

$$A_{s1} = 60980,445 / 4080 = 14,9462 \text{ cm}$$

$$\text{Dicoba pakai tulangan } \phi 25 \rightarrow A_{tul} = 4,908 \text{ cm}^2$$

$$\text{Jumlah tulangan yang dibutuhkan} = \frac{A_{s1}}{A_{tul}} = 3,04 \rightarrow \text{maka diambil}$$

$$\text{jumlah tulangan} = 3 \text{ buah}$$

Kontrol Balok tulangan sebelah

$$A_{s1} = A_{tul} \cdot n_{tul} = 4,908 \cdot 3 = 14,724 \text{ cm}^2$$

$$T_{s1} = A_{s1} \cdot f_y = 9,816 \cdot 4080 = 60073,92 \text{ kg}$$

$$a = \frac{T_{s1}}{0,85 \cdot f'_c \cdot b} = \frac{60073,92}{0,85 \cdot 382,5 \cdot 40} = 4,619 \text{ cm}$$

$$M_1 = 0,85 \cdot f'_c \cdot a \cdot b \cdot \left(d - \frac{a}{2}\right)$$

$$= 0,85 \cdot 382,5 \cdot 4,619 \cdot 40 \cdot \left(81,25 - \frac{4,619}{2}\right) = 4742887,293 \text{ kgcm}$$

$$c = \frac{a}{\beta_1} = \frac{4,619}{0,85} = 5,434 \text{ cm}$$

$$\epsilon_s = \left(\frac{c - d'}{c}\right) \cdot \epsilon_c = \left(\frac{5,434 - 6,25}{5,434}\right) \cdot 0,003 \approx 0$$

→ maka baja desak belum luluh

Komponen tulangan rangkap

$$M_2 = \frac{Mu}{0,8} - M_1$$

$$= \frac{122,094 \times 10^5}{0,8} - 47,42887 \times 10^5 = 10518863 \text{ kgcm}$$

Untuk sementara tulangan desak dianggap leleh dulu, yaitu untuk menentukan jumlah tulangan-rangkap.

$$T_{s2} = C_s = \frac{M_2}{h - d'}$$

$$= \frac{10518863}{81,25 - 8,75} = 145087,7655 \text{ kg}$$

$$T_{s2} = A_{s2} \cdot f_y \rightarrow A_{s2} = \frac{T_{s2}}{f_y}$$

$$= \frac{145087,7655}{4080} = 35,561 \text{ cm}^2$$

Dipakai tulangan dengan ϕ 2,5 cm. $\rightarrow A_{tul} = 4,908 \text{ cm}^2$. Jumlah tulangan

yang dibutuhkan = $\frac{A_{s2}}{A_{tul}} = 7,245 \rightarrow$ diambil jumlah tulangan = 8 buah.

Jumlah tulangan tarik = 11 buah ϕ 2,5 cm $\rightarrow A_s = 53,988 \text{ cm}^2$.

Jumlah tulangan desak = 8 buah ϕ 2,5 cm $\rightarrow A_s' = 39,264 \text{ cm}^2$.

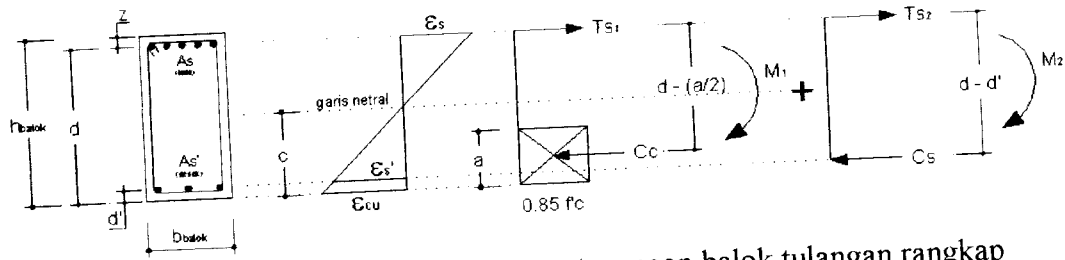
Kontrol jarak tulangan

$$S = \frac{40 - 2(4 + 1) - 6 \cdot 2,5}{5} = \frac{15}{5} = 3 \text{ cm} > 2,5 \text{ cm} \rightarrow \text{ok}$$

Karena tulangan desak belum leleh maka dengan susunan tulangan seperti itu akan dianalisis, apakah dapat menyediakan kuat lentur nominal yang memenuhi kebutuhan

Analisis balok tulangan rangkap dengan tulangan desak belum leleh.

Keseimbangan gaya-gaya horisontal pada balok.



Gambar 6. 5. Diagram regangan tegangan balok tulangan rangkap

$$Ts_1 + Ts_2 = Cc + Cs$$

$$Ast \cdot fy = 0,85 \cdot f'c \cdot a \cdot b + As' \cdot fs$$

$$Ast \cdot fy = 0,85 \cdot f'c \cdot a \cdot b + As' \cdot \epsilon_s \cdot E_s$$

$$Ast \cdot fy = 0,85 \cdot f'c \cdot a \cdot b + As' \cdot \frac{a - \beta_1 \cdot d'}{a} \cdot \epsilon_c \cdot E_s$$

$$11 \cdot 4,908 \cdot 4080 = 0,85 \cdot 382,5 \cdot a \cdot 40 + 8 \cdot 4,908 \cdot \frac{a - 0,85 \cdot 6,25}{a} \cdot 0,003 \cdot 2100000$$

diambil akar-akarnya nilai a.

$$a = 9,066 \text{ cm}$$

$$c = \frac{a}{\beta_1} = \frac{9,066}{0,85} = 10,665 \text{ cm}$$

$$\epsilon_s = \left(\frac{c - d'}{c} \right) \cdot \epsilon_c = \left(\frac{10,665 - 6,25}{10,665} \right) \cdot 0,003 = 0,00124$$

→ maka baja desak belum luluh

$$fs' = \epsilon_s \cdot E_s = 0,00124 \cdot 2100000 = 2608,538 \text{ kg/cm}^2$$

$$M_1 = 0,85 \cdot f'c \cdot a \cdot b \cdot \left(d - \frac{a}{2} \right)$$

$$= 0,85 \cdot 382,5 \cdot 9,066 \cdot 40 \cdot \left(81,25 - \frac{9,066}{2} \right) = 9045189,768 \text{ kgcm}$$

$$M_2 = (A_{nu1} \cdot n_{nu1}) \cdot f_s' \cdot (d - d')$$

$$= (4,908 \cdot 8) \cdot 2608,538 \cdot (81,25 - 6,25) = 7681622,702 \text{ kgcm}$$

$$M_n = M_1 + M_2 = 9045189,768 + 7681622,702 = 16726812,47 \text{ kgcm}$$

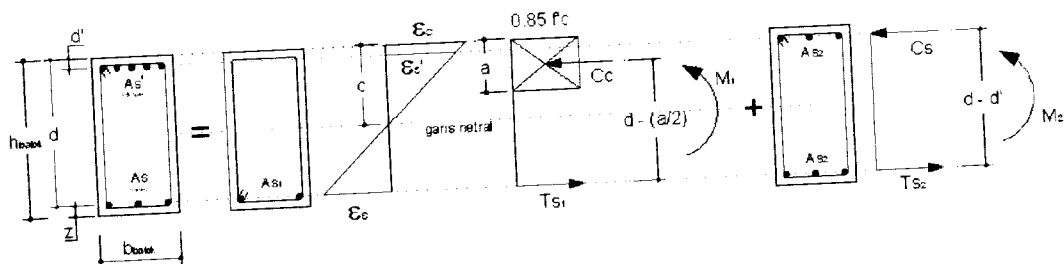
$$M_u = Mn \cdot \phi = 167,268147 \cdot 0,8 = 133,81449 \text{ tm}$$

→ aman! $M_u > M_{tumpuan}$ (122,094 tm)

Kontrol kuat lentur momen positif

Dalam hal ini 8D25 akan berfungsi sebagai tulangan tarik dan 11D25 gantian menjadi tulangan desak. Kondisinya akan sama dengan diatas yaitu analisis balok tulangan rangkap dengan tulangan desak belum leleh.

Persamaan keseimbangan gaya horizontal.



Gambar 6. 6 Tegangan regangan dan momen kopel pada balok tulangan rangkap baja desak belum leleh

$$T_s = C_c + C_s$$

$$A_s' \cdot f_y = 0,85 \cdot f_c' \cdot a \cdot b + A_s \cdot \frac{a - \beta_1 \cdot d}{a} \cdot \epsilon_c \cdot E_s$$

$$8 \cdot 4,908 \cdot 4080 = 0,85 \cdot a \cdot 382,5 \cdot 40 + 11 \cdot 4,908 \cdot \frac{a - 0,85 \cdot 81,25}{a} \cdot 0,003 \cdot 2100000$$

diambil akar-akar untuk nilai a nya.

$$a = 13,599 \text{ cm}$$

$$c = a/0,85 = 13,599/0,85 = 15,9988 \text{ cm}$$

$$\epsilon_s = \left(\frac{c-d'}{c} \right) \cdot \epsilon_c = \left(\frac{15,9988 - 8,75}{15,9988} \right) \cdot 0,003 = 0,00135$$

→ maka baja belum desak luluh

$$f_s' = \epsilon_s \cdot E_s = 0,00135 \cdot 2100000 = 2835 \text{ kg/cm}^2$$

$$M_1 = 0,85 \cdot f_s' \cdot c \cdot a \cdot b \cdot \left((h-d') - \frac{a}{2} \right)$$

=

$$0,85 \cdot 382,5 \cdot 13,599 \cdot 40 \cdot \left((90 - 6,25) - \frac{13,599}{2} \right) = 13609354,289 \text{ kgcm}$$

$$M_2 = A_s' \cdot f_s' \cdot \left((h-d') - z \right)$$

$$= 11 \cdot 4,908 \cdot 2835 \cdot \left((90 - 6,25) - 8,75 \right) = 11479198,5 \text{ kgcm}$$

$$M_n = M_1 + M_2 = 136,09 + 114,791 = 250,881 \text{ tm}$$

$$M_u = M_n \cdot \phi = 250,881 \cdot 0,8 = 200,705 \text{ tm}$$

→ aman! $M_u > M_{\text{tumpuan}}^+ (101,67 \text{ Tm})$

Tulangan susut

$$A_s = 0,002 \cdot b \cdot h = 0,002 \cdot 40 \cdot 90 = 7,2 \text{ cm}^2$$

$$\text{Dicoba pakai tulangan } \phi 13 \rightarrow A_{\text{tul}} = 1,327 \text{ cm}^2$$

$$\text{Jumlah tulangan yang dibutuhkan} = \frac{A_s}{A_{\text{tul}}} = 5,427 \rightarrow \text{maka diambil}$$

jumlah tulangan = 6 buah

$$\text{Tul}_1 \text{ lapis} = b - \frac{55}{D} + 25 = 35 - \frac{10}{2,5} + 2,5 = 5$$

→ dipakai tul 1 lapis = 4.

2. Tulangan lapangan

Data input

$$Mu^+ = 89,4297 \text{ tm}$$

$$Mu^- = 142,5678 \text{ tm}$$

$$f'c = 30 \text{ MPa} = 382,5 \text{ kg/cm}^2$$

$$fy = 400 \text{ MPa} = 4080 \text{ kg/cm}^2$$

Penyelesaian :

$$\begin{aligned} d' &= D_{tul-pokok} + D_{bege} + Pb \\ &= 0,5 \cdot 2,5 + 1 + 4 = 6,25 \text{ cm} \end{aligned}$$

$$\varepsilon_y = \frac{fy}{Es} = \frac{4080}{2100000} = 0,00194$$

$$\begin{aligned} m &= \frac{fy}{0,85 \cdot f'c} \\ m &= \frac{4080}{0,85 \cdot 382,5} = 12,54901 \end{aligned}$$

$$\begin{aligned} \rho_{balance} &= \frac{\beta \cdot \varepsilon_c}{m \cdot \varepsilon_c + \varepsilon_y} \\ \rho_{balance} &= \frac{0,85 \cdot 0,003}{12,549 \cdot 0,003 + 0,00194} = 0,0411 \end{aligned}$$

$$\rho_m = 0,75 \cdot \rho_b = 0,75 \cdot 0,0411 = 0,031$$

$$\begin{aligned} R_b &= \rho_b \cdot fy \cdot (1 - 0,5 \cdot \rho_b \cdot m) \\ &= 0,0411 \cdot 4080 \cdot (1 - 0,5 \cdot 0,0411 \cdot 12,54901) = 124,444 \text{ kg/cm}^2 \end{aligned}$$

$$R_m = 0,75 \cdot R_b = 0,75 \cdot 124,444 = 93,333 \text{ kg/cm}^2$$

$$b_{balok} = \frac{M/0,8}{\sqrt[3]{4 \cdot R_m}} = \sqrt[3]{\frac{89,4297 \cdot 10^5 / 0,8}{4 \cdot 93,333}} = 31,05 \text{ cm}$$

maka dipakai b balok = 40 cm

$$\begin{aligned} z &= D_{tul-pokok} + D_{begei} + Pb + 0,5 \cdot D_{tul-pokok} \\ &= 2,5 + 1 + 4 + \frac{1}{2} \cdot 2,5 = 8,75 \text{ cm} \end{aligned}$$

$$h_t = 2 \cdot b_{balok-pakai} + z = 2 \cdot 40 + 8,75 = 90 \text{ cm}$$

maka tinggi balok yang digunakan adalah sebesar = 90 cm

$$d = h_{balok-pakai} - z = 90 - 8,75 = 81,25 \text{ cm}$$

Desain tulangan sebelah

Nilai koefisien = 0,20

$$R_1 = koef \cdot R_b = 0,20 \cdot 124,444 = 24,888 \text{ kg/cm}^2$$

$$M_1 = R_1 \cdot b \cdot d^2 = 24,888 \cdot 40 \cdot 81,25^2 = 6572198,75 \text{ kgcm}$$

$$M_1 = 0,85 \cdot f'c \cdot a \cdot b \left(d - \frac{a}{2} \right) \quad (\text{diambil dari diagram momen kopel})$$

$$6572198,75 = 0,85 \cdot 382,5 \cdot a \cdot 40 \cdot \left(81,25 - \frac{a}{2} \right) \quad (\text{diambil akar-akar nilai a})$$

$$a = 5,998 \text{ cm}$$

$$c = \frac{a}{\beta_1} = \frac{5,998}{0,85} = 7,0564 \text{ cm}$$

$$\varepsilon_s = \frac{(c - d')}{c} \cdot \varepsilon_c \approx 0 \quad \rightarrow \text{maka baja desak belum luluh}$$

$$C_c = 0,85 \cdot f'c \cdot a \cdot b = 0,85 \cdot 382,5 \cdot 5,998 \cdot 40 = 78003,99 \text{ kg}$$

$$A_{s1} = \frac{C_c}{f_y} = \frac{78003,99}{4080} = 19,1186 \text{ cm}^2$$

$$\text{Dicoba pakai tulangan } \phi 2,5 \rightarrow A_{tul} = 4,908 \text{ cm}^2$$

Jumlah tulangan yang dibutuhkan = $\frac{As_1}{A_{tul}} = 3,89 \rightarrow$ maka diambil jumlah

tulangan = 4 buah

Kontrol Balok tulangan sebelah

$$As_1 = A_{tul} \cdot n_{tul} = 4,908 \cdot 4 = 19,632 \text{ cm}^2$$

$$Ts_1 = As_1 \cdot fy = 19,632 \cdot 4080 = 80098,56 \text{ kg}$$

$$a = \frac{Ts_1}{0,85 \cdot f'c \cdot b} = \frac{80098,56}{0,85 \cdot 382,5 \cdot 40} = 6,159 \text{ cm}$$

$$M_1 = 0,85 \cdot f'c \cdot a \cdot b \cdot \left(d - \frac{a}{2}\right)$$

$$= 0,85 \cdot 382,5 \cdot 6,159 \cdot 40 \cdot \left(81,25 - \frac{6,159}{2}\right) = 6261284,684 \text{ kgcm}$$

$$c = \frac{a}{\beta_1} = \frac{6,159}{0,85} = 7,2458 \text{ cm}$$

$$\epsilon_s = \left(\frac{c - d'}{c}\right) \cdot \epsilon_c = \left(\frac{7,2458 - 6,25}{7,2458}\right) \cdot 0,003 \approx 0$$

\rightarrow maka baja desak belum luluh

Komponen tulangan rangkap

$$M_2 = \frac{Mu}{0,8} - M_1 = \frac{89,4297 \cdot 10^5}{0,8} - 6261284,684 = 4917427 \text{ kgcm}$$

$$Ts_2 = \frac{M_2}{d - d'} = \frac{4917427}{81,25 - 6,25} = 65565,693 \text{ kg}$$

$$As_2 = \frac{Ts_2}{fy} = \frac{65565,693}{4080} = 16,07 \text{ cm}^2$$

Dipakai tulangan dengan ϕ 25 mm. $\rightarrow A_{tul} = 4,908 \text{ cm}^2$. Jumlah tulangan

yang dibutuhkan = $\frac{As_2}{A_{tul}} = 3,274 \rightarrow$ diambil jumlah tulangan = 4 buah.

Jumlah tulangan tarik = 8 buah ϕ 25 mm \rightarrow $A_s = 39,264 \text{ cm}^2$.

Jumlah tulangan desak = 4 buah ϕ 25 mm \rightarrow $A_s' = 19,632 \text{ cm}^2$.

Dengan analisis balok tulangan rangkap dengan tulangan desak belum leleh.

Keseimbangan gaya-gaya horisontal pada balok.

$$T_{s_1} + T_{s_2} = C_c + C_s$$

$$A_{st} \cdot f_y = 0,85 \cdot f'_c \cdot a \cdot b + A_{s'} \cdot f_s'$$

$$A_{st} \cdot f_y = 0,85 \cdot f'_c \cdot a \cdot b + A_s \cdot \varepsilon_s \cdot E_s$$

$$A_{st} \cdot f_y = 0,85 \cdot f'_c \cdot a \cdot b + A_s \cdot \frac{a - \beta_1 \cdot d'}{a} \cdot \varepsilon_c \cdot E_s$$

$$39,264 \cdot 4080 = 0,85 \cdot 382,5 \cdot a \cdot 40 + 19,632 \cdot \frac{a - 0,85 \cdot 6,25}{a} \cdot 0,003 \cdot 2100000$$

diambil akar-akarnya nilai a.

$$a = 8,65 \text{ cm}$$

$$c = \frac{a}{\beta_1} = \frac{8,65}{0,85} = 10,1764 \text{ cm}$$

$$\varepsilon_s = \left(\frac{c - d'}{c} \right) \cdot \varepsilon_c = \left(\frac{10,1764 - 6,25}{10,1764} \right) \cdot 0,003 = 0,00115$$

\rightarrow maka baja desak belum luluh

$$f_s' = \varepsilon_s \cdot E_s = 0,00115 \cdot 2100000 = 2415 \text{ kg/cm}^2$$

$$M_1 = 0,85 \cdot f'_c \cdot a \cdot b \cdot \left(d - \frac{a}{2} \right)$$

$$= 0,85 \cdot 382,5 \cdot 8,65 \cdot 40 \cdot \left(81,25 - \frac{8,65}{2} \right) = 8653543,256 \text{ kgcm}$$

$$M_2 = (A_{tul} \cdot n_{tul}) \cdot f_s' \cdot (d - d')$$

$$= (4,908 \cdot 4) \cdot 2415 \cdot (81,25 - 6,25) = 3555846 \text{ kgcm}$$

$$M_n = M_1 + M_2 = 86,5354 + 35,558 = 122,09343 \text{ tm}$$

$$M_u = Mn \cdot \phi = 122,09343 \cdot 0,8 = 97,6747 \text{ tm}$$

→ aman! $M_u > M_{\text{lapangan}}^+$ (89,2497 Tm)

Kontrol kuat lentur momen negatif

Persamaan keseimbangan gaya horisontal

$$T_s = C_c + C_s$$

$$As' \cdot f_y = 0,85 \cdot f'_c \cdot a \cdot b + As \cdot \frac{a - \beta_1 \cdot d}{a} \cdot \epsilon_c \cdot E_s$$

$$19,632 \cdot 4080 = 0,85 \cdot 382,5 \cdot a \cdot 40 + 39,264 \cdot \frac{a - 0,85 \cdot 81,25}{a} \cdot 0,003 \cdot 2100000$$

diambil akar-akar untuk nilai a nya.

$$a = 13,367 \text{ cm}$$

$$c = \frac{a}{0,85} = \frac{13,367}{0,85} = 15,72588 \text{ cm}$$

$$\epsilon_s = \left(\frac{c - d'}{c} \right) \cdot \epsilon_c = \left(\frac{15,72588 - 8,25}{15,7258} \right) \cdot 0,003 = 0,0018$$

→ maka baja desak belum luluh

$$f_s' = \epsilon_s \cdot E_s = 0,0018 \cdot 2100000 = 3907 \text{ kg/cm}^2$$

$$\begin{aligned} M_1 &= 0,85 \cdot f'_c \cdot a \cdot b \cdot \left((h - d') - \frac{a}{2} \right) \\ &= 0,85 \cdot 382,5 \cdot 13,367 \cdot 40 \cdot \left((90 - 8,25) - \frac{13,367}{2} \right) = 13049397,84 \text{ tm} \end{aligned}$$

$$\begin{aligned} M_2 &= As' \cdot f_s' \cdot \left((h - d') - z \right) \\ &= 19,632 \cdot 3907 \cdot \left((90 - 8,25) - 6,25 \right) = 5790634 \text{ tm} \end{aligned}$$

$$M_n = M_1 + M_2 = 130,4939784 + 57,90634 = 188,4 \text{ tm}$$

$$M_u = Mn \cdot \phi = 130,4939 \cdot 0,8 = 150,7202 \text{ tm}$$

→ aman! $M_u > M_{\text{lapangan}}^-$

Tulangan Susut

$$A_s = 0,002 \cdot b \cdot h = 0,002 \cdot 40 \cdot 90 = 7,2 \text{ cm}^2$$

$$\text{Dicoba pakai tulangan } \phi 13 \rightarrow A_{tul} = 1,3273 \text{ cm}^2$$

$$\text{Jumlah tulangan yang dibutuhkan} = \frac{A_s}{A_{tul}} = 5,424 \rightarrow \text{maka diambil}$$

jumlah tulangan = 6 buah

$$\text{Tul}_1 \text{ lapis} = \frac{b - 55}{D + 25} = \frac{40 - 5,5}{2,5 + 2,5} = 6,9$$

\rightarrow dipakai tul 1 lapis = 6

Momen kapasitas balok

1. Momen kapasitas negatif (M_{kap})

Data input (Lampiran T3.1):

$$M_u = 122,094 \text{ Tm}$$

$$f'_c = 382,5 \text{ kg/cm}^2$$

$$f_y = 4080 \text{ kg/cm}^2$$

$$z = 8,75 \text{ cm (rangkap)}$$

$$\sum \text{tul tarik} = 11 \text{ buah tulangan}$$

$$D \text{ tul tarik} = 25 \text{ mm}$$

$$\sum \text{tul desak} = 8 \text{ buah tulangan}$$

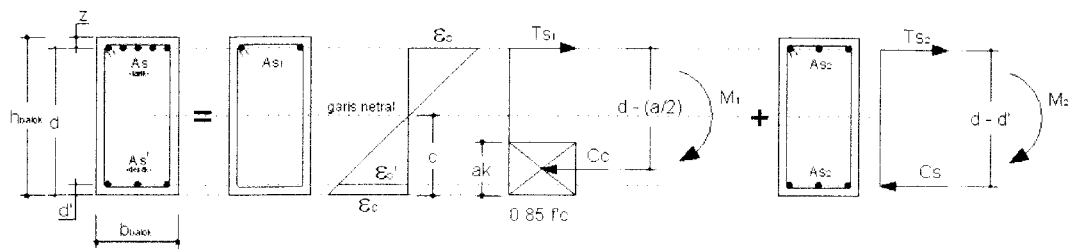
$$D \text{ tul desak} = 25 \text{ mm}$$

$$\epsilon_c = 0,003$$

$$E_s = 2100000$$

$$d' = 6,25 \text{ cm}$$

Penyelesaian :



Gambar 6. 7. Tegangan regangan dan momen kopel pada momen kapasitas balok (negatif)

$$\begin{aligned}
 A_{s \text{ ada}} &= \sum \text{tul tarik} \cdot A \text{ tul tarik} \\
 &= 11 \cdot 4,908 = 53,988 \text{ cm}^2
 \end{aligned}$$

$$\begin{aligned}
 A_{s' \text{ ada}} &= \sum \text{tul desak} \cdot A \text{ tul desak} \\
 &= 8 \cdot 4,908 = 39,264 \text{ cm}^2
 \end{aligned}$$

$$\begin{aligned}
 a_k &= \frac{(A_{s \text{ ada}} \times \phi_0 - A_{s' \text{ ada}}) \times f_y}{0,85 \times f'c \times b} \\
 &= \frac{(53,988 \times 1,25 - 39,264) \times 4080}{0,85 \times 382,5 \times 40} = 8,85 \text{ cm}
 \end{aligned}$$

$$\begin{aligned}
 c_k &= \frac{a_k}{0,85} \\
 &= \frac{8,85}{0,85} = 10,416 \text{ cm}
 \end{aligned}$$

$$\begin{aligned}
 \epsilon_s &= \left(\frac{(c_k - d')}{c_k} \right) \cdot \epsilon_c \\
 &= \left(\frac{(10,415 - 6,25)}{10,415} \right) \cdot 0,003 = 0,00119 < 0,001943
 \end{aligned}$$

Ternyata, maka baja desak belum luluh.

$$\begin{aligned}
 C_c &= 0,85 \cdot f'c \cdot a \cdot b \\
 &= 0,85 \cdot 382,5 \cdot (0,85 \cdot c) \cdot 40 = 11054,25c \text{ kg}
 \end{aligned}$$

$$C_s = A s'_{ada} \times \frac{c - d'}{c} \times \epsilon_s \cdot E_s =$$

$$39,264 \times \frac{c - 6,25}{c} \times 0,003 \times 2100000$$

$$= 247363,2 \times \frac{c - 59,5}{c} \text{ kg}$$

$$T_s = \Phi_0 \cdot A s_{ada} \cdot f_y$$

$$= 1,25 \cdot 53,988 \cdot 4080 = 275338,8 \text{ ton}$$

$$C_c + C_s - T_s = 0$$

$$11054,25c + 247363,2 \times \frac{c - 6,25}{c} - 275338,8 = 0$$

Nilai c didapat dengan menggunakan rumus persamaan kuadrat, maka didapat :

$$c_1 = 13,159 \text{ cm}$$

$$c_2 = -10,62 \text{ cm}$$

maka nilai c yang dipakai adalah $c = c_1 = 13,159 \text{ cm}$

$$a = 0,85 \cdot c = 0,85 \cdot 13,159 = 11,18515 \text{ cm}$$

$$\epsilon_s = \frac{c - d'}{c} \times 0,003 = \frac{13,159 - 6,25}{13,159} \times 0,003 = 0,00157 < 0,00194$$

Maka $f_s'_{pakai} = 3307,751 \text{ kg/cm}^2$

$$M_{kap} = M_1 + M_2$$

$$= 0,85 \cdot f'c \cdot a \cdot b \cdot \left(d - \frac{a}{2}\right) + A s'_{ada} \cdot f_s'_{pakai} \cdot (d - d')$$

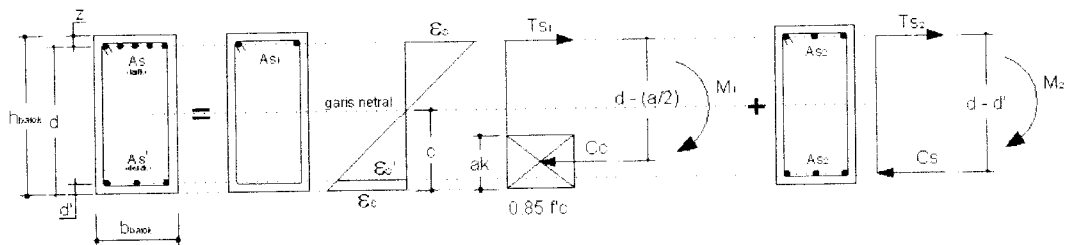
$$= 0,85 \cdot 382,5 \cdot 11,18515 \cdot 40 \cdot \left(81,25 - \frac{11,18515}{2}\right) +$$

$$39,264 \cdot 3307,751 \cdot (81,25 - 6,25)$$

$$= 20746011,76 \text{ kgcm} = 207,4601176 \text{ tm}$$

2. Momen kapasitas Positif (M_{kap}^+)

Pada hitungan M_{kap}^+ , nilai z menjadi d' dan nilai d' menjadi nilai z .



Gambar 6.8. Tegangan regangan pada momen kapasitas balok (positif)

$$A_s = 39,264 \text{ cm}^2$$

$$A_s' = 53,988 \text{ cm}^2$$

$$C_c = 0,85 \cdot f'_c \cdot a \cdot b = 0,85 \cdot 382,5 \cdot (0,85 \cdot c) \cdot 40 = 11054,25c \text{ kg}$$

$$\begin{aligned} C_s &= A_s' \cdot a_d \times \frac{c-d'}{c} \times \epsilon_s \cdot E_s = 53,988 \times \frac{c-8,25}{c} \times 0,003 \times 2100000 \\ &= 340124,4 \times \frac{c-8,25}{c} \text{ kg} \end{aligned}$$

$$\begin{aligned} T_s &= \Phi_0 \cdot A_s \cdot f_y \\ &= 1,25 \cdot 39,264 \cdot 4080 = 200246,4 \end{aligned}$$

$$C_c + C_s - T_s = 0$$

$$11054,25c + 340124,4 \times \frac{c-8,25}{c} - 200246,4 = 0$$

Nilai c didapat dengan menggunakan rumus persamaan kuadrat, maka didapat :

$$c_1 = 10,8157 \text{ cm}$$

$$c_2 = -23,4695 \text{ cm}$$

maka nilai c yang dipakai adalah $c = c_1 = 10,8157 \text{ cm}$

$$a = 0,85 \cdot c = 0,85 \cdot 10,8157 \text{ cm} = 9,193345 \text{ cm}$$

$$\epsilon_s = \frac{c - d'}{c} \times 0,003 = \frac{9,193345 - 6,25}{9,193345} \times 0,003 = 0,00096 <$$

0,00194

$$\text{Maka } f_s'_{\text{pakai}} = \epsilon_s \cdot E_s = 2016 \text{ kg/cm}^2$$

$$\begin{aligned} M_{\text{kap}}^+ &= 0,85 \cdot f'_c \cdot a \cdot b \cdot \left(d - \frac{a}{2}\right) + A_s'_{\text{ada}} \cdot f_s'_{\text{pakai}} \cdot (d - d') \\ &= 0,85 \cdot 382,5 \cdot 9,193345 \cdot 40 \cdot \left(81,25 - \frac{9,193345}{2}\right) + \\ &= 53,988 \cdot 2016 \cdot (81,25 - 6,25) \end{aligned}$$

T_m

Perhitungan Sengkang Balok

Data input (lampiran T3.3):

$$M_{\text{kap}}^- = 207,4601 \text{ Tm}$$

$$M_{\text{kap}}^+ = 173,276 \text{ Tm}$$

$$f'_c = 382,5 \text{ kg/cm}^2$$

$$f_y = 4080 \text{ kg/cm}^2$$

$$b_{\text{balok}} = 40 \text{ cm}$$

$$h_{\text{balok}} = 90 \text{ cm}$$

$$L_{\text{balok}} = 600 \text{ cm}$$

$$V_{D,\text{tmpn}} = 57,68761 \text{ ton (ETABS)}$$

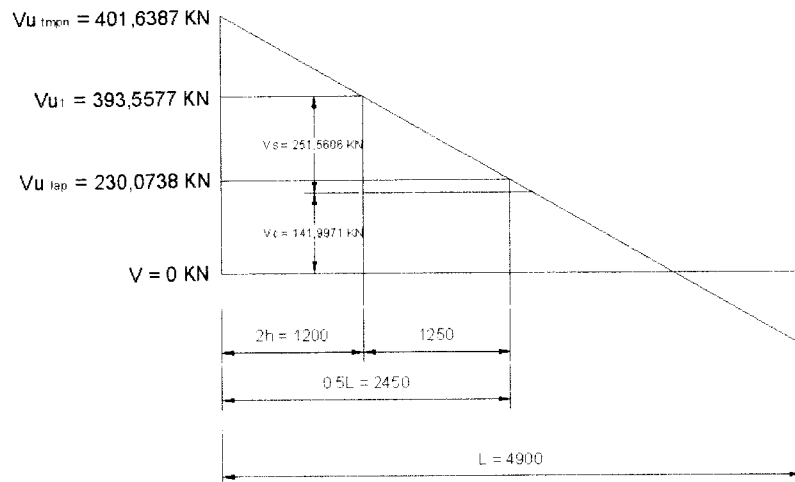
$$V_{L,\text{tmpn}} = 21,9749 \text{ ton (ETABS)}$$

$$V_{E,\text{tmpn}} = 138,292 \text{ ton (ETABS)}$$

$$V_{D,\text{lap}} = 47,2977 \text{ ton (ETABS)}$$

$$V_{L,\text{lap}} = 21,9749 \text{ ton (ETABS)}$$

$$V_{E,\text{lap}} = 138,292 \text{ ton (ETABS)}$$



Gambar 6. 5. Gaya geser yang terjadi pada balok B1 (story 1)

$$\begin{aligned}
 V_{G,tmpn} &= V_{D,tmpn} + V_{L,tmpn} \\
 &= 57,68761 + 21,9749 = 79,66251 \text{ ton}
 \end{aligned}$$

$$\begin{aligned}
 V_{G,lap} &= V_{D,lap} + V_{L,lap} \\
 &= 47,2977 + 21,9749 = 69,27255 \text{ ton}
 \end{aligned}$$

$$\begin{aligned}
 V_{u,tmpn} &= \frac{0,7 \times (M_{kap}^- + M_{kap}^+)}{Ln} + 1,05 \times V_{G,tmpn} \\
 &= \frac{0,7 \times (207,4601 + 173,276)}{5,4} + 1,05 \times 79,66251 \\
 &= 133 \text{ ton}
 \end{aligned}$$

$$\begin{aligned}
 V_{max,tmpn} &= 1,05 \times (V_{D,tmpn} + V_{L,tmpn} + \frac{4}{k} \times V_{E,tmpn}) \\
 &= 1,05 \cdot (57,68761 + 21,9749 + \frac{4}{1} \cdot 138,292) \\
 &= 664,4720 \text{ ton}
 \end{aligned}$$

Vu rencana di daerah tumpuan diambil yang terkecil antara $V_{u,tmpn}$ dengan $V_{max,tmpn}$. Maka, Vu rencana di daerah tumpuan adalah 133 ton.

Selanjutnya V_u rencana ini digunakan untuk menghitung kebutuhan sengkang balok di daerah dalam sendi plastis.

$$\begin{aligned} V_{u, lap} &= \frac{0,7 \times (M_{kap}^- + M_{kap}^+)}{Ln} + 1,05 \times V_{G, lap} \\ &= \frac{0,7 \times (207,4601 + 173,276)}{5,4} + 1,05 \times 69,27255 \\ &= 122,091 \text{ ton} \end{aligned}$$

$$\begin{aligned} V_{max, lap} &= 1,05 \times (V_{D, lap} + V_{L, lap} + \frac{4}{k} \times V_{E, lap}) \\ &= 1,05 \cdot (47.29765 + 21.9749 + \frac{4}{1} \cdot 138,929) = 653,5626 \text{ ton} \end{aligned}$$

V_u rencana di daerah lapangan diambil yang terkecil antara $V_{u, lap}$ dengan $V_{max, lap}$. Maka, V_u rencana di daerah lapangan adalah 122,091 ton

Selanjutnya V_u rencana ini digunakan untuk menghitung kebutuhan sengkang balok di daerah luar sendi plastis.

a. Sengkang dalam sendi plastis (dalam $2h_{balok}$)

$$V_{u, rencana} = 133 \text{ ton}$$

$$V_s = \frac{V_{u, rencana}}{\phi} = \frac{133}{0,6} = 221,6667 \text{ ton}$$

$$\begin{aligned} \text{Pakai sengkang P12 (3kaki)} \rightarrow A_v &= 3 \cdot (1/4) \cdot \pi \cdot 1,3^2 \\ &= 3,9799 \text{ cm}^2 \end{aligned}$$

$$d = 81,25 \text{ cm}$$

$$\begin{aligned} S_1 &= \frac{A_v \times f_y \times d}{V_s} \\ &= \frac{3,394286 \times 2448 \times 81,25}{221,6667 \cdot 10^3} = 10,23876 \text{ cm} \end{aligned}$$

$$\begin{aligned} S_2 &= d/4 \\ &= 81,25/4 = 20,3125 \text{ cm} \end{aligned}$$

$$\begin{aligned} S_3 &= 8 \cdot D_{\text{tul pokok}} \\ &= 8 \cdot 2,5 = 20 \text{ cm} \end{aligned}$$

$$\begin{aligned} S_4 &= 24 \cdot D_{\text{tul sengkang}} \\ &= 24 \cdot 1,2 = 28,8 \text{ cm} \end{aligned}$$

$$S_5 = \frac{1600 \times f_y \times A_v}{(A_1 + A_2) \times f_y}$$

Keterangan rumus S_5 adalah :

f_y = kuat leleh tulangan longitudinal, MPa.

A_v = luas satu kaki dari tulangan transversal, mm^2 .

A_1 = luas tulangan longitudinal atas, mm^2 .

A_2 = luas tulangan longitudinal bawah, mm^2 .

$$= \frac{1600 \times 240 \times 339,4286}{(283,53 + 283,53) \times 400} = 31,895 \text{ cm}$$

$$S_6 = 20 \text{ cm}$$

Nilai S_1 dibandingkan dengan S_2 , S_3 , S_4 , S_5 dan S_6 . Jarak sengkang tidak boleh melebihi dari nilai S_2 , S_3 , S_4 , S_5 dan S_6 . **(SKSNI T-15-1991-03)**. Jadi, sengkang yang dipasang di daerah dalam sendi plastis adalah 3P13-100.

b. Sengkang di luar sendi plastis

$$V_{u,\text{rencana}} = \frac{\left(\frac{Ln}{2} - 2h_{\text{balok}}\right) \times (V_{U,\text{tumpuan}} - V_{U,\text{lapan}})}{\frac{Ln}{2}} + V_{U,\text{lapan}}$$

$$= \frac{\frac{540}{2} - 2 \times 90 \times (133 - 122,091)}{\frac{540}{2}} + 122,091$$

$$= 125,72733 \text{ ton}$$

$$V_c = \frac{1}{6} \times \sqrt{f'c} \times b \times d = \frac{1}{6} \times \sqrt{382,5} \times 40 \times 81,25 = 10,5937 \text{ ton}$$

$$V_s = \frac{V_{u, rencana}}{\phi} - V_c$$

$$= \frac{125,72733}{0,6} - 10,5937 = 198,95185 \text{ ton}$$

Pakai sengkang P12 (2kaki) $\rightarrow A_v = 2 \cdot (1/4) \cdot \pi \cdot 1,3^2$

$$= 2,65 \text{ cm}^2$$

$$d = 81,25 \text{ cm}$$

$$S_1 = \frac{A_v \times f_y \times d}{V_s} = \frac{2,65 \times 2448 \times 81,25}{18,95185 \times 10^3} = 10,7647 \text{ cm}$$

$$S_2 = d/2 = 518,5/2 = 259,25 \text{ mm}$$

$$S_3 = 600 \text{ mm}$$

Nilai S_1 dibandingkan dengan S_2 dan S_3 . Jarak sengkang tidak boleh melebihi dari nilai S_2 dan S_3 . (SKSNI 3.4.5-4).

Jadi, sengkang yang dipasang di daerah luar sendi plastis adalah 2P12-100.

6.4. Perencanaan kolom

6.4.1. Momen rencana kolom

Pada perhitungan kolom dibawah ini, kolom yang didisain sebagai contoh adalah kolom K1 pada Portal 6.

