1.25	-1.84	199.12	-191.94	-606.57	-419.24	-542.06	-271.97	-689.34	-543.05	-418.25	-682.77	-278.53
	Lap	194.51	60.42	-7.76E-01	7.34E-01	7.73	-7.12	330.09	262.95	259.72	269.2	253.47	259.86	262.8	254.1	268.57
	T.kanan	-284.68	-85.43	3.83	-9.62E-01	-193.76	187.63	-478.3	-436.66	-322.63	-581.88	-177.4	-321.55	-437.74	-182.94	-576.35
	T.kiri	-362.52	-111.45	-5.06	1.53	219.85	-211.35	-613.34	-422.02	-549.9	-256.72	-715.21	-550.93	-421	-707.39	-264.53
	Lap	200.19	62.43	1.2	-1.26	8.77	-8.09	340.13	273.23	265.18	278.79	259.61	265.33	273.07	260.31	278.1
193-195	T.kanan	-290.01	-87.47	3.54E-01	2.84	-215.78	208.28	-487.96	-454.77	-319.57	-613.63	-160.71	-318.59	-455.76	-167.58	-606.76
	T.kiri	-3.61	-1.38	7.96E-01	-7.62E-01	9.78E-01	9.39E-01	-6.54	-4.57	-5.62	-5.87	-4.32	-5.6	-4.59	-4.35	-5.84
	Lap	-64.73	-19.23	-1.93E-01	2.99E-01	-9.98	9.58	-108.44	-89.48	-82.79	-96.68	-75.6	-82.8	-89.47	-75.98	-96.29
196	T.kanan	-146.7	-43.4	-1.18	1.36	-18.98	18.23	-245.47	-202.26	-187.82	-215.35	-174.74	-187.87	-202.21	-175.48	-214.61
	T.kiri	-360.76	-110.82	1.84	-5.47	219.58	-211.09	-610.22	-412.42	-554.63	-252.38	-714.67	-555.76	-411.28	-706.89	-260.15
	Lap	203.39	63.42	-1.06	9.92E-01	9.05	-8.36	345.55	275.23	271.76	282.67	264.33	271.9	275.09	265.03	281.96
208-210	T.kanan	-295.13	-89.1	2.58	7.03E-01	-215.78	208.28	-496.71	-459.34	-328.82	-619.84	-168.32	-327.73	-460.43	-175.16	-613
	T.kiri	2.9	7.67E-01	-5.49E-01	5.77E-01	-4.42E-01	4.20E-01	4.71	3.06	4.49	3.13	4.41	4.51	3.03	4.39	3.15
	Lap	-56.7	-16.67	1.38	-1.31	-9.11	8.74	-94.72	-76.71	-73.88	-84.43	-66.16	-73.92	-76.67	-66.53	-84.06
211	T.kanan	-137.17	-40.43	3.32	-3.19	-17.78	17.06	-229.29	-184.35	-180.11	-199.86	-164.6	-180.21	-184.25	-165.32	-199.14
	T.kiri	-357.25	-108.27	-3.28	7.74E-02	197.21	-190.09	-601.93	-418.75	-536.11	-271.39	-683.47	-537.22	-417.63	-677	-277.86
	Lap	199.71	60.88	6.53E-01	-6.98E-01	7.74	-7.13	337.07	270.36	284.11	275.57	258.9	264.25	270.21	259.53	274.94
227-229	T.kanan	-293.26	-86.34	-6.55E-01	3.66	-192.99	186.89	-490.06	-451	-328.04	-592.37	-186.67	-326.81	-452.23	-192.13	-586.9
	T.kiri	1.71	3.89E-01	4.96E-01	-4.72E-01	-5.69E-01	5.46E-01	2.67	2.5	1.82	1.72	2.6	1.84	2.48	2.58	1.73
	Lap	-61.67	-18.25	-1.72	1.89	-8.29	7.98	-103.2	-86.42	-77.58	-91.24	-72.75	-77.5	-86.49	-73.02	-90.97
230	T.kanan	-145.9	-43.21	-3.94	4.25	-16.01	15.42	-244.21	-203.2	-184.84	-212.07	-175.97	-184.71	-203.34	-176.5	-211.55
	T.kiri	-166.36	-49.95	5.15	-3.78	133.75	-130.65	-279.54	-174.33	-269.42	-79.81	-363.94	-266.99	-176.75	-360.24	-83.5
	Lap	127.95	43.31	-4.64	4.73	-7.76	7.73	222.83	167.96	182.59	165.67	184.88	182.68	167.87	184.88	165.67
242-243	T.kanan	-105.28	-31.32	9.58E-01	-2.75	-149.41	146.25	-176.45	-186.21	-94.09	-296.73	16.44	-96.97	-183.32	12.55	-292.84
	T.kiri	-63.83	-18.16	7.23	-5.35	220.2	-214.07	-105.65	-7.23	-161.14	149.3	-317.67	-157.23	-11.13	-310.64	142.28
	Lap	-18.64	-6.49	1.09	-9.94E-01	14.45	-13.93	-32.74	-20.01	-31.39	-10.18	-41.21	-31.13	-20.27	-40.64	-10.76
244	T.kanan	-33.27	-7.96	-5.06	3.36	-191.3	186.21	-52.66	-108.02	23.12	-244.91	160	19.73	-104.64	154.13	-239.03
	T.kiri	3.69	1.14	-8.53E-01	8.86E-01	1.29E-01	-1.16E-01	6.25	4.1	5.81	4.82	5.08	5.84	4.06	5.11	4.79
	Lap	-56.73	-16.66	2.49	-2.71	-2.4	2.34	-94.74	-73.46	-77.17	-77.05	-73.58	-77.43	-73.2	-73.71	-76.92
245	T.kanan	-138.01	-40.78	5.83	-6.31	-4.92	4.8	-230.86	-178.88	-188.02	-186.78	-180.12	-188.57	-178.33	-180.4	-186.5
	T.kiri	-91.85	-18.07	3.02	1.51E-01	114.1	-111.71	-139.14	-74.41	-152.63	7.23	-234.28	-148.55	-78.49	-230.77	3.72
	Lap	56.79	12.48	3.62	-4.08	-9.89	9.55	90.52	74.27	72.77	64.49	82.56	72.23	74.81	82.26	64.79
260-261	T.kanan	-49.13	-6.43	-10.55	7.09	-133.52	130.83	-69.24	-110.8	-4.53	-201.18	85.86	-9	-106.32	81.94	-197.27
	T.kiri	-54.95	-13.87	7.78	-2.31	182.57	-178.44	-88.12	-5.12	-136.48	123.35	-264.95	-129.43	-12.17	-258.88	117.29

262	Lap	-11.87	-2.62	-5.93E-01	9.93E-01	13.12	-12.78	-18.44	-11.43	-18.45	-1.36	-28.53	-17.92	-11.96	-28.04	-1.84
	T.kanan	7.42	3	-8.96	4.3	-156.34	152.88	13.71	-48.03	69.29	-156.35	177.61	63.3	-42.04	172.51	-151.25
	T.kiri	-1.53	-4.62E-01	2.12E-01	-2.53E-01	2.48E-01	-2.31E-01	-2.57	-1.74	-2.34	-1.71	-2.37	-2.38	-1.7	-2.36	-1.72
263	Lap	-23.91	-6.78	-3.81	3.98	9.23E-01	-8.78E-01	-39.54	-35.23	-27.8	-31.75	-31.28	-27.61	-35.42	-31.18	-31.85
	T.kanan	-61.23	-16.26	-7.83	8.21	1.6	-1.52	-99.48	-87.37	-71.93	-80.44	-78.86	-71.51	-87.79	-78.66	-80.64



Load Combinations

- combo 1 = 1,2 MD + 1,6 ML
- combo 2 = 1,05 (MD + 0,9 ML + Mex kiri) + 0,315 Mey kiri
- combo 3 = 1,05 (MD + 0,9 ML - Mex kiri) - 0,315 Mey kiri
- combo 4 = 1,05 (MD + 0,9 ML + Mey kanan) + 0,315 Mex kanan
- combo 5 = 1,05 (MD + 0,9 ML - Mey kanan) - 0,315 Mex kanan

combo 6 = 1,05 (MD + 0,9 ML + Mex kanan) + 0,315 Mey kanan

combo 7 = 1,05 (MD + 0,9 ML - Mex kanan) - 0,315 Mey kanan

combo 8 = 1,05 (MD + 0,9 ML + Mey kanan) - 0,315 Mex kanan

combo 9 = 1,05 (MD + 0,9 ML - Mey kanan) - 0,315 Mex kanan

Tabel 25. Kombinasi Momen Untuk Balok induk Lantai 3

Frame	Letak	Midi	Hidup	Ex kiri	Ey kiri	Ex kanan	Ey kanan	Comb1	Comb2	Comb3	Comb4	Comb5	Comb6	Comb7	Comb8	Comb9
		M3	M3	M3	M3	M3	M3	M3	M3	M3	M3	M3	M3	M3	M3	M3
336	T. kiri	-41.34	-6.64	114.08	-103.59	4.41	-4.3	-60.23	71.49	-170.85	-9.12	-90.25	-159.8	60.44	-86.83	-12.54
	Lap	10.76	-5.10E-01	4.35	-3.35	1.09E-01	-1.05E-01	12.09	15.42	6.21	12.3	9.33	7.26	14.37	9.65	11.98
	T. kanan	-5.34E+01	-13.01	-105.37	96.88	-4.19	4.09	-84.95	-180.37	43.55	-106.01	-30.82	34.6	-171.42	-33.6	-103.22
424-426	T. kiri	-240.38	-80.67	64.14	-59.77	2.68	-2.61	-417.52	-260.44	-396.82	-305.61	-351.65	-392.21	-265.05	-350.2	-307.06
	Lap	142.59	48.43	2.58E-01	-5.79E-02	-1.21	1.22	248.6	195.38	195.6	194.31	196.68	195.81	195.17	196.76	194.23
	T. kanan	-2.49E+02	-8.27E+01	-66.6	62.71	2.1	-2.21	-431.23	-408.96	-270.43	-358.46	-320.92	-274.54	-404.84	-322.25	-357.13
350-351	T. kiri	-100.62	-20.99	84.66	-81	-2.29	2.15	-154.32	-37.31	-213.65	-101.22	-149.75	-209.85	-41.11	-148.73	-102.23
	Lap	42.52	6.02E+00	5.52E-01	-3.24E-02	1.7	-1.62	60.66	51.45	49.22	52.29	48.38	49.79	50.88	48.62	52.05
	T. kanan	-1.05E+02	-22.45	-83.91	81.47	1.63E-02	-3.47E-02	-161.97	-219.61	-43.41	-157.92	-105.09	-45.98	-217.04	-105.88	-157.13
427-429	T. kiri	-259.1	-86	63.58	-63.16	4.51	-4.48	-448.52	-285.14	-421.5	-328.56	-378.09	-421.05	-285.59	-377.92	-328.72
	Lap	147.68	50.28	1.41E-01	1.48E-01	-2.41	2.38	297.66	201.96	203.19	200.09	205.06	203.48	201.67	205.12	200.03
	T. kanan	-2.59E+02	-85.85	-63.15	63.58	4.54	-4.51	-447.87	-417.69	-287.95	-367.94	-337.7	-287.49	-418.16	-337.53	-368.11
384-385	T. kiri	-105.45	-22.46	81.47	-83.93	-8.05E-03	-1.24E-02	-162.47	-46.4	-217.49	-106.29	-157.6	-220.07	-43.82	-158.4	-105.5
	Lap	42.54	5.97	5.73E-01	-7.92E-02	1.77	-1.68	60.6	51.47	49.15	52.35	48.27	49.7	50.93	48.52	52.1
	T. kanan	-1.00E+02	-20.89	-81.01	84.67	-2.27	2.14	-153.61	-210.68	-39.14	-152.81	-97	-35.33	-214.49	-95.99	-153.83
430-432	T. kiri	-249.23	-82.77	62.7	-66.50	2.09	-2.19	-431.51	-273.41	-408.4	-317.97	-361.85	-410.52	-269.3	-363.19	-316.83
	Lap	142.54	48.37	-5.32E-02	2.52E-01	-1.21	1.22	248.44	194.94	195.81	194.09	196.66	196.03	194.73	196.74	194.01
	T. kanan	-2.40E+02	-80.44	-59.77	64.15	2.71	-2.63	-416.85	-390.05	-266.24	-344.13	-312.16	-261.62	-394.67	-310.7	-345.58
418	T. kiri	-53.93	-13.18	96.87	-105.37	-4.22	4.11	-85.8	7.38	-169.46	-42.99	-95.16	-178.42	40.27	-97.95	-40.2
	Lap	10.79	-4.88E-01	-3.36	4.35	1.10E-01	-1.06E-01	12.17	15.41	14.36	9.93	11.81	15.41	6.33	12.13	9.61
	T. kanan	-4.08E+01	-6.43E+00	-103.58	114.08	4.44	-4.33	-59.23	-156.26	58.46	-76.87	-20.93	69.52	-167.32	-17.51	-80.29
448	T. kiri	-49.54	-1.13E+01	117.5	-112.16	-2.13	2	-77.53	60	-185.4	-27.92	-97.47	-179.83	54.44	-95.93	-29.46
	Lap	23.85	5	1.08	-8.59E-01	-1.14E-01	1.06E-01	36.62	30.87	28.67	29.99	29.55	28.9	30.64	29.61	29.93
	T. kanan	-5.26E+01	-15.22	-115.33	110.44	1.91	-1.78	-87.49	-190.12	50.87	-103.95	-35.3	45.77	-185.03	-36.71	-102.54
462	T. kiri	-52.51	-15.17	110.45	-115.29	1.95	-1.83	-87.28	47.12	-186.06	-32.63	-106.32	-191.1	52.16	-107.71	-31.23
	Lap	23.93	5.03	-8.62E-01	1.09	-1.19E-01	1.11E-01	36.76	28.94	30.82	29.48	30.28	31.05	28.71	30.34	29.42
	T. kanan	-4.95E+01	-112.18	-112.18	117.46	-2.19	2.05	-77.45	-181.11	55.84	-100.27	-25	61.34	-186.61	-23.48	-101.79

463	T. kiri	-38.5	-10.9	122.63	-113.26	-6.47E-01	6.13E-01	-63.64	77.84	-179.29	-12.78	-88.68	-169.45	68	-85.76	-15.69
	Lap	4.56	2.82	4.65	-3.81	1.42E-01	-1.31E-01	9.98	12.37	2.53	9.06	5.84	3.41	11.49	6.11	8.79
	T. kanan	-4.42E+01	-16.11	-113.34	105.65	9.30E-01	-8.78E-01	-78.85	-180.39	57.05	-96.39	-26.94	48.99	-172.32	-29.31	-94.03
	T. kiri	-274.71	-7.95E+01	68.54	-65	3.69	-3.48	-456.84	-290.44	-436.69	-338.1	-389.03	-432.91	-294.23	-387.69	-339.44
464-466	Lap	159.41	46.64	1.45	-1.09	-4.3	4.11	265.92	211.62	211.29	207.4	215.51	211.6	211.31	215.43	207.48
	T. kanan	-2.81E+02	-82.06	-74.08	70.96	12.65	-12.14	-468.52	-446.42	-298.81	-382.67	-362.56	-301.93	-443.3	-363.01	-382.22
	T. kiri	-144.21	-3.89E+01	89.17	-86.71	5.87	-5.59	-235.36	-92.74	-283.7	-153.97	-222.47	-281.03	-95.41	-221.4	-155.04
467-468	Lap	75.74	21.46	7.66E-01	-4.08E-01	-5.82	5.52	125.21	98.77	100.83	93.93	105.67	101.11	98.49	105.46	94.13
	T. kanan	-1.53E+02	-41.65	-89.03	87.11	6.5	-6.17	-250.09	-291.31	-108.45	-221.09	-178.66	-110.36	-289.39	-178.92	-220.83
	T. kiri	-297.99	-87.04	69.81	-69.54	11.66	-11.06	-496.86	-318.18	-472.12	-360.91	-429.38	-471.65	-318.65	-428.66	-361.63
469-471	Lap	166.13	49.3	1.66E-01	1.84E-01	-5.92	5.61	278.25	219.34	222.72	214.87	227.2	222.99	219.07	226.98	215.09
	T. kanan	-2.99E+02	-87.3	-69.61	69.8	11.32	-10.73	-498.35	-465.86	-326.8	-406.38	-386.29	-326.42	-466.24	-385.61	-407.06
	T. kiri	-151.66	-41.1	87.22	-89.05	6.76	-6.42	-247.75	-104.37	-291.79	-163.51	-232.65	-293.61	-102.55	-232.87	-163.29
472-473	Lap	75.71	21.35	9.92E-01	-6.64E-01	-5.53	5.25	125.01	98.97	100.37	94.18	105.16	100.63	98.72	104.97	94.37
	T. kanan	-1.45E+02	-39.48	-86.85	89.26	5.8	-5.53	-237.7	-279.38	-100.66	-211.29	-168.75	-98.04	-282	-167.71	-212.33
	T. kiri	-280.53	-81.74	71.11	-74.23	12.82	-12.11	-467.41	-293.16	-450.43	-336.15	-407.45	-453.55	-290.04	-407.89	-335.7
474-476	Lap	159.68	4.67E+01	-1.08	1.44	-4.28	4.09	266.38	209.34	214.3	206.98	216.66	214.62	209.01	216.57	207.07
	T. kanan	-2.75E+02	-79.49	-65.09	68.67	3.84	-3.62	-456.98	-430.83	-296.55	-380.16	-347.22	-292.72	-434.65	-345.86	-381.51
	T. kiri	-46.07	-16.91	105.7	-113.49	5.65E-01	-5.25E-01	-82.34	46.81	-175.51	-30.46	-98.24	-183.69	54.98	-100.65	-28.05
477	Lap	4.21	2.68E+00	-3.82	4.67	1.59E-01	-1.48E-01	9.33	2.99	10.91	5.91	7.99	11.81	2.09	8.26	5.63
	T. kanan	-3.74E+01	-10.38	-113.34	122.83	-2.47E-01	2.29E-01	-61.45	-168.13	70.04	-85	-13.08	80.01	-178.09	-10.11	-87.98
	T. kiri	-97.87	-20.07	8.93E-03	97.44	2.58	-95.41	-149.56	-91.03	-152.44	-19.42	-224.05	-149.08	-94.39	-221.1	-22.37
319-320	Lap	56.63	12	-3.01	-5.23	2.64	5.19	87.16	66	75.61	64.36	77.24	75.21	66.4	77.08	64.52
	T. kanan	-4.89E+01	-5.81	5.34	-107.84	-7.97	105.71	-67.95	-85.17	-28.45	-168.36	54.73	-31.88	-81.74	51.67	-165.3
	T. kiri	-56.38	-13.67	-1.24	5.82	135.38	-132.25	-89.53	-30.77	-113.47	69.64	-213.88	-107.66	-36.57	-208.14	64.9
321	Lap	-7.18	-1.42	5.15E-01	-2.50E-01	8.5	-8.25	-10.89	-5.67	-12.1	2.00E-01	-17.97	-11.75	-6.03	-17.62	-1.47E-01
	T. kanan	1.82E+01	5.21	2.27	-6.32	-118.39	115.75	30.21	-10.85	58.97	-99.53	147.65	53.89	-5.76	143.61	-95.49
	T. kiri	-1.53	-4.49E-01	-1.66E-01	1.27E-01	2.06E-01	-1.85E-01	-2.56	-2.14	-1.92	-1.87	-2.2	-1.96	-2.11	-2.19	-1.88
327	Lap	-24.49	-6.89	3	-2.82	7.58E-01	-7.06E-01	-40.42	-28.85	-35.62	-30.49	-33.97	-35.42	-29.05	-33.86	-30.6
	T. kanan	-6.24E+01	-16.49	6.16	-5.77	1.31	-1.23	-101.26	-74.22	-87.97	-77.78	-84.41	-87.54	-74.65	-84.2	-77.99
	T. kiri	-181.43	-54.34	-1.73	115.57	2.94	-112.82	-304.66	-207.26	-276.44	-121.05	-362.65	-274.66	-209.04	-359.3	-124.4
337-338	Lap	123.52	41.73	3.39	-4.29	-3.17	4.34	214.99	171.34	166.92	165.7	172.56	167.16	171.1	172.68	165.58
	T. kanan	-9.79E+01	-29.63	-3	-123.63	1.91	120.81	-164.85	-172.85	-88.66	-261.52	3.76E-03	-90.7	-170.82	-3.3	-256.21
	T. kiri	-22.46	-16.98	-4.37	4.61	164.67	-159.1	-97.14	-29.99	-124.55	94.25	-248.79	-122.55	-31.99	-242.87	88.33
339	Lap	-10.47	-10.47	-10.47	4.51E-01	9.82	-9.34	-18.38	-1.78	-17.08	-4.25	-24.61	-16.9	-11.96	-24.09	-4.77
	T. kanan	-58.31	-3.43	3.52	-3.7	-145.02	140.42	-32.44	-68.81	15.16	-177.99	124.34	13.52	-67.17	119.46	-173.1
	T. kiri	3.21	9.78E-01	6.57E-01	1.29E-01	-6.13E-01	-1.13E-01	5.41	5.02	3.56	4.63	3.95	3.61	4.97	3.98	4.8
340	Lap	-56.66	-16.71	-1.93	-1.89	1.74	1.85	-94.73	-77.91	-72.66	-77.88	-72.69	-72.88	-77.7	-72.8	-77.78

	T. kanan	-137.39	-40.72	-4.52	-3.92	4.09	3.81	-230.01	-188.71	-176.75	-188.27	-177.19	-177.23	-188.23	-177.44	-188.02
	T. kiri	-378.02	-116.55	-1.13E-01	166.63	-2.21	-158.36	-640.1	-454.69	-559.43	-332.14	-681.98	-559.26	-454.85	-674.03	-340.08
328-330	Lap	191.56	59.43	-3.98E-01	6.1	3.69E-01	-5.55	324.96	258.8	255.79	263.57	251.02	255.93	258.66	251.58	263.01
	T. kanan	-291.44	-88.11	2.57	-164.09	-3.95E-01	156.59	-490.7	-438.26	-340.28	-560.76	-217.78	-340.36	-438.18	-224.97	-553.57
	T. kiri	1.9	4.54E-01	-3.56E-01	-4.68E-01	3.71E-01	4.40E-01	3.01	1.91	2.95	1.82	3.03	2.96	1.9	3.01	1.85
606	Lap	-59.88	-17.67	1.36	-6.84	-1.25	6.48	-100.14	-80.31	-78.85	-86.34	-72.82	-78.85	-80.31	-73.16	-85.99
	T. kanan	-142.52	-42.12	3.07	-13.22	-2.87	12.53	-238.42	-190.39	-188.51	-202.37	-176.54	-188.52	-190.39	-177.2	-201.71
	T. kiri	-384.37	-118.46	-3.83	165.88	8.63E-01	-176.08	-650.78	-461.01	-570.06	-321.57	-709.5	-570.09	-460.97	-700.15	-330.92
352-354	Lap	194.2	60.31	6.94E-01	7.02	-7.09E-01	-6.41	329.54	263.85	257.96	268.5	253.31	258.14	263.67	253.95	267.86
	T. kanan	-291.99	-88.57	3.35E-01	-183.74	2.33	174.65	-492.1	-447.81	-332.76	-583.11	-197.46	-332.82	-447.75	-206.17	-574.41
	T. kiri	2.83	7.46E-01	4.44E-01	-3.92E-01	-4.15E-01	3.66E-01	4.59	4.02	3.33	3.4	3.95	3.36	4	3.93	3.42
355	Lap	-56.57	-16.61	-1.01	-7.81	1.06	7.38	-94.45	-78.61	-71.57	-83.6	-66.58	-71.65	-78.53	-67.01	-83.17
	T. kanan	-136.82	-40.28	-2.46	-15.22	2.54	14.39	-228.63	-189.1	-174.35	-198.48	-164.97	-174.53	-188.92	-165.82	-197.63
	T. kiri	-384.74	-118.47	7.98E-01	185.91	-3.72	-178.11	-651.23	-456.53	-575.33	-320.47	-711.38	-575.31	-456.54	-702.01	-329.84
367-369	Lap	193.91	60.16	-7.31E-01	7.01	7.19E-01	-6.4	328.95	261.9	259.01	267.59	253.32	259.2	261.72	253.96	266.95
	T. kanan	-292.28	-88.64	2.33	-183.86	2.99E-01	174.76	-492.56	-446.13	-335.19	-582.98	-198.35	-335.3	-446.02	-207.07	-574.26
	T. kiri	2.84	7.44E-01	-4.13E-01	-3.85E-01	4.42E-01	3.60E-01	4.59	3.13	4.24	3.15	4.22	4.26	3.1	4.2	3.16
370	Lap	-56.49	-16.6	1.08	-7.79	-1.02	7.36	-94.35	-76.32	-73.68	-82.84	-67.17	-73.76	-76.25	-67.6	-82.41
	T. kanan	-136.68	-40.26	2.57	-15.19	-2.49	14.36	-228.43	-183.64	-179.47	-196.69	-166.42	-179.65	-183.46	-167.26	-195.85
	T. kiri	-378.31	-115.09	-2.04	167.17	-1.70E-01	-158.87	-638.12	-455.47	-568.5	-331.1	-680.87	-568.21	-455.76	-672.85	-339.12
386-388	Lap	191.18	58.01	4.07E-01	6.15	-4.29E-01	-5.6	322.23	257.92	253.19	262.15	248.97	253.35	257.77	249.55	261.57
	T. kanan	-292.21	-86.3	-4.46E-01	-164.52	2.51	157	-488.74	-440.67	-336.09	-561.27	-215.49	-336.29	-440.47	-222.74	-554.02
	T. kiri	1.92	4.62E-01	3.67E-01	-4.77E-01	-3.53E-01	4.48E-01	3.04	2.68	2.21	2.06	2.83	2.22	2.68	2.81	2.09
389	Lap	-59.9	-17.7	-1.27	-6.91	1.37	6.55	-100.19	-83.13	-76.1	-87.27	-71.96	-76.12	-83.12	-72.31	-86.92
	T. kanan	-142.56	-42.18	-2.91	-13.34	3.09	12.64	-238.56	-196.81	-182.29	-204.48	-174.62	-182.32	-196.78	-175.3	-203.8
	T. kiri	-177.72	-52.92	2.54	115.45	-1.73	-112.51	-297.93	-197.57	-275.65	-114.58	-358.64	-273.87	-199.35	-355.29	-171.93
401-402	Lap	123.7	41.8	-3.17	-4.28	3.36	4.33	215.32	164.71	174.06	163.89	174.88	174.3	164.47	175	163.77
	T. kanan	-100.98	-30.82	1.92	-123.52	-3.01	120.71	-170.48	-172.05	-98.25	-264.24	-6.06	-100.28	-170.02	-9.35	-260.95
	T. kiri	-62.5	-18.68	4.48	164.55	-4.25	-158.95	-104.88	-26.74	-139.81	90.91	-257.46	-137.8	-28.75	-251.51	84.96
403	Lap	-12.23	-4.31	4.24E-01	9.82	-4.00E-01	-9.33	-21.58	-13.38	-20.46	-6.47	-27.36	-20.27	-13.56	-26.84	-7
	T. kanan	-21.79	-3.08	-3.63	-144.91	3.45	140.29	-31.08	-75.26	23.67	-179.1	127.51	22.02	-73.61	122.6	-174.19
	T. kiri	3.24	9.89E-01	-6.11E-01	1.35E-01	6.56E-01	-1.19E-01	5.47	3.74	4.94	4.29	4.39	4.99	3.69	4.42	4.26
404	Lap	-56.62	-16.71	1.75	-1.9	-1.94	1.85	-94.68	-74.01	-76.48	-76.69	-73.8	-76.7	-73.79	-73.91	-76.58
	T. kanan	-137.34	-40.73	4.1	-3.93	-4.54	3.82	-229.97	-179.63	-185.77	-185.53	-179.86	-186.26	-179.14	-180.11	-185.28
	T. kiri	-94.82	-18.96	2.56	97.2	-1.75E-02	-95.18	-144.12	-84.17	-150.79	-14.61	-220.34	-147.48	-87.48	-217.42	-17.54
419-420	Lap	56.68	12.01	2.64	-5.21	-3	5.18	87.24	71.99	69.74	66.22	75.51	69.34	72.39	75.35	66.36
	T. kanan	-51.88	-6.93	-7.98	-107.58	5.38	105.45	-73.34	-103.26	-18.79	-178.47	54.43	-22.16	-99.89	51.4	-173.44
	T. kiri	-56.24	-13.51	5.82	135	-1.32	-131.87	-89.1	-23.18	-120.45	71.76	-215.4	-114.75	-28.89	-210.69	67.06

421	Lap	-7.94	-1.66	-2.51E-01	8.47	5.10E-01	-6.22	-12.19	-7.51	-12.32	-1.09	-18.73	-11.97	-7.86	-18.39	-1.44
	T. kanan	16.57	4.56	-6.32	-118.05	2.34	115.42	27.18	-22.12	65.53	-104.24	147.65	60.52	-17.11	143.64	-100.22
	T. kiri	-1.56	-4.61E-01	1.27E-01	2.08E-01	-1.65E-01	-1.86E-01	-2.61	-1.87	-2.27	-1.81	-2.33	-2.3	-1.84	-2.32	-1.82
422	Lap	-24.52	-6.9	-2.82	7.73E-01	3	-7.20E-01	-40.46	-34.98	-29.54	-32.34	-32.18	-29.33	-35.19	-32.07	-32.45
	T. kanan	-62.41	-16.49	-5.77	1.34	6.17	-1.25	-101.28	-86.75	-75.47	-81.53	-80.7	-75.03	-87.2	-80.48	-81.74

Load Combinations

combo 1 = 1,2 MD + 1,6 ML

combo 2 = 1,05 (MD + 0,9 ML + Mex kiri) + 0,315 Mey kiri

combo 3 = 1,05 (MD + 0,9 ML - Mex kiri) - 0,315 Mey kiri

combo 4 = 1,05 (MD + 0,9 ML + Mey kiri) + 0,315 Mex kiri

combo 5 = 1,05 (MD + 0,9 ML - Mey kiri) - 0,315 Mex kiri

combo 6 = 1,05 (MD + 0,9 ML + Mex kanan) + 0,315 Mey kanan

combo 7 = 1,05 (MD + 0,9 ML - Mex kanan) - 0,315 Mey kanan

combo 8 = 1,05 (MD + 0,9 ML + Mey kanan) - 0,315 Mex kanan

combo 9 = 1,05 (MD + 0,9 ML - Mey kanan) - 0,315 Mex kanan

Tabel 26. Kombinasi Momen Untuk Balok induk Lantai 4

Frame	Letak	Mati M3	Hidup M3	Ex.kiri M3	Ey.kiri M3	Ex.kanan M3	Ey.kanan M3	Comb1		Comb2		Comb3		Comb4		Comb5		Comb6		Comb7		Comb8		Comb9	
								M3	M3	M3	M3	M3	M3	M3	M3	M3	M3	M3	M3	M3	M3	M3	M3	M3	M3
489	T.kiri	-24.09	-8.10E-01	61.95	5.60E+00	-52.38	-5.30E+00	-30.2	40.75	-92.87	1.4	5.09	-6.63E-01	-51.45	-82.72	30.61	-48.12	-3.99							
	Lap	5.89	-2.28	2.42E+00	2.77E-01	-2.53E+00	-2.60E-01	3.43	6.67	1.4	5.09	-6.63E-01	2.98	1.3	6.77	2.97	5.11								
	T.kanan	-80.43	-22.38	-57.1	-5.04E+00	47.32	4.78E+00	-132.32	-167.14	-44.05	-128.88	-125.75	-31.55	-82.31	-110.05	12.89	-61.39	-35.77							
576	T.kiri	-39.28	-7.76	75.42	-6.41	-60.31	5.9	-59.56	28.59	-125.75	24.4	25.81	-108.69	25.1	24.59	26.32	25.14	25.77							
	Lap	20.82	3.8	9.95E-01	4.15E-02	-8.08E-01	-6.04E-02	31.07	26.51	24.4	25.81	-108.69	-76.06	-32.64	-152.11	-80.2	-104.55								
	T.kanan	-68.94	-21.16	-73.43	6.49	58.69	-6.02	-116.57	-167.43	-17.32	-133.98	-36.65	-80.3	-132.5	15.55	-80.03	-36.92								
591	T.kiri	-45.45	-11.38	72.17	-8.64E-01	-70.7	6.78E-01	-72.75	17.03	-133.98	-36.65	-80.3	-132.5	15.55	-80.03	-36.92									
	Lap	7.88E-01	1.42	2.75	2.71E-02	-2.74	-4.51E-03	3.21	5.06	-7.28E-01	3.06	1.27	-7.12E-01	5.04	1.3	3.03									
	T.kanan	-44.83	-18.43	-66.67	9.18E-01	65.22	-6.87E-01	-83.28	-134.2	5.23	-84.52	-44.45	-329.84	-352.09	-278.62	-328.12	-302.59								
552-554	T.kiri	-230.76	-77.31	39.37	1.98	-34.44	-1.83	-400.61	-273.4	-357.32	203.94	204.27	205.55	205.27	204.55	205.98	203.84								
	Lap	149.52	50.71	1.22	-9.79E-01	3.67E-02	1.01	260.55	205.88	-372.4	-291.36	-347.48	-316.29	-293.01	-370.75	-317.28	-346.48								
	T.kanan	-243.42	-80.73	-37.51	-3.6	45.78	7.18E-01	-453.26	-312.26	-409.47	-346.93	-374.79	-408.71	-408.71	-313.02	-374.53	-347.2								
592-594	T.kiri	-272.98	-78.56	46.5	-6.82E-01	-45.78	7.18E-01	-453.26	-312.26	-409.47	-346.93	-374.79	-408.71	-408.71	-313.02	-374.53	-347.2								
	Lap	162.32	47.85	1.13	-2.34	-7.24E-01	2.16	271.34	216.1	215.2	213.55	217.75	215.57	215.73	217.69	213.61									
	T.kanan	-276.45	-80.36	-50.57	9.34	49.27	-8.74	-460.31	-416.36	-185.12	-120.8	-157.39	-360.08	-317.23	-415.18	-359.87	-372.54								
500-501	T.kiri	-110.58	-24.32	42.42	4.7	-43.53	-4.41	-171.61	-93.07	-185.12	-120.8	-157.39	-360.08	-317.23	-415.18	-359.87	-372.54								
	Lap	34.27	3.25	-7.04E-01	8.67E-01	6.53E-02	-7.92E-01	46.32	38.92	39.52	39.65	39.85	39.85	38.88	38.88	39.56	39.95								
	T.kanan	-113.99	-25.45	-43.38	-6.24	43.23	5.67	-177.51	-191.26	-96.22	-163.95	-123.53	-123.53	-96.56	-190.92	-124.17	-163.31								
595-596	T.kiri	-148.68	-40.98	57.98	2.75	-57.44	-2.57	-243.99	-133.11	-256.59	-173.7	-216	-216	-255.97	-133.72	-215.64	-174.05								
	Lap	72.86	20.06	3.48E-01	-3.36	6.86E-01	3.03	119.53	94.75	97.13	92.03	92.03	99.03	97.1	94.77	98.73	92.35								
	T.kanan	-156.34	-43.09	-58.15	4.43	57.66	-3.99	-256.55	-264.53	-145.22	-218.53	-191.21	-145.59	-145.59	-264.16	-190.9	-218.84								
555-557	T.kiri	-255.31	-84.43	35.36	3.52	-35.08	-3.63	-441.47	-309.63	-386.1	-333.03	-362.7	-385.84	-309.89	-362.73	-333.01									
	Lap	154.92	52.57	1.61E-01	4.61E-01	1.59E-01	-2.33E-01	270.02	212.66	212.03	212.88	211.81	212.44	212.44	212.25	212.15	212.54								
	T.kanan	-255.2	-84.35	-35.07	3.56	35.36	-3.67	-441.19	-383.37	-311.96	-354.98	-340.36	-311.69	-383.64	-340.38	-354.96									
597-599	T.kiri	-295.87	-85.89	47.58	6.49	-47.59	-5.88	-492.48	-339.84	-443.84	-370.04	-413.64	-443.66	-340.02	-413	-370.67									
	Lap	168.53	50.32	7.03E-02	-3.59	7.29E-02	3.25	282.75	223.45	225.56	220.76	225.61	225.61	223.41	223.41	227.94	221.07								
	T.kanan	-298.18	-85.98	-47.59	6.48	47.59	-5.88	-492.99	-440.17	-344.31	-400.43	-384.05	-344.13	-440.36	-383.42	-401.06									

524-525	T. kiri Lap	-114.12 34.27	-25.36 3.21	43.22 6.54E-02	8.88E-01 4.7E+00	-6.28 42.42	-7.03E-01 -4.44	5.71 -3.94	-177.51 -171.48	-100.38 -183.18	-187.19 -94.77	-136.77 -147.71	-150.81 -130.24	-187.54 -95.83	-100.03 -182.12	-151.46 -130.28	-136.12 -147.67
600-601	T. kanan Lap	-110.46 -155.99	-24.34 -42.85	-43.52 57.62	4.38 6.85E-01	-3.37 -57.4	3.44E-01 57.94	3.05 -2.62	-255.75 119.48	-142.4 95.15	-266.16 96.78	-181.53 92.27	-227.04 99.06	-266.54 96.76	-142.02 95.18	-226.73 98.74	-181.84 92.57
558-560	T. kanan Lap	-149 -243.52	-41.1 -80.76	-57.4 36.09	2.8 -3.63	2.8 -37.51	57.94 -37.51	-2.62 3.1	-244.57 -421.45	-254.69 -295.26	-135.91 -368.77	-210.44 -324.46	-180.15 -339.58	-135.28 -370.43	-255.31 -293.61	-179.79 -340.58	-210.8 -323.46
602-604	T. kanan Lap	149.53 -230.67	50.66 -77.13	3.46E-02 -34.43	-9.86E-01 2.01	1.22 39.37	1.22 -39.37	1.02 -1.85	280.5 -400.21	204.61 -350.61	205.16 -279.57	203.86 -323.83	205.91 -306.35	206.48 -274.33	203.28 -355.85	206.33 -304.63	203.43 -325.55
548	T. kiri Lap	-276.13 162.29	-80.18 47.79	49.3 -7.28E-01	9.38 -2.34	9.38 -2.34	-50.6 1.13	-8.78 2.17	-459.65 271.22	-310.98 214.07	-420.43 217.07	-340.33 212.88	-391.09 218.26	-421.6 217.44	-309.81 213.7	-390.87 218.2	-340.55 212.94
590	T. kanan Lap	-273.52 -80.76	-78.69 -22.47	-45.82 47.32	-6.88E-01 -5.04	46.54 -57.11	46.54 -57.11	7.24E-01 4.78	-454.14 -132.86	-409.89 -57.93	-313.24 -154.13	-376.72 -96.41	-346.41 -115.64	-312.47 -164.49	-410.66 -47.57	-346.14 -119	-376.99 -93.06
605	T. kiri Lap	5.89 -23.75	-2.26 -6.91E-01	-2.53 -52.38	2.79E-01 5.6	2.42 61.95	2.42 61.95	-2.62E-01 -5.3	3.45 -29.61	1.48 -78.83	6.62 27.64	3.55 -36.22	4.55 -14.97	6.51 37.78	1.59 -88.97	4.54 -11.65	3.56 -39.54
478-479	T. kanan Lap	-68.8 20.83	-21.09 3.81	58.71 -8.08E-01	6.53 4.11E-02	6.53 9.94E-01	-73.42 9.94E-01	-6.05 -5.99E-02	-116.3 31.09	-28.47 24.64	-155.87 26.31	-66.82 25.26	-117.51 25.68	-171.17 26.5	-13.17 24.45	-121.65 25.72	-82.89 25.22
480	T. kiri Lap	-39.4 -45.29	-7.82 -18.65	-60.32 65.22	-6.44 9.41E-01	75.41 -66.67	75.41 -66.67	5.93 -7.10E-01	-59.78 -84.19	-114.13 3.6	16.62 -133.96	-74.52 -43.65	-22.99 -86.71	32.3 -135.4	5.04 -6.69E-01	-18.78 3.08	-78.73 -43.44
607	T. kanan Lap	8.19E-01 -44.92	1.43 -11.13	-2.74 -70.7	2.62E-02 -8.89E-01	2.75 72.16	2.75 72.16	-3.78E-03 7.02E-01	3.28 -71.71	-132.2 -142.14	5.08 16.84	1.38 -80.89	3.05 -34.48	5.1 18.31	-6.69E-01 -133.67	3.08 -34.21	1.35 -81.15
490-491	T. kiri Lap	-93.85 56.74	-18.45 12.03	-8.51E-01 -1.73	71.41 -3.05	71.41 -3.05	2.54 1.27	-69.97 3.04	-142.14 87.34	-94.38 66.16	-137.58 73.73	-41.26 67.19	-190.7 74.7	-135.35 73.24	-96.61 68.65	-188.65 74.54	-43.31 67.35
492	T. kanan Lap	-50.65 -52.73	-6.72 -12.43	3.96 -5.79E-01	-77.92 79.38	3.82 79.38	3.82 79.38	-77.65 -5.89	-83.17 -13.69	-42.72 -8.87	-91.51 -13.17	16.05 -4.58	-150.29 -17.46	-40.98 -12.95	-9.08 -1.78	-147.44 82.69	13.21 -53.11
624	T. kiri Lap	-8.6 11.75	-2.1 2.6	2.30E-01 1.04E+00	6.07 -67.25	6.07 -67.25	-3.97 5.60E-02	65.86 1.17E-02	18.26 -2.61	-5.3 -2.15	34.88 -2	-55.49 -2.1	85.08 -2.05	31.36 -2.01	-1.78 -2.14	82.69 -2.05	-53.11 -2.11
	T. kanan Lap	-1.56 -24.93	-4.66E-01 -7	-6.77E-02 1.7	1.58E-03 1.38E-01	5.60E-02 -1.71	5.60E-02 -1.71	1.17E-02 -1.65E-01	-2.61 -41.11	-2.15 -30.97	-2 -34.61	-2.1 -32.11	-2.05 -33.47	-2.01 -34.63	-2.14 -30.95	-2.05 -33.5	-2.11 -32.08
	T. kiri Lap	-63.24 -184.39	-16.68 -53.57	3.46 -2.64E-02	2.77E-01 75.99	-3.47 6.19E-02	-3.47 6.19E-02	-3.42E-01 -74.07	-102.58 -306.98	-78.45 -220.32	-85.89 -268.14	-80.79 -164.45	-83.55 -324.02	-85.92 -267.5	-78.42 -220.96	-83.62 -321.99	-80.71 -166.47
	T. kanan Lap	126.52 -92.84	43 -29.02	2.02 -2.58	-2.42 79.24	-1.44 1.87	-1.44 1.87	2.34 77.12	220.63 -157.83	174.85 -152.57	172.12 -97.23	171.58 -208.92	175.38 -40.88	172.71 -98.65	174.25 -151.15	175.49 -43.34	171.48 -206.46
	T. kiri Lap	-53.43 -12.88	-17.01 -5.5	-3.93 -6.81E-02	79.75 6.19	79.75 6.19	79.75 6.19	-77.69 -6.01	-91.34 -24.26	-51.19 -16.85	-93.17 -20.6	10.32 -12.24	-154.68 -25.21	-93.75 -20.52	-50.6 -16.93	-152.88 -25.01	8.53 -12.44
	T. kanan Lap	-32.16 3.5	-7.13 1.11	3.8 3.75E-01	-67.37 1.05E-01	-2.57 -3.58E-01	-2.57 -3.58E-01	65.67 -4.08E-02	-50 5.98	-57.74 5.15	-23.27 4.3	-110.05 4.95	29.03 4.5	-22.52 4.34	-58.49 5.11	27.63 4.57	-108.65 4.88
	Lap	-55.68 -16.4	-16.4 -8.50E-01	-9.37E-01 9.34E-01	-9.37E-01 9.34E-01	-9.37E-01 9.34E-01	-9.37E-01 9.34E-01	1.09	-93.03	-75.13	-72.75	-75.19	-72.69	-72.62	-75.27	-72.5	-75.38

481-483	T.kanan	-135.69	-40.22	-2.07	-1.98	2.23	2.22	-227.17	-183.28	-177.67	-183.21	-177.74	-177.44	-183.51	-177.44	-183.51	-177.44	-183.51
	T.kiri	-372.78	-114.03	3.38E-01	96.98	-1.65	-87.21	-629.79	-488.28	-530.09	-397.24	-601.12	-528.39	-469.98	-591.27	-469.98	-591.27	-469.98
	Lap	202.92	62.94	-5.24E-02	2.85	1.11E-01	-1.44	344.2	273.38	271.7	275.52	269.57	272.21	272.88	271.07	272.88	271.07	274.01
	T.kanan	-269.06	-82.29	2.04E-01	-96.63	7.12E-01	89.84	-454.52	-390.49	-330.04	-461.66	-258.87	-331.22	-389.31	-265.71	-389.31	-265.71	-454.82
	T.kiri	1.73	3.95E-01	-2.36E-01	-2.18E-01	2.50E-01	1.61E-01	2.7	1.87	2.5	1.88	2.49	2.5	1.87	2.43	1.87	2.43	1.94
	Lap	-60.72	-17.99	7.30E-01	-3.72	-6.54E-01	3.21	-101.65	-81.17	-80.35	-84.44	-77.08	-80.43	-81.08	-77.6	-81.08	-77.6	-83.92
627	T.kanan	-144.02	-42.7	1.7	-7.23	-1.56	6.26	-241.14	-192.07	-191.08	-198.63	-184.52	-191.24	-191.91	-185.49	-191.91	-185.49	-197.65
	T.kiri	-379.07	-115.59	-2.28	107.64	4.37E-01	-96.4	-639.83	-475.75	-538.77	-394.96	-619.56	-537.17	-477.35	-608.34	-477.35	-608.34	-406.18
	Lap	206.61	64.18	3.06E-01	3.69	-4.27E-01	-2.07	350.61	279.07	276.1	281.55	273.62	276.49	278.69	275.28	278.69	275.28	279.89
502-504	T.kanan	-268.32	-82.56	9.00E-01	-107.24	8.58E-01	99.05	-454.08	-392.59	-326.92	-472.08	-247.44	-327.66	-391.86	-255.48	-391.86	-255.48	-464.03
	T.kiri	2.82	7.37E-01	2.94E-01	-2.36E-01	-2.78E-01	2.08E-01	4.56	3.89	3.43	3.5	3.81	3.43	3.88	3.79	3.88	3.79	3.53
	Lap	-56.86	-16.75	-5.19E-01	-4.53	6.01E-01	4.05	-95.03	-77.5	-73.56	-80.45	-70.61	-73.62	-77.44	-71.09	-77.44	-71.09	-79.97
629	T.kanan	-137.39	-40.56	-1.33	-8.83	1.48	7.9	-229.76	-186.77	-178.41	-192.28	-172.9	-178.55	-186.63	-173.83	-186.63	-173.83	-191.35
	T.kiri	-379.19	-115.52	4.17E-01	107.74	-2.22	-96.5	-639.86	-472.94	-541.69	-394.05	-620.58	-540.04	-474.59	-609.34	-474.59	-609.34	-405.29
	Lap	206.64	64.13	-4.23E-01	3.7	3.04E-01	-2.08	350.57	278.3	276.86	281.32	273.83	277.24	277.91	275.49	277.91	275.49	279.66
513-515	T.kanan	-268.11	-82.47	8.84E-01	-107.33	8.35E-01	99.14	-453.67	-392.32	-326.56	-471.86	-247.02	-327.33	-391.55	-255.08	-391.55	-255.08	-463.8
	T.kiri	2.82	7.33E-01	-2.77E-01	-2.35E-01	2.93E-01	2.07E-01	4.56	3.29	4.02	3.32	3.99	4.03	3.28	3.96	3.28	3.96	3.35
	Lap	-56.85	-16.77	6.01E-01	-4.54	-5.21E-01	4.05	-95.05	-76.34	-74.74	-80.11	-70.97	-74.81	-76.27	-71.45	-76.27	-71.45	-79.63
632	T.kanan	-137.37	-40.59	1.48	-8.84	-1.33	7.9	-229.8	-183.93	-181.37	-191.42	-173.79	-181.51	-183.69	-174.73	-183.69	-174.73	-190.48
	T.kiri	-372.83	-112.55	-1.56	97.37	3.36E-01	-87.58	-627.49	-468.81	-526.87	-398.1	-599.58	-525.07	-470.61	-589.69	-470.61	-589.69	-405.99
	Lap	202.99	61.62	1.07E-01	2.86	-4.66E-02	-1.44	342.18	272.38	270.36	274.4	268.34	270.87	271.87	269.84	271.87	269.84	272.9
526-528	T.kanan	-268.86	-80.26	6.18E-01	-97.01	2.15E-01	90.2	-451.04	-388.05	-328.23	-459.81	-256.48	-329.5	-386.78	-263.36	-386.78	-263.36	-452.92
	T.kiri	1.73	4.03E-01	2.49E-01	-2.23E-01	-2.36E-01	1.66E-01	2.73	2.39	2.01	2.05	2.36	2.01	2.4	2.3	2.4	2.3	2.1
	Lap	-60.69	-17.99	-6.56E-01	-3.75	7.27E-01	3.23	-101.62	-82.6	-78.86	-84.87	-76.59	-78.95	-82.51	-77.1	-82.51	-77.1	-84.35
634	T.kanan	-143.98	-42.7	-1.56	-7.27	1.69	6.3	-241.09	-195.46	-187.6	-199.66	-183.4	-187.77	-195.29	-184.38	-195.29	-184.38	-198.68
	T.kiri	-183.35	-53.15	5.42E-02	-1.29E-02	75.97	-74.05	-305.06	-218.76	-266.73	-162.96	-322.52	-266.08	-219.4	-320.5	-219.4	-320.5	-164.99
	Lap	126.57	43.01	-1.43	2.02	-2.42	2.34	220.7	171.27	175.81	170.55	178.53	176.4	170.68	176.64	170.68	176.64	170.44
537-538	T.kanan	-93.76	-29.38	1.88	-2.6	-79.22	77.1	-159.52	-149.2	-103.23	-208.8	-43.62	-104.66	-147.77	-46.08	-147.77	-46.08	-206.34
	T.kiri	-55.05	-17.71	2.72	-3.87	79.77	-77.72	-94.39	-46.56	-102.52	10.08	-159.15	-103.08	-45.99	-157.36	-45.99	-157.36	8.29
	Lap	-12.53	-5.37	9.85E-02	-7.03E-02	6.19	-6.01	-23.62	-16.17	-20.28	-11.69	-24.76	-20.19	-16.26	-24.56	-16.26	-24.56	-11.89
539	T.kanan	-29.82	-6.17	-2.52	3.73	-67.39	65.7	-45.66	-61.02	-13.27	-108.7	34.41	-12.54	-61.76	33.01	-61.76	33.01	-107.3
	T.kiri	3.5	1.1	-3.57E-01	3.75E-01	1.06E-01	-4.17E-02	5.96	4.37	5.06	4.71	4.71	5.09	4.33	4.79	4.33	4.79	4.64
	Lap	-55.73	-16.44	9.33E-01	-8.49E-01	-9.36E-01	1.09	-93.18	-73.37	-74.74	-74.74	-73.36	-74.6	-73.51	-73.18	-73.51	-73.18	-74.93
638	T.kanan	-135.81	-40.3	2.22	-2.07	-1.98	2.22	-227.46	-178.98	-182.4	-182.07	-179.31	-182.17	-179.21	-179.01	-179.21	-179.01	-182.37
	T.kiri	-92.62	-17.97	2.53	-8.75E-01	71.24	-69.8	-139.9	-89.14	-139.33	-38.63	-189.83	-137.14	-91.33	-187.8	-91.33	-187.8	-40.67
	Lap	56.73	12.03	1.27	-1.73	-3.04	3.03	87.33	71.32	70.56	68.14	73.73	70.07	71.8	73.57	71.8	73.57	68.3
549-550	T.kanan	-51.91	-7.22	5.28	3.99	-77.73	76.29	-79.84	-91.33	-31.32	-144.59	21.94	-33.11	-89.54	20.03	-89.54	20.03	-142.68
	T.kiri	-52.46	-12.28	3.83	-6.48E-01	79.15	-77.43	-82.61	-37.74	-95.64	17.62	-151.01	-91.76	-41.62	-148.2	-41.62	-148.2	14.81

551	Lap	-8.35	-2.01	-7.65E-02	2.28E-01	6.05	-5.88	-13.24	-8.84	-12.5	-4.34	-17	-12.28	-9.06	-16.77	-4.57
	T.kanan	11.98	2.63	-3.98	1.1	-67.04	65.67	18.59	-10.23	40.36	-56.58	86.72	36.91	-6.78	84.36	-54.23
	T.kiri	-1.56	-4.67E-01	5.62E-02	-6.73E-02	7.06E-04	9.43E-03	-2.62	-2.02	-2.14	-2.06	-2.1	-2.15	-2.01	-2.09	-2.07
623	Lap	-24.9	-6.98	-1.7	1.7	1.42E-01	-1.70E-01	-41.04	-34.48	-30.99	-33.12	-32.35	-31.01	-34.46	-32.38	-33.09
	T.kanan	-63.17	-16.65	-3.47	3.46	2.84E-01	-3.48E-01	-102.44	-85.61	-78.51	-82.85	-81.26	-78.53	-85.58	-81.33	-82.78



Load Combinations

combo 1 = 1,2 MD + 1,6 ML

combo 2 = 1,05 (MD + 0,9 ML + Mex kiri) + 0,315 Mey kiri

combo 3 = 1,05 (MD + 0,9 ML - Mex kiri) - 0,315 Mey kiri

combo 4 = 1,05 (MD + 0,9 ML + Mey kiri) + 0,315 Mex kiri

combo 5 = 1,05 (MD + 0,9 ML - Mey kiri) - 0,315 Mex kiri

combo 6 = 1,05 (MD + 0,9 ML + Mex kanan) + 0,315 Mey kanan

combo 7 = 1,05 (MD + 0,9 ML - Mex kanan) - 0,315 Mey kanan

combo 8 = 1,05 (MD + 0,9 ML + Mey kanan) + 0,315 Mex kanan

combo 9 = 1,05 (MD + 0,9 ML - Mey kanan) - 0,315 Mex kanan

Tabel 27. Kombinasi Momen Untuk Balok induk lt atap

Frame	Letak	Maati M3	Hidup M3	Ex,kiri M3	Ey,kiri M3	Ex,kanan M3	Ey,kanan M3	Comb1 M3	Comb2 M3	Comb3 M3	Comb4 M3	Comb5 M3	Comb6 M3	Comb7 M3	Comb8 M3	Comb9 M3
3	T.kiri	-44.5	-3.97E-01	7.27	-4.6	-2.33	4.39	-54.03	-40.91	-53.28	-49.64	-44.55	-48.16	-46.03	-43.22	-50.97
	Lap	20.34	-1.81E-01	-1.30E-01	1.10E-01	4.79E-04	9.85E-04	24.12	21.05	21.32	21.15	21.23	21.3	21.07	21.22	21.15
	T.kanan	-40.19	3.57E-02	-7.53	2.55	4.61	-4.39	-48.17	-48.63	-35.71	-39.7	-44.63	-40.87	-43.46	-45.97	-38.36
15	T.kiri	-33.92	-3.62	8.98	-7.15	-1.84	1.75	-46.5	-30.19	-47.89	-38.14	-39.94	-46	-32.08	-39.46	-38.62
	Lap	19.31	2.51	-2.28E-01	-1.04	1.25	-1.18	27.19	22.81	22.5	23.89	21.42	21.19	24.11	21.09	24.22
	T.kanan	-31.29	-3.67	-9.43	5.08	4.33	-4.11	-43.42	-44.86	-27.78	-34.75	-37.9	-32.29	-40.36	-39.04	-33.61
7	T.kiri	-42.7	-2.55E-01	6.34	-6.19	-1.19E-01	1.15E-01	-51.65	-38.46	-51.69	-43.2	-46.95	-51.54	-38.61	-46.91	-43.24
	Lap	19.97	-2.58E-01	7.42E-02	7.42E-02	-9.48E-02	9.24E-02	23.55	20.77	20.68	20.65	20.8	20.83	20.62	20.85	20.6
	T.kanan	-42.73	-2.60E-01	-6.19	6.34	-7.10E-02	6.96E-02	-51.7	-51.63	-38.6	-47.14	-43.09	-38.43	-51.8	-43.04	-47.19
14	T.kiri	-31.3	-3.69	5.08	-9.43	4.33	-4.11	-43.46	-29.65	-43.04	-30.2	-42.5	-47.55	-25.15	-43.64	-29.06
	Lap	19.3	2.5	-1.04	-2.25E-01	1.26	-1.2	27.17	21.94	23.32	23.63	21.63	22.02	23.25	21.3	23.96
	T.kanan	-33.94	-3.61	-7.15	8.98	-1.8	1.71	-46.51	-47.13	-30.98	-43.2	-34.91	-29.09	-49.02	-34.43	-43.68
11	T.kiri	-40.24	1.04E-02	2.55	-7.53	4.64	-4.42	-48.28	-38.11	-46.39	-36.58	-47.92	-51.54	-32.95	-49.26	-35.24
	Lap	20.33	-1.80E-01	1.10E-01	-1.30E-01	6.07E-04	8.64E-04	24.11	21.3	21.06	21.22	21.14	21.04	21.32	21.14	21.22
	T.kanan	-44.46	-3.71E-01	-2.33	7.27	-4.63	4.42	-53.94	-50.94	-43.12	-52.63	-41.43	-38.01	-56.06	-40.1	-53.96
1	T.kiri	-2.98	2.11	19.74	-28.19	-6.53	6.08	-1.94E-01	17.54	-19.8	-1.76	-4.97E-01	-28.82	27.57	-3.63	1.36
	Lap	20.02	4.31	1.39	-2.67	-1.12	1.05	30.92	26.21	23.99	24.36	25.93	22.62	27.57	25.36	24.83
	T.kanan	-11.73	-9.49E-01	-16.95	22.85	4.29	-3.98	-15.59	-29.66	3.24	-14.04	-12.37	9.53	-35.95	-10.18	-16.23
5	T.kiri	-25.69	6.38E-01	22.52	-20.68	-10.4	9.65	-29.8	-6	-46.74	-30.19	-22.54	-45.05	-7.69	-22.75	-29.99
	Lap	39.42	5.87	-7.31E-01	-1.47	9.10E-01	-8.59E-01	56.7	46.46	47.42	47.67	46.22	45.13	48.75	45.58	48.31
	T.kanan	-30.37	-1.2	-23.98	17.75	12.22	-11.37	-38.37	-54.36	-11.69	-27.75	-38.3	-17.97	-48.08	-39.37	-26.68
9	T.kiri	-30.38	-1.14	17.75	12.17	-23.99	-11.33	-38.27	-10.5	-55.44	-14.6	-51.34	-61.73	-4.21	-52.42	-13.52
	Lap	39.41	5.87	-1.47	9.20E-01	-7.30E-01	-8.69E-01	56.68	45.67	48.17	47.43	46.42	45.88	47.96	45.78	48.07
	T.kanan	-25.71	5.66E-01	-20.68	-10.33	22.53	9.59	-29.94	-51.43	-1.49	-43.82	-9.1	2.21E-01	-53.14	-9.29	-43.62
13	T.kiri	-11.89	-1.01	22.85	4.31	-16.95	-3.99	-15.88	11.91	-38.79	-1.71	-25.16	-32.49	5.62	-22.97	-3.91
	Lap	20.03	4.32	-2.67	-1.12	1.39	1.06	30.94	21.95	28.27	23.09	27.13	26.9	23.31	26.66	23.56
	T.kanan	-2.81	2.19	-28.19	-6.55	19.73	6.11	1.36E-01	-32.55	30.79	-16.64	14.88	21.77	-23.52	11.75	-13.51

688	T.kiri	-11.61	-5.73E-01	20.53	7.02	-37.97	-6.42	-14.85	11.04	-36.5	1.11	-26.57	-54.62	29.16	-31.43	5.97
	Lap	20	1.36E-01	1.36E-01	-9.79E-01	1.49E-01	-1.29E-01	32.03	25.93	25.54	25.94	25.54	24.67	26.81	25.3	26.18
	T.kanan	-17.25	-4	-20.26	-6.73	36.01	6.16	-27.1	-45.28	1.5	-35.33	-8.45	17.86	-61.64	-4.08	-39.7
	Lap	-17.2	-3.98	36.01	-6.72	-20.26	6.15	-27.01	13.87	-57.52	-17.54	-26.12	-41.16	-2.49	-21.75	-21.9
647	T.kiri	20	5.02	-9.79E-01	1.36E-01	1.49E-01	-1.30E-01	32.04	24.77	26.73	25.6	25.9	25.85	25.65	25.66	25.85
	Lap	-11.64	-5.81E-01	-37.97	7.02	20.53	-6.41	-14.9	-50.43	24.89	-17.37	-8.18	6.76	-32.31	-13.04	-12.51
	T.kanan	-36.95	-9.08	25.27	-8.57E-01	-30.31	6.87E-01	-58.87	-21.12	-73.64	-40.32	-54.44	-78.99	-15.77	-56.21	-38.56
	Lap	11.68	3.74	2.18	-2.1	-7.78E-01	7.33E-01	20	17.85	13.76	15.67	15.93	13.83	17.77	15.91	15.69
	T.kanan	-8.54	3.5	-20.91	-6.99E-01	26.12	7.80E-01	-4.64	-27.82	16.52	-12.97	1.67	22.02	-33.32	3.39	-14.7
	Lap	-110.65	-10.93	23.97	-25.94	-3.72	3.55	-150.26	-102.51	-150.51	-122.86	-130.15	-152.62	-100.39	-130.95	-122.06
650-652	T.kiri	63.75	5.4	3.21E-02	-1.28E-01	1.45E-02	-2.04E-03	85.14	72.08	72	72.06	72.01	71.9	72.17	72	72.08
	Lap	-105.64	-8.74	-24.1	25.81	3.57	-3.41	-140.74	-143.35	-95	-123.02	-115.33	-93.14	-145.2	-114.63	-123.72
	T.kanan	-50.39	-3.22	25.54	-27.28	3.80E-01	-4.29E-01	-65.62	-29.02	-82.89	-47.51	-64.4	-84.73	-27.18	-85	-46.91
	Lap	27.84	3.33	-1.07E-01	-1.23E-01	-3.23E-02	-1.30E-02	38.73	32.25	32.5	32.31	32.44	32.24	32.51	32.32	32.43
653-654	T.kiri	-59.8	-3.97	-26.04	27.27	-7.05E-02	1.12E-01	-78.11	-93.9	-39.18	-74.82	-58.26	-37.87	-95.21	-57.83	-75.25
	Lap	-109.95	-10.3	23.74	-23.96	2.13E-02	-1.50E-02	-148.41	-100.24	-150.11	-117.68	-132.88	-150.34	-100.01	-132.74	-117.61
	T.kanan	60.7	4.77	-9.15E-02	-8.75E-02	-1.10E-01	9.43E-02	80.48	68.12	68.38	68.1	68.39	68.18	68.31	68.32	68.18
	Lap	-110.06	-10.32	-23.96	23.74	-2.03E-02	2.51E-02	-148.58	-150.49	-100.15	-132.89	-117.75	-100.38	-150.25	-117.81	-132.82
655-657	T.kiri	-59.65	-3.85	27.24	-26	-9.47E-02	1.35E-01	-77.74	-37.7	-94.84	-57.79	-74.75	-93.53	-39.01	-74.32	-58.22
	Lap	27.56	3.27	1.59E-01	-3.86E-01	1.07E-01	-1.23E-01	36.29	32.22	31.82	32.18	31.86	31.58	32.46	31.77	32.27
	T.kanan	-50.57	-3.34	-27.24	25.5	4.04E-01	-4.52E-01	-66.02	-84.73	-27.78	-64.41	-48.09	-29.62	-82.88	-48.69	-63.81
	Lap	-105.42	-8.69	25.84	-24.12	3.59	-3.43	-140.41	-90.64	-147.17	-106.99	-130.81	-145.31	-92.49	-130.11	-107.7
660-662	T.kiri	63.71	5.37	-1.28E-01	3.17E-02	1.53E-02	-2.84E-03	85.06	71.85	72.11	71.96	72	72.01	71.95	71.99	71.97
	Lap	-110.91	-11.01	-25.96	24	-3.74	3.57	-150.71	-155.3	-98.43	-138.97	-114.76	-100.54	-153.19	-115.56	-138.17
	T.kanan	-9.13	3.25	26.09	-6.83E-01	-20.87	7.63E-01	-5.75	20.66	-33.69	-33.69	-14.01	-28.19	15.16	-12.29	-7.39E-01
	Lap	11.6	3.71	-2.1	-7.79E-01	2.19	7.34E-01	19.86	13.24	18.14	14.21	17.17	18.21	13.16	17.15	14.23
663	T.kanan	-36.52	-8.89	-30.29	-8.75E-01	25.24	7.04E-01	-58.05	-78.83	-14.67	-57.21	-36.29	-20.02	-73.47	-38.06	-55.44
	Lap	-45.23	-7.51	-9.79E-01	1.65	40.4	-39.6	-66.29	-42.89	-66.29	-12.48	-96.71	-65.33	-43.85	-95.65	-13.54
637-639	T.kiri	30.45	4.02	-9.78E-01	5.12E-01	-5.51E-01	5.80E-01	42.97	34.57	36.97	34.89	36.66	36.49	35.05	36.54	35
	Lap	-17.81	-7.13E-01	2.44	-2.75	-41.92	41.18	-22.51	-30.02	-8.73	-62.62	23.87	-9.29	-29.46	23	-61.75
	T.kanan	-47.52	-6.39	-6.08E-02	28.96	1.58	-28.48	-67.24	-46.87	-64.99	-25.55	-86.31	-63.24	-48.62	-85.34	-26.52
	Lap	-9.87	-1.25	-6.14E-02	1.02E-01	6.01	-5.88	-13.83	-8.71	-13.37	-5.25	-17.82	-13.29	-9.79	-17.69	-5.39
640	T.kanan	7.26	1.65	-6.20E-02	-1.38	-16.94	16.71	11.35	3.78	14.58	-8.63	26.99	13	5.37	26.3	-7.93
	Lap	-2.31	-3.27E-01	1.19E-02	1.18E-03	-1.72E-02	1.45E-02	-3.3	-2.73	-2.74	-2.75	-2.72	-2.73	-2.74	-2.72	-2.75
	T.kiri	-21.17	-2.94	4.93E-01	-6.22E-01	-3.01E-01	2.29E-01	-30.11	-24.59	-25.43	-25.17	-24.85	-25.59	-24.43	-24.97	-25.05
	Lap	-53.13	-6.82	9.75E-01	-1.25	-5.88E-01	4.43E-01	-74.67	-61.39	-63.07	-62.54	-61.92	-63.4	-61.06	-62.16	-62.3
	T.kanan	11.82	11.2	6.9	23.88	-6.31	-22.17	32.1	37.76	8.23	50.23	-4.25	9.38	36.61	-2.28	48.26
12	Lap	7.37	2.19	2.24E-01	-2.45E-01	-3.43	2.48	12.36	8.97	10.66	6.28	13.34	10.34	9.29	12.34	7.29

	T.kanan	-15.47	-6.81	-6.45	5.82	-30.73	27.13	-29.46	-39.13	-6.22	-56.98	11.62	-8.02	-37.34	7.64	-53
	T.kiri	-79.88	-12.97	2.11E-02	1.24E-01	38.16	-37.43	-116.6	-84.08	-108.17	-56.05	-136.2	-107.78	-84.47	-135.39	-56.86
645-646	Lap	35.66	4.07	1.87	-1.34	1.73	-1.82	49.3	43.79	38.78	43.69	38.88	39.31	43.26	38.95	43.61
	T.kanan	-8.11	5.39	2.96E-01	-6.81E-01	-34.29	33.37	-1.11	-13.91	7.07	-39.33	32.49	6.38	-13.22	31.41	-36.25
	T.kiri	-84.87	-14.13	-3.45	2.01	19.13	-20.07	-124.45	-100.07	-104.86	-83.47	-121.46	-106.68	-96.25	-122.91	-82.02
644	Lap	-25.11	-3.13	3.05E-02	5.49E-03	5.16	-5.23	-35.14	-27.67	-30.98	-23.9	-34.75	-30.97	-27.68	-34.82	-23.83
	T.kanan	5.46	5.62	3.52	-2	-8.8	9.61	15.55	11.97	10.13	2.91	19.18	11.98	10.12	20.5	1.59
	T.kiri	-1.13	-3.74E-01	6.61E-02	-1.13E-01	3.75E-01	-3.07E-01	-1.96	-1.36	-1.73	-1.13	-1.96	-1.76	-1.33	-1.9	-1.19
643	Lap	-59.39	-8.47	-6.71E-02	1.54E-01	1.22	-9.59E-01	-84.82	-70.05	-70.68	-69.11	-71.62	-70.5	-70.22	-71.32	-69.41
	T.kanan	-134.83	-17.84	-2.00E-01	4.21E-01	2.06	-1.61	-190.34	-157.99	-158.87	-156.33	-160.53	-158.49	-158.36	-159.99	-156.87
	T.kiri	-20.16	2.02	-1.28	9.51E-01	58.8	-52.82	-20.97	-2.08	-36.44	42.07	-80.6	-34.91	-3.62	-74.43	35.9
10	Lap	16.61	3.47	-9.60E-03	-4.19E-02	3.61	-5.09	25.48	21.84	19.59	24.5	16.94	19.07	22.37	15.36	26.08
	T.kanan	29.37	3.18	1.26	-1.03	-51.59	42.63	40.34	18.92	48.78	-19.92	87.62	46.19	21.51	78.29	-10.59
	T.kiri	2.82E-01	-4.04E-02	-1.44E-01	1.49E-01	-2.25E-01	1.87E-01	2.73E-01	3.54E-02	4.80E-01	-2.38E-02	5.39E-01	4.73E-01	4.20E-02	5.01E-01	1.42E-02
700	Lap	-59.85	-7.96	-1.34E-01	1.39E-01	-6.54E-01	5.14E-01	-84.56	-70.71	-70.02	-71.09	-69.64	-70.06	-70.67	-69.78	-70.95
	T.kanan	-137.18	-17.14	-1.25E-01	1.29E-01	-1.08	8.41E-01	-192.04	-160.71	-159.76	-161.41	-159.05	-159.83	-160.63	-159.31	-181.16
	T.kiri	-23.14	1.21	1.00E+00	-2	62.78	-55.88	-25.84	-2.33	-43.98	43.08	-89.39	-42.85	-3.46	-82.46	36.14
8	Lap	16.83	3.55	-3.66E-02	-3.01E-02	3.85	-5.3	25.87	22.2	19.85	25.05	17	19.32	22.73	15.45	26.6
	T.kanan	32.79	4.16	-1.07	1.93	-55.08	45.27	46	19.88	56.84	-19.82	96.54	54.65	22.07	86.5	-9.79
	T.kiri	-3.18E-01	-1.84E-01	1.48E-01	-1.57E-01	-7.83E-02	6.18E-02	-6.76E-01	-3.77E-01	-6.39E-01	-5.43E-01	-4.72E-01	-6.53E-01	-3.62E-01	-4.92E-01	-5.23E-01
698	Lap	-63.21	-8.69	1.32E-01	-7.26E-02	-2.70E-01	2.21E-01	-89.75	-74.52	-74.63	-74.82	-74.33	-74.58	-74.57	-74.37	-74.79
	T.kanan	-143.28	-18.46	1.17E-01	1.19E-02	4.62E-01	3.81E-01	-201.47	-167.91	-167.87	-168.34	-167.44	-167.76	-168.02	-167.49	-188.29
	T.kiri	-23.17	1.23	-2	1.04	62.86	-55.96	-25.83	-5.46	-40.86	42.22	-88.53	-39.7	-6.62	-81.59	35.27
6	Lap	16.84	3.55	-2.99E-02	-3.53E-02	3.85	-5.31	25.88	22.21	19.85	25.07	16.99	19.32	22.74	15.45	26.61
	T.kanan	32.83	4.13	1.94	-1.11	-55.16	45.34	46	23.04	53.7	-18.93	95.67	51.49	25.25	85.63	-8.89
	T.kiri	-3.17E-01	-1.82E-01	-1.56E-01	1.47E-01	-7.71E-02	6.08E-02	-6.72E-01	-6.93E-01	-3.17E-01	-6.35E-01	-3.75E-01	-3.31E-01	-6.79E-01	-3.95E-01	-6.15E-01
695	Lap	-63.2	-8.67	-7.15E-02	1.31E-01	-2.68E-01	2.20E-01	-89.72	-74.72	-74.4	-74.86	-74.25	-74.35	-74.76	-74.28	-74.83
	T.kanan	-143.27	-18.43	1.32E-02	1.16E-01	-4.60E-01	3.79E-01	-201.42	-167.98	-167.72	-168.33	-167.37	-167.61	-168.09	-167.42	-188.29
	T.kiri	-20.17	1.8	1.01	-1.28	59.05	-53.07	-21.33	1.81E-01	-39.14	42.84	-81.8	-37.54	-1.42	-75.6	36.64
4	Lap	16.62	3.4	-3.99E-02	-8.89E-03	3.62	-5.11	25.39	21.77	19.57	24.46	16.88	19.05	22.29	15.31	26.03
	T.kanan	2.94E+01	3.28	-1.09	1.26	-51.82	42.85	40.53	16.5	51.44	-20.78	88.72	48.8	19.15	79.37	-11.42
	T.kiri	2.90E-01	-4.13E-02	1.48E-01	-1.43E-01	-2.29E-01	1.91E-01	2.82E-01	3.48E-01	1.82E-01	7.15E-02	4.59E-01	1.75E-01	3.56E-01	4.20E-01	1.10E-01
692	Lap	-59.82	-7.97	1.37E-01	-1.35E-01	-6.68E-01	5.27E-01	-84.53	-70.4	-70.27	-71	-69.68	-70.31	-70.36	-69.83	-70.85
	T.kanan	-137.12	-17.16	1.27E-01	-1.27E-01	-1.11	8.62E-01	-191.99	-160.4	-159.97	-161.31	-159.06	-160.05	-160.32	-159.32	-161.05
	T.kiri	12.26	11.35	-6.31	6.9	23.89	-22.19	32.87	24.5	22.7	46.7	5.07E-01	23.86	23.34	2.48	44.72
2	Lap	7.26	2.15	-2.46E-01	2.24E-01	-3.43	2.48	12.19	8.34	11.02	6.01	13.36	10.7	8.67	12.36	7.01
	T.kanan	-16.09	-7.04	5.82	-6.46	-30.75	27.14	-30.58	-27.12	-19.98	-54	6.9	-21.78	-25.32	2.92	-50.02
	T.kiri	-78.74	-12.51	1.30E-01	1.85E-02	38.15	-37.41	-114.51	-82.35	-106.65	-54.4	-134.6	-106.27	-82.73	-133.78	-55.22

684-685	Lap	35.85	4.14	-1.34	1.86	1.73	-1.81	49.65	40.7	42.42	42.95	40.17	42.95	40.18	40.24	42.88
	T.kanan	-8.85	5.09	-6.83E-01	2.94E-01	-34.28	33.36	-2.47	-15.99	7.04	-40.69	31.73	6.34	-15.29	30.65	-39.6
	T.kiri	-86.57	6.34	1.99	-3.42	19.17	-20.12	-127.52	-96.74	-112.98	-84.1	-125.62	-114.79	-94.93	-127.06	-82.66
686	Lap	-25.04	-3.09	5.63E-03	3.14E-02	5.16	-5.23	-34.99	-27.58	-30.84	-23.79	-34.63	-30.83	-27.6	-34.7	-23.73
	T.kanan	7.31	6.34	-1.97	3.48	-8.85	9.65	18.92	8.81	18.53	3.76	23.58	20.36	6.97	24.9	2.44
	T.kiri	-1.14	-3.74E-01	-1.12E-01	6.59E-02	3.76E-01	-3.08E-01	-1.97	-1.55	-1.55	-1.19	-1.91	-1.58	-1.52	-1.85	-1.25
689	Lap	-59.46	-8.49	1.52E-01	-6.45E-02	1.22	-9.63E-01	-84.94	-69.92	-71.01	-69.13	-71.79	-70.83	-70.09	-71.49	-69.43
	T.kanan	-134.98	-17.88	4.17E-01	-1.95E-01	2.07	-1.62	-190.57	-157.53	-159.71	-156.32	-160.92	-159.33	-157.9	-160.38	-156.86
	T.kiri	-44.26	-7.14	1.64	-9.86E-01	40.32	-39.51	-64.53	-38.79	-67.64	-10.37	-96.07	-66.7	-39.73	-95.01	-11.42
682-683	Lap	30.53	4.05	5.11E-01	-9.76E-01	-5.48E-01	5.77E-01	43.11	36.25	35.52	35.47	36.3	35.04	36.73	36.18	35.58
	T.kanan	-18.64	-1.03	-2.74	2.45	-41.83	41.09	-24.02	-36.6	-4.49	-65.33	24.24	-5.03	-36.06	23.37	-64.46
	T.kiri	-47.77	-6.45	1.59	-9.34E-02	28.87	-28.41	-67.64	-45.48	-67.01	-25.43	-87.07	-65.3	-47.2	-86.1	-26.39
681	Lap	-9.73	-1.19	1.01E-01	-6.28E-02	5.99	-5.87	-13.58	-9.35	-13.34	-5.02	-17.67	-13.26	-9.43	-17.53	-5.18
	T.kanan	7.78	1.82	-1.39	-3.21E-02	-16.89	16.66	12.25	3.11	16.67	-8.28	28.06	15.1	4.68	27.37	-7.59
	T.kiri	-2.31	-3.27E-01	1.45E-03	1.20E-02	-1.56E-02	1.30E-02	-3.3	-2.74	-2.73	-2.75	-2.72	-2.72	-2.75	-2.72	-2.75
680	Lap	-21.13	-2.93	-6.20E-01	4.92E-01	-2.99E-01	2.27E-01	-30.05	-25.7	-24.21	-25.47	-24.45	-24.37	-25.55	-24.57	-25.35
	T.kanan	-53.06	-6.79	-1.24	9.72E-01	-5.83E-01	4.41E-01	-74.54	-63.62	-60.64	-63.13	-61.13	-60.97	-63.29	-61.36	-62.9

Load Combinations

- combo 1 = 1,2 MD + 1,6 ML
- combo 2 = 1,05 (MD + 0,9 ML + Mex kiri) + 0,315 Mey kiri
- combo 3 = 1,05 (MD + 0,9 ML - Mex kiri) - 0,315 Mey kiri
- combo 4 = 1,05 (MD + 0,9 ML + Mey kiri) + 0,315 Mex kiri
- combo 5 = 1,05 (MD + 0,9 ML - Mey kiri) - 0,315 Mex kiri

- combo 6 = 1,05 (MD + 0,9 ML + Mex kanan) + 0,315 Mey kanan
- combo 7 = 1,05 (MD + 0,9 ML - Mex kanan) - 0,315 Mey kanan
- combo 8 = 1,05 (MD + 0,9 ML + Mey kanan) - 0,315 Mex kanan
- combo 9 = 1,05 (MD + 0,9 ML - Mey kanan) - 0,315 Mex kanan

Tabel 28. Kombinasi Momen Untuk Balok RingBalk

Frame	Letak	Mali M3	Hidup M3	Ex,kiri M3	Ey,kiri M3	Ex,kanan M3	Ey,kanan M3	Comb1 M3	Comb2 M3	Comb3 M3	Comb4 M3	Comb5 M3	Comb6 M3	Comb7 M3	Comb8 M3	Comb9 M3
723-725	T.kiri	-62.61	-2.48E-01	1.41	-2.92	1.38	-1.33	-75.52	-64.05	-67.89	-64.07	-67.87	-69.45	-62.49	-68.28	-63.66
	Lap	54.06	-1.04E-02	-1.82E-02	-2.32E-01	2.52E-01	-2.37E-01	64.86	56.81	56.69	57.01	56.5	56.44	57.07	56.43	57.08
	T.kanan	-92.63	2.27E-01	-1.45	2.45	-8.80E-01	8.52E-01	-110.8	-98.85	-95.25	-98.43	-95.67	-94.21	-99.89	-95.38	-98.72
726-727	T.kiri	-44.8	-1.79E-01	2.02	-2.88	9.53E-01	-8.97E-01	-54.05	-44.79	-49.63	-45.57	-48.85	-50.51	-43.91	-49.06	-45.36
	Lap	19.16	-8.21E-02	7.70E-02	-6.13E-03	-3.12E-02	3.15E-02	22.86	20.11	19.97	20.03	20.05	20.05	20.04	20.07	20.01
	T.kanan	-44.32	1.48E-02	-1.86	2.86	-1.02	9.60E-01	-53.16	-48.79	-44.24	-48.17	-44.86	-43.21	-49.83	-44.61	-48.43
741-743	T.kiri	-75.65	2.51E-02	1.4	-1.68	3.22E-01	-3.01E-01	-90.74	57.3	57.4	57.64	57.06	57.11	57.6	56.99	57.71
	Lap	54.6	2.77E-02	-1.42E-01	-1.42E-01	3.19E-01	-2.99E-01	65.56	-81.56	-78.23	-80.09	-79.7	-78.52	-81.27	-79.77	-80.03
	T.kanan	-76.12	3.03E-02	-1.68	1.4	3.17E-01	-2.97E-01	-91.3	-44.31	-49.68	-47.16	-46.83	-48.65	-45.34	-46.58	-47.42
744-745	T.kiri	-44.77	1.12E-02	2.86E+00	-1.86	-1.02	9.60E-01	-53.71	19.23	19.26	19.22	19.28	19.34	19.16	19.3	19.19
	Lap	18.41	-6.29E-02	-5.79E-03	7.72E-02	-2.88E-02	2.93E-02	21.95	-49.18	-43.74	-46.36	-46.56	-44.62	-48.29	-46.77	-46.15
	T.kanan	-44.09	-1.77E-01	-2.88	2.02	9.58E-01	-9.01E-01	-53.19	-93.49	-98.08	-95.94	-95.63	-97.04	-94.53	-95.35	-96.22
759-761	T.kiri	-91.42	2.22E-01	2.45	-1.45	-8.80E-01	8.52E-01	-109.35	56.49	56.82	56.85	56.47	56.56	56.75	56.4	56.91
	Lap	53.97	-9.24E-03	-2.32E-01	-1.84E-01	2.51E-01	-2.36E-01	64.75	-67.9	-62.65	-64.74	-65.81	-64.21	-66.34	-66.22	-64.33
	T.kanan	-61.95	-2.40E-01	-2.92	1.41	1.38	-1.32	-74.72	-88.32	-96.21	-91.56	-92.98	-94.81	-89.72	-92.65	-91.89
752-754	T.kiri	-88.68	8.91E-01	3.91	-2.54	-4.99E-01	4.00E-01	-104.99	56.19	56.86	56.5	56.55	56.55	56.51	56.47	56.58
	Lap	53.91	-8.86E-02	-3.40E-01	3.90E-01	7.49E-02	-6.78E-02	64.55	-75.54	-66.31	-71.69	-70.16	-68.34	-73.51	-70.66	-71.19
	T.kanan	-66.58	-1.07	-4.59	2.62	6.49E-01	-5.36E-01	-81.61	-43.38	-49.05	-46.19	-46.24	-48.37	-44.05	-46.12	-46.31
750-751	T.kiri	-44.12	1.22E-01	2.96	-2.29	-8.62E-01	7.79E-01	-52.75	19.98	19.91	20.1	19.78	19.8	20.09	19.76	20.12
	Lap	1.90E+01	1.93E-02	-1.39E-02	-9.41E-02	1.56E-01	-1.43E-01	22.8	-48.62	-43.09	-45.56	-46.14	-43.98	-47.73	-46.31	-45.4
	T.kanan	-43.59	-8.36E-02	-2.98	2.1	1.17	-1.06	-52.44	-76.96	-82.66	-78.84	-80.78	-82.77	-76.85	-80.81	-78.82
734-736	T.kiri	-75.99	-1.92E-02	2.68	-2.79	1.23E-01	-1.11E-01	-91.22	56.93	56.97	57.06	56.84	56.85	57.04	56.81	57.08
	Lap	54.25	-2.05E-02	-5.52E-02	-5.46E-02	1.21E-01	-1.09E-01	65.07	-83.2	-77.42	-81.06	-79.56	-77.53	-83.09	-79.58	-81.04
	T.kanan	-76.46	-2.18E-02	-2.79	2.68	1.19E-01	-1.07E-01	-91.79	-43.96	-49.13	-44.66	-48.44	-50.02	-43.07	-48.6	-44.5
732-733	T.kiri	-44.28	-6.23E-02	2.11	-2.99	1.17	-1.06	-53.23	20.7	20.79	20.88	20.61	20.68	20.8	20.59	20.9
	Lap	19.74	1.91E-02	-0.38E-02	-1.40E-02	1.57E-01	-1.44E-01	23.72	-48.46	-43.09	-47.39	-44.16	-42.42	-49.13	-44.03	-47.52
	T.kanan	-43.69	1.01E-01	-2.3	2.96	-8.52E-01	7.70E-01	-52.28	19.98	19.91	20.1	19.78	19.8	20.09	19.76	20.12

716-718	T. kiri	-66.83	-1.08	2.62	-4.58	6.54E-01	-5.41E-01	-81.91	-68.23	-74.14	-69.67	-72.7	-76.17	-66.2	-73.2	-69.17
	Lap	53.4	-8.98E-02	3.96E-02	-3.40E-01	7.53E-02	-6.82E-02	63.94	56.05	55.92	56.08	55.9	55.61	56.37	55.81	56.17
	T. kanan	-89.73	8.96E-01	-2.54	3.9	-5.04E-01	4.05E-01	-106.25	-96.2	-90.55	-94.7	-92.04	-89.15	-97.6	-91.72	-95.03
712	T. kiri	-2.36	2.17E+00	1.32E+00	-1.20E+00	2.2	-1.92E+00	6.47E-01	1.65E+00	-2.5	2.30E+00	-3.14	-2.29	1.44E+00	-2.82	1.97E+00
	Lap	-2.09E-02	2.55E-01	4.06E-02	-3.80E-02	-6.56E-01	5.89E-01	3.83E-01	5.49E-02	3.83E-01	-4.57E-01	8.95E-01	3.64E-01	7.33E-02	8.25E-01	-3.88E-01
	T. kanan	-2.79	-1.66	-1.24	1.12	-3.51	3.1	-6.01	-6.9	-2.1	-8.57	-4.28E-01	-2.35	-6.65	-8.93E-01	-8.11
713-714	T. kiri	-24.02	-1.74	2.12E-02	6.74E-02	5.81	-5.66	-31.61	-25.01	-28.72	-20.76	-32.97	-28.58	-25.15	-32.79	-20.94
	Lap	11.67	1.83E-01	1.65E-01	-1.29E-01	2.90E-01	-3.19E-01	14.3	12.69	12.17	12.79	12.07	12.19	12.67	12.05	12.81
	T. kanan	-7.93	2.11	3.09E-01	-3.25E-01	-5.23	5.02	-6.15	-7.66	-5.02	-11.73	-9.47E-01	-5.1	-7.58	-1.17	-11.51
715	T. kiri	1.44	-6.97E-01	-9.87E-01	7.50E-01	-1.21	6.19E-01	6.18E-01	-5.58E-01	2.27	-7.19E-01	2.44	1.84	-1.25E-01	1.74	-2.81E-02
	Lap	-2.08E-01	-7.32E-02	2.90E-02	-6.25E-03	4.99E-01	-6.08E-01	-3.67E-01	-1.00E-01	-4.76E-01	2.45E-01	-8.21E-01	-4.86E-01	-8.98E-02	-9.28E-01	3.52E-01
	T. kanan	-7.94	5.51E-01	1.04	-7.63E-01	2.2	-1.83	-8.64	-6.02	-9.6	-5.17	-10.46	-9.19	-6.43	-9.98	-5.65
722	T. kiri	-11.18	2.6	-5.51E-01	5.39E-01	5.59	-1.3	-9.25	-8.09	-10.46	-3.58	-14.97	-9.12	-9.43	-10.47	-8.08
	Lap	-1.12	3.79E-01	-3.81E-02	4.57E-02	-9.10E-01	1.31	-7.42E-01	-1.15	-4.95E-01	-1.79	1.46E-01	-3.62E-01	-1.28	5.65E-01	-2.21
	T. kanan	3.82	-1.85	4.74E-01	-4.48E-01	-7.41	3.91	1.64	4.36E-01	4.11	-5.36	9.9	3.03	1.51	6.24	-1.69
719-721	T. kiri	-22.22	-3.91	3.88E-01	-3.67E-01	4.12	-7.33	-32.91	-25.31	-28.72	-22.57	-31.47	-29.71	-24.32	-34.83	-19.21
	Lap	12.23	1.69E-01	-1.80E-02	5.16E-02	-1.36	3.15E-01	14.95	12.56	13.45	11.57	14.44	13.16	12.85	13.35	12.68
	T. kanan	-11.36	3.15	-3.15E-01	3.57E-01	-5.37	5.9	-8.6	-10.98	-6.94	-14.7	-3.22	-6.72	-11.19	-2.65	-15.27
728	T. kiri	-1.79	2.45	5.69E-01	-7.52E-01	7.24	-2.6	-10.22	-7.18	-12.93	-2.28	-17.83	-11.67	-8.45	-13.03	-7.09
	Lap	-1	4.14E-01	5.15E-02	-4.65E-02	-9.19E-01	1.32	-5.39E-01	-8.95E-01	-4.24E-01	-1.61	2.89E-01	-2.92E-01	-1.03	7.14E-01	-2.03
	T. kanan	4.68	-1.62	-4.86E-01	6.59E-01	-9.07	5.25	3.02	3.01E-02	6.73	-6.3	13.05	5.72	1.03	9.09	-2.34
729-731	T. kiri	-22.64	-4.13	-3.85E-01	4.69E-01	3.38	-6.88	-33.77	-27.01	-28.33	-24.24	-31.09	-29.34	-25.99	-34.74	-20.59
	Lap	12.53	1.97E-01	5.35E-02	3.98E-03	-1.73	5.92E-01	15.35	12.86	13.83	11.55	15.14	13.54	13.15	13.97	12.72
	T. kanan	-10.54	3.36	3.74E-01	-3.36E-01	-5.46	6.05	-7.28	-9.22	-6.57	-13.51	-2.28	-6.34	-9.45	-1.64	-14.14
740	T. kiri	-11.78	2.45	-7.50E-01	5.72E-01	7.25	-2.82	-10.22	-8.56	-11.55	-2.68	-17.43	-10.28	-9.83	-12.62	-7.49
	Lap	-9.99E-01	4.14E-01	-4.60E-02	5.10E-02	-9.19E-01	1.32	-5.37E-01	-9.96E-01	-3.20E-01	-1.64	3.21E-01	-1.88E-01	-1.13	7.47E-01	-2.06
	T. kanan	4.00	-1.62	6.50E-01	-4.70E-01	-9.00	5.26	3.02	1.21	5.55	-5.98	12.72	4.54	2.21	8.78	-2
737-739	T. kiri	-22.65	-4.12	4.66E-01	-3.84E-01	3.37	-6.87	-33.77	-26.12	-29.22	-23.99	-31.36	-30.24	-25.11	-35.01	-20.34
	Lap	12.54	1.99E-01	4.31E-03	5.24E-02	-1.73	5.95E-01	15.36	12.81	13.89	11.54	15.17	13.59	13.11	13.99	12.71
	T. kanan	-10.52	3.36	-3.33E-01	3.71E-01	-5.46	6.05	-7.26	-9.94	-5.81	-13.71	-2.04	-5.58	-10.17	-1.41	-14.34
746	T. kiri	-11.14	2.53	5.44E-01	-5.49E-01	5.61	-1.32	-9.32	-6.97	-11.65	-3.24	-15.37	-10.3	-8.31	-10.87	-7.75
	Lap	-1.12	3.75E-01	4.52E-02	-3.79E-02	-9.11E-01	1.31	-7.42E-01	-1.06	-5.80E-01	-1.76	1.23E-01	-4.47E-01	-1.19	5.42E-01	-2.18
	T. kanan	3.8	-1.78	-4.53E-01	4.73E-01	-7.44	3.94	1.71	-5.10E-01	5.13	-5.64	10.26	4.05	5.71E-01	6.59	-1.98
747-749	T. kiri	-22.25	-3.84	-3.65E-01	3.86E-01	4.12	-7.33	-32.85	-26.08	-27.91	-22.79	-31.21	-28.9	-25.09	-34.57	-19.42
	Lap	12.24	1.73E-01	5.02E-02	-1.79E-02	-1.37	3.21E-01	14.96	12.63	13.39	11.59	14.43	13.09	12.93	13.34	12.68
	T. kanan	-11.33	3.11	3.54E-01	-3.13E-01	-5.38	5.91	-8.62	-10.28	-7.64	-14.5	-3.42	-7.43	-10.49	-2.85	-15.07
758	T. kiri	-2.24	2.22	-1.2	1.32	2.19	-1.92	8.60E-01	-8.22E-01	3.09E-01	1.67	-2.18	5.21E-01	-1.03	-1.86	1.34
	Lap	-3.63E-02	2.48E-01	-3.81E-02	4.06E-02	-6.56E-01	5.89E-01	3.53E-01	-5.03E-02	4.43E-01	-5.04E-01	8.97E-01	4.24E-01	-3.19E-02	8.27E-01	-4.35E-01