Story 1 (Joint 1 - kolom tepi kiri). Hasil dilampirkan pada Tabel T3.4 - T3.7

Data input:

$$M_{\text{kap}^+, \text{balok kanan}} = 555,5621 \text{ Tm} \quad M_{\text{kap}^-, \text{balok kanan}} = 720,3262$$

Tm

$$M_{\text{kap}^+, \text{balok kiri}} = 0 \text{ Tm} \quad M_{\text{kap}^-, \text{balok kiri}} = 0 \text{ Tm}$$

$$L_{\text{balok kanan}} (L_a) = 6000 \text{ m} \quad L_{n \text{ balok kanan}} (L'a) = 4900 \text{ m}$$

$$L_{\text{balok kiri}} (L_i) = 0 \text{ m} \quad L_{n \text{ balok kiri}} (L'i) = 0 \text{ m}$$

$$E_c = 25742,96 \text{ MPa} \quad b_{\text{balok}} = 300 \text{ mm}$$

$$h_{\text{balok}} = 600 \text{ mm} \quad b_{\text{kolom, atas joint 1}} = 1100 \text{ mm}$$

$$h_{\text{kolom, atas joint 1}} = 1100 \text{ mm} \quad b_{\text{kolom, bawah joint 1}} = 1100 \text{ mm}$$

$$h_{\text{kolom, bawah joint 1}} = 1100 \text{ mm} \quad H_{\text{kolom, atas joint 1}} (H_a) = 4 \text{ m}$$

$$H_{\text{kolom, bawah joint 1}} (H_b) = 6 \text{ m} \quad H'_{\text{kolom, atas joint 1}} (H'a) = 3,4 \text{ m}$$

$$H'_{\text{kolom, bawah joint 1}} (H'b) = 5,7 \text{ m} \quad k = 1$$

$$M_{D \text{ kolom, atas joint 1}} (M_{D,a}) = 54,80007 \text{ Tm (ETABS)}$$

$$M_{D \text{ kolom, bawah joint 1}} (M_{D,b}) = 33,31359 \text{ Tm (ETABS)}$$

$$M_{L \text{ kolom, atas joint 1}} (M_{L,a}) = 13,08876 \text{ Tm (ETABS)}$$

$$M_{L \text{ kolom, bawah joint 1}} (M_{L,b}) = 7,423412 \text{ Tm (ETABS)}$$

$$M_{E \text{ kolom, atas joint 1}} (M_{E,a}) = 191,5681 \text{ Tm (ETABS)}$$

$$M_{E \text{ kolom, bawah joint 1}} (M_{E,b}) = 41,47684 \text{ Tm (ETABS)}$$

$$\omega \text{ (magnification factor)} = 1 \quad \phi_0 \text{ (overstrenght factor)} = 1,25$$

Penyelesaian :

Hitungan inersia (I) kolom:

$$I_{\text{kolom, atas joint 1}} = (1/12) \cdot b_{\text{kolom, atas joint 1}} \cdot (h_{\text{kolom, atas joint 1}})^3$$

$$= (1/12) \cdot 1100 \cdot 1100^3 = 1,22E+11 \text{ mm}^4$$

$$I_{\text{kolom, bawah joint 1}} = (1/12) \cdot b_{\text{kolom, bawah joint 1}} \cdot (h_{\text{kolom, bawah joint 1}})^3$$

$$= (1/12) \cdot 1100 \cdot 1100^3 = 1,22E+11 \text{ mm}^4$$

Hitungan kekakuan (K) kolom :

$$K_{\text{kolom, atas joint 1}} (K_a) = (E \cdot I) / H_{\text{kolom, atas joint 1}}$$

$$= (25742,96 \cdot 1,22E+11) / 4 = 6,1E+15$$

$$K_{\text{kolom, bawah joint 1}} (K_b) = (E \cdot I) / H_{\text{kolom, bawah joint 1}}$$

$$= (25742,96 \cdot 1,22E+11) / 6 = 4,067E+15$$

Hitungan nilai α (faktor distribusi momen kolom portal yang ditinjau sesuai dengan kekakuan relatif kolom atas dan kolom bawah. (Gideon 3, 1993).

$$\alpha_{\text{kolom, atas joint 1}} (\alpha_a) = K_a / (K_a + K_b)$$

$$= 6,1E+15 / (6,1E+15 + 4,067E+15) = 0,60$$

$$\alpha_{\text{kolom, bawah joint 1}} (\alpha_b) = K_b / (K_a + K_b)$$

$$= 4,067E+15 / (6,1E+15 + 4,067E+15) = 0,40$$

Rumus umum:

$$Mu_k = 0,7 \cdot \omega \cdot \phi_0 \cdot \alpha_a \cdot \frac{H'}{H} \cdot \left(\frac{Li}{L'i} \cdot M_{kap}^- + \frac{La}{L'a} \cdot M_{kap}^+ \right)$$

Tinjauan momen rencana akibat gempa dari arah kiri (arah x):

$$Mu_{k,a} = 0,7 \cdot \omega \cdot \phi_0 \cdot \alpha_a \cdot \frac{H'a}{Ha} \cdot \left(\frac{Li}{L'i} \cdot M_{kap}^- + \frac{La}{L'a} \cdot M_{kap}^+ \right)$$

$$= 0,7 \cdot 1,3 \cdot 1,25 \cdot 0,60 \cdot \frac{3,4}{4} \cdot \left(0 + \frac{6000}{4900} \cdot 555,5621 \right)$$

$$= 394,6475 \text{ Tm}$$

$$\begin{aligned}
 \text{Mu}_{k,b} &= 0,7 \cdot \omega \cdot \phi_0 \cdot \alpha_a \cdot \frac{H'b}{Hb} \cdot \left(\frac{Li}{L'i} \cdot M_{kap}^- + \frac{La}{L'a} \cdot M_{kap}^+ \right) \\
 &= 0,7 \cdot 1 \cdot 1,25 \cdot 0,40 \cdot \frac{5,7}{6} \cdot \left(0 + \frac{6000}{4900} \cdot 555,5621 \right) \\
 &= 226,1931 \text{ Tm}
 \end{aligned}$$

$$\begin{aligned}
 \text{Mu}_{k,a \text{ max}} &= 1,05 \cdot (M_{D,a} + M_{L,a} + (4/k) \cdot M_{E,a}) \\
 &= 1,05 \cdot (54,80007 + 13,08876 + (4/1) \cdot 191,5681) \\
 &= 875,86929 \text{ Tm}
 \end{aligned}$$

$$\begin{aligned}
 \text{Mu}_{k,b \text{ max}} &= 1,05 \cdot (M_{D,b} + M_{L,b} + (4/k) \cdot M_{E,b}) \\
 &= 1,05 \cdot (33,31359 + 7,423412 + (4/1) \cdot 41,47684) \\
 &= 216,97658 \text{ Tm}
 \end{aligned}$$

Nilai $\text{Mu}_{k,a}$ dan $\text{Mu}_{k,a \text{ max}}$ diambil yang terkecil. Hal ini berlaku juga untuk nilai $\text{Mu}_{k,b}$ dan $\text{Mu}_{k,b \text{ max}}$, diambil yang terkecil juga. Maka momen rencana yang dipakai akibat gempa dari arah kiri adalah:

$$\text{Mu}_{k,a \text{ gempa kiri}} = 394,6475 \text{ Tm} \quad \dots\dots\dots(1)$$

$$\text{Mu}_{k,b \text{ gempa kiri}} = 216,97658 \text{ Tm} \quad \dots\dots\dots(2)$$

Tinjauan momen rencana akibat gempa dari arah kanan (arah x):

$$\begin{aligned}
 \text{Mu}_{k,a} &= 0,7 \cdot \omega \cdot \phi_0 \cdot \alpha_a \cdot \frac{H'a}{Ha} \cdot \left(\frac{Li}{L'i} \cdot M_{kap}^- + \frac{La}{L'a} \cdot M_{kap}^+ \right) \\
 &= 0,7 \cdot 1,3 \cdot 1,25 \cdot 0,60 \cdot \frac{3,4}{4} \cdot \left(\frac{6000}{4900} \cdot 720,3262 + 0 \right) \\
 &= 511,6889 \text{ Tm}
 \end{aligned}$$

$$\text{Mu}_{k,b} = 0,7 \cdot \omega \cdot \phi_0 \cdot \alpha_a \cdot \frac{H'b}{Hb} \cdot \left(\frac{Li}{L'i} \cdot M_{kap}^- + \frac{La}{L'a} \cdot M_{kap}^+ \right)$$

$$= 0,7 \cdot 1 \cdot 1,25 \cdot 0,40 \cdot \frac{5,7}{6} \cdot \left(\frac{6000}{4900} \cdot 720,3262 + 0 \right)$$

$$= 293,2757 \text{ Tm}$$

$$Mu_{k,a \text{ max}} = 1,05 \cdot (M_{D,a} + M_{L,a} + (4/k) \cdot M_{E,a})$$

$$= 1,05 \cdot (54,8007 + 13,08876 + (4/1) \cdot 191,5681)$$

$$= 875,8700 \text{ Tm}$$

$$Mu_{k,b \text{ max}} = 1,05 \cdot (M_{D,b} + M_{L,b} + (4/k) \cdot M_{E,b})$$

$$= 1,05 \cdot (33,31359 + 7,423412 + (4/1) \cdot 41,47684)$$

$$= 216,97658 \text{ Tm}$$

Nilai $Mu_{k,a}$ dan $Mu_{k,a \text{ max}}$ diambil yang terkecil. Hal ini berlaku juga untuk nilai $Mu_{k,b}$ dan $Mu_{k,b \text{ max}}$ diambil yang terkecil juga. Maka momen rencana yang dipakai akibat gempa dari arah kiri adalah :

$$Mu_{k,a \text{ gempa kiri}} = 511,6889 \text{ Tm} \dots\dots\dots(3)$$

$$Mu_{k,b \text{ gempa kiri}} = 216,97658 \text{ Tm} \dots\dots\dots(4)$$

Kolom direncanakan mampu menahan momen akibat gempa kiri dan kanan. Hal ini dikarenakan gempa yang terjadi tidak selalu datangnya dari arah kiri atau kanan saja. Oleh karena itu, momen-momen yang telah direncanakan (1) s/d (4) harus dibandingkan lagi. Setelah dibandingkan, kemudian diambil nilainya yang terbesar. Nilai dari (1) dibandingkan dengan (3), diambil yang terbesar. Maka untuk nilai $Mu_{k,a} = 511,6889 \text{ Tm}$
(5)

Nilai dari (2) dibandingkan dengan (4), diambil yang terbesar. Maka untuk nilai $Mu_{k,b} = 216,97658 \text{ Tm}$
(6)

Tinjauan momen rencana akibat gempa dari arah kiri (arah y):

$$\begin{aligned} \text{Mu}_{k,a} &= 0,7 \cdot \omega \cdot \phi_0 \cdot \alpha_a \cdot \frac{H'a}{Ha} \cdot \left(\frac{Li}{L'i} \cdot M_{kap}^- + \frac{La}{L'a} \cdot M_{kap}^+ \right) \\ &= 0,7 \cdot 1,3 \cdot 1,25 \cdot 0,60 \cdot \frac{3,4}{4} \cdot \left(0 + \frac{6000}{4900} \cdot 555,5621 \right) \\ &= 394,6475 \text{ Tm} \end{aligned}$$

$$\begin{aligned} \text{Mu}_{k,b} &= 0,7 \cdot \omega \cdot \phi_0 \cdot \alpha_a \cdot \frac{H'b}{Hb} \cdot \left(\frac{Li}{L'i} \cdot M_{kap}^- + \frac{La}{L'a} \cdot M_{kap}^+ \right) \\ &= 0,7 \cdot 1 \cdot 1,25 \cdot 0,40 \cdot \frac{5,7}{6} \cdot \left(0 + \frac{6000}{4900} \cdot 555,5621 \right) \\ &= 226,1931 \text{ Tm} \end{aligned}$$

$$\begin{aligned} \text{Mu}_{k,a \text{ max}} &= 1,05 \cdot (M_{D,a} + M_{L,a} + (4/k) \cdot M_{E,a}) \\ &= 1,05 \cdot (49,6630 + 11,2584 + (4/1) \cdot 321,0947) \\ &= 1412,5652 \text{ Tm} \end{aligned}$$

$$\begin{aligned} \text{Mu}_{k,b \text{ max}} &= 1,05 \cdot (M_{D,b} + M_{L,b} + (4/k) \cdot M_{E,b}) \\ &= 1,05 \cdot (30,13911 + 6,13 + (4/1) \cdot 137,8642) \\ &= 617,1112 \text{ Tm} \end{aligned}$$

Nilai $\text{Mu}_{k,a}$ dan $\text{Mu}_{k,a \text{ max}}$ diambil yang terkecil. Hal ini berlaku juga untuk nilai $\text{Mu}_{k,b}$ dan $\text{Mu}_{k,b \text{ max}}$ diambil yang terkecil juga. Maka momen rencana yang dipakai akibat gempa dari arah kiri adalah:

$$\text{Mu}_{k,a \text{ gempa kiri}} = 394,6475 \text{ Tm} \quad \dots\dots\dots(7)$$

$$\text{Mu}_{k,b \text{ gempa kiri}} = 226,1931 \text{ Tm} \quad \dots\dots\dots(8)$$

Tinjauan momen rencana akibat gempa dari arah kanan (arah y):

$$\text{Mu}_{k,a} = 0,7 \cdot \omega \cdot \phi_0 \cdot \alpha_a \cdot \frac{H'a}{Ha} \cdot \left(\frac{Li}{L'i} \cdot M_{kap}^- + \frac{La}{L'a} \cdot M_{kap}^+ \right)$$

$$\begin{aligned}
&= 0,7 \cdot 1,3 \cdot 1,25 \cdot 0,60 \cdot \frac{3,4}{4} \cdot \left(\frac{6000}{4900} \cdot 720,3262 + 0 \right) \\
&= 511,6889 \text{ Tm} \\
\text{Mu}_{k,b} &= 0,7 \cdot \omega \cdot \phi_0 \cdot \alpha_a \cdot \frac{H'b}{Hb} \cdot \left(\frac{Li}{L'i} \cdot M_{kap}^- + \frac{La}{L'a} \cdot M_{kap}^+ \right) \\
&= 0,7 \cdot 1 \cdot 1,25 \cdot 0,40 \cdot \frac{5,7}{6} \cdot \left(\frac{6000}{4900} \cdot 720,3262 + 0 \right) \\
&= 293,2757 \text{ Tm} \\
\text{Mu}_{k,a \text{ max}} &= 1,05 \cdot (M_{D,a} + M_{L,a} + (4/k) \cdot M_{E,a}) \\
&= 1,05 \cdot (49,6630 + 11,2584 + (4/1) \cdot 321,0947) \\
&= 1412,5652 \text{ Tm} \\
\text{Mu}_{k,b \text{ max}} &= 1,05 \cdot (M_{D,b} + M_{L,b} + (4/k) \cdot M_{E,b}) \\
&= 1,05 \cdot (30,13911 + 6,13 + (4/1) \cdot 137,8642) \\
&= 617,1112 \text{ Tm}
\end{aligned}$$

Nilai $\text{Mu}_{k,a}$ dan $\text{Mu}_{k,a \text{ max}}$ diambil yang terkecil. Hal ini berlaku juga untuk nilai $\text{Mu}_{k,b}$ dan $\text{Mu}_{k,b \text{ max}}$ diambil yang terkecil juga. Maka momen rencana yang dipakai akibat gempa dari arah kiri adalah:

$$\text{Mu}_{k,a \text{ gempa kiri}} = 511,6889 \text{ Tm} \quad \dots\dots\dots(9)$$

$$\text{Mu}_{k,b \text{ gempa kiri}} = 293,2757 \text{ Tm} \quad \dots\dots\dots(10)$$

Kolom direncanakan mampu menahan momen akibat gempa kiri dan kanan.

Hal ini dikarenakan gempa yang terjadi tidak selalu datangnya dari arah kiri atau kanan saja. Oleh karena itu, momen-momen yang telah direncanakan (7) s/d (10) harus dibandingkan lagi. Setelah dibandingkan, kemudian diambil nilainya yang terbesar.

Nilai dari (7) dibandingkan dengan (9), diambil yang terbesar. Maka untuk nilai $Mu_{k,a} = 511,6889 \text{ Tm}$ (11)

Nilai dari (8) dibandingkan dengan (10), diambil yang terbesar. Maka untuk nilai $Mu_{k,b} = 293,2757 \text{ Tm}$ (12)

Setelah momen yang direncanakan telah ditinjau dan dipilih sesuai arahnya masing-masing (arah x dan y) maka momen-momen yang telah dipilih tersebut dibandingkan lagi antara arah x dengan arah y. Nilai (5) dibandingkan dengan (11), diambil yang terbesar. Maka untuk nilai $Mu_{k,a} = 511,6889 \text{ Tm}$. Nilai (6) dibandingkan dengan (12), diambil yang terbesar. Maka untuk nilai $Mu_{k,b} = 293,2757 \text{ Tm}$ Jadi, momen rencana untuk kolom K1 pada story 1 adalah:

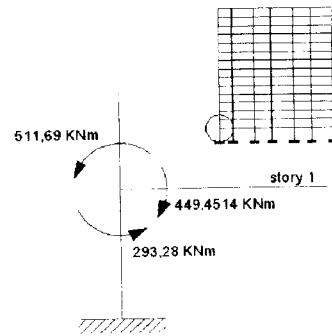
$$Mu_{k,a} = 511,6889 \text{ Tm}$$

$$Mu_{k,b} = 293,2757 \text{ Tm}$$

Lampiran G1 akan menunjukkan gambar momen kolom K1 dari tingkat 1 sampai dengan tingkat 15. Jumlah Momen ultimate kolom ($\Sigma Mu_{k,k}$) pada kolom K1 story 1 adalah:

$$\Sigma Mu_{k,k} = Mu_{k,a} + Mu_{k,b} = 511,69 + 293,28 = 804,97 \text{ Tm. Gambar 6. 6,}$$

menunjukkan $\Sigma Mu_{k,k}$. Jumlah momen balok ($\Sigma Mu_{b,b}$) B1 yang terjadi pada kolom K1 story 1 adalah sebesar 449,4514 Tm. Nilai tersebut didapat dari hasil analisis struktur.



Gambar 6. 6. Momen kolom lebih kuat dari pada momen balok

Apabila ΣMu_k dibagi dengan ΣMu_b maka akan didapatkan nilai sebesar 1,7910. Dengan kata lain, jika dirumuskan akan menjadi: $\Sigma Mu_k = 1,7910 \times \Sigma Mu_b$. Hal ini mengatakan bahwa nilai momen yang terjadi pada kolom lebih besar dibandingkan momen yang terjadi pada balok. Inilah yang dimaksud dengan kolom lebih kuat daripada balok atau “*strong coloumn weak beam*”.

6.4.2. Gaya aksial kolom

Story 15 (Joint 15 – kolom tepi kiri)

Data input (lampiran T3.8):

Portal arah x :

$$M_{\text{kap}^+, \text{balok kanan}} = 202,3340 \text{ Tm (balok atap – lampiran T3.1)}$$

$$M_{\text{kap}^-, \text{balok kanan}} = 316,6422 \text{ Tm (balok atap – lampiran T3.1)}$$

$$M_{\text{kap}^+, \text{balok kiri}} = 0 \text{ Tm} \quad M_{\text{kap}^-, \text{balok kiri}} = 0 \text{ Tm}$$

$$L_{\text{balok kanan (La)}} = 6 \text{ m} \quad L_{\text{balok kiri (Li)}} = 0 \text{ m}$$

$$E_s = 200000 \text{ MPa} \quad b_{\text{kolom,atas joint 15}} = 0 \text{ mm}$$

$$h_{\text{kolom,atas joint 15}} = 0 \text{ mm} \quad b_{\text{kolom,bawah joint 15}} = 700 \text{ mm}$$

$$h_{\text{kolom,bawah joint 15}} = 700 \text{ mm} \quad n = 0 \quad k = 1$$

$$P_{D \text{ kolom, 15}}(P_{D,15}) = 145,8631 \text{ t (ETABS)}$$

$$P_{L \text{ kolom, 15}}(P_{L,15}) = 23,95921 \text{ t (ETABS)}$$

$$P_{E \text{ kolom, 15}}(P_{E,15}) = 12,01195 \text{ t (ETABS)}$$

Penyelesaian :

$$RV = 1,1 - (0,025 \times n)$$

$$= 1,1 - (0,025 \times 0)$$

$$= 1,1$$

$$P_g = P_{D,15} + P_{L,15}$$

$$= 145,8631 + 23,95921$$

$$= 169,7953 \text{ t}$$

$$P_u = 0,7 \cdot RV \cdot \left(\frac{M_{kap}^+ + M_{kap}^-}{L} \right)$$

$$= 0,7 \cdot 1,1 \cdot \left(\frac{202,3340 + 316,6422}{6} \right)$$

$$= 66,6019 \text{ t} \dots\dots\dots(1)$$

$$P_{u_{\max}} = 1,05 \cdot \left(P_{D,15} + P_{L,15} + \left(\frac{4}{k} \cdot P_{E,15} \right) \right)$$

$$= 1,05 \cdot \left(145,8631 + 23,95921 + \left(\frac{4}{1} \cdot 12,01195 \right) \right)$$

$$= 228,7353 \text{ t} \dots\dots\dots(2)$$

Portal arah y :

$$M_{kap}^+, \text{balok kanan} = 202,3340 \text{ Tm (balok atap – lampiran T3.1)}$$

$$M_{kap}^-, \text{balok kanan} = 316,6422 \text{ Tm (balok atap – lampiran T3.1)}$$

$$\begin{aligned}
 M_{kap^+} \text{ , balok kiri} &= 0 \text{ Tm} & M_{kap^-} \text{ , balok kiri} &= 0 \text{ Tm} \\
 L_{balok \text{ kanan}} (L_a) &= 6 \text{ m} & L_{balok \text{ kiri}} (L_i) &= 0 \text{ m} \\
 E_s &= 200000 \text{ MPa} & b_{kolom, \text{atas joint 15}} &= 0 \text{ mm} \\
 h_{kolom, \text{atas joint 15}} &= 0 \text{ mm} & b_{kolom, \text{bawah joint 15}} &= 1000 \text{ mm} \\
 h_{kolom, \text{bawah joint 15}} &= 1000 \text{ mm} & n &= 0 & k &= 1 \\
 P_{D \text{ kolom, 15}} (P_{D,15}) &= 145,8631 \text{ t (ETABS)} \\
 P_{L \text{ kolom, 15}} (P_{L,15}) &= 23,95921 \text{ t (ETABS)} \\
 P_{E \text{ kolom, 15}} (P_{E,15}) &= 1,8947 \text{ t (ETABS)}
 \end{aligned}$$

Penyelesaian :

$$\begin{aligned}
 RV &= 1,1 - (0,025 \times n) \\
 &= 1,1 - (0,025 \times 0) \\
 &= 1,1
 \end{aligned}$$

$$\begin{aligned}
 P_g &= P_{D,15} + P_{L,15} \\
 &= 145,8631 + 23,95921 \\
 &= 169,79531 \text{ t}
 \end{aligned}$$

$$\begin{aligned}
 P_u &= 0,7 \cdot RV \cdot \left(\frac{M_{kap^+} + M_{kap^-}}{L} \right) \\
 &= 0,7 \cdot 1,1 \cdot \left(\frac{202,3340 + 316,6422}{6} \right) \\
 &= 66,6019 \text{ t} \dots\dots\dots(3)
 \end{aligned}$$

$$P_{u_{\max}} = 1,05 \cdot \left(P_{D,15} + P_{L,15} + \left(\frac{4}{k} \cdot P_{E,15} \right) \right)$$

$$= 1,05 \cdot \left(145,8631 + 23,95921 + \left(\frac{4}{1} \cdot 1,8947 \right) \right)$$

$$= 186,2429 \text{ t} \dots \dots \dots (4)$$

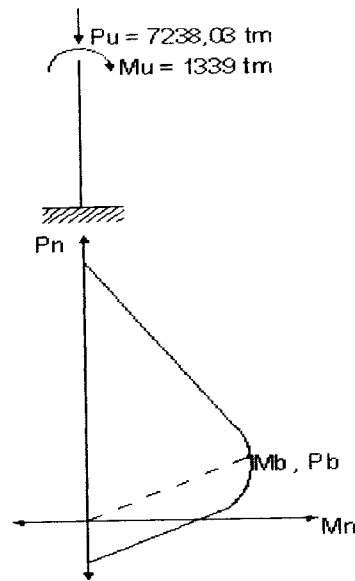
Selanjutnya nilai dari (2) dan (4) dibandingkan, kemudian diambil yang terbesar, yaitu = 228,7353 t(5)

Lalu nilai (5) dibandingkan dengan $(P_x + P_y + (1,05 \cdot P_g))$. Jika nilai $(P_x + P_y + (1,05 \cdot P_g))$ melebihi nilai (5) maka digunakan nilai (5), dan sebaliknya. Nilai gaya aksial untuk lantai 15 adalah: $P_{u,pakai} = 228,7353 \text{ t}$

Lampiran T3.8 akan menunjukkan gambar gaya aksial kolom K1 dari tingkat 1 sampai dengan tingkat 15.

6.4.3 Desain kolom dengan cara numerik

Cara Numerik yang akan dipakai adalah dengan cara memakai keseimbangan gaya-gaya yang berkerja pada potongan kolom. Sebagai bahan kajian dipakai momen ultimit kolom (M_u) dan gaya-aksial (P_u) pada kolom C1.



Diket :

$$P_u = 7238.03 \text{ ton}$$

$$M_u = 1339.00 \text{ ton}$$

$$M_{na} = \frac{M_u}{\phi} = \frac{133.9}{0.8} = 167.375$$

$$P_{na} = \frac{P_u}{\phi} = \frac{732.803}{0.65} = 1127.389$$

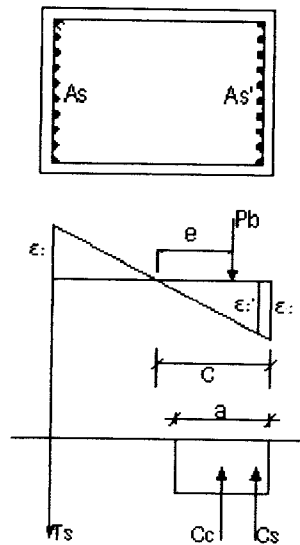
$$e = \frac{M_{na}}{P_{na}} = \frac{167.375}{916.004} = 0.183 \text{ m} = 18.3 \text{ cm}$$

Terdapat beberapa langkah pada proses desain yaitu :

1. Menentukan ukuran kolom

Wang & Salmon (1977) mengatakan bahwa untuk menentukan ukuran kolom dapat dipakai asumsi awal yaitu nilai P_n dianggap sementara sama dengan P_b . Asumsi yang lain adalah pengaruh *Displaced concrete* diabaikan dan regangan baja desak dianggap sudah mencapai regangan leleh.

Pada kondisi *balance* maka :



Gambar 6.7 Gaya-gaya kolom pada kondisi *Balance*

$$Cb = \frac{\varepsilon_c}{(\varepsilon_c + \varepsilon_s)} \cdot h = \frac{0.003}{0.003 + 0.001943} x h = 0.6069 h$$

$$\begin{aligned} Pb &= Cc + Cs - Ts \\ &= 0.85 f'c \beta_1 Cb \cdot b + As' \cdot fy - As \cdot fy \\ &= 0.85 \times 328.5 \times 0.85 \times 0.6069 h \times b \\ &= 144.046 b h \end{aligned}$$

Apabila diambil asumsi $h = 0.9 ht$, maka

$$Pb = 144.046 b \cdot 0.9 ht = 129.642 b \cdot ht = 129.642 Ag$$

Padahal $Pb = Pn = 1127.389 \text{ ton}$, maka

$$Ag = \frac{1127,389 \times 10^6 \text{ kg}}{129.642 \text{ kg}} \text{ cm}^2 = 7065.6423 \text{ cm}^2$$

Selanjutnya Wang & Salmon (1977) mengatakan bahwa apabila dipakai $A_{gc} > A_g$ maka kolom yang dipakai cukup besar. Akibatnya hanya diperlukan tebal beton desak yang relatif kecil atau $P_n < P_b$ dan masih memenuhi kebutuhan momen M_n karena eksentrisitas (e) cukup besar (ukuran kolom besar). Pada kondisi demikian akan terjadi *tension controle* dan sebaliknya, artinya :

1. Bila $A_{gc} > A_g$, akan terjadi *tension controle*
2. Bila $A_{gc} < A_g$, maka akan terjadi *compression controle*

Yang mana A_g adalah kebutuhan luas potongan kolom bila $P_n = P_b$ dan A_{gc} adalah luas potongan kolom yang dipakai.

Misalnya kolom akan didesain pada kondisi *compression controle*. Ukuran kolom 90 x 70, maka :

$$A_{gc} = 90 \times 70 = 6300 \text{ Cm}^2 \pm 89 \% A_g.$$

D2s ($A_{\emptyset} = 4,906 \text{ Cm}^2$) dengan 13 tulangan tiap sisi, maka luas tulangan :

$$A_s = A_s' = 13 * 4,906 = 63,778 \text{ Cm}^2, \quad d = 4 + 1 + \frac{1}{2} * 2,5 = 6,25 \text{ Cm}.$$

2. Estimasi kuat desak P_n

Untuk keperluan itu dipakai rumus pendekatan Whitney yaitu:

$$\begin{aligned} P_n &= \frac{f'c \cdot b \cdot ht}{\frac{3 \cdot ht \cdot e}{h^2} + 1,18} + \frac{A_s' \cdot f_y}{\frac{e}{h - d'} + 0,5} \\ &= \frac{382,5 \cdot 70 \cdot 90}{\frac{3 \cdot 90 \cdot 18,3}{83,75^2} + 1,18} + \frac{63,778 \cdot 4080}{\frac{18,3}{83,75 - 6,25} + 0,5} \\ &= \frac{2409750 \cdot 83,75^2}{13217,6} + \frac{260214,24 \cdot 77,5}{57,05} \end{aligned}$$

$$= 1278759,92 + 353489,9842$$

$$= 1632249,964 \text{ kg}$$

$$P_n = 1632,25 \text{ t} > P_{na} = 1127,389 \text{ t}$$

→ Estimasi ukuran dari jumlah tulangan diperkirakan memenuhi syarat

3. Kontrol status patah desak

Pada hitungan sebelumnya diperoleh $C_b = 0,6069 h$, maka :

$$C_b = 0,6069 \cdot 83,75 = 50,8278 \text{ Cm}$$

$$E_s' = \frac{c-d'}{c} \cdot \epsilon_c = \frac{50,8278-6,25}{50,8278} \cdot 0,003 = 0,00263 > 0,001943 \rightarrow \text{Baja}$$

Desak Sudah Leleh.

$$C_{cb} = 0,85 \cdot f_c \cdot a_b \cdot b = 0,85 \cdot 382,5 \cdot 43,20363 \cdot 70 = 983,2606 \text{ t}$$

$$C_{sb} = A_s' (f_y - 0,85 \cdot f_c) = 63,778 (4080 - 0,85 \cdot 382,5) = 239,4784 \text{ t}$$

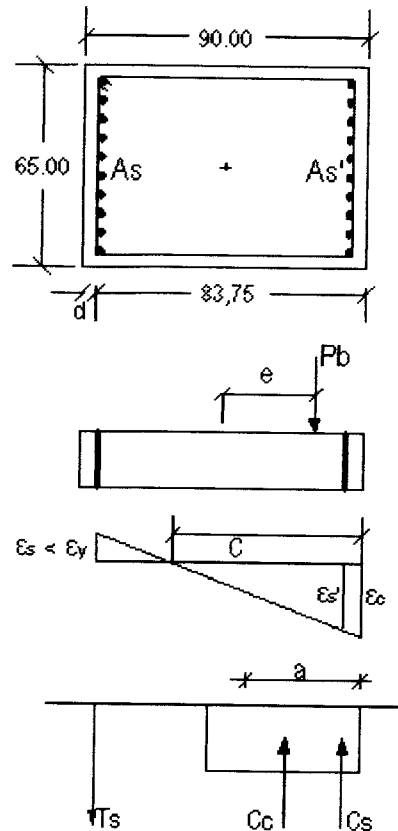
$$T_{sb} = A_s \cdot f_y = 63,778 \cdot 4080 = 258,99 \text{ tm}$$

$$P_b = C_{cb} + C_{sb} - T_{sb} = 965,52476 \text{ t}$$

$$P_b = 965,52476 < P_{na} = 1127,389 \rightarrow \text{Betul kolom dalam kondisi patah desak}$$

4. Analisis kolom patah desak dengan eksentrisitas beban e diketahui

Dalam hal ini ukuran kolom sudah diperoleh yaitu $b = 70 \text{ cm}$ dan $h_t = 90 \text{ cm}$. Tulangan kolom juga sudah diestimasi yaitu dipakai 13D25 pada masing-masing sisi. Akan dianalisis apakah kolom dengan penulangan tersebut mampu mengerahkan $M_{na} = 167,375 \text{ tm}$ dan $P_{na} = 437,77 \text{ ton}$.



Gambar 6.12 Gaya-gaya kolom pada kondisi patah desak

Dalam hal ini $e = 18,3$ cm, yang akan dicari pertama adalah nilai c

$$C_c = 0,85 \cdot f_c \cdot 0,85 c \cdot b = 0,85 \cdot 382,5 \cdot 0,85 \cdot c \cdot 70 = 17963,15625 c$$

Patah desak umumnya baja desak sudah leleh

$$C_s = A_s' (f_y - 0,85 \cdot f_c)$$

$$= 63,778 (4080 - 0,85 \cdot 382,5)$$

$$= 239478,42 \text{ kg}$$

Patah Desak → Baja Tarik belum leleh

$$\begin{aligned}
 T_s &= A_s \cdot f_s = A_s \cdot \varepsilon_s \cdot E_s = A_s \cdot \left(\frac{h-c}{c} \right) \cdot \varepsilon_c \cdot E_s \\
 &= 63,778 \left(\frac{88,75 - c}{c} \right) \cdot 0,003 \cdot 2100000 \\
 &= \frac{(25626089,69 - 401801,4c)}{c} \text{ kg}
 \end{aligned}$$

ΣM terhadap garis kerja P_n (Asumsi e = eksentrisitas awal)

$$\begin{aligned}
 &= C_c \left\{ \left(\frac{\beta_1 C}{2} \right) - \left(\frac{ht}{2} - e \right) \right\} - C_s \left\{ \left(\frac{ht}{2} - e \right) - d' \right\} - T_s \left\{ \left(\frac{ht}{2} - d \right) + e \right\} \\
 &= 17963,15625 C \{ 0,45 C - 29,2 \} - 239478,42 \{ 29,2 - 6,25 \} - \\
 &\quad \left\{ \left(\frac{25626089,69 - 401801,4C}{C} \right) \times 59,55 \right\}
 \end{aligned}$$

$$= 8083,42 C^3 - 524524,1625 C^2 + 18431243,63 C - 1526033641$$

→ Setelah dicoba-coba diperoleh $C = 63,53$ cm dan $a = 0,85 C = 54$ cm

$$C_c = 17963,15625 C = 1141200 \text{ kg} = 1141,2 \text{ ton}$$

$$C_s = 239,478 \text{ ton}$$

$$T_s = \left(\frac{152603364 - 23927273,37(63,53)}{63,53} \right) = 93404 \text{ kg} = 93,404 \text{ ton}$$

$$P_n = C_c + C_s - T_s = 1141,2 + 239,478 - 93,404 = 1287,27 > 1127,389 \rightarrow$$

$P_n > P_{na} \rightarrow$ memenuhi syarat

Momen lentur yang dapat ditahan dapat diperoleh dengan mengambil momen terhadap titik berat potongan

$$\begin{aligned}
 M_n &= C_c \left\{ \frac{ht}{2} - \frac{a}{2} \right\} + C_s \left\{ \left(\frac{ht}{2} \right) - d' \right\} + T_s \left\{ \left(\frac{ht}{2} \right) - d \right\} \\
 &= 1141,2 (47,5 - 27) + 239,478 (47,5 - 6,25) + 93,404 (47,5 - 6,25)
 \end{aligned}$$

$$= 23394,6 + 9878,4675 + 3852,915 = 37125,98 \text{ tcm}$$

$$= 371,25 \text{ tm} > M_{nb} = 167,375 \text{ memenuhi syarat}$$

→ Disain Kolom Sukses !!

6.4.4 Desain kolom patah tarik dengan baja desak belum leleh

Diambil dari lantai paling atas

$$P_u = 93,56$$

$$M_{ua} = 120,269$$

$$P_{na} = \frac{93,56}{0,65} = 143,938$$

$$M_{na} = \frac{120,269}{0,8} = 150,33625$$

$$e = \frac{M_{na}}{P_{na}} = \frac{150,33625}{143,938} = 1,044 \text{ m} = 104,4 \text{ cm}$$

Sebagaimana pada patah desak, pada desain kolom patah tarik ini akan melalui beberapa tahapan yaitu sebagai mana berikut ini.

1. Menentukan ukuran kolom

Terdapat 2-cara yang dapat dipakai untuk menentukan ukuran kolom, cara yang pertama sama dengan cara yang dipakai pada patah desak yaitu P_{na} dianggap sama atau disamakan dengan P_b . Pada langkah ini akan diperoleh luas potongan kolom A_g . Sesuai yang dikatakan sebelumnya apabila luas potongan kolom yang dipakai A_{gc} lebih besar dari A_g , Maka akan terjadi patah tarik. Oleh karena itu dapat dipakai cara yang kedua yaitu dengan

melalui rumus pendekatan P_n yang berdasar pada patah tarik, yaitu (dengan anggapan baja desak sudah leleh):

Cara yang pertama:

$$P_n = 0,85 \cdot f'_c \cdot b \cdot h \cdot \left\{ -\rho + 1 - \frac{e}{h} + \sqrt{\left(1 - \frac{e}{h}\right)^2 + 2 \cdot p \left[(m-1) \cdot \left(1 - \frac{d'}{h}\right) + \frac{e}{h} \right]} \right\}$$

Dalam hal ini :

$$m = \frac{f_y}{0,85 \cdot f'_c} = \frac{4080}{0,85 \cdot 382,5} = 12,55$$

$$\text{Asumsi : } \rho = 1,49 \% ; \frac{e}{h} = \frac{104,4}{88,75} = 1,176 ; \frac{d'}{h} = \frac{625}{88,75} = 0,07$$

$$143938 = 0,85 \cdot 382,5 \cdot A_g \cdot \left\{ -0,0149 + 1 - 1,176 + \sqrt{\left(1 - 1,176\right)^2 + 2 \cdot 0,0149 \left[(12,55 - 1) \cdot (1 - 0,07) + 1,176^2 \right]} \right\}$$

$$A_g = \frac{143,938}{27,768} = 5183,59 \text{ Cm}^2 \text{ (kalau baja desak sudah leleh)}$$

Cara yang kedua :

Berdasarkan $P_n = P_b$ (seperti cara sebelumnya)

$$P_n = 0,85 \cdot f'_c \cdot \beta_1 \cdot C_b \cdot b + A_s' \cdot F_y - A_s \cdot F_y$$

$$C_b = \frac{\varepsilon_c}{\varepsilon_c + \varepsilon_s} \cdot H = 0,6069 h \approx 0,6069 \cdot 0,9 ht = 0,5462 ht$$

$$P_n = (0,85 \cdot 382,5 \cdot 0,85 \cdot 0,5462) \cdot b \cdot h \cdot t \rightarrow b \cdot h \cdot t = \frac{143938}{0,85 \cdot 382,5 \cdot 0,85 \cdot 0,5462} \\ = 953,57$$

Diambil jalan tengah $b = 65$

$$Ht = 85$$

$$\text{Sehingga } A_{gc} = 5525$$

$$\text{Dipakai } A_s = 12 \text{ D}_{25} \rightarrow A_s = A_s' = 12 \cdot 4,906 = 58,896 \text{ Cm}^2$$

2. Kontrol status patah

$$C_b = 0,6069 \cdot (85 - 6,25) = 47,793375 \text{ Cm}$$

$$\varepsilon_s' = \left(\frac{c - d'}{c} \right) \cdot \varepsilon_c = \left(\frac{43,793375 - 6,25}{47,793375} \right) \cdot 0,003 = 0,00261 > 0,001943 \rightarrow \text{baja}$$

desak leleh

$$C_c = 0,85 \cdot 382,5 \cdot 0,85 \cdot 47,7935 \cdot 65 = 858459,2372 \text{ kg}$$

$$C_s = A_s \cdot (f_y - 0,85 \cdot f'_c) = 58,896 (4080 - 0,85 \cdot 382,5) = 221147,118$$

$$T_s = A_s \cdot f_y = 240295,68$$

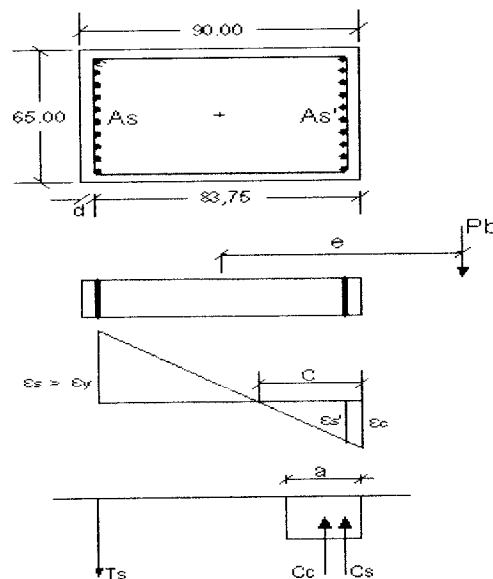
$$P_b = C_c + C_s - T_s = 839,31 > P_{na} = 143,938 \text{ ton} \rightarrow \text{Kolom Patah Tarik}$$

3. Kontrol status regangan baja desak

Kemungkinan besar bahwa kolom mengalami patah tarik dengan baja desak

belum leleh

4. Analisis kolom patah tarik dengan baja desak belum leleh



Gambar 6.13. Gaya-gaya kolom pada kondisi patah tarik baja desak belum leleh

$$A_s = A_s' = 12D25 = 58,896 \text{ cm}^2$$

$$C_c = 0,85 \cdot f_c \cdot a \cdot b = 0,85 \cdot 382,5 \cdot 0,85 \cdot C \cdot 65 = 17963,156 C$$

$$T_s = A_s \cdot f_y = 58,896 \cdot 4080 = 240295,68 \text{ kg}$$

$$C_s = A_s' \cdot f_s = A_s' \cdot \varepsilon_s \cdot E_s = A_s' \cdot \frac{C - d'}{C} \cdot \varepsilon_s \cdot E_s$$

$$= 58,896 \cdot \frac{C - 6,25}{C} \cdot 0,003 \cdot 2100000$$

$$= \frac{371044,8C - 371038,55}{C}$$

Statik momen gaya-gaya terhadap garis-kerja Pn

$$= C_c \left\{ e - \left(\left(\frac{ht}{2} \right) - \left(\frac{\beta_1 C}{2} \right) \right) \right\} + C_s \left\{ e - \left(\frac{ht}{2} - d' \right) \right\} - T_s \left\{ \left(\frac{ht}{2} - d \right) + e \right\} = 0$$

$$= 17963,156 \left\{ 104,4 - \left(\left(\frac{85}{2} \right) - \left(\frac{0,85C}{2} \right) \right) \right\} + \left(\frac{371044,8C - 371038,55}{C} \right)$$

$$\left\{ 104,4 - \left(\frac{85}{2} - 6,25 \right) \right\} - 240295,68 \left\{ \left(\frac{85}{2} - 6,25 \right) + 104,4 \right\} = 0$$

$$= 1875353,486 C - 763434,13 C + 7634,3413 C^2 +$$

$$\left(\frac{13450374C - 25286277,18}{C} \right) - 33797589,39$$

$$= 7634,3413 C^3 + 1111919,356 C^2 - 20347213,39 C - 25286277,18$$

→ Setelah dicoba-coba diperoleh $C = 20,719 \text{ cm}$

$$\varepsilon'_s = \frac{20,719 - 6,25}{20,719} \cdot 0,003 = 0,001871 < 0,001943 \rightarrow \text{betul baja desak}$$

belum leleh

$$f_s = \varepsilon_s \cdot E_s = 0,001871 \cdot 2100000 = 3929,1 \text{ Kg/cm}^2$$

$$= 0.85 \times 328.5 \times 0.85 \times 0.6069 \text{ h} \times \text{b}$$

$$= 144.046 \text{ b h}$$

Apabila diambil asumsi $h = 0.9 \text{ ht}$, maka

$$P_b = 144.046 \text{ b} \cdot 0.9 \text{ ht} = 129.642 \text{ b.ht} = 129.642 \text{ Ag}$$

Padahal $P_b = P_n = 166,4615 \text{ ton}$, maka

$$A_g = \frac{166,4615 \times 10^3 \text{ kg}}{129.642 \text{ kg}} \text{ cm}^2 = 1284,0091 \text{ cm}^2$$

Diambil : $b = 65$

$$H_t = 85$$

$$\text{Sehingga } A_{gc} = 5525$$

$$\text{Dipakai } A_s = 12 \text{ D}_{25} \rightarrow A_s = A_s' = 12 \cdot 4,906 = 58,896 \text{ Cm}^2$$

2. Kontrol status patah

$$C_b = 0,6069 \cdot (85 - 6,25) = 47,793375 \text{ Cm}$$

$$\epsilon_s' = \left(\frac{c - d'}{c} \right) \cdot \epsilon_c = \left(\frac{43,793375 - 6,25}{47,793375} \right) \cdot 0,003 = 0,00261 > 0,001943 \rightarrow \text{baja}$$

desak leleh

$$C_c = 0,85 \cdot 382,5 \cdot 0,85 \cdot 47,7935 \cdot 65 = 858459,2372 \text{ kg}$$

$$C_s = A_s \cdot (f_y - 0,85 \cdot f'_c) = 58,896 (4080 - 0,85 \cdot 382,5) = 221147,118$$

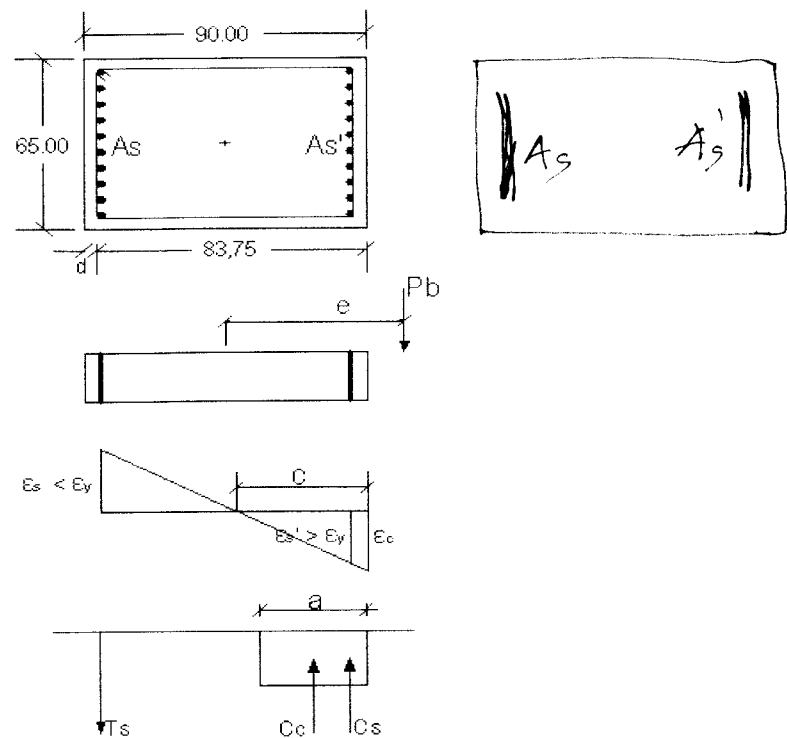
$$T_s = A_s \cdot f_y = 240295,68$$

$$P_b = C_c + C_s - T_s = 839,31 > P_{na} = 166,4615 \text{ ton} \rightarrow \text{Kolom Patah Tarik}$$

3. Kontrol status regangan baja desak

Kemungkinan besar bahwa kolom mengalami patah tarik dengan baja desak sudah leleh.

4. Analisis kolom patah tarik dengan baja desak sudah leleh



Gambar 6.14 Gaya-gaya kolom pada kondisi patah tarik baja desak sudah leleh

$$A_s = A_s' = 12D25 = 58,896 \text{ cm}^2$$

$$C_c = 0,85 \cdot f_c' \cdot a \cdot b = 0,85 \cdot 382,5 \cdot 0,85 \cdot C \cdot 65 = 17963,156 C$$

$$T_s = A_s \cdot f_y = 58,896 \cdot 4080 = 240295,68 \text{ kg}$$

$$C_s = A_s' \cdot f_y = 58,896 \cdot 4080 = 240295,68 \text{ kg}$$

$$= C_c \left\{ e - \left(\left(\frac{ht}{2} \right) - \left(\frac{\beta_1 C}{2} \right) \right) \right\} + C_s \left\{ e - \left(\frac{ht}{2} - d' \right) \right\} - T_s \left\{ \left(\frac{ht}{2} - d \right) + e \right\} = 0$$

$$= 17963,156 \left\{ 104,4 - \left(\left(\frac{85}{2} \right) - \left(\frac{0,85 C}{2} \right) \right) \right\} + \left(\frac{371044,8 C - 371038,55}{C} \right)$$

$$\left\{ 104,4 - \left(\frac{85}{2} - 6,25 \right) \right\} - 240295,68 \left\{ \left(\frac{85}{2} - 6,25 \right) + 104,4 \right\} = 0$$

$$= 1875353,486 C - 763434,13 C + 7634,3413 C^2 + \left(\frac{13450374 C - 25286277,18}{C} \right) - 33797589,39$$

$$= 7634,3413 C^3 + 1111919,356 C^2 - 20347213,39 C - 25286277,18$$

→ Setelah dicoba-coba diperoleh $C = 25,719$ cm

$$\varepsilon'_s = \frac{25,719 - 6,25}{25,719} \cdot 0,003 = 0,002082 < 0,001943 \rightarrow \text{betul baja desak sudah}$$

leleh

$$C_c = 17963,156 \cdot 25,719 = 372178,629164 \text{ Kg} = 372,178 \text{ ton}$$

$$C_s = 240,29568 \text{ ton}$$

$$T_s = 240,29568 \text{ ton}$$

$$P_n = C_c + C_s - T_s = 372,178 > P_{na} = 143,938 \text{ ton}$$

→ Penyediaan gaya-aksial cukup

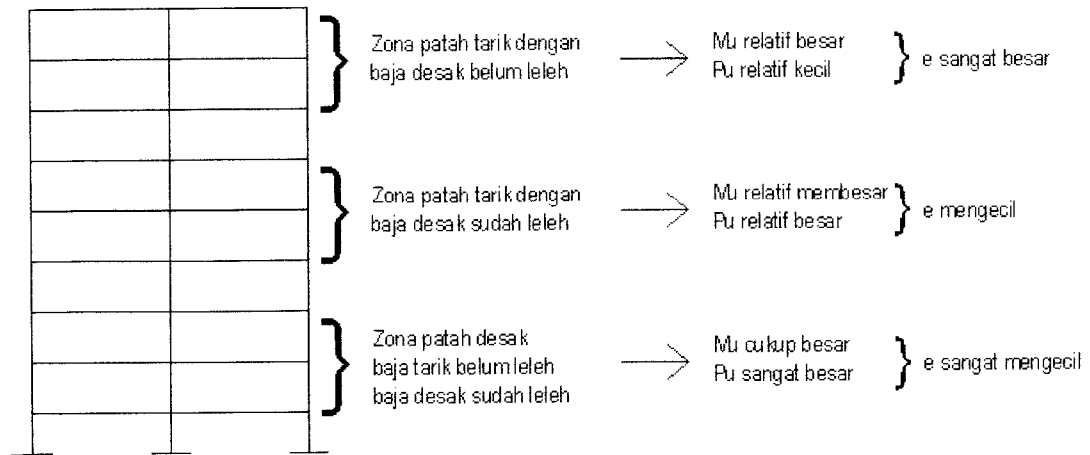
$$M_n = P_n \cdot e = 372,178 \cdot 68,619 = 255,384 \text{ tm} > M_{na} = 108,20 \text{ tm}$$

Desain kolom patah tarik sukses.

Sebagaimana dikatakan sebelumnya apabila beban eksentrisitas e demikian besar maka ada kemungkinan kolom akan patah tarik dengan baja desak belum leleh. Kondisi itu adalah kondisi yang mana momen lentur M_u cukup besar tetapi gaya aksial P_u relative kecil. Kondisi seperti ini biasanya terjadi pada kolom-kolom tingkat teratas.

Pada kolom-kolom tingkat-tingkat dibawahnya umumnya gaya aksial P_u akan semakin membesar, namun momen lenturnya juga sedikit membesar. Pada kondisi seperti ini maka kolom mungkin masih dalam kondisi patah tarik tetapi baja desaknya kemungkinan sudah leleh. Dengan demikian cara patah dan status

regangan baja desak tampaknya berhubungan dengan konfigurasi / ketinggian / letak kolom / tingkat.



Gambar 6. 8. Zona-zona status patah

6.4.3. Geser kolom

Kolom K1 lantai 1 (lampiran T3.14)

$P_u = 2578,659$ ton (lampiran T3.8)

$M_{a,kolom} = 293,28$ KN (lampiran T3.6)

$M_{b,kolom} = 5375$ KN (lampiran T3.6)

H'_{netto} lt 2 = 3.2 m

$b_{kolom} = 65$ cm

$h_{kolom} = 90$ cm

$H_{kolom} = 375$ cm

$H'_{kolom} = 295$ cm

$A_g = 65 \times 90 = 5850$ cm²

$d' = 6,25$ cm

= 83,75 cm

$f_{ys} = 400$ MPa = 4080 kg / cm²

$f_c = 30$ MPa = 382,5 kg / cm²

Dalam sendi plastis

$$Vu_1 = \frac{Ma + Mb}{H'}$$

$$Vu_1 = \frac{293,28 + 5375}{5,6} = 1012,19 \text{ t}$$

$$Vs_1 = \frac{Vu}{0.6}$$

$$Vs_1 = \frac{1012,19}{0.6} = 1686,99 \text{ t}$$

dicoba pakai $\phi 12 \rightarrow A_{tulangan} = 113.10 \text{ mm}^2$

jumlah kaki = 4

$$\text{Sengkang 4 kaki} = \frac{4 \cdot A \cdot fy \cdot d}{Vs_1}$$

$$\text{Sengkang 4 kaki} = \frac{4 \cdot 113,10 \cdot 240 \cdot 1040}{1686,99} = 111,56 \text{ mm}$$

dipakai jarak sengkang tulangan 110 mm.

Diluar sendi plastis.

$$Vc = \left(1 + \frac{Pu}{Ag \cdot 14}\right) \cdot \left(\frac{1}{6} \cdot \sqrt{f'c} \cdot b \cdot d\right)$$

$$Vc = \left(1 + \frac{25786,59 \cdot 10^3}{1210000 \cdot 14}\right) \cdot \left(\frac{1}{6} \cdot \sqrt{30} \cdot 1100 \cdot 1040\right) = 2634,03 \text{ t}$$

$$Vu_2 = Vu_1 = 1012,19 \text{ t}$$

$$Vs_2 = \frac{Vu_2}{0.6} - Vc$$

$$Vs_2 = \frac{1012,19}{0.6} - 2634,03 = -947,04 \text{ t}$$

dicoba pakai $\phi 10 \rightarrow A_{tulangan} = 78.54 \text{ mm}^2$

jumlah kaki = 2

$Vs_2 < 0$ maka dipakai jarak tulangan 200 mm. Dan S yang dipakai 200 mm.

6.4.4. Joint

Joint untuk K1 pada lantai 1 gempa arah X dari Kanan (lampiran T3.15)

$$h_{\text{balok, kiri}} = 0 \text{ mm}$$

$$h_{\text{balok, kanan}} = 600 \text{ mm}$$

$$L_{\text{balok, kiri}} = 0 \text{ mm}$$

$$L_{\text{balok, kanan}} = 6000 \text{ mm}$$

$$L'_{\text{balok, kiri}} = 0 \text{ mm}$$

$$L'_{\text{balok, kanan}} = 4900 \text{ mm}$$

$$d_{\text{balok, kiri}} = 0 \text{ mm}$$

$$d_{\text{balok, kanan}} = 518,5 \text{ mm}$$

$$C_{\text{balok, kiri}} = 0 \text{ mm}$$

$$C_{\text{balok, kanan}} = 103,2127 \text{ mm}$$

$$a_{\text{balok, kiri}} = 0 \text{ mm}$$

$$a_{\text{balok, kanan}} = 87,7308 \text{ mm}$$

$$Z_{\text{balok, kiri}} = 0 \text{ mm}$$

$$Z_{\text{balok, kanan}} = \left(d - \frac{a}{2} \right) = \left(518,5 - \frac{103,2127}{2} \right) = 474,6346 \text{ mm}$$

$$M_{\text{kap}^-}_{\text{balok, kiri (gempa kiri)}} = 0$$

$$M_{\text{kap}^+}_{\text{balok, kanan (gempa kiri)}} = 555,5621 \text{ Tm}$$

$$M_{\text{kap}^+}_{\text{balok, kiri (gempa kanan)}} = 0$$

$$M_{\text{kap}^-}_{\text{balok, kanan (gempa kanan)}} = 720,3262 \text{ Tm}$$

$$f'_c = 30 \text{ MPa}$$

$$f_y = 240 \text{ MPa}$$

$$h_{\text{kolom}} = 1100 \text{ mm}$$

$$b_{\text{kolom}} = 1100 \text{ mm}$$

$$H_{\text{kolom, atas}} = 4000 \text{ mm}$$

$$H_{\text{kolom, bawah}} = 6000 \text{ mm}$$

$$P_u = 6866,64 \text{ KN}$$

$$A_g_{\text{kolom}} = 1100 \times 1100 = 1210000 \text{ mm}^2$$

Gempa Kanan

$$C_{\text{balok, kanan}} = \frac{0,7 \cdot M_{\text{kap}^-, \text{kanan (gempa kanan)}}}{Z_{\text{balok, kanan}}} \quad (\text{pers 3.112})$$

$$C_{\text{balok, kanan}} = \frac{0,7 \cdot 720,3262}{474,6346 \cdot 10^{-3}} = 1062,35 \text{ t}$$

$T_{balok\ kiri} = 0$ karena M_{kap^+} balok.kiri(gempa kanan) = 0

$$V_{kolom} = \left(\frac{0,7 \left(\frac{L_{ki}}{L_{ki'}} \cdot M_{kap^-} + \frac{L_{ka}}{L_{ka'}} \cdot M_{kap^+} \right)}{\frac{1}{2} \cdot (H_{kolom,atas} + H_{kolom,bawah})} \right) \quad (\text{pers 3.110})$$

$$V_{kolom} = \left(\frac{0,7 \cdot \left(\frac{6}{4,9} \cdot 720,3262 \right)}{\frac{1}{2} \cdot (4 + 6)} \right) = 123,48 \text{ t}$$

$$V_{j,h} = C + T - V_{kolom}$$

$$V_{j,h} = 1062,53 - 123,48 = 938,87 \text{ t}$$

$$V_{jh} = \frac{V_{j,h}}{b_{kolom} \cdot h_{balok}} \quad (\text{pers 3.114})$$

$$V_{jh} = \frac{938,87}{1100 \cdot 600} = 0,0014 \text{ t}$$

kontrol geser minimum

$$V_{jh} < 1,5 \cdot \sqrt{f'c} \rightarrow \text{aman!} \quad (\text{pers 3.115})$$

Jika $\frac{Pu}{Ag} \leq 0,1 \cdot f'c$ maka $V_{ch} = 0$. jika $\frac{Pu}{Ag} \geq 0,1 \cdot f'c$ maka V_{ch} adalah

dihitung dengan persamaan berikut:

$$V_{ch} = \frac{2}{3} \cdot \sqrt{\left(\frac{Pu}{Ag} \right) - 0,1 \cdot f'c \cdot b_{kolom} \cdot h_{balok}} \quad (\text{pers 3.116})$$

$$V_{ch} = \frac{2}{3} \cdot \sqrt{\left(\frac{6866,64 \cdot 10^3}{1210000} \right) - 0,1 \cdot 30 \cdot 1100 \cdot 600} = 719,63 \text{ t}$$

$$V_{sh} = V_{j,h} - V_{ch}$$

$$V_{sh} = 938,87 - 719,63 = 219,24 \text{ t} \quad (\text{pers 3.117})$$

$$A_{jh} = \frac{V_{sh}}{f_y} \quad (\text{pers 3.118})$$

$$A_{jh} = \frac{219,24 \cdot 10^3}{240} = 913,50 \text{ mm}^2$$

dipakai tulangan dengan $\phi 12$ maka $A = 113.10 \text{ mm}^2$

dicoba dipasang dengan sengkang 2 kaki

$$n = \frac{A_{jh}}{A_v}$$

jumlah sengkang

$$n = \frac{913,50}{2 \cdot 113.10} = 4,039$$

maka n yang dipakai 4. Dan jarak sengkang yang digunakan

$$S = \frac{h_{balok}}{n}$$

$$S = \frac{600}{4} = 150$$

maka dipakai jarak sengkang 150 mm.

Untuk gempa dari arah kanan

Joint untuk K1 pada lantai 1

$$C_{balok,kiri} = 0$$

$$T_{balok,kanan} = \frac{0,7 \cdot M_{kap^-,kanan(gempa\ kiri)}}{Z_{balok\ kanan}}$$

$$T_{balok,kanan} = \frac{0,7 \cdot 555,5621}{474,634 \cdot 10^{-3}} = 819,35 \text{ t}$$

$$C_c = 17963,156 \cdot 20,719 = 372178.629164 \text{ Kg} = 372,178 \text{ ton}$$

$$C_s = \frac{371044,8 \cdot 20,719 - 371038,55}{20,719} = 369,2136 \text{ ton}$$

$$T_s = 240,295 \text{ ton}$$

$$P_n = C_c + C_s - T_s = 501.0966 > P_{na} = 143,938$$

→ Penyediaan gaya-aksial cukup

$$M_n = P_n \cdot e = 501.0966 \cdot 104,4 = 523.1448504 \text{ tm} > M_{na} = 150,33625 \text{ tm}$$

Disain kolom patah tarik sukses

6.4.5 Desain Kolom Patah Tarik Dengan Baja Desak Sudah Leleh

$$P_u = 108,2 \text{ t}$$

$$M_u = 91,38 \text{ tm}$$

$$P_{na} = \frac{108,2}{0,65} = 166,4615 \text{ t}$$

$$M_{na} = \frac{91,38}{0,8} = 108,20 \text{ tm}$$

$$e = \frac{M_{na}}{P_{na}} = \frac{108,38}{166,4615} = 68,619 \text{ cm}$$

1. Menentukan ukuran kolom

Pada kondisi *balance* maka

$$C_b = \frac{\varepsilon_c}{(\varepsilon_c + \varepsilon_s)} \cdot h = \frac{0,003}{0,003 + 0,001943} \cdot h = 0,6069 h$$

$$P_b = C_c + C_s - T_s$$

$$= 0,85 f'_c \beta_1 \cdot C_b \cdot b + A_s' \cdot f_y - A_s f_y$$

$$V_{kolom} = \frac{\left(0,7 \left(\frac{L_{ki}}{L_{ki'}} \cdot M_{kap^-} + \frac{L_{ka}}{L_{ka'}} \cdot M_{kap^+} \right) \right)}{\frac{1}{2} \cdot (H_{kolom,atas} + H_{kolom,bawah})}$$

$$V_{kolom} = \frac{\left(0,7 \cdot \left(\frac{6}{4,9} \cdot 555,5621 \right) \right)}{\frac{1}{2} \cdot (4 + 6)} = 95,24 \text{ t}$$

$$V_{j,h} = C + T - V_{kolom}$$

$$V_{j,h} = 0 + 819,35 - 95,24 = 724,11 \text{ t}$$

$$V_{jh} = \frac{V_{j,h}}{b_{kolom} \cdot h_{balok}}$$

$$V_{jh} = \frac{724,11}{1100 \cdot 600} = 0,0011 \text{ t}$$

kontrol geser minimum

$$V_{jh} < 1,5 \cdot \sqrt{f'c} \rightarrow \text{aman!}$$

Jika $\frac{Pu}{Ag} \leq 0,1 \cdot f'c$ maka $V_{ch} = 0$. jika $\frac{Pu}{Ag} \geq 0,1 \cdot f'c$ maka V_{ch} adalah

dihitung dengan persamaan berikut:

$$V_{ch} = \frac{2}{3} \cdot \sqrt{\left(\frac{Pu}{Ag} \right) - 0,1 \cdot f'c} \cdot b_{kolom} \cdot h_{balok}$$

$$V_{ch} = \frac{2}{3} \cdot \sqrt{\left(\frac{6866,64 \cdot 10^3}{1210000} \right) - 0,1 \cdot 30} \cdot 1100 \cdot 600 = 719,63 \text{ t}$$

$$V_{sh} = V_{j,h} - V_{ch}$$

$$V_{sh} = 724,11 - 719,63 = 4,49 \text{ t}$$

$$A_{jh} = \frac{V_{sh}}{f_y}$$

$$A_{jh} = \frac{4,49 \cdot 10^3}{240} = 18,70 \text{ mm}^2$$

dipakai tulangan dengan $\phi 12$ maka $A = 113,10 \text{ mm}^2$

dicoba dipasang dengan sengkang 2 kaki

$$n = \frac{A_{jh}}{A_v}$$

jumlah sengkang

$$n = \frac{18,70}{2 \cdot 113,10} = 0,08$$

maka n yang dipakai 2. Dan jarak sengkang yang digunakan

$$S = \frac{h_{balok}}{n}$$

$$S = \frac{600}{2} = 300$$

maka dipakai jarak sengkang 300 mm.

Joint untuk Gempa arah Y dari Kanan

$$h_{\text{balok, kiri}} = 0 \text{ mm}$$

$$h_{\text{balok, kanan}} = 600 \text{ mm}$$

$$L_{\text{balok, kiri}} = 0 \text{ mm}$$

$$L_{\text{balok, kanan}} = 6000 \text{ mm}$$

$$L'_{\text{balok, kiri}} = 0 \text{ mm}$$

$$L'_{\text{balok, kanan}} = 4900 \text{ mm}$$

$$d_{\text{balok, kiri}} = 0 \text{ mm}$$

$$d_{\text{balok, kanan}} = 518,5 \text{ mm}$$

$$C_{\text{balok, kiri}} = 0 \text{ mm}$$

$$C_{\text{balok, kanan}} = 103,2127 \text{ mm}$$

$$a_{\text{balok, kiri}} = 0 \text{ mm}$$

$$a_{\text{balok, kanan}} = 87,7308 \text{ mm}$$

$$Z_{\text{balok, kiri}} = 0 \text{ mm}$$

$$Z_{\text{balok, kanan}} = \left(d - \frac{a}{2} \right) = \left(518,5 - \frac{87,7308}{2} \right) = 474,634 \text{ mm}$$

$$\begin{aligned}
 M_{kap}^- \text{ balok,kiri(gempa kiri)} &= 0 & M_{kap}^+ \text{ balok,kanan(gempa kiri)} &= 555,5621 \text{ Tm} \\
 M_{kap}^+ \text{ balok,kiri(gempa kanan)} &= 0 & M_{kap}^- \text{ balok,kanan(gempa kanan)} &= 720,3262 \text{ Tm} \\
 f'_c &= 30 \text{ MPa} & f_y &= 240 \text{ MPa} \\
 h \text{ kolom} &= 1100 \text{ mm} & b \text{ kolom} &= 1100 \text{ mm} \\
 H_{\text{kolom, atas}} &= 4000 \text{ mm} & H_{\text{kolom, bawah}} &= 6000 \text{ mm} \\
 P_u &= 6866,64 \text{ KN} & A_g \text{ kolom} &= 1100 \times 1100 = 1210000 \text{ mm}^2
 \end{aligned}$$

Penyelesaian:

$$C_{\text{balok,kanan}} = \frac{0,7 \cdot M_{\text{kap,kanan(gempa kanan)}}}{Z_{\text{balok kanan}}}$$

$$C_{\text{balok,kanan}} = \frac{0,7 \cdot 720,3262}{474,634 \cdot 10^{-3}} = 1062,35 \text{ t}$$

$$T_{\text{balok kiri}} = 0 \text{ karena } M_{\text{kap}^+ \text{ balok,kiri(gempa kanan)}} = 0$$

$$V_{\text{kolom}} = \left(\frac{0,7 \left(\frac{L_{ki}}{L_{ki'}} \cdot M_{\text{kap}^-} + \frac{L_{ka}}{L_{ka'}} \cdot M_{\text{kap}^+} \right)}{\frac{1}{2} \cdot (H_{\text{kolom,atas}} + H_{\text{kolom,bawah}})} \right)$$

$$V_{\text{kolom}} = \left(\frac{0,7 \cdot \left(\frac{6}{4,9} \cdot 720,6232 \right)}{\frac{1}{2} \cdot (4 + 6)} \right) = 123,48 \text{ t}$$

$$V_{j,h} = C + T - V_{\text{kolom}}$$

$$V_{j,h} = 1062,35 + 0 - 123,48 = 938,87 \text{ t}$$

$$V_{jh} = \frac{V_{j,h}}{b_{\text{kolom}} \cdot h_{\text{balok}}}$$

$$V_{jh} = \frac{938,87}{1100 \cdot 600} = 0,0014 \text{ t}$$

kontrol geser minimum

$$V_{jh} < 1.5 \cdot \sqrt{f'c} \rightarrow \text{aman!}$$

Jika $\frac{Pu}{Ag} \leq 0,1 \cdot f'c$ maka $V_{ch} = 0$. jika $\frac{Pu}{Ag} \geq 0,1 \cdot f'c$ maka V_{ch} adalah

dihitung dengan persamaan berikut:

$$V_{ch} = \frac{2}{3} \cdot \sqrt{\left(\frac{Pu}{Ag}\right) - 0,1 \cdot f'c} \cdot b_{kolom} \cdot h_{balok}$$

$$V_{ch} = \frac{2}{3} \cdot \sqrt{\left(\frac{6866,64 \cdot 10^3}{1210000}\right) - 0,1 \cdot 30} \cdot 1100 \cdot 600 = 719,63 \text{ t}$$

$$V_{sh} = V_{j,h} - V_{ch}$$

$$V_{sh} = 938,87 - 719,63 = 219,24 \text{ t}$$

$$A_{jh} = \frac{V_{sh}}{fy}$$

$$A_{jh} = \frac{219,24 \cdot 10^3}{240} = 913,5 \text{ mm}^2$$

dipakai tulangan dengan $\phi 12$ maka $A = 113.10 \text{ mm}^2$

dicoba dipasang dengan sengkang 2 kaki

$$n = \frac{A_{jh}}{A_v}$$

jumlah sengkang

$$n = \frac{913,5}{2 \cdot 113.10} = 4,039$$

maka n yang dipakai 4. Dan jarak sengkang yang digunakan

$$S = \frac{h_{balok}}{n}$$

$$S = \frac{600}{4} = 150$$

maka dipakai jarak sengkang 200 mm.

Gempa Kanan

$$C_{balok,kiri} = 0$$

$$T_{balok,kanan} = \frac{0,7 \cdot M_{kap^-,kanan(gempa\ kiri)}}{Z_{balok\ kanan}}$$

$$T_{balok,kanan} = \frac{0,7 \cdot 555,5621}{474,634 \cdot 10^{-3}} = 819,35 \text{ t}$$

$$V_{kolom} = \left(\frac{0,7 \left(\frac{L_{ki}}{L_{ki'}} \cdot M_{kap^-} + \frac{L_{ka}}{L_{ka'}} \cdot M_{kap^+} \right)}{\frac{1}{2} \cdot (H_{kolom,atas} + H_{kolom,bawah})} \right)$$

$$V_{kolom} = \left(\frac{0,7 \cdot \left(\frac{6}{4,9} \cdot 555,5621 \right)}{\frac{1}{2} \cdot (4 + 6)} \right) = 95,24 \text{ t}$$

$$V_{j,h} = C + T - V_{kolom}$$

$$V_{j,h} = 0 + 819,35 - 95,24 = 724,11 \text{ t}$$

$$V_{jh} = \frac{V_{j,h}}{b_{kolom} \cdot h_{balok}}$$

$$V_{jh} = \frac{724,11}{1100 \cdot 600} = 0,0011 \text{ t}$$

kontrol geser minimum

$$V_{jh} < 1,5 \cdot \sqrt{f'c} \rightarrow \text{aman!}$$

Jika $\frac{Pu}{Ag} \leq 0,1 \cdot f'c$ maka $V_{ch} = 0$. jika $\frac{Pu}{Ag} \geq 0,1 \cdot f'c$ maka V_{ch} adalah

dihitung dengan persamaan berikut:

$$V_{ch} = \frac{2}{3} \cdot \sqrt{\left(\frac{Pu}{Ag}\right) - 0.1 \cdot f'c \cdot b_{kolom} \cdot h_{balok}}$$

$$V_{ch} = \frac{2}{3} \cdot \sqrt{\left(\frac{6866,64 \cdot 10^3}{1210000}\right) - 0,1 \cdot 30 \cdot 1100 \cdot 600} = 719,63 \text{ t}$$

$$V_{sh} = V_{j,h} - V_{ch}$$

$$V_{sh} = 724,11 - 719,63 = 4,490 \text{ t}$$

$$A_{jh} = \frac{V_{sh}}{fy}$$

$$A_{jh} = \frac{4,49 \cdot 10^3}{240} = 18,70 \text{ mm}^2$$

dipakai tulangan dengan $\phi 12$ maka $A = 113,10 \text{ mm}^2$

dicoba dipasang dengan sengkang 2 kaki

$$n = \frac{A_{jh}}{A_v}$$

jumlah sengkang

$$n = \frac{18,70}{2 \cdot 113,10} = 0,08$$

maka n yang dipakai 2. Dan jarak sengkang yang digunakan

$$S = \frac{h_{balok}}{n}$$

$$S = \frac{600}{2} = 300$$

maka dipakai jarak sengkang 300 mm.

6.5 Perencanaan Dinding Geser (*Shear Wall*)

6.4.5. Grafik Mn dan Pn

Ukuran boundary (1000 x 1000) mm² → Ast = 1% Ag (lampiran T3.9 - T3-11)



$$f'c = 30 \text{ MPa} = 382.5 \text{ kg/cm}^2$$

$$f_y = 400 \text{ MPa} = 5100 \text{ kg/cm}^2$$

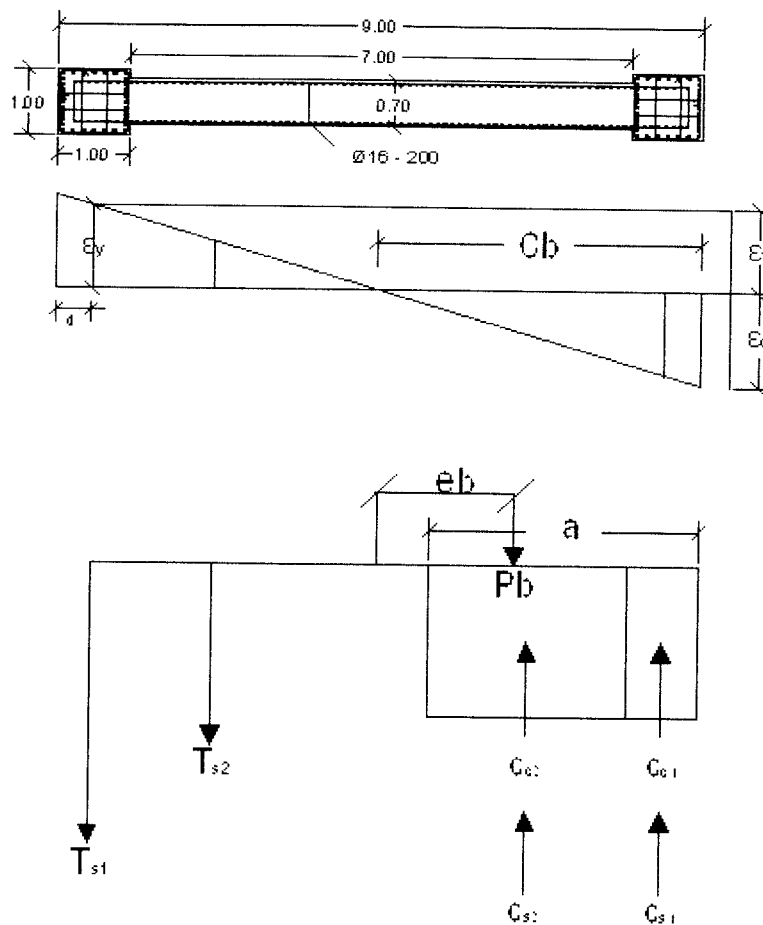
$$A_d = \frac{1}{4} \eta D^2 = \frac{1}{4} 3,14 2,54^2 = 4,9087 \text{ cm}^2$$

$$A_s = A_s' = 22 \cdot 4,908 = 107.976 \text{ cm}^2$$

$$d = d' = 50 \text{ cm}$$

$$\varepsilon_y = \frac{5100}{2100000} = 0.00243$$

keadaan patah desak ($C > C_b$)



Gambar 6.9 Gaya-gaya pada *shear wall* dalam kondisi patah desak

$$Cb = \frac{\varepsilon_c}{(\varepsilon_c + \varepsilon_y)} \cdot h = \frac{0,003}{0,003 + 0,00243} \cdot 850 = 396,768 \text{ cm}$$

ditentukan faktornya 1.8 maka nilai C adalah:

$$C = \text{faktor} \cdot Cb$$

$$C = 1.8 \cdot 396,768 = 714,1824 \text{ cm}$$

$$a = 0.85 \cdot C$$

$$a = 0.85 \cdot 714,1824 = 607,05 \text{ cm}$$

$$Cs = As' \cdot (fy - 0.85 \cdot f'c)$$

$$Cs_1 = 107,976 \cdot (5100 - 0.85 \cdot 382,5) = 515571.175 \text{ kg}$$

$$Cs_2 = 72,3456 \cdot (5100 - 0.85 \cdot 382,5) = 345441.189 \text{ kg}$$

$$Cc = 0.85 \cdot f'c \cdot a \cdot b$$

$$Cc_1 = 0.85 \cdot 382,5 \cdot 100 \cdot 100 = 3251250 \text{ kg}$$

$$Cc_2 = 0.85 \cdot 382,5 \cdot (607,05 - 100) \cdot 70 = 11539824,1875 \text{ kg}$$

$$\varepsilon_{s1} = \frac{h-C}{C} \cdot \varepsilon_c = \frac{850 - 714,1824}{714,1824} \cdot 0,003 = 0,00057 \text{ cm} < 0,00243 \text{ cm}$$

$$\varepsilon_{s2} = \frac{h-C}{C} \cdot \varepsilon_c = \frac{750 - 714,1824}{714,1824} \cdot 0,003 = 0,00015 \text{ cm} < 0,00243 \text{ cm}$$

$$fs_1 = \varepsilon_s \cdot Es = 0.00057 \cdot 2100000 = 1197 \text{ kg/cm}^2$$

$$fs_2 = \varepsilon_s \cdot Es = 0.00015 \cdot 2100000 = 315 \text{ kg/cm}^2$$

$$Ts_1 = As \cdot fs_1 = 107,976 \cdot 1197 = 129247.272 \text{ kg}$$

$$Ts_2 = As \cdot fs_2 = 72,3456 \cdot 315 = 22788.864 \text{ kg}$$

Keseimbangan gaya-gaya vertical :

$$Pn = Cc_1 + Cc_2 + Cs_1 + Cs_2 - Ts_1 - Ts_2$$

$$= 3251250 + 11539824,1875 + 515571.175 + 345441,189 - 129247,272$$

$$- 22788,864$$

$$= 15500050.43\text{kg} = 15500,05\text{ton}$$

$$Mn = Cc_1 \cdot \left(\frac{ht}{2} - \frac{b}{2} \right) + Cc_2 \cdot \left(\frac{ht}{2} - \frac{(a-b)}{2} \right) + Cs_1 \cdot \left(\frac{ht}{2} - \frac{b}{2} \right) + Cs_2 \cdot \left(\frac{ht}{2} - \frac{(a-b)}{2} \right) \\ + Ts_1 \left(\frac{ht}{2} - \frac{b}{2} \right) + Ts_2 \left(\frac{ht}{2} - \frac{(x-b)}{2} \right)$$

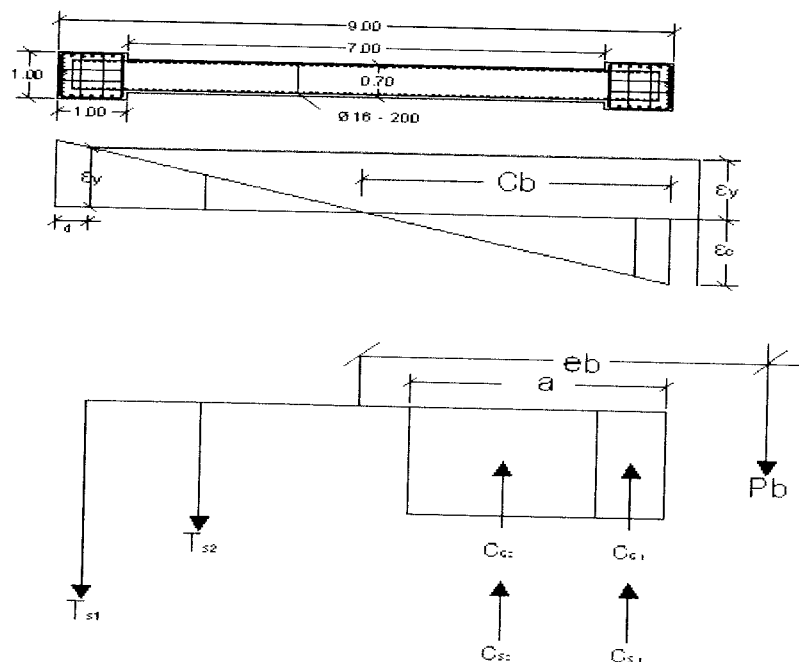
$$Mn = 3251,250 \cdot \left(\frac{9}{2} - \frac{1}{2} \right) + 11539,8241875 \cdot \left(\frac{9}{2} - \frac{(6,07-1)}{2} \right) + 515,571175 \cdot \left(\frac{9}{2} - \frac{1}{2} \right) \\ + 345,441189 \cdot \left(\frac{9}{2} - \frac{(6,07-1)}{2} \right) + 129,247272 \left(\frac{9}{2} - \frac{1}{2} \right) + 22,788864 \left(\frac{9}{2} - \frac{(1,86-1)}{2} \right)$$

$$Mn = 13005 + 22675.75 + 2062.4 + 678.792 + 516,989 + 92.7553$$

$$= 32031.6863 \text{ tm}$$

$$e = \frac{Mn}{Pn} = \frac{32031,6863}{15500,05} = 2.066 \text{ m} = 206.6 \text{ cm}$$

Kondisi balance



Gambar 6. 17 Gaya-gaya pada *shear wall* dalam kondisi seimbang

$$C_b = 396,768$$

$$a_b = 0,85 C_b = 337,2528 \text{ cm}$$

$$\varepsilon_s' = \frac{C - d'}{C} \cdot \varepsilon_c = \frac{396,768 - 6,25}{396,768} \cdot 0,003 = 0,0029 > 0,00243 \text{ baja desak leleh}$$

$$C_s = A_s' \cdot (f_y - 0,85 \cdot f'_c)$$

$$C_{s_1} = 107,976 \cdot (5100 - 0,85 \cdot 382,5) = 515571,175 \text{ kg}$$

$$C_{s_2} = 72,3456 \cdot (5100 - 0,85 \cdot 382,5) = 345441,189 \text{ kg}$$

$$C_c = 0,85 \cdot f'_c \cdot a \cdot b$$

$$C_{c_1} = 0,85 \cdot 382,5 \cdot 100 \cdot 100 = 3251250 \text{ kg}$$

$$C_{c_2} = 0,85 \cdot 382,5 \cdot (337,2528 - 100) \cdot 70 = 5399577,162 \text{ kg}$$

$$T_{s_1} = A_s \cdot f_y = 107,976 \cdot 5100 = 550677,6 \text{ kg}$$

$$T_{s_2} = A_s \cdot f_y = 72,3456 \cdot 5100 = 368962,56 \text{ kg}$$

Keseimbangan gaya-gaya vertical :

$$P_n = C_{c_1} + C_{c_2} + C_{s_1} + C_{s_2} - T_{s_1} - T_{s_2}$$

$$= 3251250 + 5399577,162 + 515571,175 + 345441,189 - 550677,6 -$$

$$368962,56$$

$$= 8592199,366 \text{ kg} = 8592,199366 \text{ ton}$$

$$M_n = C_{c_1} \cdot \left(\frac{ht}{2} - \frac{b}{2} \right) + C_{c_2} \cdot \left(\frac{ht}{2} - \frac{(a-b)}{2} \right) + C_{s_1} \cdot \left(\frac{ht}{2} - \frac{b}{2} \right) + C_{s_2} \cdot \left(\frac{ht}{2} - \frac{(a-b)}{2} \right) \\ + T_{s_1} \left(\frac{ht}{2} - \frac{b}{2} \right) + T_{s_2} \left(\frac{ht}{2} - \frac{(x-b)}{2} \right)$$

$$M_n = 3251,250 \cdot \left(\frac{9}{2} - \frac{1}{2} \right) + 5399,577 \cdot \left(\frac{9}{2} - \frac{(3,37-1)}{2} \right) + 515,571 \cdot \left(\frac{9}{2} - \frac{1}{2} \right)$$

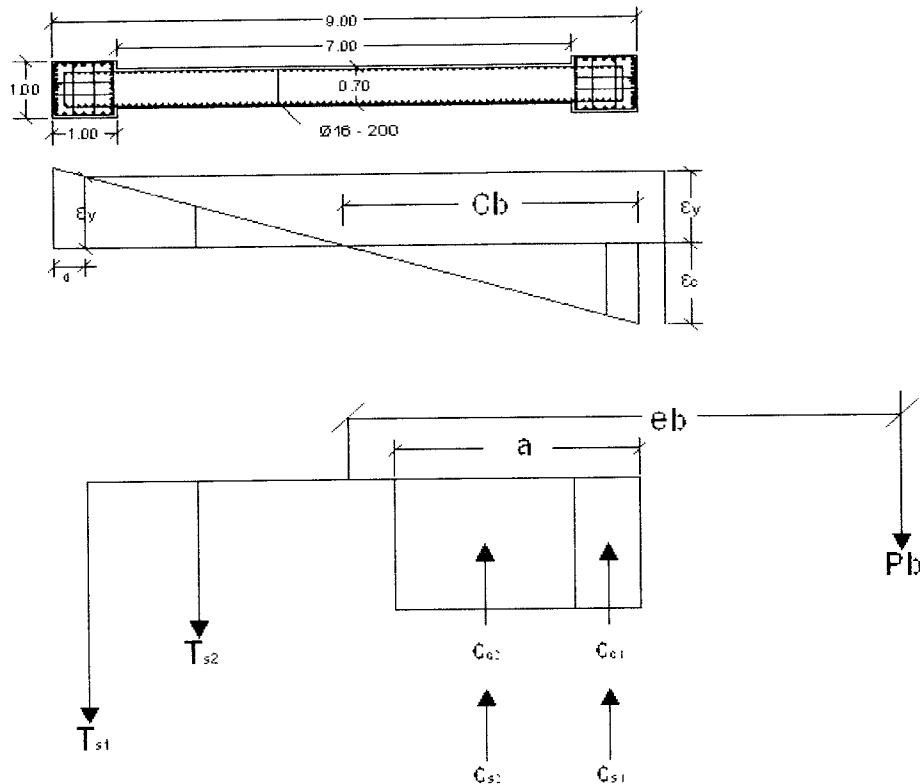
$$+ 345,441189 \cdot \left(\frac{9}{2} - \frac{(3,37-1)}{2} \right) + 550,6776 \left(\frac{9}{2} - \frac{1}{2} \right) + 368,9626 \left(\frac{9}{2} - \frac{(5,04-1)}{2} \right)$$

$$M_n = 13005 + 17899,598 + 2062,4 + 1145,138 + 2202,7104 + 915,027$$

$$= 37229,8734 \text{ tm}$$

$$e = \frac{Mn}{Pn} = \frac{37026,944}{8592,2} = 4,309 \text{ m} = 430,9 \text{ cm}$$

Kondisi patah tarik



Gambar 6. 18 Gaya-gaya pada *shear wall* dalam kondisi patah tarik

$$C = 0,5 C_b = 198,384 \text{ cm}$$

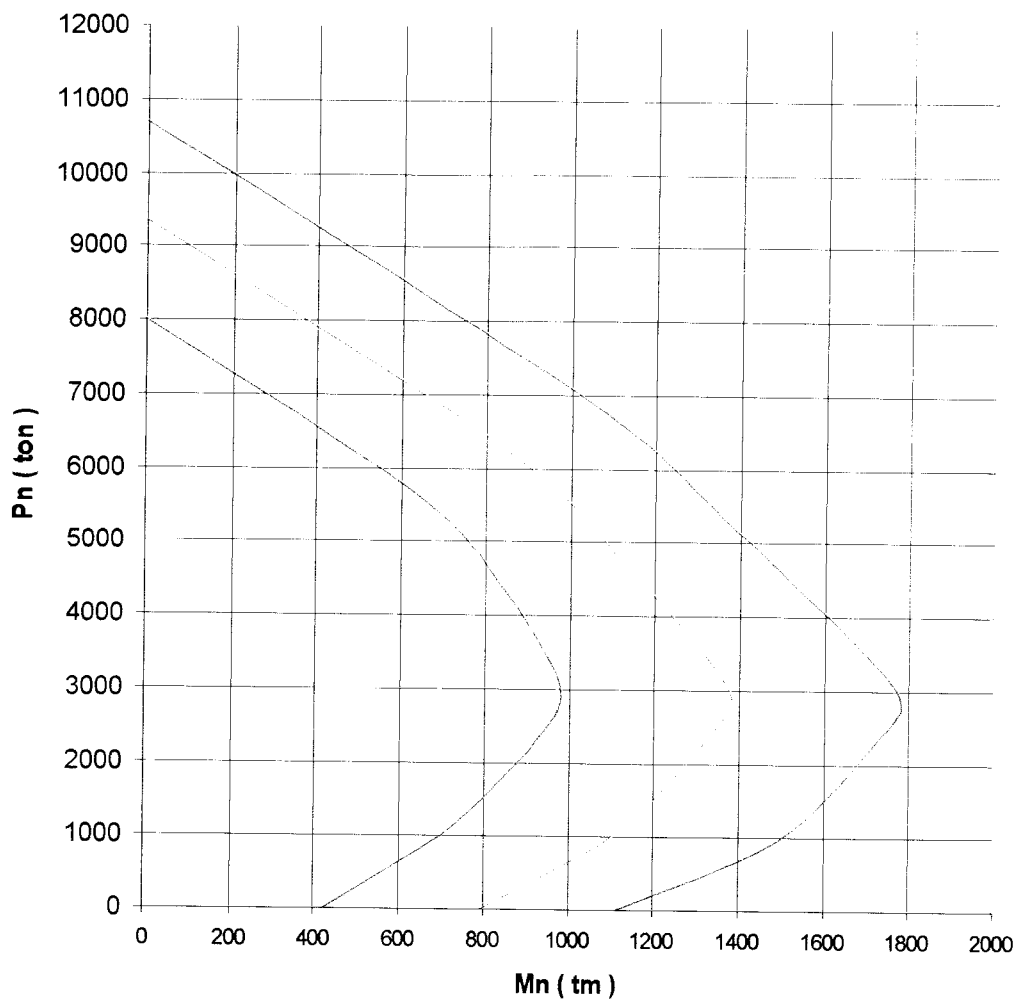
$$a = 0,85 C = 168,6264 \text{ cm}$$

$$\varepsilon_{s'} = \frac{C - d'}{C} \cdot \varepsilon_c = \frac{198,384 - 6,25}{198,384} \cdot 0,003 = 0,0029 > 0,00243$$

$$\varepsilon_s = \frac{h - C}{C} \cdot \varepsilon_c = \frac{850 - 198,384}{198,384} \cdot 0,003 = 0,00985 > 0,00243$$

Baja tarik pasti leleh

Kolom penulangan 2 muka (1000/9000), $f_c = 30 \text{ Mpa}$, $f_y = 400 \text{ Mpa}$ (1% - 3%)



Gambar 6. 19 Interaksi Mn dan Pn

6.4.6. Desain tulangan *Shear Wall*

Story 1 (lampiran)

Data input :

$M_u = 21035,00 \text{ KNm}$ (Lampiran Tabel T3.7)

$P_u = 7328,03 \text{ KN}$ (Lampiran Tabel T3.8)

$b_{\text{kolom}} = 1000 \text{ mm}$

$h_{\text{kolom}} = 1000 \text{ mm}$

$$\phi = 0,65$$

Penyelesaian :

$$M_n = \frac{Mu}{\phi} = \frac{1339,00}{0,65} = 2059,998 \text{ KNm} \quad (\text{pers 3.102})$$

$$P_n = \frac{Pu}{\phi} = \frac{7328,03}{0,65} = 11273,9 \text{ KN} \quad (\text{pers 3.103})$$

Nilai M_n dan P_n diplotkan ke gambar grafik M_n - P_n untuk mencari berapa persen tulangan yang dibutuhkan oleh kolom. Setelah diplotkan maka didapat: 1 %

$$\begin{aligned} A_{st} &= A_s' + A_s = 1\% \times A_g \\ &= 1\% \times (1000 \times 1000) = 10000 \text{ mm}^2 \end{aligned}$$

$$\text{Pakai tulangan D25} \rightarrow A_{tul} = \frac{1}{4} \times \pi \times 25^2 = 490,87 \text{ mm}^2$$

$$\text{Kebutuhan tulangan (n)} = \frac{A_{st}}{A_{tul}} = \frac{10000}{490,87} = 20,37 \rightarrow 22 \text{ buah tulangan}$$

$$n_{\text{tul tarik}} = n_{\text{tul desak}} = \frac{n}{2} = \frac{26}{2} = 13 \text{ buah tulangan}$$

Jadi, tulangan yang dibutuhkan oleh kolom K1 pada story 2 adalah:

22D25.