	T. kanan	-2.94	-1.72	1.12	-1.24	-3.51	3.1	-6.28	-4.64	-4.78	-8.04	-1.38	-5.03	-4.39	-1.85	-7.57
	T. kiri	-23.8	-1.65	6.88E-02	1.97E-02	5.8	-5.66	-31.21	-24.65	-28.45	-20.44	-32.67	-28.32	-24.79	-32.49	-20.62
756-757	Lap	10.43	6.58E-01	-2.27E-01	2.38E-01	-2.47	2.35	10.81	7.93	9.96	6.28	11.61	9.93	7.95	11.49	10.45
	T. kanan	-8.08	2.04	-3.26E-01	3.10E-01	-5.22	5.02	-6.42	-8.54	-4.56	-12.14	-9.63E-01	-4.64	-8.46	-1.18	-11.92
	T. kiri	1.14	-8.13E-01	7.47E-01	-9.83E-01	-1.2	6.15E-01	6.41E-02	8.32E-01	2.06E-02	-6.02E-01	1.45	-4.12E-01	1.26	7.62E-01	8.99E-02
755	Lap	-1.79E-01	-6.08E-02	-6.04E-03	2.87E-02	4.98E-01	-6.07E-01	-3.12E-01	-9.48E-02	-3.96E-01	2.76E-01	-7.67E-01	-4.07E-01	-8.42E-02	-8.74E-01	3.83E-01
	T. kanan	-7.57	6.92E-01	-7.59E-01	1.04	2.2	-1.83	-7.98	-7.4	-7.19	-5.23	-9.37	-6.76	-7.81	-8.89	-5.7

Penulangan lentur balok anak lantai 2

- fy deform : 400 Mpa
- fy polos : 240 Mpa
- Penutup beton : 40 mm
- b : 250 mm
- h : 450 mm
- f'c : 25 Mpa
- D tul. Pokok : 16 mm
- D tul. Sengkang : 10 mm
- d : 392 mm
- d' : 58 mm

Tabel 28. Penulangan Balok Anak Lantai 2

Frame	Letak	Mu KNm	Mu/ KNm	$\rho$ min	$\rho$ b	$\rho$ max	0,75 $\rho$ max	m (mm)	Rn Perlu	d perlu (mm)	d pakai (mm)	Analisis	Rn perlu	$\rho$ baru	$\rho$ pakai	As perlu (mm <sup>2</sup> )	$\phi$ mm	A1 $\phi$ mm <sup>2</sup>	n buah	Tul pakai	As ada mm <sup>2</sup>	a mm	Mn KNm	kontrol
173-175	T.kiri(-)	133.12	166.40	0.0035	0.0271	0.0203	0.0102	18.824	3.675	425.577	392	T RINGKP	4.332	0.0120	0.0120	1178.176	16	200.96	5.9	6	1205.76	90.79	167.17	OKE
	Lap(+)	68.99	86.24	0.0035	0.0271	0.0203	0.0102	18.824	3.675	306.372	392	T SBLH	2.245	0.0062	0.0062	610.5945	16	200.96	3.0	4	803.84	60.52	116.31	OKE
	T.kanan(-)	133.11	166.39	0.0035	0.0271	0.0203	0.0102	18.824	3.675	425.561	392	T RINGKP	4.331	0.0120	0.0120	1178.087	16	200.96	5.9	6	1205.76	90.79	167.17	OKE
	T.kiri(+)	28.75	35.94	0.0035	0.0271	0.0203	0.0102	18.824	3.675	197.777	392	T SBLH	0.935	0.0026	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(-)	3.48	4.35	0.0035	0.0271	0.0203	0.0102	18.824	3.675	68.809	392	T SBLH	0.113	0.0003	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kanan(+)	23.2	29.00	0.0035	0.0271	0.0203	0.0102	18.824	3.675	177.664	392	T SBLH	0.755	0.0021	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
204-206	T.kiri(-)	126.13	157.66	0.0035	0.0271	0.0203	0.0102	18.824	3.675	414.253	392	T RINGKP	4.104	0.0114	0.0114	1116.311	16	200.96	5.6	6	1205.76	90.79	167.17	OKE
	Lap(+)	68.99	86.24	0.0035	0.0271	0.0203	0.0102	18.824	3.675	306.372	392	T SBLH	2.245	0.0062	0.0062	610.5945	16	200.96	3.0	4	803.84	60.52	116.31	OKE
	T.kanan(-)	126.27	157.84	0.0035	0.0271	0.0203	0.0102	18.824	3.675	414.483	392	T RINGKP	4.109	0.0114	0.0114	1117.55	16	200.96	5.6	6	1205.76	90.79	167.17	OKE
	T.kiri(+)	28.75	35.94	0.0035	0.0271	0.0203	0.0102	18.824	3.675	197.777	392	T SBLH	0.935	0.0026	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(-)	3.48	4.35	0.0035	0.0271	0.0203	0.0102	18.824	3.675	68.809	392	T SBLH	0.113	0.0003	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kanan(+)	23.2	29.00	0.0035	0.0271	0.0203	0.0102	18.824	3.675	177.664	392	T SBLH	0.755	0.0021	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
238-240	T.kiri(-)	102.04	127.55	0.0035	0.0271	0.0203	0.0102	18.824	3.675	372.599	392	T SBLH	3.320	0.0092	0.0092	903.1029	16	200.96	4.5	5	1004.8	75.66	142.35	OKE
	Lap(+)	7.65	9.56	0.0035	0.0271	0.0203	0.0102	18.824	3.675	102.020	392	T SBLH	0.249	0.0007	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kanan(-)	88.43	110.54	0.0035	0.0271	0.0203	0.0102	18.824	3.675	346.862	392	T SBLH	2.877	0.0080	0.0080	782.6479	16	200.96	3.9	4	803.84	60.52	116.31	OKE
	T.kiri(+)	70.38	87.98	0.0035	0.0271	0.0203	0.0102	18.824	3.675	309.443	392	T SBLH	2.290	0.0064	0.0064	622.8967	16	200.96	3.1	4	803.84	60.52	116.31	OKE
	Lap(-)	4.72	5.90	0.0035	0.0271	0.0203	0.0102	18.824	3.675	80.136	392	T SBLH	0.154	0.0004	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kanan(+)	79.99	99.99	0.0035	0.0271	0.0203	0.0102	18.824	3.675	329.894	392	T SBLH	2.603	0.0072	0.0072	707.9498	16	200.96	3.5	4	803.84	60.52	116.31	OKE
274	T.kiri(-)	80.8	101.00	0.0035	0.0271	0.0203	0.0102	18.824	3.675	331.560	392	T SBLH	2.829	0.0073	0.0073	715.1187	16	200.96	3.6	4	803.84	60.52	116.31	OKE
	Lap(+)	0.324	0.41	0.0035	0.0271	0.0203	0.0102	18.824	3.675	20.996	392	T SBLH	0.011	0.0000	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kanan(-)	5.85	7.31	0.0035	0.0271	0.0203	0.0102	18.824	3.675	89.214	392	T SBLH	0.190	0.0005	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kiri(+)	6.5	8.13	0.0035	0.0271	0.0203	0.0102	18.824	3.675	94.040	392	T SBLH	0.212	0.0006	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(-)	28.37	35.46	0.0035	0.0271	0.0203	0.0102	18.824	3.675	196.465	392	T SBLH	0.923	0.0026	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kanan(+)	10.02	12.53	0.0035	0.0271	0.0203	0.0102	18.824	3.675	116.759	392	T SBLH	0.326	0.0009	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
275-277	T.kiri(-)	87.7	109.63	0.0035	0.0271	0.0203	0.0102	18.824	3.675	345.427	392	T SBLH	2.854	0.0079	0.0079	776.187	16	200.96	3.9	4	803.84	60.52	116.31	OKE
	Lap(+)	0.598	0.75	0.0035	0.0271	0.0203	0.0102	18.824	3.675	28.524	392	T SBLH	0.019	0.0001	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kanan(-)	4.59	5.74	0.0035	0.0271	0.0203	0.0102	18.824	3.675	79.025	392	T SBLH	0.149	0.0004	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kiri(+)	4.86	6.08	0.0035	0.0271	0.0203	0.0102	18.824	3.675	81.316	392	T SBLH	0.158	0.0004	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE

















Penulangan lentur balok anak lantai 3

fy deformasi : 400 Mpa  
 fy polos : 240 Mpa  
 Penutup beton : 40 mm  
 b : 250 mm  
 h : 450 mm  
 fc : 25 Mpa

D tul. Pokok : 16 mm  
 D tul. Sengkang : 10 mm  
 d : 392 mm  
 d' : 58 mm

Tabel 30. Penulangan Balok Anak Lantai 3

Frame	Letak	Mu KNm	Mu/φ KNm	ρ min	ρ b	ρ max	0,75 ρ max	m (mm)	Rn Perlu	d perlu (mm)	d pakai (mm)	Analisis	Rn perlu	ρ baru	ρ pakai	As perlu (mm <sup>2</sup> )	φ mm	A1φ mm <sup>2</sup>	n buah	Tul pakai	As ada mm <sup>2</sup>	a mm	Mn KNm	kontrol
433	T.kiri(-)	28.09	35.11	0.0035	0.0271	0.02	0.0102	18.824	3.675	195.493	392	T SBLH	0.914	0.0025	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(+)	20.23	25.29	0.0035	0.0271	0.02	0.0102	18.824	3.675	165.903	392	T SBLH	0.658	0.0018	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kanan(-)	27.45	34.31	0.0035	0.0271	0.02	0.0102	18.824	3.675	193.254	392	T SBLH	0.893	0.0025	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kiri(+)	9.17	11.46	0.0035	0.0271	0.02	0.0102	18.824	3.675	111.697	392	T SBLH	0.298	0.0008	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(-)	0.796	1.00	0.0035	0.0271	0.02	0.0102	18.824	3.675	32.909	392	T SBLH	0.226	0.0006	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kanan(+)	6.94	8.68	0.0035	0.0271	0.02	0.0102	18.824	3.675	97.171	392	T SBLH	0.665	0.0018	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
326	T.kiri(-)	20.44	25.55	0.0035	0.0271	0.02	0.0102	18.824	3.675	166.762	392	T SBLH	0.379	0.0011	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(+)	11.64	14.55	0.0035	0.0271	0.02	0.0102	18.824	3.675	125.844	392	T SBLH	1.117	0.0031	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kanan(-)	34.34	42.925	0.0035	0.0271	0.02	0.0102	18.824	3.675	216.151	392	T SBLH	0.233	0.0006	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kiri(+)	7.15	8.9375	0.0035	0.0271	0.02	0.0102	18.824	3.675	98.630	392	T SBLH	0.039	0.0001	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(-)	1.2	1.5	0.0035	0.0271	0.02	0.0102	18.824	3.675	40.406	392	T SBLH	0.138	0.0004	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kanan(+)	4.23	5.2875	0.0035	0.0271	0.02	0.0102	18.824	3.675	75.862	392	T SBLH	2.349	0.0065	0.0065	639.005	16	200.96	3.2	4	803.84	60.52	116.31	OKE
335	T.kiri(-)	72.2	90.25	0.0035	0.0271	0.02	0.0102	18.824	3.675	313.419	392	T SBLH	0.233	0.0006	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(+)	7.15	8.9375	0.0035	0.0271	0.02	0.0102	18.824	3.675	98.630	392	T SBLH	2.311	0.0064	0.0064	628.65	16	200.96	3.1	4	803.84	60.52	116.31	OKE
	T.kanan(-)	71.03	88.7875	0.0035	0.0271	0.02	0.0102	18.824	3.675	310.869	392	T SBLH	1.665	0.0046	0.0046	452.879	16	200.96	2.3	3	602.88	45.39	89.06	OKE
	T.kiri(+)	51.17	63.9625	0.0035	0.0271	0.02	0.0102	18.824	3.675	283.854	392	T SBLH	0.085	0.0002	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(-)	2.61	3.2625	0.0035	0.0271	0.02	0.0102	18.824	3.675	59.590	392	T SBLH	1.816	0.0050	0.0050	494.034	16	200.96	2.5	3	602.88	45.39	89.06	OKE
	T.kanan(+)	55.82	69.775	0.0035	0.0271	0.02	0.0102	18.824	3.675	275.582	392	T SBLH	4.336	0.0120	0.0120	1179.5	16	200.96	5.9	6	1205.76	90.79	167.17	OKE
332-334	T.kiri(-)	133.27	166.5875	0.0035	0.0271	0.02	0.0102	18.824	3.675	425.817	392	T RINGKP	0.235	0.0062	0.0062	607.939	16	200.96	3.0	4	803.84	60.52	116.31	OKE
	Lap(+)	68.69	85.8625	0.0035	0.0271	0.02	0.0102	18.824	3.675	305.705	392	T SBLH	4.318	0.0120	0.0120	1174.46	16	200.96	5.8	6	1205.76	90.79	167.17	OKE
	T.kanan(-)	132.7	165.875	0.0035	0.0271	0.02	0.0102	18.824	3.675	424.905	392	T RINGKP	0.711	0.0020	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kiri(+)	21.86	27.325	0.0035	0.0271	0.02	0.0102	18.824	3.675	172.457	392	T SBLH	0.081	0.0002	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(-)	2.49	3.1125	0.0035	0.0271	0.02	0.0102	18.824	3.675	58.204	392	T SBLH	0.628	0.0017	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kanan(+)	19.31	24.1375	0.0035	0.0271	0.02	0.0102	18.824	3.675	162.087	392	T SBLH	3.981	0.0111	0.0111	1082.94	16	200.96	5.4	6	1205.76	90.79	167.17	OKE
331	T.kiri(-)	122.36	152.95	0.0035	0.0271	0.02	0.0102	18.824	3.675	408.015	392	T RINGKP	0.122	0.0003	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(+)	3.76	4.7	0.0035	0.0271	0.02	0.0102	18.824	3.675	71.524	392	T SBLH	0.342	0.0093	0.0093	908.944	16	200.96	4.5	5	1004.8	75.66	142.35	OKE
	T.kanan(-)	102.7	128.375	0.0035	0.0271	0.02	0.0102	18.824	3.675	373.802	392	T SBLH	2.787	0.0077	0.0077	757.955	16	200.96	3.8	4	803.84	60.52	116.31	OKE
	T.kiri(+)	85.64	107.05	0.0035	0.0271	0.02	0.0102	18.824	3.675	341.346	392	T SBLH	2.787	0.0077	0.0077	757.955	16	200.96	3.8	4	803.84	60.52	116.31	OKE





	T.kiri(+)	1.04	1.3	0.0035	0.0271	0.02	0.0102	18.824	3.675	37.616	392	T.SBLH	0.034	0.0001	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(-)	2.41	3.0125	0.0035	0.0271	0.02	0.0102	18.824	3.675	57.262	392	T.SBLH	0.078	0.0002	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kanan(+)	4.76	5.95	0.0035	0.0271	0.02	0.0102	18.824	3.675	80.475	392	T.SBLH	0.155	0.0004	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kiri(-)	3.07	3.8375	0.0035	0.0271	0.02	0.0102	18.824	3.675	64.629	392	T.SBLH	0.100	0.0003	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
346	Lap(+)	3.49	4.3625	0.0035	0.0271	0.02	0.0102	18.824	3.675	68.908	392	T.SBLH	0.114	0.0003	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kanan(-)	87.83	109.7875	0.0035	0.0271	0.02	0.0102	18.824	3.675	345.683	392	T.SBLH	2.898	0.0079	0.0079	777.338	16	200.96	3.9	4	803.84	60.52	116.31	OKE
	T.kiri(+)	0.892	1.115	0.0035	0.0271	0.02	0.0102	18.824	3.675	34.837	392	T.SBLH	0.029	0.0001	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(-)	30.6	38.25	0.0035	0.0271	0.02	0.0102	18.824	3.675	204.041	392	T.SBLH	0.996	0.0028	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kanan(+)	6.95	8.6875	0.0035	0.0271	0.02	0.0102	18.824	3.675	97.241	392	T.SBLH	0.226	0.0006	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kiri(-)	44.04	55.05	0.0035	0.0271	0.02	0.0102	18.824	3.675	244.782	392	T.SBLH	1.433	0.0040	0.0040	389.775	16	200.96	1.9	2	401.92	30.26	60.59	OKE
	Lap(+)	36.3	45.375	0.0035	0.0271	0.02	0.0102	18.824	3.675	222.234	392	T.SBLH	1.181	0.0033	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
322-325	T.kanan(-)	49.77	62.2125	0.0035	0.0271	0.02	0.0102	18.824	3.675	260.220	392	T.SBLH	1.619	0.0045	0.0045	440.488	16	200.96	2.2	3	602.88	45.39	89.06	OKE
	T.kiri(+)	3.85	4.8125	0.0035	0.0271	0.02	0.0102	18.824	3.675	72.375	392	T.SBLH	0.125	0.0003	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(-)	2.07	2.5875	0.0035	0.0271	0.02	0.0102	18.824	3.675	53.069	392	T.SBLH	0.067	0.0002	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kanan(+)	5.96	7.45	0.0035	0.0271	0.02	0.0102	18.824	3.675	90.049	392	T.SBLH	0.194	0.0005	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kiri(-)	42.53	53.1625	0.0035	0.0271	0.02	0.0102	18.824	3.675	240.549	392	T.SBLH	1.384	0.0038	0.0038	376.411	16	200.96	1.9	2	401.92	30.26	60.59	OKE
356-357	Lap(+)	5.91	7.3875	0.0035	0.0271	0.02	0.0102	18.824	3.675	89.671	392	T.SBLH	0.192	0.0005	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kanan(-)	40.75	50.9375	0.0035	0.0271	0.02	0.0102	18.824	3.675	235.462	392	T.SBLH	1.326	0.0037	0.0037	360.657	16	200.96	1.8	2	401.92	30.26	60.59	OKE
	T.kiri(+)	4.59	5.7375	0.0035	0.0271	0.02	0.0102	18.824	3.675	79.025	392	T.SBLH	0.149	0.0004	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(-)	2.59	3.2375	0.0035	0.0271	0.02	0.0102	18.824	3.675	59.362	392	T.SBLH	0.084	0.0002	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kanan(+)	4.89	6.1125	0.0035	0.0271	0.02	0.0102	18.824	3.675	81.566	392	T.SBLH	0.159	0.0004	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kiri(-)	2.64	3.3	0.0035	0.0271	0.02	0.0102	18.824	3.675	59.932	392	T.SBLH	0.086	0.0002	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
361	Lap(+)	4.83	6.0375	0.0035	0.0271	0.02	0.0102	18.824	3.675	81.064	392	T.SBLH	0.157	0.0004	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kanan(-)	70.48	88.1	0.0035	0.0271	0.02	0.0102	18.824	3.675	309.663	392	T.SBLH	2.293	0.0064	0.0064	623.782	16	200.96	3.1	4	803.84	60.52	116.31	OKE
	T.kiri(+)	0.6424	0.803	0.0035	0.0271	0.02	0.0102	18.824	3.675	29.564	392	T.SBLH	0.021	0.0001	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(-)	2.22	2.775	0.0035	0.0271	0.02	0.0102	18.824	3.675	54.958	392	T.SBLH	0.072	0.0002	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kanan(+)	10.35	12.9375	0.0035	0.0271	0.02	0.0102	18.824	3.675	118.666	392	T.SBLH	0.337	0.0009	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kiri(-)	100.64	125.8	0.0035	0.0271	0.02	0.0102	18.824	3.675	370.034	392	T.SBLH	3.275	0.0091	0.0091	890.712	16	200.96	4.4	5	1004.8	75.66	142.35	OKE
358-360	Lap(+)	63.2	79	0.0035	0.0271	0.02	0.0102	18.824	3.675	293.234	392	T.SBLH	2.056	0.0057	0.0057	559.35	16	200.96	2.8	3	602.88	45.39	89.06	OKE
	T.kanan(-)	60.33	75.4125	0.0035	0.0271	0.02	0.0102	18.824	3.675	286.499	392	T.SBLH	1.963	0.0054	0.0054	533.949	16	200.96	2.7	3	602.88	45.39	89.06	OKE
	T.kiri(+)	22.15	27.6875	0.0035	0.0271	0.02	0.0102	18.824	3.675	173.597	392	T.SBLH	0.721	0.0020	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(-)	7.74	9.675	0.0035	0.0271	0.02	0.0102	18.824	3.675	102.619	392	T.SBLH	0.252	0.0007	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kanan(+)	16.13	20.1625	0.0035	0.0271	0.02	0.0102	18.824	3.675	148.140	392	T.SBLH	0.525	0.0015	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kiri(-)	95.7	119.625	0.0035	0.0271	0.02	0.0102	18.824	3.675	360.838	392	T.SBLH	3.114	0.0086	0.0086	846.991	16	200.96	4.2	5	1004.8	75.66	142.35	OKE
437-438	Lap(+)	28.8	36	0.0035	0.0271	0.02	0.0102	18.824	3.675	197.949	392	T.SBLH	0.937	0.0026	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kanan(-)	102.49	128.1125	0.0035	0.0271	0.02	0.0102	18.824	3.675	373.420	392	T.SBLH	3.335	0.0093	0.0093	907.086	16	200.96	4.5	5	1004.8	75.66	142.35	OKE
	T.kiri(+)	4.08	5.1	0.0035	0.0271	0.02	0.0102	18.824	3.675	74.505	392	T.SBLH	0.133	0.0004	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(-)	3.42	4.275	0.0035	0.0271	0.02	0.0102	18.824	3.675	66.213	392	T.SBLH	0.111	0.0003	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kanan(+)	4.9	6.125	0.0035	0.0271	0.02	0.0102	18.824	3.675	81.650	392	T.SBLH	0.159	0.0004	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kiri(-)	99.43	124.2875	0.0035	0.0271	0.02	0.0102	18.824	3.675	367.803	392	T.SBLH	3.235	0.0090	0.0090	880.003	16	200.96	4.4	5	1004.8	75.66	142.35	OKE
	Lap(+)	26.8	33.5	0.0035	0.0271	0.02	0.0102	18.824	3.675	190.952	392	T.SBLH	0.872	0.0024	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE







408	T.kana(+)	55.8	69.75	0.0035	0.0271	0.02	0.0102	18.824	3.675	275.533	392	T.SBLH	1.816	0.0050	0.0050	493.857	16	200.96	2.5	3	602.88	45.39	89.06	OKE
	T.kiri(-)	97.05	121.3125	0.0035	0.0271	0.02	0.0102	18.824	3.675	363.374	392	T.SBLH	3.158	0.0088	0.0088	858.939	16	200.96	4.3	5	1004.8	75.66	142.35	OKE
	Lap(+)	0.405	0.50625	0.0035	0.0271	0.02	0.0102	18.824	3.675	23.474	392	T.SBLH	0.013	0.0000	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kanan(-)	4.5	5.625	0.0035	0.0271	0.02	0.0102	18.824	3.675	78.246	392	T.SBLH	0.146	0.0004	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kiri(+)	5.31	6.6375	0.0035	0.0271	0.02	0.0102	18.824	3.675	84.997	392	T.SBLH	0.173	0.0004	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
413	Lap(-)	26.7	33.375	0.0035	0.0271	0.02	0.0102	18.824	3.675	190.595	392	T.SBLH	0.869	0.0024	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kana(+)	8.21	10.2625	0.0035	0.0271	0.02	0.0102	18.824	3.675	105.689	392	T.SBLH	0.267	0.0007	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kiri(-)	85.64	107.05	0.0035	0.0271	0.02	0.0102	18.824	3.675	341.346	392	T.SBLH	2.787	0.0077	0.0077	757.955	16	200.96	3.8	4	803.84	60.52	116.31	OKE
	Lap(+)	0.452	0.565	0.0035	0.0271	0.02	0.0102	18.824	3.675	24.799	392	T.SBLH	0.015	0.0000	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kanan(-)	3.08	3.85	0.0035	0.0271	0.02	0.0102	18.824	3.675	64.734	392	T.SBLH	0.100	0.0003	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
405-407	T.kiri(+)	2.9	3.625	0.0035	0.0271	0.02	0.0102	18.824	3.675	62.814	392	T.SBLH	0.094	0.0003	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(-)	21.3	26.625	0.0035	0.0271	0.02	0.0102	18.824	3.675	170.234	392	T.SBLH	0.693	0.0019	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kana(+)	6.67	8.3375	0.0035	0.0271	0.02	0.0102	18.824	3.675	95.262	392	T.SBLH	0.217	0.0006	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kiri(-)	49.72	62.15	0.0035	0.0271	0.02	0.0102	18.824	3.675	260.089	392	T.SBLH	1.618	0.0045	0.0045	440.046	16	200.96	2.2	3	602.88	45.39	89.06	OKE
	Lap(+)	36.4	45.5	0.0035	0.0271	0.02	0.0102	18.824	3.675	222.539	392	T.SBLH	1.184	0.0033	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
409-411	T.kanan(-)	44.05	55.0625	0.0035	0.0271	0.02	0.0102	18.824	3.675	244.810	392	T.SBLH	1.433	0.0040	0.0040	389.864	16	200.96	1.9	2	401.92	30.26	60.59	OKE
	T.kiri(+)	6.01	7.5125	0.0035	0.0271	0.02	0.0102	18.824	3.675	90.426	392	T.SBLH	0.196	0.0005	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(-)	2.08	2.6	0.0035	0.0271	0.02	0.0102	18.824	3.675	53.197	392	T.SBLH	0.068	0.0002	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kana(+)	3.85	4.8125	0.0035	0.0271	0.02	0.0102	18.824	3.675	72.375	392	T.SBLH	0.125	0.0003	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kiri(-)	128.31	160.3875	0.0035	0.0271	0.02	0.0102	18.824	3.675	417.817	392	T.RNGKP	4.175	0.0116	0.0116	1135.6	16	200.96	5.7	6	1205.76	90.79	167.17	OKE
414-416	Lap(+)	82.4	103	0.0035	0.0271	0.02	0.0102	18.824	3.675	334.827	392	T.SBLH	2.881	0.0074	0.0074	729.279	16	200.96	3.6	4	803.84	60.52	116.31	OKE
	T.kanan(-)	121.49	151.8625	0.0035	0.0271	0.02	0.0102	18.824	3.675	406.582	392	T.RNGKP	3.953	0.0110	0.0110	1075.24	16	200.96	5.4	6	1205.76	90.79	167.17	OKE
	T.kiri(+)	14.22	17.775	0.0035	0.0271	0.02	0.0102	18.824	3.675	139.093	392	T.SBLH	0.463	0.0013	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(-)	1.55	1.9375	0.0035	0.0271	0.02	0.0102	18.824	3.675	45.922	392	T.SBLH	0.050	0.0001	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kana(+)	8.05	10.0625	0.0035	0.0271	0.02	0.0102	18.824	3.675	104.654	392	T.SBLH	0.262	0.0007	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
412	T.kiri(-)	88.91	111.1375	0.0035	0.0271	0.02	0.0102	18.824	3.675	347.802	392	T.SBLH	2.893	0.0080	0.0080	786.896	16	200.96	3.9	4	803.84	60.52	116.31	OKE
	Lap(+)	60.9	76.125	0.0035	0.0271	0.02	0.0102	18.824	3.675	287.849	392	T.SBLH	1.982	0.0055	0.0055	538.994	16	200.96	2.7	3	602.88	45.39	89.06	OKE
	T.kanan(-)	98.51	123.1375	0.0035	0.0271	0.02	0.0102	18.824	3.675	366.097	392	T.SBLH	3.205	0.0089	0.0089	871.861	16	200.96	4.3	5	1004.8	75.66	142.35	OKE
	T.kiri(+)	11.12	13.9	0.0035	0.0271	0.02	0.0102	18.824	3.675	123.001	392	T.SBLH	0.362	0.0010	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(-)	2	2.5	0.0035	0.0271	0.02	0.0102	18.824	3.675	52.164	392	T.SBLH	0.065	0.0002	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
417	T.kana(+)	7.79	9.7375	0.0035	0.0271	0.02	0.0102	18.824	3.675	102.950	392	T.SBLH	0.253	0.0007	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kiri(-)	3.07	3.8375	0.0035	0.0271	0.02	0.0102	18.824	3.675	64.629	392	T.SBLH	0.100	0.0003	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(+)	3.5	4.375	0.0035	0.0271	0.02	0.0102	18.824	3.675	69.007	392	T.SBLH	0.114	0.0003	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kanan(-)	87.71	109.6375	0.0035	0.0271	0.02	0.0102	18.824	3.675	345.447	392	T.SBLH	2.854	0.0079	0.0079	776.276	16	200.96	3.9	4	803.84	60.52	116.31	OKE
	T.kiri(+)	0.895	1.11875	0.0035	0.0271	0.02	0.0102	18.824	3.675	34.895	392	T.SBLH	0.029	0.0001	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE

444-446	Lap(-)	2.41	3.0125	0.0035	0.0271	0.02	0.0102	18.824	3.675	57.262	392	T SBLH	0.078	0.0002	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kana(+)	4.78	5.975	0.0035	0.0271	0.02	0.0102	18.824	3.675	80.644	392	T SBLH	0.156	0.0004	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
445-461	T.kiri(-)	112.62	140.775	0.0035	0.0271	0.02	0.0102	18.824	3.675	391.439	392	T SBLH	3.664	0.0102	0.0102	996.741	16	200.96	5.0	5	1004.8	75.66	142.35	OKE
	Lap(+)	84.1	105.125	0.0035	0.0271	0.02	0.0102	18.824	3.675	338.263	392	T SBLH	2.736	0.0076	0.0076	744.325	16	200.96	3.7	4	803.84	60.52	116.31	OKE
	T.kanan(-)	144.83	181.0375	0.0035	0.0271	0.02	0.0102	18.824	3.675	443.900	392	T RNGKP	4.713	0.0131	0.0131	1281.81	16	200.96	6.4	7	1406.72	105.92	190.77	OKE
	T.kiri(+)	5.94	7.425	0.0035	0.0271	0.02	0.0102	18.824	3.675	89.898	392	T SBLH	0.193	0.0005	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(-)	1.37	1.7125	0.0035	0.0271	0.02	0.0102	18.824	3.675	43.173	392	T SBLH	0.045	0.0001	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kana(+)	3.55	4.4375	0.0035	0.0271	0.02	0.0102	18.824	3.675	69.498	392	T SBLH	0.116	0.0003	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kiri(-)	118.65	148.3125	0.0035	0.0271	0.02	0.0102	18.824	3.675	401.782	392	T RNGKP	3.861	0.0107	0.0107	1050.11	16	200.96	5.2	6	1205.76	90.79	167.17	OKE
	Lap(+)	94.6	118.25	0.0035	0.0271	0.02	0.0102	18.824	3.675	358.758	392	T SBLH	3.078	0.0085	0.0085	837.255	16	200.96	4.2	5	1004.8	75.66	142.35	OKE
	T.kanan(-)	133.5	166.875	0.0035	0.0271	0.02	0.0102	18.824	3.675	426.184	392	T RNGKP	4.344	0.0121	0.0121	1181.54	16	200.96	5.9	6	1205.76	90.79	167.17	OKE
	T.kiri(+)	4.61	5.7625	0.0035	0.0271	0.02	0.0102	18.824	3.675	79.197	392	T SBLH	0.150	0.0004	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
Lap(-)	7.21	9.0125	0.0035	0.0271	0.02	0.0102	18.824	3.675	99.043	392	T SBLH	0.235	0.0007	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE	
T.kana(+)	14.51	18.1375	0.0035	0.0271	0.02	0.0102	18.824	3.675	140.504	392	T SBLH	0.472	0.0013	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE	
T.kiri(-)	34.44	43.05	0.0035	0.0271	0.02	0.0102	18.824	3.675	216.465	392	T SBLH	1.121	0.0031	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE	
Lap(+)	11.63	14.5375	0.0035	0.0271	0.02	0.0102	18.824	3.675	125.790	392	T SBLH	0.378	0.0011	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE	
T.kanan(-)	19.99	24.9875	0.0035	0.0271	0.02	0.0102	18.824	3.675	164.916	392	T SBLH	0.650	0.0018	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE	
T.kiri(+)	4.23	5.2875	0.0035	0.0271	0.02	0.0102	18.824	3.675	75.862	392	T SBLH	0.138	0.0004	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE	
Lap(-)	1.2	1.5	0.0035	0.0271	0.02	0.0102	18.824	3.675	40.406	392	T SBLH	0.039	0.0001	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE	
T.kana(+)	7.16	8.95	0.0035	0.0271	0.02	0.0102	18.824	3.675	98.699	392	T SBLH	0.233	0.0006	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE	
T.kiri(-)	95.52	119.4	0.0035	0.0271	0.02	0.0102	18.824	3.675	360.499	392	T SBLH	3.108	0.0086	0.0086	845.398	16	200.96	4.2	5	1004.8	75.66	142.35	OKE	
Lap(+)	20.4	25.5	0.0035	0.0271	0.02	0.0102	18.824	3.675	166.599	392	T SBLH	0.664	0.0018	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE	
T.kanan(-)	28.14	35.175	0.0035	0.0271	0.02	0.0102	18.824	3.675	195.667	392	T SBLH	0.916	0.0025	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE	
T.kiri(+)	6.94	8.675	0.0035	0.0271	0.02	0.0102	18.824	3.675	97.171	392	T SBLH	0.226	0.0006	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE	
Lap(-)	8.54	10.675	0.0035	0.0271	0.02	0.0102	18.824	3.675	107.792	392	T SBLH	0.278	0.0008	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE	
T.kana(+)	9.16	11.45	0.0035	0.0271	0.02	0.0102	18.824	3.675	111.636	392	T SBLH	0.298	0.0008	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE	

Penulangan lentur balok anak lantai 4

fy deformasi : 400 Mpa  
 fy polos : 240 Mpa  
 Penutup beton : 40 mm  
 b : 250 mm  
 h : 450 mm  
 fc : 25 Mpa

D.tul. Pokok : 16 mm  
 D.tul. Sengkang : 10 mm  
 d : 392 mm  
 d' : 58 mm

Tabel 31. Penulangan Balok anak Lantai 4

Frame	Letak	Mu KNm	Mu/ KNm	$\rho$ min	$\rho$ b	$\rho$ max	0,75 $\rho$ max	m (mm)	Rn Perlu	d perlu (mm)	d pakai (mm)	Analisis	Rn perlu	$\rho$ baru	$\rho$ pakai	As perlu (mm <sup>2</sup> )	$\phi$ mm	A1 $\phi$ mm <sup>2</sup>	n buah	Tul pakai	As ada mm <sup>2</sup>	a mm	Mn KNm	kontrol
561	T.kiri(-)	22.9	28.63	0.0035	0.0271	0.0203	0.0102	18.824	3.675	176.512	392	T SBLH	0.745	0.0021	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(+)	19.18	23.98	0.0035	0.0271	0.0203	0.0102	18.824	3.675	161.540	392	T SBLH	0.624	0.0017	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kanan(-)	99.39	124.24	0.0035	0.0271	0.0203	0.0102	18.824	3.675	367.729	392	T SBLH	3.234	0.0090	0.0090	879.649	16	200.96	4.4	5	1004.8	75.66	142.35	OKE
	T.kiri(+)	5.38	6.73	0.0035	0.0271	0.0203	0.0102	18.824	3.675	85.555	392	T SBLH	0.175	0.0005	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(-)	0.605	0.76	0.0035	0.0271	0.0203	0.0102	18.824	3.675	28.690	392	T SBLH	0.020	0.0001	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
608	T.kanan(+)	3.2	4.00	0.0035	0.0271	0.0203	0.0102	18.824	3.675	65.983	392	T SBLH	0.104	0.0003	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kiri(-)	18.27	22.84	0.0035	0.0271	0.0203	0.0102	18.824	3.675	157.661	392	T SBLH	0.594	0.0016	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(+)	11.36	14.20	0.0035	0.0271	0.0203	0.0102	18.824	3.675	124.321	392	T SBLH	0.370	0.0010	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kanan(-)	33.45	41.81	0.0035	0.0271	0.0203	0.0102	18.824	3.675	213.331	392	T SBLH	1.088	0.0030	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kiri(+)	4.69	5.86	0.0035	0.0271	0.0203	0.0102	18.824	3.675	79.881	392	T SBLH	0.153	0.0004	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
485-487	Lap(-)	0.905	1.13	0.0035	0.0271	0.0203	0.0102	18.824	3.675	35.090	392	T SBLH	0.029	0.0001	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kanan(+)	8.64	10.80	0.0035	0.0271	0.0203	0.0102	18.824	3.675	108.421	392	T SBLH	0.281	0.0008	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kiri(-)	130.71	163.39	0.0035	0.0271	0.0203	0.0102	18.824	3.675	421.707	392	T RNGKP	4.253	0.0118	0.0118	1156.85	16	200.96	5.8	6	1205.76	90.79	167.17	OKE
	Lap(+)	69.77	87.21	0.0035	0.0271	0.0203	0.0102	18.824	3.675	308.099	392	T SBLH	2.270	0.0063	0.0063	617.498	16	200.96	3.1	4	803.84	60.52	116.31	OKE
	T.kanan(-)	133.01	166.26	0.0035	0.0271	0.0203	0.0102	18.824	3.675	425.401	392	T RNGKP	4.328	0.0120	0.0120	1177.2	16	200.96	5.9	6	1205.76	90.79	167.17	OKE
562-564	T.kiri(+)	13.36	16.70	0.0035	0.0271	0.0203	0.0102	18.824	3.675	134.822	392	T SBLH	0.435	0.0012	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(-)	1.03	1.29	0.0035	0.0271	0.0203	0.0102	18.824	3.675	37.435	392	T SBLH	0.034	0.0001	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kanan(+)	9.12	11.40	0.0035	0.0271	0.0203	0.0102	18.824	3.675	111.392	392	T SBLH	0.297	0.0008	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kiri(-)	146.48	183.10	0.0035	0.0271	0.0203	0.0102	18.824	3.675	446.422	392	T RNGKP	4.766	0.0132	0.0132	1296.42	16	200.96	6.5	7	1406.72	105.92	190.77	OKE
	Lap(+)	85.3	106.63	0.0035	0.0271	0.0203	0.0102	18.824	3.675	340.668	392	T SBLH	2.776	0.0077	0.0077	754.946	16	200.96	3.8	4	803.84	60.52	116.31	OKE
5/7-5/9	T.kanan(-)	108.91	136.14	0.0035	0.0271	0.0203	0.0102	18.824	3.675	384.937	392	T SBLH	3.544	0.0098	0.0098	963.906	16	200.96	4.8	5	1004.8	75.66	142.35	OKE
	T.kiri(+)	2.58	3.23	0.0035	0.0271	0.0203	0.0102	18.824	3.675	59.247	392	T SBLH	0.084	0.0002	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(-)	0.552	0.69	0.0035	0.0271	0.0203	0.0102	18.824	3.675	27.405	392	T SBLH	0.018	0.0000	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kanan(+)	3.65	4.56	0.0035	0.0271	0.0203	0.0102	18.824	3.675	70.470	392	T SBLH	0.119	0.0003	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kiri(-)	132.02	165.03	0.0035	0.0271	0.0203	0.0102	18.824	3.675	423.815	392	T RNGKP	4.296	0.0119	0.0119	1168.44	16	200.96	5.8	6	1205.76	90.79	167.17	OKE
5/7-5/9	Lap(+)	95.76	119.70	0.0035	0.0271	0.0203	0.0102	18.824	3.675	360.951	392	T SBLH	3.116	0.0086	0.0086	847.522	16	200.96	4.2	5	1004.8	75.66	142.35	OKE
	T.kanan(-)	116.14	145.18	0.0035	0.0271	0.0203	0.0102	18.824	3.675	397.509	392	T RNGKP	3.779	0.0105	0.0105	1027.89	16	200.96	5.1	6	1205.76	90.79	167.17	OKE
	T.kiri(+)	10.49	13.11	0.0035	0.0271	0.0203	0.0102	18.824	3.675	119.466	392	T SBLH	0.341	0.0009	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE



	Lap(-)	0.782	0.98	0.0035	0.0271	0.0203	0.0102	18.824	3.675	32.618	392	T SBLH	0.025	0.0001	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kana(+)	2.61	3.26	0.0035	0.0271	0.0203	0.0102	18.824	3.675	59.590	392	T SBLH	0.085	0.0002	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kiri(-)	41.83	52.29	0.0035	0.0271	0.0203	0.0102	18.824	3.675	238.561	392	T SBLH	1.361	0.0038	0.0035	370.216	16	200.96	1.8	2	401.92	30.26	60.59	OKE
	Lap(+)	37.38	46.73	0.0035	0.0271	0.0203	0.0102	18.824	3.675	225.515	392	T SBLH	1.216	0.0038	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
609-611	T.kanan(-)	51.29	64.11	0.0035	0.0271	0.0203	0.0102	18.824	3.675	264.163	392	T SBLH	1.669	0.0046	0.0046	453.941	16	200.96	2.3	3	602.88	45.39	89.06	OKE
	T.kiri(+)	3.03	3.79	0.0035	0.0271	0.0203	0.0102	18.824	3.675	64.206	392	T SBLH	0.099	0.0003	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(-)	1.16	1.45	0.0035	0.0271	0.0203	0.0102	18.824	3.675	39.727	392	T SBLH	0.038	0.0001	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kana(+)	2.65	3.31	0.0035	0.0271	0.0203	0.0102	18.824	3.675	60.045	392	T SBLH	0.086	0.0002	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kiri(-)	95.17	118.96	0.0035	0.0271	0.0203	0.0102	18.824	3.675	359.837	392	T SBLH	3.097	0.0086	0.0086	842.3	16	200.96	4.2	5	1004.8	75.66	142.35	OKE
	Lap(+)	26.42	33.03	0.0035	0.0271	0.0203	0.0102	18.824	3.675	189.593	392	T SBLH	0.860	0.0024	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
565-566	T.kanan(-)	102.15	127.69	0.0035	0.0271	0.0203	0.0102	18.824	3.675	372.800	392	T SBLH	3.324	0.0092	0.0092	904.076	16	200.96	4.5	5	1004.8	75.66	142.35	OKE
	T.kiri(+)	2.24	2.80	0.0035	0.0271	0.0203	0.0102	18.824	3.675	55.205	392	T SBLH	0.073	0.0002	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(-)	1.94	2.43	0.0035	0.0271	0.0203	0.0102	18.824	3.675	51.376	392	T SBLH	0.063	0.0002	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kana(+)	2.99	3.74	0.0035	0.0271	0.0203	0.0102	18.824	3.675	63.781	392	T SBLH	0.097	0.0003	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kiri(-)	99.33	124.16	0.0035	0.0271	0.0203	0.0102	18.824	3.675	367.618	392	T SBLH	3.232	0.0090	0.0090	879.118	16	200.96	4.4	5	1004.8	75.66	142.35	OKE
	Lap(+)	25.71	32.14	0.0035	0.0271	0.0203	0.0102	18.824	3.675	187.028	392	T SBLH	0.837	0.0023	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
580-581	T.kanan(-)	107.49	134.36	0.0035	0.0271	0.0203	0.0102	18.824	3.675	382.420	392	T SBLH	3.498	0.0097	0.0097	951.338	16	200.96	4.7	5	1004.8	75.66	142.35	OKE
	T.kiri(+)	1.93	2.41	0.0035	0.0271	0.0203	0.0102	18.824	3.675	51.243	392	T SBLH	0.063	0.0002	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(-)	1.68	2.10	0.0035	0.0271	0.0203	0.0102	18.824	3.675	47.809	392	T SBLH	0.055	0.0002	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kana(+)	2.25	2.81	0.0035	0.0271	0.0203	0.0102	18.824	3.675	55.328	392	T SBLH	0.073	0.0002	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kiri(-)	43.88	54.85	0.0035	0.0271	0.0203	0.0102	18.824	3.675	244.337	392	T SBLH	1.428	0.0040	0.0040	388.359	16	200.96	1.9	2	401.92	30.26	60.59	OKE
	Lap(+)	3.92	4.90	0.0035	0.0271	0.0203	0.0102	18.824	3.675	73.030	392	T SBLH	0.128	0.0004	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
612-613	T.kanan(-)	41.68	52.10	0.0035	0.0271	0.0203	0.0102	18.824	3.675	238.133	392	T SBLH	1.356	0.0038	0.0038	368.898	16	200.96	1.8	2	401.92	30.26	60.59	OKE
	T.kiri(+)	2.77	3.46	0.0035	0.0271	0.0203	0.0102	18.824	3.675	61.390	392	T SBLH	0.090	0.0003	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(-)	1.32	1.85	0.0035	0.0271	0.0203	0.0102	18.824	3.675	42.378	392	T SBLH	0.043	0.0001	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kana(+)	2.81	3.51	0.0035	0.0271	0.0203	0.0102	18.824	3.675	61.831	392	T SBLH	0.091	0.0003	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kiri(-)	123.48	154.35	0.0035	0.0271	0.0203	0.0102	18.824	3.675	409.878	392	T RNGKP	4.018	0.0112	0.0112	1092.96	16	200.96	5.4	6	1205.76	90.79	167.17	OKE
	Lap(+)	65.42	81.78	0.0035	0.0271	0.0203	0.0102	18.824	3.675	298.340	392	T SBLH	2.129	0.0059	0.0059	578.998	16	200.96	2.9	3	602.88	45.39	89.06	OKE
509-511	T.kanan(-)	123.45	154.31	0.0035	0.0271	0.0203	0.0102	18.824	3.675	409.828	392	T RNGKP	4.017	0.0111	0.0111	1092.59	16	200.96	5.4	6	1205.76	90.79	167.17	OKE
	T.kiri(+)	13.27	16.59	0.0035	0.0271	0.0203	0.0102	18.824	3.675	134.367	392	T SBLH	0.432	0.0012	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(-)	1.69	2.11	0.0035	0.0271	0.0203	0.0102	18.824	3.675	47.951	392	T SBLH	0.055	0.0002	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kana(+)	13.28	16.60	0.0035	0.0271	0.0203	0.0102	18.824	3.675	134.417	392	T SBLH	0.432	0.0012	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kiri(-)	120.05	150.06	0.0035	0.0271	0.0203	0.0102	18.824	3.675	404.145	392	T RNGKP	3.906	0.0108	0.0108	1062.5	16	200.96	5.3	6	1205.76	90.79	167.17	OKE
	Lap(+)	81.06	101.33	0.0035	0.0271	0.0203	0.0102	18.824	3.675	332.093	392	T SBLH	2.638	0.0073	0.0073	717.42	16	200.96	3.6	4	803.84	60.52	116.31	OKE
567-569	T.kanan(-)	119.94	149.93	0.0035	0.0271	0.0203	0.0102	18.824	3.675	403.960	392	T RNGKP	3.903	0.0108	0.0108	1061.53	16	200.96	5.3	6	1205.76	90.79	167.17	OKE
	T.kiri(+)	3.7	4.63	0.0035	0.0271	0.0203	0.0102	18.824	3.675	70.951	392	T SBLH	0.120	0.0003	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(-)	1.91	2.39	0.0035	0.0271	0.0203	0.0102	18.824	3.675	50.977	392	T SBLH	0.062	0.0002	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kana(+)	3.7	4.63	0.0035	0.0271	0.0203	0.0102	18.824	3.675	70.951	392	T SBLH	0.120	0.0003	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kiri(-)	128.57	160.71	0.0035	0.0271	0.0203	0.0102	18.824	3.675	418.241	392	T RNGKP	4.183	0.0116	0.0116	1137.91	16	200.96	5.7	6	1205.76	90.79	167.17	OKE
	Lap(+)	84.48	105.60	0.0035	0.0271	0.0203	0.0102	18.824	3.675	339.026	392	T SBLH	2.749	0.0076	0.0076	747.688	16	200.96	3.7	4	803.84	60.52	116.31	OKE
582-584	T.kanan(-)	128.51	160.64	0.0035	0.0271	0.0203	0.0102	18.824	3.675	418.143	392	T RNGKP	4.182	0.0116	0.0116	1137.38	16	200.96	5.7	6	1205.76	90.79	167.17	OKE

614-616	T.kiri(+)	2.66	3.33	0.0035	0.0271	0.0203	0.0102	18.824	3.675	60.159	392	T.SBLH	0.087	0.0002	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(-)	1.07	1.34	0.0035	0.0271	0.0203	0.0102	18.824	3.675	38.155	392	T.SBLH	0.035	0.0001	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
570-571	T.kana(+)	2.66	3.33	0.0035	0.0271	0.0203	0.0102	18.824	3.675	60.159	392	T.SBLH	0.087	0.0002	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kiri(-)	44.78	55.98	0.0035	0.0271	0.0203	0.0102	18.824	3.675	246.830	392	T.SBLH	1.457	0.0040	0.0040	396.324	16	200.96	2.0	2	401.92	30.26	60.59	OKE
	Lap(+)	33.49	41.86	0.0035	0.0271	0.0203	0.0102	18.824	3.675	213.459	392	T.SBLH	1.090	0.0030	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kanan(-)	44.81	56.01	0.0035	0.0271	0.0203	0.0102	18.824	3.675	246.913	392	T.SBLH	1.090	0.0040	0.0040	396.59	16	200.96	2.0	2	401.92	30.26	60.59	OKE
	T.kiri(+)	3.18	3.98	0.0035	0.0271	0.0203	0.0102	18.824	3.675	65.776	392	T.SBLH	0.103	0.0003	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(-)	1.57	1.96	0.0035	0.0271	0.0203	0.0102	18.824	3.675	46.217	392	T.SBLH	0.051	0.0001	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kana(+)	3.18	3.98	0.0035	0.0271	0.0203	0.0102	18.824	3.675	65.776	392	T.SBLH	0.103	0.0003	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kiri(-)	101.99	127.49	0.0035	0.0271	0.0203	0.0102	18.824	3.675	372.508	392	T.SBLH	3.319	0.0092	0.0092	902.66	16	200.96	4.5	5	1004.8	75.66	142.35	OKE
	Lap(+)	26.4	33.00	0.0035	0.0271	0.0203	0.0102	18.824	3.675	189.521	392	T.SBLH	0.859	0.0024	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kanan(-)	95.53	119.41	0.0035	0.0271	0.0203	0.0102	18.824	3.675	360.517	392	T.SBLH	3.108	0.0086	0.0086	845.486	16	200.96	4.2	5	1004.8	75.66	142.35	OKE
585-586	T.kiri(+)	2.99	3.74	0.0035	0.0271	0.0203	0.0102	18.824	3.675	63.781	392	T.SBLH	0.097	0.0003	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(-)	75.87	94.84	0.0035	0.0271	0.0203	0.0102	18.824	3.675	321.286	392	T.SBLH	2.469	0.0069	0.0069	671.486	16	200.96	3.3	4	803.84	60.52	116.31	OKE
	T.kana(+)	2.25	2.81	0.0035	0.0271	0.0203	0.0102	18.824	3.675	55.328	392	T.SBLH	0.073	0.0002	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kiri(-)	107.33	134.16	0.0035	0.0271	0.0203	0.0102	18.824	3.675	382.135	392	T.SBLH	3.492	0.0097	0.0097	949.922	16	200.96	4.7	5	1004.8	75.66	142.35	OKE
	Lap(+)	25.84	32.30	0.0035	0.0271	0.0203	0.0102	18.824	3.675	187.501	392	T.SBLH	0.841	0.0023	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kanan(-)	99.63	124.54	0.0035	0.0271	0.0203	0.0102	18.824	3.675	368.173	392	T.SBLH	3.242	0.0090	0.0090	881.773	16	200.96	4.4	5	1004.8	75.66	142.35	OKE
	T.kiri(+)	2.25	2.81	0.0035	0.0271	0.0203	0.0102	18.824	3.675	55.328	392	T.SBLH	0.073	0.0002	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(-)	1.83	2.29	0.0035	0.0271	0.0203	0.0102	18.824	3.675	49.898	392	T.SBLH	0.060	0.0002	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kana(+)	1.93	2.41	0.0035	0.0271	0.0203	0.0102	18.824	3.675	51.243	392	T.SBLH	0.063	0.0002	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kiri(-)	41.67	52.09	0.0035	0.0271	0.0203	0.0102	18.824	3.675	238.105	392	T.SBLH	1.356	0.0038	0.0038	368.799	16	200.96	1.8	2	401.92	30.26	60.59	OKE
617-618	Lap(+)	4.15	5.19	0.0035	0.0271	0.0203	0.0102	18.824	3.675	75.142	392	T.SBLH	0.135	0.0004	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kanan(-)	43.89	54.86	0.0035	0.0271	0.0203	0.0102	18.824	3.675	244.365	392	T.SBLH	1.428	0.0040	0.0040	388.448	16	200.96	1.9	2	401.92	30.26	60.59	OKE
	T.kiri(+)	2.81	3.51	0.0035	0.0271	0.0203	0.0102	18.824	3.675	61.831	392	T.SBLH	0.091	0.0003	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(-)	1.49	1.86	0.0035	0.0271	0.0203	0.0102	18.824	3.675	45.025	392	T.SBLH	0.048	0.0001	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kana(+)	2.77	3.46	0.0035	0.0271	0.0203	0.0102	18.824	3.675	61.390	392	T.SBLH	0.090	0.0003	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kiri(-)	130.97	163.71	0.0035	0.0271	0.0203	0.0102	18.824	3.675	422.126	392	T.RNGKP	4.262	0.0118	0.0118	1159.15	16	200.96	5.8	6	1205.76	90.79	167.17	OKE
	Lap(+)	39.79	49.74	0.0035	0.0271	0.0203	0.0102	18.824	3.675	232.672	392	T.SBLH	1.295	0.0036	0.0036	352.161	16	200.96	1.8	2	401.92	30.26	60.59	OKE
	T.kanan(-)	133.17	166.46	0.0035	0.0271	0.0203	0.0102	18.824	3.675	425.657	392	T.RNGKP	4.333	0.0120	0.0120	1178.62	16	200.96	5.9	6	1205.76	90.79	167.17	OKE
	T.kiri(+)	13.36	16.70	0.0035	0.0271	0.0203	0.0102	18.824	3.675	134.822	392	T.SBLH	0.435	0.0012	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(-)	1.04	1.30	0.0035	0.0271	0.0203	0.0102	18.824	3.675	37.616	392	T.SBLH	0.034	0.0001	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
533-535	T.kana(+)	9.11	11.39	0.0035	0.0271	0.0203	0.0102	18.824	3.675	111.331	392	T.SBLH	0.296	0.0008	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kiri(-)	109.3	136.63	0.0035	0.0271	0.0203	0.0102	18.824	3.675	385.626	392	T.SBLH	3.556	0.0099	0.0099	967.357	16	200.96	4.8	5	1004.8	75.66	142.35	OKE
	Lap(+)	85.34	106.68	0.0035	0.0271	0.0203	0.0102	18.824	3.675	340.747	392	T.SBLH	2.777	0.0077	0.0077	755.3	16	200.96	3.8	4	803.84	60.52	116.31	OKE
	T.kanan(-)	146.37	182.96	0.0035	0.0271	0.0203	0.0102	18.824	3.675	446.254	392	T.RNGKP	4.763	0.0132	0.0132	1295.44	16	200.96	6.4	7	1406.72	105.92	190.77	OKE
	T.kiri(+)	3.67	4.59	0.0035	0.0271	0.0203	0.0102	18.824	3.675	70.663	392	T.SBLH	0.119	0.0003	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(-)	1	1.25	0.0035	0.0271	0.0203	0.0102	18.824	3.675	36.886	392	T.SBLH	0.033	0.0001	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kana(+)	2.58	3.23	0.0035	0.0271	0.0203	0.0102	18.824	3.675	59.247	392	T.SBLH	0.084	0.0002	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kiri(-)	116.41	145.51	0.0035	0.0271	0.0203	0.0102	18.824	3.675	397.971	392	T.RNGKP	3.788	0.0105	0.0105	1030.28	16	200.96	5.1	6	1205.76	90.79	167.17	OKE
	Lap(+)	95.71	119.64	0.0035	0.0271	0.0203	0.0102	18.824	3.675	360.857	392	T.SBLH	3.114	0.0086	0.0086	847.079	16	200.96	4.2	5	1004.8	75.66	142.35	OKE









Lap(-)	3	3.75	0.0035	0.0271	0.0203	0.0102	18.824	3.675	63.888	392	T SBLH	0.098	0.0003	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
T.kana(+)	5.01	6.26	0.0035	0.0271	0.0203	0.0102	18.824	3.675	82.561	392	T SBLH	0.163	0.0005	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
T.kiri(-)	2.96	3.70	0.0035	0.0271	0.0203	0.0102	18.824	3.675	63.460	392	T SBLH	0.096	0.0003	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
Lap(+)	2.07	2.59	0.0035	0.0271	0.0203	0.0102	18.824	3.675	53.069	392	T SBLH	0.067	0.0002	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
T.kanan(-)	86.73	108.41	0.0035	0.0271	0.0203	0.0102	18.824	3.675	343.511	392	T SBLH	2.822	0.0078	0.0078	767.602	16	200.96	3.8	4	803.84	60.52	116.31	OKE
T.kiri(+)	0.5	0.63	0.0035	0.0271	0.0203	0.0102	18.824	3.675	26.082	392	T SBLH	0.016	0.0000	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
Lap(-)	30.2	37.75	0.0035	0.0271	0.0203	0.0102	18.824	3.675	202.703	392	T SBLH	0.983	0.0027	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
T.kana(+)	4.13	5.16	0.0035	0.0271	0.0203	0.0102	18.824	3.675	74.960	392	T SBLH	0.134	0.0004	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
T.kiri(-)	83.43	104.29	0.0035	0.0271	0.0203	0.0102	18.824	3.675	336.913	392	T SBLH	2.715	0.0075	0.0075	738.395	16	200.96	3.7	4	803.84	60.52	116.31	OKE
Lap(+)	20.64	25.80	0.0035	0.0271	0.0203	0.0102	18.824	3.675	167.576	392	T SBLH	0.672	0.0019	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
T.kanan(-)	1.36	1.70	0.0035	0.0271	0.0203	0.0102	18.824	3.675	43.016	392	T SBLH	0.044	0.0001	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
T.kiri(+)	1.17	1.46	0.0035	0.0271	0.0203	0.0102	18.824	3.675	39.898	392	T SBLH	0.038	0.0001	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
Lap(-)	0.685	0.86	0.0035	0.0271	0.0203	0.0102	18.824	3.675	30.528	392	T SBLH	0.022	0.0001	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
T.kana(+)	4.15	5.19	0.0035	0.0271	0.0203	0.0102	18.824	3.675	75.142	392	T SBLH	0.135	0.0004	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
T.kiri(-)	88.16	110.20	0.0035	0.0271	0.0203	0.0102	18.824	3.675	346.332	392	T SBLH	2.869	0.0080	0.0080	780.258	16	200.96	3.9	4	803.84	60.52	116.31	OKE
Lap(+)	61.41	76.76	0.0035	0.0271	0.0203	0.0102	18.824	3.675	289.052	392	T SBLH	1.998	0.0055	0.0055	543.508	16	200.96	2.7	3	602.88	45.39	89.06	OKE
T.kanan(-)	94.98	118.73	0.0035	0.0271	0.0203	0.0102	18.824	3.675	359.478	392	T SBLH	3.091	0.0086	0.0086	840.618	16	200.96	4.2	5	1004.8	75.66	142.35	OKE
T.kiri(+)	5.91	7.39	0.0035	0.0271	0.0203	0.0102	18.824	3.675	89.671	392	T SBLH	0.192	0.0005	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
Lap(-)	1.54	1.93	0.0035	0.0271	0.0203	0.0102	18.824	3.675	45.774	392	T SBLH	0.050	0.0001	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
T.kana(+)	5.68	7.10	0.0035	0.0271	0.0203	0.0102	18.824	3.675	87.908	392	T SBLH	0.185	0.0005	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
T.kiri(-)	45.75	57.19	0.0035	0.0271	0.0203	0.0102	18.824	3.675	249.489	392	T SBLH	1.489	0.0041	0.0041	404.909	16	200.96	2.0	3	602.88	45.39	89.06	OKE
Lap(+)	4.99	6.24	0.0035	0.0271	0.0203	0.0102	18.824	3.675	82.396	392	T SBLH	0.162	0.0005	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
T.kanan(-)	48.36	60.45	0.0035	0.0271	0.0203	0.0102	18.824	3.675	256.507	392	T SBLH	1.574	0.0044	0.0044	428.009	16	200.96	2.1	3	602.88	45.39	89.06	OKE
T.kiri(+)	29.07	36.34	0.0035	0.0271	0.0203	0.0102	18.824	3.675	198.874	392	T SBLH	0.946	0.0026	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
Lap(-)	1.8	2.25	0.0035	0.0271	0.0203	0.0102	18.824	3.675	49.487	392	T SBLH	0.059	0.0002	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
T.kana(+)	31.51	39.39	0.0035	0.0271	0.0203	0.0102	18.824	3.675	207.053	392	T SBLH	1.025	0.0028	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE

Penuangan lentur balok anak lantai Atap

- fy deform : 400 Mpa
- fy polos : 240 Mpa
- Penutup beton : 40 mm
- b : 250 mm
- h : 450 mm
- fc : 25 Mpa

- D tul. Pokok : 16 mm
- D tul. Sengkang : 10 mm
- d : 392 mm
- d' : 58 mm

Tabel 32. Penuangan Balok Anak Lantai Atap

Frame	Letak	Mu KNm	Mu/ KNm	ρ min	ρ b	ρ max	0,75 ρ max	m (mm)	Rn Perlu	d perlu (mm)	d pakai (mm)	Analisis	Rn perlu	ρ baru	ρ pakai	As perlu (mm)	φ	A1φ mm <sup>2</sup>	n buah	Tul pakai	As ada mm <sup>2</sup>	a mm	Mn KNm	kontrol
648	T.kiri(-)	10.83	13.54	0.0035	0.0271	0.0203	0.0102	18.824	3.675	121.387	392	T.SBLH	0.352	0.0010	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(+)	16.28	20.35	0.0035	0.0271	0.0203	0.0102	18.824	3.675	148.828	392	T.SBLH	0.530	0.0015	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kanan(-)	9.72	12.15	0.0035	0.0271	0.0203	0.0102	18.824	3.675	114.998	392	T.SBLH	0.316	0.0009	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kiri(+)	2.22	2.78	0.0035	0.0271	0.0203	0.0102	18.824	3.675	54.958	392	T.SBLH	0.072	0.0002	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(-)	0.238	0.30	0.0035	0.0271	0.0203	0.0102	18.824	3.675	17.995	392	T.SBLH	0.058	0.0000	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kanan(+)	1.61	2.01	0.0035	0.0271	0.0203	0.0102	18.824	3.675	46.803	392	T.SBLH	0.052	0.0001	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
642	T.kiri(-)	12.66	15.825	0.0035	0.0271	0.0203	0.0102	18.824	3.675	131.242	392	T.SBLH	0.412	0.0011	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(+)	4.88	6.1	0.0035	0.0271	0.0203	0.0102	18.824	3.675	81.483	392	T.SBLH	0.159	0.0004	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kanan(-)	26.84	33.55	0.0035	0.0271	0.0203	0.0102	18.824	3.675	191.094	392	T.SBLH	0.873	0.0024	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kiri(+)	1.52	1.9	0.0035	0.0271	0.0203	0.0102	18.824	3.675	45.476	392	T.SBLH	0.049	0.0001	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(-)	0.641	0.80125	0.0035	0.0271	0.0203	0.0102	18.824	3.675	29.531	392	T.SBLH	0.021	0.0001	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kanan(+)	0.692	0.865	0.0035	0.0271	0.0203	0.0102	18.824	3.675	30.684	392	T.SBLH	0.023	0.0001	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
666-668	T.kiri(-)	45.09	56.3625	0.0035	0.0271	0.0203	0.0102	18.824	3.675	247.683	392	T.SBLH	1.467	0.0041	0.0041	399.068	16	200.96	2.0	2	401.92	30.26	60.59	OKE
	Lap(+)	31.92	39.9	0.0035	0.0271	0.0203	0.0102	18.824	3.675	208.395	392	T.SBLH	1.039	0.0029	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kanan(-)	40	50	0.0035	0.0271	0.0203	0.0102	18.824	3.675	233.285	392	T.SBLH	1.302	0.0036	0.0036	354.019	16	200.96	1.8	2	401.92	30.26	60.59	OKE
	T.kiri(+)	1.87	2.3375	0.0035	0.0271	0.0203	0.0102	18.824	3.675	50.440	392	T.SBLH	0.061	0.0002	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(-)	0.034	0.0425	0.0035	0.0271	0.0203	0.0102	18.824	3.675	6.801	392	T.SBLH	0.001	0.0000	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kanan(+)	1.76	2.2	0.0035	0.0271	0.0203	0.0102	18.824	3.675	48.934	392	T.SBLH	0.057	0.0002	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
669-670	T.kiri(-)	34.28	42.85	0.0035	0.0271	0.0203	0.0102	18.824	3.675	215.962	392	T.SBLH	1.115	0.0031	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(+)	11.42	14.275	0.0035	0.0271	0.0203	0.0102	18.824	3.675	124.649	392	T.SBLH	0.372	0.0010	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kanan(-)	37.63	47.0375	0.0035	0.0271	0.0203	0.0102	18.824	3.675	226.268	392	T.SBLH	1.224	0.0034	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kiri(+)	0.807	1.00875	0.0035	0.0271	0.0203	0.0102	18.824	3.675	33.135	392	T.SBLH	0.026	0.0001	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(-)	0.175	0.21875	0.0035	0.0271	0.0203	0.0102	18.824	3.675	15.430	392	T.SBLH	0.006	0.0000	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kanan(+)	0.992	1.24	0.0035	0.0271	0.0203	0.0102	18.824	3.675	36.738	392	T.SBLH	0.032	0.0001	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
671-673	T.kiri(-)	45.09	56.3625	0.0035	0.0271	0.0203	0.0102	18.824	3.675	247.683	392	T.SBLH	1.467	0.0041	0.0041	399.068	16	200.96	2.0	2	401.92	30.26	60.59	OKE
	Lap(+)	30.33	37.9125	0.0035	0.0271	0.0203	0.0102	18.824	3.675	203.139	392	T.SBLH	0.987	0.0027	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T.kanan(-)	45.09	56.3625	0.0035	0.0271	0.0203	0.0102	18.824	3.675	247.683	392	T.SBLH	1.467	0.0041	0.0041	399.068	16	200.96	2.0	2	401.92	30.26	60.59	OKE



Lap(-)	0.062	0.0775	0.0035	0.0271	0.0203	0.0102	18.824	3.675	9.184	392	T SBLH	0.002	0.0000	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
T.kana(+)	1.58	1.975	0.0035	0.0271	0.0203	0.0102	18.824	3.675	46.364	392	T SBLH	0.051	0.0001	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
T.kiri(-)	37.58	46.975	0.0035	0.0271	0.0203	0.0102	18.824	3.675	226.118	392	T SBLH	1.223	0.0034	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
Lap(+)	11.43	14.2875	0.0035	0.0271	0.0203	0.0102	18.824	3.675	124.704	392	T SBLH	0.372	0.0010	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
T.kanan(-)	34.3	42.875	0.0035	0.0271	0.0203	0.0102	18.824	3.675	216.075	392	T SBLH	1.116	0.0031	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
T.kiri(+)	0.992	1.24	0.0035	0.0271	0.0203	0.0102	18.824	3.675	36.738	392	T SBLH	0.032	0.0001	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
Lap(-)	0.176	0.22	0.0035	0.0271	0.0203	0.0102	18.824	3.675	15.474	392	T SBLH	0.006	0.0000	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
T.kana(+)	0.805	1.00625	0.0035	0.0271	0.0203	0.0102	18.824	3.675	33.094	392	T SBLH	0.026	0.0001	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
T.kiri(-)	39.92	49.9	0.0035	0.0271	0.0203	0.0102	18.824	3.675	233.051	392	T SBLH	1.299	0.0036	0.0036	353.311	16	200.96	1.8	2	401.92	30.26	60.59	OKE
Lap(+)	31.9	39.875	0.0035	0.0271	0.0203	0.0102	18.824	3.675	208.330	392	T SBLH	1.038	0.0029	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
T.kanan(-)	45.08	56.35	0.0035	0.0271	0.0203	0.0102	18.824	3.675	247.656	392	T SBLH	1.467	0.0041	0.0041	398.98	16	200.96	2.0	2	401.92	30.26	60.59	OKE
T.kiri(+)	1.76	2.2	0.0035	0.0271	0.0203	0.0102	18.824	3.675	48.934	392	T SBLH	0.057	0.0002	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
Lap(-)	0.034	0.0425	0.0035	0.0271	0.0203	0.0102	18.824	3.675	6.901	392	T SBLH	0.001	0.0000	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
T.kana(+)	1.87	2.3375	0.0035	0.0271	0.0203	0.0102	18.824	3.675	50.440	392	T SBLH	0.061	0.0002	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
T.kiri(-)	27.01	33.7625	0.0035	0.0271	0.0203	0.0102	18.824	3.675	191.698	392	T SBLH	0.879	0.0024	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
Lap(+)	4.83	6.0375	0.0035	0.0271	0.0203	0.0102	18.824	3.675	81.064	392	T SBLH	0.157	0.0004	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
T.kanan(-)	12.59	15.7375	0.0035	0.0271	0.0203	0.0102	18.824	3.675	130.879	392	T SBLH	0.410	0.0011	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
T.kiri(+)	0.692	0.865	0.0035	0.0271	0.0203	0.0102	18.824	3.675	30.684	392	T SBLH	0.023	0.0001	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
Lap(-)	0.642	0.8025	0.0035	0.0271	0.0203	0.0102	18.824	3.675	29.555	392	T SBLH	0.021	0.0001	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
T.kana(+)	1.52	1.9	0.0035	0.0271	0.0203	0.0102	18.824	3.675	45.476	392	T SBLH	0.049	0.0001	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
T.kiri(-)	9.87	12.3375	0.0035	0.0271	0.0203	0.0102	18.824	3.675	115.882	392	T SBLH	0.321	0.0009	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
Lap(+)	16.28	20.35	0.0035	0.0271	0.0203	0.0102	18.824	3.675	148.828	392	T SBLH	0.530	0.0015	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
T.kanan(-)	11.09	13.8625	0.0035	0.0271	0.0203	0.0102	18.824	3.675	122.835	392	T SBLH	0.361	0.0010	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
T.kiri(+)	1.61	2.0125	0.0035	0.0271	0.0203	0.0102	18.824	3.675	46.803	392	T SBLH	0.052	0.0001	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
Lap(-)	0.238	0.2975	0.0035	0.0271	0.0203	0.0102	18.824	3.675	17.995	392	T SBLH	0.008	0.0000	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
T.kana(+)	2.22	2.775	0.0035	0.0271	0.0203	0.0102	18.824	3.675	54.958	392	T SBLH	0.072	0.0002	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
T.kiri(-)	0.261	0.32625	0.0035	0.0271	0.0203	0.0102	18.824	3.675	18.844	392	T SBLH	0.005	0.0000	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
Lap(+)	0.142	0.1775	0.0035	0.0271	0.0203	0.0102	18.824	3.675	13.900	392	T SBLH	0.005	0.0000	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
T.kanan(-)	25.18	31.475	0.0035	0.0271	0.0203	0.0102	18.824	3.675	185.091	392	T SBLH	0.819	0.0023	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
T.kiri(+)	2.42	3.025	0.0035	0.0271	0.0203	0.0102	18.824	3.675	57.380	392	T SBLH	0.079	0.0002	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
Lap(-)	2.97	3.7125	0.0035	0.0271	0.0203	0.0102	18.824	3.675	63.567	392	T SBLH	0.097	0.0003	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
T.kana(+)	0.547	0.68375	0.0035	0.0271	0.0203	0.0102	18.824	3.675	27.280	392	T SBLH	0.018	0.0000	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
T.kiri(-)	0.309	0.38625	0.0035	0.0271	0.0203	0.0102	18.824	3.675	20.504	392	T SBLH	0.010	0.0000	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
Lap(+)	0.199	0.24875	0.0035	0.0271	0.0203	0.0102	18.824	3.675	16.454	392	T SBLH	0.006	0.0000	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
T.kanan(-)	26.47	33.0875	0.0035	0.0271	0.0203	0.0102	18.824	3.675	189.773	392	T SBLH	0.861	0.0024	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
T.kiri(+)	3.02	3.775	0.0035	0.0271	0.0203	0.0102	18.824	3.675	64.100	392	T SBLH	0.098	0.0003	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
Lap(-)	3.32	4.15	0.0035	0.0271	0.0203	0.0102	18.824	3.675	67.209	392	T SBLH	0.108	0.0003	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
T.kana(+)	0.707	0.88375	0.0035	0.0271	0.0203	0.0102	18.824	3.675	31.015	392	T SBLH	0.023	0.0001	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
T.kiri(-)	2.01	2.5125	0.0035	0.0271	0.0203	0.0102	18.824	3.675	52.294	392	T SBLH	0.065	0.0002	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
Lap(+)	0.014	0.0175	0.0035	0.0271	0.0203	0.0102	18.824	3.675	4.364	392	T SBLH	0.000	0.0000	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
T.kanan(-)	19.46	24.325	0.0035	0.0271	0.0203	0.0102	18.824	3.675	162.715	392	T SBLH	0.633	0.0018	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE

	T. kiri(+)	0.06	0.075	0.0035	0.0271	0.0203	0.0102	18.824	3.675	9.035	392	T SBLH	0.002	0.0000	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(-)	2.33	2.9125	0.0035	0.0271	0.0203	0.0102	18.824	3.675	56.303	392	T SBLH	0.076	0.0002	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T. kanan(+)	0.105	0.13125	0.0035	0.0271	0.0203	0.0102	18.824	3.675	11.952	392	T SBLH	0.003	0.0000	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T. kiri(-)	0.285	0.35625	0.0035	0.0271	0.0203	0.0102	18.824	3.675	19.691	392	T SBLH	0.009	0.0000	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
697	Lap(+)	0.175	0.21875	0.0035	0.0271	0.0203	0.0102	18.824	3.675	15.430	392	T SBLH	0.006	0.0000	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T. kanan(-)	25.02	31.275	0.0035	0.0271	0.0203	0.0102	18.824	3.675	184.502	392	T SBLH	0.814	0.0023	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T. kiri(+)	2.22	2.775	0.0035	0.0271	0.0203	0.0102	18.824	3.675	54.958	392	T SBLH	0.072	0.0002	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(-)	3	3.75	0.0035	0.0271	0.0203	0.0102	18.824	3.675	63.888	392	T SBLH	0.098	0.0003	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T. kanan(+)	0.634	0.7925	0.0035	0.0271	0.0203	0.0102	18.824	3.675	29.370	392	T SBLH	0.021	0.0001	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T. kiri(-)	0.286	0.3575	0.0035	0.0271	0.0203	0.0102	18.824	3.675	19.726	392	T SBLH	0.009	0.0000	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
696	Lap(+)	0.175	0.21875	0.0035	0.0271	0.0203	0.0102	18.824	3.675	15.430	392	T SBLH	0.006	0.0000	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T. kanan(-)	25.03	31.2875	0.0035	0.0271	0.0203	0.0102	18.824	3.675	184.538	392	T SBLH	0.814	0.0023	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T. kiri(+)	2.23	2.7875	0.0035	0.0271	0.0203	0.0102	18.824	3.675	55.082	392	T SBLH	0.073	0.0002	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(-)	3	3.75	0.0035	0.0271	0.0203	0.0102	18.824	3.675	63.888	392	T SBLH	0.098	0.0003	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T. kanan(+)	0.635	0.79375	0.0035	0.0271	0.0203	0.0102	18.824	3.675	29.393	392	T SBLH	0.021	0.0001	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T. kiri(-)	2	2.5	0.0035	0.0271	0.0203	0.0102	18.824	3.675	52.164	392	T SBLH	0.065	0.0002	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
694	Lap(+)	0.014	0.0175	0.0035	0.0271	0.0203	0.0102	18.824	3.675	4.364	392	T SBLH	0.000	0.0000	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T. kanan(-)	19.47	24.3375	0.0035	0.0271	0.0203	0.0102	18.824	3.675	162.757	392	T SBLH	0.634	0.0018	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T. kiri(+)	0.061	0.07625	0.0035	0.0271	0.0203	0.0102	18.824	3.675	9.110	392	T SBLH	0.002	0.0000	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(-)	2.33	2.9125	0.0035	0.0271	0.0203	0.0102	18.824	3.675	56.303	392	T SBLH	0.076	0.0002	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T. kanan(+)	0.107	0.13375	0.0035	0.0271	0.0203	0.0102	18.824	3.675	12.066	392	T SBLH	0.003	0.0000	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T. kiri(-)	0.309	0.38625	0.0035	0.0271	0.0203	0.0102	18.824	3.675	20.504	392	T SBLH	0.010	0.0000	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
691	Lap(+)	0.199	0.24875	0.0035	0.0271	0.0203	0.0102	18.824	3.675	16.454	392	T SBLH	0.006	0.0000	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T. kanan(-)	26.46	33.075	0.0035	0.0271	0.0203	0.0102	18.824	3.675	189.737	392	T SBLH	0.861	0.0024	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T. kiri(+)	3.02	3.775	0.0035	0.0271	0.0203	0.0102	18.824	3.675	64.100	392	T SBLH	0.098	0.0003	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(-)	3.32	4.15	0.0035	0.0271	0.0203	0.0102	18.824	3.675	67.209	392	T SBLH	0.108	0.0003	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T. kanan(+)	0.708	0.885	0.0035	0.0271	0.0203	0.0102	18.824	3.675	31.037	392	T SBLH	0.023	0.0001	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T. kiri(-)	0.261	0.32625	0.0035	0.0271	0.0203	0.0102	18.824	3.675	18.844	392	T SBLH	0.008	0.0000	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
690	Lap(+)	0.143	0.17875	0.0035	0.0271	0.0203	0.0102	18.824	3.675	13.948	392	T SBLH	0.005	0.0000	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T. kanan(-)	25.16	31.45	0.0035	0.0271	0.0203	0.0102	18.824	3.675	185.017	392	T SBLH	0.819	0.0023	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T. kiri(+)	2.41	3.0125	0.0035	0.0271	0.0203	0.0102	18.824	3.675	57.262	392	T SBLH	0.078	0.0002	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	Lap(-)	2.97	3.7125	0.0035	0.0271	0.0203	0.0102	18.824	3.675	63.567	392	T SBLH	0.097	0.0003	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE
	T. kanan(+)	0.547	0.68375	0.0035	0.0271	0.0203	0.0102	18.824	3.675	27.280	392	T SBLH	0.018	0.0000	0.0035	343	16	200.96	1.7	2	401.92	30.26	60.59	OKE

Penulangan lentur balok sloof  
 fy deform : 400 Mpa  
 fy polos : 240 Mpa  
 Penutup beton : 40 mm  
 b : 350 mm  
 h : 700 mm

fc : 25 Mpa  
 D tul. Pokok : 22 mm  
 D tul. Sengkang : 10 mm  
 d : 600 mm  
 d' : 100 mm ( asumsi tul. 2 Lapis )

Tabel 33. Penulangan balok pengikat

Frame	Pu1 KN	Pu2 KN	Pu pakai KN	tul tarik	As' perlu mm <sup>2</sup>	D	A1φ mm <sup>2</sup>	n	n ada	As' ada mm <sup>2</sup>	tul desak	Pn	Ast mm <sup>2</sup>	ρ	As mlh mm <sup>2</sup>	φ	A1φ mm <sup>2</sup>	n'	n' ada	As ada mm <sup>2</sup>
89	1054.7	1956.0	150.54	tul tarik	1140	22	379.9	3	4	1519.8	tul desak	2316.0	-3919	0.0035	735.0	22.0	379.9	1.9	4	1519.8
132	1159.5	1864.8	151.22	tul tarik	1146	22	379.9	3	4	1519.8	tul desak	2326.4	-3886	0.0035	735.0	22.0	379.9	1.9	4	1519.8
127	1594.8	519.0	105.69	tul tarik	801	22	379.9	2.1	4	1519.8	tul desak	1626.0	-6075	0.0035	735.0	22.0	379.9	1.9	4	1519.8
118	1313.1	1986.7	164.99	tul tarik	1250	22	379.9	3.3	4	1519.8	tul desak	2538.3	-3224	0.0035	735.0	22.0	379.9	1.9	4	1519.8
135	1566.7	1864.8	171.58	tul tarik	1300	22	379.9	3.4	4	1519.8	tul desak	2639.7	-2907	0.0035	735.0	22.0	379.9	1.9	4	1519.8
121	959.2	2636.4	179.78	tul tarik	1362	22	379.9	3.6	4	1519.8	tul desak	2765.8	-2513	0.0035	735.0	22.0	379.9	1.9	4	1519.8
108	921.0	730.3	82.56	tul tarik	625	22	379.9	1.6	4	1519.8	tul desak	1270.2	-7187	0.0035	735.0	22.0	379.9	1.9	4	1519.8
140	2320.3	1956.0	213.82	tul tarik	1620	22	379.9	4.3	5	1899.7	tul desak	2772.2	-2493	0.0035	735.0	22.0	379.9	1.9	4	1519.8
126	3084.8	519.0	180.19	tul tarik	1365	22	379.9	3.6	4	1519.8	tul desak	3289.5	-876.6	0.0035	735.0	22.0	379.9	1.9	4	1519.8
112	848.8	926.1	88.75	tul tarik	672	22	379.9	1.8	4	1519.8	tul desak	1365.3	-8890	0.0035	735.0	22.0	379.9	1.9	4	1519.8
141	2129.6	2370.8	225.02	tul tarik	1705	22	379.9	4.5	5	1899.7	tul desak	3461.8	-338	0.0035	735.0	22.0	379.9	1.9	4	1519.8
124	2891.2	3100.7	299.60	tul tarik	2270	22	379.9	6	6	2279.6	tul desak	4609.2	3247	0.0035	735.0	22.0	379.9	1.9	4	1519.8
116	787.0	859.0	82.30	tul tarik	623	22	379.9	1.6	4	1519.8	tul desak	1266.1	-7200	0.0035	735.0	22.0	379.9	1.9	4	1519.8
142	1986.7	2092.5	203.96	tul tarik	1545	22	379.9	4.1	5	1899.7	tul desak	3137.8	-1351	0.0035	735.0	22.0	379.9	1.9	4	1519.8
122	2636.4	2847.9	274.21	tul tarik	2077	22	379.9	5.5	6	2279.6	tul desak	4216.7	2027	0.0035	735.0	22.0	379.9	1.9	4	1519.8
110	2129.6	2320.3	222.50	tul tarik	1686	22	379.9	4.4	5	1899.7	tul desak	3423.0	-459.2	0.0035	735.0	22.0	379.9	1.9	4	1519.8
126	2100.6	2370.8	223.57	tul tarik	1694	22	379.9	4.5	5	1899.7	tul desak	3439.5	-407.7	0.0035	735.0	22.0	379.9	1.9	4	1519.8
114	2092.5	2370.8	223.16	tul tarik	1691	22	379.9	4.4	5	1899.7	tul desak	3433.3	-427.3	0.0035	735.0	22.0	379.9	1.9	4	1519.8
123	2847.9	3100.7	297.43	tul tarik	2253	22	379.9	5.9	6	2279.6	tul desak	4575.9	3143	0.0035	735.0	22.0	379.9	1.9	4	1519.8
128	1640.7	1159.5	140.01	tul tarik	1061	22	379.9	2.8	4	1519.8	tul desak	2154.0	-4425	0.0035	735.0	22.0	379.9	1.9	4	1519.8
130	1953.7	1864.6	190.92	tul tarik	1446	22	379.9	3.8	4	1519.8	tul desak	2837.2	-1978	0.0035	735.0	22.0	379.9	1.9	4	1519.8
133	2092.5	1864.6	197.86	tul tarik	1499	22	379.9	3.9	4	1519.8	tul desak	3043.9	-1644	0.0035	735.0	22.0	379.9	1.9	4	1519.8
120	959.2	1566.7	126.30	tul tarik	957	22	379.9	2.5	4	1519.8	tul desak	1843.0	-5084	0.0035	735.0	22.0	379.9	1.9	4	1519.8
129	1159.5	1054.7	110.71	tul tarik	839	22	379.9	2.2	4	1519.8	tul desak	1703.3	-5834	0.0035	735.0	22.0	379.9	1.9	4	1519.8
131	1864.6	1956.0	191.03	tul tarik	1447	22	379.9	3.8	4	1519.8	tul desak	2039.0	-1972	0.0035	735.0	22.0	379.9	1.9	4	1519.8
134	1864.6	1566.7	171.57	tul tarik	1300	22	379.9	3.4	4	1519.8	tul desak	2639.5	-2908	0.0035	735.0	22.0	379.9	1.9	4	1519.8
119	1566.7	1313.1	143.99	tul tarik	1091	22	379.9	2.9	4	1519.8	tul desak	2215.3	-4234	0.0035	735.0	22.0	379.9	1.9	4	1519.8
136	2949.1	2320.2	263.47	tul tarik	1996	22	379.9	5.3	6	2279.6	tul desak	4053.3	1510	0.0035	735.0	22.0	379.9	1.9	4	1519.8
137	2983.9	2243.6	261.38	tul tarik	1980	22	379.9	5.2	6	2279.6	tul desak	4021.2	1410	0.0035	735.0	22.0	379.9	1.9	4	1519.8
138	3100.7	2370.8	273.58	tul tarik	2073	22	379.9	5.5	6	2279.6	tul desak	4208.8	1996	0.0035	735.0	22.0	379.9	1.9	4	1519.8
139	2944.3	2179.9	256.21	tul tarik	1941	22	379.9	5.1	6	2279.6	tul desak	3941.7	1162	0.0035	735.0	22.0	379.9	1.9	4	1519.8