Kebutuhan luas tulangan (A_{st}) pada kolom K1 masih dibawah 1% dari luas bruto kolom (A_g), dikarenakan syarat kebutuhan luas tulangan (A_{st}) pada *sheer wall* minimal adalah 1% dari luas bruto kolom (A_g) maka kebutuhan tulangan pada *sheer wall* dibulatkan menjadi 1% dari luas bruto kolom (A_g). Dengan adanya pembulatan luas tulangan (A_{st}) pada *sheer wall* maka nilai gaya aksial nominal (P_n) dan nilai momen nominal (M_n) berubah juga. Untuk

mengetahui nilai gaya aksial nominal (P_n) pada kolom dengan menggunakan rumus Whitney, berikut ini cara penyelesaiannya.

$$A_s = 22 \cdot 490,87 = 6381,36 \text{ mm}^2$$

$$\rho = \frac{A_s}{d \cdot b}$$

$$\rho = \frac{6381,36}{1040 \cdot 1000} = 0,0056$$

$$C_b = \left(\frac{600}{600 + f_y} \right) \cdot d$$

$$C_b = \left(\frac{600}{600 + 400} \right) \cdot 1040 = 624 \text{ mm}$$

$$a_b = 0,85 \cdot C_b$$

$$a_b = 0,85 \cdot 624 = 530,4 \text{ mm}$$

$$f_s' = \frac{c - d'}{c} \cdot 600$$

$$f_s' = \frac{624 - 60}{624} \cdot 600 = 542,308 \text{ MPa}$$

$f_y < f_s'$ maka dipakai $f_y = 400 \text{ MPa}$

$$P_{nb} = 0,85 \cdot f'c \cdot a \cdot b$$

$$P_{nb} = 0,85 \cdot 30 \cdot 530,4 \cdot 1100 = 14877,72 \text{ t}$$

$$0,65 \cdot P_{nb} = 0,65 \cdot 14877,72 = 9670,52 \text{ t}$$

$$e = \frac{M_u}{P_u} = \frac{1339,00}{7328,03} = 182,72 \text{ mm}$$

Runtuh Tarik $P_u < 0,65 P_n$

$$m = \frac{f_y}{0,85 \cdot f'c}$$

$$m = \frac{400}{0,85 \cdot 30} = 15,96$$

$$P_n = 0,85 \times f'_c \times b \times d \times \left(\left(\frac{h - 2 \times e}{2 \times d} \right) + \sqrt{\left(\frac{h - 2 \times e}{2 \times d} \right)^2 + 2 \times m \times \rho \times \left(1 - \frac{d'}{d} \right)} \right)$$

$$P_n = 0,85 \cdot 30 \cdot 1100 \cdot 1040 \cdot$$

$$\left(\left(\frac{1100 - 2 \cdot 182,72}{2 \cdot 182,72} \right) + \sqrt{\left(\frac{1100 - 2 \cdot 182,72}{2 \cdot 1040} \right)^2 + 2 \cdot 15,96 \cdot 0,0056 \cdot \left(1 - \frac{60}{1040} \right)} \right)$$

$$= 25786,59 \text{ t}$$

$$\text{Maka } P_n = 25786,59 \text{ t}$$

(pers 3.105)

$$A_{st} = \frac{2 \cdot A_s}{A_g} \cdot 100\%$$

$$A_{st} = \frac{2 \cdot 6381,36}{1210000} \cdot 100\% = 1,05\%$$

dari grafik Mn-Pn didapat nilai Mn = 4300 tm, Sehingga Mkap kolom nya menjadi = 1,25 . 4300 = 5375 tm.

6.4.7. Geser Shearwall

Shearwall lantai 1 (lampiran T3.14)

$$P_u = 25786,59 \text{ t (lampiran T3.8)}$$

$$M_{a, \text{sheerwall}} = 293,28 \text{ t (lampiran T3.6)}$$

$$M_{b, \text{sheerwall}} = 5375 \text{ t (lampiran T3.6)}$$

$$H' \text{ netto lt 2} = 3.2 \text{ m}$$

$$B_{\text{sheerwall}} = 1100 \text{ mm}$$

$$h_{\text{sheerwall}} = 1100 \text{ mm}$$

$$H_{\text{sheerwall}} = 6000 \text{ mm}$$

$$H'_{\text{sheerwall}} = 5400 \text{ mm}$$

$$A_g = 1100 \times 1100 = 1210000 \text{ mm}^2$$

$$d' = 60 \text{ mm}$$

$$d = 1040 \text{ mm}$$

$$f_y = 240 \text{ MPa}$$

$$f'c = 30 \text{ MPa}$$

Dalam sendi plastis

$$Vu_1 = \frac{Ma + Mb}{H'}$$

$$Vu_1 = \frac{293,28 + 5375}{5,6} = 1012,19 \text{ t}$$

$$Vs_1 = \frac{Vu}{0.6}$$

$$Vs_1 = \frac{1012,19}{0.6} = 1686,99 \text{ t}$$

$$\text{dicoba pakai } \phi 12 \rightarrow A_{\text{tulangan}} = 113,10 \text{ mm}^2$$

jumlah kaki = 4

$$\text{Sengkang 4 kaki} = \frac{4 \cdot A \cdot fy \cdot d}{Vs_1}$$

$$\text{Sengkang 4 kaki} = \frac{4 \cdot 113,10 \cdot 240 \cdot 1040}{1686,99} = 111,56 \text{ mm}$$

dipakai jarak sengkang tulangan 110 mm.

Diluar sendi plastis.

$$Vc = \left(1 + \frac{Pu}{Ag \cdot 14} \right) \cdot \left(\frac{1}{6} \cdot \sqrt{f'c} \cdot b \cdot d \right)$$

$$Vc = \left(1 + \frac{25786,59 \cdot 10^3}{1210000 \cdot 14} \right) \cdot \left(\frac{1}{6} \cdot \sqrt{30} \cdot 1100 \cdot 1040 \right) = 2634,03 \text{ t}$$

$$Vu_2 = Vu_1 = 1012,19 \text{ t}$$

$$Vs_2 = \frac{Vu_2}{0.6} - Vc$$

$$Vs_2 = \frac{1012,19}{0.6} - 2634,03 = -947,04 \text{ t}$$

$$\text{dicoba pakai } \phi 10 \rightarrow A_{\text{tulangan}} = 78,54 \text{ mm}^2$$

jumlah kaki = 2

$V_{s2} < 0$ maka dipakai jarak tulangan 200 mm. Dan S yang dipakai 200 mm.

6.5. Perencanaan Pondasi

Untuk kapasitas tiang tunggal, pada penulisan ini diasumsikan kapasitas tiang tunggal sebesar 100 t.

Data yang ada dari hasil analisis untuk desain pondasi ini adalah:

1. $P_u = 25786,59 \text{ t}$
2. $M_{u,x} = 5375 \text{ t}$
3. $M_{u,y} = M_{u,x}$

Untuk desain pondasi diambil data-data sebagai berikut:

1. diameter tiang pancang 300 mm
2. tebal *pile cap* (*poer*) 2500 mm

$$P = \frac{P_u, k}{1.05}$$

$$P = \frac{25786,59}{1,05} = 24558,657 \text{ t}$$

jarak antar tiang yang dipakai adalah 2,5 D

$$s = 2,5 \cdot D$$

$$s = 2,5 \cdot 300 = 750 \text{ mm}$$

jumlah baris dalam konfigurasi tiang (n) = 8

jumlah tiang dalam satu baris (m) = 8

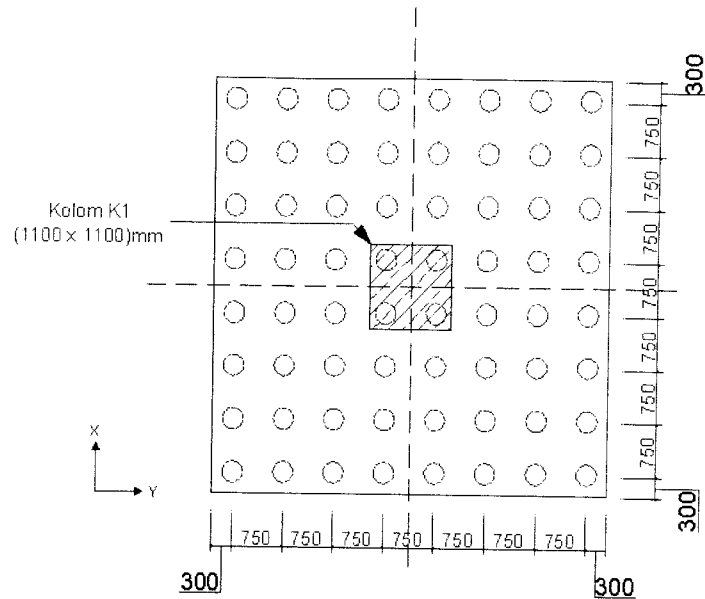
maka nilai efisiensi tiang yang didapat adalah

$$Eg = 1 - \operatorname{arctg} \frac{d}{s} \left(\frac{(n-1) \cdot m + (m-1) \cdot n}{90 \cdot n \cdot m} \right)$$

$$Eg = 1 - \operatorname{arctg} \frac{300}{750} \left(\frac{(8-1) \cdot 8 + (8-1) \cdot 8}{90 \cdot 8 \cdot 8} \right) \quad (\text{pers 3.119})$$

$$Eg = 0,5544$$

$$EY^2 = EX^2 = 189 \text{ m}^2$$



Gambar 6. 20 Konfigurasi kelompok tiang pancang

Beban yang diterima tiang

$$\sum P = P + \text{berat pile cap} + \text{berat tanah urug}$$

$$\sum P = 25786,59 + 5,85^2 \cdot 2,5 \cdot 24 + ((5,85^2 - 1,1^2) \cdot 1 \cdot 18$$

$$\sum P = 28434,165 \text{ t}$$

$$\sum Pu = 1.05 \cdot \sum P$$

$$\sum Pu = 29855,873 \text{ t}$$

$$P_{max} = \frac{\sum Pu}{n} + \frac{Mu, x \cdot Y_{max}}{nx \cdot \sum Y^2} + \frac{Mu, y \cdot X_{max}}{ny \cdot \sum X^2}$$

$$P_{max} = \frac{29855,873}{64} + \frac{5375 \cdot 2,625}{8 \cdot 189} + \frac{5375 \cdot 2,625}{8 \cdot 189}$$

$$P_{max} = 485,16121 \text{ KN} < Eg \cdot Qu = 554,37515 \rightarrow \text{OK!}$$

$$P_{min} = \frac{\sum Pu}{n} - \frac{Mu, x \cdot Y_{max}}{nx \cdot \sum Y^2} - \frac{Mu, y \cdot X_{max}}{ny \cdot \sum X^2}$$

$$P_{min} = \frac{29855,873}{64} - \frac{5375 \cdot 2,625}{8 \cdot 189} - \frac{5375 \cdot 2,625}{8 \cdot 189}$$

$$P_{min} = 447,83483 \text{ t}$$

Kontrol terhadap geser satu arah (d)

Dipakai tebal *pile cap* $tp = 2500 \text{ mm}$

$$d = tp - pb - \frac{1}{2} \phi \text{ tul} = 2500 - 75 - 12,5 = 2412,5 \text{ mm}$$

Letak bidang kritis geser satu arah searah L *pile cap*

$$= 0,5 \text{ hk} + d = 550 + 2412,5 = 2962,5 \text{ mm}$$

dari pusat kolom. Letak tiang pondasi 2625 mm dari pusat kolom. Dengan demikian letak bidang kritis geser satu arah berada di luar tiang, sehingga geser satu arah tidak perlu ditinjau. Untuk geser satu arah searah B *pile cap* = 2962,5 mm dari pusat kolom, maka geser satu arah searah B *pile cap* juga tidak perlu ditinjau.

Kontrol terhadap geser dua arah (d/2)

$$Vu = \sum n \cdot P$$

$$Vu = 27989,881 \text{ t}$$

$$b_o = 2 \cdot (h_c + d) + 2 \cdot (b_c + d)$$

$$b_o = 2 \cdot (1100 + 912,5) = 14050 \text{ mm}$$

$$\beta = \frac{1}{1} = 1$$

$$V_c = \left(1 + \frac{1}{\beta}\right) \cdot 2\sqrt{f'_c} \cdot b_o \cdot d$$

$$V_c = \left(1 + \frac{2}{1}\right) \cdot \sqrt{30} \cdot 2 \cdot 14050 \cdot 2412,5 \cdot 10^{-3} = 1113923,9 \text{ t}$$

$$V_c = 4 \cdot \sqrt{f'_c} \cdot b_o \cdot d$$

$$V_c = 4 \cdot \sqrt{30} \cdot 14050 \cdot 2411,5 \cdot 10^{-3} = 742615,94 \text{ t}$$

$$V_c = \left(\frac{\alpha_s \cdot d}{b_o} + 2\right) \cdot \left(\frac{1}{12} \cdot \sqrt{f'_c}\right) \cdot b_o \cdot d$$

$$V_c = \left(\frac{20 \cdot 2411,5}{14050} + 2\right) \cdot \left(\frac{1}{12} \cdot \sqrt{30}\right) \cdot 14050 \cdot 2411,5 = 84072845 \text{ t}$$

kemudian nilai V_c diambil yang terkecil, maka:

$$\phi V_c = 0,6 \cdot 742615,94 = 445569,56 \text{ t}$$

Ternyata $V_u < \phi V_c$ maka tinjauan geser dua arah OK!

Penulangan Lentur

$$M_{u,x} = 8053,6762 \text{ t}$$

$$\frac{M_u}{\phi} = 0,85 \cdot f'_c \cdot a \cdot b \left(d - \frac{a}{2}\right)$$

$$\frac{8053,6762}{0,8} = 0,85 \cdot 30 \cdot a \cdot 1000 \cdot \left(2412,5 - \frac{a}{2}\right)$$

$$a^2 - 4825a + 789576,09 = 0$$

$$a = 5,9 \text{ mm}$$

$$A_s \text{ perlu} = \frac{0,85 \cdot f'c \cdot a \cdot b}{f_y}$$

$$A_s \text{ perlu} = \frac{0,85 \cdot 30 \cdot 5,9 \cdot 1000}{400} = 376,125 \text{ mm}^2$$

$$A_s \text{ min} = \frac{1,4}{f_y} \cdot b \cdot d$$

$$A_s \text{ min} = \frac{1,4}{400} \cdot 1000 \cdot 2412,5 = 8443,75 \text{ mm}^2$$

maka luas tulangan yang dipakai adalah 8443,75 mm² dicoba dengan menggunakan tulangan diameter 40 mm maka akan didapat luas tulangan yang tersedia adalah

$$A_{36} = 0,25 \cdot \pi \cdot 40^2 = 1256,6371 \text{ mm}^2$$

$$S = \frac{1256,6371 \cdot 1000}{8443,75} = 148,8245 \text{ mm}$$

maka dipakai jarak 100 mm

didapat luas tulangan yang tersedia adalah

$$A_s \text{ ada} = \frac{1256,6371 \cdot 1000}{100} = 12566,3706 \text{ mm}^2$$

maka $A_{s\text{ada}} > A_{s\text{perlu}}$ luas tulangan sudah terpenuhi. OK!

Cek kapasitas

$$a = \frac{A_s \text{ ada} \cdot f_y}{0,85 \cdot f'c \cdot b}$$

$$a = \frac{12566,37061 \cdot 400}{0,85 \cdot 30 \cdot 1000} = 197,1196 \text{ mm}$$

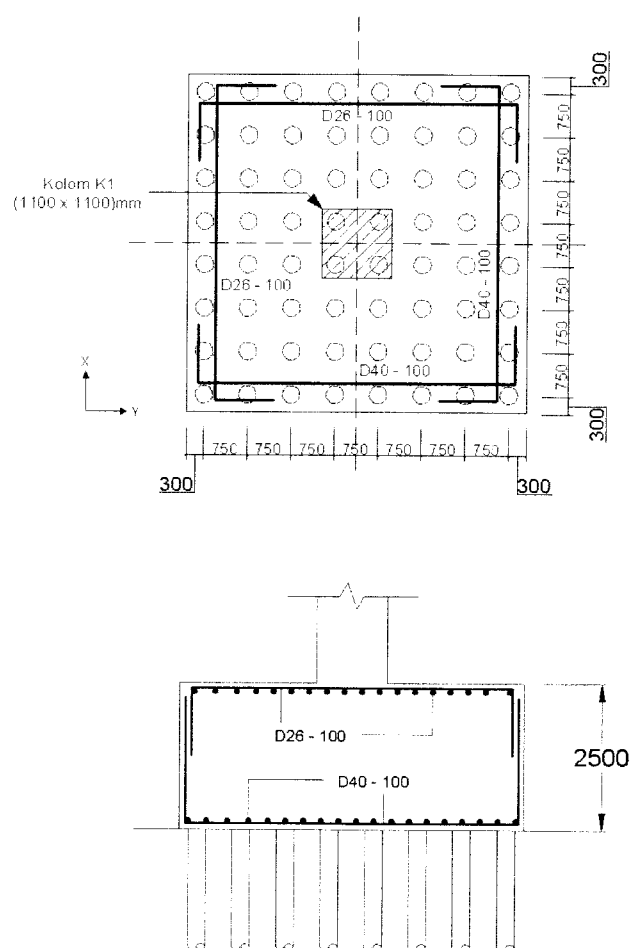
$$Mn = A_{s_{ada}} \cdot f_y \cdot \left(d - \frac{a}{2} \right)$$

$$Mn = 12566,37061 \cdot 400 \cdot \left(2412,5 - \frac{197,1196}{2} \right)$$

$$Mn = 11631,13221 \text{ tm}$$

$$\phi Mn = 11631,13221 \cdot 0,8 = 9304,9058 > Mu = 8053,6762 \text{ OK!}$$

Gambar 6.21 berikut menunjukkan gambar penulangan *pile cap* dari hasil desain yang diperoleh.



Gambar 6. 10 Penulangan *pile cap*

BAB VII

KESIMPULAN DAN SARAN

7.1 Kesimpulan

Berdasarkan hasil analisis dan desain yang telah dilakukan, maka dapat diambil beberapa kesimpulan sebagai berikut:

1. Semakin tinggi tingkat suatu struktur bangunan maka respon struktur yang terjadi akan semakin besar.
2. Penggunaan *Outrigger* dan *Shear Wall* dapat mengurangi simpangan yang terjadi. Semakin banyak jumlah *Outrigger* yang digunakan maka akan semakin efektif pula dalam mengurangi simpangan struktur.
3. Perbedaan gaya-gaya dalam yang terjadi (momen, geser, dan aksial) antara struktur yang menggunakan dua *Outrigger* dengan struktur yang menggunakan tiga atau empat *Outrigger* tidak terlalu jauh perbedaannya. Sehingga struktur dengan dua *Outrigger* lebih efektif daripada struktur yang menggunakan tiga atau empat *Outrigger*.
4. Sifat beban dinamik yang mempunyai frekuensi dan percepatan yang berbeda-beda dalam satu durasi gempa, akan menyebabkan respon struktur akibat beban dinamik sangat bervariasi dan cenderung tidak regular pada gempa yang berbeda.

5. Penggunaan *Shear Wall* pada *Core Wall* dan *Outrigger* dapat memperbesar nilai gaya gempa F_i dan gaya aksial kolom, akan tetapi memperkecil momen lentur pada balok. Walaupun gaya membesar akan tetapi respon menjadi lebih kecil karena respon struktur akan dipengaruhi oleh kekakuan bangunan. Tidak selalu gaya yang lebih besar merugikan.
6. Penggunaan pengaku *Core Wall* dan pengaku *Outrigger & Shear Wall* sangat efektif untuk menahan beban angin, beban gempa statik dan dinamik, yang terlihat dari pola dan besar respon struktur *Core Wall* dan *Outrigger* baik akibat beban gempa statik, angin, dan dinamik relatif regular dan berdekatan.
7. Ukuran kolom pada struktur *Core Wall* dan struktur *Outrigger & Shear Wall* lebih kecil daripada profil kolom yang digunakan pada struktur *Open Frame*, karena meskipun gaya aksial pada struktur berpengaku lebih besar akan tetapi momen pada struktur berpengaku lebih kecil sehingga ukuran kolom pada struktur lebih kecil. Selain itu ukuran balok yang digunakan pada struktur *Core Wall* dan struktur *Outrigger & Shear Wall* juga lebih kecil daripada ukuran balok yang digunakan pada *Open Frame*. Hal ini karena kekakuan pada struktur yang berpengaku lebih besar sehingga menyebabkan simpangannya menjadi kecil yang berpengaruh momen balok menjadi kecil.

7.2 Saran

1. Pada kondisi sebenarnya gempa yang terjadi tidak hanya berasal dari satu arah, besar kemungkinan terjadi dari segala penjuru. Oleh karena itu pada penelitian selanjutnya disarankan untuk menganalisis gempa yang berasal dari

dua arah sekaligus. Dengan menggunakan 100% F_i pada sumbu kuat dan 30% F_i pada sumbu lemah.

2. Supaya respon struktur akibat gempa dinamis mendekati kondisi sebenarnya, disarankan untuk menggunakan skala percepatan beban gempa dinamis sesuai dengan bangunan dan gempanya.
3. Perhitungan beban angin sebaiknya dihitung dengan peraturan yang terbaru.

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NO	N A M A	NO.MHS.	BID.STUDI
1.	Yoga A Harsoyo	01 511 032	Teknik Sipil
2.	Ida Dewi R	01 511 076	Teknik Sipil

JUDUL TUGAS AKHIR

Efek outriggers pada respon struktur beton bertingkat banyak (analisis dan desain)

PERIODE KE : III (Mar 05 - Agst 05)
 TAHUN : 2004 - 2005

Berlaku mulai : 5-Mar-05 Sampai Akhir Agustus 05

No.	Kegiatan	Bulan Ke :					
		MAR.	APR.	MEI.	JUN.	JUL.	AGT.
1	Pendaftaran	■					
2	Penentuan Dosen Pembimbing	■					
3	Pembuatan Proposal		■				
4	Seminar Proposal		■	■			
5	Konsultasi Penyusunan TA.		■	■	■		
6	Sidang - Sidang					■	■
7	Pendadaran					■	■

Dosen Pembimbing I : Widodo, Prof, Ir, H, MSCE, Ph.D

Dosen Pembimbing II :



Jogjakarta , 5-Mar-05
 a.n. Dekan

Hr.H.Munadhir, MS

Catatan :

Seminar : 15 Juni 2006
 Sidang : 10 Nov 2006
 Pendadaran : 14 Nov 2006



UNTUK DOSEN

KARTU PRESENSI KONSULTASI
TUGAS AKHIR MAHASISWA

PERIODE KE : III (Mar 05 - Agst 05)
TAHUN : 2004 - 2005

Berlaku mulai : 5-Mar-05 Sampai Akhir Agustus 05

NO	N A M A	NO.MHS.	BID.STUDI
1.	Yoga A Harsoyo	01 511 032	Teknik Sipil
2.	Ida Dewi R	01 511 076	Teknik Sipil

JUDUL TUGAS AKHIR


Efek outriggers pada respon struktur beton bertingkat banyak (analisis dan desain)

Dosen Pembimbing I : Widodo,Prof,Ir,H,MSCE,Ph.D

Dosen Pembimbing II :



Jogjakarta , 5-Mar-05
a.n. Dekan


Mr.H.Munadhir, MS

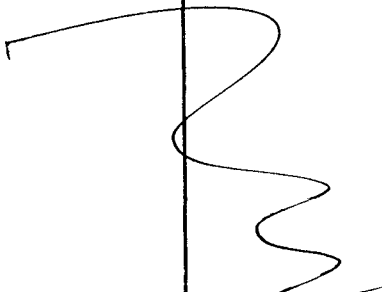

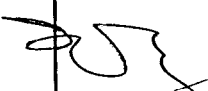

Catatan :

Seminar : Kamis, 15 Juni 2006

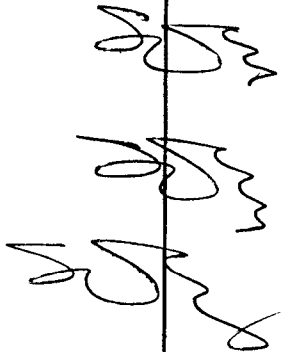
Sidang : Jumat, 10 November 2006

Pendadaran : Selasa, 14 November 2006

CATATAN KONSULTASI TUGAS AKHIR

NO	TANGGAL	CATATAN KONSULTASI	TANDA TANGAN
		<p></p> <p>Beskrifsi 2 konsultasi</p> <p>- Berulas d'isiis s'is. way.</p> <p>- 2/11/06 - Tent Magis Sidang</p> <p>10/11-06 - Revisi Sidang</p> <p>- Siapkan Pendadaran</p>	<p></p> <p></p> <p></p>

CATATAN KONSULTASI TUGAS AKHIR

NO	TANGGAL	KONSULTASI KE :	TANDA TANGAN
	8/4/06 10/11/06	<p>Beluli 3 konsultasi</p> <p>— Beluli Disisi SW. WUU.</p> <p>— Dapat Sidang</p> <p>— Revisi Sidang</p> <p>— Siapkan Pendadaran</p>	

LAMPIRAN

Tabel Total Beban yang Bekerja Pada Atap dan Lantai Struktur Of, OSW, dan Core Wall

Lokasi	Bagian	Berat	Satuan	p	l	t	Total (Kg)
				(m)			
Atap 1	Beban Mati Pelat Atap	321	kg/m ²	30	48	1	462240
				WD			462240
Atap 1	Beban Hidup Atap	100	kg/m ²	30	48	1	144000
				0.3	WL		43200
Lantai 1 2	Beban Mati Pelat Lantai	483	kg/m ²	30	48	1	695520
				492	0.15	2.95	370107
	WD			1065627			
Lantai 1	Beban Hidup Perkantoran	250	kg/m ²	30	48	1	360000
				0.3	WL		108000

Keterangan :

- o WD = berat total beban mati
- o WL = berat total beban hidup

LANTAI	Perbandingan Simpangan antara 2, 3, dan 4 Outrigger				Perbandingan Inter Story Drift antara 2, 3, dan 4 Outrigger			
	OF	2 Outrigger	3 Outrigger	4 Outrigger	OF	2 Outrigger	3 Outrigger	4 Outrigger
35	0.30320	0.31210	0.30350	0.30000	0.00189	0.00178	0.00172	0.00167
34	0.29660	0.30550	0.29720	0.29390	0.00263	0.00303	0.00300	0.00274
33	0.28780	0.29430	0.28700	0.28440	0.00340	0.00347	0.00351	0.00314
32	0.27690	0.28170	0.27570	0.27370	0.00379	0.00374	0.00378	0.00335
31	0.26660	0.26810	0.26420	0.26290	0.00413	0.00398	0.00400	0.00353
30	0.26000	0.25380	0.25280	0.25250	0.00429	0.00416	0.00412	0.00363
29	0.25370	0.23920	0.24230	0.24360	0.00423	0.00427	0.00417	0.00366
28	0.24460	0.22580	0.23300	0.23630	0.00384	0.00427	0.00408	0.00332
27	0.23220	0.21600	0.22520	0.23070	0.00421	0.00423	0.00398	0.00192
26	0.21650	0.20810	0.21800	0.22650	0.00492	0.00411	0.00380	0.00326
25	0.19820	0.20050	0.21060	0.22040	0.00536	0.00393	0.00329	0.00350
24	0.18090	0.19240	0.20310	0.21310	0.00536	0.00368	0.00175	0.00340
23	0.17580	0.18340	0.19810	0.20500	0.00531	0.00341	0.00314	0.00328
22	0.17200	0.17340	0.18840	0.19570	0.00505	0.00312	0.00356	0.00317
21	0.16880	0.16250	0.17640	0.18540	0.00458	0.00313	0.00374	0.00304
20	0.16620	0.15080	0.16300	0.17410	0.00393	0.00326	0.00395	0.00287
19	0.16330	0.13860	0.14860	0.16340	0.00367	0.00302	0.00417	0.00166
18	0.16010	0.12780	0.13340	0.15730	0.00366	0.00163	0.00429	0.00336
17	0.15650	0.12580	0.12180	0.14480	0.00367	0.00326	0.00431	0.00399
16	0.15250	0.12210	0.11350	0.12990	0.00365	0.00370	0.00418	0.00412
15	0.14830	0.11770	0.10530	0.11450	0.00367	0.00373	0.00393	0.00417
14	0.14390	0.11270	0.09850	0.09900	0.00364	0.00367	0.00314	0.00409
13	0.13860	0.10700	0.09300	0.08860	0.00358	0.00350	0.00138	0.00389
12	0.13210	0.10040	0.09030	0.08140	0.00350	0.00322	0.00250	0.00355
11	0.12420	0.09290	0.08390	0.07410	0.00355	0.00290	0.00271	0.00280
10	0.11510	0.08460	0.07590	0.06770	0.00368	0.00251	0.00255	0.00129
9	0.10480	0.07560	0.06730	0.06450	0.00381	0.00261	0.00255	0.00211
8	0.09330	0.06590	0.05830	0.05730	0.00385	0.00270	0.00250	0.00235
7	0.08090	0.05580	0.04920	0.04880	0.00390	0.00275	0.00245	0.00242
6	0.06780	0.04560	0.04010	0.03990	0.00390	0.00271	0.00240	0.00240
5	0.05410	0.03540	0.03130	0.03120	0.00385	0.00259	0.00229	0.00231
4	0.04020	0.02580	0.02280	0.02270	0.00367	0.00237	0.00210	0.00212
3	0.02680	0.01690	0.01510	0.01500	0.00334	0.00207	0.00186	0.00187
2	0.01440	0.00920	0.00830	0.00820	0.00265	0.00163	0.00150	0.00149
1	0.00450	0.00310	0.00280	0.00280	0.00120	0.00085	0.00077	0.00077

LANTAI	Perbandingan Momen Balok antara 2, 3, dan 4 Outrigger				Perbandingan Geser Balok antara 2, 3, dan 4 Outrigger			
	OF	2 Outrigger	3 Outrigger	4 Outrigger	OF	2 Outrigger	3 Outrigger	4 Outrigger
35	-6432.58	-505.30	-255.33	-498.78	2223.66	146.88	59.96	143.73
34	-14948.07	-2607.91	-2039.26	-2354.48	5215.34	1031.58	832.58	919.20
33	-23808.46	-21049.24	-20433.64	-15955.04	8585.62	7628.19	7403.51	5771.26
32	-30456.33	-24232.04	-24248.21	-18327.34	10886.32	8606.69	8614.72	6505.47
31	-39044.25	-28044.68	-28468.07	-21049.07	13845.92	9890.32	10040.16	7420.17
30	-46303.76	-29880.07	-31090.22	-22808.87	16417.02	10544.45	10973.00	8050.95
29	-51352.65	-30842.73	-33006.96	-23663.86	18222.12	10900.20	11666.98	8348.81
28	-54120.78	-32208.29	-35172.64	-27162.84	19013.11	11282.13	12319.69	9533.48
27	-54112.44	-32794.19	-36140.49	-4996.81	18861.84	11406.53	12572.57	1808.79
26	-51504.86	-31857.01	-34619.51	-5418.12	17977.61	11092.24	12042.81	1978.11
25	-46958.80	-30563.92	-34128.66	-31756.44	16408.23	10651.62	11912.37	11080.96
24	-42825.94	-31568.55	-3695.09	-32141.02	14823.97	10940.19	1413.33	11114.29
23	-42462.81	-32206.99	-4219.26	-33826.71	14620.20	11101.34	1545.22	11650.35
22	-42829.66	-31444.23	-29563.12	-34257.08	14778.92	10846.58	10195.57	11805.55
21	-43414.59	-30068.50	-27390.64	-34239.29	14988.63	10379.20	9439.40	11810.26
20	-41939.08	-28163.18	-28792.75	-36083.80	14408.56	9676.36	9880.88	12359.15
19	-38840.40	-27994.07	-29585.59	-7157.60	13288.44	9561.03	10113.37	2562.97
18	-34651.09	-4088.13	-29760.35	-7193.21	11863.69	1525.25	10180.10	2557.61
17	-34734.84	-4060.60	-29711.67	-35445.11	11890.28	1480.84	10169.91	12112.91
16	-35736.22	-25757.97	-29408.94	-34191.97	12188.78	8777.61	10031.24	11663.48
15	-37111.67	-27113.72	-27922.46	-33983.09	12621.06	9224.72	9501.26	11557.65
14	-37843.48	-31552.98	-26003.97	-32079.09	12875.06	10736.36	8827.25	10915.98
13	-40531.32	-35144.41	-3667.99	-31555.90	13792.88	11963.86	1353.71	10741.21
12	-41796.54	-38569.95	-5166.61	-31299.41	14185.58	13093.76	1884.18	10636.06
11	-41502.51	-40928.88	-33065.89	-31437.53	14054.77	13864.70	11162.59	10611.19
10	-40457.83	-42224.16	-38081.78	-7271.43	13705.55	14307.67	12910.32	2540.34
9	-39704.04	-42689.96	-42908.60	-7243.59	13453.36	14469.75	14541.66	2519.88
8	-40232.83	-42576.89	-46348.39	-30689.17	13604.74	14402.43	15676.18	10349.14
7	-42019.54	-41679.01	-48255.74	-30427.44	14185.23	14074.49	16294.09	10282.28
6	-45405.58	-39606.68	-48599.47	-32242.05	15330.76	13378.35	16414.02	10888.82
5	-49931.87	-36603.75	-47477.81	-32656.81	16863.34	12365.90	16038.16	11032.44
4	-53821.39	-32734.66	-44902.21	-31845.42	18148.71	11042.81	15145.67	10741.70
3	-54567.09	-28397.59	-41046.02	-29793.36	18377.64	9565.79	13825.70	10035.67
2	-49921.76	-22697.02	-34917.45	-26002.73	16817.48	7647.58	11764.34	8760.84
1	-34999.56	-15577.55	-25386.35	-19645.19	11791.40	5248.88	8553.80	6619.50

Lantai	Simpangan (m)														
	Core Wall						2 Outrigger								
	Statik	Koyna	Eicentro	Parkfield	Angin	Statik	Koyna	Eicentro	Parkfield	Angin	Statik	Koyna	Eicentro	Parkfield	Angin
35	0.2568	0.1974	0.2427	0.3217	0.026	0.356	0.1498	0.2303	0.3121	0.0211	0.356	0.1498	0.2303	0.3121	0.0211
34	0.2503	0.1926	0.2346	0.3067	0.0254	0.3506	0.1475	0.2261	0.3055	0.0208	0.3506	0.1475	0.2261	0.3055	0.0208
33	0.2438	0.1876	0.2262	0.2912	0.0249	0.3431	0.144	0.2194	0.2943	0.0204	0.3431	0.144	0.2194	0.2943	0.0204
32	0.237	0.1824	0.2175	0.2753	0.0243	0.3348	0.1401	0.2121	0.2817	0.02	0.3348	0.1401	0.2121	0.2817	0.02
31	0.2302	0.1771	0.2086	0.2594	0.0237	0.326	0.1361	0.2049	0.2681	0.0195	0.326	0.1361	0.2049	0.2681	0.0195
30	0.2231	0.1716	0.1994	0.2442	0.023	0.3166	0.132	0.1975	0.2538	0.019	0.3166	0.132	0.1975	0.2538	0.019
29	0.2159	0.1659	0.1901	0.2303	0.0224	0.3068	0.1294	0.1897	0.2392	0.0185	0.3068	0.1294	0.1897	0.2392	0.0185
28	0.2084	0.1599	0.1805	0.2189	0.0217	0.2965	0.1265	0.1813	0.2258	0.018	0.2965	0.1265	0.1813	0.2258	0.018
27	0.2007	0.1538	0.1708	0.2104	0.021	0.2858	0.1231	0.1724	0.2160	0.0174	0.2858	0.1231	0.1724	0.2160	0.0174
26	0.1929	0.1475	0.161	0.2029	0.0203	0.2748	0.1194	0.1632	0.2081	0.0168	0.2748	0.1194	0.1632	0.2081	0.0168
25	0.1848	0.1409	0.151	0.1953	0.0196	0.2634	0.1154	0.1537	0.2005	0.0162	0.2634	0.1154	0.1537	0.2005	0.0162
24	0.1765	0.1342	0.1415	0.1868	0.0188	0.2517	0.111	0.1471	0.1924	0.0155	0.2517	0.111	0.1471	0.1924	0.0155
23	0.1681	0.1273	0.1329	0.1774	0.018	0.2399	0.1063	0.1421	0.1834	0.0149	0.2399	0.1063	0.1421	0.1834	0.0149
22	0.1596	0.1203	0.1287	0.171	0.0172	0.2279	0.1015	0.1366	0.1734	0.0142	0.2279	0.1015	0.1366	0.1734	0.0142
21	0.1509	0.1133	0.1241	0.1652	0.0163	0.216	0.0968	0.1324	0.1625	0.0136	0.216	0.0968	0.1324	0.1625	0.0136
20	0.142	0.1061	0.119	0.1589	0.0155	0.2041	0.0921	0.1284	0.1508	0.0129	0.2041	0.0921	0.1284	0.1508	0.0129
19	0.1331	0.099	0.1135	0.1521	0.0146	0.1924	0.0874	0.1243	0.1386	0.0122	0.1924	0.0874	0.1243	0.1386	0.0122
18	0.1241	0.0918	0.1078	0.1448	0.0137	0.1818	0.0833	0.1204	0.1278	0.0116	0.1818	0.0833	0.1204	0.1278	0.0116
17	0.1151	0.0856	0.1041	0.1374	0.0128	0.1758	0.0811	0.1179	0.1258	0.0113	0.1758	0.0811	0.1179	0.1258	0.0113
16	0.1061	0.0806	0.0999	0.1302	0.0119	0.1649	0.077	0.1127	0.1221	0.0106	0.1649	0.077	0.1127	0.1221	0.0106
15	0.0971	0.0756	0.0951	0.1232	0.0109	0.1527	0.0722	0.1063	0.1177	0.0099	0.1527	0.0722	0.1063	0.1177	0.0099
14	0.0881	0.0704	0.09	0.1163	0.01	0.1401	0.0671	0.0993	0.1127	0.0091	0.1401	0.0671	0.0993	0.1127	0.0091
13	0.0793	0.0652	0.0843	0.109	0.0091	0.1272	0.0617	0.0919	0.1070	0.0084	0.1272	0.0617	0.0919	0.1070	0.0084
12	0.0706	0.0602	0.0782	0.1013	0.0081	0.1141	0.0566	0.0841	0.1004	0.0075	0.1141	0.0566	0.0841	0.1004	0.0075
11	0.0621	0.0551	0.0716	0.0929	0.0072	0.1011	0.0515	0.0761	0.0929	0.0067	0.1011	0.0515	0.0761	0.0929	0.0067
10	0.0538	0.0497	0.0646	0.084	0.0063	0.0883	0.0464	0.0677	0.0846	0.0059	0.0883	0.0464	0.0677	0.0846	0.0059
9	0.0458	0.0441	0.0571	0.0745	0.0054	0.0756	0.0411	0.0593	0.0756	0.0051	0.0756	0.0411	0.0593	0.0756	0.0051
8	0.0382	0.0383	0.0495	0.0647	0.0045	0.0634	0.0356	0.0507	0.0659	0.0043	0.0634	0.0356	0.0507	0.0659	0.0043
7	0.031	0.0325	0.0416	0.0546	0.0037	0.0518	0.0301	0.0422	0.0558	0.0036	0.0518	0.0301	0.0422	0.0558	0.0036
6	0.0243	0.0266	0.0338	0.0446	0.0029	0.0408	0.0246	0.0341	0.0456	0.0028	0.0408	0.0246	0.0341	0.0456	0.0028
5	0.0182	0.0208	0.0262	0.0347	0.0022	0.0306	0.0193	0.0264	0.0354	0.0021	0.0306	0.0193	0.0264	0.0354	0.0021
4	0.0127	0.0152	0.019	0.0253	0.0016	0.0215	0.0142	0.0191	0.0258	0.0015	0.0215	0.0142	0.0191	0.0258	0.0015
3	0.008	0.01	0.0124	0.0167	0.001	0.0137	0.0095	0.0125	0.0169	0.001	0.0137	0.0095	0.0125	0.0169	0.001
2	0.0042	0.0055	0.0068	0.0091	0.0005	0.0072	0.0053	0.0068	0.0092	0.0005	0.0072	0.0053	0.0068	0.0092	0.0005
1	0.0014	0.0019	0.0023	0.0031	0.0002	0.0023	0.0019	0.0023	0.0031	0.0002	0.0023	0.0019	0.0023	0.0031	0.0002

Lantai	Simpangan (m)									
	Core Wall					2 Outrigger				
	Statik	Koyna	Elcentro	Parkfield	Angin	Statik	Koyna	Elcentro	Parkfield	Angin
35	0.2568	0.1974	0.2427	0.3217	0.026	0.356	0.1498	0.2303	0.3121	0.0211
34	0.2503	0.1926	0.2346	0.3067	0.0254	0.3506	0.1475	0.2261	0.3055	0.0208
33	0.2438	0.1876	0.2262	0.2912	0.0249	0.3431	0.144	0.2194	0.2943	0.0204
32	0.237	0.1824	0.2175	0.2753	0.0243	0.3348	0.1401	0.2121	0.2817	0.02
31	0.2302	0.1771	0.2086	0.2594	0.0237	0.326	0.1361	0.2049	0.2681	0.0195
30	0.2231	0.1716	0.1994	0.2442	0.023	0.3166	0.132	0.1975	0.2538	0.019
29	0.2159	0.1659	0.1901	0.2303	0.0224	0.3068	0.1294	0.1897	0.2392	0.0185
28	0.2084	0.1599	0.1805	0.2189	0.0217	0.2965	0.1265	0.1813	0.2258	0.018
27	0.2007	0.1538	0.1708	0.2104	0.021	0.2858	0.1231	0.1724	0.2160	0.0174
26	0.1929	0.1475	0.161	0.2029	0.0203	0.2748	0.1194	0.1632	0.2081	0.0168
25	0.1848	0.1409	0.151	0.1953	0.0196	0.2634	0.1154	0.1537	0.2005	0.0162
24	0.1765	0.1342	0.1415	0.1868	0.0188	0.2517	0.111	0.1471	0.1924	0.0155
23	0.1681	0.1273	0.1329	0.1774	0.018	0.2399	0.1063	0.1421	0.1834	0.0149
22	0.1596	0.1203	0.1287	0.171	0.0172	0.2279	0.1015	0.1366	0.1734	0.0142
21	0.1509	0.1133	0.1241	0.1652	0.0163	0.216	0.0968	0.1324	0.1625	0.0136
20	0.142	0.1061	0.119	0.1589	0.0155	0.2041	0.0921	0.1284	0.1508	0.0129
19	0.1331	0.099	0.1135	0.1521	0.0146	0.1924	0.0874	0.1243	0.1386	0.0122
18	0.1241	0.0918	0.1078	0.1448	0.0137	0.1818	0.0833	0.1204	0.1278	0.0116
17	0.1151	0.0856	0.1041	0.1374	0.0128	0.1758	0.0811	0.1179	0.1258	0.0113
16	0.1061	0.0806	0.0999	0.1302	0.0119	0.1649	0.077	0.1127	0.1221	0.0106
15	0.0971	0.0756	0.0951	0.1232	0.0109	0.1527	0.0722	0.1063	0.1177	0.0099
14	0.0881	0.0704	0.09	0.1163	0.01	0.1401	0.0671	0.0993	0.1127	0.0091
13	0.0793	0.0652	0.0843	0.109	0.0091	0.1272	0.0617	0.0919	0.1070	0.0084
12	0.0706	0.0602	0.0782	0.1013	0.0081	0.1141	0.0566	0.0841	0.1004	0.0075
11	0.0621	0.0551	0.0716	0.0929	0.0072	0.1011	0.0515	0.0761	0.0929	0.0067
10	0.0538	0.0497	0.0646	0.084	0.0063	0.0883	0.0464	0.0677	0.0846	0.0059
9	0.0458	0.0441	0.0571	0.0745	0.0054	0.0756	0.0411	0.0593	0.0756	0.0051
8	0.0382	0.0383	0.0495	0.0647	0.0045	0.0634	0.0356	0.0507	0.0659	0.0043
7	0.031	0.0325	0.0416	0.0546	0.0037	0.0518	0.0301	0.0422	0.0558	0.0036
6	0.0243	0.0266	0.0338	0.0446	0.0029	0.0408	0.0246	0.0341	0.0456	0.0028
5	0.0182	0.0208	0.0262	0.0347	0.0022	0.0306	0.0193	0.0264	0.0354	0.0021
4	0.0127	0.0152	0.019	0.0253	0.0016	0.0215	0.0142	0.0191	0.0258	0.0015
3	0.008	0.01	0.0124	0.0167	0.001	0.0137	0.0095	0.0125	0.0169	0.001
2	0.0042	0.0055	0.0068	0.0091	0.0005	0.0072	0.0053	0.0068	0.0092	0.0005
1	0.0014	0.0019	0.0023	0.0031	0.0002	0.0023	0.0019	0.0023	0.0031	0.0002

Lantai	Story Drift (m)												MAX
	Core Wall						2 Outrigger						
	Statik	Angin	Koyna	Elcentro	Parkfield	Statik	Angin	Koyna	Elcentro	Parkfield			
35	0.001763	0.000149	0.001431	0.002439	0.004046	0.001474	0.000079	0.000655	0.001134	0.001784	0.001134	0.001784	0.005
34	0.001803	0.000153	0.00152	0.002551	0.004228	0.002089	0.000107	0.001114	0.001908	0.00303	0.001908	0.00303	0.005
33	0.001856	0.000157	0.001568	0.002676	0.004411	0.002307	0.000117	0.001259	0.002201	0.003466	0.002201	0.003466	0.005
32	0.0019	0.000161	0.001548	0.002756	0.004518	0.002455	0.000124	0.001305	0.002374	0.003735	0.002374	0.003735	0.005
31	0.001964	0.000167	0.001489	0.002827	0.004619	0.002618	0.000132	0.001327	0.002523	0.003981	0.002523	0.003981	0.005
30	0.002028	0.000173	0.001533	0.002848	0.004658	0.002771	0.000139	0.00134	0.002616	0.004155	0.002616	0.004155	0.005
29	0.002098	0.00018	0.001594	0.002815	0.004648	0.002921	0.000147	0.001351	0.002649	0.004266	0.002649	0.004266	0.005
28	0.002149	0.000185	0.001643	0.002698	0.004532	0.003032	0.000153	0.001356	0.002588	0.004265	0.002588	0.004265	0.005
27	0.002216	0.000192	0.001702	0.002681	0.004402	0.003153	0.000159	0.001352	0.002493	0.004228	0.002493	0.004228	0.005
26	0.002278	0.000199	0.001755	0.002706	0.004212	0.003256	0.000164	0.001367	0.002556	0.004109	0.002556	0.004109	0.005
25	0.002342	0.000206	0.001807	0.002735	0.003998	0.003348	0.00017	0.001376	0.00258	0.003932	0.00258	0.003932	0.005
24	0.002382	0.000212	0.001837	0.002733	0.003745	0.003391	0.000173	0.001402	0.002547	0.003675	0.002547	0.003675	0.005
23	0.002435	0.000218	0.00187	0.002724	0.00355	0.00344	0.000176	0.001411	0.002524	0.00341	0.002524	0.00341	0.005
22	0.00248	0.000224	0.001893	0.002676	0.003492	0.00346	0.000178	0.001414	0.002496	0.003117	0.002496	0.003117	0.005
21	0.002524	0.00023	0.001913	0.002596	0.003604	0.003455	0.000179	0.001408	0.002441	0.003134	0.002441	0.003134	0.005
20	0.002541	0.000234	0.001914	0.002475	0.003775	0.003394	0.000178	0.001428	0.002402	0.003261	0.002402	0.003261	0.005
19	0.00257	0.000239	0.001922	0.002469	0.003943	0.003017	0.000162	0.001298	0.002152	0.003024	0.002152	0.003024	0.005
18	0.002587	0.000243	0.001918	0.00246	0.004037	0.001655	0.000093	0.000756	0.001131	0.001627	0.001131	0.001627	0.005
17	0.0026	0.000247	0.001985	0.002412	0.004049	0.003117	0.000171	0.001545	0.002156	0.00326	0.002156	0.00326	0.005
16	0.002585	0.000248	0.002024	0.002311	0.003937	0.003574	0.000195	0.00178	0.0024	0.003698	0.0024	0.003698	0.005
15	0.002578	0.00025	0.002028	0.002336	0.003758	0.003697	0.000203	0.001826	0.00239	0.003734	0.00239	0.003734	0.005
14	0.002557	0.00025	0.001976	0.002279	0.00349	0.003782	0.00021	0.001839	0.002329	0.00367	0.002329	0.00367	0.005
13	0.002527	0.000249	0.001896	0.002157	0.003145	0.003833	0.000215	0.001828	0.00223	0.003502	0.00223	0.003502	0.005
12	0.002468	0.000246	0.001793	0.002021	0.002846	0.003821	0.000217	0.001809	0.002251	0.003224	0.002251	0.003224	0.005
11	0.002412	0.000243	0.00178	0.002006	0.002767	0.003799	0.000217	0.00182	0.002317	0.002898	0.002317	0.002898	0.005
10	0.002338	0.000237	0.001757	0.002077	0.002752	0.003737	0.000216	0.001801	0.002347	0.00251	0.002347	0.00251	0.005
9	0.002247	0.00023	0.001716	0.002129	0.002792	0.003638	0.000211	0.001726	0.002357	0.002606	0.002357	0.002606	0.005
8	0.002126	0.000219	0.001686	0.002136	0.00279	0.00348	0.000204	0.001626	0.002338	0.002701	0.002338	0.002701	0.005
7	0.002002	0.000207	0.001674	0.002122	0.002766	0.003307	0.000194	0.001567	0.002285	0.002746	0.002285	0.002746	0.005
6	0.00185	0.000192	0.001634	0.002063	0.002686	0.003083	0.000182	0.001514	0.002177	0.00271	0.002177	0.00271	0.005
5	0.00167	0.000174	0.001549	0.001948	0.00254	0.002806	0.000165	0.001432	0.002011	0.002589	0.002011	0.002589	0.005
4	0.001455	0.000151	0.001414	0.001766	0.002315	0.002463	0.000145	0.001302	0.001786	0.002368	0.001786	0.002368	0.005
3	0.00122	0.000126	0.00123	0.001527	0.002025	0.00208	0.000122	0.001146	0.001542	0.002065	0.001542	0.002065	0.005
2	0.000925	0.000095	0.000963	0.001196	0.001611	0.00159	0.000093	0.000931	0.001212	0.001632	0.001212	0.001632	0.005
1	0.00045	0.000047	0.0005	0.000617	0.000842	0.000781	0.000046	0.000503	0.000626	0.000847	0.000626	0.000847	0.005

Momen Balok

Lantai	Core Wall						2 Outrigger					
	Angin	Statik	Koyna	Elcentro	Parkfield	Angin	Statik	Koyna	Elcentro	Parkfield		
35	-587.295	-7570.55	-7801.45	-13804.8	-22819.5	-40.749	-147.463	-644.247	-523.804	-705.053		
34	-1169.64	-14768.8	-15890.3	-27666.4	-45672.4	-282.801	-6656.85	-6193	-10197.7	-3881.52		
33	-1226.55	-15044.1	-17038	-29658.6	-48682	-687.15	-14294.8	-12628.5	-22121	-32597.9		
32	-1387.82	-16567.4	-18236	-33488.8	-54561	-854.698	-17261.6	-14563.5	-26941.2	-37692.2		
31	-1551.2	-18078.8	-18408.7	-36569.2	-59298.8	-1032.14	-20420.1	-15722.7	-31271.9	-44390.6		
30	-1661.59	-18897	-16992.9	-37547.8	-60917.3	-1181.34	-22926.1	-16223	-33911.5	-48436.2		
29	-1780.57	-19778.3	-17559.3	-37610.9	-61537.7	-1326.19	-25293.6	-16354	-35385.8	-51282.8		
28	-1998.54	-21694	-18715.7	-37969.1	-63419.6	-1523.47	-28595.6	-17098.2	-36598.9	-54864.6		
27	-2204.92	-23473.6	-20549.3	-37136.2	-63846.5	-1698.58	-31449.8	-17431.4	-36296.7	-56869.8		
26	-2350.87	-24517.7	-21771	-36402.4	-60978.7	-1831.88	-33407.1	-17356.7	-33816.4	-55813.3		
25	-2498.27	-25546.6	-22922.8	-36927.6	-57499.7	-1954.53	-35109.3	-18606.1	-34225.3	-53529.9		
24	-2736.64	-27462.8	-24747.5	-38754.1	-55124.9	-2117.71	-37478.8	-20401.6	-35318.2	-51304.2		
23	-2954.48	-29171.5	-26274.5	-40123	-52576.5	-2250.84	-39292.9	-21305.1	-35849.5	-48277		
22	-3107.26	-30136.9	-27068.1	-39927.5	-52526.4	-2329.99	-40024.6	-2111.7	-35860.5	-43266.6		
21	-3256.31	-31036.2	-27826.1	-39388.4	-55246.4	-2386.67	-40322.7	-21576.3	-37906.4	-45589.5		
20	-3482.69	-32639.6	-30394.9	-42321.2	-61874	-2460.44	-40903	-22343.7	-38551.1	-51943.2		
19	-3682.86	-34006.5	-31918.4	-43961	-67535.8	-2531.31	-41856.5	-21576.3	-37906.4	-45589.5		
18	-3815.64	-34649.6	-32145	-44262.5	-71013.1	-1215.5	-20953.6	-11402.5	-19096.2	-8697.42		
17	-3938.49	-35175.9	-33693.1	-43901.5	-72724.6	-1354.2	-22426.2	-14473.8	-19559.4	-9871.64		
16	-4117.81	-36180	-36055.5	-43147.2	-73449.3	-3000.84	-46972.6	-30312.3	-40480.4	-62025.2		
15	-4266.83	-36941.5	-37417.5	-44886.3	-72063.8	-3261.31	-49894.7	-32302	-41580.6	-62147.3		
14	-4345.39	-36997.9	-37114.5	-42844.3	-67692.6	-3489.08	-52614.8	-33285.6	-41411.3	-63585.3		
13	-4403.97	-36863.6	-35862.8	-42844.3	-61565.5	-3682.16	-54786.7	-33723	-40204.6	-62114.4		
12	-4489.08	-36930.9	-34607.3	-40037	-57784.2	-3868.17	-56790.8	-34061.9	-42180.4	-58948.3		
11	-4539.85	-36756.3	-34110	-39748.5	-57078	-3996.27	-57942.3	-34942.7	-44656.1	-54304.8		
10	-4512.08	-35860.4	-34320.5	-41870.9	-56622.4	-4055.71	-57954.2	-35579.7	-46269.5	-48587.8		
9	-4446.9	-34653.4	-34034.9	-43677	-57818.2	-4068.24	-57239.6	-35047.8	-47882.3	-52800.9		
8	-4365.75	-33303.5	-34034.1	-45217.7	-59493.2	-4046.79	-55989.3	-33578.1	-49096.7	-56907.2		
7	-4244.82	-31708.7	-34566.8	-45951.8	-60265.2	-3972.2	-54050.4	-32606.2	-49201.9	-59342.9		
6	-4026.69	-29307.9	-34610.1	-45569.2	-59652	-3808.4	-50779.9	-32013.2	-47983.9	-59869.7		
5	-3741.21	-26407.8	-33762.6	-44072.1	-57677.4	-3572.79	-46528	-31210.5	-45542.6	-58541		
4	-3378.39	-22944.4	-32057.8	-41333.4	-54282.2	-3250.93	-41123.5	-29400.7	-41688.8	-55224.4		
3	-2967.05	-19280.2	-29390.7	-37377.7	-49520.7	-2872.56	-35163.9	-27031.5	-37084.2	-50104.2		
2	-2419.25	-14800.9	-24700.7	-31268	-41997.7	-2362.31	-27678.4	-23433.3	-31222.1	-42046.9		
1	-1717.36	-9907.58	-18103.7	-22798.3	-31031.6	-1697.22	-19031.6	-18106.2	-22977.7	-30739.6		

Momen Balok

Lantai	Core Wall						2 Outrigger					
	Angin	Statik	Koyna	Elcentro	Parkfield	Angin	Statik	Koyna	Elcentro	Parkfield		
35	-587.295	-7570.55	-7801.45	-13804.8	-22819.5	-40.749	-147.463	-644.247	-523.804	-705.053		
34	-1169.64	-14768.8	-15890.3	-27666.4	-45672.4	-282.801	-6656.85	-6193	-10197.7	-3881.52		
33	-1226.55	-15044.1	-17038	-29658.6	-48682	-687.15	-14294.8	-12628.5	-22121	-32597.9		
32	-1387.82	-16567.4	-18236	-33488.8	-54561	-854.698	-17261.6	-14563.5	-26941.2	-37692.2		
31	-1551.2	-18078.8	-18408.7	-36569.2	-59298.8	-1032.14	-20420.1	-15722.7	-31271.9	-44390.6		
30	-1661.59	-18897	-16992.9	-37547.8	-60917.3	-1181.34	-22926.1	-16223	-33911.5	-48436.2		
29	-1780.57	-19778.3	-17559.3	-37610.9	-61537.7	-1326.19	-25293.6	-16354	-35385.8	-51282.8		
28	-1998.54	-21694	-18715.7	-37969.1	-63419.6	-1523.47	-28595.6	-17098.2	-36598.9	-54864.6		
27	-2204.92	-23473.6	-20549.3	-37136.2	-63846.5	-1698.58	-31449.8	-17431.4	-36296.7	-56869.8		
26	-2350.87	-24517.7	-21771	-36402.4	-60978.7	-1831.88	-33407.1	-17356.7	-33816.4	-55813.3		
25	-2498.27	-25546.6	-22922.8	-36927.6	-57499.7	-1954.53	-35109.3	-18606.1	-34225.3	-53529.9		
24	-2736.64	-27462.8	-24747.5	-38754.1	-55124.9	-2117.71	-37478.8	-20401.6	-35318.2	-51304.2		
23	-2954.48	-29171.5	-26274.5	-40123	-53140.8	-2250.84	-39292.9	-21305.1	-35849.5	-48277		
22	-3107.26	-30136.9	-27068.1	-39927.5	-52576.5	-2329.99	-40024.6	-21151	-35860.5	-43266.6		
21	-3256.31	-31036.2	-27826.1	-39388.4	-55246.4	-2386.67	-40322.7	-21111.7	-36162.6	-41570.9		
20	-3482.69	-32639.6	-30394.9	-42321.2	-61874	-2460.44	-40903	-21576.3	-37906.4	-45589.5		
19	-3682.86	-34006.5	-31918.4	-43961	-67535.8	-2531.31	-41856.5	-22343.7	-38551.1	-51943.2		
18	-3815.64	-34649.6	-32145	-44262.5	-71013.1	-1215.5	-20953.6	-11402.5	-19096.2	-8697.42		
17	-3938.49	-35175.9	-33693.1	-43901.5	-72724.6	-1354.2	-22426.2	-14473.8	-19559.4	-9871.64		
16	-4117.81	-36180	-36055.5	-43147.2	-73449.3	-3000.84	-46972.6	-30312.3	-40480.4	-62025.2		
15	-4266.83	-36941.5	-37417.5	-44886.3	-72063.8	-3261.31	-49894.7	-32302	-41580.6	-62147.3		
14	-4345.39	-36997.9	-37114.5	-44699	-67692.6	-3489.08	-52614.8	-33285.6	-41411.3	-63585.3		
13	-4403.97	-36863.6	-35862.8	-42844.3	-61565.5	-3662.16	-54786.7	-33723	-40204.6	-62114.4		
12	-4489.08	-36930.9	-34607.3	-40037	-57784.2	-3868.17	-56790.8	-34061.9	-42180.4	-58948.3		
11	-4539.85	-36756.3	-34110	-39748.5	-57078	-3996.27	-57942.3	-34942.7	-44656.1	-54304.8		
10	-4512.08	-35860.4	-34320.5	-41870.9	-56622.4	-4055.71	-57954.2	-35579.7	-46269.5	-48587.8		
9	-4446.9	-34653.4	-34034.9	-43677	-57818.2	-4068.24	-57239.6	-35047.8	-47882.3	-52800.9		
8	-4365.75	-33303.5	-34034.1	-45217.7	-59493.2	-4046.79	-55989.3	-33578.1	-49096.7	-56907.2		
7	-4244.82	-31708.7	-34565.8	-45951.8	-60265.2	-3972.2	-54050.4	-32606.2	-49201.9	-59342.9		
6	-4026.69	-29307.9	-34610.1	-45569.2	-59652	-3808.4	-50779.9	-32013.2	-47983.9	-59869.7		
5	-3741.21	-26407.8	-33762.6	-44072.1	-57677.4	-3572.79	-46528	-31210.5	-45542.6	-58541		
4	-3378.39	-22944.4	-32057.8	-41333.4	-54282.2	-3250.93	-41123.5	-29400.7	-41688.8	-55224.4		
3	-2967.05	-19280.2	-29390.7	-37377.7	-49520.7	-2872.56	-35163.9	-27031.5	-37084.2	-50104.2		
2	-2419.25	-14800.9	-24700.7	-31268	-41997.7	-2362.31	-27678.4	-23433.3	-31222.1	-42046.9		
1	-1717.36	-9907.58	-18103.7	-22798.3	-31031.6	-1697.22	-19031.6	-18106.2	-22977.7	-30739.6		

Momen Kolom

Lantai	Core Wall					2 Outrigger				
	Angin	Statik	Koyna	Elcentro	Parkfield	Angin	Statik	Koyna	Elcentro	Parkfield
35	13779.664	14602.242	20004.944	23126.57	41061.169	9140.019	15510.58	12380.332	13122.2	22027.767
34	14748.68	15769.462	22747.949	26764.25	47178.337	12051.576	17118.17	41076.539	46023.255	102201.83
33	14187.638	15144.585	22318.406	26322.237	48185.47	11385.266	16288.44	9968.82	11216.497	21267.19
32	15755.538	16831.631	24058.675	27906.47	52420.971	12950.433	18106.67	17436.163	19121.484	41264.517
31	14515.79	15510.44	23930.244	26486.537	52041.768	12073.292	16322.72	16682.267	18849.136	40399.996
30	14669.751	15677.099	24534.831	26180.632	50706.536	12356.605	16424.03	17630.976	20310.018	41027.15
29	14180.731	15157.49	24465.173	25877.108	49152.201	12063.24	15691.81	17983.954	20767.934	40778.502
28	15430.09	16499.063	26084.846	27685.498	47872.145	13219.642	17269.21	18441.928	21279.553	40487.475
27	14173.57	15160.109	25657.92	27180.846	44302.277	12216.343	15505.69	17281.599	21309.808	37735.473
26	14223.575	15215.467	25093.655	26104.11	42432.814	12324.203	15631.64	17577.76	20936.629	33504.026
25	13683.669	14640.48	24842.522	25617.787	42871.2	11898.77	14937.51	18727.619	21879.338	30872.647
24	14677.953	15709.028	25990.335	26611.843	47748.474	12781.583	16465.9	20043.198	22945.62	36550.05
23	13446.965	14395.221	24403.668	25543.266	52921.019	11718.383	14760.77	19300.861	22042.851	40551.192
22	13412.219	14358.941	22386.95	26150.239	55481.453	11688.618	14962.02	17259.151	19518.36	40677.741
21	12847.31	13755.274	21872.422	26342.679	57824.135	11172.741	14420.83	16529.524	20300.003	41410.306
20	13605.879	14569.834	23316.904	28727.553	60434.849	11804.094	16235.56	14041.453	21581.383	34467.053
19	12429.556	13312.006	22869.749	30534.753	60389.663	10646.953	16943.44	22799.737	32928.335	63836.314
18	12317.227	13190.827	23416.715	31676.985	56040.573	10324.233	26583.64	98290.899	173695.17	124004.76
17	11739.812	12571.366	24433.834	32194.806	51909.761	10203.592	4796.317	98058.292	143171.96	206055.9
16	12277.307	13146.275	27174.564	32774.691	49439.12	10261.552	11211.78	16959.773	30397.331	24577.169
15	11170.711	11960.757	28137.942	31778.227	48934.371	9560.278	11119.54	23754.259	33093.296	48462.964
14	10982.415	11755.904	27421.467	30557.12	47959.312	9483.367	10793.08	23134.175	29268.331	39170.756
13	10396.669	11125.111	26006.511	30412.586	49590.928	9079.663	9729.72	23556.736	29719.47	43593.335
12	10722.695	11469.911	24533.244	31932.459	52351.551	9455.173	10207.86	24614.139	29898.296	48421.648
11	9692.555	10364.591	24887.95	33595.785	54248.991	8629.52	8297.182	25500.703	31001.345	52289.707
10	9426.637	10074.334	25789.333	33933.335	52558.627	8471.4	7848.626	25842.994	31839.095	51681.949
9	8831.664	9431.783	24519.623	32264.708	51071.544	8009.515	6841.71	25631.473	31938.916	50356.521
8	8951.052	9551.737	25790.443	33736.007	47705.186	8189.426	7179.972	29548.62	33942.84	46385.681
7	7999.151	8529.673	27366.737	33595.293	44605.533	7384.968	5547.253	30718.859	35267.219	42063.286
6	7652.04	8150.958	29320.31	31875.799	36591.265	7130.047	5164.217	31363.349	39179.247	38229.803
5	7042.531	7492.205	30331.476	35424.892	32533.766	6626.064	4404.331	31985.316	42074.43	34726.528
4	6961.159	7394.783	36409.154	43691.603	38245.366	6617.086	4920.366	37048.618	48777.006	39861.837
3	6057.424	6425.989	41961.939	50355.43	42857.197	5821.625	4318.568	42160.18	54472.251	43536.685
2	5768.955	6108.02	50072.214	58921.203	48126.336	5618.019	6390.165	48319.365	61474.869	47668.62
1	4415.903	4667.122	56258.435	68232.725	53363.271	4353.533	12179.36	52007.62	68531.619	52211.716

Geser Kolom

Lantai	Core Wall				2 Outrigger					
	Angin	Statik	Koyna	Elcentro	Parkfield	Angin	Statik	Koyna	Elcentro	Parkfield
35	5609.47	7962.21	10261.6	11682.15	20341.05	5321.49	8830.06	5349.3	5545.69	7997.71
34	5865.03	8401.69	11414.54	13228.26	22779.78	6377.95	9357.1	14669.28	16318.21	35030.17
33	5467.2	7894.6	11283.16	13235.91	23411.57	5966.05	8648	4966.59	5317.07	9514.87
32	6060.85	8773.2	12351.01	14484.96	25832.22	6763.36	9604.24	8048.89	8764.71	17263.59
31	5636.19	8291.59	12072.27	14169.36	26524.48	6470.45	8928.06	8089.14	8794.78	18304.67
30	5658.79	8372.79	12140.24	13906	26713.69	6613.44	8974.2	8433.03	9208.94	19572.43
29	5228.14	7886.01	12237.78	13577.52	26836.91	6284.53	8321.49	8705.1	9818.84	20488.22
28	5680.4	8596.13	13127.61	14173.63	27523.78	6894.77	9174.9	9486.21	10782.38	21531.91
27	5215.83	8093.33	12930.76	13738.74	26642.78	6528.73	8508.38	9470.76	10916.34	21642.12
26	5186.61	8115.58	13087.64	13586.61	25151.63	6578.98	8567.06	9099.51	10508.18	20712.04
25	4728.31	7611.77	12939.2	13322.55	24212.88	6187.83	7927.88	8877.96	10554.34	20154.38
24	5071.42	8180.44	13260.83	13773.82	23497.04	6656.69	8751.27	8839.58	10781.57	19110.43
23	4594.44	7675.87	13249.65	13533.95	22495.21	6248.79	8110.95	8726.01	10667.19	17472.86
22	4532.31	7649.09	13017.39	13121.95	22376.09	6225.83	8188.24	8612.03	10426.16	15285.33
21	4067.22	7146.79	12602.79	12572.9	23620.13	5797.91	7552.91	8847.89	10839.63	18075.65
20	4320.58	7582.95	12293.68	12277.41	25608.47	6152.86	7998.37	5533.45	6658.68	10103.35
19	3850.44	7089.06	11500.42	12461.22	27649.57	5600.81	6054.28	31083.84	37321.87	50069.36
18	3766.63	7016.82	11507.71	12586.83	27990.65	5576.29	14515.74	13321.2	16295.33	13674.95
17	3308.76	6525.98	11401.62	13147.77	28805.44	57448.54	5548.2	32548.88	44420.39	57448.54
16	3488.28	6836.42	11247	14012.24	28416.26	5367.4	6685.41	5143.61	7620.97	12953.36
15	3042.08	6359.15	10869.98	14593.07	27417.41	5090.78	6245.58	9232.57	14075.76	25194.17
14	2945.64	6242.09	11258.06	14444.33	25004.86	5048.27	5963.22	8606.66	13346.79	22677.1
13	2507.93	5767.39	11586.52	14400.2	23528.31	4716.3	5123.69	8989.59	13981.1	23194.17
12	2628.23	5956.59	11783.69	14299.62	21852.68	4919.87	5373.45	9414.9	13968.98	21253.94
11	2227.47	5498.13	11649.38	14561.5	21633.27	4586.96	4561.49	9803.04	14479.52	19160.46
10	2129.28	5335.29	11146.88	14262.53	21455.1	4495.87	4290.31	9942.04	14086.4	18177.63
9	1728.36	4878.37	10746.7	14059.24	22381.07	4150.74	3536.04	10284.4	13918.71	19953.32
8	1805.77	4948.75	10088.5	13152.88	22288.82	4251.2	3699.74	10069.58	13185.22	20703.85
7	1482.87	4509.06	9730.33	12325.69	22937.68	3912.23	2981.38	10081.41	12971.48	22135.48
6	1400.02	4299.03	9157.24	11698.57	22156.22	3769.5	2699.69	9780.72	12076.99	21762.85
5	1059.81	3857.96	8848.73	11828.27	22276.33	3420.16	2001.78	9896.5	11722.84	22214.92
4	1120.96	3819.4	8382.62	11212.68	20841.54	3426.78	1998.32	9663.44	10793.11	20711.88
3	896.16	3350.34	7612.98	10621.19	19681.5	3043.4	1059.55	9315.37	9797.17	19370.99
2	882.18	3324.61	6887.99	10264.2	18640.46	3072.33	109.98	8995.41	8941.25	17991.47
1	2429.87	1739.16	18643.16	30611.74	58749.24	47114.55	4566.37	27367.03	25561.7	47114.55

Aksial Kolom															
Lantai	Core Wall						2 Outrigger								
	Angin	Statik	Koyna	Elcentro	Parkfield	Angin	Statik	Koyna	Elcentro	Parkfield	Angin	Statik	Koyna	Elcentro	Parkfield
35	-31271.4	-34115.2	-42947.2	-45707.4	-64320.5	-108849	-20989.1	-199035	-209955	-341773	-108849	-20989.1	-199035	-209955	-341773
34	-54475.1	-59618.1	-74642.4	-79407.8	-110948	-126120	-37009.5	-221029	-232355	-369620	-126120	-37009.5	-221029	-232355	-369620
33	-77860.6	-85378.7	-107078	-114015	-159792	-143845	-52889	-244085	-255913	-399856	-143845	-52889	-244085	-255913	-399856
32	-101354	-111321	-139982	-149156	-210362	-161914	-68062.8	-268235	-280759	-433090	-161914	-68062.8	-268235	-280759	-433090
31	-124636	-137093	-172676	-183960	-261280	-180100	-82470.9	-292816	-306252	-468236	-180100	-82470.9	-292816	-306252	-468236
30	-147670	-162659	-205085	-218186	-312136	-193327	-96086.6	-317557	-332069	-504791	-193327	-96086.6	-317557	-332069	-504791
29	-170660	-188270	-237620	-252117	-363460	-216661	-108804	-342652	-358273	-542799	-108804	-108804	-342652	-358273	-542799
28	-193582	-213893	-270440	-285719	-414761	-235043	-120698	-367739	-384688	-581554	-120698	-120698	-367739	-384688	-581554
27	-216190	-239252	-303231	-318373	-464706	-253290	-131810	-392395	-411134	-619954	-131810	-131810	-392395	-411134	-619954
26	-238456	-264319	-335784	-349964	-512889	-271346	-142193	-416670	-437439	-657489	-142193	-142193	-416670	-437439	-657489
25	-260522	-289271	-368320	-380709	-559481	-289254	-151789	-440623	-463455	-694063	-151789	-151789	-440623	-463455	-694063
24	-282390	-314104	-401133	-410620	-604324	-306999	-160752	-463979	-489042	-729407	-160752	-160752	-463979	-489042	-729407
23	-303881	-338609	-433544	-441131	-646802	-324444	-169261	-486583	-513768	-762725	-169261	-169261	-486583	-513768	-762725
22	-324971	-362756	-465397	-472026	-686490	-341542	-177406	-508233	-537462	-793767	-177406	-177406	-508233	-537462	-793767
21	-345748	-386664	-496994	-502499	-724019	-35309	-185409	-528956	-559980	-822258	-185409	-185409	-528956	-559980	-822258
20	-366235	-410347	-528088	-532540	-759367	-374753	-192280	-549184	-581695	-849084	-192280	-192280	-549184	-581695	-849084
19	-386305	-433648	-558101	-561499	-792475	-372128	-209217	-546121	-578633	-846022	-209217	-209217	-546121	-578633	-846022
18	-405934	-456538	-586912	-589030	-823584	-502657	-301157	-783172	-869314	-1203948	-301157	-301157	-783172	-869314	-1203948
17	-425174	-479086	-614639	-615082	-853057	-516512	-314390	-804943	-890797	-1236712	-314390	-314390	-804943	-890797	-1236712
16	-444062	-501320	-641556	-639649	-881501	-534274	-327860	-826707	-911605	-1270286	-327860	-327860	-826707	-911605	-1270286
15	-462507	-523122	-667699	-662614	-909032	-549885	-334090	-848564	-933314	-1304877	-334090	-334090	-848564	-933314	-1304877
14	-480492	-544460	-693733	-683999	-936128	-565308	-349790	-870258	-954504	-1339875	-349790	-349790	-870258	-954504	-1339875
13	-498041	-565368	-720119	-703780	-963290	-580542	-356470	-891682	-974733	-1374077	-356470	-356470	-891682	-974733	-1374077
12	-515201	-585881	-746150	-722148	-991206	-595609	-362320	-912779	-994044	-1407277	-362320	-362320	-912779	-994044	-1407277
11	-531914	-605909	-771294	-739188	-1019320	-610460	-372190	-933391	-1012436	-1438633	-372190	-372190	-933391	-1012436	-1438633
10	-548167	-625420	-795191	-760951	-1046348	-625073	-386890	-953436	-1030151	-1467637	-386890	-386890	-953436	-1030151	-1467637
9	-563973	-644418	-817726	-782220	-1071173	-639449	-394010	-972970	-1047791	-1494036	-394010	-394010	-972970	-1047791	-1494036
8	-579386	-662943	-838891	-806070	-1093828	-653621	-401450	-992040	-1065310	-1518081	-401450	-401450	-992040	-1065310	-1518081
7	-594378	-680927	-858666	-832591	-1114766	-667564	-416620	-1010636	-1082861	-1539853	-416620	-416620	-1010636	-1082861	-1539853
6	-608942	-698335	-877195	-857331	-1137952	-681271	-425430	-1028775	-1100609	-1559453	-425430	-425430	-1028775	-1100609	-1559453
5	-623096	-715149	-894756	-880213	-1163360	-694751	-434580	-1046407	-1118155	-1576795	-434580	-434580	-1046407	-1118155	-1576795
4	-636900	-731412	-911683	-901713	-1188322	-708048	-440050	-1063497	-1135411	-1592359	-440050	-440050	-1063497	-1135411	-1592359
3	-650357	-747073	-927764	-921978	-1211877	-721169	-459590	-1079837	-1152202	-1606556	-459590	-459590	-1079837	-1152202	-1606556
2	-663481	-762081	-942912	-940611	-1233073	-734125	-467940	-1095271	-1168302	-1619503	-467940	-467940	-1095271	-1168302	-1619503
1	-660856	-759019	-939849	-937548	-1230010	-731500	-470220	-1092209	-1165239	-1616441	-470220	-470220	-1092209	-1165239	-1616441

Lantai	Simpangan (m)											
	Open Frame						Outrigger					
	Statik	Koyna	Elcentro	Parkfield	Angin	Statik	Koyna	Elcentro	Parkfield	Angin		
35	0.6153	0.2366	0.2655	0.3032	0.0383	0.356	0.1725	0.2303	0.3121	0.0211		
34	0.6081	0.2333	0.2629	0.2966	0.038	0.3506	0.1691	0.2261	0.3055	0.0208		
33	0.5997	0.2294	0.2602	0.2878	0.0376	0.3431	0.1646	0.2194	0.2943	0.0204		
32	0.5901	0.226	0.2578	0.2769	0.0371	0.3348	0.1592	0.2121	0.2817	0.02		
31	0.5795	0.2233	0.2555	0.2666	0.0365	0.326	0.1544	0.2049	0.2681	0.0195		
30	0.5679	0.22	0.2529	0.26	0.0359	0.3166	0.15	0.1975	0.2538	0.019		
29	0.5551	0.216	0.2494	0.2537	0.0352	0.3068	0.1449	0.1897	0.2392	0.0185		
28	0.5413	0.2113	0.2444	0.2446	0.0345	0.2965	0.1393	0.1813	0.2258	0.018		
27	0.5269	0.2064	0.2386	0.2322	0.0337	0.2858	0.1331	0.1724	0.216	0.0174		
26	0.5115	0.2006	0.2322	0.2165	0.0329	0.2748	0.1272	0.1632	0.2081	0.0168		
25	0.4953	0.1936	0.2256	0.1982	0.032	0.2634	0.1213	0.1537	0.2005	0.0162		
24	0.4782	0.1869	0.2186	0.1809	0.0311	0.2517	0.1153	0.1471	0.1924	0.0155		
23	0.4608	0.18	0.2114	0.1758	0.0301	0.2399	0.1097	0.1421	0.1834	0.0149		
22	0.4426	0.1737	0.204	0.172	0.0291	0.2279	0.1052	0.1366	0.1734	0.0142		
21	0.4238	0.1676	0.1965	0.1688	0.0281	0.216	0.1008	0.1324	0.1625	0.0136		
20	0.4042	0.1617	0.1889	0.1662	0.0269	0.2041	0.0966	0.1284	0.1508	0.0129		
19	0.3845	0.1568	0.1812	0.1633	0.0258	0.1924	0.092	0.1243	0.1386	0.0122		
18	0.3643	0.1515	0.1731	0.1601	0.0246	0.1818	0.0871	0.1204	0.1278	0.0116		
17	0.3436	0.1454	0.1643	0.1565	0.0234	0.1758	0.0818	0.1179	0.1258	0.0113		
16	0.3224	0.1388	0.155	0.1525	0.0221	0.1649	0.077	0.1127	0.1221	0.0106		
15	0.3012	0.1322	0.1456	0.1483	0.0208	0.1527	0.0722	0.1063	0.1177	0.0099		
14	0.2796	0.1249	0.1361	0.1439	0.0195	0.1401	0.0671	0.0993	0.1127	0.0091		
13	0.2577	0.1175	0.1265	0.1386	0.0181	0.1272	0.0617	0.0919	0.107	0.0084		
12	0.2355	0.1096	0.1167	0.1321	0.0167	0.1141	0.0566	0.0841	0.1004	0.0075		
11	0.2134	0.1013	0.1067	0.1242	0.0153	0.1011	0.0515	0.0761	0.0929	0.0067		
10	0.1912	0.0925	0.0963	0.1151	0.0138	0.0883	0.0464	0.0677	0.0846	0.0059		
9	0.1688	0.083	0.0856	0.1048	0.0123	0.0756	0.0411	0.0593	0.0756	0.0051		
8	0.1464	0.073	0.0747	0.0933	0.0108	0.0634	0.0359	0.0507	0.0659	0.0043		
7	0.1242	0.0628	0.0639	0.0809	0.0092	0.0518	0.0307	0.0422	0.0558	0.0036		
6	0.1021	0.0526	0.0531	0.0678	0.0077	0.0408	0.0255	0.0341	0.0456	0.0028		
5	0.0802	0.0423	0.0422	0.0541	0.0061	0.0306	0.0202	0.0264	0.0354	0.0021		
4	0.0589	0.0318	0.0313	0.0402	0.0045	0.0215	0.0149	0.0191	0.0258	0.0015		
3	0.0388	0.0214	0.0209	0.0268	0.003	0.0137	0.0098	0.0125	0.0169	0.001		
2	0.0206	0.0117	0.0112	0.0144	0.0016	0.0072	0.0053	0.0068	0.0092	0.0005		
1	0.0064	0.0037	0.0035	0.0045	0.0005	0.0023	0.0019	0.0023	0.0031	0.0002		