134	1864.6	1566.7	171.57	tul tarik	1300	22	379.9	3.4	4	1519.8	tul desak	2639.5	-2908	0.0035	735.0	22.0	379.9	1.9	4	1519.8
90	1956.0	730.3	134.32	tul tarik	1018	22	379.9	2.7	4	1519.8	tul desak	2066.4	-4699	0.0035	735.0	22.0	379.9	1.9	4	1519.8
109	2320.2	921.0	162.06	tul tarik	1228	22	379.9	3.2	4	1519.8	tul desak	2493.2	-3365	0.0035	735.0	22.0	379.9	1.9	4	1519.8
111	2243.6	848.8	154.62	tul tarik	1171	22	379.9	3.1	4	1519.8	tul desak	2378.8	-3723	0.0035	735.0	22.0	379.9	1.9	4	1519.8
113	2370.8	926.1	164.84	tul tarik	1249	22	379.9	3.3	4	1519.8	tul desak	2536.1	-3231	0.0035	735.0	22.0	379.9	1.9	4	1519.8
115	2179.9	859.0	151.94	tul tarik	1151	22	379.9	3	4	1519.8	tul desak	2337.6	-3851	0.0035	735.0	22.0	379.9	1.9	4	1519.8
117	1986.7	787.0	138.68	tul tarik	1051	22	379.9	2.8	4	1519.8	tul desak	2133.6	-4489	0.0035	735.0	22.0	379.9	1.9	4	1519.8

Penulangan lentur balok induk Lantai 2

- fy deformasi : 400 Mpa
- fy polos : 240 Mpa
- Penutup beton : 40 mm
- b : 350 mm
- h : 700 mm
- fc : 25 Mpa
- D tul. Pokok : 22 mm
- D tul. Sengkang : 10 mm
- d : 600 mm
- d' : 100 mm (asumsi tul. 2 Lapis)

Tabel 14. Penulangan Balok Induk Lantai 2

Frame	Letak	Mu KNm	Mul KNm	p min	p b	p max	0,75 p max	m (mm)	Rn Perlu	d perlu (mm)	d pakai (mm)	Analisis	Rn perlu	p baru	p pakai	As perlu (mm)	φ	A1φ mm²	n buah	Tul pakai	As ada mm²	a mm	Mn KNm	Cek
177	T.kiri(-) Lap(+)	193.25 10.8	241.56 13.50	0.0035 0.0035	0.0271 0.0271	0.02 0.02	0.0102 0.0102	18.824 18.824	3.675 3.675	433.363 102.448	600 600	T SBLH	1.917 0.107	0.0053 0.0003	0.0053 0.0004	1117.43 84	22 22	380.1336 380.1336	2.9 0.2	3 2	1140.401 760.2672	61.33 40.89	259.71 176.25	OKE OKE
	T.kanan(-) T.kiri(+)	245.41 152.22	306.76 190.28	0.0035 0.0035	0.0271 0.0271	0.02 0.02	0.0102 0.0102	18.824 18.824	3.675 3.675	488.358 384.617	600 600	T SBLH	2.435 0.057	0.0068 0.0002	0.0068 0.0003	1419.04 63	22 22	380.1336 380.1336	3.7 0.2	4 2	1520.534 760.2672	81.78 40.89	340.06 176.25	OKE OKE
	Lap(-)	578	7.23	0.0035	0.0271	0.02	0.0102	18.824	3.675	74.947	600	T SBLH	1.292	0.0036	0.0036	752.973	22	380.1336	2.0	2	760.2672	40.89	176.25	OKE
	T.kanan(+)	130.22	162.78	0.0035	0.0271	0.02	0.0102	18.824	3.675	355.739	600	T SBLH	4.109	0.0114	0.0114	2394.74	22	380.1336	6.3	7	2660.935	143.11	562.46	OKE
	T.kiri(-) Lap(+)	414.15 257.34	517.69 321.68	0.0035 0.0035	0.0271 0.0271	0.02 0.02	0.0102 0.0102	18.824 18.824	3.675 3.675	634.412 500.087	600 600	T RINGKP	4.177 2.553	0.0071 0.0071	0.0071 0.0116	1488.02 2434.47	22 22	380.1336 380.1336	3.9 6.4	4 7	1520.534 2660.935	81.78 143.11	340.06 562.46	OKE OKE
265-267	T.kanan(-) T.kiri(+)	421.02 77.86	526.28 97.33	0.0035 0.0035	0.0271 0.0271	0.02 0.02	0.0102 0.0102	18.824 18.824	3.675 3.675	639.652 275.074	600 600	T RINGKP	4.177 0.772	0.0116 0.0021	0.0116 0.0028	2434.47 588	22 22	380.1336 380.1336	1.5 0.1	2 2	760.2672 760.2672	40.89 40.89	176.25 176.25	OKE OKE
	Lap(-)	2.25	2.81	0.0035	0.0271	0.02	0.0102	18.824	3.675	46.761	600	T SBLH	0.022	0.0001	0.0002	42	22	380.1336	0.1	2	760.2672	40.89	176.25	OKE
	T.kanan(+)	78.71	98.39	0.0035	0.0271	0.02	0.0102	18.824	3.675	276.571	600	T SBLH	1.330	0.0037	0.0037	774.946	22	380.1336	1.6	2	760.2672	40.89	176.25	OKE
	T.kiri(-) Lap(+)	134.02 222.66	167.53 278.33	0.0035 0.0035	0.0271 0.0271	0.02 0.02	0.0102 0.0102	18.824 18.824	3.675 3.675	377.398 593.633	600 600	T SBLH	2.209 1.454	0.0061 0.0040	0.0061 0.0040	1287.49 847.456	22 22	380.1336 380.1336	3.4 2.2	4 3	1520.534 1140.401	81.78 61.33	259.71 259.71	OKE OKE
	T.kanan(-) T.kiri(+)	146.56 362.62	183.20 453.28	0.0035 0.0035	0.0271 0.0271	0.02 0.02	0.0102 0.0102	18.824 18.824	3.675 3.675	360.892 465.172	600 600	T SBLH	0.077	0.0002	0.0003	2096.78 63	22 22	380.1336 380.1336	5.5 0.2	6 2	2280.802 760.2672	122.66 40.89	491.44 176.25	OKE OKE
191-192	Lap(-)	7.77	9.71	0.0035	0.0271	0.02	0.0102	18.824	3.675	533.631	600	T SBLH	2.907	0.0081	0.0081	1694.33	22	380.1336	4.5	5	1900.668	102.22	417.30	OKE
	T.kanan(+)	293.02	366.28	0.0035	0.0271	0.02	0.0102	18.824	3.675	494.626	600	T SBLH	2.498	0.0069	0.0069	1455.7	22	380.1336	3.8	4	1520.534	81.78	340.06	OKE
	T.kiri(-) Lap(+)	251.75 47.23	314.6875 59.0375	0.0035 0.0035	0.0271 0.0271	0.02 0.02	0.0102 0.0102	18.824 18.824	3.675 3.675	324.778 498.755	600 600	T SBLH	2.539 1.077	0.0070 0.0030	0.0070 0.0035	1480.1 735	22 22	380.1336 380.1336	1.9 0.2	2 4	760.2672 1520.534	40.89 81.78	176.25 340.06	OKE OKE
	T.kanan(-) T.kiri(+)	255.97 108.54	319.9625 135.675	0.0035 0.0035	0.0271 0.0271	0.02 0.02	0.0102 0.0102	18.824 18.824	3.675 3.675	324.778 46.448	600 600	T SBLH	1.077	0.0030	0.0035	735 735	22 22	380.1336 380.1336	1.9 0.2	2 2	760.2672 760.2672	40.89 40.89	176.25 176.25	OKE OKE
	Lap(-)	2.22	2.775	0.0035	0.0271	0.02	0.0102	18.824	3.675	46.448	600	T SBLH	1.047	0.0029	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
268-270	T.kanan(+)	105.56	131.95	0.0035	0.0271	0.02	0.0102	18.824	3.675	320.289	600	T SBLH	4.396	0.0122	0.0122	2562.2	22	380.1336	6.7	7	2660.935	143.11	562.46	OKE
	T.kiri(-) Lap(+)	443.11 269.66	553.8875 337.075	0.0035 0.0035	0.0271 0.0271	0.02 0.02	0.0102 0.0102	18.824 18.824	3.675 3.675	511.918 655.870	600 600	T SBLH	2.675 4.391	0.0074 0.0122	0.0074 0.0122	1559.26 2559.48	22 22	380.1336 380.1336	4.1 6.7	5 7	1900.668 2660.935	102.22 143.11	417.30 562.46	OKE OKE
	T.kanan(-) T.kiri(+)	442.64 80.2	553.3 100.25	0.0035 0.0035	0.0271 0.0271	0.02 0.02	0.0102 0.0102	18.824 18.824	3.675 3.675	655.870 279.177	600 600	T RINGKP	4.391	0.0122	0.0035	2559.48 735	22 22	380.1336 380.1336	6.7 1.9	7 2	2660.935 760.2672	143.11 40.89	562.46 176.25	OKE OKE

225-226	Lap(-)	3.51	4.3875	0.0035	0.0271	0.02	0.0102	18.824	3.675	58.404	600	T. SBLH	0.035	0.0001	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T. kana(+)	80.22	100.275	0.0035	0.0271	0.02	0.0102	18.824	3.675	279.212	600	T. SBLH	0.796	0.0022	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T. kiril(+)	256.38	320.475	0.0035	0.0271	0.02	0.0102	18.824	3.675	499.154	600	T. SBLH	2.543	0.0071	0.0071	1482.47	22	380.1336	3.9	4	1520.534	81.78	340.06	OKE
	Lap(+)	54.15	67.6875	0.0035	0.0271	0.02	0.0102	18.824	3.675	229.399	600	T. SBLH	0.537	0.0015	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T. kanan(-)	252.59	315.7375	0.0035	0.0271	0.02	0.0102	18.824	3.675	495.451	600	T. SBLH	2.506	0.0070	0.0070	1460.55	22	380.1336	3.8	4	1520.534	81.78	340.06	OKE
	T. kiril(+)	105.55	131.9375	0.0035	0.0271	0.02	0.0102	18.824	3.675	320.274	600	T. SBLH	1.047	0.0029	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	Lap(-)	74.7	93.375	0.0035	0.0271	0.02	0.0102	18.824	3.675	269.434	600	T. SBLH	0.741	0.0021	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T. kana(+)	108.52	135.65	0.0035	0.0271	0.02	0.0102	18.824	3.675	324.749	600	T. SBLH	1.077	0.0030	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T. kiril(-)	422.61	528.2625	0.0035	0.0271	0.02	0.0102	18.824	3.675	640.859	600	T. RINGKP	4.193	0.0116	0.0116	2443.66	22	380.1336	6.4	7	2660.935	143.11	562.46	OKE
	Lap(+)	258.06	322.575	0.0035	0.0271	0.02	0.0102	18.824	3.675	500.787	600	T. SBLH	2.560	0.0071	0.0071	1492.18	22	380.1336	3.9	4	1520.534	81.78	340.06	OKE
	T. kanan(-)	414.23	517.7875	0.0035	0.0271	0.02	0.0102	18.824	3.675	634.473	600	T. RINGKP	4.109	0.0114	0.0114	2395.21	22	380.1336	6.3	7	2660.935	143.11	562.46	OKE
	T. kiril(+)	78.7	98.375	0.0035	0.0271	0.02	0.0102	18.824	3.675	276.554	600	T. SBLH	0.781	0.0022	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	Lap(-)	2.26	2.825	0.0035	0.0271	0.02	0.0102	18.824	3.675	46.865	600	T. SBLH	0.022	0.0001	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T. kana(+)	77.85	97.3125	0.0035	0.0271	0.02	0.0102	18.824	3.675	355.739	600	T. SBLH	0.772	0.0021	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T. kiril(-)	248.28	310.35	0.0035	0.0271	0.02	0.0102	18.824	3.675	491.205	600	T. SBLH	2.463	0.0068	0.0068	1435.63	22	380.1336	3.8	4	1520.534	81.78	340.06	OKE
	Lap(+)	10.5	13.125	0.0035	0.0271	0.02	0.0102	18.824	3.675	101.015	600	T. SBLH	0.104	0.0003	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T. kanan(-)	191.23	239.0375	0.0035	0.0271	0.02	0.0102	18.824	3.675	431.092	600	T. SBLH	1.897	0.0053	0.0053	1105.75	22	380.1336	2.9	3	1140.401	61.33	259.71	OKE
	T. kiril(+)	130.22	162.775	0.0035	0.0271	0.02	0.0102	18.824	3.675	355.739	600	T. SBLH	1.292	0.0036	0.0036	752.973	22	380.1336	2.0	2	760.2672	40.89	176.25	OKE
	Lap(-)	5.78	7.225	0.0035	0.0271	0.02	0.0102	18.824	3.675	74.947	600	T. SBLH	0.057	0.0002	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T. kana(+)	152.24	190.3	0.0035	0.0271	0.02	0.0102	18.824	3.675	384.642	600	T. SBLH	1.510	0.0042	0.0042	880.299	22	380.1336	2.3	3	1140.401	61.33	259.71	OKE
	T. kiril(-)	218.49	273.1125	0.0035	0.0271	0.02	0.0102	18.824	3.675	460.795	600	T. SBLH	2.168	0.0060	0.0060	1263.38	22	380.1336	3.3	4	1520.534	81.78	340.06	OKE
	Lap(+)	33	41.25	0.0035	0.0271	0.02	0.0102	18.824	3.675	179.081	600	T. SBLH	0.327	0.0009	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T. kanan(-)	245.74	307.175	0.0035	0.0271	0.02	0.0102	18.824	3.675	488.686	600	T. SBLH	2.438	0.0068	0.0068	1420.95	22	380.1336	3.7	4	1520.534	81.78	340.06	OKE
	T. kiril(+)	157.8	197.25	0.0035	0.0271	0.02	0.0102	18.824	3.675	391.603	600	T. SBLH	1.565	0.0043	0.0043	912.449	22	380.1336	2.4	3	1140.401	61.33	259.71	OKE
	Lap(-)	1.79	2.2375	0.0035	0.0271	0.02	0.0102	18.824	3.675	41.708	600	T. SBLH	0.018	0.0000	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T. kana(+)	150.06	187.575	0.0035	0.0271	0.02	0.0102	18.824	3.675	381.878	600	T. SBLH	1.489	0.0041	0.0041	867.694	22	380.1336	2.3	3	1140.401	61.33	259.71	OKE
	T. kiril(-)	248.07	310.0875	0.0035	0.0271	0.02	0.0102	18.824	3.675	490.998	600	T. SBLH	2.461	0.0068	0.0068	1434.42	22	380.1336	3.8	4	1520.534	81.78	340.06	OKE
	Lap(+)	32.36	40.45	0.0035	0.0271	0.02	0.0102	18.824	3.675	177.336	600	T. SBLH	0.321	0.0009	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T. kanan(-)	218.63	273.5375	0.0035	0.0271	0.02	0.0102	18.824	3.675	461.154	600	T. SBLH	2.171	0.0060	0.0060	1265.34	22	380.1336	3.3	4	1520.534	81.78	340.06	OKE
	T. kiril(+)	150.06	187.575	0.0035	0.0271	0.02	0.0102	18.824	3.675	397.551	600	T. SBLH	1.489	0.0041	0.0041	867.694	22	380.1336	2.3	3	1140.401	61.33	259.71	OKE
	Lap(-)	1.78	2.225	0.0035	0.0271	0.02	0.0102	18.824	3.675	41.591	600	T. SBLH	0.018	0.0000	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T. kana(+)	157.77	197.2125	0.0035	0.0271	0.02	0.0102	18.824	3.675	391.566	600	T. SBLH	1.565	0.0043	0.0043	912.276	22	380.1336	2.4	3	1140.401	61.33	259.71	OKE
	T. kiril(-)	198.99	248.7375	0.0035	0.0271	0.02	0.0102	18.824	3.675	439.752	600	T. SBLH	1.974	0.0055	0.0055	1150.62	22	380.1336	3.0	4	1520.534	81.78	340.06	OKE
	Lap(+)	7.67	9.5875	0.0035	0.0271	0.02	0.0102	18.824	3.675	86.336	600	T. SBLH	0.076	0.0002	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T. kanan(-)	265.75	332.1875	0.0035	0.0271	0.02	0.0102	18.824	3.675	508.193	600	T. SBLH	2.636	0.0073	0.0073	1536.65	22	380.1336	4.0	5	1900.668	102.22	417.30	OKE
	T. kiril(+)	162.63	203.2875	0.0035	0.0271	0.02	0.0102	18.824	3.675	397.551	600	T. SBLH	1.613	0.0045	0.0045	940.378	22	380.1336	2.5	3	1140.401	61.33	259.71	OKE
	Lap(-)	7.39	9.2375	0.0035	0.0271	0.02	0.0102	18.824	3.675	84.745	600	T. SBLH	0.073	0.0002	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T. kana(+)	141.17	176.4625	0.0035	0.0271	0.02	0.0102	18.824	3.675	370.394	600	T. SBLH	1.400	0.0039	0.0039	816.289	22	380.1336	2.1	3	1140.401	61.33	259.71	OKE
	T. kiril(-)	489.47	611.8375	0.0035	0.0271	0.02	0.0102	18.824	3.675	689.692	600	T. RINGKP	4.856	0.0135	0.0135	2890.27	22	380.1336	7.4	8	3041.069	163.55	630.38	OKE
	Lap(+)	300.45	375.5625	0.0035	0.0271	0.02	0.0102	18.824	3.675	540.354	600	T. SBLH	2.981	0.0083	0.0083	1737.3	22	380.1336	4.6	5	1900.668	102.22	417.30	OKE
	T. kanan(-)	481.63	602.0375	0.0035	0.0271	0.02	0.0102	18.824	3.675	684.146	600	T. RINGKP	4.778	0.0133	0.0133	2784.94	22	380.1336	7.3	8	3041.069	163.55	630.38	OKE



162	T.kanan(-)	156.45	195.5625	0.0035	0.0271	0.02	0.0102	18.824	3.675	389.924	600	T.SBLH	1.552	0.0043	0.0043	904.643	22	380.1336	2.4	3	1140.401	61.33	259.71	OKE
	T.kiri(+)	182.72	228.4	0.0035	0.0271	0.02	0.0102	18.824	3.675	421.391	600	T.SBLH	1.813	0.0050	0.0050	1056.54	22	380.1336	2.8	3	1140.401	61.33	259.71	OKE
	Lap(-)	37.05	46.3125	0.0035	0.0271	0.02	0.0102	18.824	3.675	189.752	600	T.SBLH	0.368	0.0010	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kana(+)	185.45	231.8125	0.0035	0.0271	0.02	0.0102	18.824	3.675	424.527	600	T.SBLH	1.840	0.0051	0.0061	1072.33	22	380.1336	2.8	3	1140.401	61.33	259.71	OKE
	T.kiri(-)	29.02	36.275	0.0035	0.0271	0.02	0.0102	18.824	3.675	167.935	600	T.SBLH	0.288	0.0035	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	Lap(+)	3.91	4.8875	0.0035	0.0271	0.02	0.0102	18.824	3.675	61.643	600	T.SBLH	0.039	0.0001	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
163	T.kanan(-)	166.71	208.3875	0.0035	0.0271	0.02	0.0102	18.824	3.675	402.507	600	T.SBLH	1.654	0.0046	0.0046	963.969	22	380.1336	2.5	3	1140.401	61.33	259.71	OKE
	T.kiri(+)	8.09	10.1125	0.0035	0.0271	0.02	0.0102	18.824	3.675	88.668	600	T.SBLH	0.080	0.0002	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	Lap(-)	64.97	81.2125	0.0035	0.0271	0.02	0.0102	18.824	3.675	251.275	600	T.SBLH	0.645	0.0018	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kana(+)	8.09	10.1125	0.0035	0.0271	0.02	0.0102	18.824	3.675	88.668	600	T.SBLH	0.080	0.0002	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kiri(-)	362.62	453.275	0.0035	0.0271	0.02	0.0102	18.824	3.675	593.633	600	T.SBLH	3.597	0.0100	0.0100	2096.78	22	380.1336	5.5	6	2280.802	122.66	491.44	OKE
	Lap(+)	222.66	278.325	0.0035	0.0271	0.02	0.0102	18.824	3.675	465.172	600	T.SBLH	2.209	0.0061	0.0061	1287.49	22	380.1336	3.4	4	1520.534	81.78	340.06	OKE
178-179	T.kanan(-)	293.02	366.275	0.0035	0.0271	0.02	0.0102	18.824	3.675	533.631	600	T.SBLH	2.907	0.0081	0.0081	1694.33	22	380.1336	4.5	5	1900.668	102.22	417.30	OKE
	T.kiri(+)	134.02	167.525	0.0035	0.0271	0.02	0.0102	18.824	3.675	360.892	600	T.SBLH	1.330	0.0037	0.0037	774.946	22	380.1336	2.0	3	1140.401	61.33	259.71	OKE
	Lap(-)	7.77	9.7125	0.0035	0.0271	0.02	0.0102	18.824	3.675	86.897	600	T.SBLH	0.077	0.0002	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kana(+)	146.56	183.2	0.0035	0.0271	0.02	0.0102	18.824	3.675	377.398	600	T.SBLH	1.454	0.0040	0.0040	847.456	22	380.1336	2.2	3	1140.401	61.33	259.71	OKE
	T.kiri(-)	367.52	459.4	0.0035	0.0271	0.02	0.0102	18.824	3.675	597.631	600	T.SBLH	3.646	0.0101	0.0101	2125.12	22	380.1336	5.6	6	2280.802	122.66	491.44	OKE
	Lap(+)	14.49	18.1125	0.0035	0.0271	0.02	0.0102	18.824	3.675	118.666	600	T.SBLH	0.144	0.0004	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
180	T.kanan(-)	223.98	279.975	0.0035	0.0271	0.02	0.0102	18.824	3.675	466.549	600	T.SBLH	2.222	0.0062	0.0062	1295.12	22	380.1336	3.4	4	1520.534	81.78	340.06	OKE
	T.kiri(+)	220.7	275.875	0.0035	0.0271	0.02	0.0102	18.824	3.675	463.120	600	T.SBLH	2.189	0.0061	0.0061	1276.16	22	380.1336	3.4	4	1520.534	81.78	340.06	OKE
	Lap(-)	57.85	72.3125	0.0035	0.0271	0.02	0.0102	18.824	3.675	237.107	600	T.SBLH	0.574	0.0016	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kana(+)	186.63	233.2875	0.0035	0.0271	0.02	0.0102	18.824	3.675	425.876	600	T.SBLH	1.851	0.0051	0.0051	1079.15	22	380.1336	2.8	3	1140.401	61.33	259.71	OKE
	T.kiri(-)	8.23	1.02875	0.0035	0.0271	0.02	0.0102	18.824	3.675	28.281	600	T.SBLH	0.008	0.0000	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	Lap(+)	2.18	2.725	0.0035	0.0271	0.02	0.0102	18.824	3.675	46.028	600	T.SBLH	0.022	0.0001	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
181	T.kanan(-)	377.33	471.6625	0.0035	0.0271	0.02	0.0102	18.824	3.675	605.554	600	T.RNGKP	3.743	0.0104	0.0104	2181.84	22	380.1336	5.7	6	2280.802	122.66	491.44	OKE
	T.kiri(+)	7.4	9.25	0.0035	0.0271	0.02	0.0102	18.824	3.675	84.802	600	T.SBLH	1.472	0.0041	0.0041	858.095	22	380.1336	2.3	3	1140.401	61.33	259.71	OKE
	Lap(-)	148.4	185.5	0.0035	0.0271	0.02	0.0102	18.824	3.675	379.760	600	T.SBLH	0.047	0.0001	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kana(+)	4.76	5.95	0.0035	0.0271	0.02	0.0102	18.824	3.675	68.014	600	T.SBLH	0.046	0.0001	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kiri(-)	4.62	5.775	0.0035	0.0271	0.02	0.0102	18.824	3.675	67.006	600	T.SBLH	0.058	0.0002	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	Lap(+)	5.81	7.2625	0.0035	0.0271	0.02	0.0102	18.824	3.675	75.142	600	T.SBLH	2.510	0.0070	0.0070	1462.81	22	380.1336	3.8	4	1520.534	81.78	340.06	OKE
168	T.kanan(-)	252.98	316.225	0.0035	0.0271	0.02	0.0102	18.824	3.675	495.833	600	T.SBLH	0.012	0.0000	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kiri(+)	1.16	1.45	0.0035	0.0271	0.02	0.0102	18.824	3.675	33.575	600	T.SBLH	0.946	0.0026	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	Lap(-)	95.35	119.1875	0.0035	0.0271	0.02	0.0102	18.824	3.675	304.406	600	T.SBLH	0.104	0.0003	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kana(+)	10.46	13.075	0.0035	0.0271	0.02	0.0102	18.824	3.675	100.823	600	T.SBLH	4.982	0.0138	0.0138	2903.88	22	380.1336	7.6	8	3041.069	163.55	630.38	OKE
	T.kiri(-)	502.2	627.75	0.0035	0.0271	0.02	0.0102	18.824	3.675	698.603	600	T.RNGKP	3.275	0.0091	0.0091	1908.68	22	380.1336	5.0	6	2280.802	122.66	491.44	OKE
	Lap(+)	330.09	412.6125	0.0035	0.0271	0.02	0.0102	18.824	3.675	566.381	600	T.SBLH	4.960	0.0138	0.0138	2891.21	22	380.1336	7.6	8	3041.069	163.55	630.38	OKE
169-171	T.kanan(-)	500.01	625.0125	0.0035	0.0271	0.02	0.0102	18.824	3.675	697.078	600	T.RNGKP	4.960	0.0138	0.0138	2891.21	22	380.1336	7.6	8	3041.069	163.55	630.38	OKE
	T.kiri(+)	199.21	249.0125	0.0035	0.0271	0.02	0.0102	18.824	3.675	439.995	600	T.SBLH	1.976	0.0055	0.0055	1151.89	22	380.1336	3.0	4	1520.534	81.78	340.06	OKE
	Lap(-)	7.12	8.9	0.0035	0.0271	0.02	0.0102	18.824	3.675	83.183	600	T.SBLH	0.071	0.0002	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kana(+)	187.63	234.5375	0.0035	0.0271	0.02	0.0102	18.824	3.675	427.015	600	T.SBLH	1.861	0.0052	0.0052	1084.94	22	380.1336	2.9	3	1140.401	61.33	259.71	OKE
	T.kiri(-)	501.19	626.4875	0.0035	0.0271	0.02	0.0102	18.824	3.675	697.901	600	T.RNGKP	4.972	0.0138	0.0138	2898.04	22	380.1336	7.6	8	3041.069	163.55	630.38	OKE







Penulangan lentur Balok Induk Lantai 3

$f_c$  : 25 Mpa  
 $f_y$  deform : 400 Mpa  
 $f_y$  polos : 240 Mpa  
 D tul. Pokok : 22 mm  
 D tul. Sengkang : 10 mm  
 d : 600 mm  
 b : 350 mm  
 h : 700 mm

$f_c$  : 25 Mpa  
 $f_y$  deform : 400 Mpa  
 $f_y$  polos : 240 Mpa  
 D tul. Pokok : 22 mm  
 D tul. Sengkang : 10 mm  
 d : 600 mm  
 b : 350 mm  
 h : 700 mm

d' : 100 mm (asumsi tul. 2 Lapis)

Tabel 35. Penulangan Balok Induk Lantai 3

Frame	Letak	Mu KNm	Mu/ KNm	$\rho$ min	$\rho$ b	$\rho$ max	$\rho$ max	0,75 $\rho$ max	m (mm)	Rn Perlu	d perlu (mm)	d pakai (mm)	Analisis	Rn perlu	$\rho$ baru	$\rho$ pakai	As perlu (mm <sup>2</sup> )	$\phi$ mm	A1 $\phi$ mm <sup>2</sup>	n buah pakai	Tul pakai	As ada mm <sup>2</sup>	a mm	Mn KNm	Cek
336	T. kiri(-)	170.85	213.56	0.0035	0.0271	0.02	0.0102	0.0102	18.824	3.675	407.474	600	T SBLH	1.695	0.0047	0.0047	987.91	22	380.1336	2.6	3	1.140.4	61.33	259.71	OKE
	Lap(+)	15.42	19.28	0.0035	0.0271	0.02	0.0102	0.0102	18.824	3.675	122.415	600	T SBLH	0.153	0.0004	0.0004	84	22	380.1336	0.2	2	760.27	40.89	176.25	OKE
	T.kanan(-)	180	225.00	0.0035	0.0271	0.02	0.0102	0.0102	18.824	3.675	418.243	600	T SBLH	1.786	0.0050	0.0050	1040.8	22	380.1336	2.7	3	1.140.4	61.33	259.71	OKE
	T.kiri(+)	114.08	142.60	0.0035	0.0271	0.02	0.0102	0.0102	18.824	3.675	332.964	600	T SBLH	1.132	0.0031	0.0035	735	22	380.1336	1.9	2	760.27	40.89	176.25	OKE
424-426	Lap(-)	3.35	4.19	0.0035	0.0271	0.02	0.0102	0.0102	18.824	3.675	57.058	600	T SBLH	0.033	0.0001	0.0003	63	22	380.1336	0.2	2	760.27	40.89	176.25	OKE
	T.kana(+)	96.9	121.13	0.0035	0.0271	0.02	0.0102	0.0102	18.824	3.675	306.870	600	T SBLH	0.961	0.0027	0.0035	735	22	380.1336	1.9	2	760.27	40.89	176.25	OKE
	T.kiri(-)	417.52	521.90	0.0035	0.0271	0.02	0.0102	0.0102	18.824	3.675	636.988	600	T RINGKP	4.142	0.0115	0.0115	2414.2	22	380.1336	6.4	7	2660.9	143.11	562.46	OKE
	Lap(+)	248.6	310.75	0.0035	0.0271	0.02	0.0102	0.0102	18.824	3.675	491.522	600	T SBLH	2.466	0.0068	0.0068	1437.5	22	380.1336	3.8	4	1520.5	81.78	340.06	OKE
350-351	T.kanan(-)	431	538.75	0.0035	0.0271	0.02	0.0102	0.0102	18.824	3.675	647.189	600	T RINGKP	4.276	0.0119	0.0119	2492.2	22	380.1336	6.6	7	2660.9	143.11	562.46	OKE
	T.kiri(+)	64.16	80.20	0.0035	0.0271	0.02	0.0102	0.0102	18.824	3.675	249.703	600	T SBLH	0.637	0.0018	0.0035	735	22	380.1336	1.9	2	760.27	40.89	176.25	OKE
	Lap(-)	1.21	1.51	0.0035	0.0271	0.02	0.0102	0.0102	18.824	3.675	34.291	600	T SBLH	0.012	0.0000	0.0035	735	22	380.1336	1.9	2	760.27	40.89	176.25	OKE
	T.kana(+)	62.71	78.39	0.0035	0.0271	0.02	0.0102	0.0102	18.824	3.675	246.866	600	T SBLH	0.622	0.0017	0.0035	735	22	380.1336	1.9	2	760.27	40.89	176.25	OKE
350-351	T.kiri(-)	213.65	267.06	0.0035	0.0271	0.02	0.0102	0.0102	18.824	3.675	455.663	600	T SBLH	2.120	0.0059	0.0059	1235.4	22	380.1336	3.2	4	1520.5	81.78	340.06	OKE
	Lap(+)	60.66	75.83	0.0035	0.0271	0.02	0.0102	0.0102	18.824	3.675	242.797	600	T SBLH	0.602	0.0017	0.0035	735	22	380.1336	1.9	2	760.27	40.89	176.25	OKE
	T.kanan(-)	220	275.00	0.0035	0.0271	0.02	0.0102	0.0102	18.824	3.675	462.385	600	T SBLH	2.183	0.0061	0.0061	1272.1	22	380.1336	3.3	4	1520.5	81.78	340.06	OKE
	T.kiri(+)	64.66	105.83	0.0035	0.0271	0.02	0.0102	0.0102	18.824	3.675	286.835	600	T SBLH	0.840	0.0023	0.0035	735	22	380.1336	1.9	2	760.27	40.89	176.25	OKE
427-429	Lap(-)	1.62	2.03	0.0035	0.0271	0.02	0.0102	0.0102	18.824	3.675	39.678	600	T SBLH	0.016	0.0000	0.0035	735	22	380.1336	1.9	2	760.27	40.89	176.25	OKE
	T.kana(+)	81.5	101.88	0.0035	0.0271	0.02	0.0102	0.0102	18.824	3.675	281.430	600	T SBLH	0.809	0.0022	0.0035	735	22	380.1336	1.9	2	760.27	40.89	176.25	OKE
	Lap(+)	448.52	560.65	0.0035	0.0271	0.02	0.0102	0.0102	18.824	3.675	660.212	600	T RINGKP	4.450	0.0123	0.0123	2593.5	22	380.1336	6.8	7	2660.9	143.11	562.46	OKE
	T.kiri(-)	257.66	322.08	0.0035	0.0271	0.02	0.0102	0.0102	18.824	3.675	500.398	600	T SBLH	2.556	0.0071	0.0071	1489.9	22	380.1336	3.9	4	1520.5	81.78	340.06	OKE
384-385	Lap(+)	448	560.00	0.0035	0.0271	0.02	0.0102	0.0102	18.824	3.675	659.829	600	T RINGKP	4.444	0.0123	0.0123	2590.5	22	380.1336	6.8	7	2660.9	143.11	562.46	OKE
	T.kanan(-)	63.58	79.48	0.0035	0.0271	0.02	0.0102	0.0102	18.824	3.675	248.572	600	T SBLH	0.631	0.0018	0.0035	735	22	380.1336	1.9	2	760.27	40.89	176.25	OKE
	Lap(-)	2.41	3.01	0.0035	0.0271	0.02	0.0102	0.0102	18.824	3.675	48.395	600	T SBLH	0.024	0.0001	0.0035	735	22	380.1336	1.9	2	760.27	40.89	176.25	OKE
	T.kana(+)	63.6	79.50	0.0035	0.0271	0.02	0.0102	0.0102	18.824	3.675	248.611	600	T SBLH	0.631	0.0018	0.0035	735	22	380.1336	1.9	2	760.27	40.89	176.25	OKE
384-385	T.kiri(-)	220.07	275.09	0.0035	0.0271	0.02	0.0102	0.0102	18.824	3.675	462.458	600	T SBLH	2.183	0.0061	0.0061	1272.5	22	380.1336	3.3	4	1520.5	81.78	340.06	OKE
	Lap(+)	60.6	75.75	0.0035	0.0271	0.02	0.0102	0.0102	18.824	3.675	242.677	600	T SBLH	0.601	0.0017	0.0035	735	22	380.1336	1.9	2	760.27	40.89	176.25	OKE
	T.kanan(-)	214	267.50	0.0035	0.0271	0.02	0.0102	0.0102	18.824	3.675	456.036	600	T SBLH	2.123	0.0059	0.0059	1237.4	22	380.1336	3.3	4	1520.5	81.78	340.06	OKE
	T.kiri(+)	81.47	101.84	0.0035	0.0271	0.02	0.0102	0.0102	18.824	3.675	281.379	600	T SBLH	0.808	0.0022	0.0035	735	22	380.1336	1.9	2	760.27	40.89	176.25	OKE

Lap(-)	1.68	2.10	0.0035	0.0271	0.02	0.0102	18.824	3.675	40.406	600	T SBLH	0.017	0.0000	0.0035	735	22	380.1336	1.9	2	760.27	40.89	176.25	OKE	
																								T.kana(+)
430-432	431.51	539.39	0.0035	0.0271	0.02	0.0102	18.824	3.675	286.902	600	T SBLH	0.840	0.0023	0.0035	735	22	380.1336	1.9	2	760.27	40.89	176.25	OKE	
																								T.kiri(-)
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Lap(+)																								
418	178.42	223.03	0.0035	0.0271	0.02	0.0102	18.824	3.675	34.291	600	T SBLH	0.622	0.0000	0.0035	735	22	380.1336	1.9	2	760.27	40.89	176.25	OKE	
																								T.kiri(-)
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																								T.kanan(-)
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Lap(+)																								
448	167	208.75	0.0035	0.0271	0.02	0.0102	18.824	3.675	122.375	600	T SBLH	1.770	0.0049	1031.7	22	380.1336	2.7	3	1140.4	40.89	176.25	OKE		
																							T.kiri(-)	
																							Lap(+)	
																							T.kanan(-)	
																							T.kiri(+)	
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Lap(+)																								
T.kiri(+)																								
462	117.5	146.88	0.0035	0.0271	0.02	0.0102	18.824	3.675	337.918	600	T SBLH	1.166	0.0032	0.0035	735	22	380.1336	1.9	2	760.27	40.89	176.25	OKE	
																								T.kiri(-)
																								Lap(+)
																								T.kanan(-)
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463	117	146.25	0.0035	0.0271	0.02	0.0102	18.824	3.675	28.891	600	T SBLH	1.099	0.0000	0.0035	735	22	380.1336	1.9	2	760.27	40.89	176.25	OKE	
																								T.kiri(-)
																								Lap(+)
																								T.kanan(-)
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464-466	106	132.50	0.0035	0.0271	0.02	0.0102	18.824	3.675	60.849	600	T SBLH	1.217	0.0034	0.0035	735	22	380.1336	1.9	2	760.27	40.89	176.25	OKE	
																								T.kiri(-)
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467-468	291	363.75	0.0035	0.0271	0.02	0.0102	18.824	3.675	531.788	600	T SBLH	2.887	0.0080	0.0080	1682.7	22	380.1336	4.4	5	1900.7	102.22	417.30	OKE	
																								Lap(+)
																								T.kanan(-)
																								Lap(+)
																								T.kiri(-)
																								Lap(+)
																								T.kanan(-)
																								Lap(+)











Penulangan lentur Balok Induk Lantai 4

fy deform : 400 Mpa  
 fy polos : 240 Mpa  
 Penutup beton : 40 mm  
 b : 350 mm  
 h : 700 mm  
 fc : 25 Mpa  
 D.tul. Pokok : 22 mm  
 D.tul. Sengkang : 10 mm  
 d : 600 mm  
 d' : 100 mm (asumsi tul. 2 Lapis)

Tabel 36. Penulangan Balok induk Lantai 4

Frame	Letak	Mu KNm	Mu/ KNm	ρ min	ρ b	ρ max	0,75 ρ max	m (mm)	Rn Perlu	d perlu (mm)	d pakai (mm)	Analisis	Rn perlu	ρ batu	ρ pakai	As perlu (mm)	φ	A1φ mm <sup>2</sup> buah	n	Tul pakai	As ada mm <sup>2</sup>	a mm	Mn KNm	Cek
489	T.kiri(-)	92.87	116.09	0.0035	0.0271	0.0203	0.0102	18.824	3.675	300.421	600	T.SBLH	0.921	0.0026	0.0035	735	22	380.134	1.9	2	760.2672	40.89	176.25	OKE
	Lap(+)	6.77	8.46	0.0035	0.0271	0.0203	0.0102	18.824	3.675	81.112	600	T.SBLH	0.067	0.0002	0.0035	735	22	380.134	1.9	2	760.2672	40.89	176.25	OKE
	T.kanan(-)	167.14	208.93	0.0035	0.0271	0.0203	0.0102	18.824	3.675	403.025	600	T.SBLH	1.658	0.0046	0.0046	966.5	22	380.134	2.5	3	1140.401	61.33	259.71	OKE
	T.kiri(+)	61.95	77.44	0.0035	0.0271	0.0203	0.0102	18.824	3.675	245.365	600	T.SBLH	0.615	0.0017	0.0035	735	22	380.134	1.9	2	760.2672	40.89	176.25	OKE
	Lap(-)	2.53	3.16	0.0035	0.0271	0.0203	0.0102	18.824	3.675	49.585	600	T.SBLH	0.025	0.0001	0.0035	735	22	380.134	1.9	2	760.2672	40.89	176.25	OKE
	T.kana(+)	47.32	59.15	0.0035	0.0271	0.0203	0.0102	18.824	3.675	214.444	600	T.SBLH	0.469	0.0013	0.0035	735	22	380.134	1.9	2	760.2672	40.89	176.25	OKE
576	T.kiri(-)	125.75	157.1875	0.0035	0.0271	0.0203	0.0102	18.824	3.675	349.580	600	T.SBLH	1.248	0.0035	0.0035	735	22	380.134	1.9	2	760.2672	40.89	176.25	OKE
	Lap(+)	31.07	38.8375	0.0035	0.0271	0.0203	0.0102	18.824	3.675	173.765	600	T.SBLH	0.308	0.0009	0.0035	735	22	380.134	1.9	2	760.2672	40.89	176.25	OKE
	T.kanan(-)	167.43	209.2875	0.0035	0.0271	0.0203	0.0102	18.824	3.675	403.375	600	T.SBLH	1.661	0.0046	0.0046	968.1	22	380.134	2.5	3	1140.401	61.33	259.71	OKE
	T.kiri(+)	75.42	94.275	0.0035	0.0271	0.0203	0.0102	18.824	3.675	270.729	600	T.SBLH	0.748	0.0021	0.0035	735	22	380.134	1.9	2	760.2672	40.89	176.25	OKE
	Lap(-)	0.808	1.01	0.0035	0.0271	0.0203	0.0102	18.824	3.675	28.022	600	T.SBLH	0.008	0.0000	0.0035	735	22	380.134	1.9	2	760.2672	40.89	176.25	OKE
	T.kana(+)	58.69	73.3625	0.0035	0.0271	0.0203	0.0102	18.824	3.675	238.822	600	T.SBLH	0.582	0.0016	0.0035	735	22	380.134	1.9	2	760.2672	40.89	176.25	OKE
591	T.kiri(-)	133.98	167.475	0.0035	0.0271	0.0203	0.0102	18.824	3.675	360.838	600	T.SBLH	1.329	0.0037	0.0037	774.7	22	380.134	2.0	3	1140.401	61.33	259.71	OKE
	Lap(+)	5.06	6.325	0.0035	0.0271	0.0203	0.0102	18.824	3.675	70.124	600	T.SBLH	0.166	0.0001	0.0035	735	22	380.134	1.9	2	760.2672	40.89	176.25	OKE
	T.kanan(-)	134.2	167.75	0.0035	0.0271	0.0203	0.0102	18.824	3.675	361.134	600	T.SBLH	1.331	0.0037	0.0037	776	22	380.134	2.0	3	1140.401	61.33	259.71	OKE
	T.kiri(+)	72.17	90.2125	0.0035	0.0271	0.0203	0.0102	18.824	3.675	264.832	600	T.SBLH	0.716	0.0020	0.0035	735	22	380.134	1.9	2	760.2672	40.89	176.25	OKE
	Lap(-)	2.74	3.425	0.0035	0.0271	0.0203	0.0102	18.824	3.675	51.602	600	T.SBLH	0.027	0.0001	0.0035	735	22	380.134	1.9	2	760.2672	40.89	176.25	OKE
	T.kana(+)	65.22	81.525	0.0035	0.0271	0.0203	0.0102	18.824	3.675	251.758	600	T.SBLH	0.647	0.0018	0.0035	735	22	380.134	1.9	2	760.2672	40.89	176.25	OKE
552-554	T.kiri(-)	400.61	500.7625	0.0035	0.0271	0.0203	0.0102	18.824	3.675	623.955	600	T.RNGKP	3.974	0.0110	0.0110	2316	22	380.134	6.1	7	2660.935	143.11	562.46	OKE
	Lap(+)	260.55	325.6875	0.0035	0.0271	0.0203	0.0102	18.824	3.675	195.603	600	T.RNGKP	4.179	0.0116	0.0116	1507	22	380.134	4.0	4	1520.534	81.78	340.06	OKE
	T.kanan(-)	421.27	526.5875	0.0035	0.0271	0.0203	0.0102	18.824	3.675	639.842	600	T.RNGKP	4.391	0.0111	0.0111	2436	22	380.134	6.4	7	2660.935	143.11	562.46	OKE
	T.kiri(+)	39.37	49.2125	0.0035	0.0271	0.0203	0.0102	18.824	3.675	187.304	600	T.SBLH	0.010	0.0000	0.0035	735	22	380.134	1.9	2	760.2672	40.89	176.25	OKE
	Lap(-)	0.979	1.22375	0.0035	0.0271	0.0203	0.0102	18.824	3.675	30.845	600	T.SBLH	0.358	0.0010	0.0035	735	22	380.134	1.9	2	760.2672	40.89	176.25	OKE
	T.kana(+)	36.1	45.125	0.0035	0.0271	0.0203	0.0102	18.824	3.675	167.304	600	T.SBLH	0.010	0.0000	0.0035	735	22	380.134	1.9	2	760.2672	40.89	176.25	OKE
592-594	T.kiri(-)	445.66	557.075	0.0035	0.0271	0.0203	0.0102	18.824	3.675	658.103	600	T.RNGKP	4.421	0.0123	0.0123	2577	22	380.134	6.8	7	2660.935	143.11	562.46	OKE
	Lap(+)	271.34	339.175	0.0035	0.0271	0.0203	0.0102	18.824	3.675	513.510	600	T.SBLH	2.692	0.0075	0.0075	1569	22	380.134	4.1	5	1900.668	102.22	417.30	OKE
	T.kanan(-)	460.31	575.3875	0.0035	0.0271	0.0203	0.0102	18.824	3.675	658.833	600	T.RNGKP	4.567	0.0127	0.0127	2662	22	380.134	7.0	8	3041.069	163.55	630.38	OKE
	T.kiri(+)	46.5	58.125	0.0035	0.0271	0.0203	0.0102	18.824	3.675	212.578	600	T.SBLH	0.461	0.0013	0.0035	735	22	380.134	1.9	2	760.2672	40.89	176.25	OKE



















40.4	T.kiri(+)	50.50	0.0035	0.0271	0.02	0.0102	18.824	3.675	198.145	600	T.SBLH	0.401	0.0011	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
0.978	Lap(-)	1.22	0.0035	0.0271	0.02	0.0102	18.824	3.675	30.829	600	T.SBLH	0.010	0.0000	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
41.18	T.kana(+)	51.48	0.0035	0.0271	0.02	0.0102	18.824	3.675	200.049	600	T.SBLH	0.409	0.0011	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
86.31	T.kiri(-)	107.89	0.0035	0.0271	0.02	0.0102	18.824	3.675	289.616	600	T.SBLH	0.856	0.0024	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
6.01	Lap(+)	7.51	0.0035	0.0271	0.02	0.0102	18.824	3.675	76.424	600	T.SBLH	0.060	0.0002	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
16.94	T.kanan(-)	21.18	0.0035	0.0271	0.02	0.0102	18.824	3.675	128.307	600	T.SBLH	0.168	0.0005	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
28.96	T.kiri(+)	36.20	0.0035	0.0271	0.02	0.0102	18.824	3.675	167.761	600	T.SBLH	0.287	0.0008	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
17.82	Lap(-)	22.28	0.0035	0.0271	0.02	0.0102	18.824	3.675	131.597	600	T.SBLH	0.177	0.0005	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
26.99	T.kana(+)	33.74	0.0035	0.0271	0.02	0.0102	18.824	3.675	161.955	600	T.SBLH	0.268	0.0007	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
3.3	T.kiri(-)	4.13	0.0035	0.0271	0.02	0.0102	18.824	3.675	56.630	600	T.SBLH	0.033	0.0001	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
30.11	Lap(+)	37.64	0.0035	0.0271	0.02	0.0102	18.824	3.675	171.060	600	T.SBLH	0.299	0.0008	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
74.67	T.kanan(-)	93.34	0.0035	0.0271	0.02	0.0102	18.824	3.675	289.380	600	T.SBLH	0.741	0.0021	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
0.1	T.kiri(+)	0.13	0.0035	0.0271	0.02	0.0102	18.824	3.675	9.858	600	T.SBLH	0.001	0.0000	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
0.5	Lap(-)	0.63	0.0035	0.0271	0.02	0.0102	18.824	3.675	22.043	600	T.SBLH	0.005	0.0000	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
0.9	T.kana(+)	1.13	0.0035	0.0271	0.02	0.0102	18.824	3.675	29.574	600	T.SBLH	0.009	0.0000	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
22.17	T.kiri(-)	27.71	0.0035	0.0271	0.02	0.0102	18.824	3.675	146.783	600	T.SBLH	0.220	0.0006	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
13.34	Lap(+)	16.68	0.0035	0.0271	0.02	0.0102	18.824	3.675	113.860	600	T.SBLH	0.132	0.0004	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
56.98	T.kanan(-)	71.23	0.0035	0.0271	0.02	0.0102	18.824	3.675	235.317	600	T.SBLH	0.565	0.0016	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
50.23	T.kiri(+)	62.79	0.0035	0.0271	0.02	0.0102	18.824	3.675	220.940	600	T.SBLH	0.498	0.0014	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
3.43	Lap(-)	4.29	0.0035	0.0271	0.02	0.0102	18.824	3.675	57.735	600	T.SBLH	0.034	0.0001	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
2.13	T.kana(+)	2.66	0.0035	0.0271	0.02	0.0102	18.824	3.675	45.497	600	T.SBLH	0.021	0.0001	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
136.2	T.kiri(-)	170.25	0.0035	0.0271	0.02	0.0102	18.824	3.675	363.815	600	T.SBLH	1.351	0.0038	0.0038	787.55	22	380.1336	2.1	3	1140.401	61.33	259.71	OKE
49.3	Lap(+)	61.63	0.0035	0.0271	0.02	0.0102	18.824	3.675	218.885	600	T.SBLH	0.489	0.0014	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
39.33	T.kanan(-)	49.16	0.0035	0.0271	0.02	0.0102	18.824	3.675	195.503	600	T.SBLH	0.390	0.0011	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
38.16	T.kiri(+)	47.70	0.0035	0.0271	0.02	0.0102	18.824	3.675	192.573	600	T.SBLH	0.379	0.0011	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
1.82	Lap(-)	2.28	0.0035	0.0271	0.02	0.0102	18.824	3.675	42.056	600	T.SBLH	0.018	0.0001	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
33.37	T.kana(+)	41.71	0.0035	0.0271	0.02	0.0102	18.824	3.675	180.082	600	T.SBLH	0.331	0.0009	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
124.45	T.kiri(-)	155.56	0.0035	0.0271	0.02	0.0102	18.824	3.675	347.768	600	T.SBLH	1.235	0.0034	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
5.16	Lap(+)	6.45	0.0035	0.0271	0.02	0.0102	18.824	3.675	70.814	600	T.SBLH	0.051	0.0001	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
8.8	T.kanan(-)	11.00	0.0035	0.0271	0.02	0.0102	18.824	3.675	92.477	600	T.SBLH	0.087	0.0002	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
19.13	T.kiri(+)	23.91	0.0035	0.0271	0.02	0.0102	18.824	3.675	136.348	600	T.SBLH	0.190	0.0005	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
35.14	Lap(-)	43.93	0.0035	0.0271	0.02	0.0102	18.824	3.675	184.796	600	T.SBLH	0.349	0.0010	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
20.5	T.kana(+)	25.63	0.0035	0.0271	0.02	0.0102	18.824	3.675	141.146	600	T.SBLH	0.203	0.0006	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
1.96	T.kiri(-)	2.45	0.0035	0.0271	0.02	0.0102	18.824	3.675	43.644	600	T.SBLH	0.019	0.0001	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
1.22	Lap(+)	1.53	0.0035	0.0271	0.02	0.0102	18.824	3.675	34.433	600	T.SBLH	0.012	0.0000	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
190.34	T.kanan(-)	237.93	0.0035	0.0271	0.02	0.0102	18.824	3.675	430.088	600	T.SBLH	1.888	0.0052	0.0052	1100.6	22	380.1336	2.9	3	1140.401	61.33	259.71	OKE
0.4	T.kiri(+)	0.50	0.0035	0.0271	0.02	0.0102	18.824	3.675	19.716	600	T.SBLH	0.004	0.0000	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
84.82	Lap(-)	106.03	0.0035	0.0271	0.02	0.0102	18.824	3.675	287.105	600	T.SBLH	0.841	0.0023	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
2.06	T.kana(+)	2.58	0.0035	0.0271	0.02	0.0102	18.824	3.675	44.743	600	T.SBLH	0.020	0.0001	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
80.6	T.kiri(-)	100.75	0.0035	0.0271	0.02	0.0102	18.824	3.675	279.872	600	T.SBLH	0.800	0.0022	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
26.08	Lap(+)	32.60	0.0035	0.0271	0.02	0.0102	18.824	3.675	159.201	600	T.SBLH	0.259	0.0007	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE

10	T.kanan(-)	51.59	64.49	0.0035	0.0271	0.02	0.0102	18.824	3.675	223.911	600	T.SBLH	0.512	0.0014	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kiri(+)	58.8	73.50	0.0035	0.0271	0.02	0.0102	18.824	3.675	239.046	600	T.SBLH	0.583	0.0016	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	Lap(-)	5.09	6.36	0.0035	0.0271	0.02	0.0102	18.824	3.675	70.332	600	T.SBLH	0.050	0.0001	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kana(+)	87.62	109.53	0.0035	0.0271	0.02	0.0102	18.824	3.675	291.806	600	T.SBLH	0.869	0.0024	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kiri(-)	2.25	2.81	0.0035	0.0271	0.02	0.0102	18.824	3.675	46.761	600	T.SBLH	0.022	0.0001	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	Lap(+)	0.5	0.63	0.0035	0.0271	0.02	0.0102	18.824	3.675	22.043	600	T.SBLH	0.005	0.0000	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
700	T.kanan(-)	192.04	100.00	0.0035	0.0271	0.02	0.0102	18.824	3.675	278.829	600	T.SBLH	0.794	0.0022	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kiri(+)	5.39	6.74	0.0035	0.0271	0.02	0.0102	18.824	3.675	72.375	600	T.SBLH	0.053	0.0001	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	Lap(-)	84.56	105.70	0.0035	0.0271	0.02	0.0102	18.824	3.675	286.665	600	T.SBLH	0.839	0.0023	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kana(+)	0.84	1.05	0.0035	0.0271	0.02	0.0102	18.824	3.675	28.571	600	T.SBLH	0.008	0.0000	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kiri(-)	89.39	111.74	0.0035	0.0271	0.02	0.0102	18.824	3.675	294.738	600	T.SBLH	0.887	0.0025	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	Lap(+)	26.6	33.25	0.0035	0.0271	0.02	0.0102	18.824	3.675	160.780	600	T.SBLH	0.264	0.0007	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
8	T.kanan(-)	55.08	68.85	0.0035	0.0271	0.02	0.0102	18.824	3.675	231.361	600	T.SBLH	0.546	0.0015	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kiri(+)	62.78	78.48	0.0035	0.0271	0.02	0.0102	18.824	3.675	247.003	600	T.SBLH	0.623	0.0017	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	Lap(-)	5.3	6.63	0.0035	0.0271	0.02	0.0102	18.824	3.675	71.768	600	T.SBLH	0.053	0.0001	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kana(+)	96.54	120.68	0.0035	0.0271	0.02	0.0102	18.824	3.675	306.299	600	T.SBLH	0.958	0.0027	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kiri(-)	6.76	8.45	0.0035	0.0271	0.02	0.0102	18.824	3.675	81.052	600	T.SBLH	0.067	0.0002	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	Lap(+)	0.221	0.28	0.0035	0.0271	0.02	0.0102	18.824	3.675	14.655	600	T.SBLH	0.002	0.0000	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
698	T.kanan(-)	201.4	151.02	0.0035	0.0271	0.02	0.0102	18.824	3.675	342.653	600	T.SBLH	1.199	0.0033	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kiri(+)	1.48	1.85	0.0035	0.0271	0.02	0.0102	18.824	3.675	37.925	600	T.SBLH	0.015	0.0000	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	Lap(-)	89.75	112.19	0.0035	0.0271	0.02	0.0102	18.824	3.675	295.331	600	T.SBLH	0.890	0.0025	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kana(+)	0.38	0.48	0.0035	0.0271	0.02	0.0102	18.824	3.675	19.217	600	T.SBLH	0.004	0.0000	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kiri(-)	88.53	110.66	0.0035	0.0271	0.02	0.0102	18.824	3.675	293.317	600	T.SBLH	0.878	0.0024	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	Lap(+)	26.61	33.26	0.0035	0.0271	0.02	0.0102	18.824	3.675	160.811	600	T.SBLH	0.264	0.0007	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
6	T.kanan(-)	55.16	68.95	0.0035	0.0271	0.02	0.0102	18.824	3.675	231.528	600	T.SBLH	0.547	0.0015	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kiri(+)	62.86	78.58	0.0035	0.0271	0.02	0.0102	18.824	3.675	247.161	600	T.SBLH	0.624	0.0017	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	Lap(-)	5.31	6.64	0.0035	0.0271	0.02	0.0102	18.824	3.675	71.896	600	T.SBLH	0.053	0.0001	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kana(+)	95.67	119.59	0.0035	0.0271	0.02	0.0102	18.824	3.675	304.916	600	T.SBLH	0.949	0.0026	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kiri(-)	6.93	8.66	0.0035	0.0271	0.02	0.0102	18.824	3.675	82.065	600	T.SBLH	0.069	0.0002	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	Lap(+)	0.2197	0.27	0.0035	0.0271	0.02	0.0102	18.824	3.675	14.612	600	T.SBLH	0.002	0.0000	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
695	T.kanan(-)	120.27	150.34	0.0035	0.0271	0.02	0.0102	18.824	3.675	341.878	600	T.SBLH	1.193	0.0033	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kiri(+)	1.47	1.84	0.0035	0.0271	0.02	0.0102	18.824	3.675	37.796	600	T.SBLH	0.015	0.0000	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	Lap(-)	89.72	112.15	0.0035	0.0271	0.02	0.0102	18.824	3.675	295.282	600	T.SBLH	0.890	0.0025	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kana(+)	0.3787	0.47	0.0035	0.0271	0.02	0.0102	18.824	3.675	19.184	600	T.SBLH	0.004	0.0000	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kiri(-)	81.8	102.25	0.0035	0.0271	0.02	0.0102	18.824	3.675	281.948	600	T.SBLH	0.812	0.0023	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	Lap(+)	26.03	32.54	0.0035	0.0271	0.02	0.0102	18.824	3.675	159.048	600	T.SBLH	0.258	0.0007	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
4	T.kanan(-)	51.8	64.75	0.0035	0.0271	0.02	0.0102	18.824	3.675	224.366	600	T.SBLH	0.514	0.0014	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kiri(+)	59.05	73.81	0.0035	0.0271	0.02	0.0102	18.824	3.675	239.553	600	T.SBLH	0.586	0.0016	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	Lap(-)	5.11	6.39	0.0035	0.0271	0.02	0.0102	18.824	3.675	70.470	600	T.SBLH	0.051	0.0001	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kana(+)	88.7	110.88	0.0035	0.0271	0.02	0.0102	18.824	3.675	293.599	600	T.SBLH	0.880	0.0024	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kiri(-)	2.29	2.86	0.0035	0.0271	0.02	0.0102	18.824	3.675	47.175	600	T.SBLH	0.023	0.0001	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE



680	T.kiri(-)	3.3
	Lap(+)	0.49
	T.kanan(-)	74.54
	T.kiri(+)	0.01
	Lap(-)	30.05
	T.kanan(+)	0.975

4.13	0.0035	0.0271	0.02	0.0102	18.824	3.675	56.630	600	T.SBLH	0.033	0.0001	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
0.61	0.0035	0.0271	0.02	0.0102	18.824	3.675	21.822	600	T.SBLH	0.005	0.0000	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
93.18	0.0035	0.0271	0.02	0.0102	18.824	3.675	269.145	600	T.SBLH	0.739	0.0021	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
0.01	0.0035	0.0271	0.02	0.0102	18.824	3.675	3.117	600	T.SBLH	0.000	0.0000	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
37.56	0.0035	0.0271	0.02	0.0102	18.824	3.675	170.889	600	T.SBLH	0.298	0.0008	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
1.22	0.0035	0.0271	0.02	0.0102	18.824	3.675	30.782	600	T.SBLH	0.010	0.0000	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE

Penulangan lentur Balok Induk RingBalik

- fy deformasi : 400 Mpa
- fy polos : 240 Mpa
- Penutup beton : 40 mm
- b : 350 mm
- h : 700 mm
- fc : 25 Mpa
- D tul. Pokok : 22 mm
- D tul. Sengkang : 10 mm
- d : 600 mm
- d' : 100 mm (asumsi tul. 2 Lapis)

Tabel 38. Penulangan Balok ringbalik

Frame	Letak	Mu KNm	Mu/ KNm	ρ min	ρ b	ρ max	0,75 ρ max	m (mm)	Rn Perlu	d perlu (mm)	d pakai (mm)	Analisis	Rn perlu	ρ baru	ρ pakai	As perlu (mm)	φ mm	A1φ mm <sup>2</sup>	n buah	Tul pakai	As ada mm <sup>2</sup>	a mm	Mn KNm	Cek
723-725	T. kiri(-)	75.52	94.40	0.0035	0.0271	0.0203	0.0102	18.824	3.675	270.909	600	T. SBLH	0.749	0.0021	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	Lap(+)	64.86	81.08	0.0035	0.0271	0.0203	0.0102	18.824	3.675	251.062	600	T. SBLH	0.643	0.0018	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T. kanan(-)	110.8	138.50	0.0035	0.0271	0.0203	0.0102	18.824	3.675	328.142	600	T. SBLH	1.099	0.0031	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T. kiri(+)	1.41	1.76	0.0035	0.0271	0.0203	0.0102	18.824	3.675	37.017	600	T. SBLH	0.014	0.0000	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	Lap(-)	0.3	0.38	0.0035	0.0271	0.0203	0.0102	18.824	3.675	17.075	600	T. SBLH	0.003	0.0000	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
726-727	T. kanan(+)	2.45	3.06	0.0035	0.0271	0.0203	0.0102	18.824	3.675	48.795	600	T. SBLH	0.024	0.0001	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T. kiri(-)	54.05	67.56	0.0035	0.0271	0.0203	0.0102	18.824	3.675	229.187	600	T. SBLH	0.536	0.0015	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	Lap(+)	22.86	28.58	0.0035	0.0271	0.0203	0.0102	18.824	3.675	149.049	600	T. SBLH	0.227	0.0006	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T. kanan(-)	53.16	66.45	0.0035	0.0271	0.0203	0.0102	18.824	3.675	227.292	600	T. SBLH	0.527	0.0015	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T. kiri(+)	2.02	2.53	0.0035	0.0271	0.0203	0.0102	18.824	3.675	44.307	600	T. SBLH	0.020	0.0001	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
741-743	Lap(-)	0.1	0.13	0.0035	0.0271	0.0203	0.0102	18.824	3.675	9.858	600	T. SBLH	0.001	0.0000	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T. kanan(+)	2.86	3.58	0.0035	0.0271	0.0203	0.0102	18.824	3.675	52.720	600	T. SBLH	0.028	0.0001	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T. kiri(-)	90.74	113.43	0.0035	0.0271	0.0203	0.0102	18.824	3.675	296.956	600	T. SBLH	0.900	0.0025	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	Lap(+)	65.56	81.95	0.0035	0.0271	0.0203	0.0102	18.824	3.675	252.413	600	T. SBLH	0.650	0.0018	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T. kanan(-)	91.3	114.13	0.0035	0.0271	0.0203	0.0102	18.824	3.675	297.871	600	T. SBLH	0.906	0.0025	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
744-745	T. kiri(+)	1.4	1.75	0.0035	0.0271	0.0203	0.0102	18.824	3.675	36.886	600	T. SBLH	0.014	0.0000	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	Lap(-)	0.3	0.38	0.0035	0.0271	0.0203	0.0102	18.824	3.675	17.075	600	T. SBLH	0.003	0.0000	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T. kanan(+)	1.4	1.75	0.0035	0.0271	0.0203	0.0102	18.824	3.675	36.886	600	T. SBLH	0.014	0.0000	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T. kiri(-)	53.71	67.14	0.0035	0.0271	0.0203	0.0102	18.824	3.675	228.465	600	T. SBLH	0.533	0.0015	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	Lap(+)	21.95	27.44	0.0035	0.0271	0.0203	0.0102	18.824	3.675	146.053	600	T. SBLH	0.218	0.0006	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
759-761	T. kanan(-)	53.19	66.49	0.0035	0.0271	0.0203	0.0102	18.824	3.675	227.956	600	T. SBLH	0.528	0.0015	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T. kiri(+)	2.86	3.58	0.0035	0.0271	0.0203	0.0102	18.824	3.675	52.720	600	T. SBLH	0.028	0.0001	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	Lap(-)	0.1	0.13	0.0035	0.0271	0.0203	0.0102	18.824	3.675	9.858	600	T. SBLH	0.001	0.0000	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T. kanan(+)	2.02	2.53	0.0035	0.0271	0.0203	0.0102	18.824	3.675	44.307	600	T. SBLH	0.020	0.0001	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T. kiri(-)	109.35	136.69	0.0035	0.0271	0.0203	0.0102	18.824	3.675	325.988	600	T. SBLH	1.095	0.0030	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE







737-739	T.kanan(-)	14.34	17.93	0.0035	0.0271	0.0203	0.0102	18.824	3.675	118.050	600	T.SBLH	0.142	0.0004	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kiri(+)	3.37	4.21	0.0035	0.0271	0.0203	0.0102	18.824	3.675	57.228	600	T.SBLH	0.033	0.0001	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	Lap(-)	1.73	2.16	0.0035	0.0271	0.0203	0.0102	18.824	3.675	41.003	600	T.SBLH	0.017	0.0000	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kana(+)	6.05	7.56	0.0035	0.0271	0.0203	0.0102	18.824	3.675	76.678	600	T.SBLH	0.060	0.0002	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kiri(-)	15.37	19.21	0.0035	0.0271	0.0203	0.0102	18.824	3.675	122.216	600	T.SBLH	0.152	0.0004	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	Lap(+)	1.31	1.64	0.0035	0.0271	0.0203	0.0102	18.824	3.675	35.680	600	T.SBLH	0.013	0.0000	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kanan(-)	7.44	9.30	0.0035	0.0271	0.0203	0.0102	18.824	3.675	85.031	600	T.SBLH	0.074	0.0002	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kiri(+)	5.61	7.01	0.0035	0.0271	0.0203	0.0102	18.824	3.675	73.837	600	T.SBLH	0.056	0.0002	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	Lap(-)	2.18	2.73	0.0035	0.0271	0.0203	0.0102	18.824	3.675	46.028	600	T.SBLH	0.102	0.0003	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kana(+)	10.26	12.83	0.0035	0.0271	0.0203	0.0102	18.824	3.675	99.854	600	T.SBLH	0.148	0.0004	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
747-749	T.kiri(-)	34.57	43.21	0.0035	0.0271	0.0203	0.0102	18.824	3.675	183.291	600	T.SBLH	0.343	0.0010	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	Lap(+)	14.96	18.70	0.0035	0.0271	0.0203	0.0102	18.824	3.675	120.575	600	T.SBLH	0.148	0.0004	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kanan(-)	15.07	18.84	0.0035	0.0271	0.0203	0.0102	18.824	3.675	121.018	600	T.SBLH	0.150	0.0004	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kiri(+)	4.12	5.15	0.0035	0.0271	0.0203	0.0102	18.824	3.675	63.276	600	T.SBLH	0.041	0.0001	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	Lap(-)	1.37	1.71	0.0035	0.0271	0.0203	0.0102	18.824	3.675	36.488	600	T.SBLH	0.014	0.0000	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kana(+)	5.91	7.39	0.0035	0.0271	0.0203	0.0102	18.824	3.675	75.785	600	T.SBLH	0.059	0.0002	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kiri(-)	2.24	2.80	0.0035	0.0271	0.0203	0.0102	18.824	3.675	46.657	600	T.SBLH	0.022	0.0001	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	Lap(+)	0.8	1.00	0.0035	0.0271	0.0203	0.0102	18.824	3.675	27.983	600	T.SBLH	0.008	0.0000	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kanan(-)	8.04	10.05	0.0035	0.0271	0.0203	0.0102	18.824	3.675	88.394	600	T.SBLH	0.080	0.0002	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kiri(+)	2.22	2.78	0.0035	0.0271	0.0203	0.0102	18.824	3.675	46.448	600	T.SBLH	0.022	0.0001	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
758	Lap(-)	0.6	0.75	0.0035	0.0271	0.0203	0.0102	18.824	3.675	24.147	600	T.SBLH	0.006	0.0000	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kana(+)	3.1	3.88	0.0035	0.0271	0.0203	0.0102	18.824	3.675	54.887	600	T.SBLH	0.031	0.0001	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kiri(-)	32.67	40.84	0.0035	0.0271	0.0203	0.0102	18.824	3.675	178.183	600	T.SBLH	0.324	0.0009	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	Lap(+)	11.61	14.51	0.0035	0.0271	0.0203	0.0102	18.824	3.675	106.221	600	T.SBLH	0.115	0.0003	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kanan(-)	12.14	15.18	0.0035	0.0271	0.0203	0.0102	18.824	3.675	108.618	600	T.SBLH	0.120	0.0003	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kiri(+)	5.8	7.25	0.0035	0.0271	0.0203	0.0102	18.824	3.675	75.077	600	T.SBLH	0.058	0.0002	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	Lap(-)	2.47	3.09	0.0035	0.0271	0.0203	0.0102	18.824	3.675	69.846	600	T.SBLH	0.025	0.0001	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kana(+)	5.02	6.28	0.0035	0.0271	0.0203	0.0102	18.824	3.675	34.149	600	T.SBLH	0.050	0.0001	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kiri(-)	1.2	1.50	0.0035	0.0271	0.0203	0.0102	18.824	3.675	22.043	600	T.SBLH	0.012	0.0000	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	Lap(+)	0.5	0.63	0.0035	0.0271	0.0203	0.0102	18.824	3.675	95.425	600	T.SBLH	0.005	0.0000	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
755	T.kanan(-)	9.37	11.71	0.0035	0.0271	0.0203	0.0102	18.824	3.675	31.174	600	T.SBLH	0.093	0.0003	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kiri(+)	1	1.25	0.0035	0.0271	0.0203	0.0102	18.824	3.675	19.716	600	T.SBLH	0.010	0.0000	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	Lap(-)	0.4	0.50	0.0035	0.0271	0.0203	0.0102	18.824	3.675	46.238	600	T.SBLH	0.004	0.0000	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE
	T.kana(+)	2.2	2.75	0.0035	0.0271	0.0203	0.0102	18.824	3.675	46.238	600	T.SBLH	0.022	0.0001	0.0035	735	22	380.1336	1.9	2	760.2672	40.89	176.25	OKE





fy deformasi : 400 Mpa  
 fy polos : 240 Mpa  
 Penutup beton : 40 mm  
 ρ min : 0.0035  
 ρ b : 0.0271  
 ρ mak : 0.0203

0.5 ρ mak : 0.0102  
 b : 250 mm  
 h : 450 mm  
 fc : 25 Mpa  
 m : 18.824  
 Rn : 3.675

D tul Pokok : 16 mm  
 D tul sengkang : 10 mm  
 d : 392 mm  
 d' : 58 mm

Tabel 41. Penulangan Rangkap Balok Anak Lantai 3

Frame	Letak	Mu KNm	Mu/φ KNm	d perlu mm	AS1 mm²	a mm	MN1 KNm	t dsk	MN2 KNm	fs' Mpa	fs' pakal	AS' mm²	ψ	A1φ mm²	n' ada	n' ada	AS' ada	t tk	AS mm²	ρ	ρ l	ρ pl	fs' Mpa	a mm	MN1 KNm	MN2 KNm	MN KNm
485-487	T.kiri(-)	130.71	163.39	421.71	994.70	74.90	141.07	t dsk	22.32	255.95	255.95	222.44	16	200.96	1.11	2	401.92	t tk	1217.14	0.014	0.004	0.010	209.02	90.10	166.08	28.06	194.14
	T.kanan(+)	133.01	166.26	425.40	994.70	74.90	141.07	t dsk	25.19	255.95	255.95	251.09	16	200.96	1.25	2	401.92	t tk	1245.79	0.014	0.004	0.010	209.02	90.10	166.08	28.06	194.14
562-564	T.kiri(-)	146.48	183.10	446.42	994.70	74.90	141.07	t dsk	42.03	255.95	255.95	418.91	16	200.96	2.08	3	602.88	t tk	1413.61	0.016	0.006	0.010	209.02	97.33	177.52	42.09	219.61
577-579	T.kiri(-)	132.02	165.03	423.81	994.70	74.90	141.07	t dsk	23.96	255.95	255.95	238.76	16	200.96	1.19	2	401.92	t tk	1233.46	0.014	0.004	0.010	209.02	90.10	166.08	28.06	194.14
	T.kanan(+)	116.14	145.18	397.51	994.70	74.90	141.07	t dsk	4.11	255.95	255.95	40.92	16	200.96	0.20	2	401.92	t tk	1035.62	0.012	0.004	0.008	111.27	82.37	153.51	14.94	188.45
509-511	T.kiri(-)	123.48	154.35	409.88	994.70	74.90	141.07	t dsk	13.28	255.95	255.95	132.37	16	200.96	0.66	2	401.92	t tk	1127.07	0.012	0.004	0.008	111.27	82.37	153.51	14.94	188.45
	T.kanan(+)	123.45	154.31	409.83	994.70	74.90	141.07	t dsk	13.24	255.95	255.95	131.99	16	200.96	0.66	2	401.92	t tk	1126.69	0.012	0.004	0.008	111.27	82.37	153.51	14.94	188.45
567-569	T.kanan(+)	120.05	150.06	404.15	994.70	74.90	141.07	t dsk	8.99	255.95	255.95	89.63	16	200.96	0.45	2	401.92	t tk	1084.33	0.012	0.004	0.008	111.27	82.37	153.51	14.94	188.45
	T.kanan(-)	119.94	149.93	403.96	994.70	74.90	141.07	t dsk	8.86	255.95	255.95	88.26	16	200.96	0.44	2	401.92	t tk	1082.96	0.012	0.004	0.008	111.27	82.37	153.51	14.94	188.45
582-584	T.kiri(-)	128.57	160.71	419.24	994.70	74.90	141.07	t dsk	19.64	255.95	255.95	195.78	16	200.96	0.97	2	401.92	t tk	1189.73	0.012	0.004	0.008	111.27	82.37	153.51	14.94	188.45
	T.kanan(+)	128.51	160.64	418.14	994.70	74.90	141.07	t dsk	19.57	255.95	255.95	195.03	16	200.96	0.97	2	401.92	t tk	1189.38	0.012	0.004	0.008	111.27	82.37	153.51	14.94	188.45
533-535	T.kiri(-)	130.97	163.71	422.13	994.70	74.90	141.07	t dsk	22.64	255.95	255.95	225.68	16	200.96	1.12	2	401.92	t tk	1220.38	0.014	0.004	0.010	209.02	90.10	166.08	28.06	194.14
	T.kanan(+)	133.17	166.46	425.66	994.70	74.90	141.07	t dsk	25.39	255.95	255.95	253.08	16	200.96	1.26	2	401.92	t tk	1247.79	0.014	0.004	0.010	209.02	90.10	166.08	28.06	194.14
572-574	T.kanan(-)	146.37	182.96	446.25	994.70	74.90	141.07	t dsk	41.89	255.95	255.95	417.54	16	200.96	2.08	3	602.88	t tk	1412.24	0.016	0.006	0.010	209.02	97.33	177.52	42.09	219.61
587-589	T.kiri(-)	116.41	145.51	397.97	994.70	74.90	141.07	t dsk	4.44	255.95	255.95	44.28	16	200.96	0.22	2	401.92	t tk	1038.98	0.012	0.004	0.008	111.27	82.37	153.51	14.94	188.45
	T.kanan(+)	133.19	166.49	425.69	994.70	74.90	141.07	t dsk	25.42	255.95	255.95	253.34	16	200.96	1.26	2	401.92	t tk	1248.04	0.014	0.004	0.010	209.02	90.10	166.08	28.06	194.14
497-499	T.kiri(-)	127.67	159.59	416.77	994.70	74.90	141.07	t dsk	18.52	255.95	255.95	184.57	16	200.96	0.92	2	401.92	t tk	1179.27	0.012	0.004	0.008	111.27	82.37	153.51	14.94	188.45
	T.kanan(+)	119.66	149.58	403.49	994.70	74.90	141.07	t dsk	8.51	255.95	255.95	84.77	16	200.96	0.42	2	401.92	t tk	1079.47	0.012	0.004	0.008	111.27	82.37	153.51	14.94	188.45
517-519	T.kiri(-)	126.45	158.06	414.78	994.70	74.90	141.07	t dsk	16.99	255.95	255.95	169.37	16	200.96	0.84	2	401.92	t tk	1164.07	0.012	0.004	0.008	111.27	82.37	153.51	14.94	188.45
	T.kanan(+)	123.89	154.86	410.56	994.70	74.90	141.07	t dsk	13.79	255.95	255.95	137.47	16	200.96	0.68	2	401.92	t tk	1132.17	0.012	0.004	0.008	111.27	82.37	153.51	14.94	188.45
520-522	T.kiri(-)	126.49	158.11	414.84	994.70	74.90	141.07	t dsk	17.04	255.95	255.95	169.87	16	200.96	0.85	2	401.92	t tk	1164.57	0.012	0.004	0.008	111.27	82.37	153.51	14.94	188.45
	T.kanan(+)	123.89	154.86	410.56	994.70	74.90	141.07	t dsk	13.79	255.95	255.95	137.47	16	200.96	0.68	2	401.92	t tk	1132.17	0.012	0.004	0.008	111.27	82.37	153.51	14.94	188.45
541-543	T.kiri(-)	127.45	159.31	416.41	994.70	74.90	141.07	t dsk	18.24	255.95	255.95	181.83	16	200.96	0.90	2	401.92	t tk	1176.53	0.012	0.004	0.008	111.27	82.37	153.51	14.94	188.45
	T.kanan(+)	119.48	149.35	403.18	994.70	74.90	141.07	t dsk	8.28	255.95	255.95	82.53	16	200.96	0.41	2	401.92	t tk	1077.23	0.012	0.004	0.008	111.27	82.37	153.51	14.94	188.45

fy deform : 400 Mpa  
 fy polos : 240 Mpa  
 Penutup beton : 40 mm  
 ρ min : 0.0035  
 ρ b : 0.0271  
 ρ mak : 0.0203  
 ρ mak : 0.0203  
 ρ mak : 0.0102  
 D tul Pokok : 22 mm  
 D tul sengkang : 10 mm  
 d : 700 mm  
 d' : 100 mm

Tabel 42. Penulangan Rangkap Balok Induk Lantai 2

Frame	Letak	Mu KNm	Mu/φ KNm	d perlu mm	AS1 mm <sup>2</sup>	a mm	MN1 KNm	tul desak	MN2 KNm	fs' Mpa	fs' pakal	AS' mm <sup>2</sup>	φ	A1φ mm <sup>2</sup>	n'	n' ada	AS' ada	tul tarik	AS mm <sup>2</sup>	n	n ada	AS ada	ρ	ρ'	ρ-ρ'	fs' Mpa	a mm	MN1 KNm	MN2 KNm	MN KNm
265-267	T.kiri(-)	414.15	517.7	634.4	2131.5	114.6	462.7	tul desak	55.0	333.1	333.1	305.6	22	379.9	0.8	2	759.9	tul tarik	2437.3	6.4	7	2659.6	0.01	0.004	0.009	300.5	112.3	454.4	123.3	577.7
	T.kanan(+)	421.02	526.3	639.7	2131.5	114.6	462.7	tul desak	63.6	333.1	333.1	353.5	22	379.9	0.9	2	759.9	tul tarik	2485.0	6.5	7	2659.6	0.01	0.004	0.009	300.5	112.3	454.4	123.3	577.7
268-270	T.kiri(-)	443.11	553.9	656.2	2131.5	114.6	462.7	tul desak	91.2	333.1	333.1	507.1	22	379.9	1.3	2	759.9	tul tarik	2638.6	6.9	7	2659.6	0.01	0.004	0.009	300.5	112.3	454.4	123.3	577.7
	T.kanan(+)	442.64	553.3	655.9	2131.5	114.6	462.7	tul desak	90.6	333.1	333.1	503.8	22	379.9	1.3	2	759.9	tul tarik	2635.3	6.9	7	2659.6	0.01	0.004	0.009	300.5	112.3	454.4	123.3	577.7
271-273	T.kiri(-)	422.61	528.3	640.9	2131.5	114.6	462.7	tul desak	65.6	333.1	333.1	364.6	22	379.9	1.0	2	759.9	tul tarik	2496.1	6.6	7	2659.6	0.01	0.004	0.009	300.5	112.3	454.4	123.3	577.7
	T.kanan(+)	414.23	517.8	634.5	2131.5	114.6	462.7	tul desak	55.1	333.1	333.1	306.3	22	379.9	0.8	2	759.9	tul tarik	2437.8	6.4	7	2659.6	0.01	0.004	0.009	300.5	112.3	454.4	123.3	577.7
305-307	T.kiri(-)	469.47	611.8	699.7	2131.5	114.6	462.7	tul desak	149.1	333.1	333.1	829.3	22	379.9	2.2	3	1139.8	tul tarik	2960.8	7.6	8	3039.5	0.01	0.005	0.009	300.5	117.4	472.7	185.0	657.7
	T.kanan(+)	481.63	602.0	684.1	2131.5	114.6	462.7	tul desak	139.3	333.1	333.1	774.8	22	379.9	2.0	3	1139.8	tul tarik	2906.3	7.6	8	3039.5	0.01	0.005	0.009	300.5	117.4	472.7	185.0	657.7
310-312	T.kiri(-)	490.13	612.7	690.2	2131.5	114.6	462.7	tul desak	150.0	333.1	333.1	833.8	22	379.9	2.2	3	1139.8	tul tarik	2965.3	7.8	8	3039.5	0.01	0.005	0.009	300.5	117.4	472.7	185.0	657.7
	T.kanan(+)	482.04	602.6	684.4	2131.5	114.6	462.7	tul desak	139.9	333.1	333.1	777.6	22	379.9	2.0	3	1139.8	tul tarik	2909.1	7.7	8	3039.5	0.01	0.004	0.011	350.4	127.7	508.1	143.8	652.9
315-317	T.kiri(-)	465.52	581.9	672.6	2131.5	114.6	462.7	tul desak	119.2	333.1	333.1	662.8	22	379.9	1.7	2	759.9	tul tarik	2794.3	7.4	8	2659.6	0.01	0.004	0.009	300.5	112.3	454.4	123.3	577.7
	T.kanan(+)	445.94	557.4	656.3	2131.5	114.6	462.7	tul desak	94.7	333.1	333.1	526.7	22	379.9	1.4	2	759.9	tul tarik	2658.2	7.0	7	2659.6	0.01	0.004	0.009	300.5	112.3	454.4	123.3	577.7
181	T.kanan(+)	377.33	471.7	605.6	2131.5	114.6	462.7	tul desak	9.0	333.1	333.1	49.9	22	379.9	0.1	2	759.9	tul tarik	2181.4	5.7	6	2279.6	0.01	0.004	0.007	225.6	99.6	407.4	92.8	500.0
169-171	T.kiri(-)	502.2	627.8	698.6	2131.5	114.6	462.7	tul desak	165.1	333.1	333.1	917.7	22	379.9	2.4	3	1139.8	tul tarik	3049.2	8.0	9	3419.5	0.02	0.005	0.011	350.4	130.2	518.0	215.7	733.7
	T.kanan(+)	500.01	625.0	697.1	2131.5	114.6	462.7	tul desak	162.3	333.1	333.1	902.5	22	379.9	2.4	3	1139.8	tul tarik	3034.0	8.0	8	3039.5	0.01	0.005	0.009	300.5	117.4	472.7	185.0	657.7
193-195	T.kiri(-)	501.19	626.5	697.9	2131.5	114.6	462.7	tul desak	163.8	333.1	333.1	910.7	22	379.9	2.4	3	1139.8	tul tarik	3042.2	8.0	9	3419.5	0.02	0.005	0.011	350.4	130.2	518.0	215.7	733.7
	T.kanan(+)	490.21	612.8	690.2	2131.5	114.6	462.7	tul desak	150.1	333.1	333.1	834.4	22	379.9	2.2	3	1139.8	tul tarik	2965.9	7.8	8	3039.5	0.01	0.005	0.009	300.5	117.4	472.7	185.0	657.7
208-210	T.kiri(-)	480.82	601.0	683.6	2131.5	114.6	462.7	tul desak	138.3	333.1	333.1	769.1	22	379.9	2.0	3	1139.8	tul tarik	2900.6	7.6	8	3039.5	0.01	0.005	0.009	300.5	117.4	472.7	185.0	657.7
	T.kanan(+)	489.89	612.4	690.0	2131.5	114.6	462.7	tul desak	149.7	333.1	333.1	832.2	22	379.9	2.2	3	1139.8	tul tarik	2963.7	7.8	8	3039.5	0.01	0.005	0.009	300.5	117.4	472.7	185.0	657.7
227-229	T.kiri(-)	500.4	625.5	697.4	2131.5	114.6	462.7	tul desak	162.8	333.1	333.1	905.2	22	379.9	2.4	3	1139.8	tul tarik	3036.7	8.0	8	3039.5	0.01	0.005	0.009	300.5	117.4	472.7	185.0	657.7
	T.kanan(+)	446.93	558.7	659.0	2131.5	114.6	462.7	tul desak	96.0	333.1	333.1	533.6	22	379.9	1.4	2	759.9	tul tarik	2665.1	7.0	6	3039.5	0.01	0.004	0.011	350.4	127.7	509.1	143.8	652.9

fy deformasi : 400 Mpa  
 fy polos : 240 Mpa  
 Penutup beton : 40 mm  
 ρ min : 0.0035  
 ρ b : 0.0271  
 ρ mak : 0.0203

0.5 ρ mak : 0.0102  
 b : 350 mm  
 h : 700 mm  
 fc : 25 Mpa  
 m : 18.824  
 Rn : 3.675

D tul Pokok : 22 mm  
 D tul sengkang : 10 mm  
 d : 600 mm  
 d' : 100 mm

Tabel 43. Penulangan Rangka Balok Induk Lantai 3.

Frame	Letak	Mu KNm	Mu/ϕ KNm	d perlu mm	AS1 mm²	a mm	MN1 KNm	tul desak	MN2 KNm	fs' Mpa	fs' pakal	AS' mm²	ϕ mm	A1ϕ mm²	n'	n' ada	AS' ada	tul tarik	AS mm²	n	n ada	AS ada	ρ'	ρ' ρ'	fs' Mpa	a mm	MN1 KNm	MN2 KNm	MN KNm
424-426	T.kiri(-)	417.52	521.90	636.99	2131.5	114.64	462.69	tul desak	59.21	333.1	333.1	329.2	22	379.9	0.9	2	759.9	tul tarik	2480.7	6.5	7	2659.6	0.013	0.009	300.5	112.3	454.4	123.3	577.7
	T.kanan(+)	431	538.75	647.19	2131.5	114.64	462.69	tul desak	76.06	333.1	333.1	422.9	22	379.9	1.1	2	759.9	tul tarik	2554.4	6.7	7	2659.6	0.013	0.009	300.5	112.3	454.4	123.3	577.7
427-429	T.kiri(-)	448.52	560.65	660.21	2131.5	114.64	462.69	tul desak	97.96	333.1	333.1	544.7	22	379.9	1.4	2	759.9	tul tarik	2676.2	7.0	8	3039.5	0.014	0.004	350.4	127.7	509.1	143.8	652.9
	T.kanan(+)	448	560.00	659.83	2131.5	114.64	462.69	tul desak	97.31	333.1	333.1	541.0	22	379.9	1.4	2	759.9	tul tarik	2672.5	7.0	8	3039.5	0.014	0.004	350.4	127.7	509.1	143.8	652.9
430-432	T.kiri(-)	431.51	539.39	647.57	2131.5	114.64	462.69	tul desak	76.70	333.1	333.1	426.4	22	379.9	1.1	2	759.9	tul tarik	2557.9	6.7	7	2659.6	0.013	0.004	300.5	112.3	454.4	123.3	577.7
	T.kanan(+)	416	520.00	635.83	2131.5	114.64	462.69	tul desak	57.31	333.1	333.1	318.6	22	379.9	0.8	2	759.9	tul tarik	2450.1	6.4	7	2659.6	0.013	0.004	300.5	112.3	454.4	123.3	577.7
464-466	T.kiri(-)	445.84	557.30	658.24	2131.5	114.64	462.69	tul desak	94.61	333.1	333.1	526.0	22	379.9	1.4	2	759.9	tul tarik	2657.5	7.0	7	2659.6	0.013	0.004	300.5	112.3	454.4	123.3	577.7
	T.kanan(+)	469	586.25	675.12	2131.5	114.64	462.69	tul desak	123.56	333.1	333.1	687.0	22	379.9	1.8	2	759.9	tul tarik	2818.5	7.4	8	3039.5	0.014	0.004	350.4	127.7	509.1	143.8	652.9
469-471	T.kiri(-)	496.86	621.08	694.88	2131.5	114.64	462.69	tul desak	158.38	333.1	333.1	880.6	22	379.9	2.3	3	1139.8	tul tarik	3012.1	7.9	8	3039.5	0.014	0.005	300.5	117.4	472.7	185.0	657.7
	T.kanan(+)	498	622.50	695.68	2131.5	114.64	462.69	tul desak	159.81	333.1	333.1	888.5	22	379.9	2.3	3	1139.8	tul tarik	3020.0	7.9	8	3039.5	0.014	0.005	300.5	117.4	472.7	185.0	657.7
474-476	T.kiri(-)	467.41	584.26	673.97	2131.5	114.64	462.69	tul desak	121.57	333.1	333.1	675.9	22	379.9	1.8	2	759.9	tul tarik	2807.4	7.4	8	3039.5	0.014	0.004	300.5	117.4	472.7	185.0	657.7
	T.kanan(+)	407	508.75	628.91	2131.5	114.64	462.69	tul desak	46.06	333.1	333.1	256.1	22	379.9	0.7	2	759.9	tul tarik	2387.6	6.3	7	2659.6	0.013	0.004	300.5	112.3	454.4	123.3	577.7
328-330	T.kiri(-)	470.72	588.40	676.35	2131.5	114.64	462.69	tul desak	125.71	333.1	333.1	698.9	22	379.9	1.8	2	759.9	tul tarik	2830.4	7.4	8	3039.5	0.014	0.004	350.4	127.7	509.1	143.8	652.9
	T.kanan(+)	469.56	586.95	675.52	2131.5	114.64	462.69	tul desak	124.26	333.1	333.1	690.9	22	379.9	1.8	2	759.9	tul tarik	2822.4	7.4	8	3039.5	0.014	0.004	350.4	127.7	509.1	143.8	652.9
352-354	T.kiri(-)	469.94	587.43	675.79	2131.5	114.64	462.69	tul desak	124.73	333.1	333.1	693.5	22	379.9	1.8	2	759.9	tul tarik	2825.0	7.4	8	3039.5	0.014	0.004	350.4	127.7	509.1	143.8	652.9
	T.kanan(+)	445.29	556.61	657.83	2131.5	114.64	462.69	tul desak	93.92	333.1	333.1	522.2	22	379.9	1.4	2	759.9	tul tarik	2653.7	7.0	7	2659.6	0.013	0.004	300.5	112.3	454.4	123.3	577.7
367-369	T.kiri(-)	470.77	588.46	676.39	2131.5	114.64	462.69	tul desak	125.77	333.1	333.1	699.3	22	379.9	1.8	2	759.9	tul tarik	2830.8	7.5	8	3039.5	0.014	0.004	350.4	127.7	509.1	143.8	652.9
	T.kanan(+)	471.61	589.51	676.99	2131.5	114.64	462.69	tul desak	126.82	333.1	333.1	705.1	22	379.9	1.9	2	759.9	tul tarik	2838.6	7.5	8	3039.5	0.014	0.004	350.4	127.7	509.1	143.8	652.9
386-388	T.kiri(-)	470	587.50	675.84	2131.5	114.64	462.69	tul desak	124.81	333.1	333.1	693.9	22	379.9	1.8	2	759.9	tul tarik	2825.4	7.4	8	3039.5	0.014	0.004	350.4	127.7	509.1	143.8	652.9
	T.kanan(+)	469.6	587.00	675.55	2131.5	114.64	462.69	tul desak	124.31	333.1	333.1	691.2	22	379.9	1.8	2	759.9	tul tarik	2822.7	7.4	8	3039.5	0.014	0.004	350.4	127.7	509.1	143.8	652.9

fy deforma : 400 Mpa  
 fy polos : 240 Mpa  
 Penutup beton : 40 mm  
 ρ min : 0.0035  
 ρ b : 0.0271  
 ρ mak : 0.0203

0.5 ρ mak : 0.0102  
 b : 350 mm  
 h : 700 mm  
 fc : 25 Mpa  
 m : 18.824  
 Rn : 3.675

D tul Pokok : 22 mm  
 D tul sengkang : 10 mm  
 d : 600 mm  
 d' : 100 mm

Tabel 44. Penulangan Rangkap Balok Induk Lantai 4.