Lantai	Max	Interstory Drift													
		Open Frame							Outrigger						
		Statik	Angin	Koyna	Elcentro	Parkfield	Statik	Angin	Koyna	Elcentro	Parkfield	Statik	Angin	Koyna	Elcentro
35	0.005	0.002105	0.000096	0.000916	0.001305	0.001885	0.001474	0.000079	0.000655	0.001134	0.001784				
34	0.005	0.002422	0.000114	0.001226	0.001848	0.002631	0.002089	0.000107	0.001114	0.001908	0.00303				
33	0.005	0.002811	0.000133	0.001452	0.002416	0.003402	0.002307	0.000117	0.001259	0.002201	0.003466				
32	0.005	0.003081	0.000146	0.001572	0.002688	0.003786	0.002455	0.000124	0.001305	0.002374	0.003735				
31	0.005	0.003424	0.000162	0.00161	0.00277	0.004126	0.002618	0.000132	0.001327	0.002523	0.003981				
30	0.005	0.003767	0.000179	0.001766	0.002696	0.004287	0.002771	0.000139	0.00134	0.002616	0.004155				
29	0.005	0.0041	0.000195	0.001848	0.002858	0.004232	0.002921	0.000147	0.001351	0.002649	0.004266				
28	0.005	0.00427	0.000205	0.001747	0.002945	0.00384	0.003032	0.000153	0.001356	0.002588	0.004265				
27	0.005	0.004548	0.000219	0.001892	0.003155	0.004206	0.003153	0.000159	0.001352	0.002493	0.004228				
26	0.005	0.004825	0.000234	0.00206	0.00322	0.004923	0.003256	0.000164	0.001367	0.002556	0.004109				
25	0.005	0.00509	0.000249	0.002277	0.003115	0.005362	0.003348	0.00017	0.001376	0.00258	0.003932				
24	0.005	0.005194	0.000257	0.002315	0.002969	0.005357	0.003391	0.000173	0.001402	0.002547	0.003675				
23	0.005	0.005412	0.00027	0.002403	0.002942	0.005306	0.00344	0.000176	0.001411	0.002524	0.00341				
22	0.005	0.005627	0.000284	0.002444	0.002883	0.00505	0.00346	0.000178	0.001414	0.002496	0.003117				
21	0.005	0.00583	0.000297	0.002378	0.002859	0.00458	0.003455	0.000179	0.001408	0.002441	0.003134				
20	0.005	0.005884	0.000304	0.002425	0.002797	0.003929	0.003394	0.000178	0.001428	0.002402	0.003261				
19	0.005	0.006047	0.000316	0.002455	0.002799	0.003671	0.003017	0.000162	0.001298	0.002152	0.003024				
18	0.005	0.006203	0.000328	0.002549	0.002767	0.003664	0.001655	0.000093	0.000756	0.001131	0.001627				
17	0.005	0.006347	0.00034	0.00267	0.002732	0.00367	0.003117	0.000171	0.001545	0.002156	0.00326				
16	0.005	0.006361	0.000346	0.00271	0.002659	0.003648	0.003574	0.000195	0.00178	0.0024	0.003698				
15	0.005	0.006469	0.000356	0.002773	0.002673	0.003665	0.003697	0.000203	0.001826	0.00239	0.003734				
14	0.005	0.00657	0.000367	0.002755	0.002698	0.003639	0.003782	0.00021	0.001839	0.002329	0.00367				
13	0.005	0.006657	0.000378	0.002712	0.002725	0.003584	0.003833	0.000215	0.001828	0.00223	0.003502				
12	0.005	0.006632	0.000382	0.002592	0.002718	0.003497	0.003821	0.000217	0.001809	0.002251	0.003224				
11	0.005	0.006688	0.000392	0.00265	0.002778	0.003554	0.003799	0.000217	0.00182	0.002317	0.002898				
10	0.005	0.006732	0.000401	0.002723	0.002866	0.003679	0.003737	0.000216	0.001801	0.002347	0.00251				
9	0.005	0.006758	0.00041	0.002754	0.002912	0.003812	0.003638	0.000211	0.001726	0.002357	0.002606				
8	0.005	0.006684	0.000412	0.002765	0.002895	0.003853	0.00348	0.000204	0.001626	0.002338	0.002701				
7	0.005	0.006662	0.000418	0.002933	0.002912	0.003895	0.003307	0.000194	0.001567	0.002285	0.002746				
6	0.005	0.006594	0.000422	0.003015	0.002925	0.003899	0.003083	0.000182	0.001514	0.002177	0.00271				
5	0.005	0.006437	0.000419	0.003005	0.002914	0.003851	0.002806	0.000165	0.001432	0.002011	0.002589				
4	0.005	0.006072	0.000402	0.00289	0.002818	0.003667	0.002463	0.000145	0.001302	0.001786	0.002368				
3	0.005	0.005495	0.00037	0.002669	0.002587	0.003335	0.00208	0.000122	0.001146	0.001542	0.002065				
2	0.005	0.004325	0.000295	0.002138	0.002067	0.002645	0.00159	0.000093	0.000931	0.001212	0.001632				
1	0.005	0.001945	0.000134	0.000994	0.000943	0.001203	0.000781	0.000046	0.000503	0.000626	0.000847				

Momen Balok

Lantai	Open Frame					Outtrigger				
	Angin	Statik	Koyna	Elcentro	Parkfield	Angin	Statik	Koyna	Elcentro	Parkfield
35	-75.359	-1233.88	-3219.61	-4541.62	-6104.629	-11.115	-289.99	-246.274	-496.603	-705.053
34	-54.734	-4873.71	-6951.77	-13675.1	-19340.43	-77.095	-1642.95	-1401.36	-2660.17	-3881.52
33	-398.238	-9664.15	-9490.99	-23765.2	-32358.13	716.866	-13753.8	-11840.1	-21995.7	-32597.9
32	-733.746	-15131.5	-12733.9	-33057.2	-43534.02	-817.635	-15378	-13040.7	-25450.7	-37692.2
31	-1034.65	-20086.4	-16231.2	-37674.6	-52212.54	-980.256	-18196.7	-14406.9	-29852.9	-44390.6
30	-1339.25	-24934.1	-19440.9	-36726.6	-57159.22	-1108.778	-20263.9	-15095.2	-32330.5	-48436.2
29	-1644.74	-29672.9	-22576.8	-37446.2	-58366.7	-1235.03	-22229.4	-15308.3	-33721.5	-51282.8
28	-1976.04	-34779.2	-23004.5	-42060.6	-55817.21	-1418.948	-25186.7	-16562.5	-35108.9	-54864.6
27	-2276.45	-39298.6	-23282	-47046.4	-55028.4	-1585.791	-27796.1	-16972.2	-35061.9	-56869.8
26	-2575.73	-43582.1	-26798.6	-50636.1	-71876.01	-1706.388	-29449	-16960.9	-32741.5	-55813.3
25	-2878.89	-47783.6	-31031.4	-50277.4	-83722.02	-1816.283	-30846.1	-18324.3	-32451.8	-53529.9
24	-3213.61	-52391.4	-34337.5	-48881.1	-90318	-1973.648	-32997.1	-20181.9	-33529.2	-51304.2
23	-3516.57	-56448.5	-36386.2	-49163.2	-91773.6	-2103.998	-34658	-21153.1	-34042.1	-48277
22	-3815.74	-60214.5	-38021.4	-48675.3	-88959.31	-2172.811	-35131.5	-20644.2	-33800.9	-43266.6
21	-4120.89	-63912.6	-37901.5	-48298.6	-81874.43	-2225.093	-35275.7	-19898	-33382.4	-41570.9
20	-4459.71	-67991.6	-38556.5	-49011	-71376.98	-2266.992	-35265.3	-19865.8	-34401.1	-45589.5
19	-4766.59	-71576.1	-40522.7	-49946.6	-63276.36	-2480.451	-38634.4	-21554.9	-37082.3	-51943.2
18	-5068.98	-74849.9	-42047.8	-50301	-63686.15	-381.459	-6247.37	-3452.58	-5838.81	-8697.42
17	-5378.87	-78057.1	-45047.6	-50135.6	-64688.33	-450.433	-7196.77	-4506.11	-6296.62	-9871.64
16	-5722.29	-81584.6	-47745.4	-50531.8	-66864.09	-2970.539	-43784.1	-29260	-39108.2	-62025.2
15	-6034.25	-84688.4	-50041.1	-51526.3	-68966.68	-3095.29	-44386.3	-30022.1	-38521.2	-62147.3
14	-6342.03	-87479.1	-50994	-52822.1	-70020.73	-3357.226	-47569.3	-31666.1	-38913.5	-63585.3
13	-6658.18	-90193.5	-50697.8	-53983.2	-70307.51	-3549.182	-49701.1	-32342.6	-38724.1	-62114.4
12	-7005.97	-93147.6	-50142.4	-55494.6	-70599.59	-3748.633	-51873.8	-33030.1	-41531.2	-58948.3
11	-7322.67	-95751.4	-50727.1	-56723.4	-72336.98	-3891.329	-53228.6	-34158.3	-44016.1	-54304.8
10	-7634.27	-98028.8	-53157.5	-57772.3	-75900.72	-3956.92	-53339.1	-34894.6	-46019.3	-48587.8
9	-7950.74	-100172	-54978.6	-58816.4	-80000.4	-3974.212	-52707	-34464.3	-47722.5	-52800.9
8	-8287.09	-102374	-56092	-60136.9	-83692.8	-3964.518	-51627.4	-33197.6	-49042.1	-56907.2
7	-8578.53	-104148	-60560.3	-61172.8	-85993.17	-3903.116	-49894.9	-32335.7	-49256.3	-59342.9
6	-8827.42	-105193	-64213	-61836.2	-87330.09	-3744.95	-46743.6	-31695.6	-48006.4	-59869.7
5	-8998.47	-105202	-65786.6	-62513.5	-87678.88	-3514.341	-42615.5	-30864.4	-45518.2	-58541
4	-9004.38	-103257	-65632.5	-62904.6	-86373.37	-3202.432	-37418.5	-29066.7	-41680.7	-55224.4
3	-8695.43	-98105.9	-63366.3	-60957.4	-81948.54	-2835.441	-31741.8	-26762.8	-37010.4	-50104.2
2	-7692.44	-85381.3	-56070.6	-53895	-71327.4	-2332.736	-24634.5	-23202.5	-31153.9	-42046.9
1	-5287.6	-57777.2	-39161.1	-37175.9	-48597.33	-1674.427	-16766.5	-17904.3	-22872.4	-30739.6

Geser Balok												
Lantai	Open Frame						Outrigger					
	Angin	Statik	Koyna	Elcentro	Parkfield	Angin	Statik	Koyna	Elcentro	Parkfield		
35	18.57	580.66	1108.01	1631.8	2266.53	3.37	89.37	70.65	145.45	207.17		
34	34.58	1975.57	2411.27	5013.3	7055.9	32.72	678.4	563.53	1064.64	1564.47		
33	159.54	3723.48	3534.11	8688.45	11801.34	260.88	5004.32	4294.44	7977.29	11827.59		
32	274.05	5581.1	4618.75	11859.58	15647.23	291.69	5483.65	4636.71	9046.53	13404.01		
31	375.77	7247.72	5791.05	13357.31	18523.93	347.2	6443.5	5086.5	10535.85	15674.06		
30	483.68	8966.41	6928.81	13042.66	20291.67	393.04	7181.44	5334.28	11417.88	17114.33		
29	592.69	10658.51	8047.67	13313.88	20747.51	438.56	7891.76	5418.67	11927.02	18148.15		
28	701.64	12324.74	8112.98	14791.95	19656.71	498.85	8853.92	5809.85	12307.15	19239.04		
27	799.92	13790.46	8150.6	16407.32	19213.15	553.27	9697.68	5910.63	12202.96	19798.98		
26	904.93	15295.83	9378.53	17672.55	25080.56	595.82	10283.2	5911.01	11409.54	19452.18		
25	1011.77	16778.8	10866.62	17563.29	29234.82	634.78	10781.39	6391.36	11327.08	18674.31		
24	1119.75	18245.77	11931.16	16960.03	31313.9	684.83	11451.63	6991.15	11624.07	17783.1		
23	1217.33	19533.95	12569.11	16962.9	31642.99	725.99	11961.2	7288.89	11737.94	16642.95		
22	1321.35	20847	13143.1	16808.11	30703.93	750.16	12132.53	7119.02	11663.08	14930.56		
21	1427.73	22139.53	13111.88	16688.45	28281.33	768.78	12191.72	6869.88	11526.92	14356.39		
20	1536.2	23419.8	13267.38	16847.66	24544.68	779.14	12124.47	6825.02	11817.45	15659.34		
19	1634.49	24544.16	13884.59	17097.24	21667.39	847.89	13207.4	7365.64	12670.33	17753.71		
18	1738.8	25677.76	14412.97	17228.37	21819.6	141.32	2310.23	1259.21	2146.44	3163.39		
17	1845.86	26789.62	15448.4	17178.26	22172.3	165.47	2622.83	1656.23	2290.92	3599.26		
16	1955.66	27887.26	16308.75	17247.67	22829.01	1012.45	14927.18	9969.17	13330.92	21138.96		
15	2055.55	28853.74	17039.09	17532.34	23472.87	1053.14	15105.04	10213.75	13104.99	21142.01		
14	2161.01	29814.43	17370.43	17979.84	23839.84	1142.72	16195.76	10776.72	13245.49	21641.42		
13	2269.43	30749.06	17275.08	18381.51	23944.26	1208.55	16928.13	11011.33	13184.96	21148.75		
12	2380.84	31662.27	17038.53	18844.07	23975.88	1272.99	17620.01	11215.25	14099.9	20020.03		
11	2482.47	32468.31	17194.19	19217.38	24508.22	1318.5	18039.3	11572.72	14912.26	18400.74		
10	2588.66	33248.6	18022.06	19578.19	25721	1341.14	18082.73	11825.82	15593.72	16465.12		
9	2696.55	33982.65	18643.77	19937.2	27116.59	1347.38	17873.44	11683.16	16175.47	17895.47		
8	2804.41	34653.23	18980.63	20342.45	28308.39	1341.36	17472.17	11231.28	16588.81	19247.12		
7	2897.8	35188.97	20455.02	20657.35	29036.81	1318.26	16855.66	10920.54	16632.92	20038.03		
6	2982.37	35548.46	21691.89	20885.6	29494.39	1265.17	15795.88	10706.95	16214.96	20220.62		
5	3040.59	35556.22	22227.09	21123.25	29617.38	1187.44	14403.2	10427.82	15377.11	19775.69		
4	3037.69	34842.81	22140.1	21221.24	29131.94	1080.46	12629.01	9805.75	14060.2	18627.79		
3	2929.35	33056.98	21346.18	20535.57	27602.26	955.22	10696.97	9015.54	12467.21	16877.22		
2	2592.04	28776.1	18892.71	18160.38	24030.86	786.06	8304.58	7817.79	10496.88	14166.76		
1	1781.71	19472.43	13195.41	12526.78	16373.46	564.25	5652.36	6033.16	7707.06	10357.89		

Momen Kolom

Lantai	Open Frame					2 Outrigger				
	Angin	Statik	Koyna	Elcentro	Parkfield	Angin	Statik	Koyna	Elcentro	Parkfield
36	14873.912	9819.616	17207.872	22112.5	20077.212	6389.47	15510.575	12380.332	13122.2	22027.767
34	15700.51	1874.182	29277.933	38428.402	49950.473	3858.26	17118.166	41076.539	46023.255	102201.83
33	15137.429	2971.757	31013.514	37435.145	56172.102	3351.698	16288.443	9968.82	11216.497	21267.19
32	16811.103	1851.156	29688.578	37265.477	53302.792	4373.945	18106.674	17436.163	19121.484	41264.517
31	15489.156	9314.301	31569.972	39860.205	57736.886	4084.607	16322.723	16682.267	18849.136	40399.996
30	15635.435	6278.01	34856.85	40397.048	52758.208	4363.652	16424.025	17630.976	20310.018	41027.15
29	15101.407	4509.71	35707.226	37784.897	56502.969	4283.101	15691.81	17983.954	20767.934	40778.502
28	16429.394	4183.768	32633.223	33282.848	71532.381	4776.176	17269.21	18441.928	21279.553	40487.475
27	15081.811	1350.924	33911.336	37615.623	86197.541	4255.688	15505.688	17281.599	21309.808	37735.473
26	15112.326	4462.687	33531.348	36528.74	85598.109	4305.311	15631.643	17577.76	20936.629	33504.026
25	14519.74	5672.745	37842.016	41316.227	81471.844	4012.837	14937.511	18727.619	21879.338	30872.647
24	15562.806	15337.913	38075.086	45832.332	65967.577	4292.291	16465.901	20043.198	22945.62	36550.05
23	14241.424	9863.851	39366.922	51361.808	64681.101	3662.627	14760.773	19300.861	22042.851	40551.192
22	14178.872	14528.928	40312.1	49085.555	57700.356	3585.854	14962.02	17259.151	19518.36	40677.741
21	13558.74	15375.312	44020.537	44085.348	62147.153	3217.219	14420.831	16529.524	20300.003	41410.306
20	14340.544	25554.754	42522.496	41519.009	61886.9	3289.452	16235.564	14041.453	21581.383	34467.053
19	13080.223	19538.495	42700.228	38244.174	67225.272	2653.806	16943.441	22799.737	32928.353	63836.314
18	12934.95	24190.131	39726.425	41367.239	67910.726	15436.842	26583.643	98290.899	173695.17	124004.76
17	12303.598	24841.189	39572.519	42974.471	70488.271	3053.6	4796.317	98058.292	143171.96	206055.9
16	12844.057	35191.751	39563.031	48524.412	66407.211	1653.966	11211.782	16959.773	30397.331	24577.169
15	11663.763	29093.524	41292.861	47321.812	70186.797	1949.71	11119.539	23754.259	33093.296	48462.964
14	11440.435	33692.332	38012.773	49960.798	68987.814	1953.677	10793.082	23134.175	29268.331	39170.756
13	10805.144	34302.486	39904.97	50658.246	74925.205	1919.163	9729.72	23556.736	29719.47	43593.335
12	11119.713	44584.824	46819.786	55775.289	78680.54	2350.621	10207.863	24614.139	29898.296	48421.648
11	10028.796	38798.967	47053.629	61288.489	86443.62	2058.168	8297.182	25500.703	31001.345	52289.707
10	9728.924	43416.303	50403.45	58980.325	85990.524	2324.448	7848.626	25842.994	31839.095	51681.949
9	9091.519	44319.322	47313.258	57357.372	87341.584	2310.244	6841.71	25631.473	31938.916	50356.521
8	9191.272	54785.533	49706.164	57055.789	86081.848	2904.923	7179.972	29548.62	33942.84	46385.681
7	8193.107	50624.188	46527.549	55477.828	89253.136	2846.63	5547.253	30718.859	35267.219	42063.286
6	7816.215	57403.568	48067.775	57551.028	85134.728	3298.51	5164.217	31363.349	39179.247	38229.803
5	7173.242	63472.6	52561.905	60736.598	81204.779	3551.721	4404.331	31985.316	42074.43	34726.528
4	7069.175	83660.514	61520.549	70845.123	79086.96	4504.155	4920.366	37048.618	48777.006	39861.837
3	6132.052	102308.8	70554.345	81496.382	74712.308	4964.973	4318.568	42160.18	54472.251	43536.685
2	5816.436	152339.14	103389.6	104478.64	71238.888	5948.891	6390.165	48319.365	61474.869	47668.62
1	4432.856	247440.1	161507.81	152208.54	134020.08	6837.909	12179.362	52007.62	68531.619	52211.716

Geser Kolom

Lantai	Open Frame						2 Outrigger					
	Angin	Statik	Koyna	Elcentro	Parkfield	Angin	Statik	Koyna	Elcentro	Parkfield		
35	8052.97	7009.59	9440.74	9146.81	8658.14	5321.49	8830.06	5349.3	5545.69	7997.71		
34	8374.59	4527.44	12111.18	17635.12	17242.97	6377.95	9357.1	14669.28	16318.21	35030.17		
33	7889.06	1422.86	13438.82	17700.32	23802.57	5966.05	8648	4966.59	5317.07	9514.87		
32	8762.94	2351.65	14065.66	16068.76	22360.68	6763.36	9604.24	8048.89	8764.71	17263.59		
31	8278.11	809.68	14664.38	17984.27	26756.52	6470.45	8928.06	8089.14	8794.78	18304.67		
30	8348.33	1732.16	14142.41	18562.06	26988.12	6613.44	8974.2	8433.03	9208.94	19572.43		
29	7856.03	5206.36	15866.52	20978.83	29095.53	6284.53	8321.49	8705.1	9818.84	20488.22		
28	8558.67	3104.1	14927.91	17442.89	23328.57	6894.77	9174.9	9486.21	10782.38	21531.91		
27	8048.96	6687.02	16241.09	19321.8	28881.37	6528.73	8508.38	9470.76	10916.34	21642.12		
26	8057.76	7244.34	16108.32	19096.84	33469.15	6578.98	8567.06	9099.51	10508.18	20712.04		
25	7547.39	10961.43	16709.41	17560.79	39089.99	6187.83	7927.88	8877.96	10554.34	20154.38		
24	8102.36	8157.47	14768.91	16622.84	34305.94	6656.69	8751.27	8839.58	10781.57	19110.43		
23	7590.98	11947.15	16066.72	19004.31	37250.28	6248.79	8110.95	8726.01	10667.19	17472.86		
22	7550.08	12238.98	15659.05	20058.48	34526.56	6225.83	8188.24	8612.03	10426.16	15285.33		
21	7042.56	16037.14	17289.79	21482.01	33321.33	5797.91	7552.91	8847.89	10839.63	18075.65		
20	7461.2	12835.58	17263.51	19372.28	25248.71	6152.86	7998.37	5533.45	6658.68	10103.35		
19	6962.67	16665.82	18757.95	21745.75	27185.25	5600.81	6054.28	31083.84	37321.87	50069.36		
18	6877.61	16767.72	18275.15	19607.49	26967.51	5576.29	14515.74	13321.2	16295.33	13674.95		
17	6384.63	20519.29	18139.57	18131.7	29252.32	57448.54	5548.2	32548.88	44420.39	57448.54		
16	6676.65	17140.23	16099.69	17292.31	27216.09	5367.4	6685.41	5143.61	7620.97	12953.36		
15	6198.41	20885.06	16504.67	14681.43	29505.58	5090.78	6245.58	9232.57	14075.76	25194.17		
14	6071.67	20855.77	16644.36	13754.51	28958.66	5048.27	5963.22	8606.66	13346.79	22677.1		
13	5599.19	24461.36	16679.81	14240.14	30269.07	4716.3	5123.69	8989.59	13981.1	23194.17		
12	5772.19	21072.5	14802	14196.64	26899.52	4919.87	5373.45	9414.9	13968.98	21253.94		
11	5317.47	24644.19	15042.78	15685.33	29457.99	4586.96	4561.49	9803.04	14479.52	19160.46		
10	5149.87	24550.48	14393.44	17680.05	30146.18	4495.87	4290.31	9942.04	14086.1	18177.63		
9	4700.36	27972.32	15208.2	18423.07	33100.89	4150.74	3536.04	10284.4	13918.71	19953.32		
8	4759.84	24806.8	14353.02	16213.14	31039.38	4251.2	3699.74	10069.58	13185.22	20703.85		
7	4329.26	28334.17	15115.39	17415.67	33254.3	3912.23	2981.38	10081.41	12971.48	22135.48		
6	4120.89	28704.12	14789.47	16884.34	32555.28	3769.5	2699.69	9780.72	12076.99	21762.85		
5	3692.8	32743.67	14893.96	16654.1	35225.24	3420.16	2001.78	9896.5	11722.84	22214.92		
4	3650.62	31943.22	14622.56	16337.58	34578.79	3426.78	1998.32	9663.44	10793.11	20711.88		
3	3197.73	39000.26	15674.92	15957.27	38874.57	3043.4	1059.55	9315.37	9797.17	19370.99		
2	3166.99	47677.18	18557.43	17412.8	46335.49	3072.33	109.98	8995.41	8941.25	17991.47		
1	1654.74	66703.66	23577.41	23256.34	61327.89	47114.55	4566.37	27367.03	25561.7	47114.55		

Aksial Kolom

Lantai	Open Frame					2 Outrigger				
	Angin	Statik	Koyna	Elcentro	Parkfield	Angin	Statik	Koyna	Elcentro	Parkfield
35	-8644.19	-7175.94	-10344.6	-11880.6	-11875.7	-31123.7	-8656.01	-54625.9	-57357.7	-91733.4
34	-33208.9	-29310.2	-40384.9	-45330.8	-46621.8	-108849	-20989.1	-199035	-209955	-341773
33	-57512.5	-49322.7	-72359.8	-80130.7	-86164.5	-126120	-37009.5	-221029	-232355	-369620
32	-81949.4	-67403	-105577	-113501	-129759	-143845	-52889	-244085	-255913	-399856
31	-106454	-83696	-139587	-145813	-177458	-161914	-68062.8	-268235	-280759	-433090
30	-130646	-97800.4	-173537	-184681	-226861	-180100	-82470.9	-292816	-306252	-468236
29	-154488	-109711	-206648	-224156	-276525	-198327	-96086.6	-317557	-332069	-504791
28	-178247	-119693	-239508	-263654	-325070	-216661	-108804	-342652	-358273	-542799
27	-201901	-127949	-272564	-302413	-371416	-235043	-120698	-367739	-384688	-581554
26	-225149	-134175	-306015	-340246	-414796	-253290	-131810	-392395	-411134	-619954
25	-247961	-138371	-340279	-377382	-455137	-271346	-142193	-416670	-437439	-657489
24	-270523	-140725	-375223	-412736	-493855	-289254	-151789	-440623	-463455	-694063
23	-292844	-141445	-410092	-445849	-533098	-306999	-160752	-463979	-489042	-729407
22	-314694	-140313	-444204	-476473	-576500	-324444	-169261	-486583	-513768	-762725
21	-336043	-157331	-477337	-504812	-625659	-341542	-177406	-508233	-537462	-793767
20	-357014	-164630	-509431	-531721	-674680	-358309	-185409	-528956	-559980	-822258
19	-377634	-172630	-540762	-558359	-720894	-374753	-192280	-549184	-581695	-849084
18	-397730	-186406	-571497	-583976	-763488	-372128	-209217	-546121	-578633	-846022
17	-417272	-195454	-601763	-607586	-802319	-502657	-301157	-783172	-869314	-1203948
16	-436331	-205901	-631592	-630969	-837564	-518512	-314390	-804943	-890797	-1236712
15	-454948	-219477	-661149	-656766	-869623	-534274	-327860	-826707	-911605	-1270286
14	-472993	-227156	-690505	-680879	-898670	-549885	-334090	-848564	-933314	-1304877
13	-490434	-238252	-719658	-700753	-925117	-565308	-349790	-870258	-954504	-1339875
12	-507305	-247272	-748653	-718038	-949657	-580542	-356470	-891682	-974733	-1374077
11	-523653	-259682	-777775	-743777	-973251	-595609	-362320	-912779	-994044	-1407277
10	-539382	-267766	-807240	-768281	-997107	-610460	-372190	-933391	-1012436	-1438633
9	-554460	-279824	-836580	-791214	-1022731	-625073	-386890	-953436	-1030151	-1467637
8	-568896	-282230	-865502	-811864	-1049289	-639449	-394010	-972970	-1047791	-1494036
7	-582746	-293360	-894055	-830379	-1076161	-653621	-401450	-992040	-1065310	-1518081
6	-595955	-300669	-922372	-846942	-1102954	-667564	-416620	-1010636	-1082861	-1539853
5	-608522	-301638	-950581	-861888	-1129589	-681271	-425430	-1028775	-1100609	-1559453
4	-620506	-302540	-978322	-875554	-1155865	-694751	-434580	-1046407	-1118155	-1576795
3	-632076	-304553	-1005072	-888471	-1181402	-708048	-440050	-1063497	-1135411	-1592359
2	-643457	-305663	-1029815	-901354	-1205323	-721169	-459590	-1079837	-1152202	-1606556
1	-655166	-306559	-1050880	-915207	-1225962	-734125	-467940	-1095271	-1168302	-1619503

Lantai	Simpangan (m)											
	Open Frame						Outrigger					
	Statik	Koyna	Elcentro	Parkfield	Angin	Statik	Koyna	Elcentro	Parkfield	Angin		
25	0.2376	0.1353	0.2041	0.2695	0.0199	0.1185	0.0975	0.3467	0.2524	0.0096		
24	0.2332	0.1328	0.1999	0.2641	0.0196	0.1164	0.0959	0.3384	0.2481	0.0095		
23	0.2279	0.13	0.1941	0.258	0.0193	0.1125	0.0929	0.3213	0.2404	0.0092		
22	0.2215	0.1279	0.187	0.2583	0.0189	0.1081	0.0894	0.3011	0.2316	0.0089		
21	0.2147	0.1261	0.1788	0.2567	0.0184	0.1034	0.0855	0.2794	0.2221	0.0086		
20	0.207	0.1235	0.1735	0.2513	0.0179	0.0985	0.0814	0.2565	0.212	0.0082		
19	0.1986	0.1198	0.1689	0.2412	0.0173	0.0932	0.0787	0.233	0.2016	0.0078		
18	0.19	0.1153	0.1636	0.2274	0.0167	0.0878	0.0765	0.2098	0.192	0.0074		
17	0.1807	0.11	0.1578	0.21	0.016	0.0822	0.0739	0.1871	0.183	0.007		
16	0.1709	0.1049	0.1522	0.1908	0.0153	0.0765	0.0708	0.1753	0.1742	0.0066		
15	0.1609	0.101	0.1501	0.1751	0.0145	0.0708	0.0676	0.1664	0.1653	0.0062		
14	0.1506	0.0962	0.1474	0.1626	0.0137	0.0651	0.064	0.1577	0.1559	0.0057		
13	0.1398	0.0905	0.1438	0.1511	0.0129	0.0601	0.0606	0.1497	0.147	0.0053		
12	0.1285	0.0839	0.1386	0.1405	0.012	0.0578	0.0589	0.146	0.1429	0.0051		
11	0.1174	0.0771	0.1318	0.1304	0.0111	0.0527	0.0543	0.1366	0.1325	0.0047		
10	0.106	0.0698	0.1247	0.1198	0.0101	0.0469	0.0486	0.1249	0.12	0.0042		
9	0.0944	0.0635	0.1159	0.1083	0.0091	0.041	0.0428	0.1122	0.1065	0.0037		
8	0.0825	0.057	0.1053	0.0957	0.0081	0.035	0.0369	0.0986	0.0924	0.0032		
7	0.0709	0.0499	0.0932	0.0867	0.007	0.0291	0.0313	0.0844	0.0779	0.0027		
6	0.0591	0.0438	0.0807	0.0769	0.0059	0.0234	0.0265	0.0698	0.0633	0.0022		
5	0.0473	0.0368	0.0673	0.0651	0.0048	0.018	0.0216	0.0551	0.0489	0.0017		
4	0.0356	0.0291	0.0526	0.0515	0.0037	0.013	0.0167	0.0408	0.0353	0.0013		
3	0.0243	0.0208	0.0372	0.0367	0.0025	0.0085	0.0118	0.0281	0.0231	0.0008		
2	0.0136	0.0122	0.0214	0.0212	0.0014	0.0047	0.0071	0.0163	0.0126	0.0005		
1	0.0045	0.0042	0.0073	0.0072	0.0005	0.0016	0.0027	0.006	0.0044	0.0002		

Lantai	MAX	Interstory Drift											
		Open Frame						Outtrigger					
		Statik	Koyna	Elcentro	Parkfield	Angin	Statik	Koyna	Elcentro	Parkfield	Angin		
25	0.005	0.001314	0.000066	0.000859	0.001449	0.001942	0.000596	0.000042	0.000511	0.002229	0.001275		
24	0.005	0.001598	0.00009	0.00133	0.002338	0.003039	0.001081	0.000073	0.000971	0.004579	0.002377		
23	0.005	0.001914	0.000111	0.001582	0.00319	0.004027	0.00124	0.000083	0.001115	0.005405	0.002771		
22	0.005	0.002045	0.000122	0.001409	0.003482	0.004406	0.00133	0.000089	0.001147	0.005817	0.002995		
21	0.005	0.002299	0.00014	0.001496	0.003912	0.004679	0.001427	0.000095	0.001235	0.006142	0.003213		
20	0.005	0.002544	0.000157	0.001577	0.004053	0.004499	0.001514	0.000102	0.00132	0.006316	0.003401		
19	0.005	0.002597	0.000164	0.001556	0.003558	0.003807	0.001562	0.000106	0.001316	0.006265	0.003511		
18	0.005	0.00279	0.000179	0.001555	0.003228	0.004816	0.00162	0.00011	0.001435	0.006207	0.003632		
17	0.005	0.002975	0.000195	0.001692	0.003155	0.005728	0.001661	0.000114	0.001504	0.006035	0.003706		
16	0.005	0.002987	0.0002	0.00178	0.003553	0.005973	0.001656	0.000115	0.001488	0.005672	0.003664		
15	0.005	0.00313	0.000213	0.001993	0.003943	0.006134	0.001655	0.000116	0.001486	0.00531	0.003607		
14	0.005	0.003268	0.000227	0.002142	0.004237	0.005961	0.001469	0.000105	0.001355	0.004459	0.00317		
13	0.005	0.00339	0.000241	0.002214	0.004511	0.005514	0.000627	0.000047	0.00058	0.001888	0.001356		
12	0.005	0.003357	0.000244	0.002097	0.00448	0.004837	0.001481	0.00011	0.001358	0.003652	0.002976		
11	0.005	0.003444	0.000255	0.002028	0.004472	0.004559	0.001724	0.000128	0.001511	0.003888	0.003531		
10	0.005	0.003524	0.000267	0.002136	0.004258	0.004379	0.001768	0.000133	0.00162	0.003806	0.00375		
9	0.005	0.00359	0.000279	0.002168	0.003869	0.004285	0.001786	0.000137	0.001664	0.003784	0.003899		
8	0.005	0.003525	0.00028	0.002207	0.003356	0.004148	0.001749	0.000136	0.001684	0.003833	0.003921		
7	0.005	0.003559	0.00029	0.002351	0.003607	0.004155	0.00171	0.000135	0.001689	0.003955	0.003928		
6	0.005	0.003578	0.000299	0.002444	0.003932	0.00408	0.001639	0.00013	0.00164	0.003981	0.003839		
5	0.005	0.003569	0.000306	0.002465	0.004138	0.003922	0.001537	0.000124	0.001517	0.003895	0.003635		
4	0.005	0.00342	0.000302	0.002358	0.004274	0.004005	0.001386	0.000113	0.001438	0.00363	0.003273		
3	0.005	0.003248	0.000293	0.002413	0.004309	0.004177	0.001218	0.000099	0.001325	0.00326	0.002819		
2	0.005	0.002762	0.000255	0.00215	0.003826	0.003776	0.000987	0.000081	0.001175	0.002762	0.002202		
1	0.005	0.001386	0.00013	0.001143	0.001977	0.001952	0.000541	0.000045	0.000728	0.001618	0.001182		

Momen Balok												
Lantai	Open Frame						Outrigger					
	Angin	Statik	Koyna	Elcentro	Parkfield	Angin	Statik	Koyna	Elcentro	Parkfield		
25	-32.674	-1604.88	-2528.95	-5261.81	-5060.921	-8.319	-157.371	-158.352	-554.539	-349.366		
24	-136.411	-4842.38	-6968.92	-16185.5	-18879.53	-52.942	-823.892	-950.536	-3275.05	-2027.33		
23	-468.692	-8045.16	-9760.08	-29706.5	-33670.86	-558.456	-7697.4	-9609.24	-33836.9	-21079.2		
22	-777.438	-11561.4	-14426.9	-40444.5	-45674.81	-669.978	-9025.14	-10980	-41554.8	-25684.6		
21	-1061.15	-14767.7	-14793.6	-43312.2	-54009.64	-813.21	-10757.2	-12514.5	-49957.1	-30869.5		
20	-1342.03	-17768.7	-17125.8	-40046.4	-55027.47	-899.82	-11630.7	-13587.1	-53634.4	-33388.3		
19	-1653.92	-21064.7	-19104.4	-43201.8	-50429.46	-1054.563	-13336.5	-15258.3	-59463.6	-38002.7		
18	-1944.06	-24020.1	-20238.3	-44520.9	-57124.04	-1194.023	-14801.5	-17041.8	-63117	-42276.6		
17	-2223.34	-26653.8	-20393	-44691.7	-74534.25	-1264.514	-15291.4	-18740.7	-61665.7	-43918.2		
16	-2544.04	-29653.2	-24973.7	-51577.1	-89386.59	-1391.729	-16424.3	-20138.3	-61684	-47089.3		
15	-2839.17	-32298.8	-28392.6	-60557.9	-97062.31	-1469.821	-16938.9	-20393	-59583.2	-48284.9		
14	-3124.41	-34623.8	-32129.6	-66846.2	-97686.51	-1590.806	-18012.4	-21526.6	-57468.3	-49925		
13	-3413.26	-36843.8	-34530.5	-71902.9	-92583.63	-168.404	-1996.73	-2371.02	-5505.12	-5137.58		
12	-3742.99	-39361.7	-35266.1	-77149.8	-84483.05	-241.654	-2773.46	-3143.24	-7132.1	-6815.68		
11	-4045	-41557.6	-34782.3	-79628	-79123.03	-1987.636	-20963.7	-24785.1	-56120.7	-57049.6		
10	-4334.11	-43405.1	-35872.9	-78107.2	-75871.54	-2039.832	-20827	-26264.4	-57252.2	-59768		
9	-4628.43	-45162	-37718.4	-72610.6	-74439.88	-2182.668	-21867.3	-28419.6	-61416.7	-64593.7		
8	-4964.06	-47158.5	-39443.3	-65538.7	-75631.05	-2318.437	-22745.3	-29941.4	-67486.9	-69038.1		
7	-5269.29	-48859.5	-42807.6	-66465.2	-78037.27	-2405.415	-23115.8	-31583.4	-73044	-72026.6		
6	-5555.54	-50164.4	-46261.8	-74466.5	-79108.7	-2400.139	-22453.2	-31560.6	-75645.5	-72373.1		
5	-5830.98	-51230.7	-47989.5	-80902.1	-78246.59	-2345.218	-21267.8	-30327	-76107.6	-70683.7		
4	-6091.06	-52040.3	-48300.2	-85823.3	-80085.28	-2261.706	-19751.7	-29401.8	-75085.7	-67376.1		
3	-6198.25	-51700.1	-50441.7	-90753.8	-87438.62	-2118.036	-17734.8	-28364.9	-71215	-61578.2		
2	-5906.26	-48078.5	-49488	-88482.3	-87421.85	-1842.94	-14519.6	-26177.4	-62374.5	-51326.3		
1	-4517.84	-35956.7	-39091.9	-68564	-68062.21	-1455.63	-10744.9	-22693.3	-49094	-38460.7		

Geser Balok												
Lantai	Open Frame						Outrigger					
	Angin	Statik	Koyna	Elcentro	Parkfield	Angin	Statik	Koyna	Elcentro	Parkfield		
25	10.07	753.81	1017.62	2007.35	2160.16	2.24	44.88	40.86	147.69	92		
24	72.85	2083.87	2759.19	6394.22	7686.01	22.74	343.15	395.88	1371.76	855.73		
23	202.57	3340.64	3862.95	11655.84	13587.14	219.13	3020.08	3757.23	13228.63	8250.83		
22	309.33	4536.4	5554.69	15329.12	17749.6	252.25	3396.25	4121.31	15598.21	9650.8		
21	405.24	5599.15	5547.47	16046.63	20415.71	301.61	3989.08	4626.44	18473.95	11426.16		
20	512.28	6749.81	6442.07	14939.99	20934.22	335.13	4330.75	5048.45	19912.68	12408.49		
19	614.04	7799.87	7028.24	15853.5	18785.77	385.42	4874.66	5567.53	21685.85	13872.45		
18	707.53	8728.4	7329.85	16074.96	20845.75	430.08	5332.46	6131.28	22695.6	15213.61		
17	811.84	9721.41	7414.56	16182.9	27286.64	456.99	5527.71	6763.41	22253.58	15858.43		
16	913.51	10642.2	8933.33	18406.63	32184.55	496.58	5862.9	7177.48	21988.08	16791.32		
15	1007.24	11455.55	10046.14	21378.27	34532.76	517.48	5966.4	7177.64	20978.32	16997.79		
14	1108.94	12288.84	11373.67	23619.73	34810.5	565.71	6406.42	7650.79	20400.42	17737.88		
13	1212.37	13087.73	12239.13	25440.81	33038.12	64.56	765.61	906.14	2170.12	1988.67		
12	1315.57	13838.34	12380.58	27043.07	29846.74	91.15	1033.84	1178.52	2664.59	2585.39		
11	1410.17	14491.97	12116.19	27705.15	27714.12	693.23	7315.21	8638.4	19580.67	19888.98		
10	1511.81	15146.51	12505.1	27209.8	26611.16	708.9	7239.48	9128.38	19896.42	20770.55		
9	1615.48	15769.54	13158.26	25316.26	26128.55	760.43	7621.51	9899.99	21394.93	22499.94		
8	1720.15	16348.93	13667.09	22706.27	26335.63	802.22	7873.26	10358.33	23344.8	23884.84		
7	1815.54	16841.36	14749.32	22885.84	26999.67	828.07	7960.39	10871.21	25140.66	24792.24		
6	1915.03	17299.96	15947.54	25652.16	27386.22	826.81	7737.8	10870.87	26052.09	24928.54		
5	2010.89	17674.99	16551.37	27886.6	27099.88	808.35	7333.44	10452.34	26227.27	24360.73		
4	2090.02	17863.96	16576.73	29437.7	27574.66	775.94	6779.55	10086.63	25754.77	23113.95		
3	2118.3	17674.66	17239.42	31010.04	29978.44	723.8	6063.05	9693.35	24333.27	21042.27		
2	2019.82	16447.32	16923.1	30254.15	29996.22	629.93	4965.48	8947.14	21317.84	17544.71		
1	1547.69	12320.41	13393.76	23486.48	23403.77	498.79	3682.84	7778.33	16820.54	13176.06		