Frame	Letak	Mu KNm	Mu/ϕ KNm	d perlu mm	AS1 mm <sup>2</sup>	a mm	MIN1 KNm	tul desak	MN2 KNm	fs' Mpa	fs' pakai	AS' mm <sup>2</sup>	ϕ mm	A1ϕ mm <sup>2</sup>	n' ada	AS' ada	tul tarik	AS mm <sup>2</sup>	n ada	AS ada	ρ	ρ' ada	ρ' ada	fs' Mpa	a mm	MIN1 KNm	MN2 KNm	MN KNm	
552-554	T.kiri(-)	400.610	500.8	624.0	2131.5	114.8	462.7	tul desak	38.07	333.1	333.1	211.7	22	379.9	0.6	2	759.9	tul tarik	2343.2	6.2	7	2659.6	0.013	0.004	300.5	112.3	454.4	123.3	577.7
	T.kanan(-)	421.27	526.6	639.8	2131.5	114.8	462.7	tul desak	63.90	333.1	333.1	355.3	22	379.9	0.9	2	759.9	tul tarik	2486.8	6.5	7	2659.6	0.013	0.004	300.5	112.3	454.4	123.3	577.7
592-594	T.kiri(-)	445.66	557.1	656.1	2131.5	114.6	462.7	tul desak	94.38	333.1	333.1	524.8	22	379.9	1.4	2	759.9	tul tarik	2656.3	7.0	7	2659.6	0.013	0.004	300.5	112.3	454.4	123.3	577.7
	T.kanan(-)	460.31	575.4	688.8	2131.5	114.6	462.7	tul desak	112.70	333.1	333.1	626.6	22	379.9	1.6	2	759.9	tul tarik	2758.1	7.3	8	3039.5	0.014	0.004	350.4	127.7	509.1	143.8	652.9
555-557	T.kiri(-)	441.47	551.8	655.0	2131.5	114.6	462.7	tul desak	89.15	333.1	333.1	485.7	22	379.9	1.3	2	759.9	tul tarik	2627.2	6.9	7	2659.6	0.013	0.004	300.5	112.3	454.4	123.3	577.7
	T.kanan(-)	441.19	551.5	654.8	2131.5	114.6	462.7	tul desak	88.80	333.1	333.1	493.7	22	379.9	1.3	2	759.9	tul tarik	2625.2	6.9	7	2659.6	0.013	0.004	300.5	112.3	454.4	123.3	577.7
597-599	T.kiri(-)	492.48	615.6	691.8	2131.5	114.6	462.7	tul desak	152.91	333.1	333.1	850.2	22	379.9	2.2	3	1139.8	tul tarik	2981.7	7.8	8	3039.5	0.014	0.005	300.5	117.4	472.7	185.0	657.7
	T.kanan(-)	492.99	616.2	692.2	2131.5	114.6	462.7	tul desak	153.55	333.1	333.1	853.7	22	379.9	2.2	3	1139.8	tul tarik	2985.2	7.9	8	3039.5	0.014	0.005	300.5	117.4	472.7	185.0	657.7
558-560	T.kiri(-)	421.45	526.8	640.0	2131.5	114.6	462.7	tul desak	64.12	333.1	333.1	356.5	22	379.9	0.9	2	759.9	tul tarik	2488.0	6.5	7	2659.6	0.013	0.004	300.5	112.3	454.4	123.3	577.7
	T.kanan(-)	400.21	500.3	623.6	2131.5	114.6	462.7	tul desak	37.57	333.1	333.1	208.9	22	379.9	0.5	2	759.9	tul tarik	2340.4	6.2	7	2659.6	0.013	0.004	300.5	112.3	454.4	123.3	577.7
602-604	T.kiri(-)	460.6	575.8	669.0	2131.5	114.8	462.7	tul desak	113.06	333.1	333.1	620.8	22	379.9	1.7	2	759.9	tul tarik	2760.1	7.3	8	3039.5	0.014	0.004	350.4	127.7	509.1	143.8	652.9
	T.kanan(-)	442.21	552.8	655.6	2131.5	114.6	462.7	tul desak	90.07	333.1	333.1	500.8	22	379.9	1.5	2	759.9	tul tarik	2632.3	6.9	7	2659.6	0.013	0.004	300.5	112.3	454.4	123.3	577.7
481-483	T.kiri(-)	449.77	562.2	661.1	2131.5	114.6	462.7	tul desak	99.52	333.1	333.1	553.3	22	379.9	1.5	2	759.9	tul tarik	2684.8	7.1	8	3039.5	0.014	0.004	350.4	127.7	509.1	143.8	652.9
	T.kanan(-)	461.68	577.1	669.8	2131.5	114.6	462.7	tul desak	114.38	333.1	333.1	636.0	22	379.9	1.7	2	759.9	tul tarik	2767.5	7.3	8	3039.5	0.014	0.004	350.4	127.7	509.1	143.8	652.9
502-504	T.kiri(-)	447.7	559.6	659.6	2131.5	114.6	462.7	tul desak	86.93	333.1	333.1	539.0	22	379.9	1.4	2	759.9	tul tarik	2670.5	7.0	8	3039.5	0.014	0.004	350.4	127.7	509.1	143.8	652.9
	T.kanan(-)	472.08	590.1	677.3	2131.5	114.6	462.7	tul desak	127.41	333.1	333.1	708.4	22	379.9	1.9	2	759.9	tul tarik	2839.9	7.5	8	3039.5	0.014	0.004	350.4	127.7	509.1	143.8	652.9
513-515	T.kiri(-)	442.81	553.5	656.0	2131.5	114.6	462.7	tul desak	90.82	333.1	333.1	505.0	22	379.9	1.3	2	759.9	tul tarik	2636.5	6.9	7	2659.6	0.013	0.004	300.5	112.3	454.4	123.3	577.7
	T.kanan(-)	471.86	589.8	677.2	2131.5	114.6	462.7	tul desak	127.13	333.1	333.1	706.9	22	379.9	1.9	2	759.9	tul tarik	2838.4	7.5	8	3039.5	0.014	0.004	350.4	127.7	509.1	143.8	652.9
526-528	T.kiri(-)	440.59	550.7	654.3	2131.5	114.6	462.7	tul desak	88.05	333.1	333.1	489.5	22	379.9	1.3	2	759.9	tul tarik	2621.0	6.9	7	2659.6	0.013	0.004	300.5	112.3	454.4	123.3	577.7
	T.kanan(-)	407.7	509.8	620.5	2131.5	114.8	462.7	tul desak	48.03	333.1	333.1	281.0	22	379.9	0.7	2	759.9	tul tarik	2302.5	6.3	7	2659.6	0.013	0.004	300.5	112.3	454.4	123.3	577.7

Tabel 45. Penulangan geser Balok Anak Lantai 2

Frame	Vu Tump KN	Vu/φ Tump KN	Vu Lap KN	Vu/φ Lap KN	Vu/φ Kritis KN	Vc KN	Vs min KN	Vu/φ-Vc KN	Vc+Vs min	V pakai KN	D mm	Daerah I			daerah II				
												s mm	< d/2 mm	< 600 mm	s mm	< d/2 mm	< 601 mm		
173-175	96.97	161.617	6.68	11.133	147.1358	81.6667	32.6667	65.4691	114.33333	65.46915	8	144.391	196	600	130	289.382	196	600	190
204-206	91.66	152.767	5.45	9.0833	139.0788	81.6667	32.6667	57.4121	114.33333	57.41211	8	164.654	196	600	130	289.382	196	600	190
238-240	98.4	164	7.63	12.717	149.3056	81.6667	32.6667	67.6389	114.33333	67.63893	8	139.759	196	600	130	289.382	196	600	190
274	74.97	124.95	17.6	29.333	103.4791	81.6667	32.6667	21.8125	114.33333	32.66667	8	289.382	196	600	190	289.382	196	600	190
275-277	94.17	156.95	5.55	9.25	142.8873	81.6667	32.6667	61.2206	114.33333	61.22061	8	154.411	196	600	140	289.382	196	600	190
278-279	69.72	116.2	12.58	20.967	101.6239	81.6667	32.6667	19.9572	114.33333	32.66667	8	289.382	196	600	190	289.382	196	600	190
280-282	88.05	146.75	1.61	2.6833	133.6012	81.6667	32.6667	51.9345	114.33333	51.93453	8	182.021	196	600	140	289.382	196	600	190
283-284	70.28	117.133	11.14	18.567	102.4401	81.6667	32.6667	20.7735	114.33333	32.66667	8	289.382	196	600	190	289.382	196	600	190
285-287	95.46	159.1	5.8	9.6667	144.8446	81.6667	32.6667	63.178	114.33333	63.17797	8	149.627	196	600	140	289.382	196	600	190
288	75.29	125.483	17.89	29.817	103.9208	81.6667	32.6667	22.2542	114.33333	32.66667	8	289.382	196	600	190	289.382	196	600	190
290-292	110.2	183.667	4.98	8.3	167.2101	81.6667	32.6667	85.5435	114.33333	85.54347	8	110.507	196	600	110	289.382	196	600	190
293-294	71.12	118.533	3.65	6.0833	103.6645	81.6667	32.6667	21.9978	114.33333	32.66667	8	289.382	196	600	190	289.382	196	600	190
295-297	91.6	152.667	2.16	3.6	138.9877	81.6667	32.6667	57.3211	114.33333	57.32107	8	164.916	196	600	110	289.382	196	600	190
298-299	75.81	126.35	8.33	13.883	110.5007	81.6667	32.6667	28.834	114.33333	32.66667	8	289.382	196	600	190	289.382	196	600	190
300-302	109.7	182.833	4.65	7.75	166.4515	81.6667	32.6667	84.7848	114.33333	84.7848	8	111.496	196	600	110	289.382	196	600	190
176	91.06	151.767	65.06	108.43	108.4994	81.6667	32.6667	26.8327	114.33333	32.66667	8	289.382	196	600	190	289.382	196	600	190
186	73.52	122.533	35.56	59.267	91.79217	81.6667	32.6667	10.1255	114.33333	32.66667	8	289.382	196	600	190	289.382	196	600	190
183-185	85.48	142.467	14.42	24.033	130.3917	81.6667	32.6667	48.725	114.33333	48.72499	8	194.01	196	600	190	289.382	196	600	190
182	55.87	93.1167	33.21	55.35	66.56995	81.6667	32.6667	-15.097	114.33333	32.66667	8	289.382	196	600	190	289.382	196	600	190
187	77.23	128.717	39.27	65.45	96.42423	81.6667	32.6667	14.7576	114.33333	32.66667	8	289.382	196	600	190	289.382	196	600	190
188-190	99.77	166.283	8.4	14	152.1897	81.6667	32.6667	70.523	114.33333	70.52303	8	134.044	196	600	130	289.382	196	600	190



704	60.5	100.833	37.84	63.067	72.08667	81.6667	32.6667	-9.58	114.33333	32.66667	8	289.382	196	600	190	289.382	196	600	190
172	131.27	218.783	120.56	200.93	156.4102	81.6667	32.6667	74.7435	114.33333	74.74353	8	126.475	196	600	120	289.382	196	600	190
202	83.13	138.55	64.37	107.28	94.66184	81.6667	32.6667	12.9952	114.33333	32.66667	8	289.382	196	600	190	289.382	196	600	190
199-201	80.45	134.083	11.56	19.267	122.7189	81.6667	32.6667	41.0522	114.33333	41.0522	8	230.272	196	600	190	289.382	196	600	190
203	140.38	233.967	115.52	192.53	167.2649	81.6667	32.6667	85.5982	114.33333	85.59823	8	110.436	196	600	100	289.382	196	600	190
219	49.6	82.6667	30.85	51.417	56.48054	81.6667	32.6667	-25.186	114.33333	32.66667	8	289.382	196	600	190	289.382	196	600	190
216-218	99.6	166	7.51	12.517	151.9304	81.6667	32.6667	70.2637	114.33333	70.26371	8	134.538	196	600	130	289.382	196	600	190
215	62.5	104.167	39.84	66.4	74.4697	81.6667	32.6667	-7.197	114.33333	32.66667	8	289.382	196	600	190	289.382	196	600	190
220	51.56	85.9333	32.81	54.683	58.71243	81.6667	32.6667	-22.954	114.33333	32.66667	8	289.382	196	600	190	289.382	196	600	190
221-223	99.79	166.317	7.77	12.95	152.2202	81.6667	32.6667	70.5535	114.33333	70.55354	8	133.986	196	600	130	289.382	196	600	190
224	62.55	104.25	39.89	66.483	74.52927	81.6667	32.6667	-7.1374	114.33333	32.66667	8	289.382	196	600	190	289.382	196	600	190
207	141.6	236	94.3	157.17	168.7185	81.6667	32.6667	87.0519	114.33333	87.05188	8	108.592	196	600	100	289.382	196	600	190
236	45.85	76.4167	27.1	45.167	52.21034	81.6667	32.6667	-29.456	114.33333	32.66667	8	289.382	196	600	190	289.382	196	600	190
233-235	69.33	115.55	10.74	17.9	105.7564	81.6667	32.6667	24.0897	114.33333	32.66667	8	289.382	196	600	190	289.382	196	600	190
237	130.56	217.6	105.69	176.15	155.5642	81.6667	32.6667	73.8976	114.33333	73.89755	8	127.922	196	600	120	289.382	196	600	190
253	52	86.6667	33.25	55.417	59.21347	81.6667	32.6667	-22.453	114.33333	32.66667	8	289.382	196	600	190	289.382	196	600	190
250-252	96	160	6.8	11.333	146.4389	81.6667	32.6667	64.7723	114.33333	64.77225	8	145.945	196	600	130	289.382	196	600	190
249	60.71	101.183	38.06	63.433	72.33688	81.6667	32.6667	-9.3298	114.33333	32.66667	8	289.382	196	600	190	289.382	196	600	190
258	47.96	79.9333	29.21	48.683	54.61304	81.6667	32.6667	-27.054	114.33333	32.66667	8	289.382	196	600	190	289.382	196	600	190
255-257	85.76	142.933	12.83	21.383	130.8188	81.6667	32.6667	49.1521	114.33333	49.1521	8	192.325	196	600	190	289.382	196	600	190
254	55.95	93.25	33.29	55.483	66.66527	81.6667	32.6667	-15.001	114.33333	32.66667	8	289.382	196	600	190	289.382	196	600	190
241	88.58	147.633	63.72	106.2	105.5444	81.6667	32.6667	23.8777	114.33333	32.66667	8	289.382	196	600	190	289.382	196	600	190
164	37.27	62.1167	6.23	10.383	51.44281	81.6667	32.6667	-30.224	114.33333	32.66667	8	289.382	196	600	190	289.382	196	600	190
165-167	46.2	77	2.63	4.3833	70.1008	81.6667	32.6667	-11.566	114.33333	32.66667	8	289.382	196	600	190	289.382	196	600	190
197-198	30.48	50.8	7.57	12.617	44.42765	81.6667	32.6667	-37.239	114.33333	32.66667	8	289.382	196	600	190	289.382	196	600	190
212-214	42.58	70.9667	3.4	5.6667	64.60805	81.6667	32.6667	-17.059	114.33333	32.66667	8	289.382	196	600	190	289.382	196	600	190
231-232	34.5	57.5	3.55	5.9167	50.2872	81.6667	32.6667	-31.379	114.33333	32.66667	8	289.382	196	600	190	289.382	196	600	190
246-248	41.77	69.6167	4.29	7.15	63.37901	81.6667	32.6667	-18.288	114.33333	32.66667	8	289.382	196	600	190	289.382	196	600	190
264	32.5	54.1667	7.19	11.983	44.8589	81.6667	32.6667	-36.808	114.33333	32.66667	8	289.382	196	600	190	289.382	196	600	190

Tabel 46. Penulangan geser Balok Anak Lantai 3

Frame	Vu Tump KN	Vu/φ Tump KN	Vu Lap KN	Vu/φ Lap KN	Vu/φ Kritis KN	Vc KN	Vs min KN	Vu/φ-Vc KN	Vc+Vs min KN	V pakai	D mm	Daerah I				Daerah II			
												s mm	< d/2 mm	< 600 mm	s pakai mm	s mm	< d/2 mm	< 601 mm	s pakai mm
433	74.55	124.25	15.91	26.517	102.8994	81.6667	32.6667	21.23276	114.3333	32.666667	8	289.3824	196	600	190	289.382	196	600	190
326	31.78	52.9667	5.99	9.9833	43.86511	81.6667	32.6667	-37.8016	114.3333	32.666667	8	289.3824	196	600	190	289.382	196	600	190
335	68.31	113.85	44.08	73.467	81.3924	81.6667	32.6667	-0.27427	114.3333	32.666667	8	289.3824	196	600	190	289.382	196	600	190
332-334	97.69	162.817	5.48	9.1333	148.2283	81.6667	32.6667	66.56163	114.3333	66.561627	8	142.0211	196	600	140	289.382	196	600	190
331	102.37	170.617	77.51	129.18	121.9754	81.6667	32.6667	40.30874	114.3333	40.308739	8	234.5188	196	600	190	289.382	196	600	190
341	55.16	91.9333	32.5	54.167	65.72398	81.6667	32.6667	-15.9427	114.3333	32.666667	8	289.3824	196	600	190	289.382	196	600	190
705	59.6	99.3333	36.94	61.567	71.0143	81.6667	32.6667	-10.6524	114.3333	32.666667	8	289.3824	196	600	190	289.382	196	600	190
434-436	95.4	159	5.01	8.35	144.7536	81.6667	32.6667	63.08693	114.3333	63.086933	8	149.8434	196	600	140	289.382	196	600	190
449-451	131.95	219.917	20.7	34.5	200.2121	81.6667	32.6667	118.5455	114.3333	118.54547	8	79.74289	196	600	70	289.382	196	600	190
342-344	85.37	142.283	12.98	21.633	130.2239	81.6667	32.6667	48.55719	114.3333	48.557193	8	194.6809	196	600	190	289.382	196	600	190
347-349	95.58	159.3	6.66	11.1	145.7982	81.6667	32.6667	64.13158	114.3333	64.131582	8	147.4025	196	600	140	289.382	196	600	190
345	48.42	80.7	29.66	49.433	55.13685	81.6667	32.6667	-26.5298	114.3333	32.666667	8	289.3824	196	600	190	289.382	196	600	190
346	53.16	88.6	34.4	57.333	60.53438	81.6667	32.6667	-21.1323	114.3333	32.666667	8	289.3824	196	600	190	289.382	196	600	190
322-325	40.12	66.8667	5.88	9.8	60.87541	81.6667	32.6667	-20.7913	114.3333	32.666667	8	289.3824	196	600	190	289.382	196	600	190
356-357	33.95	56.5833	6.72	11.2	49.48552	81.6667	32.6667	-32.1811	114.3333	32.666667	8	289.3824	196	600	190	289.382	196	600	190
361	46.3	77.1667	27.54	45.9	52.72276	81.6667	32.6667	-28.9439	114.3333	32.666667	8	289.3824	196	600	190	289.382	196	600	190
358-360	68.79	114.65	10.03	16.717	104.9326	81.6667	32.6667	23.26597	114.3333	32.666667	8	289.3824	196	600	190	289.382	196	600	190
437-438	70.59	117.65	13.57	22.617	102.892	81.6667	32.6667	21.22532	114.3333	32.666667	8	289.3824	196	600	190	289.382	196	600	190
452-453	76.67	127.783	9.19	15.317	111.7542	81.6667	32.6667	30.08753	114.3333	32.666667	8	289.3824	196	600	190	289.382	196	600	190
362	106.2	177	86.84	144.73	126.5389	81.6667	32.6667	44.87224	114.3333	44.872242	8	210.6693	196	600	190	289.382	196	600	190
363-365	93.13	155.217	4.49	7.4833	141.3093	81.6667	32.6667	59.64259	114.3333	59.642587	8	158.4968	196	600	140	289.382	196	600	190
366	105	175	85.85	143.08	125.1091	81.6667	32.6667	43.44242	114.3333	43.442424	8	217.602	196	600	190	289.382	196	600	190
374	61.03	101.717	38.37	63.95	72.71817	81.6667	32.6667	-8.9485	114.3333	32.666667	8	289.3824	196	600	190	289.382	196	600	190

383	60.99	101.65	38.33	63.883	72.67051	81.6667	32.6667	-8.99616	114.3333	32.666667	8	289.3824	196	600	190	289.382	196	600	190
375-377	98.68	164.467	7.61	12.683	150.527	81.6667	32.6667	68.86034	114.3333	68.860339	8	137.2802	196	600	130	289.382	196	600	190
380-382	98.66	164.433	5.24	8.7333	150.4965	81.6667	32.6667	68.82983	114.3333	68.829831	8	137.341	196	600	130	289.382	196	600	190
439-441	88.02	146.7	1.24	2.0667	133.5557	81.6667	32.6667	51.88901	114.3333	51.889013	8	182.1803	196	600	140	289.382	196	600	190
454-456	91.97	153.283	1.68	2.8	139.5491	81.6667	32.6667	57.88248	114.3333	57.88248	8	163.3164	196	600	160	289.382	196	600	190
371-373	37.4	62.3333	1.84	3.0667	56.74827	81.6667	32.6667	-24.9184	114.3333	32.666667	8	289.3824	196	600	190	289.382	196	600	190
378	53.38	88.9667	34.62	57.7	60.7849	81.6667	32.6667	-20.8818	114.3333	32.666667	8	289.3824	196	600	190	289.382	196	600	190
379	53.43	89.05	30.04	50.067	60.84184	81.6667	32.6667	-20.8248	114.3333	32.666667	8	289.3824	196	600	190	289.382	196	600	190
390-391	34	56.6667	5.77	9.6167	49.5584	81.6667	32.6667	-32.1083	114.3333	32.666667	8	289.3824	196	600	190	289.382	196	600	190
395	46.29	77.15	27.54	45.9	52.71137	81.6667	32.6667	-28.9553	114.3333	32.666667	8	289.3824	196	600	190	289.382	196	600	190
392-394	68.68	114.467	7.23	12.05	104.7648	81.6667	32.6667	23.09818	114.3333	32.666667	8	289.3824	196	600	190	289.382	196	600	190
442-443	70.56	117.6	13.43	22.383	102.8483	81.6667	32.6667	21.18159	114.3333	32.666667	8	289.3824	196	600	190	289.382	196	600	190
457-458	76.61	127.683	9.13	15.217	111.6667	81.6667	32.6667	30.00007	114.3333	32.666667	8	289.3824	196	600	190	289.382	196	600	190
396	102.38	170.633	77.52	129.2	121.9873	81.6667	32.6667	40.32065	114.3333	40.320655	8	234.4495	196	600	190	289.382	196	600	190
397-399	95.99	159.983	5.64	9.4	145.6488	81.6667	32.6667	63.98216	114.3333	63.98216	8	147.7468	196	600	140	289.382	196	600	190
400	66.7	111.167	41.83	69.717	79.47406	81.6667	32.6667	-2.19261	114.3333	32.666667	8	289.3824	196	600	190	289.382	196	600	190
408	59.45	99.0833	36.79	61.317	70.83558	81.6667	32.6667	-10.8311	114.3333	32.666667	8	289.3824	196	600	190	289.382	196	600	190
413	55.09	91.8167	32.43	54.05	65.64057	81.6667	32.6667	-16.0261	114.3333	32.666667	8	289.3824	196	600	190	289.382	196	600	190
405-407	32.57	54.2833	3.51	5.85	49.41955	81.6667	32.6667	-32.2471	114.3333	32.666667	8	289.3824	196	600	190	289.382	196	600	190
409-411	95.44	159.067	6.42	10.7	145.5847	81.6667	32.6667	63.91803	114.3333	63.918025	8	147.895	196	600	140	289.382	196	600	190
414-416	85.45	142.417	11.63	19.383	130.3459	81.6667	32.6667	48.67923	114.3333	48.679225	8	194.1929	196	600	190	289.382	196	600	190
412	53.1	88.5	34.35	57.25	60.46606	81.6667	32.6667	-21.2006	114.3333	32.666667	8	289.3824	196	600	190	289.382	196	600	190
417	48.46	80.7667	29.71	49.517	55.1824	81.6667	32.6667	-26.4843	114.3333	32.666667	8	289.3824	196	600	190	289.382	196	600	190
444-446	95.32	158.867	5.19	8.65	144.6322	81.6667	32.6667	62.96555	114.3333	62.965547	8	150.1322	196	600	140	289.382	196	600	190
459-461	131.75	219.583	20.7	34.5	199.9087	81.6667	32.6667	118.242	114.3333	118.242	8	79.94755	196	600	70	289.382	196	600	190
423	31.79	52.9833	5.73	9.55	43.87891	81.6667	32.6667	-37.7878	114.3333	32.666667	8	289.3824	196	600	190	289.382	196	600	190
447	74.52	124.2	15.9	26.5	102.858	81.6667	32.6667	21.19135	114.3333	32.666667	8	289.3824	196	600	190	289.382	196	600	190

Tabel 47. Penulangan geser Balok Anak Lantai 4

Frame	Vu Tump KN	Vu/φ Tump KN	Vu Lap KN	Vu/φ Lap KN	Vu/φ Kritis KN	Vc KN	Vs min KN	Vu/φ-Vc KN	Vc+Vs min KN	V pakai KN	D mm	Daerah I				Daerah II			
												s mm	< d/2 mm	< 600 mm	s pakai mm	s mm	< d/2 mm	< 600 mm	s pakai mm
561	75.69	126.15	16.82	28.03333	104.472937	81.66667	32.66667	22.80627	114.33333	32.66667	8	289.38	196	600	190	289.38	196	600	190
608	31.27	52.116667	4.3	7.166667	43.1611671	81.66667	32.66667	-38.5055	114.33333	32.66667	8	289.38	196	600	190	289.38	196	600	190
485-487	98.4	164	4.37	7.283333	149.3056	81.66667	32.66667	67.63893	114.33333	67.63893	8	139.76	196	600	130	289.38	196	600	190
562-564	96.34	160.56667	4.7	7.833333	146.179893	81.66667	32.66667	64.51323	114.33333	64.51323	8	146.53	196	600	140	289.38	196	600	190
577-579	132.63	221.05	3.64	6.066667	201.24392	81.66667	32.66667	119.5773	114.33333	119.5773	8	79.05	196	600	140	289.38	196	600	190
609-611	41.03	68.383333	3.57	5.95	62.2561867	81.66667	32.66667	-19.41048	114.33333	32.66667	8	289.38	196	600	190	289.38	196	600	190
565-566	69.7	116.16667	12.56	20.93333	101.59472	81.66667	32.66667	19.92805	114.33333	32.66667	8	289.38	196	600	190	289.38	196	600	190
580-581	76.39	127.31667	8.92	14.86667	111.346064	81.66667	32.66667	29.6794	114.33333	32.66667	8	289.38	196	600	190	289.38	196	600	190
612-613	34.01	56.683333	5.35	8.916667	49.572976	81.66667	32.66667	-32.09369	114.33333	32.66667	8	289.38	196	600	190	289.38	196	600	190
509-511	91.55	152.58333	2.84	4.733333	138.911867	81.66667	32.66667	57.2452	114.33333	57.2452	8	165.13	196	600	130	289.38	196	600	190
567-569	87.21	145.35	0.72	1.2	132.32664	81.66667	32.66667	50.65997	114.33333	50.65997	8	186.60	196	600	140	289.38	196	600	190
582-584	91.82	153.03333	1.15	1.916667	139.321547	81.66667	32.66667	57.65488	114.33333	57.65488	8	163.96	196	600	140	289.38	196	600	190
614-616	37.9	63.166667	1.28	2.133333	57.5089333	81.66667	32.66667	-24.15973	114.33333	32.66667	8	289.38	196	600	190	289.38	196	600	190
570-571	69.65	116.08333	12.52	20.86667	101.52184	81.66667	32.66667	19.85517	114.33333	32.66667	8	289.38	196	600	190	289.38	196	600	190
585-586	76.35	127.25	8.87	14.78333	111.28776	81.66667	32.66667	29.62109	114.33333	32.66667	8	289.38	196	600	190	289.38	196	600	190
617-618	34.03	56.716667	4.99	8.316667	49.602128	81.66667	32.66667	-32.06454	114.33333	32.66667	8	289.38	196	600	190	289.38	196	600	190
533-535	98.38	163.96667	4.16	6.933333	149.275253	81.66667	32.66667	67.60859	114.33333	67.60859	8	139.82	196	600	130	289.38	196	600	190
572-574	96.33	160.55	4.53	7.55	146.16472	81.66667	32.66667	64.49805	114.33333	64.49805	8	146.57	196	600	140	289.38	196	600	190
587-589	132.45	220.75	364	606.6667	200.9708	81.66667	32.66667	119.3041	114.33333	119.3041	8	79.24	196	600	140	289.38	196	600	190
619-621	41.01	68.35	3.45	5.75	62.22584	81.66667	32.66667	-19.44083	114.33333	32.66667	8	289.38	196	600	190	289.38	196	600	190
575	75.68	126.13333	15.25	25.41667	104.459134	81.66667	32.66667	22.79247	114.33333	32.66667	8	289.38	196	600	190	289.38	196	600	190

622	31.33	52.216667	4.26	7.1	43.2439836	81.66667	32.66667	-38.42268	114.33333	32.66667	8	289.38	196	600	190	289.38	196	600	190
488	49.84	83.066667	24.98	41.63333	59.3851152	81.66667	32.66667	-22.28155	114.33333	32.66667	8	289.38	196	600	190	289.38	196	600	190
493	53.97	89.95	31.31	52.18333	64.3060727	81.66667	32.66667	-17.36059	114.33333	32.66667	8	289.38	196	600	190	289.38	196	600	190
494-496	84.45	140.75	13.16	21.93333	128.820486	81.66667	32.66667	47.15382	114.33333	47.15382	8	200.47	196	600	190	289.38	196	600	190
625	48.43	80.716667	29.68	49.46667	55.1482357	81.66667	32.66667	-26.51843	114.33333	32.66667	8	289.38	196	600	190	289.38	196	600	190
706	60.68	101.13333	38.03	63.38333	72.3011394	81.66667	32.66667	-9.365527	114.33333	32.66667	8	289.38	196	600	190	289.38	196	600	190
497-499	95.83	159.71667	4.85	8.083333	146.1796	81.66667	32.66667	64.51293	114.33333	64.51293	8	146.53	196	600	140	289.38	196	600	190
626	52.64	87.733333	33.88	56.46667	59.9422492	81.66667	32.66667	-21.72442	114.33333	32.66667	8	289.38	196	600	190	289.38	196	600	190
484	86.99	144.98333	62.13	103.55	103.649903	81.66667	32.66667	21.98324	114.33333	32.66667	8	289.38	196	600	190	289.38	196	600	190
505-507	69.99	116.65	6.96	11.6	106.763124	81.66667	32.66667	25.09646	114.33333	32.66667	8	289.38	196	600	190	289.38	196	600	190
628	46.29	77.15	27.53	45.88333	52.7113737	81.66667	32.66667	-28.95529	114.33333	32.66667	8	289.38	196	600	190	289.38	196	600	190
508	92.73	154.55	67.87	113.1167	110.4892	81.66667	32.66667	28.82253	114.33333	32.66667	8	289.38	196	600	190	289.38	196	600	190
516	62.57	104.28333	39.91	66.51667	74.553103	81.66667	32.66667	-7.113564	114.33333	32.66667	8	289.38	196	600	190	289.38	196	600	190
517-519	99.26	165.43333	5.53	9.216667	151.411741	81.66667	32.66667	69.74507	114.33333	69.74507	8	135.54	196	600	130	289.38	196	600	190
630	52.88	88.133333	28.94	48.23333	60.2155421	81.66667	32.66667	-21.45112	114.33333	32.66667	8	289.38	196	600	190	289.38	196	600	190
636	48.44	80.733333	29.68	49.46667	55.1596229	81.66667	32.66667	-26.50704	114.33333	32.66667	8	289.38	196	600	190	289.38	196	600	190
523	62.57	104.28333	39.92	66.53333	74.553103	81.66667	32.66667	-7.113564	114.33333	32.66667	8	289.38	196	600	190	289.38	196	600	190
520-522	99.26	165.43333	5.55	9.25	151.411741	81.66667	32.66667	69.74507	114.33333	69.74507	8	135.54	196	600	130	289.38	196	600	190
631	52.89	88.15	34.14	56.9	60.2269293	81.66667	32.66667	-21.43974	114.33333	32.66667	8	289.38	196	600	190	289.38	196	600	190
512	92.32	153.86667	67.45	112.4167	110.000679	81.66667	32.66667	28.33401	114.33333	32.66667	8	289.38	196	600	190	289.38	196	600	190
529-531	69.91	116.51667	7.34	12.23333	106.641092	81.66667	32.66667	24.97443	114.33333	32.66667	8	289.38	196	600	190	289.38	196	600	190
633	46.27	77.116667	27.51	45.85	52.6885993	81.66667	32.66667	-28.97807	114.33333	32.66667	8	289.38	196	600	190	289.38	196	600	190
532	87.67	146.11667	62.81	104.6833	104.460133	81.66667	32.66667	22.79347	114.33333	32.66667	8	289.38	196	600	190	289.38	196	600	190
540	60.63	101.05	37.97	63.28333	72.2415636	81.66667	32.66667	-9.425103	114.33333	32.66667	8	289.38	196	600	190	289.38	196	600	190
541-543	95.73	159.55	5.02	8.366667	146.027059	81.66667	32.66667	64.36039	114.33333	64.36039	8	146.88	196	600	140	289.38	196	600	190
635	52.6	87.666667	33.85	56.41667	59.8967003	81.66667	32.66667	-21.76997	114.33333	32.66667	8	289.38	196	600	190	289.38	196	600	190
544	53.97	89.95	25.97	43.28333	64.3060727	81.66667	32.66667	-17.36059	114.33333	32.66667	8	289.38	196	600	190	289.38	196	600	190
545-547	84.85	141.41667	13.1	21.83333	129.430649	81.66667	32.66667	47.76398	114.33333	47.76398	8	197.91	196	600	190	289.38	196	600	190
536	48.19	80.316667	22.44	37.4	57.4191152	81.66667	32.66667	24.24755	114.33333	32.66667	8	289.38	196	600	190	289.38	196	600	190

Tabel 48. Penulangan geser Balok Anak Lantai 4

Frame	Vu Tump KN	Vu/φ Tump KN	Vu Lap KN	Vu/φ Lap KN	Vu/φ Kritis KN	Vc KN	Vs min KN	Vu/φ-Vc KN	Vc+Vs min KN	V pakai KN	D mm	Daerah I				Daerah II											
												s mm	< d/2 mm	< 600 mm	s pakai mm	s mm	< d/2 mm	< 600 mm	s pakai mm								
648	20.35	33.917	1.45	2.417	28.089	81.667	32.667	-53.578	114.333	32.6667	8	289.3824	196	600	600	289.3824	196	600	600	289.3824	196	600	600				
642	22.12	36.867	3.11	5.183	30.532	81.667	32.667	-51.135	114.333	32.6667	8	289.3824	196	600	600	289.3824	196	600	600	289.3824	196	600	600	289.3824	196	600	600
666-668	38.68	64.467	2.02	3.367	58.69	81.667	32.667	-22.976	114.333	32.6667	8	289.3824	196	600	600	289.3824	196	600	600	289.3824	196	600	600	289.3824	196	600	600
669-670	28.58	47.633	2.54	4.233	41.658	81.667	32.667	-40.008	114.333	32.6667	8	289.3824	196	600	600	289.3824	196	600	600	289.3824	196	600	600	289.3824	196	600	600
671-673	36.64	61.067	1	1.667	55.595	81.667	32.667	-26.072	114.333	32.6667	8	289.3824	196	600	600	289.3824	196	600	600	289.3824	196	600	600	289.3824	196	600	600
674-675	28.56	47.6	2.52	4.2	41.629	81.667	32.667	-40.038	114.333	32.6667	8	289.3824	196	600	600	289.3824	196	600	600	289.3824	196	600	600	289.3824	196	600	600
676-678	38.12	63.533	2	3.333	57.841	81.667	32.667	-23.826	114.333	32.6667	8	289.3824	196	600	600	289.3824	196	600	600	289.3824	196	600	600	289.3824	196	600	600
679	22.17	36.95	3.24	5.4	30.601	81.667	32.667	-51.066	114.333	32.6667	8	289.3824	196	600	600	289.3824	196	600	600	289.3824	196	600	600	289.3824	196	600	600
687	20.36	33.933	1.54	2.567	28.102	81.667	32.667	-53.564	114.333	32.6667	8	289.3824	196	600	600	289.3824	196	600	600	289.3824	196	600	600	289.3824	196	600	600
702	22.34	37.233	9.56	15.93	25.439	81.667	32.667	-56.228	114.333	32.6667	8	289.3824	196	600	600	289.3824	196	600	600	289.3824	196	600	600	289.3824	196	600	600
701	23.11	38.517	11.92	19.87	26.316	81.667	32.667	-55.351	114.333	32.6667	8	289.3824	196	600	600	289.3824	196	600	600	289.3824	196	600	600	289.3824	196	600	600
699	18.24	30.4	5.91	9.85	20.77	81.667	32.667	-60.896	114.333	32.6667	8	289.3824	196	600	600	289.3824	196	600	600	289.3824	196	600	600	289.3824	196	600	600
697	22.2	37	9.51	15.85	25.28	81.667	32.667	-56.387	114.333	32.6667	8	289.3824	196	600	600	289.3824	196	600	600	289.3824	196	600	600	289.3824	196	600	600
696	22.2	37	9.49	15.82	25.28	81.667	32.667	-56.387	114.333	32.6667	8	289.3824	196	600	600	289.3824	196	600	600	289.3824	196	600	600	289.3824	196	600	600
694	18.25	30.417	7.06	11.77	20.782	81.667	32.667	-60.885	114.333	32.6667	8	289.3824	196	600	600	289.3824	196	600	600	289.3824	196	600	600	289.3824	196	600	600
691	23.1	38.5	11.91	19.85	26.304	81.667	32.667	-55.362	114.333	32.6667	8	289.3824	196	600	600	289.3824	196	600	600	289.3824	196	600	600	289.3824	196	600	600
690	22.33	37.217	11.14	18.57	25.428	81.667	32.667	-56.239	114.333	32.6667	8	289.3824	196	600	600	289.3824	196	600	600	289.3824	196	600	600	289.3824	196	600	600

Tabel 50. Penulangan geser Balok Induk Lantai 2

Balok	Ln	Mnak,b		VD	VL	VE	1.05*VG	Vub,1	Vub,2	Vub pakai	Vub'	D	Daerah sendi plastis				Daerah luar sendi							
		KN	KN										Vu	Vs	s	Tul geser	Vu	Vc	Vs	Vs	min	s	tul geser	
	m	KN	KN	KN	KN	KN	KN	KN	KN	KN	KN	mm	KN	KN	mm	mm	KN	KN	KN	mm	mm	mm	mm	
177	3.9625	435.96	599.77	58.45	10.6	63.87	7.25E+01	3.01E+02	340.7565	301.2126	-156.208	10	2.32E+02	3.87E+02	58.4815	P10-50	139.6	175	57.6674	70	392.042	70	392.042	P10 - 300
265-267	8.15	577.7	577.7	148.95	49.35	18.86	2.08E+02	3.32E+02	287.427	287.427	84.169	10	2.72E+02	4.54E+02	49.7858	2P10-80	252.512	175	245.853	70	91.9576	70	91.9576	2P10-140
191-192	5.65	516.31	516.31	77.53	12.25	34.81	9.43E+01	2.54E+02	240.471	240.471	-65.65	10	2.08E+02	3.47E+02	65.2271	P10-60	164.618	175	99.3633	70	227.529	70	227.529	P10-180
268-270	8.15	577.7	577.7	154.32	51.27	18.44	2.16E+02	3.40E+02	293.3175	293.3175	91.8235	10	2.78E+02	4.64E+02	48.7095	2P10-80	258.705	175	256.175	70	88.2522	70	88.2522	2P10-140
225-226	5.65	516.31	516.31	77.65	12.25	34.8	9.44E+01	2.54E+02	240.555	240.555	-65.524	10	2.08E+02	3.47E+02	65.1994	P10-60	164.712	175	99.5207	70	227.169	70	227.169	P10-180
271-273	8.15	577.7	577.7	149.45	49.48	18.88	2.09E+02	3.33E+02	288.1725	288.1725	84.8305	10	2.73E+02	4.55E+02	49.6511	2P10-80	253.243	175	247.071	70	91.5041	70	91.5041	2P10-140
259	3.9625	599.77	435.96	58.85	10.74	63.88	7.31E+01	3.02E+02	341.3655	301.7796	-155.641	10	2.33E+02	3.88E+02	58.3389	P10-50	140.167	175	58.6124	70	385.721	70	385.721	P10 - 300
289	3.9625	599.77	599.77	47.27	15.26	68.32	6.57E+01	3.31E+02	352.6005	330.5391	-199.226	10	2.50E+02	4.17E+02	54.1893	P10-50	143.367	175	63.9443	70	353.558	70	353.558	P10 - 300
303	3.9625	599.77	599.77	47.27	15.38	68.31	6.58E+01	3.31E+02	352.695	331.0956	-199.1	10	2.50E+02	4.17E+02	54.1621	P10-50	143.923	175	64.1543	70	352.401	70	352.401	P10 - 300
304	3.9625	599.77	599.77	45.27	17.79	69.21	6.62E+01	3.31E+02	352.6845	330.6651	-198.67	10	2.51E+02	4.18E+02	54.0691	P10-50	143.923	175	64.8718	70	348.503	70	348.503	P10 - 300
305-307	8.15	657.7	657.7	190.04	53.49	22.16	2.56E+02	3.97E+02	348.7785	348.7785	114.483	10	3.32E+02	5.53E+02	40.9158	2P10-80	308.531	175	339.219	70	66.6472	70	66.6472	2P10-140
308-309	5.65	516.31	516.31	80.01	22.2	35.5	1.07E+02	2.67E+02	256.4205	256.4205	-52.5985	10	2.24E+02	3.73E+02	60.6643	P10-60	179.849	175	124.749	70	181.228	70	181.228	P10-180
310-312	8.15	657.7	657.7	182.78	50.26	21.46	2.45E+02	3.86E+02	334.824	334.824	103.468	10	3.18E+02	5.30E+02	42.6846	2P10-80	295.082	175	316.803	70	71.3629	70	71.3629	2P10-140
313-314	5.65	516.31	516.31	79.27	27.91	33.36	1.13E+02	2.72E+02	252.651	252.651	-47.38	10	2.21E+02	3.68E+02	61.4378	P10-60	178.307	175	122.178	70	185.041	70	185.041	P10-180
315-317	8.15	652.9	577.7	178.08	48.57	22.68	2.38E+02	3.70E+02	333.2385	333.2385	105.863	10	3.16E+02	5.27E+02	42.8589	2P10-80	294.18	175	315.3	70	71.7031	70	71.7031	2P10-140
318	3.9625	599.77	599.77	45.92	15.41	67.93	6.44E+01	3.29E+02	349.7025	329.2791	-200.486	10	2.49E+02	4.15E+02	54.4635	P10-50	142.107	175	61.8443	70	365.563	70	365.563	P10 - 300
160-161	5.65	516.31	435.96	79.42	13.23	39.65	9.73E+01	2.45E+02	263.8125	244.7579	-50.1929	10	2.13E+02	3.56E+02	63.5545	P10-60	171.673	175	111.121	70	203.453	70	203.453	P10-190
162	2.4	677.01	519.42	44.58	11.74	113.1	5.91E+01	4.95E+02	533.988	495.3344	-377.062	10	2.77E+02	4.62E+02	48.9288	2P10-80	-13.5637	175	-197.61	70	322.971	70	322.971	P10 - 300
163	2.7	352.5	500	70.27	17.27	2.68	9.19E+01	3.68E+02	103.173	103.173	-184.356	10	3.93E+01	6.55E+01	345.357	P10-150	-45.9162	175	-251.53	70	322.971	70	322.971	P10 - 300
178-179	5.65	751.15	676.6	132.59	37.26	45.72	1.78E+02	3.99E+02	370.3665	370.3665	-42.7692	10	3.26E+02	5.44E+02	41.5469	2P10-80	267.997	175	271.661	70	83.2214	70	83.2214	2P10-160
180	2.4	751.15	680.12	63.65	16.73	137.5	8.44E+01	6.06E+02	661.773	606.2162	-437.418	10	3.45E+02	5.76E+02	39.2832	2P10-80	-2.57053	175	-179.28	70	322.971	70	322.971	P10 - 300
181	2.7	352.5	500	94.37	30.69	1.85	1.31E+02	4.08E+02	139.083	139.083	-144.96	10	7.60E+01	1.27E+02	178.573	P10-150	-8.19863	175	-188.66	70	322.971	70	322.971	P10 - 300
168	2.7	352.5	516.31	69.44	20.55	3.1	9.45E+01	3.76E+02	107.5095	107.5095	-187.069	10	4.20E+01	7.01E+01	322.606	P10-150	-45.2351	175	-250.39	70	322.971	70	322.971	P10 - 300
169-171	8.65	733.7	657.7	204.69	59.33	45.55	2.77E+02	4.18E+02	468.531	417.9696	136.472	10	3.98E+02	6.64E+02	34.0445	2P10-60	372.409	175	445.682	70	50.7267	70	50.7267	2P10-100

193-195	8.65	733.7	657.7	203.27	60.44	50.94	2.77E+02	4.18E+02	490.8435	417.6441	136.147	10	3.98E+02	6.64E+02	34.0723	2P10-60	372.084	175	445.14	70	50.7885	2P10-100
196	2.175	352.5	516.31	72.27	20.81	7.27	9.77E+01	4.47E+02	128.268	128.268	-251.787	10	2.34E+01	3.90E+01	579.069	P10-150	-116.365	175	-368.94	70	322.971	P10-300
208-210	8.65	657.7	657.7	209.2	60.86	51	2.84E+02	4.17E+02	497.763	416.6237	150.502	10	3.98E+02	6.64E+02	34.0683	2P10-60	373.552	175	447.587	70	50.5109	2P10-100
211	2.175	352.5	516.31	71.05	20.47	7.01	9.61E+01	4.46E+02	125.538	125.538	-253.425	10	2.10E+01	3.50E+01	646.053	P10-150	-118.392	175	-372.32	70	322.971	P10-300
227-229	8.65	657.7	652.9	207.2	59.56	45.39	2.80E+02	4.13E+02	470.736	412.6731	147.523	10	3.94E+02	6.57E+02	34.4039	2P10-60	369.759	175	441.264	70	51.2346	2P10-100
230	2.175	352.5	516.31	74.1	21.44	6.24	1.00E+02	4.50E+02	126.525	126.525	-249.204	10	2.29E+01	3.81E+01	592.983	P10-150	-115.324	175	-367.21	70	322.971	P10-300
242-243	5.65	751.15	677.01	132.34	37.16	45.28	1.78E+02	3.99E+02	368.151	368.151	-43.2002	10	3.24E+02	5.41E+02	41.8063	2P10-80	266.223	175	268.705	70	84.1367	2P10-160
244	2.4	677.01	680.12	46.6	10.31	137.2	5.98E+01	5.55E+02	635.8275	554.5425	-435.031	10	3.07E+02	5.12E+02	44.1636	2P10-80	-22.709	175	-212.85	70	322.971	P10-300
245	2.175	352.5	516.31	71.71	20.76	2.91	9.71E+01	4.47E+02	109.3155	109.3155	-252.428	10	9.52E+00	1.59E+01	1424.24	P10-150	-123.531	175	-380.88	70	322.971	P10-300
260-261	5.65	516.31	516.31	78.33	12.82	39.62	9.57E+01	2.56E+02	262.1115	255.6265	-64.2115	10	2.22E+02	3.69E+02	61.196	P10-60	176.375	175	118.958	70	190.051	P10-190
262	2.4	677.01	519.42	34.89	8.44	113	4.55E+01	4.82E+02	519.9705	481.6949	-390.702	10	2.64E+02	4.39E+02	51.4606	2P10-80	-27.2032	175	-220.34	70	322.971	P10-300
263	2.175	352.5	352.5	34.99	8.3	3.42	4.55E+01	3.29E+02	59.8185	59.8185	-238.166	10	-2.24E+01	-3.73E+01	-606	P10-150	-131.988	175	-394.98	70	322.971	P10-300



Tabel 51. Penulangan geser Balok Induk Lantai 3

Balok	Ln m	Daerah sendi plastis										Daerah luar sendi									
		Mnak,b KN	Mnak,b' KN	VD KN	VL KN	VE KN	1.05*VG KN	Vub,1 KN	Vub,2 KN	Vub pakai KN	Vub' KN	D mm	Vu sejauh d KN	Vs KN	s mm	Tul geser mm	Vu sejauh 2h KN	Vc KN	Vs min KN	s mm	tul geser mm
336	3.9625	435.96	435.96	50.85	8.08	48.1	6.19E+01	2.54E+02	263.897	254.41	-130.66	1.96E+02	3.27E+02	69.171	P10-60	118.362	175	22.27	70	1015.156	P10-300
424-426	8.15	577.671	577.671	148.77	49.46	15.47	2.08E+02	3.32E+02	273.116	273.12	84.1017	2.59E+02	4.32E+02	52.333	2P10-100	240.647	175	226.08	70	100.0008	P10-100
350-351	5.65	516.31	516.31	77.37	12.16	27.12	9.40E+01	2.54E+02	207.911	207.91	-65.913	1.79E+02	2.98E+02	75.852	2P10-140	140.061	175	58.434	70	386.8964	P10-300
427-429	8.15	652.895	652.895	152.85	50.85	14.59	2.14E+02	3.54E+02	275.163	275.16	73.6928	2.60E+02	4.34E+02	52.106	2P10-100	240.555	175	225.92	70	100.0689	P10-100
384-385	5.65	516.31	516.31	77.5	12.15	27.03	9.41E+01	2.54E+02	207.659	207.66	-65.787	1.79E+02	2.98E+02	75.942	2P10-140	139.902	175	58.17	70	388.6516	P10-300
430-432	8.15	577.671	577.671	148.78	49.41	15.46	2.08E+02	3.32E+02	273.011	273.01	84.0387	2.59E+02	4.32E+02	52.354	2P10-100	240.549	175	225.92	70	100.073	P10-100
418	3.9625	435.96	435.96	51.08	8.16	48.1	6.22E+01	2.55E+02	264.222	254.74	-130.34	1.96E+02	3.27E+02	69.056	P10-60	118.688	175	22.813	70	991.0156	P10-300
448	3.9625	435.96	435.96	60.9	13.96	51.03	7.86E+01	2.71E+02	292.929	271.14	-113.93	2.13E+02	3.55E+02	63.735	P10-60	135.089	175	50.148	70	450.8259	P10-300
462	3.9625	435.96	435.96	60.89	13.95	51.01	7.86E+01	2.71E+02	292.824	271.12	-113.96	2.13E+02	3.55E+02	63.741	P10-60	135.068	175	50.113	70	451.1408	P10-300
463	3.9625	435.96	435.96	36.64	12.85	51.72	5.20E+01	2.45E+02	269.189	244.5	-140.57	1.86E+02	3.10E+02	72.853	P10-60	108.45	175	5.7505	70	3931.511	P10-300
464-466	8.15	577.671	577.671	178.57	48.91	18.65	2.39E+02	3.71E+02	317.184	317.18	106.738	3.02E+02	5.03E+02	44.963	2P10-80	281.034	175	293.39	70	77.05794	2P10-140
467-468	5.65	593.55	593.55	109.85	27.35	28.75	1.44E+02	3.43E+02	264.81	264.81	-55.27	2.31E+02	3.85E+02	58.768	2P10-100	185.498	175	134.16	70	168.5105	P10-150
469-471	8.15	657.684	657.684	184.5	50.82	17.18	2.47E+02	3.88E+02	319.242	319.24	105.87	3.04E+02	5.06E+02	44.69	2P10-80	282.589	175	295.98	70	78.38306	2P10-140
472-473	5.65	593.55	593.55	112.22	28.01	28.75	1.47E+02	3.31E+02	267.992	267.99	-36.601	2.36E+02	3.93E+02	57.564	2P10-100	192.517	175	145.86	70	154.9959	P10-150
474-476	8.15	652.895	652.895	178.5	48.82	18.68	2.39E+02	3.71E+02	317.142	317.14	106.57	3.02E+02	5.03E+02	44.97	2P10-80	280.97	175	293.28	70	77.08581	2P10-140
477	3.9625	435.96	435.96	37.29	13.14	51.8	5.30E+01	2.45E+02	270.512	245.49	-139.59	1.87E+02	3.12E+02	72.469	P10-60	109.437	175	7.3955	70	3057.01	P10-300
319-320	5.65	516.31	516.31	79.54	13.3	32.83	9.75E+01	2.45E+02	235.368	235.37	-49.993	2.05E+02	3.42E+02	66.149	2P10-120	164.659	175	99.432	70	227.3723	P10-220
321	2.4	599.77	435.96	38.97	9.11	84.59	5.05E+01	4.28E+02	405.762	405.76	-327.13	2.23E+02	3.71E+02	60.954	2P10-120	-21.7659	175	-211.26	70	-107.015	2P10-200
327	2.175	352.5	352.5	35.46	8.4	2.38	4.61E+01	3.30E+02	56.049	56.049	-237.57	-2.49E+01	-4.16E+01	-54.37	P10-150	-132.946	175	-396.58	70	-57.008	P10-300
337-338	5.65	667.69	516.31	135.74	38.07	38.46	1.83E+02	3.66E+02	344.033	344.03	-0.8623	3.07E+02	5.12E+02	44.127	2P10-80	258.572	175	255.95	70	88.3287	2P10-160
339	2.4	599.77	519.42	48.37	11.43	103.23	6.28E+01	4.71E+02	496.356	470.83	-345.25	2.67E+02	4.45E+02	50.841	2P10-100	-5.21634	175	-183.69	70	-123.074	2P10-240
340	2.175	352.5	516.31	71.26	20.67	2.09	9.65E+01	4.46E+02	105.305	105.3	-252.99	6.46E+00	1.08E+01	2098.7	P10-150	-125.325	175	-383.87	70	-58.8942	P10-300
328-330	8.65	652.895	652.895	210.19	61.18	38.5	2.85E+02	4.17E+02	446.639	417.03	152.85	3.99E+02	6.65E+02	34.022	2P10-60	374.27	175	448.78	70	50.37619	2P10-100
606	2.175	352.5	516.31	72.81	21.03	5.15	9.85E+01	4.48E+02	120.162	120.16	-250.99	1.78E+01	2.96E+01	763.12	P10-150	-118.74	175	-372.9	70	-60.6275	P10-300

352-354	8.65	652.895	577.671	212.63	61.95	43.26	2.88E+02	4.13E+02	470.001	412.79	163.83	10	3.96E+02	6.59E+02	34.296	2P10-60	372.494	175	445.82	70	50.7106	2P10-100
355	2.175	352.5	516.31	70.88	20.4	5.99	9.58E+01	4.45E+02	121.002	121	-253.68	10	1.76E+01	2.94E+01	768.88	P10-150	-120.171	175	-375.28	70	-60.2423	P10-300
367-369	8.65	652.895	652.895	212.65	61.9	43.28	2.88E+02	4.20E+02	470.054	420.37	156.189	10	4.02E+02	6.70E+02	33.74	2P10-60	377.609	175	454.35	70	49.75916	2P10-100
370	2.175	352.5	516.31	70.83	20.39	5.98	9.58E+01	4.45E+02	120.897	120.9	-253.74	10	1.75E+01	2.92E+01	772.98	P10-150	-120.249	175	-375.41	70	-60.2214	P10-300
386-388	8.65	652.895	652.895	210.18	60.51	38.61	2.84E+02	4.16E+02	446.387	416.31	152.136	10	3.98E+02	6.63E+02	34.083	2P10-60	373.556	175	447.59	70	50.51012	2P10-100
389	2.175	352.5	516.31	72.84	21.06	5.2	9.86E+01	4.48E+02	120.435	120.44	-250.93	10	1.80E+01	3.00E+01	754	P10-150	-118.602	175	-372.67	70	-60.6649	P10-300
401-402	5.65	667.69	516.31	134.61	37.63	38.43	1.81E+02	3.64E+02	342.258	342.26	-2.5108	10	3.08E+02	5.09E+02	44.381	2P10-80	256.829	175	253.05	70	89.34288	2P10-160
403	2.4	599.77	519.42	49.98	12.11	103.15	6.52E+01	4.73E+02	498.425	473.23	-342.84	10	2.69E+02	4.49E+02	50.387	2P10-100	-2.81184	175	-179.69	70	-125.819	2P10-240
404	2.175	352.5	516.31	71.26	20.68	2.1	9.65E+01	4.46E+02	105.357	105.36	-252.98	10	6.50E+00	1.08E+01	2085.5	P10-150	-125.299	175	-383.83	70	-58.9007	P10-300
419-420	5.65	516.31	435.96	78.58	12.95	32.75	9.61E+01	2.44E+02	233.657	233.66	-51.369	10	2.03E+02	3.39E+02	66.694	2P10-120	163.031	175	96.718	70	233.752	P10-220
421	2.4	599.77	435.96	38.37	8.84	84.35	4.96E+01	4.27E+02	403.841	403.84	-328.04	10	2.21E+02	3.68E+02	61.415	2P10-120	-23.0894	175	-213.48	70	-105.901	2P10-200
422	2.175	352.5	352.5	35.45	8.39	2.38	4.60E+01	3.30E+02	56.028	56.028	-237.59	10	-2.50E+01	-4.16E+01	-543.3	P10-150	-132.967	175	-396.61	70	-57.0029	P10-300

Tabel 52. Penulangan geser Balok Induk Lantai 4

Balok	Ln		Mnak,b		VD	VL	VE	1.05*VG	Vub,1	Vub,2	Vub pakai	Vub'	D	Daerah sendi plastis				Daerah luar sendi				
	m	KN	KN	KN										Vu	Vs	s	Tul geser	Vc	Vs	Vs min	s	tul geser
489	3,9625	352,5	435,96	60,54	11,41	26,09	7,55E+01	2,50E+02	185,13	185,126	-98,56039	10	1,42E+02	2,37E+02	95,413	P10-90	175	-33,507	70	322,97	P10-300	
576	3,9625	352,5	435,96	66,73	16,03	32,62	8,69E+01	2,61E+02	223,9	223,902	-87,20989	10	1,77E+02	2,95E+02	76,727	P10-70	175	14,971	70	1510,2	P10-300	
591	3,9625	435,96	435,96	35,52	13,25	30,43	5,12E+01	2,44E+02	179,01	179,015	-141,329	10	1,31E+02	2,18E+02	103,94	P10-100	175	-65,278	70	322,97	P10-300	
552-554	8,15	577,671	577,671	149,49	49,61	9,09	2,09E+02	3,33E+02	247,23	247,233	85,01521	10	2,35E+02	3,92E+02	57,651	2P10-80	175	190,61	70	118,61	P10-110	
592-594	8,15	577,671	652,895	178,14	48,76	12,74	2,38E+02	3,70E+02	291,75	291,753	106,129	10	2,78E+02	4,63E+02	48,779	2P10-80	175	258,11	70	87,59	P10-80	
500-501	5,65	435,96	435,96	77,59	12,23	13,95	9,43E+01	2,29E+02	152,9	152,901	-40,72086	10	1,32E+02	2,21E+02	102,5	P10-60	175	-0,1268	70	322,97	P10-300	
595-596	5,65	516,31	593,55	112,81	28,22	18,75	1,48E+02	3,20E+02	226,83	226,832	-23,79947	10	2,00E+02	3,34E+02	67,751	P10-60	175	99,547	70	322,97	P10-300	
555-557	8,15	577,671	577,671	154,2	51,15	8	2,16E+02	3,40E+02	249,22	249,218	91,57771	10	2,38E+02	3,96E+02	57,088	2P10-80	175	195,23	70	115,8	P10-110	
597-599	8,15	657,664	657,664	184,42	50,73	11,73	2,47E+02	3,88E+02	296,17	296,174	105,6913	10	2,82E+02	4,70E+02	48,077	2P10-80	175	264,09	70	85,608	P10-80	
524-525	5,65	435,96	435,96	77,63	77,63	13,95	1,63E+02	2,98E+02	226,6	226,601	-23,98847	10	2,00E+02	3,33E+02	67,469	P10-60	175	114,39	70	322,97	P10-300	
600-601	5,65	593,55	516,31	112,71	28,14	18,74	1,48E+02	3,20E+02	247,21	247,212	85,00076	10	2,35E+02	3,92E+02	57,656	2P10-80	175	190,58	70	322,97	P10-300	
558-560	8,15	577,671	577,671	149,51	49,57	9,09	2,09E+02	3,33E+02	291,63	291,63	105,961	10	2,79E+02	4,63E+02	48,802	2P10-80	175	257,89	70	87,666	P10-80	
602-604	8,15	652,895	577,671	178,06	48,68	12,75	2,38E+02	3,70E+02	285,34	185,34	185,336	-98,35039	10	1,42E+02	2,37E+02	95,272	P10-90	175	-33,157	70	322,97	P10-300
548	3,9625	435,96	352,5	60,69	11,46	26,09	7,58E+01	2,50E+02	223,82	223,818	-87,29389	10	1,77E+02	2,95E+02	76,763	P10-70	175	14,831	70	1524,4	P10-300	
590	3,9625	435,96	352,5	66,67	16,01	32,62	8,68E+01	2,61E+02	223,82	223,818	-87,29389	10	1,77E+02	2,95E+02	76,763	P10-70	175	14,831	70	1524,4	P10-300	
605	3,9625	435,96	435,96	35,46	13,36	30,43	5,13E+01	2,44E+02	179,07	179,067	-141,2765	10	1,31E+02	2,18E+02	103,9	P10-100	175	-65,191	70	322,97	P10-300	
478-479	5,65	435,96	435,96	78,27	12,79	23,96	9,56E+01	2,31E+02	196,25	196,245	-39,41886	10	1,71E+02	2,85E+02	79,225	P10-70	175	54,751	70	412,93	P10-300	
480	2,4	435,96	352,5	35,59	7,82	48,88	4,56E+01	3,33E+02	250,88	250,877	-241,8789	10	1,28E+02	2,13E+02	106,23	P10-90	175	-235,94	70	322,97	P10-300	
607	2,175	352,5	352,5	35,79	8,47	1,43	4,65E+01	3,30E+02	52,479	52,479	-237,1477	10	-2,74E+01	-4,57E+01	494,74	P10-150	175	-398,25	70	322,97	P10-300	
490-491	5,65	593,55	516,31	137,65	38,23	25,09	1,85E+02	3,57E+02	290,05	290,052	12,79303	10	2,61E+02	4,34E+02	52,05	2P10-100	175	193,92	70	116,59	P10-110	
492	2,4	435,96	352,5	43,5	10,21	49,04	5,64E+01	3,44E+02	262,36	262,364	-231,0639	10	1,39E+02	2,32E+02	97,584	P10-90	175	-217,45	70	322,97	P10-300	
624	2,175	352,5	516,31	70,7	20,52	1,04	9,58E+01	4,45E+02	100,15	100,149	-253,7403	10	2,52E+00	4,21E+00	5373,5	P10-150	175	-387,74	70	322,97	P10-300	
481-483	8,65	652,895	652,895	211,4	61,35	22,46	2,86E+02	4,18E+02	380,72	380,72	154,2989	10	3,65E+02	6,08E+02	37,162	2P10-60	175	398,46	70	56,739	2P10-100	
627	2,175	352,5	516,31	73,35	21,24	2,83	9,93E+01	4,49E+02	111,21	111,206	-250,2018	10	1,15E+01	1,92E+01	1178,8	P10-150	175	-377,37	70	322,97	P10-300	

502-504	8.65	652.895	652.895	214.12	62.13	25.18	2.90E+02	4.22E+02	395.82	395.819	157.9739	10	3.79E+02	6.32E+02	35.761	2P10-60	357.3234	175	420.54	70	53.76	2P10-100
629	2.175	352.5	516.31	71.11	20.51	3.47	9.62E+01	4.46E+02	110.78	110.775	-253.3203	10	1.03E+01	1.72E+01	1312.5	P10-150	-123.5852	175	-380.98	70	322.97	P10-300
513-515	8.65	577.671	652.895	214.15	62.09	25.2	2.90E+02	4.15E+02	395.89	395.892	165.5728	10	3.80E+02	6.33E+02	35.705	2P10-60	358.6149	175	422.69	70	53.486	2P10-100
632	2.175	352.5	516.31	71.1	20.53	3.48	9.62E+01	4.46E+02	110.83	110.828	-253.3098	10	1.04E+01	1.73E+01	1307.3	P10-150	-123.5597	175	-380.93	70	322.97	P10-300
526-528	8.65	577.671	577.671	211.43	60.7	21.72	2.86E+02	4.03E+02	376.96	376.961	168.8666	10	3.63E+02	6.04E+02	37.417	2P10-60	343.2806	175	397.13	70	56.928	2P10-100
634	2.175	352.5	516.31	73.33	21.24	2.85	9.93E+01	4.49E+02	111.27	111.269	-250.2228	10	1.15E+01	1.92E+01	1174.8	P10-150	-121.4155	175	-377.36	70	322.97	P10-300
537-538	5.65	593.55	516.31	137.33	38.09	25.08	1.84E+02	3.56E+02	289.53	289.527	12.31003	10	2.60E+02	4.33E+02	52.155	2P10-100	220.8361	175	193.06	70	117.1	P10-110
539	2.4	435.96	352.5	44.82	10.76	49.05	5.84E+01	3.46E+02	264.37	264.369	-229.1004	10	1.41E+02	2.35E+02	96.203	P10-90	-23.48814	175	-214.15	70	322.97	P10-300
638	2.175	352.5	516.31	70.75	20.56	1.04	9.59E+01	4.45E+02	100.24	100.244	-253.6458	10	2.62E+00	4.36E+00	5179.6	P10-150	-127.5473	175	-387.58	70	322.97	P10-300
549-550	5.65	435.96	435.96	77.87	12.64	23.9	9.50E+01	2.30E+02	195.42	195.416	-39.99636	10	1.70E+02	2.84E+02	79.598	P10-70	137.0834	175	53.472	70	422.8	P10-300
551	2.4	435.96	352.5	35.58	7.78	48.73	4.55E+01	3.33E+02	250.19	250.194	-241.9314	10	1.27E+02	2.12E+02	106.67	P10-90	-36.87914	175	-236.47	70	322.97	P10-300
623	2.175	352.5	352.5	35.76	8.45	1.42	4.64E+01	3.30E+02	52.385	52.3845	-237.2002	10	-2.75E+01	-4.58E+01	-493.25	P10-150	-134.0148	175	-398.36	70	322.97	P10-300

Tabel 53. Penulangan geser Balok Induk Lantai Atap

Balok	Ln	Mnak,b	Mnak,b'	VD	VL	VE	1.05*VG	Vub,1	Vub,2	Vub pakai	Vub'	D	Daerah sendi plastis				Daerah luar sendi										
													Vu	Vs	s	Tul geser	Vu sejauh d	Vs	s	Tul geser	Vu sejauh 2h	Vc	Vs	min	Vs	s	tul geser
	m	KN	KN	KN	KN	KN	KN	KN	KN	KN	KN	mm	KN	KN	mm	mm	mm	mm	KN	KN	KN	KN	mm	mm	mm	mm	mm
1	3.9625	352.5	352.5	23.99	3.34	11.19	2.87E+01	1.84E+02	75.6945	75.6945	-126.982	10	4.50E+01	7.50E+01	301.4041	P10-150	4.0865	175	-168.1892	70	323.0	P10-300					
5	5.65	352.5	352.5	41.6	3.52	7.44	4.74E+01	1.57E+02	78.624	78.624	-61.8054	10	6.37E+01	1.06E+02	212.911	P10-150	43.827	175	-101.9544	70	323.0	P10-300					
9	5.65	352.5	352.5	41.59	3.5	7.44	4.73E+01	1.57E+02	78.5925	78.5925	-61.8369	10	6.37E+01	1.06E+02	213.0163	P10-150	43.796	175	-102.0069	70	323.0	P10-300					
13	3.9625	352.5	352.5	24.06	3.38	11.19	2.88E+01	1.84E+02	75.81	75.81	-126.866	10	4.51E+01	7.52E+01	300.6326	P10-150	4.202	175	-167.9967	70	323.0	P10-300					
688	3.9625	352.5	352.5	28.37	5.99	16.22	3.61E+01	1.92E+02	104.202	104.202	-119.6	10	7.03E+01	1.17E+02	192.9176	P10-150	25.13	175	-133.1168	70	323.0	P10-300					
647	3.9625	352.5	352.5	28.35	5.99	16.22	3.61E+01	1.92E+02	104.181	104.181	-119.621	10	7.03E+01	1.17E+02	192.9752	P10-150	25.109	175	-133.1518	70	323.0	P10-300					
649	3.9625	352.5	352.5	33.36	7.44	12.37	4.28E+01	1.99E+02	94.794	94.794	-112.838	10	6.34E+01	1.06E+02	214.1098	P10-150	21.435	175	-139.275	70	323.0	P10-300					
650-652	8.15	435.96	435.96	72.1	6.2	6.09	8.22E+01	1.76E+02	107.793	107.793	-11.396	10	9.90E+01	1.65E+02	136.9928	P10-130	87.319	175	-29.46865	70	323.0	P10-300					
653-654	5.65	352.5	352.5	47.95	3.78	8.78	5.43E+01	1.63E+02	91.1925	91.1925	-54.8649	10	7.57E+01	1.28E+02	179.2342	P10-150	55.001	175	-83.3312	70	323.0	P10-300					
655-657	8.15	435.96	435.96	71.65	6.01	5.61	8.15E+01	1.75E+02	105.105	105.105	-12.068	10	9.65E+01	1.61E+02	140.5988	P10-140	84.977	175	-33.37147	70	323.0	P10-300					
658-659	5.65	352.5	352.5	47.9	3.75	8.77	5.42E+01	1.63E+02	91.0665	91.0665	-54.9489	10	7.56E+01	1.28E+02	179.5225	P10-150	54.886	175	-83.52385	70	323.0	P10-300					
660-662	8.15	435.96	435.96	72.15	6.21	6.06	8.23E+01	1.76E+02	107.73	107.73	-11.333	10	9.90E+01	1.65E+02	137.0672	P10-130	87.277	175	-29.53758	70	323.0	P10-300					
663	3.9625	352.5	352.5	33.14	7.34	12.36	4.25E+01	1.98E+02	94.416	94.416	-113.174	10	6.30E+01	1.05E+02	215.3732	P10-150	21.072	175	-139.8803	70	323.0	P10-300					
637-639	5.65	352.5	352.5	37.29	4.89	13.24	4.43E+01	1.53E+02	99.897	99.897	-64.8924	10	8.24E+01	1.37E+02	164.6269	P10-150	59.064	175	-76.55963	70	323.0	P10-300					
640	2.4	352.5	352.5	30.73	3.8	15.3	3.63E+01	2.93E+02	100.517	100.517	-220.775	10	2.02E+01	3.37E+01	671.7347	P10-150	-86.9	175	-319.839	70	323.0	P10-300					
641	2.175	352.5	352.5	30.29	3.39	5.04E-01	3.54E+01	3.19E+02	37.48	37.48	-248.257	10	-4.13E+01	-6.89E+01	-328.096	P10-150	-146.4	175	-419.0708	70	323.0	P10-300					
12	2.15	352.5	352.5	23.3	6.55	19.86	3.13E+01	3.18E+02	114.755	114.755	-255.576	10	1.14E+01	1.90E+01	1189.225	P10-150	-126.4	175	-385.6517	70	323.0	P10-300					
645-646	5.65	435.96	435.96	56.2	6.69	11.67	6.60E+01	1.88E+02	115.049	115.049	-56.0721	10	9.69E+01	1.61E+02	140.0217	P10-140	72.647	175	-53.92179	70	323.0	P10-300					
644	2.4	352.5	352.5	48.35	7.71	9.89	5.89E+01	3.16E+02	100.401	100.401	-198.168	10	2.58E+01	4.29E+01	526.6107	P10-150	-73.76	175	-297.9407	70	323.0	P10-300					
643	2.175	352.5	435.96	66.28	7.82	6.81E-01	7.78E+01	3.95E+02	80.6438	80.6438	-239.413	10	-7.85E+00	-1.27E+01	-1773.73	P10-150	-125.4	175	-383.9492	70	323.0	P10-300					
10	2.15	352.5	352.5	34.45	1.37	40.14	3.78E+01	3.25E+02	206.199	206.199	-249.308	10	7.91E+01	1.32E+02	171.5307	P10-110	-90.41	175	-325.6833	70	323.0	P10-300					
700	2.175	352.5	435.96	67.78	7.67	3.47E-01	7.92E+01	3.96E+02	80.6812	80.6812	-237.974	10	-7.22E+00	-1.20E+01	-1877.81	P10-150	-124.4	175	-382.3837	70	323.0	P10-300					
8	2.15	352.5	352.5	36.78	2.02	42.86	4.07E+01	3.28E+02	220.752	220.752	-246.179	10	9.04E+01	1.51E+02	149.9771	P10-140	-83.3	175	-313.8264	70	323.0	P10-300					
698	2.175	352.5	516.31	70	8.15	1.55E-01	8.21E+01	4.32E+02	82.7085	82.7085	-267.464	10	-1.39E+01	-2.32E+01	-976.535	P10-150	-142.7	175	-412.8162	70	323.0	P10-300					

6	2.15	352.5	352.5	36.8	2	42.92	4.07E+01	3.28E+02	221.004	221.004	-246.179	10	9.08E+01	1.51E+02	149.6765	P10-140	-83.21	175	-313.6799	70	323.0	P10-300
695	2.175	352.5	516.31	70	8.14	1.55E-01	8.20E+01	4.32E+02	82.6959	82.6959	-267.474	10	-1.39E+01	-2.32E+01	-975.691	P10-150	-142.7	175	-412.835	70	323.0	P10-300
4	2.15	352.5	352.5	34.47	34.47	40.32	7.24E+01	3.59E+02	241.731	241.731	-214.532	10	1.14E+02	1.91E+02	118.5715	P10-110	-55.37	175	-267.2837	70	323.0	P10-300
692	2.175	352.5	435.96	67.76	7.68	3.55E-01	7.92E+01	3.96E+02	80.7017	80.7017	-237.985	10	-7.21E+00	-1.20E+01	-1880.94	P10-150	-124.4	175	-382.3828	70	323.0	P10-300
2	2.15	352.5	352.5	23.69	6.69	19.87	3.19E+01	3.19E+02	115.353	115.353	-255.02	10	1.20E+01	2.00E+01	1131.041	P10-150	-125.8	175	-384.6998	70	323.0	P10-300
684-685	5.65	435.96	352.5	55.9	6.57	11.67	6.56E+01	1.89E+02	114.608	114.608	-56.5131	10	9.64E+01	1.61E+02	140.662	P10-140	72.206	175	-54.65679	70	323.0	P10-300
686	2.4	352.5	352.5	49.53	8.17	9.92	6.06E+01	3.18E+02	102.249	102.249	-196.446	10	2.76E+01	4.60E+01	491.9205	P10-150	-71.99	175	-294.9832	70	323.0	P10-300
689	2.175	352.5	435.96	66.31	7.84	6.83E-01	7.79E+01	3.95E+02	80.7269	80.7269	-239.339	10	-7.57E+00	-1.26E+01	-1792.6	P10-150	-125.3	175	-383.8209	70	323.0	P10-300
682-683	5.65	352.5	352.5	37	4.78	13.07	4.39E+01	1.53E+02	98.763	98.763	-65.3124	10	8.13E+01	1.36E+02	166.7686	P10-150	58.107	175	-78.15476	70	323.0	P10-300
681	2.4	352.5	352.5	30.98	3.88	15.25	3.66E+01	2.94E+02	100.653	100.653	-220.428	10	2.04E+01	3.40E+01	665.506	P10-150	-86.64	175	-319.4073	70	323.0	P10-300
680	2.175	352.5	352.5	30.26	3.38	5.02E-01	3.53E+01	3.19E+02	37.4317	37.4317	-248.299	10	-4.14E+01	-6.90E+01	-327.727	P10-150	-146.5	175	-419.1445	70	323.0	P10-300

Tabel 54. Penulangan geser Balok Induk RingBaik

Balok	Ln	Mnak,b	Mnak,b'	VD	VL	VE	1.05*VG	Vub,1	Vub,2	Vub	Vub'	D	Daerah sendi plastis				Daerah luar sendi					
													Vu	Vs	s	Tul geser	Vu	Vc	Vs	Vs	min	s
	m	KN	KN	KN	KN	KN	KN	KN	KN	KN	KN	mm	KN	KN	mm	mm	KN	KN	KN	mm	mm	mm
723-725	8.4	352.5	352.5	86.35	5.42E-02	6.13E-01	9.07E+01	1.64E+02	93.3	93.3007	17.287	10	8.79E+01	1.46E+02	154	P10-150	80.63174	175	-40.614	70	323	P10-300
726-727	5.9	352.5	352.5	27.65	3.10E-02	9.19E-01	2.91E+01	1.34E+02	32.92	32.9232	-75.49	10	2.19E+01	3.65E+01	619	P10-150	7.198013	175	-163	70	323	P10-300
741-743	8.4	352.5	352.5	65.25	5.93E-04	3.52E-01	6.85E+01	1.42E+02	69.99	69.9932	-4.9244	10	6.46E+01	1.08E+02	210	P10-150	57.50694	175	-79.155	70	323	P10-300
744-745	5.9	352.5	352.5	24.22	3.01E-02	9.18E-01	2.55E+01	1.30E+02	29.32	29.3199	-79.092	10	1.83E+01	3.05E+01	741	P10-150	3.594928	175	-169.01	70	323	P10-300
759-761	8.4	352.5	352.5	86.86	5.28E-02	6.13E-01	9.13E+01	1.65E+02	93.83	93.8347	17.821	10	8.84E+01	1.47E+02	153	P10-150	81.1657	175	-39.724	70	323	P10-300
752-754	8.4	352.5	352.5	85.81	2.24E-01	9.71E-01	9.03E+01	1.64E+02	94.41	94.4139	16.898	10	8.89E+01	1.48E+02	153	P10-150	81.49462	175	-39.176	70	323	P10-300
750-751	5.9	352.5	352.5	28.1	3.29E-02	9.51E-01	2.95E+01	1.34E+02	33.53	33.5325	-75.016	10	2.25E+01	3.75E+01	603	P10-150	7.775338	175	-162.04	70	323	P10-300
734-736	8.4	352.5	352.5	65.25	3.03E-04	3.52E-01	6.85E+01	1.42E+02	69.99	69.9929	-4.9247	10	6.46E+01	1.08E+02	210	P10-150	57.50664	175	-79.156	70	323	P10-300
732-733	5.9	352.5	352.5	27.64	2.61E-02	9.51E-01	2.90E+01	1.34E+02	33.04	33.0423	-75.506	10	2.20E+01	3.67E+01	616	P10-150	7.285134	175	-162.86	70	323	P10-300
716-718	8.4	352.5	352.5	85.53	2.25E-01	9.71E-01	9.00E+01	1.63E+02	94.12	94.1213	16.606	10	8.86E+01	1.48E+02	153	P10-150	81.20198	175	-39.663	70	323	P10-300
712	2.4	352.5	352.5	3.87	1.4	2.07	5.53E+00	2.63E+02	14.23	14.2275	-251.5	10	-5.22E+01	-8.70E+01	-260	P10-150	-140.7789	175	-409.63	70	323	P10-300
713-714	5.9	352.5	352.5	21.79	6.15E-01	1.77	2.35E+01	1.28E+02	30.96	30.9595	-81.03	10	1.96E+01	3.26E+01	693	P10-150	4.385779	175	-167.69	70	323	P10-300
715	2.65	352.5	352.5	7.18	4.16E-01	1.14	7.98E+00	2.41E+02	12.76	12.7636	-224.81	10	-4.10E+01	-6.84E+01	-331	P10-150	-112.7456	175	-362.91	70	323	P10-300
722	2.4	352.5	352.5	9.17	1.62	4.73	1.13E+01	2.68E+02	31.2	31.1955	-245.7	10	-3.80E+01	-6.34E+01	-357	P10-150	-130.3279	175	-392.21	70	323	P10-300
719-721	8.9	352.5	352.5	13.66	7.63E-01	1.43	1.51E+01	8.45E+01	21.15	21.1496	-54.168	10	1.61E+01	2.68E+01	844	P10-150	9.301882	175	-159.5	70	323	P10-300
728	2.4	352.5	352.5	9.7	1.48	5.93	1.17E+01	2.69E+02	36.65	36.645	-245.29	10	-3.38E+01	-5.64E+01	-401	P10-150	-127.8184	175	-388.03	70	323	P10-300
729-731	8.9	352.5	352.5	13.8	8.09E-01	1.4	1.53E+01	8.47E+01	21.22	21.2195	-53.972	10	1.62E+01	2.69E+01	840	P10-150	9.391527	175	-159.35	70	323	P10-300
740	2.4	352.5	352.5	9.7	1.48	5.94	1.17E+01	2.69E+02	36.69	36.687	-245.29	10	-3.38E+01	-5.63E+01	-401	P10-150	-127.8009	175	-388	70	323	P10-300
737-739	8.9	352.5	352.5	13.8	7.63E-01	1.43	1.53E+01	8.46E+01	21.3	21.2968	-54.021	10	1.62E+01	2.70E+01	836	P10-150	9.448882	175	-159.25	70	323	P10-300
746	2.4	352.5	352.5	9.15	1.57	5.94	1.13E+01	2.68E+02	36.2	36.204	-245.78	10	-3.43E+01	-5.72E+01	-396	P10-150	-128.2839	175	-388.81	70	323	P10-300
747-749	8.9	352.5	352.5	13.67	7.51E-01	1.43	1.51E+01	8.45E+01	21.15	21.1482	-54.17	10	1.61E+01	2.68E+01	844	P10-150	9.300412	175	-159.5	70	323	P10-300
758	2.4	352.5	352.5	3.97	1.43	2.07	5.67E+00	2.63E+02	14.36	14.364	-251.36	10	-5.21E+01	-8.68E+01	-261	P10-150	-140.6424	175	-409.4	70	323	P10-300
756-757	5.9	352.5	352.5	21.74	5.91E-01	1.77	2.34E+01	1.29E+02	30.88	30.8819	-81.107	10	1.95E+01	3.25E+01	696	P10-150	4.308184	175	-167.82	70	323	P10-300
755	2.65	352.5	352.5	6.95	5.02E-01	1.14	7.82E+00	2.41E+02	12.61	12.6122	-224.96	10	-4.12E+01	-6.86E+01	-329	P10-150	-112.897	175	-363.16	70	323	P10-300

**Tabel 55. Torsi Balok Induk Lantai 2**

Balok	265-267	191-192	268-270	225-226	271-273	305-307	308-309	310-312	313-314
Tu terfaktor (KN/m')	29	32.47	37.29	33.4	28.63	18.84	17.71	43.21	18.93
Tu maks (KNm)	12.8625	12.8625	12.8625	12.8625	12.8625	12.8625	12.8625	12.8625	12.8625
Vu (KN)	2.72E+02	2.08E+02	278	208	273	332	224	318	221
Perlu tulangan Torsi									
Tu keserasian (KNm)	28.583333	28.583333	28.583333	28.583333	28.583333	28.583333	28.583333	28.583333	28.583333
Daerah Plastis									
Tu pakai (KNm)	28.583333	28.583333	28.583333	28.583333	28.583333	18.84	17.71	28.583333	18.93
Ct (per mm)	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449
Tc (KNm)	15.465587	18.401831	15.22727	18.401831	15.425456	9.3806867	12.453643	13.78089	13.275094
Ts (KNm)	32.173302	29.237058	32.41162	29.237058	32.213432	22.019313	17.063024	33.858	18.274906
x1 (mm)	260	260	260	260	260	260	260	260	260
y1 (mm)	610	610	610	610	610	610	610	610	610
$\alpha t$	1.4487179	1.4487179	1.448718	1.4487179	1.4487179	1.4487179	1.4487179	1.448718	1.4487179
At/s (mm <sup>2</sup> /mm jrk/kaki)	0.3500649	0.3181168	0.352658	0.3181168	0.3505016	0.2395834	0.185656	0.368395	0.198842
Vc (KN)	148.03164	135.02218	148.9389	135.02218	148.18585	165.66088	158.11184	154.028	155.64746
Vs (KN)	305.30169	211.64448	314.3944	211.64448	306.81415	387.67245	215.22149	375.972	212.68588
Av/s (mm <sup>2</sup> /mm jrk/2kaki)	1.2720904	0.881852	1.309977	0.881852	1.2783923	1.6153019	0.8967562	1.56655	0.8861912
Avt/s (mm <sup>2</sup> )	1.9722203	1.5180857	2.015293	1.5180857	1.9793955	2.0944687	1.2680682	2.303341	1.2838752
D (mm)	10	10	10	10	10	10	10	10	10
A1 D (mm <sup>2</sup> )	157	157	157	157	157	157	157	157	157
s (mm)	79.605713	103.41972	77.90432	103.41972	79.317146	74.959344	123.81037	68.16186	122.28603
s maks (mm)	217.5	217.5	217.5	217.5	217.5	217.5	217.5	217.5	217.5
s pakai (mm)	70	100	70	100	70	70	120	60	120
Luar Sendi Plastis									
Vu (KN)	252.512	164.18	258.705	164.712	253.243	308.531	179.849	295.082	178.307
Ct (per mm)	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449
Tc (KNm)	16.281489	20.84562	16.01511	20.81402	16.249696	10.00948	14.757929	14.58027	15.577433
Ts (KNm)	31.3574	26.793269	31.62378	26.824869	31.389193	21.39052	14.758738	33.05862	15.972567
xi (mm)	260	260	260	260	260	260	260	260	260
yi (mm)	610	610	610	610	610	610	610	610	610
$\alpha t$	1.4487179	1.4487179	1.448718	1.4487179	1.4487179	1.4487179	1.4487179	1.448718	1.4487179
At/s (mm <sup>2</sup> /mm jrk/kaki)	0.3411874	0.2915269	0.344086	0.2918708	0.3415334	0.2327418	0.160584	0.359698	0.1737912
Vc (KN)	144.76761	121.0165	145.8607	121.22064	144.89951	164.3185	150.66743	151.302	147.59879
Vs (KN)	276.08573	152.61683	285.3143	153.29936	277.17216	349.89983	149.0809	340.5014	149.57955
Av/s (mm <sup>2</sup> /mm jrk/2kaki)	1.1503572	0.6359035	1.188809	0.6387473	1.154884	1.457916	0.6211704	1.418756	0.6232481
Avt/s (mm <sup>2</sup> )	1.8327321	1.2189573	1.876981	1.2224888	1.8379507	1.9233995	0.9423384	2.138151	0.9708304
s (mm)	85.664458	128.7986	83.64496	128.42653	85.421224	81.626308	166.60682	73.42793	161.71722
s maks (mm)	217.5	217.5	217.5	217.5	217.5	217.5	217.5	217.5	217.5
s pakai (mm)	80	120	80	120	80	80	160	70	160



Balok	315-317	160-161	178-179	169-171	193-195	208-210	227-229	242-243	260-261
Tu terfaktor (KN/m')	32.13	15.95	28.54	21.62	27.8	24.97	22.13	28.95	15.9
Tu maks (KNm)	12.8625	12.8625	12.8625	12.8625	12.8625	12.8625	12.8625	12.8625	12.8625
Vu (KN)	3.16E+02	213	326	398	398	398	394	324	222
Perlu tulangan Torsi									
Tu keserasian (KNm)	28.583333	28.583333	28.583333	28.583333	28.583333	28.583333	28.583333	28.583333	28.583333
Daerah Plastis									
Tu pakai (KNm)	28.583333	15.95	28.54	21.62	27.8	24.97	22.13	28.583333	15.9
Ct (per mm)	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449
Tc (KNm)	13.847688	11.912209	13.503176	9.020484	11.23903	10.249174	9.295072	13.58374	11.4787
Ts (KNm)	33.7912	14.671124	34.063491	27.01285	35.094303	31.367493	27.58826	34.05515	15.0213
x1 ( mm )	260	260	260	260	260	260	260	260	260
y1 ( mm )	610	610	610	610	610	610	610	610	610
$\alpha t$	1.4487179	1.4487179	1.4487179	1.448718	1.4487179	1.4487179	1.448718	1.448718	1.4487179
At/s (mm2/mm jrk/kaki)	0.3676687	0.1596307	0.3706313	0.293916	0.3818472	0.3412973	0.300177	0.370541	0.1634408
Vc (KN)	153.8081	159.6283	154.92703	166.3854	161.39894	163.78036	165.836	154.6687	160.78287
Vs ( KN )	372.85857	195.3717	388.40631	496.9479	501.93439	499.55297	490.8307	385.3313	209.21713
Av/s (mm2/mm jrk/2kaki)	1.5535774	0.8140487	1.6183596	2.070616	2.0913933	2.0814707	2.045128	1.605547	0.871738
Avt/s ( mm2 )	2.2889147	1.1333101	2.3596223	2.658448	2.8550877	2.7640652	2.645482	2.346628	1.1986196
D ( mm )	10	10	10	10	10	10	10	10	10
A1 D ( mm2 )	157	157	157	157	157	157	157	157	157
s ( mm )	68.59146	138.53225	66.536073	59.057	54.989554	56.800396	59.34647	66.90451	130.984
s maks ( mm )	217.5	217.5	217.5	217.5	217.5	217.5	217.5	217.5	217.5
s pakai ( mm )	60	130	60	50	50	50	50	60	130
Luar Sendi Plastis									
Vu ( KN )	294.18	171.673	267.997	372.409	372.084	373.552	369.759	266.223	176.375
Ct ( per mm )	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449
Tc ( KNm )	14.613307	14.132642	15.611273	9.57282	11.890071	10.826279	9.834283	15.70068	13.811941
Ts ( KNm )	33.025582	12.450692	31.955393	26.46051	34.443262	30.790388	27.04905	31.9382	12.688059
xi ( mm )	260	260	260	260	260	260	260	260	260
yi (mm)	610	610	610	610	610	610	610	610	610
$\alpha t$	1.4487179	1.4487179	1.4487179	1.448718	1.4487179	1.4487179	1.448718	1.448718	1.4487179
At/s (mm2/mm jrk/kaki)	0.3593383	0.135471	0.347694	0.287906	0.3747635	0.335018	0.29431	0.347507	0.1380537
Vc (KN)	151.18479	152.8541	147.46693	165.2613	159.68854	162.4235	164.7026	147.1165	153.92594
Vs ( KN )	339.11521	133.26757	299.19474	455.4204	460.45146	460.16317	451.5624	296.5885	140.03239
Av/s (mm2/mm jrk/2kaki)	1.41298	0.5552815	1.2466447	1.897585	1.9185478	1.9173465	1.88151	1.235785	0.5834683
Avt/s ( mm2 )	2.1316566	0.8262236	1.9420327	2.473398	2.6680747	2.5873825	2.47013	1.930799	0.8595758
s ( mm )	73.651639	190.02119	80.84313	63.47544	58.843929	60.679083	63.5594	81.31348	182.64824
s maks ( mm )	217.5	217.5	217.5	217.5	217.5	217.5	217.5	217.5	217.5
s pakai ( mm )	70	190	80	60	50	60	60	80	180

Tabel 56. Torsi Balok Induk Lantai 3

Balok	424-426	350-351	427-429	384-385	430-432	464-466	467-468	469-471	472-473
Tu terfaktor (KN/m')	28.68	30.67	35.73	31.08	28.21	32.86	18.93	40.43	18.87
Tu maks (KNm)	12.8625	12.8625	12.8625	12.8625	12.8625	12.8625	12.8625	12.8625	12.8625
Vu (KN)	2.59E+02	179	260	179	259	302	231	304	236
Perlu tulangan Torsi									
Tu keserasian (KNm)	28.583333	28.583333	28.583333	28.583333	28.583333	28.583333	28.583333	28.583333	28.583333
Daerah Plastis									
Tu pakai (KNm)	28.583333	28.583333	28.583333	28.583333	28.21	28.583333	18.93	28.583333	18.87
Ct (per mm)	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449
Tc (KNm)	16.002591	19.981815	15.96026	19.981815	15.858207	14.33097	12.818054	14.26021	12.56751
Ts (KNm)	31.636298	27.657074	31.67863	27.657074	31.158459	33.30792	18.731946	33.37868	18.88249
x1 (mm)	260	260	260	260	260	260	260	260	260
y1 (mm)	610	610	610	610	610	610	610	610	610
$\alpha t$	1.4487179	1.4487179	1.448718	1.4487179	1.4487179	1.448718	1.4487179	1.448718	1.448718
At/s (mm <sup>2</sup> /mm jrk/kaki)	0.344222	0.3009257	0.344683	0.3009257	0.3390228	0.36241	0.2038149	0.36318	0.205453
Vc (KN)	145.91144	126.36263	146.0825	126.36263	146.492	152.1746	157.04339	152.4185	157.7822
Vs (KN)	285.75523	171.9707	287.2509	171.9707	285.17467	351.1588	227.95661	354.2482	235.5512
Av/s (mm <sup>2</sup> /mm jrk/2kaki)	1.1906468	0.7165446	1.196879	0.7165446	1.1882278	1.463162	0.9498192	1.476034	0.981463
Avt/s (mm <sup>2</sup> )	1.8790908	1.3183959	1.886244	1.3183959	1.8662735	2.187982	1.357449	2.202394	1.392369
D (mm)	10	10	10	10	10	10	10	10	10
A1 D (mm <sup>2</sup> )	157	157	157	157	157	157	157	157	157
s (mm)	83.551045	119.08411	83.2342	119.08411	84.124863	71.75562	115.65812	71.28605	112.7575
s maks (mm)	217.5	217.5	217.5	217.5	217.5	217.5	217.5	217.5	217.5
s pakai (mm)	70	110	80	110	80	70	110	70	110
Luar Sendi Plastis									
Vu (KN)	240.647	140.061	240.555	139.902	240.549	281.034	185.498	282.589	192.517
Ct (per mm)	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449
Tc (KNm)	16.810902	22.316038	16.81511	22.325931	16.670786	15.10899	15.145538	15.04895	14.70791
Ts (KNm)	30.827986	25.32285	30.82378	25.312958	30.34588	32.5299	16.404462	32.58994	16.74209
xi (mm)	260	260	260	260	260	260	260	260	260
yi (mm)	610	610	610	610	610	610	610	610	610
$\alpha t$	1.4487179	1.4487179	1.448718	1.4487179	1.4487179	1.448718	1.4487179	1.448718	1.448718
At/s (mm <sup>2</sup> /mm jrk/kaki)	0.3354271	0.2755279	0.335381	0.2754203	0.3301815	0.353945	0.1784904	0.354598	0.182164
Vc (KN)	142.51271	110.69481	142.4944	110.61938	143.12039	149.3818	149.24547	149.6047	150.8471
Vs (KN)	258.56562	122.74019	258.4306	122.55062	257.79461	319.0082	159.91787	321.377	170.0145
Av/s (mm <sup>2</sup> /mm jrk/2kaki)	1.0773568	0.5114174	1.076794	0.5106276	1.0741442	1.329201	0.6663244	1.339071	0.708394
Avt/s (mm <sup>2</sup> )	1.7482109	1.0624732	1.747557	1.0614681	1.7345072	2.037091	1.0233053	2.048267	1.072722
s (mm)	89.806096	147.76843	89.8397	147.90835	90.515622	77.07069	153.42439	76.65015	146.3567
s maks (mm)	217.5	217.5	217.5	217.5	217.5	217.5	217.5	217.5	217.5
s pakai (mm)	80	140	80	140	90	70	150	70	140

Balok	474-476	319-320	337-338	328-330	352-354	367-369	386-388	401-402	419-420
Tu terfaktor (KN/m')	32.74	14.3	27.38	21.62	23.74	24.06	21.78	27.3	14.33
Tu maks (KNm)	12.8625	12.8625	12.8625	12.8625	12.8625	12.8625	12.8625	12.8625	12.8625
Vu (KN)	3.02E+02	205	307	399	396	402	398	306	203
Perlu tulangan Torsi									
Tu keserasian (KNm)	28.583333	28.583333	28.583333	28.583333	28.583333	28.583333	28.583333	28.583333	28.583333
Daerah Plastis									
Tu pakai (KNm)	28.583333	14.3	27.38	21.62	23.74	24.06	21.78	27.3	14.33
Ct (per mm)	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449
Tc (KNm)	14.33097	11.226356	13.698406	9.00012	9.848721	9.8344205	9.080525	13.70196	11.3397
Ts (KNm)	33.307919	12.606978	31.934928	27.03321	29.71795	30.265579	27.219475	31.79804	12.54364
x1 ( mm )	260	260	260	260	260	260	260	260	260
y1 ( mm )	610	610	610	610	610	610	610	610	610
$\alpha t$	1.4487179	1.4487179	1.4487179	1.448718	1.448718	1.4487179	1.4487179	1.448718	1.448718
At/s (mm2/mm jrk/kaki)	0.3624103	0.1371715	0.3474713	0.294138	0.323349	0.3293078	0.2961643	0.345982	0.136482
Vc (KN)	152.17457	161.43109	154.29753	166.4254	164.6712	164.70225	166.26688	154.286	161.1421
Vs ( KN )	351.15876	180.23558	357.36913	498.5746	495.3288	505.29775	497.06645	355.714	177.1912
Av/s (mm2/mm jrk/2kaki)	1.4631615	0.7509816	1.4890381	2.077394	2.06387	2.1054073	2.0711102	1.482142	0.738297
Avt/s ( mm2 )	2.187982	1.0253246	2.1839806	2.665669	2.710568	2.7640228	2.6634389	2.174106	1.011262
D ( mm )	10	10	10	10	10	10	10	10	10
A1 D ( mm2 )	157	157	157	157	157	157	157	157	157
s ( mm )	71.755616	153.12224	71.887084	58.89703	57.92143	56.801268	58.94635	72.2136	155.2516
s maks ( mm )	217.5	217.5	217.5	217.5	217.5	217.5	217.5	217.5	217.5
s pakai ( mm )	70	150	70	50	50	50	50	70	150
Luar Sendi Plastis									
Vu ( KN )	280.97	164.659	258.572	374.27	372.494	377.609	373.556	256.829	163.031
Ct ( per mm )	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449
Tc ( KNm )	15.111473	13.419095	15.548937	9.530525	10.39023	10.387983	9.6094023	15.59096	13.54522
Ts ( KNm )	32.527416	10.414238	30.084396	26.50281	29.17644	29.712017	26.690598	29.90904	10.33811
xi ( mm )	260	260	260	260	260	260	260	260	260
yi (mm)	610	610	610	610	610	610	610	610	610
$\alpha t$	1.4487179	1.4487179	1.4487179	1.448718	1.448718	1.4487179	1.4487179	1.448718	1.448718
At/s (mm2/mm jrk/kaki)	0.3539179	0.1133132	0.3273364	0.288367	0.317457	0.3232847	0.2904098	0.325428	0.112485
Vc (KN)	149.37253	155.19448	147.7095	165.35	163.4568	163.46195	165.18412	147.5461	154.7925
Vs ( KN )	318.9108	119.23719	283.24383	458.4333	457.3666	465.88639	457.40922	280.5022	116.9259
Av/s (mm2/mm jrk/2kaki)	1.328795	0.4968216	1.1801826	1.910139	1.905694	1.9411933	1.9058717	1.168759	0.487191
Avt/s ( mm2 )	2.0366309	0.723448	1.8348554	2.486872	2.540609	2.5877626	2.4866914	1.819616	0.712161
s ( mm )	77.088099	217.01628	85.565325	63.13152	61.79622	60.67017	63.136102	86.28194	220.4558
s maks ( mm )	217.5	217.5	217.5	217.5	217.5	217.5	217.5	217.5	217.5
s pakai ( mm )	80	210	85	60	60	60	60	80	210

Tabel 57. Torsi Balok Induk Lantai 4

Balok	552-554	592-594	500-501	595-596	555-557	597-599	524-525	600-601	558-560
Tu terfaktor (KN/m')	21.59	28.33	26.89	15.32	22.88	38.4	26.9	15.32	21.94
Tu maks (KNm)	12.8625	12.8625	12.8625	12.8625	12.8625	12.8625	12.8625	12.8625	12.8625
Vu (KN)	2.35E+02	278	137	200	238	282	201	200	235
Perlu tulangan Torsi									
Tu keserasian (KNm)	28.583333	28.58333	28.58333	28.58333	28.583333	28.583333	28.58333	28.58333	28.583333
Daerah Plastis									
Tu pakai (KNm)	21.59	28.33	26.89	15.32	22.88	28.583333	26.9	15.32	21.94
Ct (per mm)	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449
Tc (KNm)	14.012992	15.13025	21.97104	12.13661	14.498602	15.071645	18.11581	12.13661	14.184554
Ts (KNm)	21.970341	32.08642	22.84562	13.39673	23.634731	32.567244	26.71752	13.39673	22.382113
x1 ( mm )	260	260	260	260	260	260	260	260	260
y1 ( mm )	610	610	610	610	610	610	610	610	610
$\alpha t$	1.4487179	1.448718	1.448718	1.448718	1.4487179	1.4487179	1.448718	1.448718	1.4487179
At/s (mm <sup>2</sup> /mm jrk/kaki)	0.2390506	0.34912	0.248574	0.145764	0.2571601	0.3543513	0.290703	0.145764	0.2435309
Vc (KN)	153.25785	149.3025	113.2717	159.01	151.59011	149.52057	136.4531	159.01	152.67747
Vs ( KN )	238.40881	314.0308	115.0616	174.3234	245.07655	320.47943	198.5469	174.3234	238.98919
Av/s (mm <sup>2</sup> /mm jrk/2kaki)	0.9933701	1.308462	0.479423	0.726347	1.0211523	1.335331	0.827279	0.726347	0.9957883
Avt/s ( mm <sup>2</sup> )	1.4714712	2.006701	0.976572	1.017876	1.5354726	2.0440335	1.408684	1.017876	1.4828501
D ( mm )	10	10	10	10	10	10	10	10	10
A1 D ( mm <sup>2</sup> )	157	157	157	157	157	157	157	157	157
s ( mm )	106.69594	78.23787	160.7665	154.2427	102.24865	76.808917	111.4515	154.2427	105.87719
s maks ( mm )	217.5	217.5	217.5	217.5	217.5	217.5	217.5	217.5	217.5
s pakai ( mm )	100	70	160	150	100	70	110	150	100
Luar Sendi Plastis									
Vu ( KN )	219.37	259.87	104.92	164.73	222.14	263.45	173.64	164.51	219.35
Ct ( per mm )	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449
Tc ( KNm )	14.752069	15.86799	24.10445	14.14315	15.246388	15.815533	19.67017	14.15743	14.927372
Ts ( KNm )	21.231264	31.34867	20.71221	11.39018	22.886945	31.823356	25.16317	11.37591	21.639295
xi ( mm )	260	260	260	260	260	260	260	260	260
yi (mm)	610	610	610	610	610	610	610	610	610
$\alpha t$	1.4487179	1.448718	1.448718	1.448718	1.4487179	1.4487179	1.448718	1.448718	1.4487179
At/s (mm <sup>2</sup> /mm jrk/kaki)	0.231009	0.341093	0.225361	0.123932	0.2490238	0.3462573	0.27379	0.123777	0.2354486
Vc (KN)	150.68853	146.4529	95.40428	152.8184	148.86691	146.6621	128.1789	152.7699	150.05221
Vs ( KN )	214.92814	286.6638	79.46239	121.7316	221.36642	292.42124	161.2211	121.4135	215.53113
Av/s (mm <sup>2</sup> /mm jrk/2kaki)	0.8955339	1.194432	0.331093	0.507215	0.9223601	1.2184218	0.671755	0.505889	0.8980464
Avt/s ( mm <sup>2</sup> )	1.3575518	1.876617	0.781816	0.755079	1.4204077	1.9109365	1.219335	0.753443	1.3689435
s ( mm )	115.64936	83.66117	200.8145	207.9252	110.53165	82.158671	128.7587	208.3768	114.68698
s maks ( mm )	217.5	217.5	217.5	217.5	217.5	217.5	217.5	217.5	217.5
s pakai ( mm )	110	80	200	200	110	80	120	200	110

Balok	602-604	478-479	490-491	481-483	502-504	513-515	526-528	537-538	549-550
Tu terfaktor (KN/m')	28.22	12.9	26.64	18.04	21.22	21.32	18.08	26.63	12.99
Tu maks (KNm)	12.8625	12.8625	12.8625	12.8625	12.8625	12.8625	12.8625	12.8625	12.8625
Vu (KN)	2.78E+02	171	261	365	379	380	363	260	170
Perlu tulangan Torsi									
Tu keserasian (KNm)	28.583333	28.583333	28.58333	28.583333	28.583333	28.583333	28.583333	28.583333	28.583333
Daerah Plastis									
Tu pakai (KNm)	28.22	12.9	26.64	18.04	21.22	21.32	18.08	26.63	12.99
Ct (per mm)	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449
Tc (KNm)	15.087893	11.985149	15.1476	8.2785938	9.2687069	9.285858	8.337231	15.18534	12.112142
Ts (KNm)	31.94544	9.5148508	29.2524	21.788073	26.09796	26.24748	21.7961	29.19799	9.5378576
x1 ( mm )	260	260	260	260	260	260	260	260	260
y1 ( mm )	610	610	610	610	610	610	610	610	610
$\alpha t$	1.4487179	1.4487179	1.448718	1.4487179	1.4487179	1.448718	1.448718	1.448718	1.4487179
At/s (mm2/mm jrk/kaki)	0.3475857	0.1035273	0.318284	0.2370674	0.2839616	0.285588	0.237155	0.317692	0.1037776
Vc (KN)	149.46024	159.42888	149.2378	167.77816	165.88956	165.8547	167.6729	149.0965	159.07807
Vs ( KN )	313.87309	125.57112	285.7622	440.55517	465.7771	467.4786	437.3271	284.2368	124.25526
Av/s (mm2/mm jrk/2kaki)	1.3078046	0.523213	1.190676	1.8356465	1.9407379	1.947827	1.822196	1.18432	0.5177303
Avt/s ( mm2 )	2.0029759	0.7302676	1.827243	2.3097813	2.508661	2.519004	2.296506	1.819704	0.7252855
D ( mm )	10	10	10	10	10	10	10	10	10
A1 D ( mm2 )	157	157	157	157	157	157	157	157	157
s ( mm )	78.38337	214.98967	85.92177	67.971803	62.583186	62.32622	68.36473	86.27778	216.46647
s maks ( mm )	217.5	217.5	217.5	217.5	217.5	217.5	217.5	217.5	217.5
s pakai ( mm )	70	210	80	60	60	60	60	80	210
Luar Sendi Plastis									
Vu ( KN )	259.73	137.85	221.35	344.07	357.32	358.61	343.28	220.84	137.08
Ct ( per mm )	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449	0.002449
Tc ( KNm )	15.831205	14.209528	16.95574	8.7363701	9.7670817	9.776555	8.772176	16.97697	14.344043
Ts ( KNm )	31.202128	7.2904719	27.44426	21.330297	25.599585	25.75678	21.36116	27.40637	7.3059571
xi ( mm )	260	260	260	260	260	260	260	260	260
yi (mm)	610	610	610	610	610	610	610	610	610
$\alpha t$	1.4487179	1.4487179	1.448718	1.4487179	1.4487179	1.448718	1.448718	1.448718	1.4487179
At/s (mm2/mm jrk/kaki)	0.339498	0.0793247	0.29861	0.2320865	0.2785389	0.280249	0.232422	0.298198	0.0794932
Vc (KN)	146.59971	152.59219	141.8761	166.9345	164.84779	164.8274	166.8664	141.7821	152.12932
Vs ( KN )	286.28363	77.157812	227.0405	406.5155	430.68554	432.8559	405.2669	226.2845	76.337343
Av/s (mm2/mm jrk/2kaki)	1.1928484	0.3214909	0.946002	1.6938146	1.7945231	1.803566	1.688612	0.942852	0.3180723
Avt/s ( mm2 )	1.8718444	0.4801403	1.543222	2.1579876	2.351601	2.364065	2.153457	1.539248	0.4770587
s ( mm )	83.874492	326.98772	101.7352	72.752967	66.763028	66.41103	72.90603	101.9979	329.09996
s maks ( mm )	217.5	217.5	217.5	217.5	217.5	217.5	217.5	217.5	217.5
s pakai ( mm )	80	210	100	70	60	60	70	100	210

Tabel 58. Torsi Balok Induk Lantai Atap

Balok	650-652	655-657	660-662	637-639
Tu terfaktor (KN/m')	37.47	25.03	25.53	12.99
Tu maks (KNm)	12.8625	12.8625	12.8625	12.8625
Vu (KN)	9.90E+01	96.5	99.001	82.4
Perlu tulangan Torsi				
Tu keserasian (KNm)	28.58333333	28.58333333	28.58333333	28.58333333
Daerah Plastis				
Tu pakai (KNm)	28.58333333	25.03	25.53	12.99
Ct (per mm)	0.00244898	0.00244898	0.00244898	0.00244898
Tc (KNm)	24.87829062	24.18726776	24.14724786	19.85020826
Ts (KNm)	22.76059827	17.52939891	18.40275214	1.799791739
x1 ( mm )	260	260	260	260
y1 ( mm )	610	610	610	610
$\alpha t$	1.448717949	1.448717949	1.448717949	1.448717949
At/s (mm2/mm jrk/kaki)	0.247649045	0.190730439	0.20023305	0.01958282
Vc (KN)	87.48967922	94.60185705	94.99086446	127.1365529
Vs ( KN )	77.51032078	66.23147628	70.01080221	10.19678047
Av/s (mm2/mm jrk/2kaki)	0.32295967	0.275964485	0.291711676	0.042486585
Avt/s ( mm2 )	0.818257761	0.657425363	0.692177775	0.081652226
D ( mm )	10	10	10	10
A1 D ( mm2 )	157	157	157	157
s ( mm )	191.8710797	238.8103788	226.8203425	1922.788977
s maks ( mm )	217.5	217.5	217.5	217.5
s pakai ( mm )	190	210	210	210
Luar Sendi Plastis				
Vu ( KN )	87.319	84.977	87.277	59.064
Ct ( per mm )	0.00244898	0.00244898	0.00244898	0.00244898
Tc ( KNm )	25.57628306	24.99733532	24.95642909	22.94728861
Ts ( KNm )	22.06260583	16.71933134	17.59357091	-1.29728861
xi ( mm )	260	260	260	260
yi (mm)	610	610	610	610
$\alpha t$	1.448717949	1.448717949	1.448717949	1.448717949
At/s (mm2/mm jrk/kaki)	0.240054466	0.181916415	0.191428669	-0.01411528
Vc (KN)	79.40168802	86.1812248	86.63385942	105.69618
Vs ( KN )	66.12997865	55.44710854	58.82780725	-7.25618004
Av/s (mm2/mm jrk/2kaki)	0.275541578	0.231029619	0.245115864	-0.03023408
Avt/s ( mm2 )	0.755650511	0.59486245	0.627973202	-0.05846465
s ( mm )	207.7680062	263.92656	250.0106684	-2685.38341
s maks ( mm )	217.5	217.5	217.5	217.5
s pakai ( mm )	200	210	210	210

Tabel 59. Momen Maksimum Kolom Portal Arah x

Portal	Kolom	Lt	MDx atas bawah	MLx atas bawah	Mex,ki atas bawah	Mex,ka atas bawah	Mey,ki atas bawah	Mey,ka atas bawah	Mukx,max ki atas bawah	Mukx,max ka atas bawah	Mukx pakai atas bawah
As1	K1-H	1	17.19	5.23	-106.7	101.77	-2.57	2.44	-428.39	453.50	593.89
			-11.58	-2.86	144.37	-136.94	1.9	-1.8	593.89	-592.28	
		2	21.12	6.51	-82.48	78.18	0.82	-0.83	-317.05	355.64	355.64
			-16.65	-5.49	64.76	-59.99	-1.59	1.54	247.32	-272.69	
		3	25.86	7.16	-71.29	61.16	-1.05	0.97	-266.82	292.01	292.01
			-27.17	-7.55	48.01	-42.08	0.94	-0.91	167.16	-213.55	
		4	46.11	10.92	-26.14	33.07	0.98	-0.76	-49.82	196.67	196.67
			-31.39	-7.91	4.83	-14.64	-1.54	1.29	-22.09	-100.30	
	K1-G	1	83.51	23.76	-134.29	129	-4.26	4.06	-459.25	657.05	657.05
			-40.7	-10.26	161.53	-87.49	2.51	-2.39	629.16	-422.90	
		2	117.06	32.56	-116.35	110.58	-1	0.9	-336.25	619.25	619.25
			-129.81	-37.28	104.62	-98.65	1.18	-1.11	269.36	-587.26	
		3	124.31	34.71	-91.54	83.5	-1.59	1.37	-223.14	515.75	515.75
		-116.09	-31.56	73.05	-67.12	1.77	-1.64	157.32	-435.69		
	4	83.62	14.44	-45.86	49.64	4.79	-4.36	-85.13	304.44	304.44	
		-106.66	-26.02	25.98	-32.82	-3.31	3.02	-31.64	-270.62		
	K2-G	Atap	63.03	1.18	-1.46	4.51	-1.09	0.94	59.79	87.42	87.42
			-31.77	-2.59	-0.88	4.88	2.92	-2.59	-35.82	-18.57	
	K1-F	1	-53.94	-17.64	-125.86	123.21	-0.16	0.11	-602.12	444.31	657.78
			4.75	6.46	153.85	-150.39	0.41	-0.37	657.78	-621.01	
		2	-79.62	-25.52	-108.97	106.07	2.93	-2.87	-561.70	334.16	-561.7
			95.91	31.73	94.37	-91.42	-3.32	3.24	522.86	-249.19	
		3	-77.67	-25.87	-87.84	83.25	1.08	-1.14	-473.57	242.21	-473.57
		71.42	23.02	69.27	-66.12	-1.56	1.54	385.71	-179.02		
	4	-37.46	-7.29	-50.13	51.01	5.09	-4.74	-250.35	162.05	-250.35	
		63.65	18.62	30.76	-33.34	-4.54	4.22	207.90	-50.28		
	K2-F	Atap	-44.55	0.99	-4.57	6.77	-1.59	1.38	-67.04	-15.67	-67.04
			22.13	-1.46	1.94	-4.74	2.83	-2.48	33.57	-1.18	
	K1-E	1	47.87	14.78	-124.85	123.91	-2.46	2.36	-463.24	587.63	-665.61
			-22.42	-5.84	152.6	-151.29	0.94	-0.9	613.04	-665.61	
		2	79.3	25.17	-106.82	105.54	-2.63	2.5	-344.91	553.47	553.47
			-83.57	-26.85	92.66	-91.35	3.66	-3.5	280.66	-501.20	
		3	85.51	28.14	-84.63	82.95	-1.7	1.54	-241.21	466.71	466.71
		-79.92	-25.57	66.64	-65.53	1.52	-1.42	173.72	-385.09		
	4	42.08	7.6	-49.75	50.24	1.11	-0.98	-156.19	261.14	261.14	
		-67.53	-19.73	30.85	-32.03	-0.36	0.31	39.57	-223.69		
	K2-E	Atap	31.53	0.07	-4.87	5.65	-0.94	0.85	11.53	57.97	57.97
			-15.69	0.12	2.48	-3.54	1.44	-1.3	-4.13	-32.87	
	K1-D	1	-54.81	-17	-124.21	125.37	2.58	-2.47	-592.05	449.83	666.86
			25.21	6.75	151.36	-152.82	-1.35	1.29	666.86	-607.37	
		2	-81.5	-25.91	-105.86	106.84	1.58	-1.49	-552.68	336.79	-552.68
			91.05	29.22	92.06	-93.04	-1.89	1.81	507.49	-265.27	
		3	-86.09	-28.43	-82.92	84.63	1.8	-1.64	-463.26	236.12	-463.26
		80.03	25.73	65.42	-66.64	-1.9	1.77	380.72	-169.31		
	4	-42.36	-7.74	-50.22	49.73	-1.15	1.01	-264.17	158.35	-264.17	
		67.67	-19.82	32.02	-30.82	0.42	-0.37	187.34	-77.59		
	K2-D	Atap	-31.56	-0.1	-5.64	4.86	0.95	-0.85	-55.72	-13.89	-55.72
			15.68	-0.1	3.53	-2.48	-1.45	1.31	29.37	7.60	
	K1-C	1	47.91	14.71	-124.03	126.71	0.06	-0.02	-456.64	596.36	-673.51
			-20.6	-5.3	150.68	-154.13	-0.42	0.38	605.69	-673.51	
		2	77.57	24.43	-106.5	109.33	-2.96	2.9	-346.49	567.37	567.37
			-89.09	-28.43	92.6	-95.52	3.49	-3.4	272.91	-525.88	
		3	77.23	25.71	-83.24	87.84	-1.07	1.13	-245.57	475.74	475.74
		-71.52	-23.17	66.01	-69.17	1.57	-1.55	182.23	-389.46		
	4	37.13	7.11	-51.01	50.12	-5.09	4.74	-174.95	262.18	262.18	
		-63.38	-18.46	33.33	-30.75	4.54	-4.22	61.71	-218.46		
	K2-C	Atap	44.18	-1.01	-6.77	4.57	1.59	-1.38	19.00	62.89	62.89
			-22.02	1.47	4.74	-1.93	-2.83	2.49	-5.39	-26.70	
K1-B	1	-76.16	-20.68	-129.25	134.31	3.81	-3.64	-637.56	460.01	-637.56	

			37.77	9.04	87.5	-161.4	-2.11	2.01	413.04	-627.15	
		2	-113.87	-31.21	-110.69	116.64	1.75	-1.6	-611.75	338.82	-611.75
			120.77	33.47	98.99	-105.2	-2.1	1.99	571.55	-280.89	
		3	-124.73	-34.83	-83.56	91.61	1.59	-1.34	-512.83	219.19	-512.83
			117.4	32.04	67.16	-73.07	-1.6	1.48	433.60	-151.48	
		4	-83.51	-14.33	-49.63	45.85	-4.81	4.38	-315.73	96.86	315.73
			106.37	25.85	32.81	-25.95	3.33	-3.04	278.11	23.30	
	K2-B	Atap	-62.79	-1.17	-4.51	1.46	1.09	-0.94	-84.60	-62.09	-84.6
			31.56	2.54	4.87	0.88	-2.91	2.58	52.33	42.49	
	K1-A	1	-16.22	-4.74	-102.15	106.81	1.95	-1.85	-448.08	424.76	-589.92
			11.18	2.67	137.07	-144.26	-1.42	1.36	588.17	-589.92	
		2	-20.41	-6.18	-78.29	82.8	-0.14	0.17	-356.27	320.70	-356.27
			15.51	4.9	60.45	-65.52	0.78	-0.77	275.79	-255.24	
		3	-25.62	-7.03	-61.19	71.32	1.04	-0.96	-289.23	264.79	-289.23
			26.84	7.39	42.07	-47.93	-0.72	0.71	210.95	-165.25	
		4	-45.68	-10.72	-33.05	26.11	-1	0.78	-198.16	52.55	-198.16
			31.09	7.77	14.61	-4.79	1.56	-1.3	103.31	18.23	
As2	K1-H	1	22.72	6.03	-99.44	97.8	1.17	-1.13	-386.62	438.89	-568.75
			-13.71	-3.32	134.66	-131.67	-1.49	1.43	546.16	-568.75	
		2	28.36	7.26	-79.92	78.73	0.44	-0.44	-298.47	366.75	366.75
			-24.9	-5.86	63.61	-61.5	-0.61	0.57	234.71	-289.26	
		3	31.85	8.11	-59.29	60.08	-0.42	0.36	-208.44	293.90	293.9
			-26.73	-6.68	41.51	-37.63	-1.64	1.5	137.90	-190.54	
		4	20.65	4.51	-38.57	20.38	7.17	-6.56	-127.02	103.27	-127.02
			-11.61	-1.91	19.64	-1.83	-7.4	6.77	59.17	-13.15	
	K1-G	1	32.63	14.16	-106.27	104.5	2.13	-2.04	-396.01	483.97	-582.84
			-13.38	-6.33	137.37	-134.53	-1.83	1.76	554.62	-582.84	
		2	45.41	19.53	-88.77	87.04	1.59	-1.52	-304.69	429.79	429.79
			-46.54	-20.4	74.64	-72.16	-2.19	2.07	242.58	-368.61	
		3	59.33	24.13	-65.66	66.43	-0.58	0.61	-191.40	364.87	364.87
			-46.55	-19.68	48.1	-44.11	-1.87	1.67	132.19	-250.63	
		4	-7.68	-1.34	-37.43	20.48	6.93	-6.36	-157.80	68.67	-157.8
			-16.04	-8.89	23.49	-4.32	-7.43	6.71	64.05	-34.93	
	K2-G	Atap	3.73	-0.14	-1.27	0.06	0.7	-0.64	-0.67	3.23	20.4
			3.68	-0.31	4.35	-0.98	-1.14	1.06	20.40	0.79	
	K1-B	1	-33.72	-14.55	-104.48	106.32	-1.88	1.8	-490.34	399.66	587.47
			13.69	6.44	134.52	-137.4	1.61	-1.55	587.47	-558.57	
		2	-45.46	-19.53	-87.04	88.7	-1.65	1.57	-433.84	308.33	-433.84
			47.61	20.77	72.16	-74.56	2.28	-2.15	375.56	-246.24	
		3	-59.28	-24.07	-66.45	65.65	0.53	-0.56	-363.41	190.03	375.56
			46.49	19.62	44.13	-48.11	1.92	-1.72	255.12	-136.87	
		4	7.64	1.34	-20.48	37.43	-6.93	6.32	-85.46	174.46	174.46
			16.04	8.87	4.32	-23.5	7.42	-6.7	52.72	-81.92	
	K2-B	Atap	-3.72	0.14	-0.06	1.27	-0.7	0.64	-4.91	2.37	-23.18
			-3.68	0.31	0.98	-4.35	1.14	-1.06	1.98	-23.18	
	K1-A	1	-22.51	-5.96	-97.8	99.52	-0.95	0.92	-441.22	389.88	571.86
			13.52	3.26	131.66	-134.71	1.28	-1.23	571.86	-550.06	
		2	-27.98	-7.14	-78.73	79.86	-0.52	0.51	-367.45	299.93	-367.45
			24.43	5.7	61.52	-63.55	0.76	-0.77	290.38	-236.84	
		3	-31.96	-8.15	-60.1	59.28	0.38	-0.32	-293.20	207.31	-293.2
			27.01	6.78	37.64	-41.51	1.67	-1.53	194.96	-141.50	
		4	-20.66	-4.52	-20.36	38.57	-7.17	6.56	-120.51	144.30	144.3
			11.61	1.92	1.83	-19.65	7.39	-6.76	31.00	-77.04	
As3	K1-H	1	16.44	3.13	-94.97	90.19	-0.19	0.2	-378.89	399.27	535.31
			-10.93	-2.06	130.87	-123.04	-0.73	0.69	535.31	-529.32	
		2	23.23	4.59	-80.4	74.69	-0.68	0.71	-309.81	343.32	343.32
			-18.72	-2.76	63.44	-57.22	1.02	-1.02	245.47	-263.87	
		3	31.76	7.1	-62.37	55.92	-3.45	3.38	-226.24	279.18	279.18
			-24.56	-5.02	38.19	-32.87	3.67	-3.54	134.49	-173.05	
		4	14.76	1.59	-23.16	17.27	-4.14	3.8	-85.49	94.32	94.32
			1.84	3.5	1.68	1.69	2.19	-1.94	15.05	9.89	
	K1-G	1	67.2	23.81	-120.31	115.07	-1.43	1.41	-414.04	578.13	-630.49
			-33.93	-10.27	146.54	-139.36	-0.15	0.12	569.95	-630.49	
		2	97.86	36.06	-112	104.09	-1.98	1.98	-336.07	576.50	576.5
			-105.51	-39.31	100.48	-92.84	2.85	-2.83	277.67	-541.43	
		3	119.75	42.83	-79.88	76.28	-5.21	5.06	-175.85	492.96	492.96
			-100.25	-36.29	60.58	-55.32	5.01	-4.81	121.19	-377.96	
		4	-5.29	-0.37	-27.33	15.46	0.35	-0.46	-120.25	58.45	-120.25



	K2-G		-39.98	-16.16	18.71	-6.41	1.24	-1.01	22.89	-85.44	
		Atap	4.81	0.03	-1.02	0.35	-0.23	0.21	0.51	6.81	20.35
			1.36	-1.15	3.88	-1.9	2.95	-2.77	20.35	-11.13	
	K1-F	1	-50.5	-20.69	-110.16	107.46	1.96	-1.95	-532.78	376.30	609.22
			21.9	7.69	138.26	-134.45	-1.38	1.34	609.22	-532.74	
		2	-75.86	-32.37	-100.36	97.28	2.1	-2.1	-529.11	295.69	-529.11
			89.99	38.05	86.59	-83.1	-2.72	2.71	490.70	-215.16	
		3	-96.19	-38.51	-81.95	73.13	4.82	-4.59	-475.51	163.97	-475.51
			80.63	33.3	56.03	-51.41	-1.25	1.27	349.88	-98.19	
		4	22.84	-0.28	-16.6	19.64	-8.41	7.75	-56.60	115.97	115.97
			42.42	21.12	0.93	-8.83	13.4	-12.39	85.29	11.80	
	K2-F	Atap	-4.22	-0.19	-0.41	0.65	-0.4	0.38	-6.84	-1.40	-16.01
			-5.63	-0.81	1.45	-1.87	1.23	-1.17	0.96	-16.01	
	K1-E	1	57.93	23.2	-109.18	108.01	-1.83	-1.85	-378.11	534.06	-604.51
			-26.7	-9.24	78.58	-135.31	0.4	0.44	293.77	-604.51	
		2	81.98	34.45	-99.23	97.41	-2.91	-2.87	-301.80	524.14	524.14
			-94.96	-39.82	85.28	-83.57	3.36	3.36	225.07	-484.10	
		3	97.05	38.72	-76.2	74.92	3.9	3.5	-176.63	457.57	457.57
			-81.93	-33.65	53.1	-51.89	0.51	0.59	105.84	-335.02	
		4	-17.73	1.71	-17.05	18.41	-11.72	-10.95	-103.38	46.52	-103.38
			-52.34	-24.24	4.69	-5.5	13.17	12.88	-41.57	-84.74	
	K2-E	Atap	3.6	0.24	-0.66	0.55	-0.04	-0.04	1.18	6.27	10.75
			4.66	0.5	1.34	-1.94	-0.19	-0.2	10.75	-3.03	
	K1-D	1	-57.26	-23.01	-108.01	109.19	1.86	1.93	-533.17	379.16	603.47
			25.96	9	135.3	-136.96	-0.44	-1.31	603.47	-541.12	
		2	-81.44	-34.33	-97.4	99.23	2.95	2.08	-523.32	301.43	-523.32
			94.42	39.7	83.56	-85.28	-3.41	-2.71	483.31	-224.93	
		3	-96.7	-38.68	-74.92	76.2	-3.89	4.58	-457.65	187.72	-457.65
			81.74	33.65	51.89	-53.09	-0.53	-1.25	334.90	-106.93	
		4	17.72	-1.76	-18.39	17.05	11.76	-7.83	-45.48	78.69	83.7
			52.45	24.31	5.48	-4.69	-13.78	12.47	83.70	74.06	
	K2-D	Atap	-3.6	-0.24	-0.55	0.66	0.05	-0.38	-6.25	-1.71	-9.53
			-4.67	-0.49	1.94	-1.34	0.19	1.16	3.02	-9.53	
	K1-C	1	51.25	20.94	-107.47	110.18	-1.94	-1.46	-380.22	534.52	-612.19
			-22.71	-7.92	134.44	-138.28	1.34	-0.07	535.01	-612.19	
		2	76.38	32.52	-97.28	100.37	-2.08	-2.01	-300.27	529.95	529.95
			-90.6	-38.25	83.11	-86.61	2.72	2.85	221.21	-491.45	
		3	96.53	38.58	-73.14	81.95	-4.82	-5.09	-175.45	475.59	475.59
			-80.77	-33.31	51.41	-56.03	1.23	4.84	101.19	-345.51	
		4	-22.9	0.22	-19.62	16.6	8.5	0.46	-95.53	46.46	-95.53
			-42.3	-21.07	8.81	-0.92	-13.48	1	-44.31	-66.93	
	K2-C	Atap	4.19	0.2	-0.65	0.41	0.4	-0.21	2.36	6.05	12.94
			5.58	0.81	1.87	-1.45	-1.22	2.76	12.94	4.01	
	K1-B	1	-66.87	-23.67	-115.06	120.32	1.47	-1.46	-573.98	410.92	629.89
			33.33	10.05	139.35	-146.55	0.1	-0.07	629.89	-571.10	
		2	-97.41	-35.38	-104.19	112.01	2.01	-2.01	-570.78	332.19	-570.78
			105.37	39.2	92.84	-100.46	-2.88	2.85	533.98	-270.66	
		3	-119.4	-42.61	-76.27	79.89	5.25	-5.09	-479.36	163.49	-479.36
			99.94	36.1	55.32	-60.58	-5.03	4.84	365.06	-109.29	
		4	5.44	0.43	-15.47	27.33	-0.35	0.46	-59.30	121.48	121.48
			39.9	16.1	6.42	-18.71	-1.23	1	82.52	-20.21	
	K2-B	Atap	-4.76	-0.03	-0.35	1.02	0.23	-0.21	-6.21	-1.01	-13.14
			-1.33	1.14	1.9	-3.88	-2.94	2.76	3.96	-13.14	
	K1-A	1	-15.89	-2.94	-90.18	94.98	0.23	-0.23	-397.93	379.16	567.9
			10.27	1.83	132.03	-130.88	0.68	-0.64	567.90	-537.99	
		2	-22.8	-4.44	-74.68	80.42	0.71	-0.73	-340.90	308.71	-340.9
			18.33	2.62	57.22	-63.45	-1.03	1.03	260.75	-243.47	
		3	-31.5	-6.99	55.91	62.37	3.48	-3.41	199.53	217.98	217.98
			24.43	4.96	32.87	-38.18	-3.68	3.55	163.76	-125.54	
		4	-14.6	-1.53	-17.28	23.16	4.12	-3.78	-84.16	75.73	75.73
			-1.92	-3.52	-1.68	-1.68	-2.17	1.91	-15.13	-9.99	
As4	K1-G	1	38.23	6.35	-20.02	16.12	7.34	-7.13	-28.69	104.86	328.78
			-23.46	-2.39	89.54	-74.86	-16.19	15.47	328.78	-321.81	
		2	45.96	7.8	-38.09	26.53	15.55	-14.92	-84.76	148.26	148.26
			-53.36	-9.27	11.02	-9.82	-4.8	4.63	-24.55	-100.20	
		3	52.92	9.45	-35.58	22.28	13.48	-12.69	-67.95	142.08	142.08
			-47.19	-7.97	-14.6	5.11	8.57	-8.18	-107.60	-45.93	
		4	24.31	0.64	-1.91	13.55	-10.78	10.26	4.53	95.97	-139.07

			-41.01	-6.73	-26.12	7.72	15.92	-14.98	-139.07	-35.87	
	K2-G	Atap	57.86	0.25	-0.29	2.58	-1.42	1.36	57.98	73.54	57.98
			-16.92	-0.15	-1.47	2.96	-2.04	1.93	-26.65	-3.04	
	K1-F	1	-35.59	-5.38	-19.49	15.55	1.66	-1.54	-122.22	20.92	-379.33
			20.73	1.86	88.93	-74.59	-14.05	13.38	379.33	-272.90	
		2	-46.16	-7.78	-37.6	26.37	8.78	-8.29	-202.68	44.49	-202.68
			53.66	9.91	10.33	-9.14	3.87	-3.9	113.97	22.41	
		3	-52.07	-10.38	-35.48	20.01	12.58	-11.74	-197.65	4.77	-197.65
			44.34	7.83	-14.82	5.69	12.32	-11.88	7.24	62.89	
		4	3.19	2.19	-4.72	20.68	-15.3	14.57	-33.68	110.63	110.63
			37.46	5.06	-25.55	5.46	19.66	-18.6	-38.42	43.61	
	K2-F	Atap	-44.52	0.57	-3.14	4.81	-1.52	1.45	-61.31	-24.18	-61.31
			14.44	-1.74	2.34	1.5	-3.82	3.63	18.53	24.39	
	K1-E	1	35.24	5.35	-16.04	16.04	3.76	-3.69	-20.57	104.78	-344.2
			-21.82	-2.06	76.64	-76.42	-1.32	1.29	295.37	-344.20	
		2	43.98	7.24	-27.63	27.29	4.62	-4.49	-57.20	161.98	161.98
			-50.72	-8.75	9.8	-9.75	-6.01	5.87	-27.94	-95.08	
		3	52.15	9.38	-22.1	23.95	0.87	-0.89	-28.10	163.09	163.09
			-43.89	-7.27	-6.23	5.84	-2.82	2.74	-82.67	-24.97	
		4	-0.26	-2.74	-19.81	18.4	2.43	-2.28	-83.00	71.54	-83
			-33.43	-4.69	-7.68	9.72	-3.17	3.05	-75.78	5.13	
	K2-E	Atap	28.52	-0.2	-2.71	4.1	-1.33	1.26	16.70	48.56	48.56
			-5.7	1.26	-4.03	1.04	2.91	-2.75	-18.05	-3.89	
	K1-D	1	-34.99	-5.26	-16.06	16.02	-3.93	3.86	-114.11	30.44	346.74
			20.95	1.75	76.45	-76.41	1.59	-1.55	346.74	-299.22	
		2	-43.51	-7.08	-27.41	27.62	-4.76	4.62	-173.50	69.45	-173.5
			50.66	8.72	9.73	-9.81	5.88	-5.75	109.71	12.99	
		3	-51.82	-9.26	-23.96	22.09	-0.91	0.93	-164.94	30.79	-164.94
			44.2	7.36	-5.86	6.2	2.67	-2.6	32.12	76.13	
		4	0.14	2.71	-18.73	19.83	-2.25	2.11	-78.79	88.65	88.65
			33.75	4.8	-9.74	7.67	3.05	-2.94	2.91	68.48	
	K2-D	Atap	-28.53	0.21	-4.1	2.71	1.32	-1.25	-45.31	-19.95	-45.31
			5.65	-1.28	-1.03	4.04	-2.84	2.68	-3.18	25.07	
	K1-C	1	35.6	5.4	-15.54	19.51	-1.54	1.42	-24.73	126.21	306.32
			-21.25	-2.06	74.56	-88.96	13.83	-13.17	306.32	-414.49	
		2	46.4	7.88	-26.35	37.61	-8.68	8.2	-65.44	224.46	224.46
			-53.66	-9.92	9.14	-10.31	-3.77	3.8	-32.08	-104.23	
		3	52.25	10.45	-20.01	35.48	-12.54	11.77	-35.10	228.58	228.58
			-44.36	-7.85	-5.67	14.82	-12.22	11.78	-93.21	23.09	
		4	-2.89	-2.11	-20.7	4.76	15.21	-14.47	-72.80	-3.27	-91.62
			-37.41	-5.06	-5.45	25.56	-19.58	18.53	-91.62	86.64	
	K2-C	Atap	44.05	-0.56	-4.8	3.14	1.52	-1.45	27.48	57.08	57.08
			-14.21	1.76	-1.51	-2.35	3.78	-3.58	-14.84	-27.64	
	K1-B	1	-38.06	-6.29	-16.11	20.04	-7.2	6.99	-122.64	47.07	-369.34
			22.88	2.18	74.82	-89.57	15.96	-15.26	360.44	-369.34	
		2	-45.78	-7.74	-26.51	38.1	-15.44	14.82	-186.18	123.31	-186.18
			53.21	9.23	9.82	-11	4.88	-4.7	111.99	12.47	
		3	-52.75	-9.4	-22.28	35.58	-13.46	12.67	-174.81	101.13	-174.81
			47.29	8.01	-5.09	14.61	-8.46	8.07	25.19	128.75	
		4	-24.28	-0.59	-13.57	1.9	10.7	-10.18	-69.56	-30.90	178.05
			41.09	6.74	-7.71	26.13	-15.86	14.91	-2.85	178.05	
	K2-B	Atap	-57.26	-0.25	-2.58	0.29	1.42	-1.36	-69.41	-60.85	-69.41
			16.85	0.17	-2.97	1.47	2	-1.9	7.90	21.63	

Tabel 60. Momen Maksimum Kolom Portal Arah y

Portal	Kolom	Lt	MDx atas bawah	MLx atas bawah	Mex,ki atas bawah	Mex,ka atas bawah	Mey,ki atas bawah	Mey,ka atas bawah	Mukx,max ki atas bawah	Mukx,max ka atas bawah	Mukx pakai atas bawah	
As A	K1-1	1	-1.93	-0.91	-8.85	5.81	-107.44	105.08	-175.43	153.92	237.89	
			13.68	3.45	9.35	-5.36	143.65	-140.44	237.89	-181.84		
		2	-4.29	-1.65	-7.16	4.53	-84.84	82.97	-143.03	117.50	-143.03	
			5.95	1.92	6.79	-4.62	71.91	-70.3	127.19	-99.92		
		3	-3.05	-1.79	-5.17	2.91	-64.66	63.14	-108.08	86.88	-108.08	
			3.71	1.79	4.57	-2.99	47.47	-46.41	84.59	-65.45		
		4	-9.6	-0.95	-2.95	1.21	-29.76	29.09	-60.87	30.76	-60.87	
		9.69	3.11	2.27	-1.29	14.04	-13.78	40.34	-9.67			
	K1-2	1	37.37	7.89	-7.76	3.64	-143.38	140.29	-166.56	238.75	289.2	
			31.81	7.2	9.41	-4.76	166.25	-162.66	289.20	-184.74		
		2	57.87	12.39	-5.51	1.49	-130.9	128.08	-115.60	240.11	240.11	
			-62.73	-13.71	4.57	-0.76	125.68	-122.98	98.73	-236.97		
		3	54.98	11.99	-4.54	1.45	-96.41	94.34	-71.49	194.02	194.02	
			-53.65	-11.42	3.65	-1.06	83.25	-81.49	53.10	-174.25		
		4	50.88	8.71	-3.13	1.08	-57.35	56.29	-23.75	137.12	137.12	
		-49.52	-8.96	2.16	-0.68	41.73	-41	1.19	-114.98			
	K1-3	1	-19.66	-2.67	-6.74	4.37	85.96	84.19	56.84	101.27	199.05	
			1.37	2.61	8.06	-4.52	128.01	-125.45	199.05	-173.15		
		2	-27.08	-3.87	-4.97	3.08	-67.82	66.43	-138.42	64.55	-138.42	
			30.88	4.57	3.89	-2.64	47.01	-46.1	112.31	-32.43		
		3	-26.95	-3.84	-3.92	2.36	-59.33	58.19	-123.15	51.31	-123.15	
			26.35	3.78	3.09	-2.24	39.12	-38.48	93.51	-26.65		
		4	-19.7	-1.38	-2.54	2.14	-42.94	42.23	-86.76	40.21	62.44	
		27.22	4.35	1.46	-1.61	18.74	-18.49	62.44	2.63			
	As B	K1-1	1	-24.99	-6.84	-2.79	1.12	-130.5	127.16	-208.85	132.22	238.87
				2.72	0.91	4.02	1.95	173.23	-168.63	238.87	-200.57	
			2	-33.17	-8.3	-1.68	0.59	-115	111.91	-194.63	100.81	-194.63
				32.73	8.52	0.32	0.4	99.61	-96.59	169.27	-77.61	
			3	-27.72	-7.73	-0.56	0.82	-84.87	80.84	-145.70	68.89	-145.7
				26.58	7	-0.18	-0.31	57.28	-54.55	105.94	-35.51	
			4	-56.55	-5.95	-0.79	2.1	-18.63	19.95	-91.79	-31.04	-91.79
			36.52	7.54	0.5	-1.78	-1.3	-1.15	45.93	36.55		
		K2-1	Atap	0.98	0.57	-0.78	1.01	1.09	-0.85	-0.33	4.74	14.02
				13.08	0.85	0.92	-1.12	-3.83	3.32	13.58	14.02	
		K1-2	1	44.79	14.23	-5.47	3.51	-169.95	165.85	-176.63	284.19	-300.12
				-33.06	-9.63	5.29	-3	198.27	-193.42	228.22	-300.12	
2			80.92	25.99	-4.62	3.29	-166.97	162.72	-120.26	328.37	-333.51	
			-92	-29.39	4.36	-3.28	159.28	-155.05	94.63	-333.51		
3			79.04	26.82	-1.45	1.6	-118.43	114.19	-46.97	258.94	258.94	
			-79.7	-25.8	1.25	-1.64	96.86	-93.41	19.23	-232.65		
4			71.5	16.63	-1.01	2.15	-44.74	44.6	30.18	156.02	156.02	
		-79.56	-22.07	0.88	-1.98	26.52	-27.09	-67.28	-146.84			
K2-2		Atap	16.23	2.34	-0.83	1.02	-3.6	3.83	11.23	28.36	28.36	
			-15.71	-2.48	0.99	-1.19	2.11	-2.35	-12.02	-26.80		
K1-3		1	-39.53	-13.39	-1.6	-0.16	-131.98	129.3	-227.17	108.09	254.42	
			6.98	2.08	3.44	1.17	183.08	-179.43	254.42	-211.87		
		2	-49.59	-17.78	0.63	-2.08	-119.62	117.43	-216.95	70.35	-216.95	
			52.09	19.16	-1.95	2.82	99.42	-97.55	189.88	-38.27		
		3	-51.72	-18.97	1.76	-2.46	-92.82	91.08	-181.79	32.20	-181.79	
			44.82	16.86	-2.73	2.88	64.12	-62.63	132.32	-3.82		
		4	-17.13	-5.88	4.6	-5.33	-50.83	48.72	-68.27	15.46	-68.27	
		35.27	14.31	-2.79	3.29	19.79	-18.39	63.77	41.20			
K2-3		Atap	-5.84	-0.17	0.87	-1.01	-7.42	6.94	-11.99	-1.79	-11.99	
			2.92	0.03	-0.82	0.96	6.22	-5.69	7.49	-0.04		
K1-4		1	-6.5	-1.64	-1.64	0.54	-72.24	70.99	-106.29	83.34	213.6	
			7.3	2.45	3.29	1.35	150.64	-148.32	213.60	-171.23		
		2	-4.32	-1	-0.13	-0.75	-48.47	47.49	-67.10	51.21	-67.1	
			-3.12	-1.16	-1.43	1.41	11.43	-11.46	4.02	-12.89		
3		-4.16	-0.19	0.7	-1.02	-45.78	47.68	-59.29	51.25	-59.29		

			3.14	0.86	-1.82	1.59	10.56	-10.99	9.77	-3.06	
		4	-12.27	-5.13	4.73	-5.26	-28.47	25.04	-33.74	-8.27	36.13
			5.17	2.67	-2.05	2.26	-1.76	14.83	-2.88	36.13	
	K2-4	Atap	-3.22	-1.81	1.05	-1.17	-3.24	2.89	-4.76	-6.36	8.73
			4.27	2.04	-1.03	1.13	2.05	-1.93	4.67	8.73	
As C	K1-1	1	77.66	24.02	0.12	2.24	-118.01	115.91	-43.95	259.70	-324.56
			-48.48	-12.21	0.83	-2.77	204.82	-198.8	199.12	-324.56	
		2	117.88	38.22	-0.71	3.11	-141.53	136.06	-21.42	344.39	-354.61
			-153.23	-49.47	1.21	-2.74	113.82	-107.51	-59.15	-354.61	
		3	163.35	52.1	-0.78	1.98	-118.16	116.5	68.59	375.86	375.86
			-140.38	-44.7	0.59	-0.83	54.64	-50.29	-118.32	-256.49	
		4	-123.65	-19.23	0.05	0.35	-14.13	0.3	-165.60	-146.16	-165.6
			-86.58	-26.21	-0.61	0.26	-4.77	14.94	-124.25	-95.76	
	K2-1	Atap	22.11	4.06	0.48	-0.49	-4.14	7.65	23.85	34.63	35.42
			31.86	0.21	-0.56	0.94	-11.6	-1.73	16.68	35.42	
	K1-3	1	-115.52	-35.52	0.77	2.24	-165.92	161.68	-360.69	58.26	379.17
			43.13	11.17	1.14	-3.27	252.81	-149.45	379.17	-146.20	
		2	-150.58	-47.97	-0.11	3	-186.69	182.88	-439.13	39.59	-439.13
			161.38	52.15	0.4	-2.49	164.46	-159.36	427.63	7.48	
		3	-179.81	-55.92	-0.55	1.95	-140.45	130.9	-420.92	-68.52	-420.92
			137.41	44.24	0.26	-0.73	87.14	-79.71	296.98	82.59	
		4	14.55	-1.7	-0.32	0.56	-51.77	51.41	-52.90	80.80	99.88
			59.63	23.86	-1.1	1.14	15.35	-15.28	99.88	70.69	
	K2-3	Atap	-0.19	0.57	-0.19	0.24	-10.99	7.24	-14.31	10.47	-14.31
			-5.23	0.19	0.38	-0.39	7.04	-1.45	5.15	-8.78	
	K1-4	1	-11.16	-2.86	0.56	1.2	-86.94	84.53	-121.61	97.13	269.04
			4.05	1.87	-1.01	-2.76	212.11	-207.12	269.04	-266.54	
		2	-5.3	-1.11	-0.3	1.84	-86.34	86.04	-116.66	109.52	-116.66
			-12.35	-3.95	0.75	-1	42	-41.8	39.37	-73.57	
		3	-22.18	-5.38	-1.2	2	-72.37	72.85	-124.60	71.82	-124.6
			-2.59	-0.49	0.6	-0.25	11.64	-9.42	14.00	-16.10	
		4	30.58	6.36	-0.56	0.71	-44.56	39.34	-20.38	90.67	90.67
			-36.29	-8.52	-0.48	0.8	-19.02	22.64	-72.14	-14.27	
	K2-4	Atap	3.98	-1.72	-0.33	0.34	-7.63	4.08	-8.45	9.12	14.67
			0.82	2.97	0.39	-0.41	7.43	-3.65	14.67	-2.65	
As D	K1-1	1	85.08	26.95	0.12	2.16	-130.77	128.09	-49.46	285.27	-332.37
			-52.71	-13.77	0.46	3.31	227.84	-220.57	220.65	-332.37	
		2	126.55	41.77	1.07	1.4	-158.25	151.81	-22.55	369.51	-378.17
			-165.81	-54.35	-1.28	-0.5	126.88	-119.53	-70.97	-378.17	
		3	175.33	56.92	1.02	0.53	-130.44	128.23	77.82	401.68	401.68
			-150.62	-47.93	-0.75	-0.06	60.04	-54.93	-130.94	-272.91	
		4	-130.48	-20.99	0.85	0.04	-17.69	3	-175.56	-152.89	-175.56
			-94.98	-29.17	-0.04	-0.55	-3.86	14.89	-132.33	-110.84	
	K2-1	Atap	22.64	4.14	-0.61	0.52	-3.24	6.78	21.04	38.41	38.63
			35.78	0.74	1.34	-0.58	-16.73	2.22	22.82	38.63	
	K1-3	1	-117.53	-36.8	0.65	2.46	-185.32	180.13	-388.96	79.11	413.55
			42.24	11.08	0.82	-3.82	281.97	-273.75	413.55	-306.15	
		2	-153.47	-49.71	1.85	1.25	-209.34	204.24	-464.12	54.47	-464.12
			163.95	54.19	-2.21	-0.41	184.95	-178.36	447.11	-3.10	
		3	-182.4	-57.97	2.29	0.11	-158.75	147.39	-436.71	-60.13	-436.71
			137.91	45.6	-1.65	0.25	97.62	-88.78	303.97	77.08	
		4	16.79	-1.27	1.09	-0.3	-50.92	53	-43.15	81.95	103.39
			58.69	24.57	0.48	-0.76	13.12	-12.72	103.39	65.62	
	K2-3	Atap	1.26	0.9	0.42	-0.2	-12.71	8.67	-12.08	12.26	12.26
			-6.76	-0.12	-0.6	0.4	9.09	-3.16	1.72	-9.51	
	K1-4	1	-11.23	-2.81	-0.03	1.71	-96.53	93.75	-136.20	110.86	307.98
			5.61	2.44	0.52	-3.38	236.19	-229.92	307.98	-295.70	
		2	-5.88	-1.16	0.83	0.62	-96.52	95.8	-125.40	116.04	-125.4
			-12.83	-4.15	-1.14	0.6	47.3	-46.59	37.42	-73.58	
		3	-23.02	-5.53	1.86	-0.63	-83.17	82.77	-126.38	72.25	-126.38
			-3.43	-0.68	-0.93	0.78	13.04	-10.31	8.28	-13.96	
		4	32.66	7.01	1.18	-0.56	-45.77	40.09	-11.80	89.08	89.08
			-38	-9.01	0.5	-0.12	-24.77	28.13	-77.52	-13.47	
	K2-4	Atap	4.79	-1.6	0.55	-0.36	-9.17	5.33	-5.73	8.72	11.63
			-0.26	2.85	-0.64	0.43	9.44	-5.3	11.63	-2.45	
As E	K1-1	1	76.14	24.14	3.04	-0.95	-132.71	129.97	-51.69	262.53	-345.93
			-50.51	-13.11	-3.54	-0.23	229.18	-221.86	208.47	-345.93	
		2	125.07	41.38	1.61	0.87	-158.5	152.05	-22.52	365.66	365.66

			-155.59	-51.17	-1.62	-0.34	147.46	-120.09	-32.73	-364.47	
	3	175.41	57.08	0.58	1.01	-130.32	128.11	76.35	403.78	403.78	
		-151.5	-48.13	-0.01	-0.82	59.83	-54.72	-129.21	-276.95		
	4	-134.54	-21.04	0.06	0.85	-17.65	2.96	-183.14	-153.85	-183.14	
		-94.75	-29.16	-0.58	-0.02	-3.86	14.89	-134.34	-108.37		
	Atap	22.63	4.15	0.52	-0.61	-3.25	6.79	25.77	33.68	46.57	
		35.74	0.72	-0.56	1.34	-16.68	2.17	14.84	46.57		
K2-1	1	-115.13	-36.05	2.26	0.59	-186.29	181.07	-380.19	75.67	383.02	
		40.21	-0.61	-3.65	-0.71	283.1	-274.84	383.02	-307.64		
	2	-151.21	-48.99	1.09	2	-209.2	204.11	-464.08	60.51	-464.08	
		160.6	53.14	-0.22	-2.5	184.29	-177.72	450.13	-15.58		
	3	-182.84	-58.16	0.21	2.25	-158.61	147.25	-445.91	-51.96	-445.91	
		139.34	46.09	0.08	-1.54	97.52	-88.69	313.07	71.64		
	4	16.77	-1.25	-0.26	1.08	-53.96	52.95	-52.65	87.68	98.05	
		58.59	24.55	-0.76	0.48	13.11	-12.71	98.05	70.72		
	Atap	1.25	0.9	-0.19	0.42	-12.69	8.65	-14.62	14.83	14.83	
		-6.75	-0.12	0.4	-0.6	9.08	-3.14	5.92	-13.68		
K1-3	1	-11.06	-2.74	1.66	-0.16	-97.42	94.61	-129.98	104.33	282.93	
		-6.73	-2.81	-3.27	0.4	237.24	230.93	275.47	282.93		
	2	-4.54	-0.72	0.51	0.93	-96.47	95.75	-124.86	119.10	-124.86	
		-13.35	-4.33	0.6	-1.28	46.7	-46	43.25	-81.45		
	3	-23.15	-5.58	-0.58	1.84	-83.07	82.68	-136.68	82.32	-136.68	
		-2.58	-0.41	0.67	-0.86	12.99	-10.26	16.08	-19.64		
	4	32.62	7.03	-0.52	1.17	-45.72	10.04	-18.90	58.46	-80.22	
		-38.13	-9.05	-0.11	0.5	-24.74	28.11	-80.22	-11.07		
	Atap	4.79	-1.6	-0.36	0.55	-9.15	5.31	-9.52	12.52	16.05	
		-0.26	2.85	0.42	-0.64	9.42	-5.28	16.05	-6.92		
As F	K1-1	1	66.03	20.59	0.26	1.55	-119.12	116.91	-60.21	242.61	-317.29
		-46.34	-11.69	-1.92	-1.18	206.63	-200.5	192.59	-317.29		
	2	116.31	38.48	2.86	-0.38	-140.96	135.56	-7.11	327.70	327.7	
		-139.41	-45.78	-1.22	-0.6	111.24	-105.08	-54.60	-324.56		
	3	163.63	53.2	2.02	-0.72	-117.74	116.09	82.22	365.33	365.33	
		-141.64	-45.35	-0.98	0.66	54.44	-50.08	-127.10	-251.91		
	4	-123.73	-19.32	0.35	0.08	-13.99	0.17	-164.33	-147.62	-164.33	
		-86.16	-27	0.28	-0.65	-4.83	15	-120.89	-99.81		
	Atap	22.06	4.13	-0.49	0.48	-4.14	7.65	19.79	38.72	38.72	
		31.89	0.09	0.94	-0.54	-11.51	-1.82	23.01	29.01		
	K1-3	1	-111.12	-34.7	1.94	0.54	-168.28	163.94	-353.35	59.36	-353.35
		3.53	10.09	-2.99	-0.87	255.32	-248.59	322.39	-303.64		
	2	-147.05	-47.65	3.31	-0.35	-186.62	182.82	-420.67	29.45	-420.67	
		155.86	51.4	-2.94	0.58	163.5	-158.44	405.89	15.03		
	3	-180.13	-57.19	1.93	-0.39	-139.84	130.32	-411.27	-80.62	-411.27	
		139.33	45.87	-0.59	0.02	86.5	-79.1	296.16	90.06		
	4	14.53	-1.87	0.55	-0.26	-51.53	51.18	-49.13	76.88	109.72	
		59.57	24.46	1.14	-1.11	15.29	-15.23	109.72	61.81		
	Atap	-0.19	0.54	0.24	-0.18	-10.96	7.2	-12.49	8.63	-12.49	
		-5.24	0.22	-0.39	0.37	7.01	-1.43	1.90	-5.54		
	K1-4	1	-10.48	-2.66	0.87	0.46	-88.78	86.34	-121.73	97.20	263.84
		6.44	-2.67	-2.48	-0.81	214.3	-209.27	263.84	-262.84		
	2	-3.19	-0.4	2.06	-0.49	-86.41	86.07	-103.95	102.66	-103.95	
		-13.3	-4.24	-1.33	0.76	40.75	-40.56	27.79	-65.89		
	3	-22.15	-5.43	1.99	-1.12	-72.04	72.54	-110.80	58.31	-110.8	
		-1.42	-0.09	-0.11	0.42	11.33	-9.14	12.24	-11.33		
	4	30.5	6.35	0.7	-0.51	-44.36	39.15	-14.93	85.21	85.21	
		-36.23	-8.6	0.81	-0.46	-18.94	22.56	-66.63	-19.67		
	Atap	4	-1.78	0.34	-0.32	-7.6	4.05	-5.63	6.28	11.33	
		0.79	3.05	-0.41	0.39	7.41	-3.63	11.33	0.78		
As G	K1-1	1	-47.88	-15.66	1.51	-3.18	-130.95	127.56	-223.73	82.30	-223.73
		3.64	1.58	-2.12	4.19	173.76	-169.11	215.35	-190.17		
	2	-39.39	-10.72	0.74	-1.84	-115.14	112.11	-193.46	82.04	205.91	
		59.74	18.88	-0.04	0.75	99.61	-96.67	205.91	-38.09		
	3	-27.27	-7.74	0.86	-0.59	-84.91	80.85	-139.32	63.45	-139.32	
		24.81	6.32	-0.31	-0.19	57.26	-54.5	102.87	-37.45		
	4	-57.77	-6.45	2.14	-0.81	-18.6	19.92	-81.20	-45.06	-81.2	
		37.98	8.09	-1.8	0.51	-1.35	-1.11	38.26	48.27		
	Atap	-1.27	0.45	1.01	-0.78	1.1	-0.85	4.72	-5.26	23	
		13.34	0.96	-1.12	0.93	-3.83	3.32	5.38	23.00		
	K1-2	1	50.54	16.35	3.49	-5.47	-170.52	166.39	-131.68	255.20	255.2

		-38.12	11.49	-3.01	5.31	198.87	-193.99	208.77	-251.29		
	2	86.88	28.21	3.28	-4.62	-167.2	162.98	-79.01	303.83	-313.58	
		-100.34	-32.52	-3.23	4.31	159.42	-155.23	51.21	-313.58		
	3	78.01	26.4	1.67	-1.51	-118.46	114.22	-35.39	244.43	244.43	
		-76.91	-24.72	-1.72	1.31	96.85	-93.39	10.69	-216.29		
	4	70.97	16.42	2.18	-1.03	-44.71	44.56	42.86	141.86	141.86	
		-79.27	-21.96	-2	0.89	26.47	-27.05	-79.03	-134.33		
	Atap	16.08	2.29	1.02	-0.83	-3.6	3.83	18.80	20.39	-20.96	
		-15.56	-2.42	-1.19	1	2.11	-2.35	-20.96	-17.39		
	K1-3	1	-37.2	-12.25	-0.14	-1.64	-132.45	129.8	-218.11	106.02	245.38
			3.16	0.67	0.19	3.48	183.63	180.01	236.12	245.38	
	2	-44.72	-15.96	-2.1	0.64	-119.8	117.57	-221.81	88.79	204.74	
			48.19	17.96	2.82	-1.95	99.46	-97.55	204.74	-63.53	
	3	-51.13	-18.77	-2.43	1.74	-92.86	91.12	-198.63	50.70	-198.63	
			45.31	17.05	2.86	-2.71	64.1	-62.62	156.47	-26.60	
	4	-16.25	-5.54	-5.32	4.6	-50.82	48.7	-108.68	58.38	-108.68	
			34.64	14.07	3.29	-2.8	19.77	-18.37	88.40	14.76	
	Atap	-5.57	-0.07	-1.01	0.87	-7.42	6.94	-19.51	6.48	-19.51	
			2.65	-0.08	0.97	-0.83	6.23	-5.7	14.63	-7.96	
	K1-4	1	-5.65	-1.35	0.55	-1.66	-72.56	71.4	-96.32	75.78	210.33
			10.34	3.56	1.36	3.32	151.11	-148.87	210.33	-159.41	
	2	-1.55	0.04	-0.77	-0.12	-48.56	47.5	-66.01	57.76	-66.01	
			-4.52	-1.7	1.41	-1.45	11.3	-11.23	13.81	-26.59	
	3	-4.09	-0.18	-1	0.69	-45.81	47.72	-66.39	58.56	-66.39	
			-4.6	1.14	1.57	-1.81	10.52	-11	16.10	-25.21	
	4	-11.8	-4.96	-5.25	4.73	-28.46	25.02	-74.99	34.31	-74.99	
			4.93	2.57	2.27	-2.06	-11.78	14.86	2.30	17.68	
	Atap	-3.07	-1.75	-1.17	1.05	-3.24	2.89	-13.87	3.17	-13.87	
			4.11	1.98	1.13	-1.03	2.05	-1.93	13.52	-0.57	
As H	K1-1	1	-10.75	-3.73	6.01	-8.8	-107.17	104.82	-124.60	80.30	174.2
			13	3.37	-5.57	9.32	143.46	-140.27	174.20	-120.76	
	2	-5.3	-1.9	4.46	-7.15	-85.1	83.24	-95.85	67.49	-95.85	
			16.83	5.44	-4.47	6.77	72.26	-70.65	95.09	-37.77	
	3	-2.3	-1.5	2.86	-5.18	-64.87	63.34	-73.56	54.22	-73.56	
			2.41	1.33	-2.95	4.57	47.63	-46.55	51.41	-35.67	
	4	-9.94	-1.05	1.18	-2.95	-29.85	29.18	-44.08	12.95	-44.08	
			10.25	3.3	-1.27	2.27	14.08	-13.83	26.29	5.99	
	K1-2	1	42.42	9.7	3.89	-7.74	-143.16	140.1	-110.34	197.73	-212.43
			-36.75	-9	-5.01	9.39	166.09	-162.52	141.14	-212.43	
	2	63.03	14.23	1.45	-5.52	-131.24	128.41	-79.64	218.24	-223.76	
			-69.04	-15.92	-0.7	4.58	126.09	-123.38	68.40	-223.76	
	3	55.61	12.28	1.38	-4.55	-96.7	94.61	-46.05	170.09	-154.14	
			-53.14	-11.32	-1	3.65	83.5	-81.73	34.52	-154.14	
	4	51.31	8.9	1.04	-3.13	-57.5	56.44	-5.80	120.25	120.25	
			-49.9	-9.12	-0.65	2.16	41.83	-41.1	-11.04	-103.73	
	K1-3	1	-17.99	-2.03	4.56	-6.73	-85.75	84.02	-109.70	56.79	149.83
			4.65	3.82	-4.71	8.04	127.87	-125.34	149.83	-115.67	
	2	-23.87	-2.73	3.07	-4.98	-68	66.59	-100.43	35.34	-100.43	
			28.87	3.85	-2.54	3.91	47.3	-46.36	82.88	-8.04	
	3	-26.15	-3.51	2.33	-3.93	-59.5	58.35	-95.96	26.24	-95.96	
			26.54	3.81	-2.22	3.1	39.23	-38.54	71.57	-4.07	
	4	-18.85	-1.05	2.13	-2.55	-43.04	42.32	-66.07	21.83	-66.07	
			26.73	4.16	-1.61	1.47	18.77	-18.52	48.89	14.84	

Tabel 61. Momen Rencana Kolom Akibat Kapasitas Balok Arah X

Portal	Kolom	Lt	ω d	h (m)	hn (m)	Mnak balok (KNm)			Panjang balok (m)			Ln (m)			ME.k (KNm)			α			Mu.k (KNm)			Mu.k pakai		
						Atas	Bawah	Kiri	Atas	Bawah	Kiri	Atas	Bawah	Kiri	Atas	Bawah	Kiri	Atas	Bawah	Kiri	Atas	Bawah	Kiri	Atas	Bawah	Kiri
As1	K1-H	1	1.3	4.36	3.66	0	599.77	0	4.5625	0	3.9625	0	3.9625	106.7	101.77	136.94	0.425	0.426	0.574	0.426	280.242	281.134	171.426	171.023	281.134	281.134
		2	1.3	3.9	3.2	0	435.96	0	4.5625	0	3.9625	0	3.9625	144.37	136.94	82.48	0.575	0.574	0.566	0.574	262.446	265.093	283.489	283.489	279.966	279.966
		3	1.3	3.9	3.2	0	435.96	0	4.5625	0	3.9625	0	3.9625	64.76	59.99	71.29	0.440	0.434	0.592	0.434	188.542	190.961	279.966	279.966	190.961	190.961
		4	1.3	3.9	3.2	0	435.96	0	4.5625	0	3.9625	0	3.9625	48.01	42.08	33.07	0.592	0.402	0.444	0.693	319.738	262.576	73.067	143.764	644.874	644.874
	K1-G	1	1.3	4.36	3.66	677.01	657.77	4.5625	8.75	3.9625	8.15	134.29	129	161.53	154.79	0.546	0.545	0.454	0.545	644.018	644.874	314.228	314.228	656.530	656.530	
		2	1.3	3.9	3.2	435.96	577.671	4.5625	8.75	3.9625	8.15	116.35	110.58	104.82	98.65	0.473	0.471	0.556	0.549	551.479	553.540	653.802	653.802	582.510	582.510	
		3	1.3	3.9	3.2	435.96	577.671	4.5625	8.75	3.9625	8.15	91.54	83.5	73.05	67.12	0.444	0.444	0.444	0.444	464.850	466.730	490.964	490.964	416.938	416.938	
		4	1.3	3.9	3.2	435.96	577.671	4.5625	8.75	3.9625	8.15	45.86	49.64	25.98	32.83	0.362	0.398	0.638	0.602	129.468	99.663	249.027	249.027	621.238	621.238	
	K2-G	Atap	1	1.54	0.965	0	352.5	0	8.75	0	8.15	0	0.80	4.88	0.376	0.520	0.376	0.520	180.202	180.202	621.238	621.238	663.814	663.814		
		1	1.3	4.36	3.66	657.69	667.69	8.75	6.25	8.15	5.65	125.86	123.21	108.82	106.07	0.441	0.441	0.441	0.441	496.274	484.271	560.867	560.867	496.274	496.274	
		2	1.3	3.9	3.2	652.895	593.55	8.75	6.25	8.15	5.65	108.97	106.07	94.37	91.42	0.464	0.463	0.536	0.537	625.792	624.187	663.814	663.814	621.238	621.238	
		3	1.3	3.9	3.2	652.895	516.31	8.75	6.25	8.15	5.65	87.84	83.25	69.27	66.12	0.441	0.441	0.441	0.441	558.640	560.867	621.238	621.238	663.814	663.814	
	K1-F	1	1.3	4.36	3.66	352.5	352.5	8.75	6.25	8.15	5.65	153.85	150.39	136.94	133.94	0.550	0.550	0.550	0.550	496.274	484.271	621.238	621.238	663.814	663.814	
		2	1.3	3.9	3.2	652.895	593.55	8.75	6.25	8.15	5.65	108.97	106.07	94.37	91.42	0.464	0.463	0.536	0.537	625.792	624.187	663.814	663.814	621.238	621.238	
		3	1.3	3.9	3.2	652.895	516.31	8.75	6.25	8.15	5.65	87.84	83.25	69.27	66.12	0.441	0.441	0.441	0.441	558.640	560.867	621.238	621.238	663.814	663.814	
		4	1.3	3.9	3.2	652.895	516.31	8.75	6.25	8.15	5.65	30.76	33.34	4.57	6.77	0.702	0.702	0.702	0.702	496.274	484.271	621.238	621.238	663.814	663.814	
	K2-F	Atap	1	1.54	0.965	352.5	352.5	8.75	6.25	8.15	5.65	153.85	150.39	136.94	133.94	0.550	0.550	0.550	0.550	496.274	484.271	621.238	621.238	663.814	663.814	
		1	1.3	4.36	3.66	667.69	657.7	8.75	6.25	8.15	5.65	124.85	123.91	106.82	105.54	0.450	0.450	0.450	0.450	620.325	621.135	621.238	621.238	663.814	663.814	
		2	1.3	3.9	3.2	593.55	657.664	6.25	8.75	5.65	8.15	92.66	91.35	84.63	82.95	0.536	0.536	0.536	0.536	625.792	624.187	663.814	663.814	621.238	621.238	
		3	1.3	3.9	3.2	593.55	657.664	6.25	8.75	5.65	8.15	66.64	65.53	66.64	65.53	0.536	0.536	0.536	0.536	625.792	624.187	663.814	663.814	621.238	621.238	
	K1-E	1	1.3	4.36	3.66	352.5	352.5	8.75	6.25	8.15	5.65	153.85	150.39	136.94	133.94	0.550	0.550	0.550	0.550	496.274	484.271	621.238	621.238	663.814	663.814	
		2	1.3	3.9	3.2	593.55	657.664	6.25	8.75	5.65	8.15	92.66	91.35	84.63	82.95	0.536	0.536	0.536	0.536	625.792	624.187	663.814	663.814	621.238	621.238	
		3	1.3	3.9	3.2	593.55	657.664	6.25	8.75	5.65	8.15	66.64	65.53	66.64	65.53	0.536	0.536	0.536	0.536	625.792	624.187	663.814	663.814	621.238	621.238	
		4	1.3	3.9	3.2	352.5	435.96	6.25	8.75	5.65	8.15	49.75	50.24	30.85	32.03	0.383	0.383	0.383	0.383	496.274	484.271	621.238	621.238	663.814	663.814	
	K2-E	Atap	1	1.54	0.965	352.5	352.5	8.75	6.25	8.15	5.65	153.85	150.39	136.94	133.94	0.550	0.550	0.550	0.550	496.274	484.271	621.238	621.238	663.814	663.814	
		1	1.3	4.36	3.66	657.69	657.69	8.75	6.25	8.15	5.65	124.85	123.91	106.82	105.54	0.450	0.450	0.450	0.450	620.325	621.135	621.238	621.238	663.814	663.814	
		2	1.3	3.9	3.2	593.55	657.664	6.25	8.75	5.65	8.15	92.66	91.35	84.63	82.95	0.536	0.536	0.536	0.536	625.792	624.187	663.814	663.814	621.238	621.238	
	K1-D	1	1.3	4.36	3.66	352.5	352.5	8.75	6.25	8.15	5.65	153.85	150.39	136.94	133.94	0.550	0.550	0.550	0.550	496.274	484.271	621.238	621.238	663.814	663.814	
		2	1.3	3.9	3.2	657.664	593.55	8.75	6.25	8.15	5.65	108.97	106.07	94.37	91.42	0.464	0.463	0.536	0.537	625.792	624.187	663.814	663.814	621.238	621.238	
		3	1.3	3.9	3.2	657.664	593.55	8.75	6.25	8.15	5.65	87.84	83.25	69.27	66.12	0.441	0.441	0.441	0.441	558.640	560.867	621.238	621.238	663.814	663.814	

4	1.3	3.9	3.2	657.664	593.55	8.75	6.25	8.15	5.65	65.42	66.94	0.441	0.441	560.890	560.890	560.283		
	1.3	3.9	3.2	435.96	352.5	8.75	6.25	8.15	5.65	50.22	49.73	0.611	0.611	489.004	489.004	494.392	495.180	
	1.3	3.9	3.2	657.664	593.55	8.75	6.25	8.15	5.65	32.02	30.82	0.389	0.389	495.180	495.180	486.623		
K2-D	Atap	1	1.54	0.965	352.5	8.75	6.25	8.15	5.65	5.64	4.86	0.615	0.662	259.121	278.955	278.955	278.955	
	1	1.54	0.965	435.96	352.5	8.75	6.25	8.15	5.65	3.53	2.48	0.385	0.338	181.093	158.947			
K1-C	1	1.3	4.36	3.66	593.55	652.9	8.75	5.65	8.15	124.03	126.71	0.451	0.451	585.266	584.862	585.266		
	1	4.36	3.66	352.5	352.5	6.25	8.75	5.65	8.15	150.68	154.13	0.549	0.549	309.573	309.749	677.749	677.749	
	2	1.3	3.9	3.2	593.55	652.895	6.25	8.75	5.65	106.5	109.33	0.535	0.535	677.749	676.229	677.749		
	1.3	3.9	3.2	593.55	652.9	6.25	8.75	5.65	8.15	92.6	95.52	0.465	0.465	589.294	590.813			
	3	1.3	3.9	3.2	516.31	652.895	6.25	8.75	5.65	83.24	87.84	0.558	0.558	662.180	661.960	662.180		
	1.3	3.9	3.2	593.55	652.895	6.25	8.75	5.65	8.15	68.01	69.71	0.442	0.442	560.384	560.618			
	4	1.3	3.9	3.2	352.5	435.96	6.25	8.75	5.65	51.01	50.12	0.605	0.620	484.329	496.297	496.297		
	1.3	3.9	3.2	516.31	652.895	6.25	8.75	5.65	8.15	33.33	30.75	0.395	0.380	469.202	451.456			
K2-C	Atap	1	1.54	0.965	352.5	6.25	8.75	5.65	8.15	6.77	4.57	0.588	0.703	247.803	296.208	296.208		
	1	1.54	0.965	352.5	435.96	6.25	8.75	5.65	8.15	4.74	1.93	0.412	0.297	193.731	139.682			
K1-B	1	1.3	4.36	3.66	577.7	599.77	8.75	4.5625	8.15	3.9625	129.25	0.455	0.454	569.379	568.500	569.379		
	1	4.36	3.66	352.5	352.5	8.75	4.5625	8.15	3.9625	154.88	161.4	0.545	0.546	314.035	314.439			
	2	1.3	3.9	3.2	577.671	435.96	8.75	4.5625	8.15	3.9625	110.69	0.528	0.526	552.901	550.586	580.285		
	1.3	3.9	3.2	577.7	599.77	8.75	4.5625	8.15	3.9625	98.99	105.24	0.472	0.474	577.581	580.285			
	3	1.3	3.9	3.2	577.671	435.96	8.75	4.5625	8.15	3.9625	83.56	91.61	0.554	0.556	580.662	582.637	582.637	
	1.3	3.9	3.2	577.671	435.96	8.75	4.5625	8.15	3.9625	67.16	73.07	0.446	0.444	466.698	464.723			
	4	1.3	3.9	3.2	435.96	352.5	8.75	4.5625	8.15	3.9625	49.63	45.85	0.602	0.639	491.044	520.869	520.869	
K2-B	Atap	1	1.54	0.965	352.5	0	8.75	4.5625	8.15	3.9625	32.81	25.95	0.398	0.361	416.835	378.538		
	1	1.54	0.965	435.96	352.5	0	8.75	4.5625	8.15	4.51	1.46	0.481	0.624	99.770	129.468	276.137		
K1-A	1	1.3	4.36	3.66	599.77	0	4.5625	8.15	3.9625	0	102.15	0.88	0.519	276.137	200.016			
	1	4.36	3.66	352.5	0	4.5625	0	3.9625	0	137.07	144.26	0.573	0.575	170.821	171.296			
	2	1.3	3.9	3.2	435.96	0	4.5625	0	3.9625	78.29	82.8	0.564	0.558	264.376	261.546	284.727		
	1.3	3.9	3.2	599.77	0	4.5625	0	3.9625	0	60.45	65.52	0.436	0.442	280.834	284.727			
	3	1.3	3.9	3.2	435.96	0	4.5625	0	3.9625	61.19	71.32	0.593	0.598	277.629	280.201	280.201		
	1.3	3.9	3.2	435.96	0	4.5625	0	3.9625	0	42.07	47.93	0.407	0.402	190.879	188.307			
	4	1.3	3.9	3.2	352.5	0	4.5625	0	3.9625	33.05	26.11	0.693	0.845	262.692	320.094	320.094		
	1.3	3.9	3.2	435.96	0	4.5625	0	3.9625	0	14.61	4.79	0.307	0.155	143.619	72.626			
As2	K1-H	1	1.3	4.36	3.66	0	4.5625	0	3.9625	99.44	97.8	0.426	0.426	280.107	281.046	281.046		
	1	4.36	3.66	0	599.77	0	4.5625	0	3.9625	134.66	131.67	0.574	0.574	171.488	171.063			
	2	1.3	3.9	3.2	0	435.96	0	4.5625	0	3.9625	79.92	78.73	0.557	0.561	260.873	263.037	285.652	
	1.3	3.9	3.2	0	599.77	0	4.5625	0	3.9625	63.61	61.5	0.443	0.439	285.652	282.676			
	3	1.3	3.9	3.2	0	352.5	0	4.5625	0	3.9625	59.29	60.08	0.588	0.615	222.818	232.927	232.927	
	1.3	3.9	3.2	0	435.96	0	4.5625	0	3.9625	41.51	37.63	0.412	0.385	192.934	180.431			
	4	1.3	3.9	3.2	0	352.5	0	4.5625	0	3.9625	38.57	20.38	0.663	0.918	251.005	347.604	347.604	
	1.3	3.9	3.2	0	352.5	0	4.5625	0	3.9625	19.64	1.83	0.337	0.082	127.813	31.213			
K1-G	1	1.3	4.36	3.66	599.77	194.136	8.75	3.9625	8.15	106.27	104.5	0.436	0.437	374.434	375.299	375.299		
	1	4.36	3.66	352.5	0	4.5625	0	3.9625	0	137.37	134.53	0.564	0.563	168.089	167.788			
	2	1.3	3.9	3.2	435.96	194.136	8.75	3.9625	8.15	88.77	87.04	0.543	0.547	360.187	362.507	383.263		
	1.3	3.9	3.2	599.77	194.136	4.5625	8.75	3.9625	8.15	74.64	72.16	0.457	0.453	383.263	380.327			
	3	1.3	3.9	3.2	435.96	168.448	4.5625	8.75	3.9625	65.66	66.43	0.577	0.601	367.837	382.991	382.991		
	1.3	3.9	3.2	435.96	194.136	4.5625	8.75	3.9625	8.15	48.1	44.11	0.423	0.399	280.347	264.581			
	4	1.3	3.9	3.2	352.5	0	4.5625	0	3.9625	37.43	20.48	0.614	0.826	232.750	312.830	312.830		