Lantai	Aksial Kolom														
	Open Frame							Outtrigger							
	Angin	Statik	Koyna	Elcentro	Parkfield	Angin	Statik	Koyna	Elcentro	Parkfield	Angin	Statik	Koyna	Elcentro	Parkfield
25	-7534	-6318.23	-9319.41	-10395.3	-10798.1	-23582.8	-13513.6	-36126.5	-83378.7	-52879.4					
24	-30045.5	-27074.9	-38043	-42228.4	-44416.4	-93624.5	-50853.2	-147083	-354474	-222974					
23	-52282.3	-46258.7	-68912.3	-77094.8	-84022.1	-110090	-66728.5	-167864	-385973	-247003					
22	-74722.4	-64355.2	-100612	-116652	-126710	-127012	-82649	-189440	-421129	-273077					
21	-97288.1	-157331	-131972	-160166	-172499	-144241	-98263	-211516	-460245	-301448					
20	-119382	-164630	-162278	-206291	-220305	-161432	-113417	-233227	-501020	-331051					
19	-141441	-172630	-192385	-252411	-266067	-178710	-128109	-254405	-543751	-362227					
18	-163414	-186406	-222568	-296351	-308314	-195996	-209217	-274787	-587532	-394532					
17	-184822	-195454	-252317	-336215	-348317	-213004	-301157	-293987	-630655	-426914					
16	-205990	-205901	-281672	-371471	-385717	-229824	-314390	-312336	-673198	-49547					
15	-226897	-219477	-310554	-402153	-424761	-246426	-327860	-330885	-714131	-491646					
14	-247219	-227156	-338903	-427992	-471376	-262594	-334090	-349170	-753939	-523658					
13	-266910	-238252	-366662	-449517	-523713	-259970	-349790	-346108	-750877	-520595					
12	-286128	-247272	-393650	-468112	-575208	-382654	-356470	-525891	-1352774	-1022201					
11	-304893	-259682	-419403	-484930	-623741	-398315	-362320	-545738	-1386964	-1055708					
10	-322974	-267766	-443560	-499910	-668051	-413818	-372190	-564812	-1418874	-1088558					
9	-340322	-279824	-466308	-520393	-707816	-429129	-386890	-583284	-1449736	-1121535					
8	-357010	-282230	-488278	-544274	-743140	-444247	-394010	-601292	-1479073	-1154029					
7	-373082	-293360	-510003	-572728	-775313	-459182	-401450	-618653	-1507083	-1185775					
6	-388380	-300669	-531172	-600838	-805049	-473844	-416620	-635120	-1533486	-1216210					
5	-402861	-301638	-552031	-625160	-833062	-488192	-425430	-650606	-1558396	-1245107					
4	-416551	-302940	-574565	-644411	-859462	-502220	-434580	-665218	-1581910	-1272556					
3	-429559	-304553	-596497	-670455	-887183	-515967	-440050	-679957	-1604214	-1298897					
2	-441940	-305663	-616978	-701101	-914219	-529396	-459590	-694223	-1624879	-1323584					
1	-454065	-306559	-635288	-728090	-936877	-542470	-467940	-707950	-1643542	-1345904					

Lantai	Geser Kolom											
	Open Frame						Outrigger					
	Angin	Statik	Koyna	Elcentro	Parkfield	Angin	Statik	Koyna	Elcentro	Parkfield		
25	7053.81	5981.45	8557.32	8510.55	7305.99	2044.36	6368.99	2682.11	5109.77	3592.47		
24	7452.26	6316.87	12802.81	18363.81	18803.41	1627.62	7268.88	9526.83	41943.95	21314.41		
23	6948.07	5544.5	15048.6	20778.65	26111.67	1825.42	6762.93	4827.97	16029.72	8571.14		
22	7857.28	6397.31	12395.66	21959.07	24677.14	2189.61	7661.3	6536.19	25532.4	13494.86		
21	7422.16	5755.59	13289.98	26098.74	28800.05	2139.15	7189.03	6310.51	26384.33	14192.94		
20	7002.12	5108.93	14740.84	29596.04	28902.7	2035.47	6729.36	6133.05	27594.65	15115.35		
19	7694.34	5836.35	13981.11	23436.83	21371.21	2249.63	7452.73	6008.46	29069.41	16604		
18	7225.87	2614.91	15234.49	22267.55	29326.96	2053.28	6948.02	5937.33	29265.56	17514.22		
17	6768.52	5007.79	15535.29	19568.53	38587.87	1829.6	6455.08	6006.01	28592.82	17847.23		
16	7307.55	2813.74	13202.67	16819.77	35886.97	1893.16	7069.28	6497.1	29317.33	19812.17		
15	6752.95	5585.87	13953.15	19480.38	41209.8	1682.13	6456.55	4637.54	17540.25	12177.4		
14	6644.18	5807.31	13565.19	19480.25	38433.9	433.18	19909.36	14356.39	82932.02	63723.75		
13	6082.13	8588.31	14471.19	23077.48	38507.48	4903.01	8283.26	7184.82	11339.01	9270.55		
12	6432.98	6101.92	13847.59	21424.37	29559.89	1264.72	22280.65	15475.32	84857.78	72122.92		
11	5875.25	8870.08	15117.92	24185.73	31370.96	1395.45	5186.1	3954.01	14693.59	14530.78		
10	5695.67	8938.96	15459.29	23229.79	29461.83	1566.07	5127.68	5444.84	23852.17	24042.65		
9	5139.05	11635.72	16341.42	23759.71	31388.45	1347.38	4432.91	5749.77	23493.48	24150.7		
8	5293.18	9168.89	14313.1	19821.99	27370.04	1514.62	4648.45	6222.21	24539.85	24699.12		
7	4751.62	11796.96	15488.28	21333.32	30675.7	1316.44	3985.74	6212.16	25976.99	25929.16		
6	4503.45	11845.76	15251.71	23138.33	29380.43	1310.3	3737.36	5582.42	25527.62	25382.1		
5	3962.49	14444.76	16405.7	25062.93	30794.54	1081.46	3094.33	5901.39	26454.29	25540.37		
4	3937.77	12647.63	15533.58	25599.24	29308.87	1182.63	3150.66	6040.74	25941.9	23698.57		
3	3371.23	16307.94	17503.97	31791.55	38125.27	964.59	2448.87	6776.15	26863.54	21996.28		
2	3278.04	19873.1	19281.23	38812.64	46315.39	1115.24	2181.05	5595.12	22782.81	16748.22		
1	1695.79	33153.41	27349.03	58256.51	69154.6	1235.18	1079.58	13328.4	71882.75	47445.22		

Lantai	Momen Kolom											
	Open Frame						Outrigger					
	Angin	Statik	Koyna	Elcentro	Parkfield	Angin	Statik	Koyna	Elcentro	Parkfield		
25	12933.2	7580.924	15942.18	19520.54	19072.78	3499.09	1504.79	5730.95	14841.72	9120.473		
24	13991.68	3403.247	29620.99	42038.91	49921.77	2647.915	15706	24728.51	117160.3	58471.45		
23	13355.95	4758	28693.46	50587.35	58397.34	3357.134	2790.276	9000.907	33670.44	17965.86		
22	15120.75	2407.274	25192.83	48817.08	52230.17	4050.571	3743.2	12819.58	55789.76	29829.61		
21	13831.76	3318.89	29799.1	55496.61	56035.7	3807.543	794.998	11640.01	53668.17	29800.12		
20	13506.82	4123.73	29999.04	52826.7	53443.67	3818.136	1398.076	10546.4	54366.55	28651		
19	14817.02	2400.303	30254.44	33467.35	62966.6	4228.618	2471.924	12317.94	55799.17	28549		
18	13489.88	1167.9	30968.77	36589.26	79339.27	3713.038	2986.03	12558.36	53379.88	25501		
17	13073.25	1091.387	28856.28	40376.77	86909.67	3511.265	3969.513	12304.46	48388.64	26005		
16	14069.92	7993.523	29038.77	41693.79	73439.5	3673.556	5074.258	11452.9	43647.09	35102.36		
15	12691.8	3742.073	30619.29	48547.96	77886.84	3097.629	7363.313	10921.01	45883.61	29110.51		
14	12506.16	7229.186	30966.92	50523.85	65135.46	2548.944	13543	12957.06	60769.47	52600.34		
13	11759.29	7899.684	32153.35	55478.26	61659.02	8475.519	61116.86	74525.26	197616	136745.3		
12	12413.04	15374.13	33695.35	53842.49	52576.15	1024.447	13390	43039.37	251233.7	222821.5		
11	11071.68	10811.1	37081.43	55641.49	60908.16	2197.549	13321.23	17897.04	49268.12	33131.06		
10	10755	14222.58	36454.84	51608.11	61274.12	2760.455	4839.707	13079.32	53496.77	53879.75		
9	9966.092	14708.01	37151.92	55194.31	64904.25	2555.568	7955.997	13242.33	51378.07	49415.26		
8	10244.24	22142.56	37015.14	65008.13	59474.8	2983.426	9794.922	15474.7	52061.37	48700.25		
7	8991.171	17852.36	39559.94	58353.83	67849.27	2628.514	10795.95	16605.75	53657.35	47522.45		
6	8546.173	21249.19	38515.06	60917.37	69961.05	2774.813	12422.78	19154.16	50807.27	41080.4		
5	7728.236	22154.57	39736.21	65944.19	76141.44	2653.713	13006.79	20775.72	49658.93	36891.2		
4	7653.991	30321.77	39174.32	60597.87	73244.62	3094.569	15097.21	25594.63	53228.59	43971.14		
3	6475.768	30224.5	40057.33	63298.24	70137.29	2943.427	16277.68	27415.55	59348.06	47778.44		
2	6058.601	43597.39	52096.25	76803.9	49224.06	3411.113	17917.35	30092.39	69556.29	53945.25		
1	6764.146	72971.53	76344.63	135918.1	87792.38	3116.491	15771.05	29293.93	71874.1	53940.71		

Lantai	Simpangan (m)											
	Open Frame						Outrigger					
	Statik	Koyna	Elcentro	Parkfield	Angin	Statik	Koyna	Elcentro	Parkfield	Angin		
15	0.1776	0.0963	0.2598	0.2397	0.0118	0.0562	0.0487	0.1111	0.1702	0.0036		
14	0.1744	0.0938	0.2549	0.2338	0.0115	0.0549	0.0475	0.1083	0.1665	0.0035		
13	0.1693	0.0917	0.2473	0.2358	0.0112	0.0518	0.0442	0.1012	0.1581	0.0033		
12	0.1618	0.091	0.2362	0.2381	0.0107	0.048	0.0405	0.0927	0.149	0.0031		
11	0.1529	0.0888	0.223	0.234	0.0102	0.0439	0.0366	0.0833	0.1396	0.0028		
10	0.1422	0.0845	0.207	0.222	0.0095	0.0394	0.0327	0.0731	0.1292	0.0026		
9	0.1299	0.0789	0.1884	0.2019	0.0088	0.0348	0.0287	0.0643	0.1177	0.0023		
8	0.1161	0.0715	0.1674	0.1759	0.0079	0.0304	0.0264	0.0584	0.1064	0.002		
7	0.1019	0.063	0.1457	0.1498	0.0071	0.0289	0.0255	0.0562	0.1022	0.0019		
6	0.0868	0.0549	0.1221	0.1252	0.0061	0.0245	0.0225	0.0484	0.0883	0.0017		
5	0.0708	0.0472	0.0978	0.1012	0.0051	0.0195	0.0186	0.0396	0.0718	0.0013		
4	0.0541	0.0377	0.0735	0.077	0.004	0.0145	0.0142	0.0303	0.0547	0.001		
3	0.0379	0.0272	0.0507	0.054	0.0028	0.0098	0.0099	0.021	0.0378	0.0007		
2	0.022	0.0161	0.0292	0.0322	0.0017	0.0056	0.006	0.0122	0.022	0.0004		
1	0.0077	0.0059	0.0102	0.0115	0.0006	0.0021	0.0025	0.0049	0.0084	0.0002		

Lantai	MAX	Interstory Drift											
		Open Frame						Outrigger					
		Statik	Angin	Koyna	Eicentro	Parkfield	Statik	Angin	Koyna	Eicentro	Parkfield		
15	0.005	0.000953	0.00006	0.001288	0.002908	0.003222	0.000354	0.000021	0.000334	0.000766	0.001203		
14	0.005	0.001565	0.000093	0.001366	0.003985	0.004682	0.000893	0.000052	0.000912	0.002072	0.003251		
13	0.005	0.00229	0.000126	0.001969	0.004879	0.006071	0.001103	0.000062	0.001087	0.002504	0.003998		
12	0.005	0.002709	0.000144	0.001856	0.005146	0.005856	0.001225	0.000067	0.001125	0.002669	0.004356		
11	0.005	0.003253	0.00017	0.001985	0.005635	0.005326	0.001334	0.000072	0.00117	0.002799	0.004542		
10	0.005	0.003766	0.000197	0.002103	0.005814	0.005505	0.001407	0.000075	0.001182	0.002917	0.004476		
9	0.005	0.004223	0.000224	0.002093	0.005695	0.00732	0.001305	0.000071	0.001108	0.002697	0.003866		
8	0.005	0.004314	0.000233	0.002352	0.005888	0.007856	0.000423	0.000025	0.000383	0.000897	0.001241		
7	0.005	0.004616	0.000256	0.002617	0.006326	0.008151	0.001365	0.000075	0.001106	0.002553	0.003855		
6	0.005	0.004883	0.000278	0.002946	0.006551	0.007837	0.001575	0.000086	0.001163	0.002714	0.004522		
5	0.005	0.00508	0.000299	0.003043	0.006592	0.007221	0.00158	0.000087	0.001281	0.002604	0.004662		
4	0.005	0.004932	0.000301	0.002926	0.006157	0.006573	0.001499	0.000084	0.001292	0.002513	0.004531		
3	0.005	0.004868	0.000308	0.003095	0.005845	0.006191	0.001378	0.000078	0.001175	0.002347	0.004234		
2	0.005	0.004362	0.000286	0.002775	0.005081	0.005562	0.001176	0.000067	0.000976	0.002021	0.003625		
1	0.005	0.002347	0.000158	0.001581	0.002722	0.003094	0.000718	0.000042	0.000657	0.001304	0.002238		

		Momen Balok											
Lantai		Open Frame						Outrigger					
		Angin	Statik	Koyna	Elcentro	Parkfield	Angin	Statik	Koyna	Elcentro	Parkfield		
15		-99.356	-1031.18	-3359.84	-7927.46	-9842.792	-5.205	-88.649	-94.409	-218.091	-310.545		
14		-356.575	-4117.68	-6917.72	-21097.8	-26027.42	-29.777	-463.258	-556.177	-1270.35	-1789.15		
13		-650.004	-8431.72	-12006.6	-30116.9	-38579.62	-318.09	-4619.06	-6030.75	-13813.7	-19519.1		
12		-946.668	-13280.8	-13895	-37988.5	-47346.24	-380.068	-5475.48	-6897.21	-16243.4	-23616.8		
11		-1213.8	-17467.6	-16271.5	-44680.2	-47041.02	-453.536	-6478.33	-7922.73	-18559	-27526.1		
10		-1474.9	-21276.2	-16454.7	-48332.6	-39874.91	-481.207	-6732.19	-8099.21	-19314.6	-27849.3		
9		-1735.84	-24796.1	-18026.5	-47637.3	-55941.98	-546.726	-7557.08	-8527.07	-21617.2	-29252.9		
8		-2037.7	-28604.8	-20558	-51584.9	-71521.08	-57.781	-876.745	-946.466	-2238.63	-2909.46		
7		-2309.04	-31714.8	-23923	-57955.8	-79108.29	-82.35	-1203.18	-1274.68	-2921.72	-4230.53		
6		-2564.13	-34212.7	-27628.3	-62173.5	-79305.37	-723.901	-9318.26	-10164.8	-23802.4	-38418.6		
5		-2816.81	-36350.2	-29789.9	-63909.6	-74385.98	-712.609	-8743.39	-10624.3	-21052.2	-38709.1		
4		-3097.74	-38507.9	-30250.2	-65165.7	-70873.42	-762.033	-9030.32	-12109	-22738.8	-41861.4		
3		-3298.45	-39601.4	-32790.1	-64396.4	-68989.24	-763.153	-8643.04	-12097.2	-23213.5	-42238.2		
2		-3307.16	-38237.5	-33111.8	-60061.9	-64378.15	-692.053	-7270.1	-10512.8	-21134.9	-38302.1		
1		-2708.76	-30228.5	-26532	-46984.3	-53048.15	-594.404	-5707.04	-8957.21	-17876.6	-32245.5		

Geser Balok												
Lantai	Open Frame						Outrigger					
	Angin	Statik	Koyna	Elcentro	Parkfield	Angin	Statik	Koyna	Elcentro	Parkfield		
15	39.46	415.95	1281.12	3016.34	3703.03	1.41	25	24.79	57.64	82.94		
14	139.64	1617.56	2646.21	8061.61	9868.85	12.46	191.29	231.91	528.85	745.04		
13	251.9	3266.11	4604.49	11529.32	14723.45	121.71	1768.42	2306.35	5280.35	7460.09		
12	352.88	4946.08	5180.21	14090.76	17555.39	139.56	2011.49	2532.81	5964.08	8670.4		
11	442.39	6362.34	5915.66	16235.63	17089.08	164.62	2352.95	2873.24	6731.6	9983.98		
10	537.52	7749.73	5993.91	17601.15	14533.8	173.83	2433.39	2928.36	6979.25	10065.94		
9	633.61	9047.19	6579.07	17382.44	20386.86	201.11	2780.82	3132	7945.56	10743.21		
8	730.14	10249.07	7367.63	18480.19	25590.44	21.79	329.33	358.04	851.96	1105.24		
7	816.45	11214.51	8458.2	20492.84	27946.86	31.18	449.17	479.32	1095.42	1613.57		
6	907.61	12112.94	9780.28	22013.22	28065.68	257.62	3319.23	3622.93	8480.35	13666.42		
5	998.43	12887.15	10562	22653.9	26353.21	251.72	3089.04	3757.88	7435.01	13676.69		
4	1085.33	13496.45	10608.5	22839.73	24835.84	267.05	3167.19	4244.84	7967.1	14668.51		
3	1145.79	13759.8	11395.72	22372.08	23966.75	265.11	3003.96	4204.31	8064.1	14672.74		
2	1150.4	13305.47	11523.87	20897.55	22396.95	240.4	2527.42	3655.6	7341.95	13306.43		
1	946.62	10563.59	9275.42	16415.42	18536.59	207.86	1995.54	3134.33	6250.18	11273.22		

Lantai	Momen Kolom											
	Open Frame						Outrigger					
	Angin	Statik	Koyna	Elcentro	Parkfield	Angin	Statik	Koyna	Elcentro	Parkfield		
15	11151.34	6848.819	15075.61	19641.94	21858.88	2479.485	8064.237	4095.579	6868.905	9557.891		
14	9388.834	11279.3	19780.92	32032.11	49603.86	2222.195	10654.21	17755.91	44703.86	69105.3		
13	9362.794	9030.68	18978.72	36006.63	55661.83	2872.949	8886.974	6772.813	11162.21	16367.53		
12	10379.73	4930.8	19588.69	36492.15	35321.37	3207.508	10312.26	16901	17246.13	29274.88		
11	9264.694	11328.7	21037.72	44274.58	53582.11	2858.17	8939.094	7231.64	14698.68	26511.17		
10	9191.204	12387	18796.48	44634.43	68170.35	2947.314	8914.444	6645.926	11669.22	18538.92		
9	8580.577	15958	18080.8	50170.4	75557.57	2390.469	8182.659	9912.275	23402.34	36299.45		
8	9219.563	11528.7	20501.47	43379.68	59466.54	5019.95	26037.87	31287.65	80271.74	106932.8		
7	8049.54	18933.4	15270.31	51597.38	63207.08	1917.951	5802.367	29676.02	88763.65	127904.6		
6	7787.818	18588	17173.58	46041.77	55520.17	2671.803	7033.288	9937.725	26337.96	34168.26		
5	7076.432	21138	22801.06	47952.81	57542.35	2634.122	6248.586	7971.841	21309.59	33261.33		
4	7273.714	20718.22	24611.64	50089.92	49237.28	2933.104	6489.166	10082.73	17507.33	28753.55		
3	6122.795	19185.6	24040.72	46589.44	56279.01	2635.853	5161.005	13386.36	18709.95	29021.87		
2	5863.109	44564.41	27289.68	54264.98	43290.56	2889.695	6211.445	10985.47	18467.57	37010.84		
1	4315.075	119981.2	41660.66	73656.47	73861.89	2117.42	3843.603	10599.86	17219.66	29063.89		

Lantai	Geser Kolom											
	Open Frame						Outrigger					
	Angin	Statik	Koyna	Elcentro	Parkfield		Angin	Statik	Koyna	Elcentro	Parkfield	
15	5663.04	5469.6	7656.23	8658.07	7662.88		1470.97	4939.35	1954.78	2710.24	3496.59	
14	5080.86	4432.27	9692.82	15572.04	18663.28		1372.05	5625.11	6853.66	15863.67	24064.7	
13	4828.4	3861.25	8837.4	16274.25	26429.9		1517.04	4724.65	3289.17	5774.26	7622.01	
12	5377.97	4364.58	8075.62	14178.27	21350.26		1706.77	5425.63	4944.98	8843.72	13107.58	
11	4937.19	3633.83	8639.68	19055.29	21296.25		1549.67	4871.78	4234.91	8442.86	14451.24	
10	4887.62	3855.45	9708.53	18782.53	20775.95		1627	4848.22	3276.74	5561.56	8269.48	
9	4418.32	7069.44	8790.12	23603.55	31294.04		866	3666.19	8032.82	21406.75	41968.4	
8	4758.09	4793.97	7716.53	19630.96	27843.15		2893.1	6773.07	3209.51	3311.36	3465.66	
7	4270.7	7910.47	8353.62	25305.48	33576.15		1283.27	3702.56	11048.01	30057.51	44144.93	
6	4119.49	8106.09	6585.63	23819.99	30155.79		1468.11	3707.64	3359.9	6003.25	7573.91	
5	3623.56	11161.66	7955.71	24717.7	30474.72		1340.58	3205.02	4743.9	10622.52	13848.95	
4	3740.48	8567.37	7213.72	19478.69	24735.68		1461.25	3335.8	3820.71	10015.5	14223.29	
3	3200.92	12209.77	7247.27	24477.48	28260.72		1261.77	2678.68	4229.97	10214.52	15577.89	
2	3186.64	14473.77	9218.11	27931.1	32397.9		1450.94	2642.32	4083.81	6826.68	10903.13	
1	1671.92	27740.93	13239.7	46216.23	54540.08		28.63	298.95	11644.85	29786.69	47445.22	

Lantai	Aksial Kolom											
	Open Frame						Outrigger					
	Angin	Statik	Koyna	Eicentro	Parkfield	Angin	Statik	Koyna	Eicentro	Parkfield		
15	-12422.8	-13073.9	-15851.1	-17219.2	-18184.4	-17428.9	-9097.67	-27257	-43609.4	-58699.7		
14	-30757.2	-30632.2	-40056	-45014.9	-49390.9	-69621.1	-38199.9	-108682	-172303	-232381		
13	-48766.8	-46062.9	-63650.2	-72748.7	-84880.3	-84510.5	-53253.4	-126478	-192818	-254615		
12	-66714.1	-59581.9	-85723.1	-100739	-124145	-99547.4	-68156.2	-144681	-214175	-278558		
11	-84533.5	-71419.7	-106234	-132735	-162880	-114642	-82732.7	-162971	-235999	-304196		
10	-101921	-81320.4	-126190	-166402	-198536	-129598	-97015.8	-180475	-257013	-329844		
9	-118819	-89336.7	-147360	-202971	-230454	-144323	-110668	-197473	-277095	-355850		
8	-135342	-95705.2	-168554	-241817	-259702	-141698	-107606	-194410	-274032	-352788		
7	-151486	-100689	-189259	-282435	-289551	-233981	-112503	-332151	-505503	-766588		
6	-167038	-104166	-208377	-323638	-324670	-248372	-125079	-348692	-525667	-790213		
5	-181946	-106238	-225122	-363676	-364050	-262585	-137529	-364811	-545342	-811940		
4	-196242	-107136	-239883	-401460	-402217	-276619	-149595	-380464	-564953	-832537		
3	-209982	-107283	-253425	-437217	-437391	-290471	-161523	-395636	-584428	-851741		
2	-223107	-107389	-268498	-470430	-468373	-304066	-173552	-410133	-603283	-869174		
1	-235783	-110022	-284046	-498732	-493722	-317317	-185692	-423901	-621328	-884809		

LANTAI	Rasio Simpangan						Rasio Inter Story Drift					
	Core Wall terhadap Outrigger & Shear Wall			Core Wall terhadap Outrigger & Shear Wall			Core Wall terhadap Outrigger & Shear Wall			Core Wall terhadap Outrigger & Shear Wall		
	Angin	Statik	Koyna	Elcentro	Parkfield	Parkfield	Angin	Statik	Koyna	Elcentro	Parkfield	
35	1.232	0.721	1.318	1.054	1.031	1.886	1.196	2.185	2.151	2.268		
34	1.221	0.714	1.306	1.038	1.004	1.430	0.863	1.364	1.337	1.395		
33	1.221	0.711	1.303	1.031	0.989	1.342	0.805	1.245	1.216	1.273		
32	1.215	0.708	1.302	1.025	0.977	1.298	0.774	1.186	1.161	1.210		
31	1.215	0.706	1.301	1.018	0.968	1.265	0.750	1.122	1.120	1.160		
30	1.211	0.705	1.300	1.010	0.962	1.245	0.732	1.144	1.089	1.121		
29	1.211	0.704	1.282	1.002	0.963	1.224	0.718	1.180	1.063	1.090		
28	1.206	0.703	1.264	0.996	0.969	1.209	0.709	1.212	1.043	1.063		
27	1.207	0.702	1.249	0.991	0.974	1.208	0.703	1.259	1.075	1.041		
26	1.208	0.702	1.235	0.987	0.975	1.213	0.700	1.284	1.059	1.025		
25	1.210	0.702	1.221	0.982	0.974	1.212	0.700	1.313	1.060	1.017		
24	1.213	0.701	1.209	0.962	0.971	1.225	0.702	1.310	1.073	1.019		
23	1.208	0.701	1.198	0.935	0.967	1.239	0.708	1.325	1.079	1.041		
22	1.211	0.700	1.185	0.942	0.986	1.258	0.717	1.339	1.072	1.120		
21	1.199	0.699	1.170	0.937	1.017	1.285	0.731	1.359	1.063	1.150		
20	1.202	0.696	1.152	0.927	1.054	1.315	0.749	1.340	1.030	1.158		
19	1.197	0.692	1.133	0.913	1.097	1.475	0.852	1.481	1.147	1.304		
18	1.181	0.683	1.102	0.895	1.133	2.613	1.563	2.537	2.175	2.481		
17	1.133	0.655	1.055	0.883	1.092	1.444	0.834	1.285	1.119	1.242		
16	1.123	0.643	1.047	0.886	1.066	1.272	0.723	1.137	0.963	1.065		
15	1.101	0.636	1.047	0.895	1.047	1.232	0.697	1.111	0.977	1.006		
14	1.099	0.629	1.049	0.906	1.032	1.190	0.676	1.074	0.979	0.951		
13	1.083	0.623	1.057	0.917	1.019	1.158	0.659	1.037	0.967	0.898		
12	1.080	0.619	1.064	0.930	1.009	1.134	0.646	0.991	0.898	0.883		
11	1.075	0.614	1.070	0.941	1.000	1.120	0.635	0.978	0.866	0.955		
10	1.068	0.609	1.071	0.954	0.993	1.097	0.626	0.976	0.885	1.096		
9	1.059	0.606	1.073	0.963	0.985	1.090	0.618	0.994	0.903	1.071		
8	1.047	0.603	1.076	0.976	0.982	1.074	0.611	1.037	0.914	1.033		
7	1.028	0.598	1.080	0.986	0.978	1.067	0.605	1.068	0.929	1.007		
6	1.036	0.596	1.081	0.991	0.978	1.055	0.600	1.079	0.948	0.991		
5	1.048	0.595	1.078	0.992	0.980	1.055	0.595	1.082	0.969	0.981		
4	1.067	0.591	1.070	0.995	0.981	1.041	0.591	1.086	0.989	0.978		
3	1.000	0.584	1.053	0.992	0.988	1.033	0.587	1.073	0.990	0.981		
2	1.000	0.583	1.038	1.000	0.989	1.022	0.582	1.034	0.987	0.987		
1	1.000	0.609	1.000	1.000	1.000	1.022	0.576	0.994	0.986	0.994		
Rata-rata	1.137	0.658	1.150	0.967	1.004	1.258	0.729	1.235	1.094	1.144		

LANTAI	Rasio Momen Balok					Rasio Geser Balok				
	Core Wall terhadap Outrigger & Shear Wall					Core Wall terhadap Outrigger & Shear Wall				
	Angin	Statik	Koyna	Elcentro	Parkfield	Angin	Statik	Koyna	Elcentro	Parkfield
35	1.838	1.106	1.678	1.798	1.552	1.199	1.284	1.161	1.667	1.612
34	1.801	1.098	1.539	1.400	1.539	1.857	1.330	1.623	1.988	1.738
33	1.711	1.094	1.439	1.348	1.515	1.742	1.107	1.448	1.356	1.502
32	1.697	1.077	1.398	1.316	1.459	1.729	1.094	1.414	1.329	1.462
31	1.562	0.994	1.278	1.225	1.342	1.601	1.003	1.287	1.232	1.343
30	1.499	0.933	1.126	1.161	1.251	1.515	0.941	1.135	1.168	1.265
29	1.442	0.890	1.147	1.115	1.174	1.456	0.897	1.155	1.121	1.206
28	1.408	0.861	1.130	1.081	1.110	1.419	0.867	1.139	1.086	1.161
27	1.390	0.844	1.211	1.059	1.065	1.398	0.848	1.218	1.063	1.127
26	1.378	0.833	1.284	1.112	1.035	1.385	0.836	1.291	1.117	1.097
25	1.375	0.828	1.251	1.138	1.029	1.382	0.832	1.258	1.142	1.078
24	1.387	0.832	1.226	1.156	0.985	1.392	0.835	1.232	1.159	1.078
23	1.404	0.842	1.242	1.179	0.957	1.408	0.844	1.247	1.182	1.104
22	1.430	0.858	1.311	1.181	0.954	1.434	0.860	1.316	1.184	1.218
21	1.463	0.880	1.398	1.180	0.984	1.467	0.882	1.401	1.181	1.331
20	1.536	0.926	1.530	1.230	1.064	1.540	0.927	1.532	1.231	1.359
19	1.485	0.880	1.481	1.185	1.088	1.489	0.883	1.484	1.188	1.302
18	2.030	2.556	2.310	2.581	2.504	5.262	5.146	6.749	7.063	7.689
17	2.744	2.888	2.477	2.972	2.583	4.168	4.603	5.975	6.567	6.924
16	1.386	0.826	1.232	1.103	1.204	1.390	0.829	1.235	1.105	1.186
15	1.378	0.832	1.246	1.165	1.133	1.380	0.833	1.247	1.166	1.160
14	1.294	0.778	1.172	1.149	1.008	1.296	0.779	1.173	1.149	1.065
13	1.241	0.742	1.109	1.106	0.957	1.242	0.743	1.110	1.107	0.992
12	1.198	0.712	1.048	0.964	0.934	1.199	0.713	1.049	0.965	0.980
11	1.167	0.691	0.999	0.903	0.933	1.167	0.691	0.999	0.903	1.051
10	1.140	0.672	0.984	0.910	0.944	1.141	0.673	0.984	0.910	1.166
9	1.119	0.657	0.988	0.915	0.961	1.120	0.658	0.988	0.915	1.095
8	1.101	0.645	1.025	0.922	0.979	1.102	0.645	1.026	0.922	1.046
7	1.088	0.636	1.069	0.933	0.995	1.088	0.636	1.069	0.933	1.016
6	1.075	0.627	1.092	0.949	1.009	1.076	0.627	1.092	0.949	0.996
5	1.065	0.620	1.094	0.968	1.021	1.065	0.620	1.094	0.968	0.985
4	1.055	0.613	1.103	0.992	1.031	1.055	0.613	1.103	0.992	0.983
3	1.046	0.607	1.098	1.010	1.038	1.047	0.608	1.098	1.010	0.988
2	1.037	0.601	1.065	1.004	1.045	1.037	0.601	1.065	1.004	0.999
1	1.026	0.591	1.011	0.997	1.083	1.026	0.591	1.011	0.997	1.010
Rata-rata	1.400	0.916	1.280	1.212	1.185	1.751	1.077	1.624	1.762	1.930

LANTAI	Rasio Momen Kolom						Rasio Geser Kolom						Rasio Aksial Kolom						
	Core Wall terhadap Outrigger & Shear Wall			Core Wall terhadap Outrigger & Shear Wall			Core Wall terhadap Outrigger & Shear Wall			Core Wall terhadap Outrigger & Shear Wall			Core Wall terhadap Outrigger & Shear Wall			Core Wall terhadap Outrigger & Shear Wall			
	Statik	Koyna	Elcentro	Parkfield	Angin	Statik	Koyna	Elcentro	Parkfield	Angin	Statik	Koyna	Elcentro	Parkfield	Angin	Statik	Koyna	Elcentro	Parkfield
35	0.941	1.616	1.762	1.864	1.508	0.902	1.918	2.107	2.543	1.054	1.625	0.287	0.216	0.218	1.625	0.287	0.216	0.218	0.188
34	0.921	0.554	0.582	0.462	1.224	0.898	0.778	0.811	0.650	0.920	1.611	0.432	0.338	0.342	1.611	0.432	0.338	0.342	0.300
33	0.930	2.239	2.347	2.266	1.246	0.913	2.272	2.489	2.461	0.916	1.614	0.541	0.439	0.446	1.614	0.541	0.439	0.446	0.400
32	0.930	1.380	1.459	1.270	1.217	0.913	1.534	1.653	1.496	0.896	1.636	0.626	0.522	0.531	1.636	0.626	0.522	0.531	0.486
31	0.950	1.434	1.405	1.288	1.202	0.929	1.492	1.611	1.449	0.871	1.662	0.692	0.590	0.601	1.662	0.692	0.590	0.601	0.558
30	0.955	1.392	1.289	1.236	1.187	0.933	1.440	1.510	1.365	0.856	1.693	0.745	0.646	0.657	1.693	0.745	0.646	0.657	0.618
29	0.966	1.360	1.246	1.205	1.176	0.948	1.406	1.383	1.310	0.832	1.730	0.788	0.693	0.704	1.730	0.788	0.693	0.704	0.670
28	0.955	1.414	1.301	1.182	1.167	0.937	1.384	1.315	1.278	0.824	1.772	0.824	0.735	0.743	1.772	0.824	0.735	0.743	0.713
27	0.978	1.485	1.276	1.174	1.160	0.951	1.365	1.259	1.231	0.799	1.815	0.854	0.773	0.774	1.815	0.854	0.773	0.774	0.750
26	0.973	1.428	1.247	1.266	1.154	0.947	1.438	1.293	1.214	0.788	1.859	0.879	0.806	0.800	1.859	0.879	0.806	0.800	0.780
25	0.980	1.327	1.171	1.389	1.150	0.960	1.457	1.262	1.201	0.764	1.906	0.901	0.836	0.821	1.906	0.901	0.836	0.821	0.806
24	0.954	1.297	1.160	1.306	1.148	0.935	1.500	1.278	1.230	0.762	1.954	0.920	0.865	0.840	1.954	0.920	0.865	0.840	0.829
23	0.975	1.264	1.159	1.305	1.148	0.946	1.518	1.269	1.287	0.735	2.001	0.937	0.891	0.859	2.001	0.937	0.891	0.859	0.848
22	0.960	1.297	1.340	1.364	1.147	0.934	1.512	1.259	1.464	0.728	2.045	0.951	0.916	0.878	2.045	0.951	0.916	0.878	0.865
21	0.954	1.323	1.298	1.396	1.150	0.946	1.424	1.160	1.307	0.701	2.085	0.965	0.940	0.897	2.085	0.965	0.940	0.897	0.881
20	0.897	1.661	1.331	1.753	1.153	0.948	2.222	1.844	2.535	0.702	2.134	0.977	0.962	0.915	2.134	0.977	0.962	0.915	0.894
19	0.786	1.003	0.927	0.946	1.167	1.171	0.370	0.334	0.552	0.687	2.073	1.038	1.022	0.970	2.073	1.038	1.022	0.970	0.937
18	0.496	0.238	0.182	0.452	1.193	0.483	0.864	0.772	2.047	0.675	1.516	0.808	0.749	0.678	1.516	0.808	0.749	0.678	0.684
17	2.621	0.249	0.225	0.252	1.151	1.176	0.350	0.296	0.501	0.058	1.524	0.820	0.764	0.690	1.524	0.820	0.764	0.690	0.690
16	1.173	1.602	1.078	2.012	1.196	1.023	2.187	1.839	2.194	0.650	1.529	0.831	0.776	0.702	1.529	0.831	0.776	0.702	0.694
15	1.076	1.185	0.960	1.010	1.168	1.018	1.177	1.037	1.088	0.598	1.566	0.841	0.787	0.710	1.566	0.841	0.787	0.710	0.697
14	1.089	1.185	1.044	1.224	1.158	1.047	1.308	1.082	1.103	0.583	1.557	0.850	0.797	0.717	1.557	0.850	0.797	0.717	0.699
13	1.143	1.104	1.023	1.138	1.145	1.126	1.289	1.030	1.014	0.532	1.586	0.858	0.808	0.722	1.586	0.858	0.808	0.722	0.701
12	1.124	0.997	1.068	1.081	1.134	1.109	1.252	1.024	1.028	0.534	1.617	0.865	0.817	0.726	1.617	0.865	0.817	0.726	0.704
11	1.249	0.976	1.084	1.037	1.123	1.205	1.188	1.006	1.129	0.486	1.628	0.871	0.826	0.730	1.628	0.871	0.826	0.730	0.709
10	1.284	0.998	1.066	1.017	1.113	1.244	1.121	1.013	1.180	0.474	1.617	0.877	0.834	0.739	1.617	0.877	0.834	0.739	0.713
9	1.379	0.957	1.010	1.014	1.103	1.380	1.045	1.010	1.122	0.416	1.636	0.882	0.840	0.747	1.636	0.882	0.840	0.747	0.717
8	1.330	0.873	0.994	1.028	1.093	1.338	1.002	0.998	1.077	0.425	1.651	0.886	0.846	0.757	1.651	0.886	0.846	0.757	0.721
7	1.538	0.891	0.953	1.060	1.083	1.512	0.965	0.950	1.036	0.379	1.634	0.890	0.850	0.769	1.634	0.890	0.850	0.769	0.724
6	1.578	0.935	0.814	0.957	1.073	1.592	0.936	0.969	1.018	0.371	1.641	0.894	0.853	0.779	1.641	0.894	0.853	0.779	0.730
5	1.701	0.948	0.842	0.937	1.063	1.927	0.894	1.009	1.003	0.310	1.646	0.897	0.855	0.787	1.646	0.897	0.855	0.787	0.738
4	1.503	0.983	0.896	0.959	1.052	1.911	0.867	1.039	1.006	0.327	1.662	0.900	0.857	0.794	1.662	0.900	0.857	0.794	0.746
3	1.488	0.995	0.924	0.984	1.041	1.162	0.817	1.084	1.016	0.294	1.626	0.902	0.859	0.800	1.626	0.902	0.859	0.800	0.754
2	0.956	1.036	0.958	1.010	1.027	1.229	0.766	1.148	1.036	0.287	1.629	0.904	0.861	0.805	1.629	0.904	0.861	0.805	0.761
1	0.383	1.082	0.996	1.022	1.014	0.381	0.681	1.198	1.247	0.052	1.614	0.903	0.861	0.805	1.614	0.903	0.861	0.805	0.761
Rata-rata	1.118	1.163	1.098	1.168	1.150	1.085	1.250	1.210	1.298	0.608	1.717	0.830	0.772	0.727	1.717	0.830	0.772	0.727	0.699