K2-G	Atap	1	1.3	3.9	3.2	435.96	168.448	4.5625	8.75	3.9625	8.15	23.49	4.32	0.386	0.174	245.735	111.014	209.701	
		1	1.54	0.965	0	0	0	4.5625	0	0	0	1.27	0.06	0.226	0.058	0.000	0.000	0.000	
		1	1.54	0.965	352.5	0	4.5625	0	4.5625	0	3.9625	0	4.35	0.98	0.774	172.250	209.701	375.274	
K1-B	1	1.3	4.36	3.66	194.136	599.77	8.75	4.5625	8.75	3.9625	8.15	104.48	106.32	0.437	0.436	375.274	374.487	375.274	
		1	4.36	3.66	0	352.5	0	4.5625	0	4.5625	0	134.52	137.4	0.563	0.564	167.797	168.070	383.204	
		2	1.3	3.9	3.2	194.136	435.96	8.75	4.5625	8.15	3.9625	87.04	88.7	0.547	0.543	362.507	360.234	383.204	
		3	1.3	3.9	3.2	194.136	599.77	8.75	4.5625	8.15	3.9625	72.16	74.56	0.453	0.457	380.327	383.204	382.968	
		3	1.3	3.9	3.2	168.448	435.96	8.75	4.5625	8.15	3.9625	66.45	65.65	0.601	0.577	382.968	367.781	382.968	
		1	1.3	3.9	3.2	194.136	435.96	8.75	4.5625	8.15	3.9625	44.13	48.11	0.399	0.423	284.605	280.405		
		4	1.3	3.9	3.2	0	352.5	0	4.5625	0	3.9625	20.48	37.43	0.826	0.614	312.830	323.712	312.830	
		4	1.3	3.9	3.2	168.448	435.96	8.75	4.5625	8.15	3.9625	4.32	23.5	0.174	0.386	111.014	245.799		
K2-B	Atap	1	1.54	0.965	0	0	0	0	0	0	0	0.06	1.27	0.058	0.000	0.000	0.000	209.701	
		1	1.54	0.965	0	352.5	0	4.5625	0	4.5625	0	0.98	4.35	0.942	0.774	209.701	172.250		
K1-A	1	1.3	4.36	3.66	599.77	0	4.5625	0	4.5625	0	3.9625	97.8	99.52	0.426	0.425	281.058	280.177	281.058	
		1	4.36	3.66	352.5	0	4.5625	0	4.5625	0	3.9625	131.66	134.71	0.574	0.575	171.058	171.456		
		2	1.3	3.9	3.2	435.96	0	4.5625	0	3.9625	0	78.73	79.86	0.561	0.557	263.018	260.896	285.622	
		1	1.3	3.9	3.2	599.77	0	4.5625	0	3.9625	0	61.51	63.55	0.439	0.443	282.702	285.622		
		3	1.3	3.9	3.2	352.5	0	4.5625	0	3.9625	0	60.1	59.28	0.615	0.588	232.933	222.803	232.933	
		1	1.3	3.9	3.2	435.96	0	4.5625	0	3.9625	0	37.64	41.51	0.385	0.412	180.424	192.953		
		4	1.3	3.9	3.2	352.5	0	4.5625	0	3.9625	0	20.38	38.57	0.918	0.662	347.604	250.961	347.604	
		1	1.3	3.9	3.2	352.5	0	4.5625	0	3.9625	0	1.83	19.65	0.082	0.338	31.213	127.856		
As3	K1-H	1	1.3	4.36	3.66	0	435.96	0	4.5625	0	3.9625	94.97	90.19	0.421	0.423	201.563	202.739	202.739	
		1	4.36	3.66	0	352.5	0	4.5625	0	4.5625	0	130.87	123.04	0.579	0.577	172.757	172.026		
		2	1.3	3.9	3.2	0	435.96	0	4.5625	0	3.9625	80.41	74.69	0.559	0.566	261.889	265.278	265.278	
		1	1.3	3.9	3.2	0	435.96	0	4.5625	0	3.9625	63.44	57.22	0.441	0.434	206.619	203.230		
		3	1.3	3.9	3.2	0	352.5	0	4.5625	0	3.9625	62.37	55.92	0.620	0.630	234.952	238.579	238.579	
		1	1.3	3.9	3.2	0	435.96	0	4.5625	0	3.9625	38.19	32.87	0.380	0.370	177.927	173.441		
		4	1.3	3.9	3.2	0	352.5	0	4.5625	0	3.9625	23.16	17.27	0.932	0.911	353.197	345.051	353.197	
		1	1.3	3.9	3.2	0	352.5	0	4.5625	0	3.9625	1.68	1.69	0.068	0.089	25.620	33.766		
K1-G	1	1.3	4.36	3.66	599.77	577.7	4.5625	8.75	3.9625	8.15	120.31	115.07	0.451	0.452	564.316	566.085	566.085		
		1	4.36	3.66	352.5	352.5	4.5625	8.75	3.9625	8.15	148.54	139.36	0.549	0.548	316.365	315.551			
		2	1.3	3.9	3.2	435.96	577.671	4.5625	8.75	3.9625	8.15	112	104.19	0.527	0.529	552.072	553.847	578.549	
		1	1.3	3.9	3.2	599.77	577.7	4.5625	8.75	3.9625	8.15	100.48	92.84	0.473	0.471	578.549	576.476		
		3	1.3	3.9	3.2	435.96	577.671	4.5625	8.75	3.9625	8.15	79.88	76.28	0.569	0.580	595.637	607.087	607.087	
		1	1.3	3.9	3.2	435.96	577.671	4.5625	8.75	3.9625	8.15	60.58	55.32	0.431	0.420	451.724	440.273		
		4	1.3	3.9	3.2	352.5	0	4.5625	0	3.9625	0	27.33	15.46	0.594	0.707	224.871	267.787	425.632	
		1	1.3	3.9	3.2	435.96	577.671	4.5625	8.75	3.9625	8.15	18.71	6.41	0.406	0.293	425.632	306.977		
K2-G	Atap	1	1.54	0.965	0	0	0	0	0	0	0	1.02	0.35	0.208	0.156	0.000	0.000	187.922	
		1	1.54	0.965	352.5	0	4.5625	0	4.5625	0	3.9625	0	3.88	1.9	0.792	0.844	176.215	187.922	
K1-F	1	1.3	4.36	3.66	577.7	516.31	8.75	6.25	8.15	5.65	110.16	107.46	0.443	0.444	504.464	505.342	505.342		
		1	4.36	3.66	352.5	352.5	8.75	6.25	8.15	5.65	138.26	134.45	0.557	0.556	314.117	313.681			
		2	1.3	3.9	3.2	577.671	516.31	8.75	6.25	8.15	5.65	100.36	97.28	0.537	0.539	596.908	599.663	599.663	
		1	1.3	3.9	3.2	577.7	516.31	8.75	6.25	8.15	5.65	86.59	83.1	0.463	0.461	515.022	512.266		
		3	1.3	3.9	3.2	577.671	435.96	8.75	6.25	8.15	5.65	81.95	73.13	0.594	0.587	611.126	604.205	611.126	
		1	1.3	3.9	3.2	577.671	516.31	8.75	6.25	8.15	5.65	56.03	51.41	0.406	0.413	451.519	458.998		
		4	1.3	3.9	3.2	0	352.5	0	6.25	0	5.65	16.6	19.64	0.947	0.690	344.630	251.062	344.630	
		4	1.3	3.9	3.2	577.671	435.96	8.75	6.25	8.15	5.65	0.93	8.83	0.053	0.310	54.588	319.133		
K2-F	Atap	1	1.54	0.965	0	0	0	0	0	0	0	0.41	0.65	0.220	0.258	0.000	0.000	166.671	

K1-E	1	1.54	0.965	0	352.5	0	6.25	0	5.65	1.45	1.87	0.780	0.742	166.671	158.652	
	1.3	4.36	3.66	516.31	577.7	6.25	8.75	5.65	8.15	109.18	108.01	0.444	0.444	504.628	504.985	
	1	4.36	3.66	352.5	352.5	6.25	8.75	5.65	8.15	136.95	135.31	0.556	0.556	314.036	313.858	
2	1.3	3.9	3.2	516.31	652.895	6.25	8.75	5.65	8.15	99.23	97.41	0.538	0.538	638.530	639.044	
	1.3	3.9	3.2	516.31	577.7	6.25	8.75	5.65	8.15	85.28	83.57	0.462	0.462	513.938	513.456	
3	1.3	3.9	3.2	435.96	577.671	6.25	8.75	5.65	8.15	74.92	74.92	0.589	0.591	606.393	607.914	
	1.3	3.9	3.2	516.31	652.895	6.25	8.75	5.65	8.15	53.1	51.89	0.411	0.409	487.589	485.834	
K2-E	1.3	3.9	3.2	435.96	577.671	6.25	8.75	5.65	8.15	17.05	18.41	0.784	0.770	285.425	280.222	
Atap	1	1.54	0.965	0	0	0	0	0	0	4.69	5.5	0.216	0.230	221.979	236.691	
K1-D	1	1.54	0.965	352.5	0	6.25	0	5.65	0	0.66	0.55	0.330	0.221	0.000	0.000	
	1.3	4.36	3.66	577.7	516.31	8.75	6.25	8.15	5.65	108.01	109.19	0.444	0.444	143.245	166.574	
	1	4.36	3.66	352.5	352.5	8.75	6.25	8.15	5.65	135.3	136.96	0.556	0.556	504.633	505.006	
2	1.3	3.9	3.2	652.895	516.31	8.75	6.25	8.15	5.65	97.4	99.23	0.538	0.538	639.049	638.530	
	1.3	3.9	3.2	577.7	516.31	8.75	6.25	8.15	5.65	83.56	85.28	0.462	0.462	513.451	513.938	
3	1.3	3.9	3.2	577.671	435.96	8.75	6.25	8.15	5.65	74.92	76.2	0.591	0.589	607.914	608.440	
	1.3	3.9	3.2	652.895	516.31	8.75	6.25	8.15	5.65	51.89	53.09	0.409	0.411	485.834	487.535	
4	1.3	3.9	3.2	0	352.5	0	6.25	0	5.65	18.39	17.05	0.770	0.784	280.386	285.425	
K2-D	1.3	3.9	3.2	577.671	435.96	8.75	6.25	8.15	5.65	5.48	4.69	0.230	0.216	236.225	221.979	
Atap	1	1.54	0.965	0	0	0	0	0	0	0.66	0.66	0.221	0.330	0.000	0.000	
K1-C	1	1.54	0.965	0	352.5	0	6.25	0	5.65	1.94	1.34	0.779	0.670	166.574	143.245	
	1.3	4.36	3.66	516.31	577.7	6.25	8.75	5.65	8.15	107.47	110.18	0.444	0.444	505.389	504.474	
	1	4.36	3.66	352.5	352.5	6.25	8.75	5.65	8.15	134.44	138.28	0.556	0.557	313.658	314.112	
2	1.3	3.9	3.2	516.31	577.671	6.25	8.75	5.65	8.15	97.28	100.37	0.539	0.537	599.629	598.871	
	1.3	3.9	3.2	516.31	577.7	6.25	8.75	5.65	8.15	83.11	86.61	0.461	0.463	512.300	515.058	
3	1.3	3.9	3.2	435.96	577.671	6.25	8.75	5.65	8.15	73.14	81.95	0.587	0.594	604.239	611.128	
	1.3	3.9	3.2	516.31	577.671	6.25	8.75	5.65	8.15	51.41	56.03	0.473	0.406	458.961	451.519	
4	1.3	3.9	3.2	352.5	0	6.25	0	5.65	0	19.62	16.6	0.690	0.947	251.160	344.827	
	1.3	3.9	3.2	435.96	577.671	6.25	8.75	5.65	8.15	8.81	0.92	0.310	0.053	318.858	54.032	
K2-C	1	1.54	0.965	0	0	0	0	0	0	0.65	0.41	0.258	0.220	0.000	0.000	
K1-B	1	1.54	0.965	352.5	0	6.25	0	5.65	0	1.87	1.45	0.742	0.780	158.652	166.671	
	1.3	4.36	3.66	577.7	599.77	8.75	4.5625	8.15	3.9625	115.06	120.32	0.452	0.451	566.081	564.321	
	1	4.36	3.66	352.5	352.5	8.75	4.5625	8.15	3.9625	139.35	146.55	0.548	0.549	315.553	316.363	
2	1.3	3.9	3.2	577.671	435.96	8.75	4.5625	8.15	3.9625	104.19	112.01	0.529	0.527	553.847	552.096	
	1.3	3.9	3.2	577.7	599.77	8.75	4.5625	8.15	3.9625	92.84	100.48	0.471	0.473	578.478	578.522	
3	1.3	3.9	3.2	577.671	435.96	8.75	4.5625	8.15	3.9625	76.27	79.89	0.580	0.569	607.054	595.669	
	1.3	3.9	3.2	577.671	435.96	8.75	4.5625	8.15	3.9625	55.32	60.58	0.420	0.431	440.307	451.691	
4	1.3	3.9	3.2	0	352.5	0	4.5625	0	3.9625	15.47	27.33	0.707	0.594	267.655	224.871	
	1.3	3.9	3.2	577.671	435.96	8.75	4.5625	8.15	3.9625	6.425	18.71	0.293	0.406	307.344	425.632	
K2-B	1	1.54	0.965	0	0	0	0	0	0	0.35	1.02	0.156	0.208	0.000	0.000	
K1-A	1	1.54	0.965	352.5	0	4.5625	0	3.9625	0	3.9625	1.9	3.88	0.844	0.792	187.922	176.215
	1.3	4.36	3.66	435.96	0	4.5625	0	3.9625	0	90.18	94.98	0.423	0.421	202.735	201.567	
	1	4.36	3.66	352.5	0	4.5625	0	3.9625	0	123.03	130.88	0.577	0.579	172.028	172.754	
2	1.3	3.9	3.2	435.96	0	4.5625	0	3.9625	0	74.68	80.42	0.566	0.559	265.263	261.885	
	1.3	3.9	3.2	435.96	0	4.5625	0	3.9625	0	57.22	63.45	0.434	0.441	203.245	206.623	
3	1.3	3.9	3.2	352.5	0	4.5625	0	3.9625	0	55.91	62.37	0.630	0.620	238.563	234.976	
	1.3	3.9	3.2	435.96	0	4.5625	0	3.9625	0	32.87	38.18	0.370	0.380	173.461	177.898	
4	1.3	3.9	3.2	352.5	0	4.5625	0	3.9625	0	17.28	23.16	0.911	0.932	345.251	353.197	

As4		1.3	3.9	3.2	352.5	0	4.5625	0	0	0	3.9625	0	1.68	1.68	0.089	0.068	33.566	25.620	228.726
K1-G	1	1.3	4.36	3.66	0	194.136	0	8.75	0	8.15	0	8.75	20.02	16.12	0.183	0.177	36.368	35.263	228.726
		1	4.36	3.66	0	352.5	0	8.75	0	8.15	0	8.75	89.54	74.86	0.817	0.823	227.184	228.726	
	2	1.3	3.9	3.2	0	194.136	0	8.75	0	8.15	0	8.75	38.09	26.53	0.776	0.730	150.881	141.980	150.881
		1.3	3.9	3.2	0	194.136	0	8.75	0	8.15	0	8.75	11.02	9.82	0.224	0.270	43.652	52.553	
	3	1.3	3.9	3.2	0	194.136	0	8.75	0	8.15	0	8.75	35.58	22.28	0.709	0.813	137.933	158.240	158.240
		1.3	3.9	3.2	0	194.136	0	8.75	0	8.15	0	8.75	14.6	5.11	0.291	0.187	56.600	36.293	
	4	1.3	3.9	3.2	0	352.5	0	8.75	0	8.15	0	8.75	1.91	13.55	0.068	0.637	24.069	225.018	225.018
K2-G	Atap	1	1.54	0.965	0	194.136	0	8.75	0	8.15	0	8.75	26.12	7.72	0.932	0.363	181.277	70.606	
		1	1.54	0.965	0	352.5	0	8.75	0	8.15	0	8.75	0.29	2.58	0.165	0.466	34.191	96.635	173.312
K1-F	1	1.3	4.36	3.66	194.136	0	8.75	0	8.75	0	8.15	0	19.49	15.55	0.180	0.173	35.777	34.333	230.025
		1	4.36	3.66	352.5	0	8.75	0	8.75	0	8.15	0	88.93	74.59	0.820	0.827	228.009	230.025	
	2	1.3	3.9	3.2	194.136	0	8.75	0	8.75	0	8.15	0	37.6	26.37	0.784	0.743	152.607	144.462	152.607
		1.3	3.9	3.2	194.136	0	8.75	0	8.75	0	8.15	0	10.33	9.14	0.216	0.257	41.926	50.071	
	3	1.3	3.9	3.2	194.136	0	8.75	0	8.75	0	8.15	0	35.48	20.01	0.705	0.779	137.217	151.463	151.463
		1.3	3.9	3.2	194.136	0	8.75	0	8.75	0	8.15	0	14.82	5.69	0.295	0.221	57.316	43.070	
	4	1.3	3.9	3.2	352.5	352.5	8.75	8.75	6.25	8.15	5.65	0	4.76	20.68	0.157	0.791	112.625	567.362	567.362
K2-F	Atap	1	1.54	0.965	352.5	352.5	8.75	8.75	6.25	8.15	5.65	0	25.55	5.46	0.843	0.209	163.983	40.633	
		1	1.54	0.965	352.5	352.5	8.75	8.75	6.25	8.15	5.65	0	3.14	4.81	0.573	0.762	241.403	321.151	321.151
K1-E	1	1.3	4.36	3.66	0	168.448	0	8.75	0	8.15	0	8.75	2.34	1.5	0.427	0.238	179.899	100.151	
		1	4.36	3.66	0	352.5	0	8.75	0	8.15	0	8.75	16.04	16.04	0.173	0.173	29.952	29.958	229.766
	2	1.3	3.9	3.2	168.448	0	8.75	0	8.75	0	8.15	0	76.44	76.42	0.827	0.827	229.766	229.755	
		1.3	3.9	3.2	168.448	0	8.75	0	8.75	0	8.15	0	27.63	27.29	0.738	0.737	124.599	124.361	124.599
	3	1.3	3.9	3.2	0	168.448	0	8.75	0	8.15	0	8.75	9.8	9.75	0.262	0.263	44.194	44.431	
		1.3	3.9	3.2	0	168.448	0	8.75	0	8.15	0	8.75	22.1	23.95	0.780	0.804	131.674	135.703	135.703
	4	1.3	3.9	3.2	352.5	352.5	6.25	8.75	5.65	8.15	5.65	0	6.23	5.84	0.220	0.196	37.119	33.090	
K2-E	Atap	1	1.54	0.965	352.5	352.5	6.25	8.75	6.25	8.15	5.65	0	19.81	18.4	0.721	0.654	516.803	469.265	516.803
		1.3	3.9	3.2	0	168.448	0	8.75	0	8.15	0	8.75	7.68	9.72	0.279	0.346	47.156	58.345	
	2	1.3	3.9	3.2	352.5	352.5	6.25	8.75	6.25	8.15	5.65	0	2.71	4.1	0.402	0.798	169.396	336.058	336.058
		1.3	3.9	3.2	352.5	352.5	6.25	8.75	6.25	8.15	5.65	0	4.03	1.04	0.598	0.202	251.906	85.244	
K1-D	1	1.3	4.36	3.66	168.448	0	8.75	0	8.75	0	8.15	0	16.06	16.02	0.174	0.173	29.979	29.930	229.800
		1	4.36	3.66	352.5	0	8.75	0	8.75	0	8.15	0	76.45	76.41	0.826	0.827	229.721	229.800	
	2	1.3	3.9	3.2	168.448	0	8.75	0	8.75	0	8.15	0	27.31	27.62	0.737	0.738	124.453	124.554	124.554
		1.3	3.9	3.2	168.448	0	8.75	0	8.75	0	8.15	0	9.73	9.81	0.263	0.262	44.340	44.239	
	3	1.3	3.9	3.2	168.448	0	8.75	0	8.75	0	8.15	0	23.96	22.09	0.803	0.781	135.623	131.800	135.623
		1.3	3.9	3.2	168.448	0	8.75	0	8.75	0	8.15	0	5.86	6.2	0.197	0.219	33.170	36.992	
	4	1.3	3.9	3.2	352.5	352.5	8.75	8.75	6.25	8.15	5.65	0	18.37	19.83	0.654	0.721	468.666	517.137	517.137
K2-D	Atap	1	1.54	0.965	352.5	352.5	8.75	8.75	6.25	8.15	5.65	0	9.74	7.67	0.346	0.279	58.486	47.078	
		1	1.54	0.965	352.5	352.5	8.75	8.75	6.25	8.15	5.65	0	4.1	2.71	0.799	0.401	336.713	169.145	336.713
K1-C	1	1.3	4.36	3.66	194.136	0	8.75	0	8.75	0	8.15	0	1.03	4.04	0.201	0.599	84.589	252.157	
		1	4.36	3.66	352.5	0	8.75	0	8.75	0	8.15	0	15.54	19.51	0.172	0.180	34.326	35.797	230.035
	2	1.3	3.9	3.2	194.136	0	8.75	0	8.75	0	8.15	0	74.56	88.96	0.828	0.820	230.035	227.980	
		1.3	3.9	3.2	194.136	0	8.75	0	8.75	0	8.15	0	26.35	37.61	0.742	0.785	144.433	152.679	152.679
	3	1.3	3.9	3.2	194.136	0	8.75	0	8.75	0	8.15	0	9.14	10.31	0.258	0.215	50.100	41.854	
		1.3	3.9	3.2	194.136	0	8.75	0	8.75	0	8.15	0	20.01	35.48	0.779	0.705	151.581	137.217	151.581
	4	1.3	3.9	3.2	352.5	352.5	6.25	8.75	6.25	8.15	5.65	0	5.67	14.82	0.221	0.295	42.952	57.316	
		1.3	3.9	3.2	352.5	352.5	6.25	8.75	6.25	8.15	5.65	0	20.7	4.76	0.792	0.157	567.694	112.588	567.694

K2-C	Atap	1	1.54	0.965	352.5	0	194.136	0	8.75	0	8.15	5.45	25.56	0.208	0.843	40.543	163.993	
		1	1.54	0.965	352.5	352.5	352.5	6.25	8.75	5.65	8.15	4.81	3.14	0.761	0.572	320.643	240.963	320.643
K1-B	1	1.3	4.36	3.66	194.136	0	194.136	8.75	0	8.15	0	16.11	20.04	0.177	0.183	35.261	36.387	228.730
		1	4.36	3.66	194.136	0	194.136	8.75	0	8.15	0	74.82	89.57	0.823	0.817	228.730	227.156	
	2	1.3	3.9	3.2	194.136	0	194.136	8.75	0	8.15	0	26.51	38.1	0.730	0.776	141.951	150.951	150.951
		1	3.9	3.2	194.136	0	194.136	8.75	0	8.15	0	9.82	11	0.270	0.224	52.582	43.582	
	3	1.3	3.9	3.2	194.136	0	194.136	8.75	0	8.15	0	22.28	35.58	0.814	0.709	158.356	137.906	158.356
		1	3.9	3.2	194.136	0	194.136	8.75	0	8.15	0	5.09	14.61	0.186	0.291	36.177	56.627	
	4	1.3	3.9	3.2	352.5	0	352.5	8.75	0	8.15	0	13.57	1.91	0.638	0.068	225.245	24.060	225.245
		1	3.9	3.2	352.5	0	352.5	8.75	0	8.15	0	7.71	26.13	0.362	0.932	70.482	181.282	
K2-B	Atap	1	1.54	0.965	352.5	0	352.5	8.75	0	8.15	0	2.58	0.29	0.465	0.165	96.461	34.191	173.312
		1	1.54	0.965	352.5	0	352.5	8.75	0	8.15	0	2.97	1.47	0.535	0.835	111.042	173.312	

Tabel 62. Momen Rencana Kolom Akibat Kapasitas Balok Arah Y

Portal	Kolom	Lt	ω d	h (m)	h <sub>n</sub> (m)	Mnax balok (KNm)			Panjang balok (m)			Ln (m)			ME k (KNm)			α			Mu k (KNm)			Mu k pakai						
						Atas	Bawah	Kiri	Atas	Bawah	Kiri	Atas	Bawah	Kiri	Atas	Bawah	Kiri	Atas	Bawah	Kiri	Atas	Bawah	Kiri	Atas	Bawah	Kiri	Atas	Bawah	Atas	Bawah
						Atas	Bawah	Kiri	Atas	Bawah	Kiri	Atas	Bawah	Kiri	Atas	Bawah	Kiri	Atas	Bawah	Kiri	Atas	Bawah	Kiri	Atas	Bawah	Kiri	Atas	Bawah	Atas	Bawah
As A	K1-1	1	1.3	4.36	3.66	352.5	677.01	2.475	3	2.175	2.4	107.44	105.08	0.428	0.428	0.428	509.662	509.776	509.776	185.160	185.130	581.451	581.451			509.776	509.776			
		2	1.3	3.9	3.2	352.5	599.77	2.475	3	2.175	2.4	143.65	140.44	0.572	0.572	0.572	581.356	581.451	581.451	534.095	533.992									
		3	1.3	3.9	3.2	352.5	435.96	2.475	3	2.175	2.4	71.91	70.3	0.459	0.459	0.459	509.183	509.183	509.183	454.723	455.039									
		4	1.3	3.9	3.2	352.5	599.77	2.475	3	2.175	2.4	47.47	46.41	0.423	0.423	0.423	533.797	533.797	533.797	533.099	533.099									
		1	1.3	3.9	3.2	352.5	435.96	2.475	3	2.175	2.4	29.76	29.09	0.679	0.679	0.679	283.044	283.829	283.829	283.044	283.829									
		2	1.3	3.9	3.2	352.5	519.42	516.31	3	6.25	2.4	14.04	13.78	0.321	0.321	0.321	539.633	539.646	539.646	539.633	539.646									
	K1-2	1	1.3	4.36	3.66	352.5	677.01	2.475	3	2.175	2.4	143.38	140.29	0.463	0.463	0.463	537.561	537.561	537.561	531.438	531.422									
		2	1.3	3.9	3.2	352.5	516.31	3	6.25	2.4	5.65	5.65	166.25	162.66	0.537	0.537	531.438	531.438	531.438	531.438	531.422									
		3	1.3	3.9	3.2	352.5	435.96	3	6.25	2.4	5.65	5.65	130.9	128.08	0.510	0.510	531.438	531.438	531.438	531.438	531.422									
		4	1.3	3.9	3.2	352.5	516.31	3	6.25	2.4	5.65	5.65	96.41	94.34	0.537	0.537	462.225	462.153	462.153	462.225	462.153									
		1	1.3	3.9	3.2	352.5	435.96	3	6.25	2.4	5.65	5.65	83.25	81.49	0.463	0.463	482.690	482.778	482.778	482.690	482.778									
		2	1.3	3.9	3.2	352.5	516.31	3	6.25	2.4	5.65	5.65	57.35	56.29	0.579	0.579	448.698	448.508	448.508	448.698	448.508									
As B	K1-1	1	1.3	4.36	3.66	516.31	0	6.25	0	5.65	0	85.96	84.19	0.402	0.402	219.095	219.015	219.015	219.095	219.015										
		2	1.3	3.9	3.2	435.96	0	6.25	0	5.65	0	67.82	66.43	0.591	0.591	265.838	265.712	265.712	265.838	265.712										
		3	1.3	3.9	3.2	435.96	0	6.25	0	5.65	0	59.33	58.19	0.603	0.603	271.252	271.079	271.079	271.252	271.079										
		4	1.3	3.9	3.2	435.96	0	6.25	0	5.65	0	42.94	42.23	0.696	0.696	253.364	253.114	253.114	253.364	253.114										
As B	K1-1	1	1.3	4.36	3.66	516.31	677.01	2.475	3	2.175	2.4	130.5	127.16	0.430	0.430	588.239	588.570	588.570	588.239	588.570										
		2	1.3	3.9	3.2	435.96	599.77	2.475	3	2.175	2.4	115	111.91	0.536	0.536	668.795	669.897	669.897	668.795	669.897										
		3	1.3	3.9	3.2	435.96	435.96	2.475	3	2.175	2.4	99.61	96.59	0.484	0.484	621.119	619.937	619.937	621.119	619.937										
		4	1.3	3.9	3.2	435.96	599.77	2.475	3	2.175	2.4	57.28	54.55	0.403	0.403	502.923	502.867	502.867	502.923	502.867										
As B	K2-1	1	1.3	3.9	3.2	435.96	352.5	2.475	3	2.175	2.4	18.63	19.95	0.935	0.935	817.242	826.620	826.620	817.242	826.620										
		2	1.3	3.9	3.2	435.96	352.5	2.475	3	2.175	2.4	1.3	1.3	0.065	0.065	68.945	57.608	57.608	68.945	57.608										
		3	1.3	3.9	3.2	435.96	352.5	2.475	3	2.175	2.4	1.09	0.85	0.222	0.222	204	49.246	49.246	204	49.246										
		4	1.3	3.9	3.2	435.96	352.5	2.475	3	2.175	2.4	3.83	3.32	0.778	0.778	399.813	408.908	408.908	399.813	408.908										
As B	K1-2	1	1.3	4.36	3.66	680.12	751.15	3	6.25	2.4	5.65	169.95	165.85	0.462	0.462	740.875	741.013	741.013	740.875	741.013										
		2	1.3	3.9	3.2	352.5	667.69	3	6.25	2.4	5.65	166.97	162.72	0.512	0.512	662.939	663.306	663.306	662.939	663.306										
		3	1.3	3.9	3.2	352.5	667.69	3	6.25	2.4	5.65	166.97	162.72	0.512	0.512	662.939	663.306	663.306	662.939	663.306										
		4	1.3	3.9	3.2	680.12	751.15	3	6.25	2.4	5.65	159.28	155.05	0.488	0.488	766.007	765.563	765.563	766.007	765.563										

K2-2	3	1.3	3.9	3.2	352.5	593.55	3	6.25	2.4	5.65	118.43	114.19	0.550	563.330	563.282	582.843
		1.3	3.9	3.2	519.42	667.69	3	6.25	2.4	5.65	96.86	93.41	0.450	562.782	582.843	
	4	1.3	3.9	3.2	352.5	435.96	3	6.25	2.4	5.65	44.74	44.6	0.628	540.795	535.870	540.795
		1.3	3.9	3.2	352.5	593.55	3	6.25	2.4	5.65	26.52	27.09	0.372	381.112	386.969	
	Atap	1	1.54	0.965	352.5	352.5	3	6.25	2.4	5.65	3.6	3.83	0.630	287.112	282.225	287.112
		1	1.54	0.965	352.5	435.96	3	6.25	2.4	5.65	2.11	2.35	0.370	186.985	192.415	
K1-3	1	1.3	4.36	3.66	677.01	258.66	6.25	2.75	5.65	2.15	131.98	129.3	0.419	431.900	431.806	431.900
		1	4.36	3.66	352.5	352.5	6.25	2.75	5.65	2.15	183.08	179.43	0.581	358.877	358.934	
	2	1.3	3.9	3.2	593.55	205.37	6.25	2.75	5.65	2.15	119.62	117.43	0.546	468.552	468.660	468.660
		1.3	3.9	3.2	677.01	258.66	6.25	2.75	5.65	2.15	99.42	97.55	0.454	457.415	457.287	
	3	1.3	3.9	3.2	516.31	149.65	6.25	2.75	5.65	2.15	92.82	91.08	0.591	420.934	421.723	421.723
		1.3	3.9	3.2	593.55	205.37	6.25	2.75	5.65	2.15	64.12	62.63	0.409	350.540	349.589	
	4	1.3	3.9	3.2	352.5	352.5	6.25	2.75	5.65	2.15	50.83	48.72	0.720	564.839	569.708	569.708
		1.3	3.9	3.2	516.31	149.65	6.25	2.75	5.65	2.15	19.79	18.39	0.280	199.446	195.030	
K2-3	Atap	1	1.54	0.965	352.5	352.5	6.25	2.75	5.65	2.15	7.42	6.94	0.544	250.784	253.318	253.318
		1	1.54	0.965	352.5	352.5	6.25	2.75	5.65	2.15	6.22	5.69	0.456	210.226	207.692	
K1-4	1	1.3	4.36	3.66	232.62	0	2.75	0	2.15	0	72.24	70.99	0.324	92.086	91.966	223.974
		1	4.36	3.66	352.5	0	2.75	0	2.15	0	150.64	148.32	0.676	223.834	223.974	
	2	1.3	3.9	3.2	205.37	0	2.75	0	2.15	0	48.47	47.49	0.809	198.387	197.509	198.387
		1.3	3.9	3.2	232.62	0	2.75	0	2.15	0	11.43	11.46	0.191	52.990	53.986	
	3	1.3	3.9	3.2	149.65	0	2.75	0	2.15	0	45.78	47.68	0.813	145.167	145.187	145.187
		1.3	3.9	3.2	205.37	0	2.75	0	2.15	0	10.56	10.99	0.187	45.953	45.925	
	4	1.3	3.9	3.2	352.5	0	2.75	0	2.15	0	28.47	25.04	0.708	297.802	264.288	297.802
		1.3	3.9	3.2	149.65	0	2.75	0	2.15	0	11.76	14.83	0.292	52.223	66.451	
K2-4	Atap	1	1.54	0.965	352.5	0	2.75	0	2.15	0	3.24	2.89	0.612	151.411	148.224	151.411
		1	1.54	0.965	352.5	0	2.75	0	2.15	0	2.05	1.93	0.388	95.800	98.987	
As C	1	1.3	4.36	3.66	516.31	657.7	2.475	9.25	2.175	8.65	118.01	115.91	0.366	450.573	453.974	453.974
K1-1		1	4.36	3.66	0	352.5	0	9.25	0	8.65	204.82	198.8	0.634	175.665	174.901	
	2	1.3	3.9	3.2	516.31	652.895	2.475	9.25	2.175	8.65	141.53	136.06	0.554	665.107	670.325	670.325
		1.3	3.9	3.2	516.31	657.7	2.475	9.25	2.175	8.65	113.82	107.51	0.446	537.024	531.785	
	3	1.3	3.9	3.2	516.31	577.671	2.475	9.25	2.175	8.65	118.16	116.5	0.684	769.213	785.734	379.213
		1.3	3.9	3.2	516.31	652.895	2.475	9.25	2.175	8.65	54.64	50.29	0.316	379.442	361.818	
	4	1.3	3.9	3.2	435.96	0	2.475	0	2.175	0	14.13	0.3	0.748	346.162	9.115	346.162
		1.3	3.9	3.2	516.31	577.671	2.475	9.25	2.175	8.65	4.77	14.94	0.252	283.907	1102.771	
K2-1	Atap	1	1.54	0.965	0	352.5	0	9.25	0	8.65	4.14	7.65	0.263	54.362	168.561	200.461
		1	1.54	0.965	435.96	0	2.475	0	2.175	0	11.6	1.73	0.737	200.461	50.167	
K1-3	1	1.3	4.36	3.66	652.9	244.814	9.25	2.75	8.65	2.15	165.92	161.68	0.396	382.649	382.817	414.454
		1	4.36	3.66	352.5	435.96	9.25	2.75	8.65	2.15	252.81	246.17	0.604	414.454	414.334	
	2	1.3	3.9	3.2	652.895	168.448	9.25	2.75	8.65	2.15	186.69	182.88	0.532	453.357	455.666	455.666
		1.3	3.9	3.2	652.9	244.814	9.25	2.75	8.65	2.15	164.46	159.36	0.458	442.073	439.516	
	3	1.3	3.9	3.2	577.671	231.41	9.25	2.75	8.65	2.15	140.45	130.9	0.617	526.288	530.048	530.048
		1.3	3.9	3.2	652.895	168.448	9.25	2.75	8.65	2.15	87.14	79.71	0.383	326.495	322.734	
	4	1.3	3.9	3.2	0	352.5	0	2.75	0	2.15	51.77	51.41	0.771	324.576	324.397	324.576
		1.3	3.9	3.2	577.671	231.41	9.25	2.75	8.65	2.15	15.35	15.28	0.229	195.034	195.397	
K2-3	Atap	1	1.54	0.965	352.5	352.5	9.25	2.75	8.65	2.15	10.99	7.24	0.610	833	276.665	378.156
		1	1.54	0.965	0	352.5	0	2.75	0	2.15	7.04	1.45	0.390	96.526	41.249	
K1-4	1	1.3	4.36	3.66	194.136	0	2.75	0	2.15	0	86.94	84.53	0.291	68.932	68.722	290.873
		1	4.36	3.66	435.96	0	2.75	0	2.15	0	212.11	207.12	0.709	290.510	290.873	

2	1.3	3.9	3.2	258.66	0	2.75	0	2.15	0	86.34	86.04	0.673	207.735	207.823	207.823
	1.3	3.9	3.2	194.136	0	2.75	0	2.15	0	42	41.8	0.327	75.845	75.779	75.779
	1.3	3.9	3.2	149.65	0	2.75	0	2.15	0	72.37	72.85	0.861	153.899	158.196	158.196
	1.3	3.9	3.2	258.66	0	2.75	0	2.15	0	11.64	9.42	0.139	42.784	35.357	35.357
	1.3	3.9	3.2	352.5	0	2.75	0	2.15	0	44.56	39.34	0.701	294.927	267.099	294.927
	1.3	3.9	3.2	149.65	0	2.75	0	2.15	0	19.02	22.64	0.299	53.444	65.258	65.258
	1.3	3.9	3.2	352.5	0	2.75	0	2.15	0	7.43	4.08	0.507	125.247	130.481	130.481
	1.3	3.9	3.2	516.31	0	2.75	0	2.15	0	7.43	3.65	0.493	121.964	116.730	116.730
	1.3	3.9	3.2	516.31	657.7	2.475	9.25	2.175	8.65	130.77	128.09	0.365	449.476	452.828	452.828
	1.3	3.9	3.2	516.31	352.5	0	9.25	0	8.65	227.84	220.57	0.635	175.912	175.159	175.159
	1.3	3.9	3.2	516.31	652.895	2.475	9.25	2.175	8.65	158.25	151.81	0.555	666.009	671.376	671.376
	1.3	3.9	3.2	516.31	657.7	2.475	9.25	2.175	8.65	126.88	119.53	0.445	536.119	530.731	530.731
	1.3	3.9	3.2	516.31	577.671	2.475	9.25	2.175	8.65	130.44	128.23	0.685	770.337	787.551	787.551
	1.3	3.9	3.2	516.31	652.895	2.475	9.25	2.175	8.65	60.04	54.93	0.315	378.242	359.880	359.880
	1.3	3.9	3.2	516.31	0	2.475	0	2.175	0	17.69	3	0.821	450.136	91.955	450.136
	1.3	3.9	3.2	516.31	577.671	2.475	9.25	2.175	8.65	3.86	14.89	0.179	201.493	936.276	936.276
	1.3	3.9	3.2	516.31	352.5	0	9.25	0	8.65	3.24	6.78	0.162	33.533	155.699	269.873
	1.3	3.9	3.2	516.31	0	2.475	0	2.175	0	16.73	2.22	0.838	289.873	79.461	289.873
	1.3	3.9	3.2	657.7	168.448	9.25	2.75	8.65	2.15	185.32	180.13	0.397	347.930	348.178	461.536
	1.3	3.9	3.2	352.5	519.42	9.25	2.75	8.65	2.15	281.97	273.75	0.603	461.536	461.320	461.320
	1.3	3.9	3.2	652.895	194.136	9.25	2.75	8.65	2.15	209.34	204.24	0.534	469.021	471.576	471.576
	1.3	3.9	3.2	657.7	168.448	9.25	2.75	8.65	2.15	184.95	178.36	0.469	402.240	399.760	399.760
	1.3	3.9	3.2	652.895	258.66	9.25	2.75	8.65	2.15	158.75	147.39	0.619	594.716	599.386	599.386
	1.3	3.9	3.2	652.895	194.136	9.25	2.75	8.65	2.15	97.62	88.78	0.381	336.378	332.082	332.082
	1.3	3.9	3.2	352.5	0	2.475	0	2.175	0	54.02	53	0.805	338.582	339.366	339.366
	1.3	3.9	3.2	652.895	258.66	9.25	2.75	8.65	2.15	13.12	12.72	0.195	187.679	185.889	185.889
	1.3	3.9	3.2	352.5	352.5	9.25	2.75	8.65	2.15	12.71	8.67	0.583	264.631	332.649	332.649
	1.3	3.9	3.2	352.5	0	2.475	0	2.175	0	9.09	3.16	0.417	103.080	66.034	66.034
	1.3	3.9	3.2	194.136	0	2.75	0	2.15	0	96.53	93.75	0.290	68.791	68.678	346.649
	1.3	3.9	3.2	519.42	0	2.75	0	2.15	0	236.19	229.92	0.710	346.416	346.649	346.649
	1.3	3.9	3.2	168.448	0	2.75	0	2.15	0	96.52	95.8	0.671	134.957	135.295	135.295
	1.3	3.9	3.2	194.136	0	2.75	0	2.15	0	47.3	46.59	0.329	76.222	75.832	75.832
	1.3	3.9	3.2	178.12	0	2.75	0	2.15	0	83.17	82.77	0.864	183.819	189.086	189.086
	1.3	3.9	3.2	168.448	0	2.75	0	2.15	0	13.04	10.31	0.136	27.256	22.274	22.274
	1.3	3.9	3.2	352.5	0	2.75	0	2.15	0	45.77	40.09	0.649	273.046	247.295	273.046
	1.3	3.9	3.2	178.12	0	2.75	0	2.15	0	24.77	28.13	0.351	74.668	87.680	87.680
	1.3	3.9	3.2	352.5	0	2.75	0	2.15	0	9.17	5.33	0.493	121.812	123.954	123.954
	1.3	3.9	3.2	516.31	352.5	2.475	9.25	2.175	8.65	9.44	5.3	0.507	125.399	123.257	123.257
	1.3	3.9	3.2	516.31	733.7	2.475	9.25	2.175	8.65	132.71	129.27	0.367	480.468	482.355	482.355
	1.3	3.9	3.2	516.31	352.5	0	9.25	0	8.65	229.18	221.86	0.633	175.343	174.944	174.944
	1.3	3.9	3.2	516.31	652.895	2.475	9.25	2.175	8.65	158.5	152.05	0.554	665.125	670.460	670.460
	1.3	3.9	3.2	516.31	733.7	2.475	9.25	2.175	8.65	127.46	120.09	0.446	570.817	565.122	565.122
	1.3	3.9	3.2	516.31	652.895	2.475	9.25	2.175	8.65	130.32	128.11	0.685	701.822	840.842	840.842
	1.3	3.9	3.2	516.31	652.895	2.475	9.25	2.175	8.65	59.83	54.72	0.315	377.574	359.151	359.151
	1.3	3.9	3.2	516.31	0	2.475	0	2.175	0	17.65	2.96	0.821	166.449	90.932	449.953
	1.3	3.9	3.2	516.31	652.895	2.475	9.25	2.175	8.65	3.86	14.89	0.179	215.341	1001.003	1001.003
	1.3	3.9	3.2	516.31	352.5	0	9.25	0	8.65	3.25	6.79	0.163	33.704	156.625	269.606
	1.3	3.9	3.2	516.31	0	2.475	0	2.175	0	16.68	2.17	0.837	269.606	78.018	78.018

K1-3	1	1.3	4.36	3.66	657.7	168.448	9.25	2.75	8.65	2.15	186.29	181.07	0.397	0.397	348.187	348.437	461.312
		1	4.36	3.66	352.5	519.42	9.25	2.75	8.65	2.15	283.1	274.84	0.603	0.603	461.312	461.094	
	2	1.3	3.9	3.2	577.671	194.136	9.25	2.75	8.65	2.15	209.2	204.11	0.532	0.532	429.744	432.092	432.092
		1.3	3.9	3.2	657.7	168.448	9.25	2.75	8.65	2.15	184.29	177.72	0.468	0.468	401.620	399.129	
	3	1.3	3.9	3.2	652.895	258.66	9.25	2.75	8.65	2.15	158.61	147.25	0.619	0.619	594.749	599.401	599.401
		1.3	3.9	3.2	577.671	194.136	9.25	2.75	8.65	2.15	97.52	88.69	0.381	0.381	307.762	303.847	
	4	1.3	3.9	3.2	0	352.5	0	2.75	0	2.15	53.96	52.95	0.805	0.805	338.559	339.356	339.356
		1.3	3.9	3.2	652.895	258.66	9.25	2.75	8.65	2.15	13.11	12.71	0.194	0.194	187.732	185.912	
K2-3	Atap	1	1.54	0.965	352.5	352.5	9.25	2.75	8.65	2.15	12.69	8.65	0.734	0.734	264.579	333.008	333.008
		1	1.54	0.965	0	352.5	0	2.75	0	2.15	9.08	3.14	0.417	0.417	103.109	65.839	
K1-4	1	1.3	4.36	3.66	194.136	0	2.75	0	2.15	0	97.42	94.61	0.291	0.291	69.022	68.909	346.172
		1	4.36	3.66	519.42	0	2.75	0	2.15	0	237.24	230.93	0.709	0.709	345.939	346.172	
	2	1.3	3.9	3.2	168.448	0	2.75	0	2.15	0	96.47	95.75	0.674	0.674	135.499	135.835	135.835
		1.3	3.9	3.2	194.136	0	2.75	0	2.15	0	46.7	46	0.326	0.326	75.597	75.209	
	3	1.3	3.9	3.2	178.12	0	2.75	0	2.15	0	83.07	82.68	0.865	0.865	183.885	189.165	189.165
		1.3	3.9	3.2	168.448	0	2.75	0	2.15	0	12.99	10.26	0.135	0.135	27.193	22.199	
	4	1.3	3.9	3.2	352.5	0	2.75	0	2.15	0	45.72	40.04	0.649	0.649	273.057	247.240	273.057
		1.3	3.9	3.2	178.12	0	2.75	0	2.15	0	24.74	28.11	0.351	0.351	74.662	87.708	
K2-4	Atap	1	1.54	0.965	352.5	0	2.75	0	2.15	0	9.15	5.31	0.493	0.493	121.808	123.956	125.403
		1	1.54	0.965	352.5	0	2.75	0	2.15	0	9.42	5.28	0.507	0.507	125.403	123.255	
AsF	K1-1	1	1.3	4.36	3.66	516.31	733.7	3.125	9.25	2.825	119.12	116.91	0.366	0.366	473.391	476.816	476.816
		1	4.36	3.66	0	352.5	0	9.25	0	8.65	206.63	200.5	0.634	0.634	175.629	174.897	
	2	1.3	3.9	3.2	516.31	652.895	2.475	9.25	2.175	8.65	140.96	135.56	0.559	0.559	670.702	675.994	675.994
		1.3	3.9	3.2	516.31	733.7	3.125	9.25	2.825	8.65	111.24	105.08	0.441	0.441	558.119	552.539	
	3	1.3	3.9	3.2	516.31	652.895	2.475	9.25	2.175	8.65	117.74	116.09	0.684	0.684	820.579	838.342	838.342
		1.3	3.9	3.2	516.31	652.895	2.475	9.25	2.175	8.65	54.44	50.08	0.316	0.316	379.415	361.652	
	4	1.3	3.9	3.2	435.96	0	2.475	0	2.175	0	13.99	0.17	0.743	0.743	344.189	5.189	344.189
		1.3	3.9	3.2	516.31	652.895	2.475	9.25	2.175	8.65	4.83	15	0.257	0.257	307.969	1186.546	
K2-1	Atap	1	1.54	0.965	0	352.5	0	9.25	0	8.65	4.14	7.65	0.265	0.265	54.675	166.959	200.050
		1	1.54	0.965	435.96	0	2.475	0	2.175	0	11.51	1.82	0.735	0.735	200.050	52.276	
K1-3	1	1.3	4.36	3.66	657.7	244.813	9.25	2.75	8.65	2.15	165.26	163.94	0.397	0.397	385.549	385.712	461.040
		1	4.36	3.66	352.5	519.42	9.25	2.75	8.65	2.15	255.32	248.59	0.603	0.603	461.040	460.911	
	2	1.3	3.9	3.2	652.895	168.448	9.25	2.75	8.65	2.15	186.62	182.82	0.533	0.533	454.520	456.825	456.825
		1.3	3.9	3.2	657.7	244.813	9.25	2.75	8.65	2.15	163.5	158.44	0.467	0.467	443.022	440.457	
	3	1.3	3.9	3.2	652.895	231.41	9.25	2.75	8.65	2.15	139.84	130.32	0.618	0.622	573.282	577.419	577.419
		1.3	3.9	3.2	652.895	168.448	9.25	2.75	8.65	2.15	86.5	79.1	0.382	0.378	325.886	322.085	
K2-3	Atap	1	1.54	0.965	352.5	352.5	9.25	2.75	8.65	2.15	51.53	51.18	0.771	0.771	324.522	324.307	324.522
		1.3	3.9	3.2	652.895	231.41	9.25	2.75	8.65	2.15	15.29	15.23	0.229	0.229	212.324	212.797	
	4	1.3	3.9	3.2	0	352.5	0	2.75	0	2.15	7.01	1.43	0.390	0.390	96.436	40.963	
		1.3	3.9	3.2	652.895	231.41	9.25	2.75	8.65	2.15	10.96	7.2	0.610	0.610	276.831	378.681	378.681
K1-4	1	1.3	4.36	3.66	168.448	0	2.75	0	2.15	0	88.78	86.34	0.293	0.292	60.295	60.090	289.956
		1	4.36	3.66	435.96	0	2.75	0	2.15	0	214.3	209.27	0.707	0.708	289.607	289.956	
	2	1.3	3.9	3.2	258.66	0	2.75	0	2.15	0	86.41	86.07	0.680	0.680	209.833	209.882	209.882
		1.3	3.9	3.2	168.448	0	2.75	0	2.15	0	40.75	40.56	0.320	0.320	64.443	64.411	
	3	1.3	3.9	3.2	149.65	0	2.75	0	2.15	0	72.04	72.54	0.884	0.888	154.373	158.661	158.661
		1.3	3.9	3.2	258.66	0	2.75	0	2.15	0	11.33	9.14	0.136	0.136	41.964	34.553	
	4	1.3	3.9	3.2	352.5	0	2.75	0	2.15	0	44.36	39.15	0.634	0.634	294.902	266.972	294.902
		1.3	3.9	3.2	149.65	0	2.75	0	2.15	0	18.94	22.56	0.299	0.299	53.454	65.312	



K2-4	Atap	1	1.54	0.965	352.5	0	2.75	0	0	2.15	0	7.6	4.05	0.508	0.527	125.170	130.365	130.365
		1	1.54	0.965	352.5	0	2.75	0	0	2.15	0	7.41	3.63	0.494	0.473	122.041	116.846	
As G	K1-1	1	1.3	4.36	3.66	500	751.15	3.125	3	2.825	2.4	130.95	127.56	0.430	0.430	612.271	612.584	612.584
		1	4.36	3.66	0	352.5	0	0	3	0	2.4	173.76	169.11	0.570	0.570	184.559	184.488	
		2	1.3	3.9	3.2	516.31	599.77	2.475	3	2.175	2.4	115.14	112.11	0.536	0.537	669.173	670.194	670.194
		3	1.3	3.9	3.2	500	751.15	3.125	3	2.825	2.4	99.61	96.67	0.464	0.463	645.930	644.790	
		3	1.3	3.9	3.2	516.31	435.96	2.475	3	2.175	2.4	84.9	80.85	0.597	0.597	631.242	631.375	631.375
		4	1.3	3.9	3.2	516.31	599.77	2.475	3	2.175	2.4	57.26	54.5	0.403	0.403	502.712	502.555	
		4	1.3	3.9	3.2	435.96	352.5	2.475	3	2.175	2.4	18.6	19.92	0.932	0.947	815.108	828.124	828.124
		1	1.3	3.9	3.2	516.31	435.96	2.475	3	2.175	2.4	1.35	1.11	0.068	0.053	71.525	55.789	
K2-1	Atap	1	1.54	0.965	0	32.5	0	0	3	0	2.4	1.1	0.85	0.223	0.204	4.970	4.540	408.908
		1	1.54	0.965	435.96	352.5	2.475	0	3	2.175	2.4	3.83	3.32	0.777	0.796	399.002	408.908	
K1-2	1	1.3	4.36	3.66	680.12	751.15	3	6.25	2.4	5.65	170.52	166.39	0.462	0.462	741.005	741.136	741.136	
		1	4.36	3.66	352.5	3	3	6.25	2.4	5.65	198.87	193.99	0.538	0.538	328.441	328.391		
		2	1.3	3.9	3.2	519.42	667.69	3	6.25	2.4	5.65	167.2	162.98	0.512	0.512	663.100	663.447	765.812
		3	1.3	3.9	3.2	680.12	751.15	3	6.25	2.4	5.65	159.42	155.23	0.488	0.488	765.812	765.392	
		3	1.3	3.9	3.2	352.5	593.55	3	6.25	2.4	5.65	118.46	114.22	0.550	0.550	563.421	563.403	582.690
		4	1.3	3.9	3.2	519.42	667.69	3	6.25	2.4	5.65	96.85	93.39	0.450	0.450	582.668	582.690	
		4	1.3	3.9	3.2	352.5	435.96	3	6.25	2.4	5.65	44.71	44.56	0.628	0.622	541.040	535.987	541.040
		1	1.3	3.9	3.2	352.5	593.55	3	6.25	2.4	5.65	26.47	27.05	0.372	0.378	380.821	386.829	
K2-2	Atap	1	1.54	0.965	352.5	3	3	6.25	2.4	5.65	3.6	3.6	3.83	0.630	0.620	287.112	282.225	287.112
		1	1.54	0.965	352.5	435.96	3	3	6.25	2.4	5.65	2.11	2.35	0.370	0.380	186.965	192.415	
K1-3	1	1.3	4.36	3.66	677.01	258.66	6.25	2.75	5.65	2.15	132.45	129.8	0.419	0.419	432.040	431.965	432.040	
		1	4.36	3.66	352.5	3	3	2.75	5.65	2.15	183.63	180.01	0.581	0.581	358.794	358.839		
		2	1.3	3.9	3.2	516.31	205.37	6.25	2.75	5.65	119.8	117.57	0.546	0.547	425.330	425.330	457.139	
		3	1.3	3.9	3.2	677.01	258.66	6.25	2.75	5.65	99.46	97.55	0.454	0.453	457.139	456.989		
		4	1.3	3.9	3.2	516.31	149.65	6.25	2.75	5.65	92.86	91.12	0.592	0.593	421.062	421.826	421.826	
		1	1.3	3.9	3.2	352.5	205.37	6.25	2.75	5.65	64.1	62.62	0.408	0.407	317.818	316.983		
		1	1.3	3.9	3.2	352.5	149.65	6.25	2.75	5.65	50.82	48.7	0.720	0.720	564.968	569.814	569.814	
		1	1.3	3.9	3.2	516.31	149.65	6.25	2.75	5.65	19.77	18.37	0.280	0.274	199.329	194.934		
K2-3	Atap	1	1.54	0.965	352.5	0	352.5	0	2.75	0	2.15	6.23	5.7	0.456	0.451	210.410	207.892	253.118
		1	1.54	0.965	352.5	352.5	352.5	6.25	2.75	5.65	2.15	7.42	6.94	0.544	0.549	250.600	253.118	253.118
K1-4	1	1.3	4.36	3.66	258.66	0	2.75	0	2.75	0	72.56	71.4	0.324	0.324	102.485	102.403	223.825	
		1	4.36	3.66	352.5	0	2.75	0	2.75	0	151.11	148.87	0.676	0.676	223.739	223.825		
		2	1.3	3.9	3.2	205.37	0	2.75	0	2.15	0	48.56	47.5	0.811	0.809	198.889	198.290	198.889
		3	1.3	3.9	3.2	208.66	0	2.75	0	2.15	0	11.3	11.23	0.189	0.191	58.281	59.045	
		4	1.3	3.9	3.2	149.65	0	2.75	0	2.15	0	45.81	47.72	0.813	0.813	145.288	145.185	145.288
		4	1.3	3.9	3.2	205.37	0	2.75	0	2.15	0	10.52	11	0.187	0.187	45.787	45.928	
		1	1.3	3.9	3.2	149.65	0	2.75	0	2.15	0	28.46	25.02	0.707	0.707	297.623	264.011	297.623
K2-4	Atap	1	1.54	0.965	352.5	0	352.5	0	2.75	0	11.78	14.86	0.293	0.293	52.299	66.569		
		1	1.54	0.965	352.5	0	352.5	0	2.75	0	3.24	2.89	0.612	0.612	80.00	151.411	151.411	
As 11	K1-1	1	1.3	4.36	3.66	435.96	677.01	3.125	3	2.825	2.4	107.17	104.82	0.428	0.428	542.443	542.541	542.541
		1	4.36	3.66	0	352.5	0	0	3	2.4	2.4	143.46	140.27	0.572	0.572	185.255	185.230	
		2	1.3	3.9	3.2	352.5	599.77	2.475	3	2.175	2.4	85.1	83.24	0.541	0.541	580.877	580.993	580.993
		3	1.3	3.9	3.2	435.96	677.01	3.125	3	2.825	2.4	72.70	70.65	0.459	0.459	569.388	569.254	
		3	1.3	3.9	3.2	352.5	435.96	2.475	3	2.175	2.4	64.87	63.34	0.577	0.576	509.157	508.956	509.157
		1	1.3	3.9	3.2	352.5	599.77	2.475	3	2.175	2.4	47.63	46.55	0.423	0.424	454.755	454.999	

K1-2																
4	1.3	3.9	3.2	352.5	352.5	2,475	3	2,175	2.4	29.85	29.18	0.679	0.678	533.827	533.008	533.827
	1.3	3.9	3.2	352.5	435.96	2,475	3	2,175	2.4	14.08	13.83	0.321	0.322	283.010	283.931	
1	1.3	4.36	3.66	519.42	516.31	3	6.25	2.4	5.65	143.16	140.1	0.463	0.463	539.468	539.503	539.503
	1	4.36	3.66	352.5	352.5	3	6.25	2.4	5.65	166.09	162.52	0.537	0.537	327.647	327.629	
2	1.3	3.9	3.2	435.96	516.31	3	6.25	2.4	5.65	131.24	128.41	0.510	0.510	531.265	531.247	558.149
	1.3	3.9	3.2	519.42	516.31	3	6.25	2.4	5.65	126.09	123.38	0.490	0.490	558.129	558.149	
3	1.3	3.9	3.2	352.5	435.96	3	6.25	2.4	5.65	96.7	94.61	0.537	0.537	462.226	462.135	482.799
	1.3	3.9	3.2	435.96	516.31	3	6.25	2.4	5.65	83.5	81.73	0.463	0.463	482.689	482.799	
4	1.3	3.9	3.2	352.5	352.5	3	6.25	2.4	5.65	57.5	56.44	0.579	0.579	448.740	448.550	448.740
	1.3	3.9	3.2	352.5	435.96	3	6.25	2.4	5.65	41.83	41.1	0.421	0.421	362.736	362.946	
1	1.3	4.36	3.66	435.96	0	6.25	0	5.65	0	85.75	84.02	0.401	0.401	184.849	184.805	184.849
	1	4.36	3.66	352.5	0	6.25	0	5.65	0	127.87	125.34	0.599	0.599	171.443	171.470	
2	1.3	3.9	3.2	435.96	0	6.25	0	5.65	0	68	66.59	0.590	0.590	265.457	265.361	265.457
	1.3	3.9	3.2	435.96	0	6.25	0	5.65	0	47.3	46.36	0.410	0.410	184.649	184.745	
3	1.3	3.9	3.2	435.96	0	6.25	0	5.65	0	59.5	58.35	0.603	0.602	271.258	271.067	271.258
	1.3	3.9	3.2	435.96	0	6.25	0	5.65	0	39.23	38.54	0.397	0.398	178.848	179.039	
4	1.3	3.9	3.2	352.5	0	6.25	0	5.65	0	43.04	42.32	0.696	0.696	253.420	253.153	253.420
	1.3	3.9	3.2	435.96	0	6.25	0	5.65	0	18.77	18.52	0.304	0.304	136.685	137.015	
K1-3																

Tabel 63. Gaya Aksial Maksimum Rencana Kolom Arah X

Portal	Kolom	Lt	PD	PL	Pex,ki	Pex,ka	Pey,ki	Pey,ka	Pu,k max ki	Pu,k max ka	Pu,k pakai KN
			Atas	Atas	Atas	Atas	Atas	Atas	Atas	Atas	
			Bawah	Bawah	Bawah	Bawah	Bawah	Bawah	Bawah	Bawah	
			KN	KN	KN	KN	KN	KN	KN	KN	
As1	K1-H	1	-526.70	-101.33	163.54	-148.42	261.59	-256.08	367.68	-1594.82	-1594.82
			-570.42	-101.33	163.54	-148.42	261.59	-256.08	321.77	-1640.72	
		2	-377.21	-69.16	94.93	-86.81	148.32	-145.35	124.16	-1009.17	-1044.54
			-410.90	-69.16	94.93	-86.81	148.32	-145.35	88.79	-1044.54	
	K1-G	3	-234.97	-41.09	41.83	-40.50	63.64	-62.59	-29.68	-534.51	-569.89
			-268.66	-41.09	41.83	-40.50	63.64	-62.59	-65.05	-569.89	
		4	-94.38	-14.64	10.51	-11.88	15.04	-14.91	-49.84	-181.62	-216.99
			-128.07	-14.64	10.51	-11.88	15.04	-14.91	-85.22	-216.99	
K2-G	1	-1390.55	-321.51	-125.21	119.34	303.15	-295.06	-1907.82	-1634.45	-1953.72	
		-1434.27	-321.51	-125.21	119.34	303.15	-295.06	-1953.72	-1680.36		
		2	-966.68	-205.37	-71.29	67.19	162.69	-158.44	-1303.52	-1126.53	-1338.89
			-1000.37	-205.37	-71.29	67.19	162.69	-158.44	-1338.89	-1161.90	
	3	-606.58	-114.38	-30.51	29.45	57.54	-56.79	-800.64	-692.86	-836.01	
		-640.27	-114.38	-30.51	29.45	57.54	-56.79	-836.01	-728.24		
		4	-253.05	-24.29	-7.03	7.40	7.98	-8.73	-308.13	-268.58	-343.51
			-286.75	-24.29	-7.03	7.40	7.98	-8.73	-343.51	-303.96	
K2-F	Atap	-40.91	-0.64	-0.09	-0.47	-1.00	0.71	-45.20	-44.64	-49.95	
	-45.44	-0.64	-0.09	-0.47	-1.00	0.71	-49.95	-49.40			
K1-F	1	-2152.69	-502.42	36.89	-38.83	116.85	-111.67	-2432.94	-3038.90	-3084.81	
		-2196.41	-502.42	36.89	-38.83	116.85	-111.67	-2478.85	-3084.81		
	2	-1525.03	-335.05	21.77	-22.91	67.56	-64.05	-1741.34	-2094.83	-2130.21	
		-1558.73	-335.05	21.77	-22.91	67.56	-64.05	-1776.73	-2130.21		
	3	-919.92	-176.58	9.88	-10.38	26.44	-24.86	-1057.97	-1207.70	-1243.08	
		-953.61	-176.58	9.88	-10.38	26.44	-24.86	-1093.35	-1243.08		
	4	-312.96	-17.67	2.82	-2.75	1.93	-2.37	-331.03	-359.84	-395.23	
		-346.66	-17.67	2.82	-2.75	1.93	-2.37	-366.42	-395.23		
K2-E	Atap	-123.90	-0.56	0.19	-0.06	1.22	-1.61	-128.29	-132.90	-137.66	
	-128.43	-0.56	0.19	-0.06	1.22	-1.61	-133.05	-137.66			
K1-E	1	-2148.37	-503.87	-43.28	40.46	124.55	-118.32	-2756.79	-2711.10	-2802.66	
		-2192.06	-503.87	-43.28	40.46	124.55	-118.32	-2802.66	-2756.97		
	2	-1530.97	-341.61	-25.61	24.34	72.28	-67.98	-1946.83	-1913.77	-1982.14	
		-1564.60	-341.61	-25.61	24.34	72.28	-67.98	-1982.14	-1949.08		
	3	-916.86	-180.29	-11.40	11.58	27.00	-25.02	-1146.94	-1115.97	-1182.32	
		-950.56	-180.29	-11.40	11.58	27.00	-25.02	-1182.32	-1151.35		
	4	-300.78	-18.72	-2.88	3.64	0.51	-0.97	-344.96	-319.44	-380.35	
		-334.48	-18.72	-2.88	3.64	0.51	-0.97	-380.35	-354.83		
K2-D	Atap	-106.68	-0.78	-0.16	0.42	0.63	-1.11	-112.63	-112.39	-117.39	
	-111.21	-0.78	-0.16	0.42	0.63	-1.11	-117.39	-117.14			
K1-D	1	-2138.53	-500.60	41.41	-44.24	125.68	-119.43	-2386.24	-3054.81	-3100.72	
		-2182.25	-500.60	41.41	-44.24	125.68	-119.43	-2432.15	-3100.72		
	2	-1530.70	-341.28	24.33	-25.58	72.26	-67.96	-1736.51	-2122.81	-2185.20	
		-1564.40	-341.28	24.33	-25.58	72.26	-67.96	-1771.90	-2158.20		
	3	-916.81	-180.16	11.55	-11.36	26.99	-25.01	-1050.38	-1212.13	-1247.51	
		-950.51	-180.16	11.55	-11.36	26.99	-25.01	-1085.77	-1247.51		
	4	-300.73	-18.67	3.62	-2.86	0.48	-0.95	-317.60	-346.62	-382.00	
		-334.43	-18.67	3.62	-2.86	0.48	-0.95	-352.99	-382.00		
K2-C	Atap	-106.66	-0.78	0.41	-0.16	0.63	-1.10	-110.21	-114.79	-2767.51	
	-111.19	-0.78	0.41	-0.16	0.63	-1.10	-114.97	-119.54			
K1-C	1	-2129.08	-490.99	-40.01	38.07	115.84	-110.69	-2721.60	-2679.09	-2767.51	
		-2172.80	-490.99	-40.01	38.07	115.84	-110.69	-2767.51	-2725.00		
	2	-1525.21	-333.77	-22.84	21.71	67.71	-64.19	-1927.50	-1906.58	-1962.88	
		-1558.91	-333.77	-22.84	21.71	67.71	-64.19	-1962.88	-1941.97		
	3	-919.76	-175.89	-10.31	9.83	26.56	-24.98	-1141.80	-1122.15	-1177.19	
		-953.46	-175.89	-10.31	9.83	26.56	-24.98	-1177.19	-1157.54		
	4	-312.76	-17.69	-2.73	2.80	1.95	-2.38	-354.12	-336.35	-389.51	
		-346.46	-17.69	-2.73	2.80	1.95	-2.38	-389.51	-371.74		
K2-B	Atap	-123.72	-0.56	-0.06	0.19	1.22	-1.62	-129.15	-131.68	-136.68	
	-128.25	-0.56	-0.06	0.19	1.22	-1.62	-133.91	-136.43			

K1-B	1	-1339.44	-300.13	120.09	-126.01	302.70	-294.61	-804.25	-2590.49	-2636.39
		-1383.16	-300.13	120.09	-126.01	302.70	-294.61	-850.16	-2636.39	
	2	-972.26	-207.78	67.05	-71.17	162.54	-158.28	-730.81	-1715.57	-1750.96
		-1005.96	-207.78	67.05	-71.17	162.54	-158.28	-766.20	-1750.96	
	3	-609.76	-115.17	29.37	-30.40	57.60	-56.86	-553.15	-948.41	-983.79
		-643.46	-115.17	29.37	-30.40	57.60	-56.86	-588.54	-983.79	
	4	-254.50	-24.96	7.36	-6.98	8.02	-8.76	-249.80	-331.17	-366.55
		-288.20	-24.96	7.36	-6.98	8.02	-8.76	-285.18	-366.55	
K2-B	Atap	-40.85	-0.73	-0.47	-0.08	-1.00	0.71	-46.82	-43.02	-51.57
		-45.38	-0.73	-0.47	-0.08	-1.00	0.71	-51.57	-47.78	
K1-A	1	-504.11	-93.15	-148.87	164.03	261.35	-255.83	-913.30	-250.76	-959.20
		-547.83	-93.15	-148.87	164.03	261.35	-255.83	-959.20	-296.67	
	2	-375.70	-68.41	-86.82	94.88	148.05	-145.09	-637.23	-243.45	-672.61
		-409.39	-68.41	-86.82	94.88	148.05	-145.09	-672.61	-278.82	
	3	-234.71	-40.90	-40.48	41.74	63.43	-62.40	-375.19	-188.41	-410.58
		-268.41	-40.90	-40.48	41.74	63.43	-62.40	-410.58	-223.80	
	4	-94.38	-14.60	-11.87	10.47	14.98	-14.86	-143.88	-87.65	-179.25
		-128.07	-14.60	-11.87	10.47	14.98	-14.86	-179.25	-123.02	
As2 K1-H	1	-532.56	-70.19	174.68	-162.95	-159.88	155.78	-93.31	-1113.62	-1159.52
		-576.27	-70.19	174.68	-162.95	-159.88	155.78	-139.21	-1159.52	
	2	-380.16	-52.14	102.77	-90.63	-85.79	83.44	-124.90	-723.95	-759.34
		-413.86	-52.14	102.77	-90.63	-85.79	83.44	-160.29	-759.34	
	3	-218.14	-30.08	49.62	-37.80	-33.12	32.08	-90.80	-375.81	-411.20
		-251.84	-30.08	49.62	-37.80	-33.12	32.08	-126.18	-411.20	
	4	-59.85	-9.32	16.20	-9.55	-5.22	4.97	-10.19	-105.50	-140.87
		-93.54	-9.32	16.20	-9.55	-5.22	4.97	-45.56	-140.87	
K1-G	1	-1082.94	-250.92	-151.36	135.33	-170.20	165.98	-2224.37	-596.69	-2270.28
		-1126.66	-250.92	-151.36	135.33	-170.20	165.98	-2270.28	-642.59	
	2	-771.91	-174.13	-87.86	4.28	-77.28	75.84	-1441.44	-861.52	-1476.82
		-805.60	-174.13	-87.86	4.28	-77.28	75.84	-1476.82	-602.90	
	3	-444.34	-91.80	-41.71	30.15	-12.63	13.65	-744.40	-409.48	-779.79
		-478.04	-91.80	-41.71	30.15	-12.63	13.65	-779.79	-444.86	
	4	-103.74	-5.93	-13.83	7.62	8.27	-6.79	-162.20	-91.08	-197.58
		-137.44	-5.93	-13.83	7.62	8.27	-6.79	-197.58	-126.47	
K2-G	Atap	-28.97	-0.20	0.63	-0.44	2.90	-2.53	-24.31	-35.64	-40.40
		-33.50	-0.20	0.63	-0.44	2.90	-2.53	-29.06	-40.40	
K1-B	1	-1095.94	-255.58	135.29	-151.30	-169.95	165.71	-1038.18	-1818.93	-1864.83
		-1139.66	-255.58	135.29	-151.30	-169.95	165.71	-1084.09	-1864.83	
	2	-765.49	-171.50	74.41	-87.98	-77.28	75.82	-750.68	-1239.81	-1275.19
		-799.18	-171.50	74.41	-87.98	-77.28	75.82	-786.06	-1275.19	
	3	-440.78	-90.35	30.21	-41.77	-12.68	13.71	-437.29	-706.36	-741.74
		-474.48	-90.35	30.21	-41.77	-12.68	13.71	-472.68	-741.74	
	4	-101.96	-5.23	7.64	-13.86	8.24	-6.76	-69.53	-178.73	-214.11
		-135.66	-5.23	7.64	-13.86	8.24	-6.76	-104.91	-214.11	
K2-B	Atap	-28.69	-0.09	-0.44	0.63	2.90	-2.52	-28.40	-30.74	-35.50
		-33.22	-0.09	-0.44	0.63	2.90	-2.52	-33.16	-35.50	
K1-A	1	-539.58	-72.63	-162.99	174.70	-159.57	155.47	-1520.81	294.44	-1566.72
		-583.30	-72.63	-162.99	174.70	-159.57	155.47	-1566.72	248.53	
	2	-378.95	-51.80	-90.67	102.85	-85.57	83.22	-935.48	89.98	-970.87
		-412.65	-51.80	-90.67	102.85	-85.57	83.22	-970.87	54.59	
	3	-217.29	-29.81	-37.82	49.67	-33.03	32.00	-456.79	-7.39	-492.16
		-250.98	-29.81	-37.82	49.67	-33.03	32.00	-492.16	-42.77	
	4	-59.32	-9.14	-9.56	16.21	-5.20	4.96	-117.63	3.41	-153.01
		-93.02	-9.14	-9.56	16.21	-5.20	4.96	-153.01	-31.98	
As3 K1-H	1	-465.25	-42.69	158.44	-144.51	-102.62	100.77	7.29	-1008.83	-1054.73
		-508.97	-42.69	158.44	-144.51	-102.62	100.77	-38.61	-1054.73	
	2	-329.85	-31.16	90.97	-80.36	-63.43	62.39	-73.64	-634.69	-670.07
		-363.55	-31.16	90.97	-80.36	-63.43	62.39	-109.02	-670.07	
	3	-186.70	-17.12	40.20	-33.03	-32.48	32.06	-84.30	-310.54	-345.93
		-220.40	-17.12	40.20	-33.03	-32.48	32.06	-119.68	-345.93	
	4	-52.65	-6.11	12.28	-9.08	-10.86	10.78	-23.16	-85.61	-120.99
		-86.35	-6.11	12.28	-9.08	-10.86	10.78	-58.55	-120.99	
K1-G	1	-1177.91	-267.17	-103.87	91.12	12.25	-11.24	-1910.10	-1120.74	-1956.01
		-1221.63	-267.17	-103.87	91.12	12.25	-11.24	-1956.01	-1166.65	
	2	-803.95	-173.71	-56.05	46.68	1.82	-0.68	-1241.42	-813.10	-1276.81
		-837.65	-173.71	-56.05	46.68	1.82	-0.68	-1276.81	-848.49	
	3	-445.74	-85.24	-22.24	16.05	1.95	-0.31	-639.53	-481.56	-674.91
		-479.44	-85.24	-22.24	16.05	1.95	-0.31	-674.91	-516.94	

	4	-80.68	5.79	-5.86	2.93	6.26	-4.57	-95.97	-72.69	-131.35
		-114.38	5.79	-5.86	2.93	6.26	-4.57	-131.35	-108.08	
K2-G	Atap	-19.45	2.01	0.97	-0.91	0.31	-0.12	-14.06	-22.50	-27.25
		-23.98	2.01	0.97	-0.91	0.31	-0.12	-18.81	-27.25	
K1-F	1	-1541.38	-365.13	34.84	-38.14	128.57	-119.56	-1655.17	-2274.33	-2320.24
		-1585.10	-365.13	34.84	-38.14	128.57	-119.56	-1701.08	-2320.24	
	2	-1062.40	-243.98	19.35	-22.25	87.74	-78.96	-1154.26	-1539.02	-1573.62
		-1095.35	-243.98	19.35	-22.25	87.74	-78.96	-1188.86	-1573.62	
	3	-587.00	-124.62	8.58	-11.19	60.75	-51.94	-621.53	-846.56	-881.94
		-620.70	-124.62	8.58	-11.19	60.75	-51.94	-656.92	-881.94	
	4	-101.06	-2.49	4.78	-6.29	47.44	-38.52	-28.62	-183.42	-218.79
		-134.75	-2.49	4.78	-6.29	47.44	-38.52	-63.99	-218.79	
K2-F	Atap	-20.48	2.38	-0.45	0.44	3.70	-0.46	-16.48	-17.99	-22.74
		-25.01	2.38	-0.45	0.44	3.70	-0.46	-21.24	-22.74	
K1-E	1	-1567.21	-374.12	-39.87	37.36	134.83	-124.96	-1996.68	-1999.65	-2045.56
		-1610.93	-374.12	-39.87	37.36	134.83	-124.96	-2042.59	-2045.56	
	2	-1077.63	-249.36	-22.56	21.63	88.00	-78.66	-1351.03	-1375.42	-1410.80
		-1111.32	-249.36	-22.56	21.63	88.00	-78.66	-1386.40	-1410.80	
	3	-596.35	-127.57	-10.11	10.61	56.14	-47.10	-718.45	-761.51	-796.71
		-629.88	-127.57	-10.11	10.61	56.14	-47.10	-753.65	-796.71	
	4	-102.29	-2.68	-4.94	5.42	44.24	-34.89	-74.94	-131.13	-166.51
		-135.98	-2.68	-4.94	5.42	44.24	-34.89	-110.32	-166.51	
K2-E	Atap	-20.88	2.29	0.46	-0.60	4.98	-1.46	-11.55	-24.12	-28.88
		-25.41	2.29	0.46	-0.60	4.98	-1.46	-16.31	-28.88	
K1-D	1	-1568.59	-374.23	37.25	-39.75	134.67	-124.81	-1674.53	-2324.88	-2370.78
		-1612.31	-374.23	37.25	-39.75	134.67	-124.81	-1720.44	-2370.78	
	2	-1077.34	-249.02	21.65	-22.55	88.11	-78.77	-1164.58	-1560.49	-1596.25
		-1111.40	-249.02	21.65	-22.55	88.11	-78.77	-1200.35	-1596.25	
	3	-596.22	-127.43	10.60	-10.07	56.20	-47.16	-631.12	-848.17	-883.55
		-629.92	-127.43	10.60	-10.07	56.20	-47.16	-666.51	-883.55	
	4	-102.30	-2.64	5.41	-4.91	44.29	-34.94	-31.38	-174.56	-209.94
		-136.00	-2.64	5.41	-4.91	44.29	-34.94	-66.77	-209.94	
K2-D	Atap	-20.88	2.29	-0.60	0.46	4.99	-1.47	-15.99	-19.68	-24.43
		-25.40	2.29	-0.60	0.46	4.99	-1.47	-20.74	-24.43	
K1-C	1	-1543.59	-361.06	-38.08	34.82	128.70	-119.69	-1959.75	-1966.54	-2012.44
		-1587.31	-361.06	-38.08	34.82	128.70	-119.69	-2005.65	-2012.44	
	2	-1060.84	-240.58	-22.22	19.41	88.08	-79.30	-1323.57	-1359.63	-1395.01
		-1094.54	-240.58	-22.22	19.41	88.08	-79.30	-1358.96	-1395.01	
	3	-586.97	-123.12	-11.13	8.57	61.05	-52.22	-702.49	-762.47	-797.47
		-620.67	-123.12	-11.13	8.57	61.05	-52.22	-737.87	-797.86	
	4	-101.05	-2.68	-6.24	4.78	47.65	-38.73	-74.80	-137.36	-172.73
		-134.74	-2.68	-6.24	4.78	47.65	-38.73	-110.18	-172.73	
K2-C	Atap	-20.45	2.32	0.44	-0.45	3.72	-0.48	-12.74	-21.77	-26.53
		-24.98	2.32	0.44	-0.45	3.72	-0.48	-17.50	-26.53	
K1-B	1	-1178.73	-267.36	91.13	-103.88	12.24	-11.25	-1092.15	-1940.79	-1986.70
		-1222.45	-267.36	91.13	-103.88	12.24	-11.25	-1138.06	-1986.70	
	2	-804.52	-173.85	46.68	-56.04	1.86	-0.73	-810.63	-1245.32	-1280.81
		-838.32	-173.85	46.68	-56.04	1.86	-0.73	-846.12	-1280.81	
	3	-445.93	-85.28	16.06	-22.24	1.99	-0.35	-478.86	-642.67	-678.05
		-479.63	-85.28	16.06	-22.24	1.99	-0.35	-514.24	-678.05	
	4	-80.63	5.79	2.94	-5.86	6.28	-4.59	-58.93	-109.59	-144.96
		-114.32	5.79	2.94	-5.86	6.28	-4.59	-94.30	-144.96	
K2-B	Atap	-19.41	2.02	-0.91	0.97	0.31	-0.12	-21.90	-14.55	-26.66
		-23.94	2.02	-0.91	0.97	0.31	-0.12	-26.66	-19.31	
K1-A	1	-466.99	-43.36	-144.50	158.45	-102.40	100.56	-1267.24	260.88	-1313.13
		-510.70	-43.36	-144.50	158.45	-102.40	100.56	-1313.13	214.99	
	2	-331.07	-31.63	-80.35	90.99	-63.26	62.23	-794.69	83.05	-830.07
		-364.76	-31.63	-80.35	90.99	-63.26	62.23	-830.07	47.68	
	3	-187.17	-17.31	-33.03	40.21	-32.41	31.99	-392.45	-3.70	-427.83
		-220.87	-17.31	-33.03	40.21	-32.41	31.99	-427.83	-39.08	
	4	-52.87	-6.19	9.08	12.28	-10.84	10.76	-36.89	3.77	-72.26
		-86.56	-6.19	9.08	12.28	-10.84	10.76	-72.26	-31.60	
As4 K1-G	1	-457.56	-44.36	4.83	-7.88	-144.73	140.40	-684.43	-378.55	-730.34
		-501.28	-44.36	4.83	-7.88	-144.73	140.40	-730.34	-424.46	
	2	-341.85	-33.56	-1.53	-1.92	-85.27	81.92	-504.52	-295.50	-539.91
		-375.55	-33.56	-1.53	-1.92	-85.27	81.92	-539.91	-330.89	
	3	-221.20	-21.13	-5.12	1.67	-43.12	40.13	-328.06	-194.65	-363.45
		-254.90	-21.13	-5.12	1.67	-43.12	40.13	-363.45	-230.04	

	4	-99.04	-7.96	-4.90	2.95	-20.61	18.50	-158.06	-75.81	-193.45
		-132.74	-7.96	-4.90	2.95	-20.61	18.50	-193.45	-111.20	
K2-G	Atap	-43.04	-1.45	-0.60	0.23	-1.81	1.58	-51.36	-43.61	-56.12
		-47.57	-1.45	-0.60	0.23	-1.81	1.58	-56.12	-48.36	
K1-F	1	-493.56	-31.89	-6.54	8.74	-237.46	223.64	-875.04	-229.88	-920.95
		-537.28	-31.89	-6.54	8.74	-237.46	223.64	-920.95	-275.79	
	2	-386.00	-23.60	-1.60	3.68	-149.49	137.49	-622.68	-238.91	-658.06
		-419.70	-23.60	-1.60	3.68	-149.49	137.49	-658.06	-274.29	
	3	-272.33	-12.95	1.77	-0.08	-81.88	71.77	-393.92	-208.09	-429.30
		-306.03	-12.95	1.77	-0.08	-81.88	71.77	-429.30	-243.48	
	4	-171.88	-5.39	2.99	-2.64	-44.89	36.64	-229.57	-150.49	-264.95
		-205.57	-5.39	2.99	-2.64	-44.89	36.64	-264.95	-185.86	
K2-F	Atap	-109.29	-1.59	0.67	-0.66	-4.67	1.85	-119.33	-116.70	-124.08
		-113.82	-1.59	0.67	-0.66	-4.67	1.85	-124.08	-121.45	
K1-E	1	-465.72	-28.43	11.77	-6.48	-267.02	250.44	-802.88	-227.53	-848.79
		-509.44	-28.43	11.77	-6.48	-267.02	250.44	-848.79	-273.44	
	2	-360.45	-21.00	5.37	-1.57	-167.12	153.03	-586.33	-212.09	-621.71
		-394.14	-21.00	5.37	-1.57	-167.12	153.03	-621.71	-247.47	
	3	-248.51	-11.02	0.81	1.87	-90.22	78.74	-381.62	-164.28	-417.00
		-282.20	-11.02	0.81	1.87	-90.22	78.74	-417.00	-199.66	
	4	-151.25	-4.53	-1.92	4.02	-50.09	40.87	-234.27	-94.71	-269.65
		-184.94	-4.53	-1.92	4.02	-50.09	40.87	-269.65	-130.09	
K2-E	Atap	-90.63	-1.45	-0.64	1.08	-6.25	3.15	-107.09	-88.03	-111.85
		-95.16	-1.45	-0.64	1.08	-6.25	3.15	-111.85	-92.78	
K1-D	1	-466.22	-28.67	-6.47	11.75	-266.99	250.41	-880.21	-151.76	-926.11
		-509.94	-28.67	-6.47	11.75	-266.99	250.41	-926.11	-197.66	
	2	-360.69	-21.14	-1.57	5.33	-167.28	153.19	-616.07	-183.30	-651.45
		-394.39	-21.14	-1.57	5.33	-167.28	153.19	-651.45	-218.68	
	3	-248.41	-11.04	1.89	0.77	-90.31	78.83	-377.12	-168.70	-412.49
		-282.10	-11.04	1.89	0.77	-90.31	78.83	-412.49	-204.08	
	4	-151.21	-4.56	4.03	-1.95	-50.16	40.93	-209.36	-119.70	-244.74
		-184.91	-4.56	4.03	-1.95	-50.16	40.93	-244.74	-155.08	
K2-D	Atap	-90.61	-1.45	1.08	-0.65	-6.26	3.16	-99.86	-95.26	-104.62
		-95.14	-1.45	1.08	-0.65	-6.26	3.16	-104.62	-100.02	
K1-C	1	-495.01	-32.40	8.73	-6.58	-237.58	223.76	-813.06	-296.08	-858.97
		-538.73	-32.40	8.73	-6.58	-237.58	223.76	-858.97	-341.98	
	2	-386.86	-23.83	3.61	-1.66	-149.99	137.97	-602.55	-261.85	-637.92
		-420.55	-23.83	3.61	-1.66	-149.99	137.97	-637.92	-297.23	
	3	-272.40	-12.88	-0.16	1.78	-82.22	72.10	-402.46	-199.87	-437.85
		-306.10	-12.88	-0.16	1.78	-82.22	72.10	-437.85	-235.25	
	4	-171.94	-5.23	-2.68	2.99	-45.07	36.81	-253.52	-126.54	-288.90
		-205.63	-5.23	-2.68	2.99	-45.07	36.81	-288.90	-161.92	
K2-C	Atap	-109.36	-1.55	-0.67	0.67	-4.69	1.86	-125.02	-111.14	-129.76
		-113.88	-1.55	-0.67	0.67	-4.69	1.86	-129.76	-115.88	
K1-B	1	-459.91	-45.44	-7.87	4.82	-144.59	140.27	-741.08	-328.86	-786.99
		-503.63	-45.44	-7.87	4.82	-144.59	140.27	-786.99	-374.77	
	2	-342.86	-34.14	-1.91	-1.55	-85.27	81.92	-507.73	-295.56	-543.11
		-376.56	-34.14	-1.91	-1.55	-85.27	81.92	-543.11	-330.94	
	3	-221.35	-21.38	1.67	-5.13	-43.12	40.34	-299.94	-223.34	-335.31
		-255.04	-21.38	1.67	-5.13	-43.12	40.34	-335.31	-258.71	
	4	-99.01	-8.12	2.95	-4.90	-20.63	18.51	-125.24	-108.89	-160.61
		-132.70	-8.12	2.95	-4.90	-20.63	18.51	-160.61	-144.27	
K2-B	Atap	-42.63	-1.49	0.23	-0.60	-1.81	1.58	-47.48	-46.70	-52.23
		-47.15	-1.49	0.23	-0.60	-1.81	1.58	-52.23	-51.44	

Tabel 64. Gaya Aksial Maksimum Rencana Kolom Arah Y

Portal	Kolom	Lt	PD	PL	Pex,ki	Pex,ka	Pey,ki	Pey,ka	Pu,k max ki	Pu,k max ka	Pu,k pakai KN		
			Atas	Atas	Atas	Atas	Atas	Atas	Atas	Atas			
			Bawah	Bawah	Bawah	Bawah	Bawah	Bawah	Bawah	Bawah			
			KN	KN	KN	KN	KN	KN	KN	KN			
As A	K1-1	1	-504.11	-93.15	-148.87	164.03	261.35	-255.83	-913.30	-250.76	-959.20		
			-547.83	-93.15	-148.87	164.03	261.35	-255.83	-959.20	-296.67			
		2	-375.70	-68.41	-86.82	94.88	148.05	-145.09	-637.23	-243.45	-672.61		
			-409.39	-68.41	-86.82	94.88	148.05	-145.09	-672.61	-278.82			
			-234.71	-40.90	-40.48	41.74	63.43	-62.40	-375.19	-188.41			
			-268.41	-40.90	-40.48	41.74	63.43	-62.40	-410.58	-223.80			
		4	-94.38	-14.60	-11.87	10.47	14.98	-14.86	-143.88	-87.65	-179.25		
			-128.07	-14.60	-11.87	10.47	14.98	-14.86	-179.25	-123.02			
	K1-2		1	-539.58	-72.63	-162.99	174.70	-159.57	155.47	-1520.81		294.44	-1566.72
				-583.30	-72.63	-162.99	174.70	-159.57	155.47	-1566.72		248.53	
		2	-378.95	-51.80	-90.67	102.85	-85.57	83.22	-935.48	89.98	-970.87		
			-412.65	-51.80	-90.67	102.85	-85.57	83.22	-970.87	54.59			
		3	-217.29	-29.81	-37.82	49.67	-33.03	32.00	-456.79	-7.39	-492.16		
			-250.98	-29.81	-37.82	49.67	-33.03	32.00	-492.16	-42.77			
		4	-59.32	-9.14	-9.56	16.21	-5.20	4.96	-117.63	3.41	-153.01		
			-93.02	-9.14	-9.56	16.21	-5.20	4.96	-153.01	-31.98			
	K1-3		1	-466.99	-43.36	-144.50	158.45	-102.40	100.56	-1267.24		260.88	-1313.13
				-510.70	-43.36	-144.50	158.45	-102.40	100.56	-1313.13		214.99	
		2	-331.07	-31.63	-80.35	90.99	-63.26	62.23	-794.69	83.05	-830.07		
			-364.76	-31.63	-80.35	90.99	-63.26	62.23	-830.07	47.68			
		3	-187.17	-17.31	-33.03	40.21	-32.41	31.99	-392.45	-3.70	-427.83		
			-220.87	-17.31	-33.03	40.21	-32.41	31.99	-427.83	-39.08			
		4	-52.87	-6.19	9.08	12.28	-10.84	10.76	-36.89	3.77	-72.26		
			-86.56	-6.19	9.08	12.28	-10.84	10.76	-72.26	-31.60			
As B	K1-1		1	-1339.44	-300.13	120.09	-126.01	302.70	-294.61	-804.25		-2590.49	-2636.39
				-1383.16	-300.13	120.09	-126.01	302.70	-294.61	-850.16		-2636.39	
		2	-972.26	-207.78	67.05	-71.17	162.54	-158.28	-730.81	-1715.57	-1750.96		
			-1005.96	-207.78	67.05	-71.17	162.54	-158.28	-766.20	-1750.96			
			-609.76	-115.17	29.37	-30.40	57.60	-56.86	-553.15	-948.41			
			-643.46	-115.17	29.37	-30.40	57.60	-56.86	-588.54	-983.79			
		4	-254.50	-24.96	7.36	-6.98	8.02	-8.76	-249.80	-331.17	-366.55		
			-288.20	-24.96	7.36	-6.98	8.02	-8.76	-285.18	-366.55			
	K2-1		Atap	-40.85	-0.73	-0.47	-0.08	-1.00	0.71	-46.82		-43.02	-51.57
			-45.38	-0.73	-0.47	-0.08	-1.00	0.71	-51.57	-47.78			
	K1-2	1	-1095.94	-255.58	135.29	-151.30	-169.95	165.71	-1038.18	-1818.93	-1864.83		
			-1139.66	-255.58	135.29	-151.30	-169.95	165.71	-1084.09	-1864.83			
		2	-765.49	-171.50	74.41	-87.98	-77.28	75.82	-750.68	-1239.81	-1275.19		
			-799.18	-171.50	74.41	-87.98	-77.28	75.82	-786.06	-1275.19			
		3	-440.78	-90.35	30.21	-41.77	-12.68	13.71	-437.29	-706.36	-741.74		
			-474.48	-90.35	30.21	-41.77	-12.68	13.71	-472.68	-741.74			
		4	-101.96	-5.23	7.64	-13.86	8.24	-6.76	-69.53	-178.73	-214.11		
			-135.66	-5.23	7.64	-13.86	8.24	-6.76	-104.91	-214.11			
	K2-2		Atap	-28.69	-0.09	-0.44	0.63	2.90	-2.52	-28.40		-30.74	-35.50
			-33.22	-0.09	-0.44	0.63	2.90	-2.52	-33.16	-35.50			
	K1-3	1	-1178.73	-267.36	91.13	-103.88	12.24	-11.25	-1092.15	-1940.79	-1986.70		
			-1222.45	-267.36	91.13	-103.88	12.24	-11.25	-1138.06	-1986.70			
		2	-804.52	-173.85	46.68	-56.04	1.86	-0.73	-810.63	-1245.32	-1280.81		
			-838.32	-173.85	46.68	-56.04	1.86	-0.73	-846.12	-1280.81			
3		-445.93	-85.28	16.06	-22.24	1.99	-0.35	-478.86	-642.67	-678.05			
		-479.63	-85.28	16.06	-22.24	1.99	-0.35	-514.24	-678.05				
4		-80.63	5.79	2.94	-5.86	6.28	-4.59	-58.93	-109.59	-144.96			
		-114.32	5.79	2.94	-5.86	6.28	-4.59	-94.30	-144.96				
	K2-3	Atap	-19.41	2.02	-0.91	0.97	0.31	-0.12	-21.90		-14.55	-26.66	
		-23.94	2.02	-0.91	0.97	0.31	-0.12	-26.66	-19.31				
K1-4	1	-459.91	-45.44	-7.87	4.82	-144.59	140.27	-741.08	-328.86	-786.99			
		-503.63	-45.44	-7.87	4.82	-144.59	140.27	-786.99	-374.77				
	2	-342.86	-34.14	-1.91	-1.55	-85.27	81.92	-507.73	-295.56	-543.11			
		-376.56	-34.14	-1.91	-1.55	-85.27	81.92	-543.11	-330.94				

		3	-221.35	-21.38	1.67	-5.13	-43.12	40.34	-299.94	-223.34	-335.31
			-255.04	-21.38	1.67	-5.13	-43.12	40.34	-335.31	-258.71	
	4		-99.01	-8.12	2.95	-4.90	-20.63	18.51	-125.24	-108.89	-160.61
			-132.70	-8.12	2.95	-4.90	-20.63	18.51	-160.61	-144.27	
	K2-4	Atap	-42.63	-1.49	0.23	-0.60	-1.81	1.58	-47.48	-46.70	-52.23
			-47.15	-1.49	0.23	-0.60	-1.81	1.58	-52.23	-51.44	
As C	K1-1	1	-2129.08	-490.99	-40.01	38.07	115.84	-110.69	-2721.60	-2679.09	-2767.51
			-2172.80	-490.99	-40.01	38.07	115.84	-110.69	-2767.51	-2725.00	
		2	-1525.21	-333.77	-22.84	21.71	67.71	-64.19	-1927.50	-1906.58	-1962.88
			-1558.91	-333.77	-22.84	21.71	67.71	-64.19	-1962.88	-1941.97	
		3	-919.76	-175.89	-10.31	9.83	26.56	-24.98	-1141.80	-1122.15	-1177.19
			-953.46	-175.89	-10.31	9.83	26.56	-24.98	-1177.19	-1157.54	
		4	-312.76	-17.69	-2.73	2.80	1.95	-2.38	-354.12	-336.35	-389.51
			-346.46	-17.69	-2.73	2.80	1.95	-2.38	-389.51	-371.74	
	K2-1	Atap	-123.72	-0.56	-0.06	0.19	1.22	-1.62	-129.15	-131.68	-136.43
			-128.25	-0.56	-0.06	0.19	1.22	-1.62	-133.91	-136.43	
	K1-3	1	-1543.59	-361.06	-38.08	34.82	128.70	-119.69	-1959.75	-1966.54	-2005.65
			-1587.31	-361.06	-38.08	34.82	128.70	-119.69	-2005.65	-2012.44	
		2	-1060.84	-240.58	-22.22	19.41	88.08	-79.30	-1323.57	-1359.63	-1395.01
			-1094.54	-240.58	-22.22	19.41	88.08	-79.30	-1358.96	-1395.01	
		3	-586.97	-123.12	-11.13	8.57	61.05	-52.22	-702.49	-762.47	-797.86
			-620.67	-123.12	-11.13	8.57	61.05	-52.22	-737.87	-797.86	
		4	-101.05	-2.68	-6.24	4.78	47.65	-38.73	-74.80	-137.36	-172.73
			-134.74	-2.68	-6.24	4.78	47.65	-38.73	-110.18	-172.73	
	K2-3	Atap	-20.45	2.32	0.44	-0.45	3.72	-0.48	-12.74	-21.77	-26.53
			-24.98	2.32	0.44	-0.45	3.72	-0.48	-17.50	-26.53	
	K1-4	1	-495.01	-32.40	8.73	-6.58	-237.58	223.76	-813.06	-296.08	-858.97
			-538.73	-32.40	8.73	-6.58	-237.58	223.76	-858.97	-341.98	
		2	-386.86	-23.83	3.61	-1.66	-149.99	137.97	-602.55	-261.85	-637.92
			-420.55	-23.83	3.61	-1.66	-149.99	137.97	-637.92	-297.23	
		3	-272.40	-12.88	-0.16	1.78	-82.22	72.10	-402.46	-199.87	-437.85
			-306.10	-12.88	-0.16	1.78	-82.22	72.10	-437.85	-235.25	
		4	-171.94	-5.23	-2.68	2.99	-45.07	36.81	-253.52	-126.54	-288.90
			-205.63	-5.23	-2.68	2.99	-45.07	36.81	-288.90	-161.92	
	K2-4	Atap	-109.36	-1.55	-0.67	0.67	-4.69	1.86	-125.02	-111.14	-129.76
			-113.88	-1.55	-0.67	0.67	-4.69	1.86	-129.76	-115.88	
As D	K1-1	1	-2138.53	-500.60	41.41	-44.24	125.68	-119.43	-2386.24	-3054.81	-3100.72
			-2182.25	-500.60	41.41	-44.24	125.68	-119.43	-2432.15	-3100.72	
		2	-1530.70	-341.28	24.33	-25.58	72.26	-67.96	-1736.51	-2122.81	-2158.20
			-1564.40	-341.28	24.33	-25.58	72.26	-67.96	-1771.90	-2158.20	
		3	-916.81	-180.16	11.55	-11.36	26.99	-25.01	-1050.38	-1212.13	-1247.51
			-950.51	-180.16	11.55	-11.36	26.99	-25.01	-1085.77	-1247.51	
		4	-300.73	-18.67	3.62	-2.86	0.48	-0.95	-317.60	-346.62	-382.00
			-334.43	-18.67	3.62	-2.86	0.48	-0.95	-352.99	-382.00	
	K2-1	Atap	-106.66	-0.78	0.41	-0.16	0.63	-1.10	-110.21	-114.79	-119.54
			-111.19	-0.78	0.41	-0.16	0.63	-1.10	-114.97	-119.54	
	K1-3	1	-1568.59	-374.23	37.25	-39.75	134.67	-124.81	-1674.53	-2324.88	-2370.78
			-1612.31	-374.23	37.25	-39.75	134.67	-124.81	-1720.44	-2370.78	
		2	-1077.34	-249.02	21.65	-22.55	88.11	-78.77	-1164.58	-1560.49	-1596.25
			-1111.40	-249.02	21.65	-22.55	88.11	-78.77	-1200.35	-1596.25	
		3	-596.22	-127.43	10.60	-10.07	56.20	-47.16	-631.12	-848.17	-883.55
			-629.92	-127.43	10.60	-10.07	56.20	-47.16	-666.51	-883.55	
		4	-102.30	-2.64	5.41	-4.91	44.29	-34.94	-31.38	-174.56	-209.94
			-136.00	-2.64	5.41	-4.91	44.29	-34.94	-66.77	-209.94	
	K2-3	Atap	-20.88	2.29	-0.60	0.46	4.99	-1.47	-15.99	-19.68	-24.43
			-25.40	2.29	-0.60	0.46	4.99	-1.47	-20.74	-24.43	
	K1-4	1	-466.22	-28.67	-6.47	11.75	-266.99	250.41	-880.21	-151.76	-926.11
			-509.94	-28.67	-6.47	11.75	-266.99	250.41	-926.11	-197.66	
		2	-360.69	-21.14	-1.57	5.33	-167.28	153.19	-616.07	-183.30	-651.45
			-394.39	-21.14	-1.57	5.33	-167.28	153.19	-651.45	-218.68	
		3	-248.41	-11.04	1.89	0.77	-90.31	78.83	-377.12	-168.70	-412.49
			-282.10	-11.04	1.89	0.77	-90.31	78.83	-412.49	-204.08	
		4	-151.21	-4.56	4.03	-1.95	-50.16	40.93	-209.36	-119.70	-244.74
			-184.91	-4.56	4.03	-1.95	-50.16	40.93	-244.74	-155.08	
	K2-4	Atap	-90.61	-1.45	1.08	-0.65	-6.26	3.16	-99.86	-95.26	-104.62
			-95.14	-1.45	1.08	-0.65	-6.26	3.16	-104.62	-100.02	
As E	K1-1	1	-2148.37	-503.87	-43.28	40.46	124.55	-118.32	-2756.79	-2711.10	-2802.66
			-2192.06	-503.87	-43.28	40.46	124.55	-118.32	-2802.66	-2756.97	



K2-1	2	-1530.97	-341.61	-25.61	24.34	72.28	-67.98	-1946.83	-1913.77	-1982.14	
		-1564.60	-341.61	-25.61	24.34	72.28	-67.98	-1982.14	-1949.08		
	3	-916.86	-180.29	-11.40	11.58	27.00	-25.02	-1146.94	-1115.97	-1182.32	
		-950.56	-180.29	-11.40	11.58	27.00	-25.02	-1182.32	-1151.35		
	4	-300.78	-18.72	-2.88	3.64	0.51	-0.97	-344.96	-319.44	-380.35	
		-334.48	-18.72	-2.88	3.64	0.51	-0.97	-380.35	-354.83		
	Atap	-106.68	-0.78	-0.16	0.42	0.63	-1.11	-112.63	-112.39	-117.39	
		-111.21	-0.78	-0.16	0.42	0.63	-1.11	-117.39	-117.14		
	K1-3	1	-1567.21	-374.12	-39.87	37.36	134.83	-124.96	-1996.68	-1999.65	-2045.56
			-1610.93	-374.12	-39.87	37.36	134.83	-124.96	-2042.59	-2045.56	
2		-1077.63	-249.36	-22.56	21.63	88.00	-78.66	-1351.03	-1375.42	-1410.80	
		-1111.32	-249.36	-22.56	21.63	88.00	-78.66	-1386.40	-1410.80		
3		-596.35	-127.57	-10.11	10.61	56.14	-47.10	-718.45	-761.51	-796.71	
		-629.88	-127.57	-10.11	10.61	56.14	-47.10	-753.65	-796.71		
4		-102.29	-2.68	-4.94	5.42	44.24	-34.89	-74.94	-131.13	-166.51	
		-135.98	-2.68	-4.94	5.42	44.24	-34.89	-110.32	-166.51		
Atap		-20.88	2.29	0.46	-0.60	4.98	-1.46	-11.55	-24.12	-28.88	
		-25.41	2.29	0.46	-0.60	4.98	-1.46	-16.31	-28.88		
K1-4	1	-465.72	-28.43	11.77	-6.48	-267.02	250.44	-802.88	-227.53	-848.79	
		-509.44	-28.43	11.77	-6.48	-267.02	250.44	-848.79	-273.44		
	2	-360.45	-21.00	5.37	-1.57	-167.12	153.03	-586.33	-212.09	-621.71	
		-394.14	-21.00	5.37	-1.57	-167.12	153.03	-621.71	-247.47		
	3	-248.51	-11.02	0.81	1.87	-90.22	78.74	-381.62	-164.28	-417.00	
		-282.20	-11.02	0.81	1.87	-90.22	78.74	-417.00	-199.66		
	4	-151.25	-4.53	-1.92	4.02	-50.09	40.87	-234.27	-94.71	-269.65	
		-184.94	-4.53	-1.92	4.02	-50.09	40.87	-269.65	-130.09		
	Atap	-90.63	-1.45	-0.64	1.08	-6.25	3.15	-107.09	-88.03	-111.85	
		-95.16	-1.45	-0.64	1.08	-6.25	3.15	-111.85	-92.78		
As F K1-1	1	-2152.69	-502.42	36.89	-38.83	116.85	-111.67	-2432.94	-3038.90	-3084.81	
		-2196.41	-502.42	36.89	-38.83	116.85	-111.67	-2478.85	-3084.81		
	2	-1525.03	-335.05	21.77	-22.91	67.56	-64.05	-1741.34	-2094.83	-2130.21	
		-1558.73	-335.05	21.77	-22.91	67.56	-64.05	-1776.73	-2130.21		
	3	-919.92	-176.58	9.88	-10.38	26.44	-24.86	-1057.97	-1207.70	-1243.08	
		-953.61	-176.58	9.88	-10.38	26.44	-24.86	-1093.35	-1243.08		
	4	-312.96	-17.67	2.82	-2.75	1.93	-2.37	-331.03	-359.84	-395.23	
		-346.66	-17.67	2.82	-2.75	1.93	-2.37	-366.42	-395.23		
	Atap	-123.90	-0.56	0.19	-0.06	1.22	-1.61	-128.29	-132.90	-137.66	
		-128.43	-0.56	0.19	-0.06	1.22	-1.61	-133.05	-137.66		
K1-3	1	-1541.38	-365.13	34.84	-38.14	128.57	-119.56	-1655.17	-2274.33	-2320.24	
		-1585.10	-365.13	34.84	-38.14	128.57	-119.56	-1701.08	-2320.24		
	2	-1062.40	-243.98	19.35	-22.25	87.74	-78.96	-1154.26	-1539.02	-1573.62	
		-1095.35	-243.98	19.35	-22.25	87.74	-78.96	-1188.86	-1573.62		
	3	-587.00	-124.62	8.58	-11.19	60.75	-51.94	-621.53	-846.56	-881.94	
		-620.70	-124.62	8.58	-11.19	60.75	-51.94	-656.92	-881.94		
	4	-101.06	-2.49	4.78	-6.29	47.44	-38.52	-28.62	-183.42	-218.79	
		-134.75	-2.49	4.78	-6.29	47.44	-38.52	-63.99	-218.79		
	Atap	-20.48	2.38	-0.45	0.44	3.70	-0.46	-16.48	-17.99	-22.74	
		-25.01	2.38	-0.45	0.44	3.70	-0.46	-21.24	-22.74		
K1-4	1	-493.56	-31.89	-6.54	8.74	-237.46	223.64	-875.04	-229.88	-920.95	
		-537.28	-31.89	-6.54	8.74	-237.46	223.64	-920.95	-275.79		
	2	-386.00	-23.60	-1.60	3.68	-149.49	137.49	-622.68	-238.91	-658.06	
		-419.70	-23.60	-1.60	3.68	-149.49	137.49	-658.06	-274.29		
	3	-272.33	-12.95	1.77	-0.08	-81.88	71.77	-393.92	-208.09	-429.30	
		-306.03	-12.95	1.77	-0.08	-81.88	71.77	-429.30	-243.48		
	4	-171.88	-5.39	2.99	-2.64	-44.89	36.64	-229.57	-150.49	-264.95	
		-205.57	-5.39	2.99	-2.64	-44.89	36.64	-264.95	-185.86		
	Atap	-109.29	-1.59	0.67	-0.66	-4.67	1.85	-119.33	-116.70	-124.08	
		-113.82	-1.59	0.67	-0.66	-4.67	1.85	-124.08	-121.45		
As G K1-1	1	-1390.55	-321.51	-125.21	119.34	303.15	-295.06	-1907.82	-1634.45	-1953.72	
		-1434.27	-321.51	-125.21	119.34	303.15	-295.06	-1953.72	-1680.36		
	2	-966.68	-205.37	-71.29	67.19	162.69	-158.44	-1303.52	-1126.53	-1338.89	
		-1000.37	-205.37	-71.29	67.19	162.69	-158.44	-1338.89	-1161.90		
	3	-606.58	-114.38	-30.51	29.45	57.54	-56.79	-800.64	-692.86	-836.01	
		-640.27	-114.38	-30.51	29.45	57.54	-56.79	-836.01	-728.24		
	4	-253.05	-24.29	-7.03	7.40	7.98	-8.73	-308.13	-268.58	-343.51	
		-286.75	-24.29	-7.03	7.40	7.98	-8.73	-343.51	-303.96		
	Atap	-40.91	-0.64	-0.09	-0.47	-1.00	0.71	-45.20	-44.64	-49.95	
		-45.44	-0.64	-0.09	-0.47	-1.00	0.71	-49.95	-49.40		

K1-2	1	-1082.94	-250.92	-151.36	135.33	-170.20	165.98	-2224.37	-596.69	-2270.28	
		-1126.66	-250.92	-151.36	135.33	-170.20	165.98	-2270.28	-642.59		
	2	-771.91	-174.13	-87.86	4.28	-77.28	75.84	-1441.44	-861.52	-1476.82	
		-805.60	-174.13	-87.86	74.28	-77.28	75.84	-1476.82	-602.90		
	3	-444.34	-91.80	-41.71	30.15	-12.63	13.65	-744.40	-409.48	-779.79	
		-478.04	-91.80	-41.71	30.15	-12.63	13.65	-779.79	-444.86		
	4	-103.74	-5.93	-13.83	7.62	8.27	-6.79	-162.20	-91.08	-197.58	
		-137.44	-5.93	-13.83	7.62	8.27	-6.79	-197.58	-126.47		
K2-2	Atap	-28.97	-0.20	0.63	-0.44	2.90	-2.53	-24.31	-35.64	-40.40	
		-33.50	-0.20	0.63	-0.44	2.90	-2.53	-29.06	-40.40		
K1-3	1	-1177.91	-267.17	-103.87	91.12	12.25	-11.24	-1910.10	-1120.74	-1956.01	
		-1221.63	-267.17	-103.87	91.12	12.25	-11.24	-1956.01	-1166.65		
	2	-803.95	-173.71	-56.05	46.68	1.82	-0.68	-1241.42	-813.10	-1276.81	
		-837.65	-173.71	-56.05	46.68	1.82	-0.68	-1276.81	-848.49		
	3	-445.74	-85.24	-22.24	16.05	1.95	-0.31	-639.53	-481.56	-674.91	
		-479.44	-85.24	-22.24	16.05	1.95	-0.31	-674.91	-516.94		
	4	-80.68	5.79	-5.86	2.93	6.26	-4.57	-95.97	-72.69	-131.35	
		-114.38	5.79	-5.86	2.93	6.26	-4.57	-131.35	-108.08		
K2-3	Atap	-19.45	2.01	0.97	-0.91	0.31	-0.12	-14.06	-22.50	-27.25	
		-23.98	2.01	0.97	-0.91	0.31	-0.12	-18.81	-27.25		
K1-4	1	-457.56	-44.36	4.83	-7.88	-144.73	140.40	-684.43	-378.55	-730.34	
		-501.28	-44.36	4.83	-7.88	-144.73	140.40	-730.34	-424.46		
	2	-341.85	-33.56	-1.53	-1.92	-85.27	81.92	-504.52	-295.50	-539.91	
		-375.55	-33.56	-1.53	-1.92	-85.27	81.92	-539.91	-330.89		
	3	-221.20	-21.13	-5.12	1.67	-43.12	40.13	-328.06	-194.65	-363.45	
		-254.90	-21.13	-5.12	1.67	-43.12	40.13	-363.45	-230.04		
	4	-99.04	-7.96	-4.90	2.95	-20.61	18.50	-158.06	-75.81	-193.45	
		-132.74	-7.96	-4.90	2.95	-20.61	18.50	-193.45	-111.20		
K2-4	Atap	-43.04	-1.45	-0.60	0.23	-1.81	1.58	-51.36	-43.61	-56.12	
		-47.57	-1.45	-0.60	0.23	-1.81	1.58	-56.12	-48.36		
As H	K1-1	1	-526.70	-101.33	163.54	-148.42	261.59	-256.08	367.68	-1594.82	-1640.72
			-570.42	-101.33	163.54	-148.42	261.59	-256.08	321.77	-1640.72	
	2	-377.21	-69.16	94.93	-86.81	148.32	-145.35	124.16	-1009.17	-1044.54	
			-410.90	-69.16	94.93	-86.81	148.32	-145.35	88.79	-1044.54	
	3	-234.97	-41.09	41.83	-40.50	63.64	-62.59	-29.68	-534.51	-569.89	
			-268.66	-41.09	41.83	-40.50	63.64	-62.59	-65.05	-569.89	
	4	-94.38	-14.64	10.51	-11.88	15.04	-14.91	-49.84	-181.62	-216.99	
			-128.07	-14.64	10.51	-11.88	15.04	-14.91	-85.22	-216.99	
K1-2	1	-532.56	-70.19	174.68	-162.95	-159.88	155.78	-93.31	-1113.62	-1159.52	
		-576.27	-70.19	174.68	-162.95	-159.88	155.78	-139.21	-1159.52		
	2	-380.16	-52.14	102.77	-90.63	-85.79	83.44	-124.90	-723.95	-759.34	
			-413.86	-52.14	102.77	-90.63	-85.79	83.44	-160.29	-759.34	
	3	-218.14	-30.08	49.62	-37.80	-33.12	32.08	-90.80	-375.81	-411.20	
			-251.84	-30.08	49.62	-37.80	-33.12	32.08	-126.18	-411.20	
	4	-59.85	-9.32	16.20	-9.55	-5.22	4.97	-10.19	-105.50	-140.87	
			-93.54	-9.32	16.20	-9.55	-5.22	4.97	-45.56	-140.87	
K1-3	1	-465.25	-42.69	158.44	-144.51	-102.62	100.77	7.29	-1008.83	-1054.73	
		-508.97	-42.69	158.44	-144.51	-102.62	100.77	-38.61	-1054.73		
	2	-329.85	-31.16	90.97	-80.36	-63.43	62.39	-73.64	-634.69	-670.07	
			-363.55	-31.16	90.97	-80.36	-63.43	62.39	-109.02	-670.07	
	3	-186.70	-17.12	40.20	-33.03	-32.48	32.06	-84.30	-310.54	345.93	
			-220.40	-17.12	40.20	-33.03	-32.48	32.06	-119.68	-345.93	
	4	-52.65	-6.11	12.28	-9.08	-10.86	10.78	-23.16	-85.61	-120.99	
			-86.35	-6.11	12.28	-9.08	-10.86	10.78	-58.55	-120.99	

Tabel 65. Gaya Aksial Rencana Kolom Akibat Kapasitas Balok Arah X

Portal	Kolom	Lt	h (m)	Mnak balok (KNm)		Panjang balok (m)		PD (KN)	PL(KN)	Pu,k(KN)	Pu,k Pakai (KN)	
				Atas	Atas	Atas	Atas	Atas	Atas			
				Bawah	Bawah	Bawah	Bawah	Bawah	Bawah			
				Kiri	Kanan	Kiri	Kanan					
As1	K1-H	1	4.36	0	599.77	0	4.5625	526.7	101.33	763.8162	763.8162	
			4.36	0	352.5	0	4.5625	570.42	101.33	762.3006		
		2	3.9	0	435.96	0	4.5625	377.21	69.16	545.0355	611.8256	
			3.9	0	599.77	0	4.5625	410.9	69.16	611.8256		
	K1-G	3	3.9	0	435.96	0	4.5625	234.97	41.09	369.1573	404.5318	
			3.9	0	435.96	0	4.5625	268.66	41.09	404.5318		
		4	3.9	0	352.5	0	4.5625	94.38	14.64	180.5365	231.9171	
			3.9	0	435.96	0	4.5625	128.07	14.64	231.9171		
K2-G	Atap	1	4.36	677.01	657.77	4.5625	8.75	1390.55	321.51	1959.519	1959.519	
			4.36	352.5	352.5	4.5625	8.75	1434.27	321.51	1912.663		
	K1-F	2	3.9	435.96	577.671	4.5625	8.75	966.68	205.37	1350.465	1440.078	
			3.9	677.01	657.77	4.5625	8.75	1000.37	205.37	1440.078		
	K2-F	3	3.9	435.96	577.671	4.5625	8.75	606.58	114.38	886.374	921.7485	
			3.9	435.96	577.671	4.5625	8.75	640.27	114.38	921.7485		
		4	3.9	352.5	435.96	4.5625	8.75	253.05	24.29	399.8553	465.4174	
			3.9	435.96	577.671	4.5625	8.75	286.75	24.29	465.4174		
K1-E	Atap	1.54	1.54	0	352.5	0	8.75	40.91	0.64	78.8103	159.5155	
			1.54	352.5	435.96	4.5625	8.75	45.44	0.64	159.5155		
	K1-F	1	4.36	657.7	667.69	8.75	6.25	2152.69	502.42	2894.358	2894.358	
			4.36	352.5	352.5	8.75	6.25	2196.41	502.42	2865.617		
	K2-F	K1-F	2	3.9	652.895	593.55	8.75	6.25	1525.03	335.05	2066.29	2112.535
				3.9	657.7	667.69	8.75	6.25	1558.73	335.05	2112.535	
		K2-F	3	3.9	652.895	516.31	8.75	6.25	919.92	176.58	1270.357	1316.545
				3.9	652.895	593.55	8.75	6.25	953.61	176.58	1316.545	
K1-D	Atap	1.54	1.54	352.5	352.5	8.75	6.25	123.9	0.56	215.2242	228.3267	
			1.54	435.96	352.5	8.75	6.25	128.43	0.56	228.3267		
	K1-E	1	4.36	667.69	657.7	6.25	8.75	2148.37	503.87	2891.192	2891.192	
			4.36	352.5	352.5	6.25	8.75	2192.08	503.87	2862.441		
	K2-E	K1-E	2	3.9	593.55	657.664	6.25	8.75	1530.97	341.61	2079.203	2124.961
				3.9	667.69	657.7	6.25	8.75	1564.66	341.61	2124.961	
		K2-E	3	3.9	593.55	657.664	6.25	8.75	916.86	180.29	1281.94	1317.325
				3.9	593.55	657.664	6.25	8.75	950.56	180.29	1317.325	
K1-C	Atap	4	3.9	352.5	435.96	6.25	8.75	300.78	18.72	426.4554	517.7578	
			3.9	593.55	657.664	6.25	8.75	334.48	18.72	517.7578		
	K2-D	Atap	1.54	1.54	352.5	352.5	6.25	8.75	106.68	0.78	197.3511	210.4536
			1.54	352.5	435.96	6.25	8.75	111.21	0.78	210.4536		
	K1-D	K1-D	1	4.36	657.7	593.55	8.75	6.25	2138.53	500.6	2867.391	2867.391
				4.36	352.5	352.5	8.75	6.25	2182.25	500.6	2849.03	
		K2-D	2	3.9	657.664	593.55	8.75	6.25	1530.7	341.28	2078.608	2113.997
				3.9	657.7	593.55	8.75	6.25	1564.4	341.28	2113.997	
K1-B	K1-D	3	3.9	657.664	593.55	8.75	6.25	916.81	180.15	1281.756	1317.141	
			3.9	657.664	593.55	8.75	6.25	950.51	180.15	1317.141		
	K2-D	4	3.9	435.96	352.5	8.75	6.25	300.73	18.67	426.3557	517.6581	
			3.9	657.664	593.55	8.75	6.25	334.43	18.67	517.6581		
	K1-C	Atap	1.54	1.54	352.5	352.5	8.75	6.25	106.66	0.78	197.3301	210.4326
				1.54	435.96	352.5	8.75	6.25	111.19	0.78	210.4326	
		K1-C	1	4.36	593.55	652.9	6.25	8.75	2129.08	490.99	2847.907	2847.907
				4.36	352.5	352.5	6.25	8.75	2172.8	490.99	2830.026	
K2-C	K1-C	2	3.9	593.55	652.895	6.25	8.75	1525.21	333.77	2065.27	2100.655	
			3.9	593.55	652.9	6.25	8.75	1558.91	333.77	2100.655		
	K2-C	3	3.9	516.31	652.895	6.25	8.75	919.76	175.89	1269.537	1315.736	
			3.9	593.55	652.895	6.25	8.75	953.46	175.89	1315.736		
K2-C	Atap	4	3.9	352.5	435.96	6.25	8.75	312.76	17.69	438.0611	518.073	
			3.9	516.31	652.895	6.25	8.75	346.46	17.69	518.073		

K1-B	1	4.36	577.7	599.77	8.75	4.5625	1339.44	300.13	1862.829	1862.829	
		4.36	352.5	352.5	8.75	4.5625	1383.16	300.13	1838.794		
	2	3.9	577.671	435.96	8.75	4.5625	972.26	207.78	1358.601	1425.404	
		3.9	577.7	599.77	8.75	4.5625	1005.96	207.78	1425.404		
	3	3.9	577.671	435.96	8.75	4.5625	609.76	115.77	891.0265	926.4115	
		3.9	577.671	435.96	8.75	4.5625	643.46	115.77	926.4115		
	4	3.9	435.96	352.5	8.75	4.5625	254.5	24.96	402.0109	467.5731	
	3.9	577.671	435.96	8.75	4.5625	288.2	24.96	467.5731			
K2-B	Atap	1.54	352.5	0	8.75	0	40.85	0.73	78.83235	175.5436	
	1.54	435.96	435.96	8.75	4.5625	45.38	0.73	175.5436			
K1-A	1	4.36	599.77	0	4.5625	0	504.11	93.15	732.3666	732.3666	
		4.36	352.5	0	4.5625	0	547.83	93.15	730.851		
	2	3.9	435.96	0	4.5625	0	375.7	68.41	542.7412	609.5313	
		3.9	599.77	0	4.5625	0	409.39	68.41	609.5313		
	3	3.9	435.96	0	4.5625	0	234.71	40.9	368.7048	404.0898	
		3.9	435.96	0	4.5625	0	268.41	40.9	404.0898		
	4	3.9	352.5	0	4.5625	0	94.38	14.6	180.4987	231.8793	
	3.9	435.96	0	4.5625	0	128.07	14.6	231.8793			
As2	K1-H	1	4.36	0	599.77	0	4.5625	532.56	70.19	740.5419	740.5419
			4.36	0	352.5	0	4.5625	576.27	70.19	739.0158	
		2	3.9	0	435.96	0	4.5625	380.16	52.14	532.0491	598.8497
			3.9	0	599.77	0	4.5625	413.86	52.14	598.8497	
		3	3.9	0	352.5	0	4.5625	218.14	30.08	325.0753	376.4664
			3.9	0	435.96	0	4.5625	251.84	30.08	376.4664	
		4	3.9	0	352.5	0	4.5625	59.85	9.32	139.2526	174.6271
		3.9	0	352.5	0	4.5625	93.54	9.32	174.6271		
	K1-G	1	4.36	599.77	194.136	4.5625	8.75	1082.94	250.92	1508.644	1508.644
			4.36	352.5	0	4.5625	0	1126.66	250.92	1487.715	
		2	3.9	435.96	194.136	4.5625	8.75	771.91	174.13	1078.081	1144.871
			3.9	599.77	194.136	4.5625	8.75	805.6	174.13	1144.871	
		3	3.9	435.96	168.448	4.5625	8.75	444.34	91.8	653.7616	691.7154
			3.9	435.96	194.136	4.5625	8.75	478.04	91.8	691.7154	
4		3.9	352.5	0	4.5625	0	103.74	5.93	182.1336	250.3694	
	3.9	435.96	168.448	4.5625	8.75	137.44	5.93	250.3694			
K2-G	Atap	1.54	0	0	0	0	28.97	0.2	0	102.9667	
	1.54	352.5	0	4.5625	0	33.5	0.2	102.9667			
K1-B	1	4.36	194.136	599.77	8.75	4.5625	1095.94	255.58	1526.698	1526.698	
		4.36	0	352.5	0	4.5625	1139.66	255.58	1505.769		
	2	3.9	194.136	435.96	8.75	4.5625	765.49	171.5	1068.854	1135.644	
		3.9	194.136	599.77	8.75	4.5625	799.18	171.5	1135.644		
	3	3.9	168.448	435.96	8.75	4.5625	440.78	90.35	648.6533	686.6071	
		3.9	194.136	435.96	8.75	4.5625	474.48	90.35	686.6071		
	4	3.9	0	352.5	0	4.5625	101.96	5.23	179.6031	247.8389	
	3.9	168.448	435.96	8.75	4.5625	135.66	5.23	247.8389			
K2-B	Atap	1.54	0	0	0	0	28.69	0.1	0	102.5782	
	1.54	0	352.5	0	4.5625	33.22	0.1	102.5782			
K1-A	1	4.36	599.77	0	4.5625	0	539.58	72.63	750.2187	750.2187	
		4.36	352.5	0	4.5625	0	583.3	72.63	748.7031		
	2	3.9	435.96	0	4.5625	0	378.95	51.8	530.4573	597.2579	
		3.9	599.77	0	4.5625	0	412.65	51.8	597.2579		
	3	3.9	352.5	0	4.5625	0	217.29	29.81	323.9277	375.3082	
		3.9	435.96	0	4.5625	0	250.98	29.81	375.3082		
	4	3.9	352.5	0	4.5625	0	59.32	9.14	138.526	173.911	
	3.9	352.5	0	4.5625	0	93.02	9.14	173.911			
As3	K1-H	1	4.36	0	435.96	0	4.5625	465.25	42.69	612.4633	642.3633
			4.36	0	352.5	0	4.5625	508.97	42.69	642.3633	
		2	3.9	0	435.96	0	4.5625	329.85	31.16	459.3975	494.7825
			3.9	0	435.96	0	4.5625	363.55	31.16	494.7825	
		3	3.9	0	352.5	0	4.5625	186.7	17.12	279.8161	331.2072
			3.9	0	435.96	0	4.5625	220.4	17.12	331.2072	
		4	3.9	0	352.5	0	4.5625	52.65	6.11	128.6592	164.0442
		3.9	0	352.5	0	4.5625	86.35	6.11	164.0442		
	K1-G	1	4.36	599.77	577.7	4.5625	8.75	1177.91	267.15	1662.057	1662.057
			4.36	352.5	352.5	4.5625	8.75	1221.63	267.15	1638.021	
		2	3.9	435.96	577.671	4.5625	8.75	803.95	173.71	1149.679	1216.483
			3.9	599.77	577.7	4.5625	8.75	837.65	173.71	1216.483	
		3	3.9	435.96	577.671	4.5625	8.75	445.74	85.24	689.9547	725.3397
			3.9	435.96	577.671	4.5625	8.75	479.44	85.24	725.3397	

	4	3.9	352.5	0	4.5625	0	80.68	5.79	157.7883	266.9464	
		3.9	435.96	577.671	4.5625	8.75	114.38	5.79	266.9464		
K2-G	Atap	1.54	0	0	0	0	19.45	2.01	0	94.68119	
		1.54	352.5	0	4.5625	0	23.98	2.01	94.68119		
K1-F	1	4.36	577.7	516.31	8.75	6.25	1541.38	365.13	2093.55	2094.003	
		4.36	352.5	352.5	8.75	6.25	1585.1	365.13	2094.003		
	2	3.9	577.671	516.31	8.75	6.25	1061.62	243.98	1475.313	1510.701	
		3.9	577.7	516.31	8.75	6.25	1095.32	243.98	1510.701		
	3	3.9	577.671	435.96	8.75	6.25	587	124.62	852.9174	899.5514	
		3.9	577.671	516.31	8.75	6.25	620.7	124.62	899.5514		
	4	3.9	0	352.5	0	6.25	101.06	2.49	157.8161	262.6421	
		3.9	577.671	435.96	8.75	6.25	134.75	2.49	262.6421		
K2-F	Atap	1.54	0	0	0	0	20.48	2.38	0	77.8596	
		1.54	0	352.5	0	6.25	25.01	2.38	77.8596		
K1-E	1	4.36	516.31	577.7	6.25	8.75	1567.21	374.12	2129.167	2129.62	
		4.36	352.5	352.5	6.25	8.75	1610.93	374.12	2129.62		
	2	3.9	516.31	652.895	6.25	8.75	1077.63	249.36	1504.73	1532.585	
		3.9	516.31	577.7	6.25	8.75	1111.32	249.36	1532.585		
	3	3.9	435.96	577.671	6.25	8.75	596.18	127.57	865.3442	919.5006	
		3.9	516.31	652.895	6.25	8.75	629.88	127.57	919.5006		
	4	3.9	352.5	0	6.25	0	102.29	2.68	159.2871	264.1131	
		3.9	435.96	577.671	6.25	8.75	135.98	2.68	264.1131		
K2-E	Atap	1.54	0	0	0	0	20.88	2.29	0	78.19455	
		1.54	352.5	0	6.25	0	25.41	2.29	78.19455		
K1-D	1	4.36	577.7	516.31	8.75	6.25	1568.59	374.23	2130.72	2131.173	
		4.36	352.5	352.5	8.75	6.25	1612.31	374.23	2131.173		
	2	3.9	652.895	516.31	8.75	6.25	1077.34	249.02	1504.104	1531.969	
		3.9	577.7	516.31	8.75	6.25	1111.04	249.02	1531.969		
	3	3.9	577.671	435.96	8.75	6.25	596.22	127.43	865.2539	919.4103	
		3.9	652.895	516.31	8.75	6.25	629.92	127.43	919.4103		
	4	3.9	0	352.5	0	6.25	102.03	2.64	158.9763	264.0963	
		3.9	577.671	435.96	8.75	6.25	136	2.64	264.0963		
K2-D	Atap	1.54	0	0	0	0	20.88	2.29	0	78.18405	
		1.54	0	352.5	0	6.25	25.4	2.29	78.18405		
K1-C	1	4.36	516.31	577.7	6.25	8.75	1543.59	361.06	2092.025	2092.477	
		4.36	352.5	352.5	6.25	8.75	1587.31	361.06	2092.477		
	2	3.9	516.31	577.671	6.25	8.75	1060.84	240.58	1471.281	1506.669	
		3.9	516.31	577.7	6.25	8.75	1094.54	240.58	1506.669		
	3	3.9	435.96	577.671	6.25	8.75	586.97	123.12	851.4684	898.1024	
		3.9	516.31	577.671	6.25	8.75	620.67	123.12	898.1024		
	4	3.9	352.5	0	6.25	0	101.05	2.68	157.9851	262.8111	
		3.9	435.96	577.671	6.25	8.75	134.74	2.68	262.8111		
K2-C	Atap	1.54	0	0	0	0	20.45	2.32	0	77.7714	
		1.54	352.5	0	6.25	0	24.98	2.32	77.7714		
K1-B	1	4.36	577.7	599.77	8.75	4.5625	1178.73	267.36	1663.116	1663.116	
		4.36	352.5	352.5	8.75	4.5625	1222.45	267.36	1639.08		
	2	3.9	577.671	435.96	8.75	4.5625	804.52	173.85	1150.41	1217.214	
		3.9	577.7	599.77	8.75	4.5625	838.22	173.85	1217.214		
	3	3.9	577.671	435.96	8.75	4.5625	445.93	85.28	690.192	725.577	
		3.9	577.671	435.96	8.75	4.5625	479.63	85.28	725.577		
	4	3.9	0	352.5	0	4.5625	80.63	5.79	157.7358	266.8834	
		3.9	577.671	435.96	8.75	4.5625	114.32	5.79	266.8834		
K2-B	Atap	1.54	0	0	0	0	19.41	2.02	0	94.64864	
		1.54	0	352.5	0	4.5625	23.94	2.02	94.64864		
K1-A	1	4.36	435.96	0	4.5625	0	466.99	43.36	614.9235	644.8129	
		4.36	352.5	0	4.5625	0	510.7	43.36	644.8129		
	2	3.9	435.96	0	4.5625	0	331.07	31.63	461.1226	496.4971	
		3.9	435.96	0	4.5625	0	364.76	31.63	496.4971		
	3	3.9	352.5	0	4.5625	0	187.17	17.31	280.4892	331.8802	
		3.9	435.96	0	4.5625	0	220.87	17.31	331.8802		
	4	3.9	352.5	0	4.5625	0	52.87	6.19	128.9658	164.3403	
		3.9	352.5	0	4.5625	0	86.56	6.19	164.3403		
As4 K1-G	1	4.36	0	194.136	0	8.75	457.56	44.36	541.7718	603.5142	
		4.36	0	352.5	0	8.75	501.28	44.36	603.5142		
	2	3.9	0	194.136	0	8.75	341.85	33.56	410.0703	445.4553	
		3.9	0	194.136	0	8.75	375.55	33.56	445.4553		
	3	3.9	0	194.136	0	8.75	221.2	21.13	271.6415	307.0265	
		3.9	0	194.136	0	8.75	254.9	21.13	307.0265		

	4	3.9	0	352.5	0	8.75	99.04	7.95	146.7548	166.3034
		3.9	0	194.136	0	8.75	132.74	7.95	166.3034	
K2-G	Atap	1.54	0	352.5	0	8.75	43.04	1.45	81.81225	86.56875
		1.54	0	352.5	0	8.75	47.57	1.45	86.56875	
K1-F	1	4.36	194.136	0	8.75	0	493.56	31.89	567.7877	629.5301
		4.36	352.5	0	8.75	0	537.28	31.89	629.5301	
	2	3.9	194.136	0	8.75	0	386	23.6	447.0156	482.4006
		3.9	194.136	0	8.75	0	419.7	23.6	482.4006	
	3	3.9	194.136	0	8.75	0	272.32	12.95	317.5874	352.9829
		3.9	194.136	0	8.75	0	306.03	12.95	352.9829	
	4	3.9	352.5	352.5	8.75	6.25	171.88	5.39	270.1676	270.1676
		3.9	194.136	0	8.75	0	205.57	5.39	240.3557	
K2-F	Atap	1.54	352.5	352.5	8.75	6.25	109.29	1.59	200.8571	205.6136
		1.54	352.5	352.5	8.75	6.25	113.82	1.59	205.6136	
K1-E	1	4.36	0	168.448	0	8.75	465.72	28.43	532.7172	597.0284
		4.36	0	352.5	0	8.75	509.44	28.43	597.0284	
	2	3.9	0	168.448	0	8.75	360.45	21	415.1623	450.5368
		3.9	0	168.448	0	8.75	394.14	21	450.5368	
	3	3.9	0	168.448	0	8.75	248.51	11.02	288.1942	323.5687
		3.9	0	168.448	0	8.75	282.2	11.02	323.5687	
	4	3.9	352.5	352.5	6.25	8.75	151.25	4.53	247.6934	247.6934
		3.9	0	168.448	0	8.75	184.94	4.53	215.3127	
K2-E	Atap	1.54	352.5	352.5	6.25	8.75	90.63	1.45	181.1318	185.8883
		1.54	352.5	352.5	6.25	8.75	95.16	1.45	185.8883	
K1-D	1	4.36	168.448	0	8.75	0	466.22	28.67	533.469	597.7802
		4.36	352.5	0	8.75	0	509.94	28.67	597.7802	
	2	3.9	168.448	0	8.75	0	360.69	21.14	415.5466	450.9316
		3.9	168.448	0	8.75	0	394.39	21.14	450.9316	
	3	3.9	168.448	0	8.75	0	248.41	11.04	288.1081	323.4826
		3.9	168.448	0	8.75	0	282.1	11.04	323.4826	
	4	3.9	352.5	352.5	8.75	6.25	151.21	4.56	247.6797	247.6797
		3.9	168.448	0	8.75	0	184.91	4.56	215.3095	
K2-D	Atap	1.54	352.5	352.5	8.75	6.25	90.61	1.45	181.1108	185.8673
		1.54	352.5	352.5	8.75	6.25	95.14	1.45	185.8673	
K1-C	1	4.36	0	194.136	0	8.75	495.01	32.4	569.7921	631.5345
		4.36	0	352.5	0	8.75	538.73	32.4	631.5345	
	2	3.9	0	194.136	0	8.75	386.86	23.83	448.136	483.5105
		3.9	0	194.136	0	8.75	420.55	23.83	483.5105	
	3	3.9	0	194.136	0	8.75	272.4	12.88	317.6052	352.9902
		3.9	0	194.136	0	8.75	306.1	12.88	352.9902	
	4	3.9	352.5	352.5	6.25	8.75	171.94	5.23	270.0794	270.0794
		3.9	0	194.136	0	8.75	205.63	5.23	240.2675	
K2-C	Atap	1.54	352.5	352.5	6.25	8.75	109.36	1.55	200.8928	205.6388
		1.54	352.5	352.5	6.25	8.75	113.88	1.55	205.6388	
K1-B	1	4.36	194.136	0	8.75	0	459.91	45.44	545.2599	607.0023
		4.36	352.5	0	8.75	0	503.63	45.44	607.0023	
	2	3.9	194.136	0	8.75	0	342.86	34.14	411.6789	447.0639
		3.9	194.136	0	8.75	0	376.56	34.14	447.0639	
	3	3.9	194.136	0	8.75	0	221.35	21.38	272.0352	307.4097
		3.9	194.136	0	8.75	0	255.04	21.38	307.4097	
	4	3.9	352.5	0	8.75	0	99.01	8.12	146.8839	166.422
		3.9	194.136	0	8.75	0	132.7	8.12	166.422	
K2-B	Atap	1.54	352.5	0	8.75	0	42.63	1.49	81.41955	86.16555
		1.54	352.5	0	8.75	0	47.15	1.49	86.16555	

Tabel 66. Gaya Aksial Rencana Kolom Akibat Kapasitas Balok Arah Y

Portal	Kolom	Lt	h (m)	Mnak balok (KNm)		Panjang balok (m)		PD (KN)	PL(KN)	Pu,k(KN)	Pu,k Pakai (KN)	
				Atas	Atas	Atas	Atas	Atas	Atas			
				Bawah	Bawah	Bawah	Bawah	Bawah	Bawah			
				Kiri	Kanan	Kiri	Kanan					
As A	K1-1	1	4.36	352.5	677.01	2.475	3	504.11	93.15	939.4247	939.4247	
			4.36	0	352.5	0	3	547.83	93.15	766.0608		
		2	3.9	352.5	599.77	2.475	3	375.7	68.41	758.6866	816.5894	
			3.9	352.5	677.01	2.475	3	409.39	68.41	816.5894		
		3	3.9	352.5	435.96	2.475	3	234.71	40.9	536.8722	620.0351	
			3.9	352.5	599.77	2.475	3	268.41	40.9	620.0351		
		4	3.9	352.5	352.5	2.475	3	94.38	14.6	340.3297	400.0467	
			3.9	352.5	435.96	2.475	3	128.07	14.6	400.0467		
	K1-2	1	4.36	519.42	516.31	3	6.25	539.58	72.63	858.9753	858.9753	
			4.36	352.5	352.5	3	6.25	583.3	72.63	833.2629		
		2	3.9	435.96	516.31	3	6.25	378.95	51.8	646.2869	706.0144	
			3.9	519.42	516.31	3	6.25	412.65	51.8	706.0144		
		3	3.9	352.5	435.96	3	6.25	217.29	29.81	420.1719	491.1379	
			3.9	435.96	516.31	3	6.25	250.98	29.81	491.1379		
		4	3.9	352.5	352.5	3	6.25	59.32	9.14	223.0858	270.1552	
			3.9	352.5	435.96	3	6.25	93.02	9.14	270.1552		
	K1-3	1	4.36	516.31	0	6.25	0	466.99	43.36	603.5981	626.5602	
			4.36	352.5	0	6.25	0	510.7	43.36	626.5602		
		2	3.9	435.96	0	6.25	0	331.07	31.63	438.5483	485.1718	
			3.9	516.31	0	6.25	0	364.76	31.63	485.1718		
		3	3.9	435.96	0	6.25	0	187.17	17.31	273.9209	309.3059	
			3.9	435.96	0	6.25	0	220.87	17.31	309.3059		
		4	3.9	352.5	0	6.25	0	52.87	6.19	110.7131	157.772	
			3.9	435.96	0	6.25	0	86.56	6.19	157.772		
As B	K1-1	1	4.36	516.31	677.01	2.475	3	1339.44	300.13	2070.03	2070.03	
			4.36	0	352.5	0	3	1383.16	300.13	1838.753		
		2	3.9	516.31	599.77	2.475	3	972.26	207.78	1574.692	1632.605	
			3.9	516.31	677.01	2.475	3	1005.96	207.78	1632.605		
		3	3.9	516.31	435.96	2.475	3	609.76	115.77	1059.339	1142.502	
			3.9	516.31	599.77	2.475	3	643.46	115.77	1142.502		
		4	3.9	435.96	352.5	2.475	3	254.5	24.96	547.752	635.886	
			3.9	516.31	435.96	2.475	3	288.2	24.96	635.886		
		K2-1	Atap	1.54	0	352.5	0	3	40.85	0.73	146.3949	305.2786
			1.54	435.96	352.5	2.475	3	45.38	0.73	305.2786		
		K1-2	1	4.36	680.12	751.15	3	6.25	1095.94	255.58	1695.789	1695.789
				4.36	352.5	352.5	3	6.25	1139.66	255.58	1590.329	
			2	3.9	519.42	667.69	3	6.25	765.49	171.5	1210.806	1304.736
				3.9	680.12	751.15	3	6.25	799.18	171.5	1304.736	
			3	3.9	352.5	593.55	3	6.25	440.78	90.35	734.1093	828.5589
				3.9	519.42	667.69	3	6.25	474.48	90.35	828.5589	
	4		3.9	352.5	435.96	3	6.25	101.96	5.23	275.8473	333.2949	
			3.9	352.5	593.55	3	6.25	135.66	5.23	333.2949		
	K2-2	Atap	1.54	352.5	352.5	3	6.25	28.69	0.1	182.3815	198.8224	
		1.54	352.5	435.96	3	6.25	33.22	0.1	198.8224			
	K1-3	1	4.36	677.01	258.66	6.25	2.75	1178.73	267.36	1667.404	1697.737	
			4.36	352.5	352.5	6.25	2.75	1222.45	267.36	1697.737		
		2	3.9	593.55	205.37	6.25	2.75	804.52	173.85	1157.476	1221.502	
			3.9	677.01	258.66	6.25	2.75	838.22	173.85	1221.502		
		3	3.9	516.31	149.65	6.25	2.75	445.93	85.28	668.7154	732.6431	
			3.9	593.55	205.37	6.25	2.75	479.63	85.28	732.6431		
		4	3.9	352.5	352.5	6.25	2.75	80.63	5.79	251.6421	251.6421	
			3.9	516.31	149.65	6.25	2.75	114.32	5.79	245.4069		
	K2-3	Atap	1.54	352.5	352.5	6.25	2.75	19.41	2.02	183.7985	188.555	
		1.54	352.5	352.5	6.25	2.75	23.94	2.02	188.555			
	K1-4	1	4.36	232.62	0	2.75	0	459.91	45.44	599.8618	683.9114	
			4.36	352.5	0	2.75	0	503.63	45.44	683.9114		
		2	3.9	205.37	0	2.75	0	342.86	34.14	457.6103	501.6658	
			3.9	232.62	0	2.75	0	376.56	34.14	501.6658		

		3	3.9	149.65	0	2.75	0	221.35	21.38	300.2375	353.3411
			3.9	205.37	0	2.75	0	255.04	21.38	353.3411	
		4	3.9	352.5	0	2.75	0	99.01	8.12	223.793	223.793
			3.9	149.65	0	2.75	0	132.7	8.12	194.6243	
	K2-4	Atap	1.54	352.5	0	2.75	0	42.63	1.49	158.3286	163.0746
			1.54	352.5	0	2.75	0	47.15	1.49	163.0746	
As C	K1-1	1	4.36	516.31	657.7	2.475	9.25	2129.08	490.99	2944.268	2944.268
			4.36	0	352.5	0	9.25	2172.8	490.99	2778.77	
		2	3.9	516.31	652.895	2.475	9.25	1525.21	333.77	2161.177	2197.017
			3.9	516.31	657.7	2.475	9.25	1558.91	333.77	2197.017	
		3	3.9	516.31	577.671	2.475	9.25	919.76	175.89	1369.142	1411.643
			3.9	516.31	652.895	2.475	9.25	953.46	175.89	1411.643	
		4	3.9	435.96	0	2.475	0	312.76	17.69	499.2423	617.6784
			3.9	516.31	577.671	2.475	9.25	346.46	17.69	617.6784	
	K2-1	Atap	1.54	0	352.5	0	9.25	123.72	0.56	163.7798	289.319
			1.54	435.96	0	2.475	0	128.25	0.56	289.319	
	K1-3	1	4.36	652.9	244.814	9.25	2.75	1543.59	361.06	2101.627	2179.936
			4.36	352.5	435.96	9.25	2.75	1587.31	361.06	2179.936	
		2	3.9	652.895	168.448	9.25	2.75	1060.84	240.58	1456.588	1516.271
			3.9	652.9	244.814	9.25	2.75	1094.54	240.58	1516.271	
		3	3.9	577.671	231.41	9.25	2.75	586.97	123.12	860.9419	883.4093
			3.9	652.895	168.448	9.25	2.75	620.67	123.12	883.4093	
		4	3.9	0	352.5	0	2.75	101.05	2.68	220.7942	272.2846
			3.9	577.671	231.41	9.25	2.75	134.74	2.68	272.2846	
	K2-3	Atap	1.54	352.5	352.5	9.25	2.75	20.45	2.32	169.1686	169.1686
			1.54	0	352.5	0	2.75	24.98	2.32	140.5805	
	K1-4	1	4.36	194.136	0	2.75	0	495.01	32.4	612.149	734.999
			4.36	435.96	0	2.75	0	538.73	32.4	734.999	
		2	3.9	258.66	0	2.75	0	386.86	23.83	511.0233	525.8674
			3.9	194.136	0	2.75	0	420.55	23.83	525.8674	
		3	3.9	149.65	0	2.75	0	272.4	12.88	345.8075	415.8775
			3.9	258.66	0	2.75	0	306.1	12.88	415.8775	
		4	3.9	352.5	0	2.75	0	171.94	5.23	297.6384	297.6384
			3.9	149.65	0	2.75	0	205.63	5.23	268.4698	
	K2-4	Atap	1.54	352.5	0	2.75	0	109.36	1.55	228.4518	233.1978
			1.54	352.5	0	2.75	0	113.88	1.55	233.1978	
As D	K1-1	1	4.36	516.31	657.7	2.475	9.25	2138.53	500.6	2963.272	2963.272
			4.36	0	352.5	0	9.25	2182.25	500.6	2797.774	
		2	3.9	516.31	652.895	2.475	9.25	1530.7	341.28	2174.039	2209.878
			3.9	516.31	657.7	2.475	9.25	1564.4	341.28	2209.878	
		3	3.9	516.31	577.671	2.475	9.25	916.81	180.15	1370.071	1412.571
			3.9	516.31	652.895	2.475	9.25	950.51	180.15	1412.571	
		4	3.9	516.31	0	2.475	0	300.73	18.67	515.9435	605.973
			3.9	516.31	577.671	2.475	9.25	334.43	18.67	605.973	
	K2-1	Atap	1.54	0	352.5	0	9.25	106.66	0.78	146.0747	300.0204
			1.54	516.31	0	2.475	0	111.19	0.78	300.0204	
	K1-3	1	4.36	657.7	168.448	9.25	2.75	1568.59	374.23	2116.479	2245.187
			4.36	352.5	519.42	9.25	2.75	1612.31	374.23	2245.187	
		2	3.9	652.895	194.136	9.25	2.75	1077.34	249.02	1490.062	1517.728
			3.9	657.7	168.448	9.25	2.75	1111.04	249.02	1517.728	
		3	3.9	652.895	258.66	9.25	2.75	596.22	127.43	890.5136	905.3682
			3.9	652.895	194.136	9.25	2.75	629.92	127.43	905.3682	
		4	3.9	0	352.5	0	2.75	102.03	2.64	221.7854	289.356
			3.9	652.895	258.66	9.25	2.75	136	2.64	289.356	
	K2-3	Atap	1.54	352.5	352.5	9.25	2.75	20.88	2.29	169.5917	169.5917
			1.54	0	352.5	0	2.75	25.4	2.29	140.9931	
	K1-4	1	4.36	194.136	0	2.75	0	466.22	28.67	578.3947	727.8002
			4.36	519.42	0	2.75	0	509.94	28.67	727.8002	
		2	3.9	168.448	0	2.75	0	360.69	21.14	452.2989	495.8573
			3.9	194.136	0	2.75	0	394.39	21.14	495.8573	
		3	3.9	178.12	0	2.75	0	248.41	11.04	327.9378	360.2349
			3.9	168.448	0	2.75	0	282.1	11.04	360.2349	
		4	3.9	352.5	0	2.75	0	151.21	4.56	275.2388	275.2388
			3.9	178.12	0	2.75	0	184.91	4.56	255.1392	
	K2-4	Atap	1.54	352.5	0	2.75	0	90.61	1.45	208.6698	213.4263
			1.54	352.5	0	2.75	0	95.14	1.45	213.4263	
As E	K1-1	1	4.36	516.31	733.7	2.475	9.25	2148.37	503.87	2983.884	2983.884
			4.36	0	352.5	0	9.25	2192.08	503.87	2811.186	



	2	3.9	516.31	652.895	2.475	9.25	1530.97	341.61	2174.634	2217.652	
		3.9	516.31	733.7	2.475	9.25	1564.66	341.61	2217.652		
	3	3.9	516.31	652.895	2.475	9.25	916.86	180.29	1377.371	1412.756	
		3.9	516.31	652.895	2.475	9.25	950.56	180.29	1412.756		
	4	3.9	516.31	0	2.475	0	300.78	18.72	516.0432	613.1886	
		3.9	516.31	652.895	2.475	9.25	334.48	18.72	613.1886		
K2-1	Atap	1.54	0	352.5	0	9.25	106.68	0.78	146.0957	300.0414	
		1.54	516.31	0	2.475	0	111.21	0.78	300.0414		
K1-3	1	4.36	657.7	168.448	9.25	2.75	1567.21	374.12	2114.926	2243.634	
		4.36	352.5	519.42	9.25	2.75	1610.93	374.12	2243.634		
	2	3.9	577.671	194.136	9.25	2.75	1077.63	249.36	1483.572	1518.343	
		3.9	657.7	168.448	9.25	2.75	1111.32	249.36	1518.343		
	3	3.9	652.895	258.66	9.25	2.75	596.18	127.57	890.6039	898.3427	
		3.9	577.671	194.136	9.25	2.75	629.88	127.57	898.3427		
	4	3.9	0	352.5	0	2.75	102.29	2.68	222.0962	289.3728	
		3.9	652.895	258.66	9.25	2.75	135.98	2.68	289.3728		
K2-3	Atap	1.54	352.5	352.5	9.25	2.75	20.88	2.29	169.5917	169.5917	
		1.54	0	352.5	0	2.75	25.41	2.29	141.0036		
K1-4	1	4.36	194.136	0	2.75	0	465.72	28.43	577.6429	727.0484	
		4.36	519.42	0	2.75	0	509.44	28.43	727.0484		
	2	3.9	168.448	0	2.75	0	360.45	21	451.9146	495.4625	
		3.9	194.136	0	2.75	0	394.14	21	495.4625		
	3	3.9	178.12	0	2.75	0	248.51	11.02	328.0239	360.321	
		3.9	168.448	0	2.75	0	282.2	11.02	360.321		
	4	3.9	352.5	0	2.75	0	151.25	4.53	275.2524	275.2524	
		3.9	178.12	0	2.75	0	184.94	4.53	255.1424		
K2-4	Atap	1.54	352.5	0	2.75	0	90.63	1.45	208.6908	213.4473	
		1.54	352.5	0	2.75	0	95.16	1.45	213.4473		
As F	K1-1	1	4.36	516.31	733.7	3.125	9.25	2152.69	502.42	2949.082	2949.082
			4.36	0	352.5	0	9.25	2196.41	502.42	2814.362	
	2	3.9	516.31	652.895	2.475	9.25	1525.03	335.05	2162.198	2167.26	
		3.9	516.31	733.7	3.125	9.25	1558.73	335.05	2167.26		
	3	3.9	516.31	652.895	2.475	9.25	919.92	176.58	1377.078	1412.453	
		3.9	516.31	652.895	2.475	9.25	953.61	176.58	1412.453		
	4	3.9	435.96	0	2.475	0	312.96	17.67	499.4334	624.9853	
		3.9	516.31	652.895	2.475	9.25	346.66	17.67	624.9853		
K2-1	Atap	1.54	0	352.5	0	9.25	123.9	0.56	163.9688	289.508	
		1.54	435.96	0	2.475	0	128.43	0.56	289.508		
K1-3	1	4.36	657.7	244.813	9.25	2.75	1541.38	365.13	2103.607	2208.017	
		4.36	352.5	519.42	9.25	2.75	1585.1	365.13	2208.017		
	2	3.9	652.895	168.448	9.25	2.75	1061.62	243.98	1460.62	1520.757	
		3.9	657.7	244.813	9.25	2.75	1095.32	243.98	1520.757		
	3	3.9	652.895	231.41	9.25	2.75	587	124.62	869.5067	884.8583	
		3.9	652.895	168.448	9.25	2.75	620.7	124.62	884.8583		
	4	3.9	0	352.5	0	2.75	101.06	2.49	220.6251	279.2313	
		3.9	652.895	231.41	9.25	2.75	134.75	2.49	279.2313		
K2-3	Atap	1.54	352.5	352.5	9.25	2.75	20.48	2.38	169.2568	169.2568	
		1.54	0	352.5	0	2.75	25.01	2.38	140.6687		
K1-4	1	4.36	168.448	0	2.75	0	493.56	31.89	601.9711	732.9946	
		4.36	435.96	0	2.75	0	537.28	31.89	732.9946		
	2	3.9	258.66	0	2.75	0	386	23.6	509.9029	516.5841	
		3.9	168.448	0	2.75	0	419.7	23.6	516.5841		
	3	3.9	149.65	0	2.75	0	272.32	12.95	345.7897	415.8702	
		3.9	258.66	0	2.75	0	306.03	12.95	415.8702		
	4	3.9	352.5	0	2.75	0	171.88	5.39	297.7266	297.7266	
		3.9	149.65	0	2.75	0	205.57	5.39	268.558		
K2-4	Atap	1.54	352.5	0	2.75	0	109.29	1.59	228.4161	233.1726	
		1.54	352.5	0	2.75	0	113.82	1.59	233.1726		
As G	K1-1	1	4.36	500	751.15	3.125	3	1390.55	321.51	2122.99	2122.99
			4.36	0	352.5	0	3	1434.27	321.51	1912.623	
	2	3.9	516.31	599.77	2.475	3	966.68	205.37	1566.555	1603.549	
		3.9	500	751.15	3.125	3	1000.37	205.37	1603.549		
	3	3.9	516.31	435.96	2.475	3	606.58	114.38	1054.687	1137.839	
		3.9	516.31	599.77	2.475	3	640.27	114.38	1137.839		
	4	3.9	435.96	352.5	2.475	3	253.05	24.29	545.5963	633.7304	
		3.9	516.31	435.96	2.475	3	286.75	24.29	633.7304		
K2-1	Atap	1.54	0	32.5	0	3	40.91	0.64	53.03947	305.2566	
		1.54	435.96	352.5	2.475	3	45.44	0.64	305.2566		

K1-2	1	4.36	680.12	751.15	3	6.25	1082.94	250.92	1677.736	1677.736		
		4.36	352.5	352.5	3	6.25	1126.66	250.92	1572.275			
	2	3.9	519.42	667.69	3	6.25	771.91	174.13	1220.032	1313.962		
		3.9	680.12	751.15	3	6.25	805.6	174.13	1313.962			
	3	3.9	352.5	593.55	3	6.25	444.34	91.8	739.2175	833.6671		
		3.9	519.42	667.69	3	6.25	478.04	91.8	833.6671			
	4	3.9	352.5	435.96	3	6.25	103.74	5.93	278.3778	335.8254		
		3.9	352.5	593.55	3	6.25	137.44	5.93	335.8254			
	K2-2	Atap	1.54	352.5	352.5	3	6.25	28.97	0.2	182.77	199.2109	
			1.54	352.5	435.96	3	6.25	33.5	0.2	199.2109		
K1-3	1	4.36	677.01	258.66	6.25	2.75	1177.91	267.15	1666.345	1696.677		
		4.36	352.5	352.5	6.25	2.75	1221.63	267.15	1696.677			
	2	3.9	516.31	205.37	6.25	2.75	803.95	173.71	1145.932	1220.771		
		3.9	677.01	258.66	6.25	2.75	837.65	173.71	1220.771			
	3	3.9	516.31	149.65	6.25	2.75	445.74	85.24	668.4781	721.5922		
		3.9	516.31	205.37	6.25	2.75	479.44	85.24	721.5922			
	4	3.9	352.5	352.5	6.25	2.75	80.68	5.79	251.6946	251.6946		
		3.9	516.31	149.65	6.25	2.75	114.38	5.79	245.4699			
	K2-3	Atap	1.54	352.5	352.5	6.25	2.75	19.45	2.01	183.831	188.5875	
			1.54	352.5	352.5	6.25	2.75	23.98	2.01	188.5875		
K1-4	1	4.36	258.66	0	2.75	0	457.56	44.36	604.6591	680.4233		
		4.36	352.5	0	2.75	0	501.28	44.36	680.4233			
	2	3.9	205.37	0	2.75	0	341.85	33.56	456.0017	508.3426		
		3.9	258.66	0	2.75	0	375.55	33.56	508.3426			
	3	3.9	149.65	0	2.75	0	221.2	21.13	299.8438	352.9579		
		3.9	205.37	0	2.75	0	254.9	21.13	352.9579			
	4	3.9	352.5	0	2.75	0	99.04	7.95	223.6638	223.6638		
		3.9	149.65	0	2.75	0	132.74	7.95	194.5057			
	K2-4	Atap	1.54	352.5	0	2.75	0	43.04	1.45	158.7213	163.4778	
			1.54	352.5	0	2.75	0	47.57	1.45	163.4778		
As H	K1-1	1	4.36	435.96	677.01	3.125	3	526.7	101.33	968.3219	968.3219	
			4.36	0	352.5	0	3	570.42	101.33	797.5104		
		2	3.9	352.5	599.77	2.475	3	377.21	69.16	760.9808	816.3313	
			3.9	435.96	677.01	3.125	3	410.9	69.16	816.3313		
		3	3.9	352.5	435.96	2.475	3	234.97	41.09	537.3248	620.4772	
			3.9	352.5	599.77	2.475	3	268.66	41.09	620.4772		
		4	3.9	352.5	352.5	2.475	3	94.38	14.64	340.3675	400.0845	
			3.9	352.5	435.96	2.475	3	128.07	14.64	400.0845		
		K1-2	1	4.36	519.42	516.31	3	6.25	532.56	70.19	849.2985	849.2985
				4.36	352.5	352.5	3	6.25	576.27	70.19	823.5756	
	2		3.9	435.96	516.31	3	6.25	380.16	52.14	647.8787	707.6062	
			3.9	519.42	516.31	3	6.25	413.86	52.14	707.6062		
	3		3.9	352.5	435.96	3	6.25	218.14	30.08	421.3195	492.296	
			3.9	435.96	516.31	3	6.25	251.84	30.08	492.296		
	4		3.9	352.5	352.5	3	6.25	59.85	9.32	223.8124	270.8713	
			3.9	352.5	435.96	3	6.25	93.54	9.32	270.8713		
	K1-3		1	4.36	435.96	0	6.25	0	465.25	42.69	589.889	624.1106
				4.36	352.5	0	6.25	0	508.97	42.69	624.1106	
		2	3.9	435.96	0	6.25	0	329.85	31.16	436.8231	472.2081	
			3.9	435.96	0	6.25	0	363.55	31.16	472.2081		
		3	3.9	435.96	0	6.25	0	186.7	17.12	273.2478	308.6328	
			3.9	435.96	0	6.25	0	220.4	17.12	308.6328		
		4	3.9	352.5	0	6.25	0	52.65	6.11	110.4065	157.4759	
			3.9	435.96	0	6.25	0	86.35	6.11	157.4759		

Tabel 67. Gaya Geser Rencana Kolom & Geser Rencana Maks x

Portal	Kolom	Lt	hn (m)	Mu,k (KNm)	Vuk,x (KN)	VD (KN)	VL (KN)	Vex,ka (KN)	Vex,ki (KN)	Vey,ka (KN)	Vey,ki (KN)	Vukx,mak ka (KN)	Vukx,mak ki (KN)	Vukx,pakai
As1	K1-H	1	3.66	281.134	123.6503	-5.69	-1.6	-47.18	49.62	-0.84	0.88	-206.701	202.026	123.650
			3.66	171.426		5.69	1.6	47.18	-49.62	0.84	-0.88	206.701	-202.026	
		2	3.2	284.489	171.7413	-9.69	-3.08	-35.43	37.75	0.61	-0.62	-161.123	144.684	161.123
			3.2	265.083		-9.69	-3.08	-35.43	37.75	0.61	-0.62	-161.123	144.684	
		3	3.2	279.966	147.1647	-13.6	-3.77	-26.47	30.59	-0.48	0.51	-129.621	111.278	129.621
			3.2	190.961		-13.6	-3.77	-26.47	30.59	-0.48	0.51	-129.621	111.278	
		4	3.2	262.576	126.9813	-19.87	-4.83	-12.23	7.94	0.53	-0.65	-76.126	7.101	76.126
			3.2	143.764		-19.87	-4.83	-12.23	7.94	0.53	-0.65	-76.126	7.101	
	K1-G	1	3.66	644.874	262.1448	-24.55	-6.72	-56.09	58.46	-1.28	1.34	-269.319	215.093	262.145
			3.66	314.576		24.55	6.72	56.09	-58.46	1.28	-1.34	269.319	-215.093	
		2	3.2	656.53	378.1469	-63.3	-17.91	-53.65	56.66	-0.52	0.56	-309.375	155.288	309.375
			3.2	553.54		-63.3	-17.91	-53.65	56.66	-0.52	0.56	-309.375	155.288	
		3	3.2	582.51	327.8875	-61.64	-16.99	-38.62	42.2	-0.77	0.86	-243.952	97.546	243.952
			3.2	466.73		-61.64	-16.99	-38.62	42.2	-0.77	0.86	-243.952	97.546	
		4	3.2	520.693	293.0097	-48.79	-10.38	-21.15	18.42	1.89	-2.08	-147.487	13.705	147.487
			3.2	416.938		-48.79	-10.38	-21.15	18.42	1.89	-2.08	-147.487	13.705	
	K2-G	Atap	0.97	34.191	70.86218	-61.56	-2.45	-6.1	0.38	-2.29	2.61	-95.459	-62.069	70.862
			0.97	34.191		-61.56	-2.45	-6.1	0.38	-2.29	2.61	-95.459	-62.069	
	K1-F	1	3.66	321.326	172.6123	15.2	4.76	-54.07	55.28	-0.1	0.11	-206.762	252.773	172.612
			3.66	310.435		-15.2	-4.76	54.07	-55.28	0.1	-0.11	206.762	-252.773	
			3.2	680.515	408.2209	45.01	14.68	-50.64	52.14	1.57	-1.6	-149.577	278.105	278.105
			3.2	625.792		45.01	14.68	-50.64	52.14	1.57	-1.6	-149.577	278.105	
		3	3.2	663.814	382.7128	38.23	12.54	-38.3	40.28	0.69	-0.68	-107.999	220.311	220.311
			3.2	560.867		38.23	12.54	-38.3	40.28	0.69	-0.68	-107.999	220.311	
4		3.2	496.274	301.7378	25.92	6.64	-21.63	20.74	2.3	-2.47	-54.457	117.487	117.487	
		3.2	469.287		25.92	6.64	-21.63	20.74	2.3	-2.47	-54.457	117.487		
K2-F	Atap	0.97	34.191	70.86218	43.3	-1.59	-7.48	4.23	-2.51	2.87	9.384	65.345	65.345	
		0.97	34.191		43.3	-1.59	-7.48	4.23	-2.51	2.87	9.384	65.345		
K1-E	1	3.66	621.135	254.5735	-13.89	-4.08	-54.39	54.83	-0.64	0.67	-247.685	212.690	247.685	
		3.66	310.604		13.89	4.08	54.39	-54.83	0.64	-0.67	247.685	-212.690		
		3.2	681.74	408.5469	-41.76	-13.34	-50.48	51.15	-1.54	1.61	-270.411	160.404	270.411	
		3.2	625.61		-41.76	-13.34	-50.48	51.15	-1.54	1.61	-270.411	160.404		
	3	3.2	711.536	397.7622	-42.42	-13.77	-38.07	38.79	-0.76	0.83	-218.405	106.410	218.405	
		3.2	561.303		-42.42	-13.77	-38.07	38.79	-0.76	0.83	-218.405	106.410		
	4	3.2	495.154	306.8588	-28.1	-7.01	-21.1	20.67	0.33	-0.38	-124.334	50.206	124.334	
		3.2	486.794		-28.1	-7.01	-21.1	20.67	0.33	-0.38	-124.334	50.206		
K2-E	Atap	0.97	34.191	70.86218	-30.66	0.03	-5.96	4.77	-1.4	1.55	-58.961	-10.178	58.961	
		0.97	34.191		-30.66	0.03	-5.96	4.77	-1.4	1.55	-58.961	-10.178		
K1-D	1	3.66	586.505	244.9582	15.81	4.69	-54.98	54.46	0.74	-0.78	-208.951	248.782	244.958	
		3.66	310.042		-15.81	-4.69	54.98	-54.46	-0.74	0.78	208.951	-248.782		
		3.2	680.248	397.5844	44.24	14.14	-51.25	50.75	0.85	-0.89	-154.365	271.843	154.365	
		3.2	592.022		44.24	14.14	-51.25	50.75	0.85	-0.89	-154.365	271.843		
	3	3.2	711.536	397.6331	42.59	13.89	-38.79	38.04	0.88	-0.95	-103.964	216.417	103.964	
		3.2	560.89		42.59	13.89	-38.79	38.04	0.88	-0.95	-103.964	216.417		
	4	3.2	495.18	306.8134	28.21	7.07	-20.65	21.09	-0.35	0.4	-50.869	125.384	50.870	
		3.2	486.623		28.21	7.07	-20.65	21.09	-0.35	0.4	-50.869	125.384		
K2-D	Atap	0.97	34.191	70.86218	30.68	-0.0025	-4.77	5.95	1.4	-1.56	13.942	55.236	13.942	
		0.97	34.191		30.68	-0.0025	-4.77	5.95	1.4	-1.56	13.942	55.236		
K1-C	1	3.66	585.266	244.5396	-13.54	-3.95	-55.5	54.29	0.08	-0.09	-250.949	209.955	244.540	
		3.66	309.749		13.54	3.95	55.5	-54.29	-0.08	0.09	250.949	-209.955		
		3.2	977.749	490.1756	-42.73	-13.53	-52.53	51.05	-1.61	1.65	-280.307	158.837	280.307	
		3.2	590.813		-42.73	-13.53	-52.53	51.05	-1.61	1.65	-280.307	158.837		
	3	3.2	662.18	382.1244	-38.16	-12.53	-40.26	38.27	-0.69	0.68	-221.870	109.682	221.870	
		3.2	560.618		-38.16	-12.53	-40.26	38.27	-0.69	0.68	-221.870	109.682		
	4	3.2	496.297	296.1728	-25.77	-6.56	-20.74	21.63	-2.3	2.47	-123.264	60.701	123.264	
		3.2	451.456		-25.77	-6.56	-20.74	21.63	-2.3	2.47	-123.264	60.701		
K2-C	Atap	0.97	34.191	70.86218	-42.99	1.61	-4.22	7.47	2.51	-2.87	-58.179	-15.860	58.180	
		0.97	34.191		-42.99	1.61	-4.22	7.47	2.51	-2.87	-58.179	-15.860		
K1-B	1	3.66	569.379	241.4803	22.52	5.87	-58.44	56.15	1.12	-1.17	-214.844	263.549	241.480	
		3.66	314.439		-22.52	-5.87	58.44	-56.15	-1.12	1.17	214.844	-263.549		
2	3.2	580.285	361.8331	60.16	16.59	-56.88	53.76	0.93	-0.99	-158.879	303.390	303.391		
	3.2	577.581		60.16	16.59	-56.88	53.76	0.93	-0.99	-158.879	303.390			

		3	3.2	582.637	327.9172	62.08	17.15	-42.22	38.65	0.73	-0.82	-95.013	242.688	242.688		
			3.2	466.698		62.08	17.15	-42.22	38.65	0.73	-0.82	-95.013	242.688			
		K2-B	4	3.2	520.869	293.0325	48.69	10.3	-18.41	21.14	-1.9	2.09	-18.858	152.279	152.280	
				3.2	416.835		48.69	10.3	-18.41	21.14	-1.9	2.09	-18.858	152.279		
			Atap	0.97	34.191	70.86218	61.27	2.41	-0.38	6.1	2.28	-2.6	67.888	88.955	70.862	
				0.97	34.191		61.27	2.41	-0.38	6.1	2.28	-2.6	67.888	88.955		
		K1-A	1	3.66	281.582	123.7372	5.41	1.46	-49.62	47.28	0.63	-0.67	-200.550	204.792	123.733	
				3.66	171.296		-5.41	-1.46	49.62	-47.28	-0.63	0.67	200.550	-204.792		
			2	3.2	284.727	176.7378	9.21	2.84	-38.03	35.57	-0.24	0.24	-147.674	162.051	162.051	
				3.2	280.834		9.21	2.84	-38.03	35.57	-0.24	0.24	-147.674	162.051		
			3	3.2	280.201	147.2125	13.45	3.7	-30.58	26.48	0.43	-0.45	-110.275	128.268	128.268	
				3.2	190.879		13.45	3.7	-30.58	26.48	0.43	-0.45	-110.275	128.268		
			4	3.2	320.024	144.8884	19.68	4.74	-7.93	12.22	-0.53	0.65	-8.831	77.286	77.286	
				3.2	143.619		19.68	4.74	-7.93	12.22	-0.53	0.65	-8.831	77.286		
As2	K1-H	1	3.66	281.046	123.6432	-7.2	-1.85	-45.35	46.26	0.51	-0.53	-199.136	184.316	123.642		
			3.66	171.488		7.2	1.85	45.35	-46.26	-0.51	0.53	199.136	-184.316			
		2	3.2	285.652	177.6025	-13.66	-3.36	-35.96	36.8	0.26	-0.27	-168.223	136.702	168.223		
			3.2	282.676		-13.66	-3.36	-35.96	36.8	0.26	-0.27	-168.223	136.702			
			3	3.2	232.927	133.0816	-15.02	-3.79	-25.05	25.85	0.29	-0.31	-124.197	88.827	124.197	
				3.2	192.934		-15.02	-3.79	-25.05	25.85	0.29	-0.31	-124.197	88.827		
	K1-G		4	3.2	347.604	148.5678	-8.27	-1.65	-5.69	14.93	3.42	-3.73	-29.832	47.763	47.764	
				3.2	127.813		-8.27	-1.65	-5.69	14.93	3.42	-3.73	-29.832	47.763		
			1	3.66	375.299	148.4667	-9.09	-4.05	-47.24	48.15	0.75	-0.78	-210.835	187.875	148.467	
				3.66	168.089		9.09	4.05	47.24	-48.15	-0.75	0.78	210.835	-187.875		
	K2-G		2	3.2	383.263	238.6219	-23.58	-10.24	-40.82	41.9	0.92	-0.97	-204.721	140.322	204.721	
				3.2	380.327		-23.58	-10.24	-40.82	41.9	0.92	-0.97	-204.721	140.322		
3			3.2	382.991	207.2931	-27.15	-11.23	-28.34	29.17	0.27	-0.33	-157.808	82.978	157.808		
			3.2	280.347		-27.15	-11.23	-28.34	29.17	0.27	-0.33	-157.808	82.978			
		4	3.2	312.83	174.5516	-2.15	-1.94	-6.36	15.62	3.34	-3.68	-26.594	56.876	56.874		
			3.2	245.735		-2.15	-1.94	-6.36	15.62	3.34	-3.68	-26.594	56.876			
	Atap	0.97	34.191	70.86218	-0.04	-0.11	-0.68	3.65	1.11	-1.2	-1.603	13.672	13.672			
		0.97	34.191		-0.04	-0.11	-0.68	3.65	1.11	-1.2	-1.603	13.672				
As3	K1-B	1	3.66	375.274	148.4546	9.37	4.15	-48.17	47.23	-0.66	0.69	-189.385	212.996	212.996		
			3.66	168.07		-9.37	-4.15	48.17	-47.23	0.66	-0.69	189.385	-212.996			
		2	3.2	383.204	238.6034	23.86	10.33	-41.86	40.82	-0.95	1.01	-142.194	207.531	207.531		
			3.2	380.327		23.86	10.33	-41.86	40.82	-0.95	1.01	-142.194	207.531			
			3	3.2	382.968	207.3041	27.12	11.2	-29.17	28.36	-0.3	0.36	-83.832	158.626	158.626	
				3.2	280.405		27.12	11.2	-29.17	28.36	-0.3	0.36	-83.832	158.626		
	K2-B		4	3.2	312.82	174.5684	2.15	1.93	-15.62	6.36	-3.34	3.68	-65.731	35.430	65.731	
				3.2	245.799		2.15	1.93	-15.62	6.36	-3.34	3.68	-65.731	35.430		
Atap		0.97	34.191	70.86218	0.03	0.11	-3.65	0.68	-1.11	1.19	-16.593	4.491	16.593			
		0.97	34.191		0.03	0.11	-3.65	0.68	-1.11	1.19	-16.593	4.491				
As3	K1-A	1	3.66	281.058	123.6377	7.12	1.82	-46.29	45.35	-0.43	0.44	-185.764	200.220	123.638		
			3.66	171.456		-7.12	-1.82	46.29	-45.35	0.43	-0.44	185.764	-200.220			
		2	3.2	285.622	177.6013	13.44	3.29	-36.77	35.96	-0.31	0.33	-137.604	168.669	168.669		
			3.2	282.702		13.44	3.29	-36.77	35.96	-0.31	0.33	-137.604	168.669			
			3	3.2	232.933	132.4644	15.12	3.83	-25.84	25.06	-0.31	0.33	-89.423	125.163	125.163	
				3.2	190.953		15.12	3.83	-25.84	25.06	-0.31	0.33	-89.423	125.163		
	K2-B		4	3.2	347.604	148.5813	8.28	1.65	-14.93	5.69	-3.42	3.73	-56.762	38.851	56.762	
				3.2	127.856		8.28	1.65	-14.93	5.69	-3.42	3.73	-56.762	38.851		
As3	K1-H	1	3.66	202.739	102.5945	-5.41	-1.03	-42.14	44.63	0.1	-0.11	-183.516	180.654	102.595		
			3.66	172.757		5.41	1.03	42.14	-44.63	-0.1	0.11	183.516	-180.654			
		2	3.2	265.278	147.4678	-10.75	-1.89	-33.82	36.89	-0.44	0.44	-155.672	142.419	147.467		
			3.2	206.619		-10.75	-1.89	-33.82	36.89	-0.44	0.44	-155.672	142.419			
			3	3.2	238.579	130.1581	-14.44	-3.11	-22.77	25.78	-1.77	1.83	-115.965	92.481	115.965	
				3.2	177.927		-14.44	-3.11	-22.77	25.78	-1.77	1.83	-115.965	92.481		
	K1-G		4	3.2	353.197	120.9259	-3.31	0.49	-4	6.37	-1.47	1.62	-21.665	25.783	25.733	
				3.2	33.766		-3.31	0.49	-4	6.37	-1.47	1.62	-21.665	25.783		
	K2-G		1	3.66	566.085	241.1066	-19.99	-6.74	-50.28	52.74	-0.25	0.25	-238.850	194.464	238.850	
				3.66	316.365		19.99	6.74	50.28	-52.74	0.25	-0.25	238.850	-194.464		
			2	3.2	578.549	360.9453	-52.15	-19.32	-50.52	54.48	-1.23	1.24	-286.749	157.364	287.749	
				3.2	576.476		-52.15	-19.32	-50.52	54.48	-1.23	1.24	-286.749	157.364		
		3	3.2	607.087	330.8784	-56.41	-20.29	-33.74	36.02	-2.53	2.62	-223.300	75.181	223.301		
			3.2	451.724		-56.41	-20.29	-33.74	36.02	-2.53	2.62	-223.300	75.181			
K1-F		4	3.2	425.632	228.9403	-8.89	-4.05	-5.61	11.08	-0.14	0.23	-36.900	33.664	36.901		
			3.2	306.977		-8.89	-4.05	-5.61	11.08	-0.14	0.23	-36.900	33.664			
Atap		0.97	34.191	70.86218	-2.24	-0.77	-1.46	3.18	-1.93	2.06	-11.643	12.872	12.872			
		0.97	34.191		-2.24	-0.77	-1.46	3.18	-1.93	2.06	-11.643	12.872				
	K1-F	1	3.66	505.342	223.8959	14.32	5.61	-47.81	49.09	0.65	-0.66	-179.646	225.684	223.895		
			3.66	314.117		-14.32	-5.61	47.81	-49.09	-0.65	0.66	179.646	-225.684			
		2	3.2	599.663	348.3391	42.53	18.06	-46.25	47.94	1.23	-1.24	-130.977	261.509	261.509		
			3.2	515.022		42.53	18.06	-46.25	47.94	1.23	-1.24	-130.977	261.509			

		3	3.2 3.2	611.126 458.998	334.4138	45.34 45.34	18.41 18.41	-31.93 -31.93	35.38 35.38	1.5 1.5	-1.56 -1.56	-67.212 -67.212	211.635 211.635	211.635
		4	3.2 3.2	344.63 319.133	207.4259	5.02 5.02	5.49 5.49	-7.3 -7.3	4.49 4.49	-5.15 -5.15	5.59 5.59	-26.690 -26.690	36.360 36.360	36.361
K2-F	Atap		0.97 0.97	34.191 34.191	70.86218	-0.92 -0.92	-0.4 -0.4	-1.63 -1.63	1.21 1.21	-1 -1	1.06 1.06	-9.450 -9.450	5.074 5.074	9.450
K1-E		1	3.66 3.66	504.958 314.036	223.7689	-16.73 16.73	-6.41 6.41	-48.09 48.09	48.64 -48.64	-0.44 -0.44	0.44 -0.44	-226.156 225.048	181.218 -181.218	223.769
		2	3.2 3.2	639.044 513.938	360.3069	-45.37 -45.37	-19.04 -19.04	-46.4 -46.4	47.31 47.31	-1.58 -1.58	1.61 1.61	-262.502 -262.502	135.099 135.099	262.502
		3	3.2 3.2	607.914 487.589	342.3447	-45.89 -45.89	-18.56 -18.56	-32.51 -32.51	33.15 33.15	0.75 0.75	-1.89 -1.89	-201.321 -201.321	71.125 71.125	201.321
		4	3.2 3.2	285.425 236.691	163.1613	-8.88 -8.88	-6.65 -6.65	-6.13 -6.13	5.58 5.58	-6.09 -6.09	6.52 6.52	-49.028 -49.028	16.043 16.043	49.028
K2-E	Atap		0.97 0.97	34.191 34.191	70.86218	0.69 0.69	0.17 0.17	-1.62 -1.62	1.29 1.29	0.11 0.11	-0.1 -0.1	-5.780 -5.780	6.177 6.177	6.177
K1-D		1	3.66 3.66	505.006 314.033	223.7811	16.45 -16.45	6.33 -6.33	-48.65 48.65	48.09 -48.09	0.45 -0.45	-0.45 0.45	-180.509 180.509	224.665 -224.665	223.781
		2	3.2 3.2	639.049 513.938	360.3084	45.09 45.09	18.98 18.98	-47.31 -47.31	46.4 46.4	1.6 1.6	-1.63 -1.63	-131.405 -131.405	258.107 258.107	258.107
		3	3.2 3.2	607.914 487.535	342.3278	45.75 45.75	18.55 18.55	-33.15 -33.15	32.51 32.51	-0.74 -0.74	0.86 0.86	-74.595 -74.595	203.193 203.193	203.193
		4	3.2 3.2	285.425 236.225	163.0156	8.91 8.91	6.69 6.69	-5.57 -5.57	6.12 6.12	6.11 6.11	-6.55 -6.55	-0.018 -0.018	33.129 33.129	33.129
K2-D	Atap		0.97 0.97	34.191 34.191	70.86218	-0.69 -0.69	-0.17 -0.17	-1.3 -1.3	1.62 1.62	-0.1 -0.1	0.09 0.09	-6.471 -6.471	6.032 6.032	6.472
K1-C		1	3.66 3.66	505.389 314.112	223.9074	-14.62 14.62	-5.71 5.71	-49.1 49.1	47.81 -47.81	-0.64 0.64	0.65 -0.65	-227.773 227.773	180.874 -180.874	227.774
		2	3.2 3.2	599.629 515.058	348.3397	-42.82 -42.82	-18.15 -18.15	-47.94 -47.94	46.25 46.25	-1.23 -1.23	1.23 1.23	-265.011 -265.011	133.687 133.687	265.011
		3	3.2 3.2	611.126 458.961	334.4022	-45.46 -45.46	-18.43 -18.43	-35.38 -35.38	31.39 31.39	-1.5 -1.5	1.55 1.55	-215.635 -215.635	68.642 68.642	215.636
		4	3.2 3.2	344.827 318.858	207.4016	-4.98 -4.98	-5.46 -5.46	-4.49 -4.49	7.29 7.29	5.2 5.2	-5.64 -5.64	-22.695 -22.695	13.123 13.123	22.695
K2-C	Atap		0.97 0.97	34.191 34.191	70.86218	0.91 0.91	0.4 0.4	-1.21 -1.21	1.64 1.64	1 1	-1.05 -1.05	-2.489 -2.489	6.899 6.899	6.899
K1-B		1	3.66 3.66	566.081 316.363	241.1049	19.8 -19.8	6.66 -6.66	-52.74 52.74	50.28 -50.28	0.27 -0.27	-0.27 0.27	-194.084 194.084	237.920 -237.920	237.919
		2	3.2 3.2	578.522 576.476	360.9369	51.99 51.99	19.24 19.24	-54.48 -54.48	50.52 50.52	1.25 1.25	-1.25 -1.25	-154.470 -154.470	283.380 283.380	283.383
		3	3.2 3.2	607.054 451.691	330.8578	56.24 56.24	20.18 20.18	-36.02 -36.02	33.74 33.74	2.55 2.55	-2.64 -2.64	-69.949 -69.949	216.504 216.504	216.504
		4	3.2 3.2	425.632 307.344	229.055	8.84 8.84	4.02 4.02	-11.81 -11.81	5.61 5.61	0.14 0.14	-0.23 -0.23	-36.345 -36.345	36.353 36.353	36.353
K2-B	Atap		0.97 0.97	34.191 34.191	70.86218	2.22 2.22	0.76 0.76	-3.18 -3.18	1.46 1.46	1.93 1.93	-2.06 -2.06	-7.875 -7.875	6.586 6.586	7.875
K1-A		1	3.66 3.66	202.735 172.754	102.5926	5.17 -5.17	0.94 -0.94	-44.64 44.64	42.14 -42.14	-0.08 0.08	0.09 -0.09	-181.272 181.272	183.418 -183.418	102.593
		2	3.2 3.2	265.263 206.263	147.3519	10.54 10.54	1.81 1.81	-36.89 -36.89	33.82 33.82	0.45 0.45	-0.44 -0.44	-141.594 -141.594	154.267 154.267	147.352
		3	3.2 3.2	238.563 177.898	130.1441	14.34 14.34	3.07 3.07	-25.78 -25.78	22.76 22.76	1.78 1.78	-1.84 -1.84	-88.075 -88.075	111.232 111.232	111.232
		4	3.2 3.2	353.197 33.566	120.8634	3.25 3.25	-0.51 -0.51	-6.37 -6.37	4 4	1.46 1.46	-1.61 -1.61	-21.984 -21.984	17.702 17.702	21.984
As4	K1-G	1	3.66 3.66	228.726 227.184	124.5656	-12.19 12.19	-1.73 1.73	-17.98 17.98	21.65 -21.65	4.47 -4.47	-4.65 4.65	-84.318 84.318	70.637 -70.637	84.318
		2	3.2 3.2	150.881 52.553	63.57313	-25.47 -25.47	-4.38 -4.38	-9.32 -9.32	12.59 12.59	5.01 5.01	-5.22 -5.22	-63.714 -63.714	15.418 15.418	63.573
		3	3.2 3.2	158.24 56.6	67.1375	-25.67 -25.67	-4.47 -4.47	-4.4 -4.4	5.38 5.38	1.16 1.16	-1.26 -1.26	-48.196 -466.387	-10.169 -428.360	48.196
		4	3.2 3.2	225.018 181.277	126.9672	-16.75 -16.75	-1.89 -1.89	-1.5 -1.5	-6.21 -6.21	-6.47 -6.47	6.85 6.85	-33.826 -33.826	-36.825 -36.825	36.825
K2-G	Atap		0.97 0.97	34.191 34.191	70.86218	-48.56 -48.56	-0.26 -0.26	0.25 0.25	-0.77 -0.77	0.37 0.37	-0.4 -0.4	-49.718 -49.718	-54.972 -54.972	54.972
K1-F		1	3.66 3.66	230.025 228.009	125.1459	11.13 -11.13	1.43 -1.43	-17.82 17.82	21.43 -21.43	2.95 -2.95	-3.11 3.11	-58.089 58.089	99.125 -99.125	99.125
		2	3.2 3.2	152.607 50.071	63.33688	25.59 25.59	4.53 4.53	-9.1 -9.1	12.29 12.29	1.13 1.13	-1.26 -1.26	-5.646 -5.646	81.181 81.181	81.182
		3	3.2 3.2	151.463 57.316	65.24344	24.72 24.72	4.67 4.67	-3.67 -3.67	5.3 5.3	-0.04 -0.04	-0.06 -0.06	14.905 14.905	52.554 52.554	52.554
		4	3.2 3.2	567.362 163.983	228.5453	8.79 8.79	0.74 0.74	-3.9 -3.9	-5.33 -5.33	-8.5 -8.5	8.97 8.97	-17.161 -17.161	-1.155 -1.155	17.162

K2-F	Atap	0.97	34.191	70.86218	38.29	-1.5	-2.15	3.56	1.42	-1.5	31.546	51.849	51.849
		0.97	34.191		38.29	-1.5	-2.15	3.56	1.42	-1.5	31.546	51.849	51.849
K1-E	1	3.66	229.766	125.5522	-11.28	-1.46	-18.27	18.28	0.98	-1	-88.723	62.292	88.729
		3.66	229.755		11.28	1.46	18.27	-18.28	-0.98	1	88.723	-62.292	88.729
	2	3.2	124.599	52.82188	-24.28	-4.1	-9.5	9.6	2.65	-2.73	-65.930	7.512	52.822
		3.2	44.431		-24.28	-4.1	-9.5	9.6	2.65	-2.73	-65.930	7.512	52.822
	3	3.2	135.703	54.00688	-24.62	-4.27	-4.64	4.07	0.93	-0.95	-48.202	-13.989	48.202
		3.2	37.119		-24.62	-4.27	-4.64	4.07	0.93	-0.95	-48.202	-13.989	48.202
	4	3.2	516.803	179.7338	-8.5	-0.5	-2.22	3.11	1.37	-1.44	-16.995	1.850	16.995
		3.2	58.345		-8.5	-0.5	-2.22	3.11	1.37	-1.44	-16.995	1.850	16.995
K2-E	Atap	0.97	34.191	70.86218	-22.22	0.95	-1.99	-0.85	-2.6	2.75	-34.067	-22.538	34.067
		0.97	34.191		-22.22	0.95	-1.99	-0.85	-2.6	2.75	-34.067	-22.538	34.067
K1-D	1	3.66	229.8	125.5522	11.05	1.39	-18.27	18.28	-1.07	1.09	-65.166	91.065	91.065
		3.66	229.721		-11.05	-1.39	18.27	-18.28	1.07	-1.09	65.166	-91.065	91.065
	2	3.2	124.554	52.77938	24.15	4.05	-9.6	9.5	-2.66	2.73	-14.487	72.525	52.779
		3.2	44.34		24.15	4.05	-9.6	9.5	-2.66	2.73	-14.487	72.525	52.779
	3	3.2	135.623	53.94219	24.62	4.26	-4.7	4.64	-0.9	0.92	9.003	50.524	50.524
		3.2	36.992		24.62	4.26	-4.7	4.64	-0.9	0.92	9.003	50.524	50.524
	4	3.2	517.137	179.8822	8.62	0.54	-3.12	2.21	-1.29	1.36	-5.168	20.557	20.557
		3.2	58.486		8.62	0.54	-3.12	2.21	-1.29	1.36	-5.168	20.557	20.557
K2-D	Atap	0.97	34.191	70.86218	22.2	-0.97	0.86	2	2.56	-2.7	29.231	27.391	29.231
		0.97	34.191		22.2	-0.97	0.86	2	2.56	-2.7	29.231	27.391	29.231
K1-C	1	3.66	230.035	125.1407	-11.23	-1.47	-21.44	17.8	-2.88	3.04	-106.857	65.410	106.858
		3.66	227.98		11.23	1.47	21.44	-17.8	2.88	-3.04	106.857	-65.410	106.858
	2	3.2	152.679	63.36844	-25.66	-4.56	-12.29	9.1	-1.13	1.26	-84.294	8.555	63.368
		3.2	50.1		-25.66	-4.56	-12.29	9.1	1.13	1.26	-81.446	8.555	63.368
	3	3.2	151.581	65.28031	-24.77	-4.69	-5.3	3.68	0.02	0.08	-52.675	-14.884	52.676
		3.2	57.316		-24.77	-4.69	-5.3	3.68	0.02	0.08	-52.675	-14.884	52.676
	4	3.2	567.694	228.6522	-8.85	-0.76	5.33	3.91	8.46	-8.92	23.035	-4.828	23.035
		3.2	163.993		-8.85	-0.76	5.33	3.91	8.46	-8.92	23.035	-4.828	23.035
K2-C	Atap	0.97	34.191	70.86218	-37.38	1.51	-3.56	2.14	-1.38	1.46	-54.513	-26.994	54.513
		0.97	34.191		-37.38	1.51	-3.56	2.14	-1.38	1.46	-54.513	-26.994	54.513
K1-B	1	3.66	228.73	124.559	12.04	1.67	-21.66	17.97	-4.4	4.58	-82.296	95.465	95.465
		3.66	227.156		-12.04	-1.67	21.66	-17.97	4.4	-4.58	-99.648	-95.465	95.465
	2	3.2	150.951	63.60406	25.38	4.35	-12.59	9.32	-5	5.21	-28.418	76.468	63.604
		3.2	52.582		25.38	4.35	-12.59	9.32	-5	5.21	-28.418	76.468	63.604
	3	3.2	158.356	67.18219	25.65	4.47	-5.38	4.41	-1.18	1.28	7.074	51.291	51.291
		3.2	56.627		25.65	4.47	-5.38	4.41	-1.18	1.28	7.074	51.291	51.291
	4	3.2	225.245	127.0397	16.76	1.88	6.21	1.5	6.43	-6.81	53.558	17.094	53.558
		3.2	181.282		16.76	1.88	6.21	1.5	6.43	-6.81	53.558	17.094	53.558
K2-B	Atap	0.97	34.191	70.86218	48.13	0.27	0.77	-0.25	-0.35	0.38	53.585	50.220	53.585
		0.97	34.191		48.13	0.27	0.77	-0.25	-0.35	0.38	53.585	50.220	53.585

Tabel 68. Gaya Geser Rencana Kolom & Geser Rencana Maks y

Portal	Kolom	Lt	hn (m)	Mu,k (KNm)	Vuk,x (KN)	VD (KN)	VL (KN)	Vex,ka (KN)	Vex,ki (KN)	Vey,ka (KN)	Vey,ki (KN)	Vukx,mak ka (KN)	Vukx,mak ki (KN)	Vukx,pakai
As A	K1-1	1	3.66	509.776	189.873	-2.32	-0.5	-2.21	3.6	-48.52	49.62	-73.326	74.733	74.733
			3.66	185.160		-2.32	-0.5	-2.21	3.6	-48.52	49.62	-73.326	74.733	74.733
		2	3.2	584.451	349.546	2.63	0.92	-2.34	3.58	-39.3	40.19	-55.715	69.306	69.306
			3.2	534.095		2.63	0.92	-2.34	3.58	-39.3	40.19	-55.715	69.306	69.306
	3	3.2	509.183	301.319	1.73	0.92	-1.51	2.5	-28.09	28.75	-39.050	49.411	49.411	
		3.2	455.039		1.73	0.92	-1.51	2.5	-28.09	28.75	-39.050	49.411	49.411	
	4	3.2	533.797	255.511	4.95	1.04	-0.64	1.34	-10.99	11.23	-10.355	25.958	25.958	
		3.2	283.839		4.95	1.04	-0.64	1.34	-10.99	11.23	-10.355	25.958	25.958	
	K1-2	1	3.66	539.646	236.942	-13.7	-2.98	-1.66	3.39	-59.87	61.19	-99.578	74.168	99.578
			3.66	327.561		-13.7	-2.98	-1.66	3.39	-59.87	61.19	-99.578	74.168	99.578
		2	3.2	557.957	348.718	-30.9	-6.69	-0.58	2.58	-64.37	65.79	-122.330	54.943	122.330
			3.2	557.940		-30.9	-6.69	-0.58	2.58	-64.37	65.79	-122.330	54.943	122.330
	3	3.2	482.778	301.709	-27.9	-6	-0.64	2.1	-45.08	46.07	-94.412	31.945	94.412	
		3.2	482.690		-27.9	-6	-0.64	2.1	-45.08	46.07	-94.412	31.945	94.412	
	4	3.2	448.698	253.653	-27.5	-4.53	-0.45	1.36	-24.95	25.4	-66.525	4.518	66.525	
		3.2	362.992		-27.5	-4.53	-0.45	1.36	-24.95	25.4	-66.525	4.518	66.525	
	K1-3	1	3.66	219.095	106.690	3.61	0.01	-1.76	2.92	-41.43	42.29	-55.794	69.349	69.349
			3.66	171.392		3.61	0.01	-1.76	2.92	-41.43	42.29	-55.794	69.349	69.349
		2	3.2	265.838	151.318	14.86	2.17	-1.47	2.27	-28.85	29.44	-24.871	64.282	64.282
			3.2	218.379		14.86	2.17	-1.47	2.27	-28.85	29.44	-24.871	64.282	64.282
3	3.2	271.252	140.712	13.67	1.95	-1.18	1.8	-24.77	25.24	-19.970	55.559	55.559		
	3.2	179.027		13.67	1.95	-1.18	1.8	-24.77	25.24	-19.970	55.559	55.559		
4	3.2	253.364	122.008	12.03	1.47	-0.96	1.03	-15.57	15.82	-9.630	38.280	38.280		
	3.2	137.063		12.03	1.47	-0.96	1.03	-15.57	15.82	-9.630	38.280	38.280		
As B	K1-1	1	3.66	588.570	321.530	4.4	1.17	-0.61	1.34	-58.46	60.03	-70.496	86.991	86.992
			3.66	588.230		4.4	1.17	-0.61	1.34	-58.46	60.03	-70.496	86.991	86.992
		2	3.2	669.897	418.341	16.9	4.31	-0.05	0.51	-53.46	55.03	-45.752	93.298	93.298
			3.2	668.795		16.9	4.31	-0.05	0.51	-53.46	55.03	-45.752	93.298	93.298
	3	3.2	631.100	394.416	13.92	3.78	-0.29	0.1	-34.72	36.45	-26.777	64.535	64.535	
		3.2	631.030		13.92	3.78	-0.29	0.1	-34.72	36.45	-26.777	64.535	64.535	
	4	3.2	826.620	279.864	23.86	3.46	-1	0.33	-5.41	4.44	17.306	35.303	35.303	
		3.2	68.945		23.86	3.46	-1	0.33	-5.41	4.44	17.306	35.303	35.303	
	K2-1	Atap	0.97	53.524	106.497	9.13	0.19	-1.39	1.1	2.71	-3.2	7.343	10.354	10.354
			0.97	49.246		9.13	0.19	-1.39	1.1	2.71	-3.2	7.343	10.354	10.354
	K1-2	1	3.66	741.031	292.219	-15.4	-4.71	-1.29	2.13	-71	72.77	-115.478	80.036	115.479
			3.66	328.490		-15.4	-4.71	-1.29	2.13	-71	72.77	-115.478	80.036	115.479
		2	3.2	766.007	478.644	-44.3	-14.2	-1.68	2.3	-81.48	83.65	-169.697	55.083	169.697
			3.2	765.653		-44.3	-14.2	-1.68	2.3	-81.48	83.65	-169.697	55.083	169.697
	3	3.2	582.843	364.258	-40.7	-13.49	-0.83	0.69	-53.23	55.2	-126.039	16.967	126.039	
		3.2	582.782		-40.7	-13.49	-0.83	0.69	-53.23	55.2	-126.039	16.967	126.039	
	4	3.2	540.795	336.458	-38.7	-9.92	-1.06	0.49	-18.38	18.27	-77.652	-24.963	77.652	
		3.2	535.870		-38.7	-9.92	-1.06	0.49	-18.38	18.27	-77.652	-24.963	77.652	
	K2-2	Atap	0.97	53.524	106.497	-20.7	-3.13	-1.44	1.18	-4.01	3.71	-35.835	-15.104	35.835
			0.97	49.246		-20.7	-3.13	-1.44	1.18	-4.01	3.71	-35.835	-15.104	35.835
K1-3	1	3.66	431.900	216.075	9.19	3.06	-0.2	1	-61.01	62.27	-65.171	95.201	95.201	
		3.66	358.934		9.19	3.06	-0.2	1	-61.01	62.27	-65.171	95.201	95.201	
	2	3.2	486.660	295.023	26.07	9.47	1.26	-0.66	-55.12	56.16	-27.837	104.312	104.312	
		3.2	457.415		26.07	9.47	1.26	-0.66	-55.12	56.16	-27.837	104.312	104.312	
3	3.2	421.723	241.332	24.75	9.19	1.37	-1.15	-39.41	40.24	-9.231	80.544	80.545		
	3.2	350.540		24.75	9.19	1.37	-1.15	-39.41	40.24	-9.231	80.544	80.545		
4	3.2	569.708	240.361	13.43	5.18	2.21	-1.9	-17.21	18.11	6.594	33.835	33.835		
	3.2	199.446		13.43	5.18	2.21	-1.9	-17.21	18.11	6.594	33.835	33.835		
K2-3	Atap	0.97	53.524	106.497	5.69	0.13	1.28	-1.1	-8.2	8.86	1.141	12.641	12.641	
		0.97	49.246		5.69	0.13	1.28	-1.1	-8.2	8.86	1.141	12.641	12.641	
K1-4	1	3.66	223.974	122.352	-0.16	-0.16	-0.37	0.97	-43.34	44.05	-56.482	59.258	59.258	
		3.66	223.834		-0.16	-0.16	-0.37	0.97	-43.34	44.05	-56.482	59.258	59.258	
	2	3.2	198.387	78.867	0.31	-0.04	0.55	-0.33	-15.11	15.36	-16.441	18.255	18.255	
		3.2	53.986		0.31	-0.04	0.55	-0.33	-15.11	15.36	-16.441	18.255	18.255	
3	3.2	185.187	72.231	1.87	0.27	0.67	-0.65	-15.04	14.45	-13.918	17.696	17.696		
	3.2	45.953		1.87	0.27	0.67	-0.65	-15.04	14.45	-13.918	17.696	17.696		
4	3.2	297.802	113.829	4.47	2	1.93	-1.74	-2.62	4.29	11.388	4.681	11.388		
	3.2	66.451		4.47	2	1.93	-1.74	-2.62	4.29	11.388	4.681	11.388		

	K2-4	Atap	0.97 0.97	53.524 49.246	106.497	4.87 4.87	2.5 2.5	1.49 1.49	-1.35 -1.35	-3.13 -3.13	3.43 3.43	9.790 9.790	6.128 6.128	9.791		
As C	K1-1	1	3.66	453.974	172.033	-24.9	-7.16	-0.99	-0.19	-62.2	63.8	-115.473	46.647	115.647		
			3.66	175.665		-24.9	-7.16	-0.99	-0.19	-62.2	63.8	-115.473	46.647	115.647		
		2	3.2	670.635	377.393	-69.5	-22.48	-1.5	0.49	-62.45	65.47	-179.216	-9.679	179.216		
			3.2	537.024		-69.5	-22.48	-1.5	0.49	-62.45	65.47	-179.216	-9.679	179.216		
		3	3.2	379.213	231.572	-77.9	-24.66	-0.72	0.35	-42.77	44.31	-161.992	-47.777	161.992		
			3.2	361.816		-77.9	-24.66	-0.72	0.35	-42.77	44.31	-161.992	-47.777	161.992		
		4	3.2	346.612	197.037	9.5	-1.89	-0.02	-0.17	3.75	2.4	12.830	10.499	12.829		
			3.2	283.907		9.5	-1.89	-0.02	-0.17	3.75	2.4	12.830	10.499	12.829		
		K2-1	Atap	0.97	53.524	106.497	6.34	-2.5	0.93	-0.67	-6.09	-4.84	0.527	-4.618	4.618	
				0.97	49.246		6.34	-2.5	0.93	-0.67	-6.09	-4.84	0.527	-4.618	4.618	
		K1-3	1	3.66	414.454	226.448	31.35	9.23	-1.09	-0.38	-80.6	82.75	-64.494	144.309	144.309	
				3.66	414.344		31.35	9.23	-1.09	-0.38	-80.6	82.75	-64.494	144.309	144.309	
			2	3.2	455.666	280.543	80.09	25.67	-1.41	0.13	-87.75	90.04	-8.134	222.349	222.349	
				3.2	442.073		80.09	25.67	-1.41	0.13	-87.75	90.04	-8.134	222.349	222.349	
			3	3.2	530.048	267.670	81.34	25.68	-0.69	0.21	-54	58.36	38.737	184.090	184.090	
				3.2	326.495		81.34	25.68	-0.69	0.21	-54	58.36	38.737	184.090	184.090	
			4	3.2	324.576	162.492	11.56	6.55	0.15	-0.2	-17.1	17.21	-2.588	39.172	39.172	
				3.2	195.397		11.56	6.55	0.15	-0.2	-17.1	17.21	-2.588	39.172	39.172	
		K2-3	Atap	0.97	53.524	106.497	-3.27	-0.25	-0.41	0.37	-5.64	11.17	-12.498	11.958	12.499	
				0.97	49.246		-3.27	-0.25	-0.41	0.37	-5.64	11.17	-12.498	11.958	12.499	
	K1-4	1	3.66	290.873	158.848	1.41	0.19	-0.78	-0.31	-57.64	59.1	-74.242	74.824	74.824		
			3.66	290.510		1.41	0.19	-0.78	-0.31	-57.64	59.1	-74.242	74.824	74.824		
		2	3.2	207.803	129.856	-1.81	-0.73	-0.73	0.27	-32.78	32.91	-46.959	40.010	46.959		
			3.2	207.735		-1.81	-0.73	-0.73	0.27	-32.78	32.91	-46.959	40.010	46.959		
		3	3.2	294.927	175.633	5.02	1.25	-0.58	0.46	-21.1	21.54	-22.570	35.525	35.525		
			3.2	267.099		5.02	1.25	-0.58	0.46	-21.1	21.54	-22.570	35.525	35.525		
		4	3.2	158.196	97.530	-17.2	-3.81	0.03	0.02	-42.8	6.55	-75.410	-13.271	75.409		
			3.2	153.899		-17.2	-3.81	0.03	0.02	-42.8	6.55	-75.410	-13.271	75.409		
		K2-4	Atap	0.97	53.524	106.497	-2.05	3.04	-0.49	0.47	-5.02	9.78	-7.663	15.017	15.017	
				0.97	49.246		-2.05	3.04	-0.49	0.47	-5.02	9.78	-7.663	15.017	15.017	
	As D	K1-1	1	3.66	452.828	171.787	-27.2	-8.05	-1.08	-0.12	-68.91	70.87	-127.561	52.593	127.561	
				3.66	175.912		-27.2	-8.05	-1.08	-0.12	-68.91	70.87	-127.561	52.593	127.561	
			2	3.2	671.376	377.342	-75	-24.65	-0.49	-0.6	-69.57	73.11	-191.718	-12.404	191.718	
				3.2	536.119		-75	-24.65	-0.49	-0.6	-69.57	73.11	-191.718	-12.404	191.718	
			3	3.2	787.550	364.341	-83.6	-26.89	-0.15	-0.45	-46.96	48.84	-172.970	-53.522	172.967	
				3.2	378.342		-83.6	-26.89	-0.15	-0.45	-49.96	48.84	-176.750	-53.522	172.967	
			4	3.2	450.136	203.634	9.1	-2.1	-0.15	-0.23	3.05	3.55	10.784	11.078	11.077	
				3.2	201.493		9.1	-2.1	-0.15	-0.23	3.05	3.55	10.784	11.078	11.077	
			K2-1	Atap	0.97	53.524	106.497	8.53	-2.21	-0.71	1.26	-2.96	-8.76	0.156	1.122	1.122
					0.97	49.246		8.53	-2.21	-0.71	1.26	-2.96	-8.76	0.156	1.122	1.122
		K1-3	1	3.66	461.536	221.233	31.58	9.46	-1.24	-0.29	-89.7	92.35	-76.131	157.242	157.242	
				3.66	348.178		31.58	9.46	-1.24	-0.29	-89.7	92.35	-76.131	157.242	157.242	
			2	3.2	471.576	273.068	81.39	26.64	-0.42	-1.04	-98.1	101.1	-14.736	233.652	233.653	
				3.2	402.240		81.39	26.64	-0.42	-1.04	-98.1	101.1	-14.736	233.652	233.653	
			3	3.2	599.386	292.426	82.13	26.56	0.04	-1.01	-60.55	65.73	35.211	189.914	189.914	
				3.2	336.378		82.13	26.56	0.04	-1.01	-60.55	65.73	35.211	189.914	189.914	
			4	3.2	339.366	164.702	10.74	6.63	-0.12	-0.16	-16.85	17.21	-4.193	38.555	38.555	
				3.2	187.679		10.74	6.63	-0.12	-0.16	-16.85	17.21	-4.193	38.555	38.555	
		K2-3	Atap	0.97	53.524	106.497	-5.21	-0.66	0.39	-0.66	-7.68	14.16	-14.133	8.975	14.133	
				0.97	49.246		-5.21	-0.66	0.39	-0.66	-7.68	14.16	-14.133	8.975	14.133	
As E	K1-4	1	3.66	346.649	113.508	1.1	0.07	-1.01	-0.1	-63.97	65.76	-83.623	83.659	83.659		
			3.66	68.791		1.1	0.07	-1.01	-0.1	-63.97	65.76	-83.623	83.659	83.659		
		2	3.2	135.295	66.099	-1.78	-0.77	-0.004	-0.51	-36.51	36.88	-48.616	41.730	48.616		
			3.2	76.222		-1.78	-0.77	-0.004	-0.51	-36.51	36.88	-48.616	41.730	48.616		
		3	3.2	189.086	116.533	5.02	1.25	0.36	-0.71	-23.86	24.67	-22.099	34.554	34.554		
			3.2	183.819		5.02	1.25	0.36	-0.71	-23.86	24.67	-22.099	34.554	34.554		
		4	3.2	273.046	162.607	-18.1	-4.11	0.11	-0.17	-3.06	5.38	-26.325	-16.866	26.325		
			3.2	247.295		-18.1	-4.11	0.11	-0.17	-3.06	5.38	-26.325	-16.866	26.325		
		K2-4	Atap	0.97	53.524	106.497	-3.28	2.89	0.51	-0.78	-6.9	12.08	-7.265	11.232	11.231	
				0.97	49.246		-3.28	2.89	0.51	-0.78	-6.9	12.08	-7.265	11.232	11.231	
		K1-1	1	3.66	482.355	179.699	-25	-7.36	0.19	-1.3	-69.53	71.52	-120.047	51.419	120.065	
				3.66	175.343		-25	-7.36	0.19	-1.3	-69.53	71.52	-120.047	51.419	120.065	
			2	3.2	670.460	387.899	-72	-23.73	-0.31	-0.83	-69.78	73.32	-187.208	-9.086	187.208	
				3.2	570.817		-72	-23.73	-0.31	-0.83	-69.78	73.32	-187.208	-9.086	187.208	
			3	3.2	840.842	380.755	-83.8	-27.07	-0.47	-0.15	-46.88	48.76	-174.635	-52.785	174.635	
				3.2	377.574		-83.8	-27.07	-0.47	-0.15	-46.88	48.76	-174.635	-52.785	174.635	
			4	3.2	449.953	207.904	9.18	-2.08	-0.22	-0.16	3.06	3.54	10.605	11.462	11.462	
				3.2	215.341		9.18	-2.08	-0.22	-0.16	3.06	3.54	10.605	11.462	11.462	
		K2-1	Atap	0.97	53.524	106.497	8.52	-2.22	1.27	-0.7	-3	-8.72	8.402	-7.079	8.402	
				0.97	49.246		8.52	-2.22	1.27	-0.7	-3	-8.72	8.402	-7.079	8.402	





As H	K2-3	2	3.2	457.139	285.665	23.82	8.63	-0.66	1.26	-55.16	56.22	-39.107	109.296	109.296		
			3.2	456.989		23.82	8.63	-0.66	1.26	-55.16	56.22	-39.107	109.296	109.296		
		3	3.2	421.826	231.139	24.73	9.18	-1.14	1.36	-39.42	4.025	-19.816	45.425	45.425		
			3.2	317.818		24.73	9.18	-1.14	1.36	-39.42	40.25	-19.816	91.069	91.069		
		4	3.2	569.814	354.619	13.05	5.03	-1.9	2.21	-17.2	18.1	-11.196	50.544	50.544		
			3.2	564.968		13.05	5.03	-1.9	2.21	-17.2	18.1	-11.196	50.544	50.544		
		Atap	0.97	53.524	106.497	5.34	-0.007	-1.1	1.28	-8.21	8.86	-9.364	22.140	22.140		
			0.97	49.246		5.34	-0.007	-1.1	1.28	-8.21	8.86	-9.364	22.140	22.140		
		K1-4	1	3.66	223.825	122.285	-0.93	-0.44	0.99	-0.38	-43.53	44.2	-52.082	52.704	52.734	
				3.66	223.739		-0.93	-0.44	0.99	-0.38	-43.53	44.2	-52.082	52.704	52.734	
			2	3.2	198.889	124.118	-0.76	-0.45	-0.34	0.56	-15.06	15.35	-21.627	20.470	21.627	
				3.2	198.290		-0.76	-0.45	-0.34	0.56	-15.06	15.35	-21.627	20.470	21.627	
	3		3.2	145.288	90.773	2.23	0.41	-0.64	0.66	-15.06	14.44	-18.935	23.695	23.695		
			3.2	145.185		2.23	0.41	-0.64	0.66	-15.06	14.44	-18.935	23.695	23.695		
	4		3.2	297.623	175.511	4.29	1.93	-1.74	1.93	-2.61	4.28	-4.268	19.827	19.827		
			3.2	264.011		4.29	1.93	-1.74	1.93	-2.61	4.28	-4.268	19.827	19.827		
	Atap		0.97	53.524	106.497	4.66	2.43	-1.35	1.5	-3.13	3.44	-2.424	17.824	17.824		
			0.97	49.246		4.66	2.43	-1.35	1.5	-3.13	3.44	-2.424	17.824	17.824		
	As H		K1-1	1	3.66	542.541	296.444	-0.45	0.07	3.58	-2.29	-48.44	49.53	-46.405	52.383	52.383
					3.66	542.443		-0.45	0.07	3.58	-2.29	-48.44	49.53	-46.405	52.383	52.383
		2		3.2	580.993	363.084	5.67	1.88	3.57	-2.29	-39.46	40.35	-26.996	48.953	48.953	
				3.2	580.877		5.67	1.88	3.57	-2.29	-39.46	40.35	-26.996	48.953	48.953	
		3		3.2	507.157	300.674	1.21	0.72	2.5	-1.49	-28.18	28.85	-23.056	32.044	32.044	
				3.2	454.999		1.21	0.72	2.5	-1.49	-28.18	28.85	-23.056	32.044	32.044	
		4		3.2	533.827	255.549	5.18	1.12	1.34	-0.63	-11.03	11.27	-1.772	18.052	18.052	
				3.2	283.931		5.18	1.12	1.34	-0.63	-11.03	11.27	-1.772	18.052	18.052	
		K1-2		1	3.66	53.524	28.079	-15.7	-3.69	3.39	-1.76	-59.81	61.12	-81.042	49.700	28.079
3.66					49.246		-15.7	-3.69	3.39	-1.76	-59.81	61.12	-81.042	49.700	28.079	
2				3.2	558.149	348.837	-33.9	-7.73	2.59	-0.55	-64.56	65.98	-113.325	37.967	113.325	
				3.2	558.129		-33.9	-7.73	2.59	-0.55	-64.56	65.98	-113.325	37.967	113.325	
3			3.2	482.799	301.715	-27.9	-6.05	2.1	-0.61	-45.21	46.2	-83.136	20.659	83.136		
			3.2	482.689		-27.9	-6.05	2.1	-0.61	-45.21	46.2	-83.136	20.659	83.136		
4			3.2	448.740	253.652	-26	-4.62	1.36	-0.43	-25.01	25.47	-57.414	-1.327	57.414		
			3.2	362.946		-26	-4.62	1.36	-0.43	-25.01	25.47	-57.414	-1.327	57.414		
K1-3		1	3.66	184.849	97.355	2.64	-0.35	2.92	-1.83	-41.37	42.22	-37.421	47.952	47.952		
			3.66	171.470		2.64	-0.35	2.92	-1.83	-41.37	42.22	-37.421	47.952	47.952		
		2	3.2	265.457	165.881	13.52	1.69	2.28	-1.44	-28.96	29.56	-11.121	46.991	46.991		
			3.2	265.361		13.52	1.69	2.28	-1.44	-28.96	29.56	-11.121	46.991	46.991		
		3	3.2	271.258	140.718	13.51	1.88	1.8	-1.17	-24.84	25.32	-7.776	42.951	42.951		
			3.2	179.039		13.51	1.88	1.8	-1.17	-24.84	25.32	-7.776	42.951	42.951		
		4	3.2	253.420	158.304	11.69	1.34	1.03	-0.96	-15.6	15.85	-1.789	29.480	29.480		
			3.2	253.153		11.69	1.34	1.03	-0.96	-15.6	15.85	-1.789	29.480	29.480		







**Tabel 70. Diagram Interaksi Mn-Pn Kolom ( 350 x 350 )**

Ast ( % )	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
f <sub>c</sub> (Mpa)	25	25	25	25	25	25	25	25	25	25	25
f <sub>y</sub> (Mpa)	400	400	400	400	400	400	400	400	400	400	400
b (mm)	350	350	350	350	350	350	350	350	350	350	350
h (mm)	350	350	350	350	350	350	350	350	350	350	350
d' (mm)	70	70	70	70	70	70	70	70	70	70	70
d (mm)	280	280	280	280	280	280	280	280	280	280	280
xb (mm)	168	168	168	168	168	168	168	168	168	168	168
faktor		1.8	1.6	1.4	1.2	1	0.9	0.8	0.7	0.6	
x (mm)		302.4	268.8	235.2	201.6	168	151.2	134.4	117.6	100.8	
ab (mm)		257.04	228.48	199.92	171.36	142.8	128.52	114.24	99.96	85.68	
fs (Mpa)		-44.44444	25	114.286	233.333	400	511.1111	650	828.571	1066.67	
fs pakai		-44.44444	25	114.286	233.333	400	400	400	400	400	
fs' (Mpa)		768.5185	739.5833	702.381	652.778	583.3333	537.037	479.1667	404.762	305.556	
fs' pakai		400	400	400	400	400	400	400	400	305.556	
Ast(mm <sup>2</sup> )	1225	1225	1225	1225	1225	1225	1225	1225	1225	1225	1225
Ts (KN)		-27.22222	15.3125	70	142.917	245	245	245	245	245	
Cs (KN)		231.9844	231.9844	231.984	231.984	231.9844	231.9844	231.9844	231.984	174.137	
Cc (KN)		1911.735	1699.32	1486.91	1274.49	1062.075	955.8675	849.66	743.453	637.245	
Mn (KNm)	0	110.3575	129.2169	143.286	153.202	160.1143	155.9361	150.2413	143.03	128.228	68.6
Pn (KNm)	3067.094	2170.942	1915.992	1648.89	1363.56	1049.059	942.8519	836.6444	730.437	566.382	0

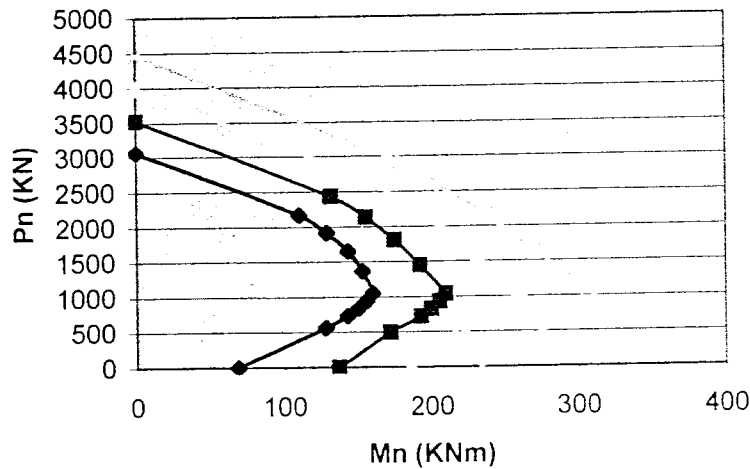
Ast ( % )	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
f <sub>c</sub> (Mpa)	25	25	25	25	25	25	25	25	25	25	25
f <sub>y</sub> (Mpa)	400	400	400	400	400	400	400	400	400	400	400
b (mm)	350	350	350	350	350	350	350	350	350	350	350
h (mm)	350	350	350	350	350	350	350	350	350	350	350
d' (mm)	70	70	70	70	70	70	70	70	70	70	70
d (mm)	280	280	280	280	280	280	280	280	280	280	280
xb (mm)	168	168	168	168	168	168	168	168	168	168	168
faktor		1.8	1.6	1.4	1.2	1	0.9	0.8	0.7	0.6	
x (mm)		302.4	268.8	235.2	201.6	168	151.2	134.4	117.6	100.8	
ab (mm)		257.04	228.48	199.92	171.36	142.8	128.52	114.24	99.96	85.68	
fs (Mpa)		-44.44444	25	114.286	233.333	400	511.1111	650	828.571	1066.67	
fs pakai		-44.44444	25	114.286	233.333	400	400	400	400	400	
fs' (Mpa)		768.5185	739.5833	702.381	652.778	583.3333	537.037	479.1667	404.762	305.556	
fs' pakai		400	400	400	400	400	400	400	400	305.556	
Ast(mm <sup>2</sup> )	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450
Ts (KN)		-54.44444	30.625	140	285.833	490	490	490	490	490	
Cs (KN)		463.9688	463.9688	463.969	463.969	463.9688	463.9688	463.9688	463.969	348.274	
Cc (KN)		1911.735	1699.32	1486.91	1274.49	1062.075	955.8675	849.66	743.453	637.245	
Mn (KNm)	0	131.8575	155.183	174.994	192.567	210.1977	206.0195	200.3246	193.113	172.237	137.2
Pn (KNm)	3531.063	2430.148	2132.664	1810.87	1452.63	1036.044	929.8363	823.6288	717.421	495.519	0

Ast ( % )	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
f <sub>c</sub> (Mpa)	25	25	25	25	25	25	25	25	25	25	25
f <sub>y</sub> (Mpa)	400	400	400	400	400	400	400	400	400	400	400
b (mm)	350	350	350	350	350	350	350	350	350	350	350
h (mm)	350	350	350	350	350	350	350	350	350	350	350
d' (mm)	70	70	70	70	70	70	70	70	70	70	70
d (mm)	280	280	280	280	280	280	280	280	280	280	280
xb (mm)	168	168	168	168	168	168	168	168	168	168	168
faktor		1.8	1.6	1.4	1.2	1	0.9	0.8	0.7	0.6	
x (mm)		302.4	268.8	235.2	201.6	168	151.2	134.4	117.6	100.8	
ab (mm)		257.04	228.48	199.92	171.36	142.8	128.52	114.24	99.96	85.68	
fs (Mpa)		-44.44444	25	114.286	233.333	400	511.1111	650	828.571	1066.67	
fs pakai		-44.44444	25	114.286	233.333	400	400	400	400	400	
fs' (Mpa)		768.5185	739.5833	702.381	652.778	583.3333	537.037	479.1667	404.762	305.556	
fs' pakai		400	400	400	400	400	400	400	400	305.556	
Ast(mm <sup>2</sup> )	3675	3675	3675	3675	3675	3675	3675	3675	3675	3675	3675
Ts (KN)		-81.66667	45.9375	210	428.75	735	735	735	735	735	
Cs (KN)		695.9531	695.9531	695.953	695.953	695.9531	695.9531	695.9531	695.953	522.411	

Cc (KN)		1911.735	1699.32	1486.91	1274.49	1062.075	955.8675	849.66	743.453	637.245	
Mn (KNm)	0	153.3575	181.1492	206.702	231.931	260.281	256.1028	250.408	243.197	216.247	185.8
Pn (KNm)	3995.031	2689.355	2349.336	1972.86	1541.69	1023.028	916.8206	810.6131	704.406	424.656	0

Ast ( % )	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Fc (Mpa)	25	25	25	25	25	25	25	25	25	25	25
fy (Mpa)	400	400	400	400	400	400	400	400	400	400	400
b (mm)	350	350	350	350	350	350	350	350	350	350	350
h (mm)	350	350	350	350	350	350	350	350	350	350	350
d' (mm)	70	70	70	70	70	70	70	70	70	70	70
d (mm)	280	280	280	280	280	280	280	280	280	280	280
xb (mm)	168	168	168	168	168	168	168	168	168	168	168
faktor		1.8	1.6	1.4	1.2	1	0.9	0.8	0.7	0.6	
x (mm)		302.4	268.8	235.2	201.6	168	151.2	134.4	117.6	100.8	
ab (mm)		257.04	228.48	199.92	171.36	142.8	128.52	114.24	99.96	85.68	
fs (Mpa)		-44.44444	25	114.286	233.333	400	511.1111	650	828.571	1066.67	
fs pakai		-44.44444	25	114.286	233.333	400	400	400	400	400	
fs' (Mpa)		768.5185	739.5833	702.381	652.778	583.3333	537.037	479.1667	404.762	305.556	
fs' pakai		400	400	400	400	400	400	400	400	400	
Ast(mm^2)	4900	4900	4900	4900	4900	4900	4900	4900	4900	4900	4900
Ts (KN)		-108.8889	61.25	280	571.667	980	980	980	980	980	
Cs (KN)		927.9375	927.9375	927.938	927.938	927.9375	927.9375	927.9375	927.938	696.549	
Cc (KN)		1911.735	1699.32	1486.91	1274.49	1062.075	955.8675	849.66	743.453	637.245	
Mn (KNm)	0	174.8575	207.1154	238.411	271.296	310.3644	306.1862	300.4914	293.28	260.256	234.4
Pn (KNm)	4459	2948.561	2566.008	2134.84	1630.76	1010.013	903.805	797.5975	691.39	353.794	0

Diagram Interaksi Kolom (350x350)



**Tabel 71. Diagram Interaksi Mn-Pn Kolom ( 600 x 600 )**

Ast ( % )	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
f <sub>c</sub> (Mpa)	25	25	25	25	25	25	25	25	25	25	25	25
f <sub>y</sub> (Mpa)	400	400	400	400	400	400	400	400	400	400	400	400
b (mm)	600	600	600	600	600	600	600	600	600	600	600	600
h (mm)	600	600	600	600	600	600	600	600	600	600	600	600
d' (mm)	70	70	70	70	70	70	70	70	70	70	70	70
d (mm)	530	530	530	530	530	530	530	530	530	530	530	530
xb (mm)	318	318	318	318	318	318	318	318	318	318	318	318
faktor		1.8	1.6	1.4	1.2	1	0.9	0.8	0.7	0.6		
x (mm)		572.4	508.8	445.2	381.6	318	286.2	254.4	222.6	190.8		
ab (mm)		486.54	432.48	378.42	324.36	270.3	243.27	216.24	189.21	162.18	56.47059	
f <sub>s</sub> (Mpa)		-44.44444	25	114.2857	233.3333	400	511.1111	650	828.5714	1066.667		
f <sub>s</sub> pakai		-44.44444	25	114.2857	233.3333	400	400	400	400	400		
f <sub>s</sub> ' (Mpa)		877.7079	862.4214	842.7673	816.5618	779.8742	755.4158	724.8428	685.5346	633.1237		
f <sub>s</sub> ' pakai		400	400	400	400	400	400	400	400	400		
Ast(mm <sup>2</sup> )	3600	3600	3600	3600	3600	3600	3600	3600	3600	3600	3600	3600
T <sub>s</sub> (KN)		-80	45	205.7143	420	720	720	720	720	720	720	720
C <sub>s</sub> (KN)		681.75	681.75	681.75	681.75	681.75	681.75	681.75	681.75	681.75	681.75	681.75
C <sub>c</sub> (KN)		6203.385	5514.12	4824.855	4135.59	3446.325	3101.693	2757.06	2412.428	2067.795		
M <sub>n</sub> (KNm)	0	490.3205	629.0152	738.6625	823.3695	890.5292	875.6359	851.4272	817.903	775.0635	361.2706	
P <sub>n</sub> (KNm)	9013.5	6965.135	6150.87	5300.891	4397.34	3408.075	3063.443	2718.81	2374.178	2029.545		0

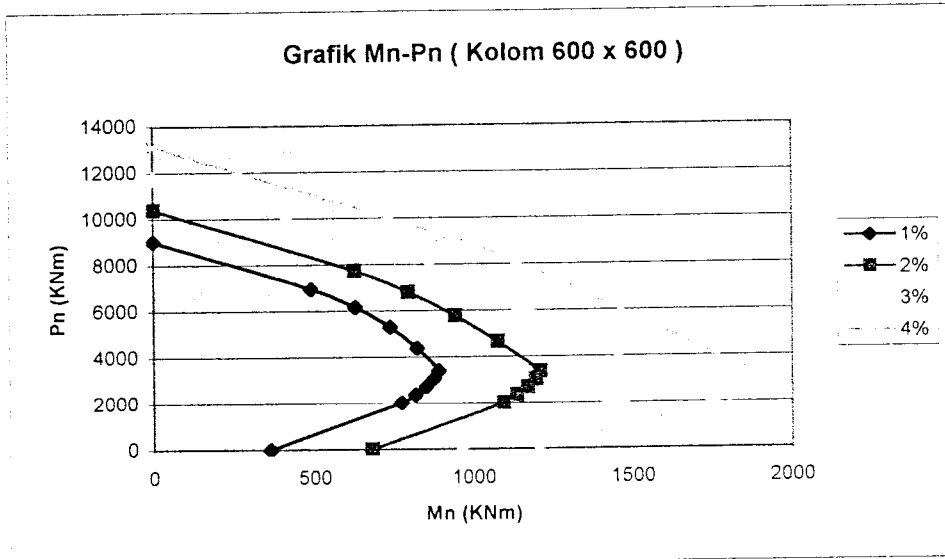
Ast ( % )	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
f <sub>c</sub> (Mpa)	25	25	25	25	25	25	25	25	25	25	25	25
f <sub>y</sub> (Mpa)	400	400	400	400	400	400	400	400	400	400	400	400
b (mm)	600	600	600	600	600	600	600	600	600	600	600	600
h (mm)	600	600	600	600	600	600	600	600	600	600	600	600
d' (mm)	70	70	70	70	70	70	70	70	70	70	70	70
d (mm)	530	530	530	530	530	530	530	530	530	530	530	530
xb (mm)	318	318	318	318	318	318	318	318	318	318	318	318
faktor		1.8	1.6	1.4	1.2	1	0.9	0.8	0.7	0.6		
x (mm)		572.4	508.8	445.2	381.6	318	286.2	254.4	222.6	190.8		
ab (mm)		486.54	432.48	378.42	324.36	270.3	243.27	216.24	189.21	162.18	112.9412	
f <sub>s</sub> (Mpa)		-44.44444	25	114.2857	233.3333	400	511.1111	650	828.5714	1066.667		
f <sub>s</sub> pakai		-44.44444	25	114.2857	233.3333	400	400	400	400	400		
f <sub>s</sub> ' (Mpa)		877.7079	862.4214	842.7673	816.5618	779.8742	755.4158	724.8428	685.5346	633.1237		
f <sub>s</sub> ' pakai		400	400	400	400	400	400	400	400	400		
Ast(mm <sup>2</sup> )	7200	7200	7200	7200	7200	7200	7200	7200	7200	7200	7200	7200
T <sub>s</sub> (KN)		-160	90	411.4286	840	1440	1440	1440	1440	1440	1440	1440
C <sub>s</sub> (KN)		1363.5	1363.5	1363.5	1363.5	1363.5	1363.5	1363.5	1363.5	1363.5	1363.5	1363.5
C <sub>c</sub> (KN)		6203.385	5514.12	4824.855	4135.59	3446.325	3101.693	2757.06	2412.428	2067.795		
M <sub>n</sub> (KNm)	0	628.723	796.1677	942.7793	1076.772	1212.932	1198.038	1173.83	1140.306	1097.466	681.8824	
P <sub>n</sub> (KNm)	10377	7726.885	6787.62	5776.926	4659.09	3369.825	3025.193	2680.56	2335.928	1991.295		0

Ast ( % )	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
f <sub>c</sub> (Mpa)	25	25	25	25	25	25	25	25	25	25	25	25
f <sub>y</sub> (Mpa)	400	400	400	400	400	400	400	400	400	400	400	400
b (mm)	600	600	600	600	600	600	600	600	600	600	600	600
h (mm)	600	600	600	600	600	600	600	600	600	600	600	600
d' (mm)	70	70	70	70	70	70	70	70	70	70	70	70
d (mm)	530	530	530	530	530	530	530	530	530	530	530	530
xb (mm)	318	318	318	318	318	318	318	318	318	318	318	318
faktor		1.8	1.6	1.4	1.2	1	0.9	0.8	0.7	0.6		
x (mm)		572.4	508.8	445.2	381.6	318	286.2	254.4	222.6	190.8		
ab (mm)		486.54	432.48	378.42	324.36	270.3	243.27	216.24	189.21	162.18	169.4118	
f <sub>s</sub> (Mpa)		-44.44444	25	114.2857	233.3333	400	511.1111	650	828.5714	1066.667		
f <sub>s</sub> pakai		-44.44444	25	114.2857	233.3333	400	400	400	400	400		
f <sub>s</sub> ' (Mpa)		877.7079	862.4214	842.7673	816.5618	779.8742	755.4158	724.8428	685.5346	633.1237		
f <sub>s</sub> ' pakai		400	400	400	400	400	400	400	400	400		
Ast(mm <sup>2</sup> )	10800	10800	10800	10800	10800	10800	10800	10800	10800	10800	10800	10800
T <sub>s</sub> (KN)		-240	135	617.1429	1260	2160	2160	2160	2160	2160	2160	2160
C <sub>s</sub> (KN)		2045.25	2045.25	2045.25	2045.25	2045.25	2045.25	2045.25	2045.25	2045.25	2045.25	2045.25
C <sub>c</sub> (KN)		6203.385	5514.12	4824.855	4135.59	3446.325	3101.693	2757.06	2412.428	2067.795		
M <sub>n</sub> (KNm)	0	767.1255	963.3202	1146.896	1330.175	1535.334	1520.441	1496.232	1462.708	1419.869	961.8353	



Pn (KNm)	11740.5	8488.635	7424.37	6252.962	4920.84	3331.575	2986.943	2642.31	2297.678	1953.045	0
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Ast ( % )	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
f'c (Mpa)	25	25	25	25	25	25	25	25	25	25	25
f'y (Mpa)	400	400	400	400	400	400	400	400	400	400	400
b (mm)	600	600	600	600	600	600	600	600	600	600	600
h (mm)	600	600	600	600	600	600	600	600	600	600	600
d' (mm)	70	70	70	70	70	70	70	70	70	70	70
d (mm)	530	530	530	530	530	530	530	530	530	530	530
xb (mm)	318	318	318	318	318	318	318	318	318	318	318
faktor	1.8	1.6	1.4	1.2	1	0.9	0.8	0.7	0.6		
x (mm)	572.4	508.8	445.2	381.6	318	286.2	254.4	222.6	190.8		
ab (mm)	486.54	432.48	378.42	324.36	270.3	243.27	216.24	189.21	162.18	225.8824	
fs (Mpa)	-44.44444	25	114.2857	233.3333	400	511.1111	650	828.5714	1066.667		
fs pakai	-44.44444	25	114.2857	233.3333	400	400	400	400	400		
fs' (Mpa)	877.7079	862.4214	842.7673	816.5618	779.8742	755.4158	724.8428	685.5346	633.1237		
fs' pakai	400	400	400	400	400	400	400	400	400		
Ast (mm^2)	14400	14400	14400	14400	14400	14400	14400	14400	14400	14400	14400
Ts (KN)		-320	180	822.8571	1680	2880	2880	2880	2880	2880	2880
Cs (KN)		2727	2727	2727	2727	2727	2727	2727	2727	2727	2727
Cc (KN)		6203.385	5514.12	4824.855	4135.59	3446.325	3101.693	2757.06	2412.428	2067.795	
Mn (KNm)	0	905.528	1130.473	1351.013	1583.577	1857.737	1842.843	1818.635	1785.111	1742.271	1201.129
Pn (KNm)	13104	9250.385	8061.12	6728.998	5182.59	3293.325	2948.693	2604.06	2259.428	1914.795	0















Kolom	As 1 K1-B												As 1 K2-B			
	1			2			3			4			Atap			
	x	y		x	y		x	y		x	y		x	y		
Lantai																
Arah																
Mu (KNm)	637.56	588.57		611.75	669.90		582.64	631.11		520.87	826.62		64.80	14.02		14.02
Mu/φ (KNm)	980.86	905.49		941.15	1030.61		896.36	970.94		801.34	1271.72		99.69	21.57		21.57
Pu (KN)	2636.39	2636.39		1750.56	1750.96		983.79	1142.40		467.66	635.89		51.57	51.57		51.57
Pu/φ (KN)	4055.98	4055.98		2693.17	2693.78		1513.52	1757.54		719.47	978.29		79.34	79.34		79.34
fc (Mpa)	25	25		25	25		25	25		25	25		25	25		25
fy (Mpa)	400	400		400	400		400	400		400	400		400	400		400
b (mm)	600	600		600	600		600	600		600	600		350	350		350
h (mm)	600	600		600	600		600	600		600	600		350	350		350
d' (mm)	70	70		70	70		70	70		70	70		70	70		70
d (mm)	530	530		530	530		530	530		530	530		280	280		280
ρg (%)	1.1	1.1		1.1	1.1		1.4	1.5		2	1.8		1.3	1.3		1.3
Ast (mm^2)	3960	3600		3600	3960		5040	5400		7200	6480		1592.5	1225		1225
As=As' (mm^2)	1980	1800		1800	1980		2520	2700		3600	3240		796.25	612.5		612.5
D (mm)	25	25		25	25		25	25		25	25		25	25		25
A1 D (mm^2)	490.63	490.63		490.63	490.63		490.63	490.63		490.63	490.63		490.63	490.63		490.63
n (btg)	4.04	3.67		3.67	4.04		5.14	5.50		7.34	6.60		1.62	1.25		1.25
N pakai	7	7		7	7		7	7		7	7		3	3		3
As ada=As' ada	3434.375	3434.375		3434.375	3434.375		3434.375	3434.375		3434.375	3434.375		1471.875	1471.875		1471.875
xb (mm)	318	318		318	318		318	318		318	318		168	168		168
ab (mm)	270.3	270.3		270.3	270.3		270.3	270.3		270.3	270.3		142.8	142.8		142.8
fs' (Mpa)	467.92	467.92		467.92	467.92		467.92	467.92		467.92	467.92		350.00	350.00		350.00
fs' pakai (Mpa)	400	400		400	400		400	400		400	400		350	350		350
Ccb (N)	3446325	3446325		3446325	3446325		3446325	3446325		3446325	3446325		1062075	1062075		1062075
Csb (N)	749925	681750		681750	749925		954450	1022625		1363500	1227150		261767.2	201359.4		201359.4
Tsb (N)	1373750	1373750		1373750	1373750		1373750	1373750		1373750	1373750		515156.3	515156.3		515156.3
Pnb (KN)	4196.22	4128.05		4128.05	4196.22		4400.75	4468.92		4809.80	4673.45		1323.81	1263.40		1263.40
Mnb (KNm)	1056.57	1040.89		1040.89	1056.57		1103.61	1119.29		1197.69	1166.33		191.61	185.27		185.27
eb (mm)	0.25	0.25		0.25	0.25		0.25	0.25		0.25	0.25		0.14	0.15		0.15
e (mm)	0.24	0.22		0.35	0.38		0.59	0.55		1.11	1.30		1.26	1.26		1.26
e' (mm)	230.24	230.22		230.35	230.38		230.59	230.55		231.11	231.30		106.26	105.27		105.27
ρ	0.0062	0.0057		0.0057	0.0062		0.0079	0.0085		0.0113	0.0102		0.0081	0.0063		0.0063
Cek patah	DESAK	DESAK		TARIK	TARIK		TARIK	TARIK		TARIK	TARIK		TARIK	TARIK		TARIK
Pn (KN)	8710.22	8623.49		8620.60	8707.02		8955.01	9037.42		9415.28	9258.50		2924.56	2866.06		2866.06
Mn (KN)	2106.40	1925.18		3012.55	3331.20		5303.49	4992.64		10486.59	12035.59		3674.84	779.18		779.18
Kontrol (Mn-Pn)	aman	aman		aman	aman		aman	aman		aman	aman		aman	aman		aman







Kolom	As 2 K1-G												As 2 K2-G	
	1			2			3			4			Atap	
	x	y		x	y		x	y		x	y		x	y
Lantai														
Arah														
Mu (KNm)	582.84	741.14	429.79	765.81	382.99	582.69	312.83	541.04	20.40	20.39				
Mu/φ (KNm)	896.68	1140.21	661.22	1178.17	589.22	896.45	481.28	832.37	31.38	31.37				
Pu (KN)	1864.83	1864.63	1476.82	1476.82	779.79	833.67	250.37	335.83	40.40	40.40				
Pu/φ (KN)	2868.97	2868.66	2272.03	2272.03	1199.68	1282.56	385.18	516.65	62.15	62.15				
fc (Mpa)	25	25	25	25	25	25	25	25	25	25				
fy (Mpa)	400	400	400	400	400	400	400	400	400	400				
b (mm)	600	600	600	600	600	600	600	600	350	350				
h (mm)	600	600	600	600	600	600	600	600	350	350				
d' (mm)	70	70	70	70	70	70	70	70	70	70				
d (mm)	530	530	530	530	530	530	530	530	280	280				
ρg (%)	1	1.5	1	1.6	1	1.6	1	1.2	1	1				
Ast (mm <sup>2</sup> )	3600	5400	3600	5760	3600	5760	3600	4320	1225	1225				
As=As' (mm <sup>2</sup> )	1800	2700	1800	2880	1800	2880	1800	2160	612.5	612.5				
D (mm)	25	25	25	25	25	25	25	25	25	25				
A1 D (mm <sup>2</sup> )	490.63	490.63	490.63	490.63	490.63	490.63	490.63	490.63	490.63	490.63				
n (big)	3.67	5.50	3.67	5.87	3.67	5.87	3.67	4.40	1.25	1.25				
N pakai	7	7	7	7	7	7	7	7	3	3				
As ada=As' ada	3434.38	3434.38	3434.38	3434.38	3434.38	3434.38	3434.38	3434.38	1471.88	1471.88				
xb (mm)	318	318	318	318	318	318	318	318	168	168				
ab (mm)	270.3	270.3	270.3	270.3	270.3	270.3	270.3	270.3	142.8	142.8				
fs' (Mpa)	467.92	467.92	467.92	467.92	467.92	467.92	467.92	467.92	350.00	350.00				
fs pakai (Mpa)	400	400	400	400	400	400	400	400	350	350				
Ceb (N)	3446325	3446325	3446325	3446325	3446325	3446325	3446325	3446325	1062075	1062075				
Csb (N)	681750	1022625	681750	1090800	681750	1090800	681750	818100	201359.4	201359.4				
Tsb (N)	1373750	1373750	1373750	1373750	1373750	1373750	1373750	1373750	515156.3	515156.3				
Pnb (KN)	4128.05	4468.92	4128.05	4537.10	4128.05	4537.10	4128.05	4264.40	1263.40	1263.40				
Mnb (KNm)	1040.89	1119.29	1040.89	1134.97	1040.89	1134.97	1040.89	1072.25	185.27	185.27				
eb (mm)	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.15	0.15				
e (mm)	0.31	0.40	0.29	0.52	0.29	0.49	0.25	1.25	0.50	0.50				
e' (mm)	230.31	230.40	230.29	230.52	230.49	230.70	231.25	231.61	105.50	105.50				
ρ	0.0057	0.0085	0.0057	0.0091	0.0057	0.0091	0.0057	0.0068	0.0063	0.0063				
Cek patah	TARIK	TARIK	TARIK	TARIK	TARIK	TARIK	TARIK	TARIK	TARIK	TARIK				
Pn (KN)	8621.45	9040.84	8621.94	9118.44	8617.36	9114.48	8600.00	8764.98	2862.89	2862.89				
Mn (KN)	2694.58	3593.47	2509.19	4728.41	4232.38	6370.55	10745.49	14121.05	1445.62	1445.62				
Kontrol (Mn-Pn)	aman	aman	aman	aman	aman	aman	aman	aman	aman	aman				

































Kolom	As 4 K1-C												As 4 K2-C			
	1			2			3			4			Atap			
	x	y		x	y		x	y		x	y		x	y		
Lantai																
Arah																
Mu (KNm)	306.32	290.87		224.46	207.82		228.58	158.20		567.69	294.93		57.08	14.67		
Mu/φ (KNm)	471.26	447.50		345.32	319.73		351.66	243.38		873.38	453.73		87.82	22.57		
Pu (KN)	858.97	858.96		639.92	637.92		437.85	437.85		288.90	297.64		111.85	129.76		
Pu/φ (KN)	1321.49	1321.47		984.49	981.42		673.62	673.62		444.46	457.90		172.08	199.63		
f <sub>c</sub> (Mpa)	25	25		25	25		25	25		25	25		25	25		
f <sub>y</sub> (Mpa)	400	400		400	400		400	400		400	400		400	400		
b (mm)	600	600		600	600		600	600		600	600		350	350		
h (mm)	600	600		600	600		600	600		600	600		350	350		
d' (mm)	70	70		70	70		70	70		70	70		70	70		
d (mm)	530	530		530	530		530	530		530	530		280	280		
ρ <sub>g</sub> (%)	1	1		1	1		1	1		1.9	1		1.3	1		
A <sub>st</sub> (mm <sup>2</sup> )	3600	3600		3600	3600		3600	3600		6840	3600		1592.5	1225		
A <sub>s</sub> =A <sub>s'</sub> (mm <sup>2</sup> )	1800	1800		1800	1800		1800	1800		3420	1800		796.25	612.5		
D (mm)	25	25		25	25		25	25		25	25		25	25		
A1 D (mm <sup>2</sup> )	490.63	490.63		490.63	490.63		490.63	490.63		490.63	490.63		490.63	490.63		
n (btg)	3.67	3.67		3.67	3.67		3.67	3.67		6.97	3.67		1.62	1.25		
N pakai	7	7		7	7		7	7		7	7		3	3		
As ada=As' ada	3434.375	3434.375		3434.375	3434.375		3434.375	3434.375		3434.375	3434.375		1471.875	1471.875		
xb (mm)	318	318		318	318		318	318		318	318		168	168		
ab (mm)	270.3	270.3		270.3	270.3		270.3	270.3		270.3	270.3		142.8	142.8		
f <sub>s</sub> ' (Mpa)	467.92	467.92		467.92	467.92		467.92	467.92		467.92	467.92		350.00	350.00		
f <sub>s</sub> ' pakai (Mpa)	400	400		400	400		400	400		400	400		350	350		
C <sub>cb</sub> (N)	3446325	3446325		3446325	3446325		3446325	3446325		3446325	3446325		1062075	1062075		
C <sub>sb</sub> (N)	681750	681750		681750	681750		681750	681750		1295325	681750		261767.2	201359.4		
T <sub>sb</sub> (N)	1373750	1373750		1373750	1373750		1373750	1373750		1373750	1373750		515156.3	515156.3		
P <sub>nb</sub> (KN)	4128.05	4128.05		4128.05	4128.05		4128.05	4128.05		4741.62	4128.05		1323.81	1263.40		
M <sub>nb</sub> (KNm)	1040.89	1040.89		1040.89	1040.89		1040.89	1040.89		1182.01	1040.89		191.61	185.27		
e <sub>b</sub> (mm)	0.25	0.25		0.25	0.25		0.25	0.25		0.25	0.25		0.14	0.15		
e (mm)	0.36	0.34		0.35	0.33		0.52	0.36		1.97	0.99		0.51	0.11		
e' (mm)	230.36	230.34		230.35	230.36		230.52	230.36		231.97	230.99		105.51	105.11		
ρ	0.0057	0.0057		0.0057	0.0057		0.0057	0.0057		0.0108	0.0057		0.0081	0.0063		
Cek patah	TARIK	TARIK		TARIK	TARIK		TARIK	TARIK		TARIK	TARIK		TARIK	TARIK		
P <sub>n</sub> (KN)	8620.44	8620.85		8620.57	8621.15		8616.65	8620.33		9321.11	8605.92		2934.51	2868.22		
M <sub>n</sub> (KN)	3074.16	2919.32		3023.78	2808.62		4498.33	3114.54		18316.15	8527.53		1497.56	324.27		
Kontrol (M <sub>n</sub> -P <sub>n</sub> )	aman	aman		aman	aman		aman	aman		aman	aman		aman	aman		

Kolom	As 4 K1-B												As 4 K2-B		
	1			2			3			4			Atap		
Lantai	x	y		x	y		x	y		x	y		x	y	
Arah															
Mu (KNm)	369.34	223.97	186.18	198.39	174.81	145.19	225.25	297.80	41.69	8.73					
Mu/φ (KNm)	568.22	344.58	286.43	305.21	268.94	223.36	346.53	458.16	64.14	13.43					
Pu (KN)	786.99	786.99	543.11	543.11	335.31	353.34	166.42	223.79	86.166	52.23					
Pu/φ (KN)	1210.75	1210.75	835.55	835.55	515.86	543.60	256.03	344.30	132.56	80.35					
fc (Mpa)	25	25	25	25	25	25	25	25	25	25					
fy (Mpa)	400	400	400	400	400	400	400	400	400	400					
b (mm)	600	600	600	600	600	600	600	600	600	600					
h (mm)	600	600	600	600	600	600	600	600	600	600					
d' (mm)	70	70	70	70	70	70	70	70	70	70					
d (mm)	530	530	530	530	530	530	530	530	530	530					
ρg (%)	1	1	1	1	1	1	1	1	1	1					
Ast (mm <sup>2</sup> )	3600	3600	3600	3600	3600	3600	3600	3600	3600	3600					
As=As' (mm <sup>2</sup> )	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800					
D (mm)	25	25	25	25	25	25	25	25	25	25					
A1 D (mm <sup>2</sup> )	490.63	490.63	490.63	490.63	490.63	490.63	490.63	490.63	490.63	490.63					
n (btg)	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67					
N pakai	7	7	7	7	7	7	7	7	7	7					
As ada=As' ada	3434.38	3434.38	3434.38	3434.38	3434.38	3434.38	3434.38	3434.38	3434.38	3434.38					
xb (mm)	318	318	318	318	318	318	318	318	318	318					
ab (mm)	270.3	270.3	270.3	270.3	270.3	270.3	270.3	270.3	270.3	270.3					
fs' (Mpa)	467.925	467.925	467.925	467.925	467.925	467.925	467.925	467.925	467.925	467.925					
fs' pakai (Mpa)	400	400	400	400	400	400	400	400	400	400					
Ccb (N)	3446325	3446325	3446325	3446325	3446325	3446325	3446325	3446325	3446325	3446325					
Csb (N)	681750	681750	681750	681750	681750	681750	681750	681750	681750	681750					
Tsb (N)	1373750	1373750	1373750	1373750	1373750	1373750	1373750	1373750	1373750	1373750					
Pnb (KN)	4128.05	4128.05	4128.05	4128.05	4128.05	4128.05	4128.05	4128.05	4128.05	4128.05					
Mnb (KNm)	1040.89	1040.89	1040.89	1040.89	1040.89	1040.89	1040.89	1040.89	1040.89	1040.89					
eb (mm)	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25					
e (mm)	0.47	0.28	0.34	0.37	0.52	0.41	1.35	1.33	0.48	0.17					
e' (mm)	230.47	230.28	230.34	230.37	230.52	230.41	231.35	231.33	105.48	105.17					
ρ	0.0057	0.0057	0.0057	0.0057	0.0057	0.0057	0.0057	0.0057	0.0057	0.0057					
Cek patah	TARIK	TARIK	TARIK	TARIK	TARIK	TARIK	TARIK	TARIK	TARIK	TARIK					
Pn (KN)	8617.86	8622.09	8620.76	8620.24	8616.67	8619.20	8597.62	8598.14	2863.18	2867.48					
Mn (KN)	4044.42	2453.81	2955.23	3148.80	4492.20	3541.61	11636.51	11441.57	1385.30	479.29					
Kontrol (Mn-Pn)	aman	aman	aman	aman	aman	aman	aman	aman	aman	aman					

**Tabel 76. Perencanaan Pondasi Setempat (PS)**

Perencanaan	Letak					
	PS1(3,K1-H)	PS2(1,K1-F)	PS3(1,K1-E)	PS4(1,K1-D)	PS5(1,K1-C)	PS6(3,K1-A)
$\sigma$ tanah (KN/m <sup>2</sup> )	325	325	325	325	325	325
f <sub>c</sub> (Mpa)	25	25	25	25	25	25
f <sub>y</sub> (Mpa)	400	400	400	400	400	400
$\gamma$ beton (KN/m <sup>3</sup> )	24	24	24	24	24	24
$\gamma$ tanah (KN/m <sup>3</sup> )	15.1	15.1	15.1	15.1	15.1	15.1
<b>Tinjauan beban tetap</b>						
P (KN)	727.06	3533.44	3531.7	3514.49	3487.41	730.77
M <sub>x</sub> tetap (KNm)	7.86	6.43	6.33	9.84	3.78	7.07
M <sub>y</sub> tetap (KNm)	19.41	28.87	35.06	38.3	32.02	15.49
h kolom (mm)	600	600	600	600	600	600
b kolom (mm)	600	600	600	600	600	600
Tebal Pelat (h)(mm)	700	700	700	700	700	700
$\sigma$ nettotahan (KN/m <sup>2</sup> )	288.57	288.57	288.57	288.57	288.57	288.57
dicoba nilai B=H (m)	1.5	3.5	3.5	3.5	3.4	1.5
A perlu (m <sup>2</sup> )	3.028	12.458	12.489	12.470	12.318	2.941
B perlu (m)	1.740	3.530	3.534	3.531	3.510	1.715
B ada (m)	1.9	3.6	3.6	3.6	3.6	1.9
A ada (m <sup>2</sup> )	3.61	12.96	12.96	12.96	12.96	3.61
$\sigma$ kontak maks (KN/m <sup>2</sup> )	225.26	277.18	277.83	277.37	273.69	222.16
$\sigma$ kontak min (KN/m <sup>2</sup> )	177.55	268.10	267.18	264.99	264.49	182.69
Kontrol $\sigma$ nettotahan (KN/m <sup>2</sup> ) > $\sigma$ kontak						
	AMAN	AMAN	AMAN	AMAN	AMAN	AMAN
P <sub>b</sub> (mm)	75	75	75	75	75	75
D tul (mm)	19	19	19	19	19	19
d (mm)	615.5	615.5	615.5	615.5	615.5	615.5
<b>Tinjauan bebansementara</b>						
P sementara (KN)	776.14	3014.07	2990.57	3010.09	2948.25	853.33
M <sub>x</sub> sementara (KNm)	105.2	112.58	111.81	114.35	110.27	105.11
M <sub>y</sub> sementara (KNm)	118.83	200.72	225.51	227.28	201.86	119.04
e <sub>x</sub> (m)	0.1355	0.0374	0.0374	0.0380	0.0374	0.1232
e <sub>y</sub> (m)	0.1531	0.0666	0.0754	0.0755	0.0685	0.1395
B ada (m)	1.9	3.6	3.6	3.6	3.6	1.9
$\sigma$ nettotahan (KN/m <sup>2</sup> )	288.57	288.57	288.57	288.57	288.57	288.57
1,5 $\sigma$ nettotahan (KN/m <sup>2</sup> )	432.86	432.86	432.86	432.86	432.86	432.86
$\sigma$ kontak (KN/m <sup>2</sup> )	126.76	119.74	119.11	119.91	117.19	137.15
Kontrol 1,5 $\sigma$ nettotahan (KN/m <sup>2</sup> ) > $\sigma$ kontak (KN/m <sup>2</sup> )						
	AMAN	AMAN	AMAN	AMAN	AMAN	AMAN

**Kontrol geser 1 Arah**

	Letak					
	PS1(3,K1-H)	PS2(1,K1-F)	PS3(1,K1-E)	PS4(1,K1-D)	PS5(1,K1-C)	PS6(3,K1-A)
P (KN)	727.06	3533.44	3531.7	3514.49	3487.41	730.77
M <sub>x</sub> (KNm)	7.86	6.43	6.33	9.84	3.78	7.07
M <sub>y</sub> (KNm)	19.41	28.87	35.06	38.3	32.02	15.49
h kolom (mm)	600	600	600	600	600	600
b kolom (m)	600	600	600	600	600	600
d (mm)	615.5	615.5	615.5	615.5	615.5	615.5
B* (m)	0.0345	0.8845	0.8845	0.8845	0.8845	0.0345
H* (m)	0.0345	0.8845	0.8845	0.8845	0.8845	0.0345
B=H	1.9	3.6	3.6	3.6	3.6	1.9
f <sub>c</sub> (Mpa)	25	25	25	25	25	25
qu <sub>x</sub> A (KN/m <sup>2</sup> )	225.26	277.18	277.83	277.37	273.69	222.16
qu <sub>x</sub> B (KN/m <sup>2</sup> )	191.30	269.76	268.81	267.52	265.46	195.06
qu <sub>x</sub> C (KN/m <sup>2</sup> )	211.51	275.53	276.20	274.84	272.72	209.79
qu <sub>x</sub> D (KN/m <sup>2</sup> )	177.55	268.10	267.18	264.99	264.49	182.69

**Geser Arah B**

qux maks1 (KN/m <sup>2</sup> )	225.256	277.182	277.831	277.371	273.694	222.164
qux maks2 (KN/m <sup>2</sup> )	191.298	269.756	268.813	267.520	265.459	195.064
qux B*1 (KN/m <sup>2</sup> )	225.007	276.775	277.430	276.749	273.455	221.939
qux B*2 (KN/m <sup>2</sup> )	191.048	269.350	268.413	266.898	265.220	194.839
qux maks (KN/m <sup>2</sup> )	208.277	273.469	273.322	272.445	269.576	208.614
qux B*(KN/m <sup>2</sup> )	208.028	273.063	272.922	271.823	269.338	208.389
qux pakai (KN/m <sup>2</sup> )	208.152	273.266	273.122	272.134	269.457	208.502
Vu (KN)	13.644	870.133	869.674	866.530	858.005	13.667
Vu/φ (KN)	22.741	1450.221	1449.457	1444.217	1430.008	22.779
Vc (KN)	974.542	1846.500	1846.500	1846.500	1846.500	974.542
kontrol	AMAN	AMAN	AMAN	AMAN	AMAN	AMAN

**Geser arah H**

qux maks1 (KN/m <sup>2</sup> )	225.256	277.182	277.831	277.371	273.694	222.164
qux maks2 (KN/m <sup>2</sup> )	211.505	275.528	276.202	274.840	272.722	209.795
qux B*1 (KN/m <sup>2</sup> )	224.640	275.357	275.615	274.950	271.671	221.672
qux B*2 (KN/m <sup>2</sup> )	210.889	273.703	273.987	272.419	270.699	209.303
qux maks (KN/m <sup>2</sup> )	218.381	276.355	277.016	276.105	273.208	215.979
qux B*(KN/m <sup>2</sup> )	217.764	274.530	274.801	273.685	271.185	215.487
qux pakai (KN/m <sup>2</sup> )	218.073	275.442	275.909	274.895	272.196	215.733
Vu (KN)	14.295	877.064	878.548	875.321	866.728	14.141
Vu/φ (KN)	23.824	1461.773	1464.247	1458.868	1444.546	23.569
Vc (KN)	974.542	1846.500	1846.500	1846.500	1846.500	974.542
kontrol	AMAN	AMAN	AMAN	AMAN	AMAN	AMAN

**Kontrol geser 2 Arah**

	Letak					
	PS1(3,K1-H)	PS2(1,K1-F)	PS3(1,K1-E)	PS4(1,K1-D)	PS5(1,K1-C)	PS6(3,K1-A)
P (KN)	727.06	3533.44	3531.7	3514.49	3487.41	730.77
Mx (KNm)	7.86	6.43	6.33	9.84	3.78	7.07
My (KNm)	19.41	28.87	35.06	38.3	32.02	15.49
h kolom (m)	600	600	600	600	600	600
b kolom (m)	600	600	600	600	600	600
d (mm)	615.5	615.5	615.5	615.5	615.5	615.5
H' (m)	1.2155	1.2155	1.2155	1.2155	1.2155	1.2155
B' (m)	1.2155	1.2155	1.2155	1.2155	1.2155	1.2155
B = H	1.9	3.6	3.6	3.6	3.6	1.9
f'c (Mpa)	25	25	25	25	25	25
qu pakai (KN/m <sup>2</sup> )	201.40	272.64	272.51	271.18	269.09	202.43
Vu (KN)	429.50	3130.63	3129.09	3113.84	3089.85	431.69
Vu/φ (KN)	715.84	5217.71	5215.14	5189.73	5149.74	719.49
βc	1	1	1	1	1	1
bo (m)	4862	4862	4862	4862	4862	4862
Vc1 (KN)	89776.83	89776.83	89776.83	89776.83	89776.83	89776.83
Vc2 (KN)	59851.22	59851.22	59851.22	59851.22	59851.22	59851.22
Vc pakai (KN)	59851.22	59851.22	59851.22	59851.22	59851.22	59851.22
kontrol	AMAN	AMAN	AMAN	AMAN	AMAN	AMAN

**Tul lentur Arah B**

qux max (KN/m <sup>2</sup> )	225.256	277.182	277.831	277.371	273.694	222.164
B (m)	1.9	3.6	3.6	3.6	3.6	1.9
h kolom (mm)	600	600	600	600	600	600
b kolom(mm)	600	600	600	600	600	600
I (m)	0.65	1.5	1.5	1.5	1.5	0.65
Mu (KNm)	47.585	311.829	312.559	312.042	307.906	46.932
Mu/φ (KNm)	59.482	389.787	390.699	390.052	384.882	58.665
tebal pelat (h) (mm)	700	700	700	700	700	700
Pb (mm)	75	75	75	75	75	75

d (mm)	615.5	615.5	615.5	615.5	615.5	615.5
f'c (Mpa)	25	25	25	25	25	25
fy (Mpa)	400	400	400	400	400	400
$\beta$ 1	0.85	0.85	0.85	0.85	0.85	0.85
m	18.8235	18.8235	18.8235	18.8235	18.8235	18.8235
Rn (Mpa)	0.1570	1.0289	1.0313	1.0296	1.0159	0.1549
$\rho$ min	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035
$\rho$ b	0.0271	0.0271	0.0271	0.0271	0.0271	0.0271
$\rho$ max	0.0203	0.0203	0.0203	0.0203	0.0203	0.0203
$\rho$ aktual	0.0004	0.0026	0.0026	0.0026	0.0026	0.0004
1.33. $\rho$ perlu	0.0005	0.0035	0.0035	0.0035	0.0035	0.0005
$\rho$ perlu	0.0005	0.0035	0.0035	0.0035	0.0035	0.0005
As perlu (mm <sup>2</sup> )	322.5232	2154.2500	2154.2500	2154.2500	2131.4087	318.0791
As pakai (mm <sup>2</sup> )	1400	2154.25	2154.25	2154.25	2131.40873	1400
D tul (mm)	19	19	19	19	19	19
A1 D.tul	283.385	283.385	283.385	283.385	283.385	283.385
s pokok (mm)	202.418	131.547	131.547	131.547	132.957	202.418
s pakai (mm)	200	130	130	130	130	200
Jarak pakai (mm)	<b>D19 - 200</b>	<b>D19 - 130</b>	<b>D19 - 130</b>	<b>D19 - 130</b>	<b>D19 - 130</b>	<b>D19 - 200</b>
As aktual (mm <sup>2</sup> )	1416.925	2179.885	2179.885	2179.885	2179.885	1416.925
a (mm)	26.672	41.033	41.033	41.033	41.033	26.672
Mn (KNm)	341.289	518.798	518.798	518.798	518.798	341.289
kontrol	AMAN	AMAN	AMAN	AMAN	AMAN	AMAN
kontrol						
D.tul susut (mm)	13	13	13	13	13	13
A1 D.tul susut (mm)	132.665	132.665	132.665	132.665	132.665	132.665
As susut (mm <sup>2</sup> )	1400	1400	1400	1400	1400	1400
s susut (mm)	94.7607	94.7607	94.7607	94.7607	94.7607	94.7607
s pakai (mm)	90	90	90	90	90	90
Jarak tul.ssut (mm)	<b>D13 - 90</b>	<b>D13 - 90</b>	<b>D13 - 90</b>	<b>D13 - 90</b>	<b>D13 - 90</b>	<b>D13 - 90</b>

#### Tul lentur Arah H

qux max (KN/m <sup>2</sup> )	225.256	277.182	277.831	277.371	273.694	222.164
H (m)	1.9	3.6	3.6	3.6	3.6	1.9
h kolom (m)	600	600	600	600	600	600
b kolom(m)	600	600	600	600	600	600
l (m)	0.65	1.5	1.5	1.5	1.5	0.65
Mu (KNm)	47.5854	311.8293	312.5593	312.0420	307.9060	46.9321
Mu/ $\phi$ (KNm)	59.4818	389.7866	390.6991	390.0524	384.8825	58.6652
tebal pelat (h) (m)	700	700	700	700	700	700
Pb (mm)	75	75	75	75	75	75
d (mm)	615.5	615.5	615.5	615.5	615.5	615.5
f'c (Mpa)	25	25	25	25	25	25
fy (Mpa)	400	400	400	400	400	400
$\beta$ 1	0.85	0.85	0.85	0.85	0.85	0.85
m	18.8235	18.8235	18.8235	18.8235	18.8235	18.8235
Rn (Mpa)	0.1570	1.0289	1.0313	1.0296	1.0159	0.1549
$\rho$ min	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035
$\rho$ b	0.0271	0.0271	0.0271	0.0271	0.0271	0.0271
$\rho$ max	0.0203	0.0203	0.0203	0.0203	0.0203	0.0203
$\rho$ aktual	0.0004	0.0026	0.0026	0.0026	0.0026	0.0004
1.33. $\rho$ perlu	0.0005	0.0035	0.0035	0.0035	0.0035	0.0005
$\rho$ perlu	0.0005	0.0035	0.0035	0.0035	0.0035	0.0005
As perlu (mm <sup>2</sup> )	322.5232	2154.2500	2154.2500	2154.2500	2131.4087	318.0791
As pakai (mm <sup>2</sup> )	1400	2154.25	2154.25	2154.25	2131.40873	1400
D tul (mm)	19	19	19	19	19	19
A1 D.tul	283.385	283.385	283.385	283.385	283.385	283.385
s pokok (mm)	202.418	131.547	131.547	131.547	132.957	202.418
s pakai (mm)	200	130	130	130	130	200
Jarak pakai (mm)	<b>D19 - 200</b>	<b>D19 - 130</b>	<b>D19 - 130</b>	<b>D19 - 130</b>	<b>D19 - 130</b>	<b>D19 - 200</b>
As aktual (mm <sup>2</sup> )	1416.925	2179.885	2179.885	2179.885	2179.885	1416.925
a (mm)	26.672	41.033	41.033	41.033	41.033	26.672
Mn (KNm)	341.289	518.798	518.798	518.798	518.798	341.289
kontrol	AMAN	AMAN	AMAN	AMAN	AMAN	AMAN

kontrol						
D.tul susut (mm)	13	13	13	13	13	13
A1 D.tul susut (mm)	132.665	132.665	132.665	132.665	132.665	132.665
As susut (mm <sup>2</sup> )	1400	1400	1400	1400	1400	1400
s susut (mm)	94.7607	94.7607	94.7607	94.7607	94.7607	94.7607
s pakai (mm)	90	90	90	90	90	90
Jarak tul.ssut (mm)	P13 - 90	P13 - 90	P13 - 90	P13 - 90	P13 - 90	P13 - 90













Tul.Lentur Sisi Panjang Arah H

Kolom P1	1971.45	2577.96	2621.76	2622.51	2571.93	1971.34	898.45	2298.24	2205.06	856.7
Mx1 (KNm)	13.56	5.62	10.59	9.78	6.43	12.85	10.26	17.23	15.38	9.15
B (m)	5	5	5	5	5	5	5	5	5	5
H (m)	3	3	3	3	3	3	3	3	3	3
bk (m)	600	600	600	600	600	600	600	600	600	600
hk (m)	600	600	600	600	600	600	600	600	600	600
Bx1 = Bx2 (m)	1.3155	1.3155	1.3155	1.3155	1.3155	1.3155	1.3155	1.3155	1.3155	1.3155
l (m)	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
qu (KN/m <sup>2</sup> )	506.416	656.075	669.692	669.472	654.958	506.028	232.857	591.081	566.532	221.715
Mu (KNm)	364.619	472.374	482.178	482.020	471.569	364.340	167.657	425.578	407.903	159.635
Mu/φ (KNm)	455.774	590.468	602.723	602.525	589.462	455.425	209.571	531.973	509.879	199.544
tebal pelat (h) (m)	800	800	800	800	800	800	800	800	800	800
Pb (mm)	75	75	75	75	75	75	75	75	75	75
d (mm)	715.5	715.5	715.5	715.5	715.5	715.5	715.5	715.5	715.5	715.5
f'c (Mpa)	25	25	25	25	25	25	25	25	25	25
fy (Mpa)	400	400	400	400	400	400	400	400	400	400
m	18.8235	18.8235	18.8235	18.8235	18.8235	18.8235	18.8235	18.8235	18.8235	18.8235
Rn (Mpa)	0.8903	1.1534	1.1773	1.1769	1.1514	0.8996	0.4094	1.0391	0.9960	0.3898
ρb	0.0271	0.0271	0.0271	0.0271	0.0271	0.0271	0.0271	0.0271	0.0271	0.0271
ρ min	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035
ρ max	0.0203	0.0203	0.0203	0.0203	0.0203	0.0203	0.0203	0.0203	0.0203	0.0203
ρ aktual	0.0023	0.0030	0.0030	0.0030	0.0030	0.0023	0.0010	0.0027	0.0026	0.0010
l.33.ρ perlu	0.0030	0.0039	0.0040	0.0040	0.0039	0.0030	0.0014	0.0035	0.0034	0.0013
ρ perlu	0.0030	0.0035	0.0035	0.0035	0.0035	0.0030	0.0014	0.0035	0.0034	0.0013
As pakai (mm <sup>2</sup> )	2164.35904	2504.25	2504.25	2504.25	2504.25	2162.6651	983.46454	2504.25	2427.7526	935.96465
As susut (mm <sup>2</sup> )	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
As pakai (mm <sup>2</sup> )	2164.35904	2504.25	2504.25	2504.25	2504.25	2162.6651	1600	2504.25	2427.7526	1600
D tul (mm)	19	19	19	19	19	19	19	19	19	19
A1 D.tul	283.385	283.385	283.385	283.385	283.385	283.385	283.385	283.385	283.385	283.385
s pokok (mm)	130.933	113.162	113.162	113.162	113.162	131.035	177.116	113.162	116.727	177.116
s pakai (mm)	130	110	110	110	110	130	170	110	110	170
Jarak pakai (mm)	D19 - 130	D19 - 110	D19 - 110	D19 - 110	D19 - 110	D19 - 130	D19 - 170	D19 - 110	D19 - 110	D19 - 170
As aktual (mm <sup>2</sup> )	2179.88	2576.23	2576.23	2576.23	2576.23	2179.88	1666.97	2576.23	2576.23	1666.97
a (mm)	41.03	48.49	48.49	48.49	48.49	41.03	31.38	48.49	48.49	31.38
Mn (KNm)	605.99	712.33	712.33	712.33	712.33	605.99	466.63	712.33	712.33	466.63
kontrol	AMAN	AMAN	AMAN	AMAN	AMAN	AMAN	AMAN	AMAN	AMAN	AMAN
kontrol										
Kolom P2	721.97	755.69	717.64	719.54	760.41	728.73	862.07	1803.52	1824.22	874.48