LANTAI	Rasio Simpangan						Rasio Inter Story Drift							
	Outrigger & Shear Wall terhadap Open Frame			Outrigger & Shear Wall terhadap Open Frame			Outrigger & Shear Wall terhadap Open Frame			Outrigger & Shear Wall terhadap Open Frame				
	Angin	Statik	Koyna	Eicentro	Parkfield	Angin	Statik	Koyna	Eicentro	Parkfield	Angin	Statik	Koyna	Eicentro
35	0.551	0.579	0.729	0.867	1.029	0.700	0.823	0.715	0.869	0.946				
34	0.547	0.577	0.725	0.860	1.030	0.863	0.939	0.909	1.032	1.152				
33	0.543	0.572	0.718	0.843	1.023	0.821	0.880	0.867	0.911	1.019				
32	0.539	0.567	0.704	0.825	1.017	0.797	0.849	0.830	0.883	0.987				
31	0.534	0.563	0.691	0.802	1.006	0.765	0.815	0.824	0.911	0.965				
30	0.529	0.557	0.682	0.781	0.976	0.736	0.777	0.759	0.970	0.969				
29	0.526	0.553	0.671	0.761	0.943	0.712	0.754	0.731	0.927	1.008				
28	0.522	0.548	0.659	0.742	0.923	0.710	0.746	0.776	0.879	1.111				
27	0.516	0.542	0.645	0.723	0.930	0.693	0.726	0.715	0.790	1.005				
26	0.511	0.537	0.634	0.703	0.961	0.675	0.701	0.664	0.794	0.835				
25	0.506	0.532	0.627	0.681	1.012	0.658	0.683	0.604	0.828	0.733				
24	0.498	0.526	0.617	0.673	1.064	0.653	0.673	0.606	0.858	0.686				
23	0.495	0.521	0.609	0.672	1.043	0.636	0.652	0.587	0.858	0.643				
22	0.488	0.515	0.606	0.670	1.008	0.615	0.627	0.579	0.866	0.617				
21	0.484	0.510	0.601	0.674	0.963	0.593	0.603	0.592	0.854	0.684				
20	0.480	0.505	0.597	0.680	0.907	0.577	0.586	0.589	0.859	0.830				
19	0.473	0.500	0.587	0.686	0.849	0.499	0.513	0.529	0.769	0.824				
18	0.472	0.499	0.575	0.696	0.798	0.267	0.284	0.297	0.409	0.444				
17	0.483	0.512	0.563	0.718	0.804	0.491	0.503	0.579	0.789	0.888				
16	0.480	0.511	0.555	0.727	0.801	0.562	0.564	0.657	0.903	1.014				
15	0.476	0.507	0.546	0.730	0.794	0.571	0.570	0.658	0.894	1.019				
14	0.467	0.501	0.537	0.730	0.783	0.576	0.572	0.668	0.863	1.009				
13	0.464	0.494	0.525	0.726	0.772	0.576	0.569	0.674	0.818	0.977				
12	0.449	0.485	0.516	0.721	0.760	0.576	0.568	0.698	0.828	0.922				
11	0.438	0.474	0.508	0.713	0.748	0.568	0.554	0.687	0.834	0.815				
10	0.428	0.462	0.502	0.703	0.735	0.555	0.539	0.661	0.819	0.682				
9	0.415	0.448	0.495	0.693	0.721	0.538	0.515	0.627	0.809	0.684				
8	0.398	0.433	0.492	0.679	0.706	0.521	0.495	0.588	0.808	0.701				
7	0.391	0.417	0.489	0.660	0.690	0.496	0.464	0.534	0.785	0.705				
6	0.364	0.400	0.485	0.642	0.673	0.468	0.431	0.502	0.744	0.695				
5	0.344	0.382	0.478	0.626	0.654	0.436	0.394	0.477	0.690	0.672				
4	0.333	0.365	0.469	0.610	0.642	0.406	0.361	0.451	0.634	0.646				
3	0.333	0.353	0.458	0.598	0.631	0.379	0.330	0.429	0.596	0.619				
2	0.313	0.350	0.453	0.607	0.639	0.368	0.315	0.435	0.586	0.617				
1	0.400	0.359	0.514	0.657	0.689	0.402	0.343	0.506	0.664	0.704				
Rata-rata	0.463	0.490	0.579	0.711	0.849	0.584	0.592	0.629	0.809	0.824				

LANTAI	Rasio Momen Balok					Rasio Geser Balok				
	Outrigger & Shear Wall terhadap Open Frame		Parkfield			Outrigger & Shear Wall terhadap Open Frame		Parkfield		
	Angin	Statik	Koyna	Elcentro	Parkfield	Angin	Statik	Koyna	Elcentro	Parkfield
35	0.147	0.235	0.076	0.109	0.115	0.181	0.154	0.064	0.089	0.091
34	1.409	0.337	0.202	0.195	0.201	0.946	0.343	0.234	0.212	0.222
33	1.800	1.423	1.248	0.926	1.007	1.635	1.344	1.215	0.918	1.002
32	1.114	1.016	1.024	0.770	0.866	1.064	0.983	1.004	0.763	0.857
31	0.947	0.906	0.888	0.792	0.850	0.924	0.889	0.878	0.789	0.846
30	0.828	0.813	0.776	0.880	0.847	0.813	0.801	0.770	0.875	0.843
29	0.751	0.749	0.678	0.901	0.879	0.740	0.740	0.673	0.896	0.875
28	0.718	0.724	0.720	0.835	0.983	0.711	0.718	0.716	0.832	0.979
27	0.697	0.707	0.729	0.745	1.033	0.692	0.703	0.725	0.744	1.030
26	0.662	0.676	0.633	0.647	0.777	0.658	0.672	0.630	0.646	0.776
25	0.631	0.646	0.591	0.645	0.639	0.627	0.643	0.588	0.645	0.639
24	0.614	0.630	0.588	0.686	0.568	0.612	0.628	0.586	0.685	0.568
23	0.598	0.614	0.581	0.692	0.526	0.596	0.612	0.580	0.692	0.526
22	0.569	0.583	0.543	0.694	0.486	0.568	0.582	0.542	0.694	0.486
21	0.540	0.552	0.525	0.691	0.508	0.538	0.551	0.524	0.691	0.508
20	0.508	0.519	0.515	0.702	0.639	0.507	0.518	0.514	0.701	0.638
19	0.520	0.540	0.532	0.742	0.821	0.519	0.538	0.530	0.741	0.819
18	0.075	0.083	0.082	0.116	0.137	0.081	0.090	0.087	0.125	0.145
17	0.084	0.092	0.100	0.126	0.153	0.090	0.098	0.107	0.133	0.162
16	0.519	0.537	0.613	0.774	0.928	0.518	0.535	0.611	0.773	0.926
15	0.513	0.524	0.600	0.748	0.901	0.512	0.524	0.599	0.747	0.901
14	0.529	0.544	0.621	0.737	0.908	0.529	0.543	0.620	0.737	0.908
13	0.533	0.551	0.638	0.717	0.883	0.533	0.551	0.637	0.717	0.883
12	0.535	0.557	0.659	0.748	0.835	0.535	0.556	0.658	0.748	0.835
11	0.531	0.556	0.673	0.776	0.751	0.531	0.556	0.673	0.776	0.751
10	0.518	0.544	0.656	0.797	0.640	0.518	0.544	0.656	0.796	0.640
9	0.500	0.526	0.627	0.811	0.660	0.500	0.526	0.627	0.811	0.660
8	0.478	0.504	0.592	0.816	0.680	0.478	0.504	0.592	0.815	0.680
7	0.455	0.479	0.534	0.805	0.690	0.455	0.479	0.534	0.805	0.690
6	0.424	0.444	0.494	0.776	0.686	0.424	0.444	0.494	0.776	0.686
5	0.391	0.405	0.469	0.728	0.668	0.391	0.405	0.469	0.728	0.668
4	0.356	0.362	0.443	0.663	0.639	0.356	0.362	0.443	0.663	0.639
3	0.326	0.324	0.422	0.607	0.611	0.326	0.324	0.422	0.607	0.611
2	0.303	0.289	0.414	0.578	0.589	0.303	0.289	0.414	0.578	0.590
1	0.317	0.290	0.457	0.615	0.633	0.317	0.290	0.457	0.615	0.633
Rata-rata	0.524	0.551	0.570	0.674	0.678	0.564	0.544	0.568	0.673	0.677

-ANTAI	Rasio Momen Kolom						Rasio Geser Kolom						Rasio Aksial Kolom					
	Outrigger & Shear Wall terhadap Open Frame			Outrigger & Shear Wall terhadap Open Frame			Outrigger & Shear Wall terhadap Open Frame			Outrigger & Shear Wall terhadap Open Frame			Outrigger & Shear Wall terhadap Open Frame			Outrigger & Shear Wall terhadap Open Frame		
	Angin	Statik	Koyna	Elcentro	Parkfield		Angin	Statik	Koyna	Elcentro	Parkfield		Angin	Statik	Koyna	Elcentro	Parkfield	
35	1.580	0.719	0.593	1.097	0.430		1.260	0.567	0.606	0.924	0.661		3.206	3.601	5.281	4.828	7.724	
34	2.134	1.403	1.198	2.046	0.246		2.067	1.211	0.925	2.032	0.762		1.702	3.278	4.928	4.632	7.331	
33	1.481	0.321	0.300	0.379	0.221		6.078	0.370	0.300	0.400	0.756		1.450	2.193	3.055	2.900	4.290	
32	1.789	0.587	0.513	0.774	0.260		4.084	0.572	0.545	0.772	0.772		1.285	1.755	2.312	2.255	3.082	
31	1.752	0.528	0.473	0.700	0.264		5.027	0.552	0.489	0.684	0.782		1.213	1.521	1.922	1.925	2.441	
30	1.616	0.506	0.503	0.778	0.279		5.181	0.596	0.496	0.725	0.792		1.143	1.379	1.687	1.668	2.064	
29	1.000	0.504	0.550	0.722	0.284		1.598	0.549	0.468	0.704	0.800		1.076	1.284	1.537	1.481	1.825	
28	1.480	0.565	0.639	0.566	0.291		2.956	0.635	0.618	0.927	0.806		1.009	1.216	1.431	1.359	1.670	
27	1.278	0.510	0.567	0.438	0.282		1.272	0.583	0.565	0.749	0.811		0.913	1.164	1.349	1.272	1.566	
26	1.504	0.524	0.573	0.391	0.285		1.183	0.565	0.550	0.619	0.816		0.922	1.125	1.282	1.208	1.495	
25	1.000	0.495	0.530	0.379	0.276		0.723	0.531	0.601	0.516	0.820		1.028	1.094	1.224	1.159	1.445	
24	1.633	0.526	0.501	0.554	0.276		1.073	0.599	0.649	0.557	0.822		1.079	1.069	1.174	1.123	1.405	
23	1.496	0.490	0.429	0.627	0.257		0.679	0.543	0.561	0.469	0.823		1.136	1.048	1.131	1.097	1.368	
22	1.030	0.428	0.398	0.705	0.253		0.669	0.550	0.520	0.443	0.825		1.206	1.031	1.095	1.078	1.323	
21	0.938	0.375	0.460	0.666	0.237		0.471	0.512	0.505	0.542	0.823		1.128	1.016	1.065	1.065	1.269	
20	0.635	0.330	0.520	0.557	0.229		0.623	0.321	0.344	0.400	0.825		1.126	1.004	1.038	1.053	1.219	
19	0.867	0.534	0.861	0.950	0.203		0.363	1.657	1.716	1.842	0.804		1.114	0.992	1.016	1.042	1.178	
18	1.099	2.474	4.199	1.826	1.193		0.866	0.729	0.831	0.507	0.811		1.122	0.936	0.956	0.991	1.108	
17	0.193	2.478	3.332	2.923	0.248		0.270	1.794	2.450	1.964	2.998		1.541	1.205	1.301	1.431	1.501	
16	0.319	0.429	0.626	0.370	0.129		0.390	0.319	0.441	0.476	0.804		1.527	1.188	1.274	1.412	1.477	
15	0.382	0.575	0.699	0.690	0.167		0.299	0.559	0.959	0.854	0.821		1.494	1.174	1.250	1.388	1.461	
14	0.320	0.609	0.586	0.568	0.171		0.286	0.517	0.970	0.783	0.831		1.471	1.163	1.229	1.371	1.452	
13	0.284	0.590	0.587	0.582	0.178		0.209	0.539	0.982	0.766	0.842		1.468	1.153	1.209	1.362	1.448	
12	0.229	0.526	0.536	0.615	0.211		0.255	0.636	0.984	0.790	0.852		1.442	1.144	1.191	1.357	1.447	
11	0.214	0.542	0.506	0.605	0.205		0.185	0.652	0.923	0.650	0.863		1.395	1.137	1.174	1.336	1.446	
10	0.181	0.513	0.540	0.601	0.239		0.175	0.691	0.797	0.603	0.873		1.390	1.132	1.156	1.318	1.443	
9	0.154	0.542	0.557	0.577	0.254		0.126	0.676	0.756	0.603	0.883		1.383	1.127	1.140	1.302	1.435	
8	0.131	0.594	0.595	0.539	0.316		0.149	0.702	0.813	0.667	0.893		1.396	1.124	1.124	1.291	1.424	
7	0.110	0.660	0.636	0.471	0.347		0.105	0.667	0.745	0.666	0.904		1.368	1.122	1.110	1.283	1.411	
6	0.090	0.652	0.681	0.449	0.422		0.094	0.661	0.715	0.668	0.915		1.386	1.120	1.096	1.279	1.396	
5	0.069	0.609	0.693	0.428	0.495		0.061	0.664	0.704	0.631	0.926		1.410	1.120	1.082	1.277	1.381	
4	0.059	0.602	0.689	0.504	0.637		0.063	0.661	0.661	0.599	0.939		1.436	1.120	1.070	1.277	1.364	
3	0.042	0.598	0.668	0.583	0.810		0.027	0.594	0.614	0.498	0.952		1.445	1.120	1.058	1.278	1.348	
2	0.042	0.467	0.588	0.669	1.023		0.002	0.485	0.513	0.388	0.970		1.504	1.121	1.049	1.278	1.333	
1	0.049	0.322	0.450	0.390	1.543		0.068	1.161	1.099	0.768	2.472		1.526	1.121	1.042	1.277	1.321	
ata-rata	0.777	0.661	0.765	0.735	0.376		1.113	0.675	0.755	0.748	0.944		1.355	1.317	1.515	1.561	1.940	

LANTAI	Rasio Simpangan						Rasio Inter Story Drift									
	Outrigger & Shear Wall terhadap Open Frame			Outrigger & Shear Wall terhadap Open Frame			Angin		Statik		Koyna		Elcentro		Parkfield	
	Angin	Statik	Koyna	Elcentro	Parkfield	Angin	Statik	Koyna	Elcentro	Parkfield	Angin	Statik	Koyna	Elcentro	Parkfield	
25	0.482	0.499	0.721	1.699	0.937	0.454	0.636	0.595	1.538	0.657						
24	0.485	0.499	0.722	1.693	0.939	0.676	0.811	0.730	1.959	0.782						
23	0.477	0.494	0.715	1.655	0.932	0.648	0.748	0.705	1.694	0.688						
22	0.471	0.488	0.699	1.610	0.897	0.650	0.730	0.814	1.671	0.680						
21	0.467	0.482	0.678	1.563	0.865	0.621	0.679	0.826	1.570	0.687						
20	0.458	0.476	0.659	1.478	0.844	0.595	0.650	0.837	1.558	0.756						
19	0.451	0.469	0.657	1.380	0.836	0.601	0.646	0.846	1.761	0.922						
18	0.443	0.462	0.663	1.282	0.844	0.581	0.615	0.923	1.923	0.754						
17	0.438	0.455	0.672	1.186	0.871	0.558	0.585	0.889	1.913	0.647						
16	0.431	0.448	0.675	1.152	0.913	0.554	0.575	0.836	1.596	0.613						
15	0.428	0.440	0.669	1.109	0.944	0.529	0.545	0.746	1.347	0.588						
14	0.416	0.432	0.665	1.070	0.959	0.450	0.463	0.633	1.052	0.532						
13	0.411	0.430	0.670	1.041	0.973	0.185	0.195	0.262	0.419	0.246						
12	0.425	0.450	0.702	1.053	1.017	0.441	0.451	0.648	0.815	0.615						
11	0.423	0.449	0.704	1.036	1.016	0.501	0.502	0.745	0.869	0.775						
10	0.416	0.442	0.696	1.002	1.002	0.502	0.498	0.758	0.894	0.856						
9	0.407	0.434	0.674	0.968	0.983	0.497	0.491	0.768	0.978	0.910						
8	0.395	0.424	0.647	0.936	0.966	0.496	0.486	0.763	1.142	0.945						
7	0.386	0.410	0.627	0.906	0.899	0.480	0.466	0.718	1.096	0.945						
6	0.373	0.396	0.605	0.865	0.823	0.458	0.435	0.671	1.012	0.941						
5	0.354	0.381	0.587	0.819	0.751	0.431	0.405	0.615	0.941	0.927						
4	0.351	0.365	0.574	0.776	0.685	0.405	0.374	0.610	0.849	0.817						
3	0.320	0.350	0.567	0.755	0.629	0.375	0.338	0.549	0.757	0.675						
2	0.357	0.346	0.582	0.762	0.594	0.357	0.318	0.547	0.722	0.583						
1	0.400	0.356	0.643	0.822	0.611	0.390	0.346	0.637	0.818	0.606						
Rata-rata	0.419	0.435	0.659	1.145	0.869	0.497	0.519	0.707	1.236	0.726						

LANTAI	Rasio Momen Balok					Rasio Geser Balok				
	Outrigger & Shear Wall terhadap Open Frame					Outrigger & Shear Wall terhadap Open Frame				
	Angin	Statik	Koyna	Elcentro	Parkfield	Angin	Statik	Koyna	Elcentro	Parkfield
25	0.255	0.098	0.063	0.105	0.069	0.222	0.060	0.040	0.074	0.043
24	0.388	0.170	0.136	0.202	0.107	0.312	0.165	0.143	0.215	0.111
23	1.192	0.957	0.985	1.139	0.626	1.082	0.904	0.973	1.135	0.607
22	0.862	0.781	0.761	1.027	0.562	0.815	0.749	0.742	1.018	0.544
21	0.766	0.728	0.846	1.153	0.572	0.744	0.712	0.834	1.151	0.560
20	0.670	0.655	0.793	1.339	0.607	0.654	0.642	0.784	1.333	0.593
19	0.638	0.633	0.799	1.376	0.754	0.628	0.625	0.792	1.368	0.738
18	0.614	0.616	0.842	1.418	0.740	0.608	0.611	0.836	1.412	0.730
17	0.569	0.574	0.919	1.380	0.589	0.563	0.569	0.912	1.375	0.581
16	0.547	0.554	0.806	1.196	0.527	0.544	0.551	0.803	1.195	0.522
15	0.518	0.524	0.718	0.984	0.497	0.514	0.521	0.714	0.981	0.492
14	0.509	0.520	0.670	0.860	0.511	0.510	0.521	0.673	0.864	0.510
13	0.049	0.054	0.069	0.077	0.055	0.053	0.058	0.074	0.085	0.060
12	0.065	0.070	0.089	0.092	0.081	0.069	0.075	0.095	0.099	0.087
11	0.491	0.504	0.713	0.705	0.721	0.492	0.505	0.713	0.707	0.718
10	0.471	0.480	0.732	0.733	0.788	0.469	0.478	0.730	0.731	0.781
9	0.472	0.484	0.753	0.846	0.868	0.471	0.483	0.752	0.845	0.861
8	0.467	0.482	0.759	1.030	0.913	0.466	0.482	0.758	1.028	0.907
7	0.456	0.473	0.738	1.099	0.923	0.456	0.473	0.737	1.099	0.918
6	0.432	0.448	0.682	1.016	0.915	0.432	0.447	0.682	1.016	0.910
5	0.402	0.415	0.632	0.941	0.903	0.402	0.415	0.632	0.940	0.899
4	0.371	0.380	0.609	0.875	0.841	0.371	0.380	0.608	0.875	0.838
3	0.342	0.343	0.562	0.785	0.704	0.342	0.343	0.562	0.785	0.702
2	0.312	0.302	0.529	0.705	0.587	0.312	0.302	0.529	0.705	0.585
1	0.322	0.299	0.581	0.716	0.565	0.322	0.299	0.581	0.716	0.563
Rata-rata	0.487	0.462	0.631	0.872	0.601	0.474	0.455	0.628	0.870	0.594

LANTAI	Rasio Momen Kolom				Rasio Geser Kolom				Rasio Aksial Kolom						
	Outrigger & Shear Wall terhadap Open Frame		Outrigger & Shear Wall terhadap Open Frame		Outrigger & Shear Wall terhadap Open Frame		Outrigger & Shear Wall terhadap Open Frame		Outrigger & Shear Wall terhadap Open Frame		Outrigger & Shear Wall terhadap Open Frame				
	Angin	Statik	Koyna	Elcentro	Parkfield	Angin	Statik	Koyna	Elcentro	Parkfield	Angin	Statik	Koyna	Elcentro	Parkfield
25	0.198	0.359	0.760	0.478	0.271	1.065	0.313	0.600	0.492	0.290	2.139	3.130	3.876	8.021	4.897
24	4.615	0.835	2.787	1.171	0.189	1.151	0.744	2.284	1.134	0.218	1.878	3.116	3.866	8.394	5.020
23	0.586	0.314	0.666	0.308	0.251	1.220	0.321	0.771	0.328	0.263	1.443	2.106	2.436	5.006	2.940
22	0.955	0.509	1.143	0.571	0.268	1.198	0.527	1.163	0.547	0.279	1.284	1.700	1.883	3.610	2.155
21	0.240	0.391	0.967	0.532	0.275	1.249	0.475	1.011	0.493	0.288	1.207	1.483	1.603	2.874	1.748
20	0.339	0.352	1.029	0.536	0.283	1.317	0.416	0.932	0.523	0.291	1.171	1.352	1.437	2.429	1.503
19	1.030	0.407	1.667	0.453	0.285	1.277	0.430	1.240	0.777	0.292	1.153	1.263	1.322	2.154	1.361
18	1.557	0.406	1.459	0.321	0.275	1.657	0.390	1.314	0.597	0.284	1.146	1.199	1.235	1.983	1.277
17	1.637	0.426	1.198	0.299	0.269	1.289	0.387	1.461	0.463	0.270	1.149	1.152	1.165	1.876	1.226
16	0.635	0.394	1.047	0.478	0.261	1.512	0.492	1.743	0.552	0.259	1.158	1.116	1.109	1.812	1.191
15	1.968	0.357	0.945	0.374	0.244	1.156	0.332	0.900	0.295	0.249	1.172	1.086	1.065	1.776	1.157
14	1.873	0.418	1.203	0.808	0.204	3.428	1.058	4.257	1.658	0.065	1.189	1.062	1.030	1.762	1.111
13	6.737	2.318	3.562	2.218	0.721	0.964	0.496	0.491	0.241	0.806	1.126	0.974	0.944	1.670	0.994
12	0.871	1.277	4.666	4.238	0.083	3.651	1.118	3.961	2.440	0.197	1.033	1.337	1.336	2.890	1.777
11	1.232	0.483	0.885	0.544	0.198	0.585	0.262	0.608	0.463	0.238	1.068	1.306	1.301	2.860	1.693
10	0.340	0.359	1.037	0.879	0.257	0.574	0.352	1.027	0.816	0.275	1.108	1.281	1.273	2.838	1.629
9	0.541	0.356	0.931	0.761	0.256	0.381	0.352	0.989	0.769	0.262	1.151	1.261	1.251	2.786	1.585
8	0.442	0.418	0.801	0.819	0.291	0.507	0.435	1.238	0.902	0.286	1.197	1.244	1.231	2.718	1.553
7	0.605	0.420	0.920	0.700	0.292	0.338	0.401	1.218	0.845	0.277	1.247	1.231	1.213	2.631	1.529
6	0.585	0.497	0.834	0.587	0.325	0.316	0.366	1.103	0.864	0.291	1.305	1.220	1.196	2.552	1.511
5	0.587	0.523	0.753	0.485	0.343	0.214	0.360	1.056	0.829	0.273	1.372	1.212	1.179	2.493	1.495
4	0.498	0.653	0.878	0.600	0.404	0.249	0.389	1.013	0.809	0.300	1.445	1.206	1.158	2.455	1.481
3	0.539	0.684	0.938	0.681	0.455	0.150	0.387	0.845	0.577	0.286	1.526	1.201	1.140	2.393	1.464
2	0.411	0.578	0.906	1.096	0.563	0.110	0.290	0.587	0.362	0.340	1.618	1.198	1.125	2.318	1.448
1	0.216	0.384	0.529	0.614	0.461	0.033	0.487	1.234	0.686	0.728	1.672	1.195	1.114	2.257	1.437
Rata-rata	1.169	0.565	1.300	0.822	0.309	1.024	0.463	1.322	0.738	0.304	1.319	1.425	1.500	2.982	1.807

LANTAI	Rasio Simpangan						Rasio Inter Story Drift									
	Outrigger & Shear Wall terhadap Open Frame			Outrigger & Shear Wall terhadap Open Frame			Angin		Statik		Koyna		Elcentro		Parkfield	
	Angin	Statik	Koyna	Elcentro	Parkfield	Angin	Statik	Koyna	Elcentro	Parkfield	Angin	Statik	Koyna	Elcentro	Parkfield	
15	0.305	0.316	0.506	0.428	0.710	0.371	0.350	0.259	0.263	0.373	0.371	0.350	0.259	0.263	0.373	
14	0.304	0.315	0.506	0.425	0.712	0.571	0.559	0.668	0.520	0.694	0.571	0.559	0.668	0.520	0.694	
13	0.295	0.306	0.482	0.409	0.670	0.482	0.492	0.552	0.513	0.659	0.482	0.492	0.552	0.513	0.659	
12	0.290	0.297	0.445	0.392	0.626	0.452	0.465	0.606	0.519	0.744	0.452	0.465	0.606	0.519	0.744	
11	0.275	0.287	0.412	0.374	0.597	0.410	0.424	0.589	0.497	0.853	0.410	0.424	0.589	0.497	0.853	
10	0.274	0.277	0.387	0.353	0.582	0.374	0.381	0.562	0.502	0.813	0.374	0.381	0.562	0.502	0.813	
9	0.261	0.268	0.364	0.341	0.583	0.309	0.317	0.529	0.474	0.528	0.309	0.317	0.529	0.474	0.528	
8	0.253	0.262	0.369	0.349	0.605	0.098	0.107	0.163	0.152	0.158	0.098	0.107	0.163	0.152	0.158	
7	0.268	0.284	0.405	0.386	0.682	0.296	0.293	0.423	0.404	0.473	0.296	0.293	0.423	0.404	0.473	
6	0.279	0.282	0.410	0.396	0.705	0.323	0.309	0.395	0.414	0.577	0.323	0.309	0.395	0.414	0.577	
5	0.255	0.275	0.394	0.405	0.709	0.311	0.291	0.421	0.395	0.646	0.311	0.291	0.421	0.395	0.646	
4	0.250	0.268	0.377	0.412	0.710	0.304	0.279	0.442	0.408	0.689	0.304	0.279	0.442	0.408	0.689	
3	0.250	0.259	0.364	0.414	0.700	0.283	0.253	0.380	0.402	0.684	0.283	0.253	0.380	0.402	0.684	
2	0.235	0.255	0.373	0.418	0.683	0.270	0.234	0.352	0.398	0.652	0.270	0.234	0.352	0.398	0.652	
1	0.333	0.273	0.424	0.480	0.730	0.306	0.266	0.416	0.479	0.723	0.306	0.266	0.416	0.479	0.723	
Rata-rata	0.275	0.282	0.414	0.399	0.667	0.344	0.335	0.450	0.423	0.618	0.344	0.335	0.450	0.423	0.618	

LANTAI	Rasio Momen Balok				Rasio Geser Balok				
	Outrigger & Shear Wall terhadap Open Frame				Outrigger & Shear Wall terhadap Open Frame				
	Angin	Statik	Koyna	Elcentro	Angin	Statik	Koyna	Elcentro	Parkfield
15	0.518	0.524	0.718	0.984	0.497	0.060	0.019	0.019	0.022
14	0.509	0.520	0.670	0.860	0.511	0.118	0.088	0.066	0.075
13	0.049	0.054	0.069	0.077	0.055	0.541	0.501	0.458	0.507
12	0.065	0.070	0.089	0.092	0.081	0.407	0.489	0.423	0.494
11	0.491	0.504	0.713	0.705	0.721	0.370	0.486	0.415	0.584
10	0.471	0.480	0.732	0.733	0.788	0.314	0.489	0.397	0.693
9	0.472	0.484	0.753	0.846	0.868	0.307	0.476	0.457	0.527
8	0.467	0.482	0.759	1.030	0.913	0.032	0.049	0.046	0.043
7	0.456	0.473	0.738	1.099	0.923	0.040	0.057	0.053	0.058
6	0.432	0.448	0.682	1.016	0.915	0.274	0.370	0.385	0.487
5	0.402	0.415	0.632	0.941	0.903	0.240	0.356	0.328	0.519
4	0.371	0.380	0.609	0.875	0.841	0.235	0.400	0.349	0.591
3	0.342	0.343	0.562	0.785	0.704	0.218	0.369	0.360	0.612
2	0.312	0.302	0.529	0.705	0.587	0.190	0.317	0.351	0.594
1	0.322	0.299	0.581	0.716	0.565	0.189	0.338	0.381	0.608
Rata-rata	0.487	0.462	0.631	0.872	0.601	0.235	0.320	0.299	0.428

LANTAI	Rasio Momen Kolom				Rasio Geser Kolom				Rasio Aksial Kolom						
	Outrigger & Shear Wall terhadap Open Frame		Parkfield		Outrigger & Shear Wall terhadap Open Frame		Parkfield		Outrigger & Shear Wall terhadap Open Frame		Parkfield				
	Angin	Statik	Koyna	Eicentro	Angin	Statik	Koyna	Eicentro	Angin	Statik	Koyna	Eicentro			
15	1.177	0.272	0.350	0.437	0.538	0.903	0.255	0.313	0.456	0.260	0.696	1.403	1.720	2.533	3.228
14	0.945	0.898	1.396	1.393	0.954	1.269	0.707	1.019	1.289	0.270	1.247	2.264	2.713	3.828	4.705
13	0.984	0.357	0.310	0.294	0.801	1.224	0.372	0.355	0.288	0.314	1.156	1.733	1.987	2.650	3.000
12	2.091	0.863	0.473	0.829	0.846	1.243	0.612	0.624	0.614	0.317	1.144	1.492	1.688	2.126	2.244
11	0.789	0.344	0.332	0.495	0.846	1.559	0.490	0.443	0.679	0.314	1.158	1.356	1.534	1.778	1.868
10	0.720	0.354	0.261	0.272	0.856	1.257	0.338	0.296	0.398	0.333	1.193	1.272	1.430	1.545	1.661
9	0.513	0.548	0.466	0.480	0.856	0.519	0.914	0.907	1.341	0.196	1.239	1.215	1.340	1.365	1.544
8	2.259	1.526	1.850	1.798	0.872	1.413	0.416	0.169	0.124	0.608	1.124	1.047	1.153	1.133	1.358
7	0.306	1.943	1.720	2.024	0.931	0.468	1.323	1.188	1.315	0.300	0.681	0.843	0.957	0.960	1.342
6	0.378	0.579	0.572	0.615	0.854	0.457	0.510	0.252	0.251	0.356	1.117	1.545	1.755	1.790	2.648
5	0.296	0.350	0.444	0.578	0.894	0.287	0.596	0.430	0.454	0.370	1.201	1.487	1.673	1.624	2.434
4	0.313	0.410	0.350	0.584	0.907	0.389	0.530	0.514	0.575	0.391	1.295	1.443	1.621	1.500	2.230
3	0.269	0.557	0.402	0.516	0.928	0.219	0.584	0.417	0.551	0.394	1.506	1.383	1.561	1.337	1.947
2	0.139	0.403	0.340	0.855	0.951	0.183	0.443	0.244	0.337	0.455	1.616	1.363	1.528	1.282	1.856
1	0.032	0.254	0.234	0.393	0.973	0.039	0.880	0.645	0.870	0.017	1.688	1.346	1.492	1.246	1.792
Rata-rata	0.747	0.644	0.633	0.771	0.867	0.762	0.598	0.521	0.636	0.326	1.237	1.444	1.646	1.804	2.305

Datuk D1
2 - outrigger

I	lokasi	momen										geser			
		Comb 1	Comb 2	Comb 3	Comb 4		Comb 5		Comb 6		Vd	VI	Ve		
		Kg-m	Kg-m	Kg-m	max Kg-m	min Kg-m	max Kg-m	min Kg-m	max Kg-m	min Kg-m	max Kg-m	Kg-m	Kg-m	Kg-m	
35	Tepi kiri	0.4	-899.844	-666.291	-508.195	-629.926	-727.858	-594.848	-750.161	-610.515	-827.6	-196.61	-180.71	61.43	
	1/4 L	1.5	-256.918	-188.801	-117.566	-162.959	-230.064	-146.563	-236.217	-172.024	-275.692	-105.49	-68.21	61.43	
	1/2 L	3	-192.693	-145.335	-108.11	-173.885	-108.11	-97.83	-202.417	-70.721	-203.648	-14.36	44.29	61.43	
	1/2 L	3	-113.522	-87.035	-115.398	-38.638	-120.772	-29.231	-156.555	14.058	-152.494	-193.31	-176.65	61.49	
	3/4 L	4.5	513.723	378.691	263.547	472.782	318.464	495.328	251.688	592.702	273.458	-102.19	-64.15	61.49	
	Tepi kanan	5.6	562.268	410.391	214.879	556.59	330.088	592.274	232.318	744.008	260.086	-11.06	48.35	61.49	
34	Tepi kiri	0.4	-3037.543	-2126.25	175.346	-617.226	1177.145	1177.145	-1176.38	2292.18	-1550.24	1991.76	-3134.62	-2109.4	
	1/4 L	1.5	-17.14	83.608	1677.172	1177.145	1177.145	-1176.38	2292.18	-1550.24	1991.76	-3134.62	-243.07	608.17	
	1/2 L	3	-1387.836	-999.864	-466.34	-673.821	-1655.99	-201.569	-1815.88	-321.804	-2489.99	1623.3	119.86	608.17	
	1/2 L	3	-1152.104	-840.256	-581.848	-698.614	-1255.6	-425.643	-1349.15	-489.996	-1741.05	-2062.1	-424.33	608.12	
	3/4 L	5.6	1739.1	1272.709	816.616	1806.549	992.433	1926.92	622.794	2445.07	738.567	-195.69	-143.08	608.12	
	Tepi kanan	5.5	239.204	92.349	-1430.256	1223.363	-961.858	1557.65	-1974.11	2985.85	-1678.19	1670.7	138.17	608.12	
33	Tepi kiri	0.4	-10711.41	-6986.41	8828.579	4882.854	-22742.9	18249.4	-27056.9	14592.9	-45484.1	-3885.1	-1578.5	5057	
	1/4 L	1.5	-1336.406	-438.447	8287.417	6145.915	-8693.59	13323.6	-11013.4	11352.4	-20918.5	-2499.1	-1297.3	5057	
	1/2 L	3	4512.171	3464.695	4857.509	4520.228	2467	5509.03	2141.32	5239.84	758.362	-1113.1	-1016	5057	
	1/2 L	3	4512.171	3464.695	4857.509	4520.228	2467	5509.03	2141.32	5239.84	758.362	-43.53	283.8	5024	
	3/4 L	4.5	2502.82	1478.45	-4615.203	7475.301	-3148.22	9125.34	-8289.47	16186.6	-6902.63	1342.5	565.05	5024	
	Tepi kanan	5.6	-3032.956	-3152.61	-16976.66	9594.855	-13705.4	13220.6	-24976.7	28726.1	-21917.2	2728.5	846.3	5024	
32	Tepi kiri	0.4	-11890.29	-7718.5	10114.4	5394.672	-25546.5	21594.6	-30653	17399.4	-52649.9	-4080.4	-1677.2	5805.1	
	1/4 L	1.5	-1926.954	-808.976	8857.974	6338.516	-10038.5	14909.2	-12744.4	12680.6	-24393.7	-2694.4	-1395.9	5805.1	
	1/2 L	3	4509.957	3455.725	4712.799	4393.613	2580.699	5334.99	2275.37	5098.78	973.692	-1308.4	-1114.7	5805.1	
	1/2 L	3	4509.957	3455.725	4712.799	4393.613	2580.699	5334.99	2275.37	5098.78	973.692	-243.55	181.7	5774.8	
	3/4 L	4.5	3105.688	1843.456	-5466.621	9064.17	-3585.46	11141.1	-10214.1	20108.8	-8521.54	1142.5	462.95	5774.8	
	Tepi kanan	5.6	-1825.007	-2413.63	-18534.79	12658.89	-14453.3	17118.2	-28652	36355.2	-25004.9	2528.5	744.2	5774.8	
31	Tepi kiri	0.4	-12921.39	-8262.74	12805.57	6327.692	-28367.5	25940	-34494.9	21316.4	-61399.9	-4243.6	-1764.5	6895	
	1/4 L	1.5	-2454.663	-1087.83	10227.21	6794.171	-11460.6	17108.9	-14688	14684.2	-28850.4	-2857.6	-1483.3	6895	
	1/2 L	3	4485.635	3442.268	4760.101	4371.903	2557.549	5389.01	2230.11	5163.29	810.261	-1471.6	-1202	6895	
	1/2 L	3	4485.635	3442.268	4760.101	4371.903	2557.549	5389.01	2230.11	5163.29	810.261	-409.8	92.8	6859.7	
	3/4 L	4.5	3593.986	2102.861	-6726.201	10444.15	-4074.16	12996.3	-12288.4	24229.2	-10329.9	976.2	374.05	6859.7	
	Tepi kanan	5.6	-824.089	-1881.36	-21101.25	15442.01	-15409	20873.8	-32854.5	44759.4	-28711.8	2362.2	655.3	6859.7	
30	Tepi kiri	0.4	-13567.77	-8552.12	15110.99	7062.68	-29651.4	28672.2	-36484.4	24254.9	-67743.4	-4348.5	-1818.7	7735	
	1/4 L	1.5	-2782.313	-1230.07	11460.16	7196.832	-12132.6	18566.9	-15733.4	16250	-32194.4	-2962.5	-1537.4	7735	
	1/2 L	3	4476.721	3447.148	4920.574	4442.238	2497.389	5572.75	2128.41	5356.55	465.807	-1576.5	-1256.2	7735	
	1/2 L	3	4476.721	3447.148	4920.574	4442.238	2497.389	5572.75	2128.41	5356.55	465.807	-513.73	39.27	7694.8	
	3/4 L	4.5	3900.599	2253.123	-7633.064	10989.55	-4332.9	13830.6	-13368.7	26860.2	-11499.1	872.27	320.52	7694.8	
	Tepi kanan	5.6	-201.947	-1585.72	-23075.45	16592.96	-15996.8	22643.7	-35198.8	50365.8	-31243.2	2258.3	601.77	7694.8	
29	Tepi kiri	0.5	-14018.88	-8702.46	17369.65	7154.363	-30234.8	30314.5	-37579.2	26525.1	-72519.8	-4420.8	-1856.4	8507.4	

3/4 L	4.5	3864.719	1638.611	-14817.01	11026.3	-7287.72	15605.9	-14235.5	26522.4	-13529.4	890.68	323.76	12171
Tepi kanan	5.5	-278.748	-2821.23	-37342.68	16226.4	-21701.2	25723.8	-36108.7	48357.6	-34642.8	2276.7	605.01	12171
Tepi kiri	0.5	-12740.79	-6733.8	29089.93	12193.06	-27734.6	31022.6	-37538.7	23932.5	-57922.2	-4208.9	-1752.8	11997
1/4 L	1.5	-2364.562	-315.261	18402.73	9659.014	-10957.7	19386.8	-16022.3	15722.7	-26557.9	-2822.9	-1471.6	11997
1/2 L	3	4485.237	3458.456	4826.788	4236.217	2930.348	4862.31	2605.25	4624.1	1917.788	-1436.9	-1190.3	11997
1/2 L	3	4485.237	3458.456	4826.788	4236.217	2930.348	4862.31	2605.25	4624.1	1917.788	-384.95	100.33	11960
3/4 L	4.5	3530.767	1385	-14743.66	10727.79	-7191.27	15122.7	-15630.2	24243.1	-12454.1	1001.1	381.58	11960
Tepi kanan	5.5	-950.128	-3333.27	-37202.86	15636.48	-21507.5	24751.4	-39011.3	43679.8	-32421.1	2387.1	662.83	11960
Tepi kiri	0.5	-11926.6	-6156.93	28442	12125.1	-26376.2	32649.1	-35274.8	21809.1	-60150.8	-4077.4	-1683.8	11657
1/4 L	1.5	-1952.82	-30.304	17974.55	9567.625	-10227.7	20123.9	-14806.1	14553.8	-27596	-2691.4	-1402.5	11657
1/2 L	3	4494.536	3451.506	4618.362	4126.91	3031.977	4709.89	2773.73	4409.85	2070.117	-1305.4	-1121.3	11657
1/2 L	3	4494.536	3451.506	4618.362	4126.91	3031.977	4709.89	2773.73	4409.85	2070.117	-256.3	168	11627
3/4 L	4.5	3146.084	1091.722	-14736.66	10214	-7330.92	14260.6	-16674.2	25600.5	-11722.9	1129.7	449.25	11627
Tepi kanan	5.5	-1728.793	-3912.88	-36980.43	14507.27	-21672	22858.7	-40947.1	46242.1	-30744.4	2515.7	730.5	11627
Tepi kiri	0.5	-11425.86	-5696.84	29831.36	12999.66	-25891.8	34639.6	-33491.8	21191.9	-63609.5	-3990	-1644.9	12020
1/4 L	1.5	-1702.823	194.286	18593.14	9965.194	-9946.89	21046.6	-13834.7	14156.6	-29270.2	-2604	-1363.6	12020
1/2 L	3	4493.789	3440.589	4466.172	4041.98	3108.138	4564.93	2933.27	4232.99	2180.471	-1218	-1082.4	12020
1/2 L	3	4493.789	3440.589	4466.172	4041.98	3108.138	4564.93	2933.27	4232.99	2180.471	-170.79	205.99	11991
3/4 L	4.5	2900.26	849.288	-15656.92	10096.14	-7885.86	13621.7	-17886.6	27500.6	-11684.8	1215.2	487.24	11991
Tepi kanan	5.5	-2219.694	-4386.83	-38668.76	14194.27	-22702.4	21420.9	-43227	49932	-30490.9	2601.2	768.49	11991
Tepi kiri	0.5	-3520.256	-2220.8	3105.649	558.82	-5362.71	3837.22	-6393.39	1699.24	-11205.9	-1728.6	-493.27	1445.6
1/4 L	1.5	-631.483	-216.252	3146.794	1575.746	-2032.77	3569.66	-2677.6	2283.55	-5575.71	-342.62	-212.02	1445.6
1/2 L	3	-1269.134	-856.522	299.193	-291.503	-1592.44	413.362	-1851.5	-20059	-2834.22	1043.4	69.23	1445.6
1/2 L	3	-937.421	-657.972	-149.474	-435.466	-1025.17	-130.797	-1162.31	-295.368	-1550.67	-1691	-475.03	1445.3
3/4 L	4.5	1839.829	1262.975	-195.842	2223.743	487.011	2469.1	-485.996	3991.76	189.833	-304.99	-193.78	1445.3
Tepi kanan	5.5	1090.654	539.103	-3130.956	2574.082	-1472.51	3206.2	-3729.73	6644.27	-2202.86	1081	87.47	1445.3
Tepi kiri	0.5	-4418.796	-2805	3313.494	1130.555	-6289.78	3809.37	-7835.05	983.169	-13592.9	-2312.1	-534.43	1702.7
1/4 L	1.5	-813.323	-299.532	3555.14	2237.317	-2279.18	3849.46	-3230.98	2125.52	-6710.66	-445.72	-253.18	1702.7
1/2 L	3	-1598.95	-1087.4	151.448	-301.258	-1915.55	244.221	-2273.5	-376.91	-3473.8	1420.7	28.07	1702.7
1/2 L	3	-1181.744	-836.076	-354.685	-539.162	-1255.41	-323.219	-1428.12	-603.046	-1921.11	-2264.9	-516.17	1702.4
3/4 L	4.5	2294.919	1572.827	-215.624	2662.843	464.894	3078.03	-386.795	4857.11	435.259	-398.5	-234.92	1702.4
Tepi kanan	5.5	1380.482	688.406	-3721.901	2925.598	-2176.39	3931.36	-4094.53	7989.99	-2170.49	1467.9	46.33	1702.4
Tepi kiri	0.5	-11976.63	-5546.54	34461.63	20736.21	-27656.5	38247.8	-38880.2	19007.8	-75318.9	-4100.1	-1676.3	13630
1/4 L	1.5	-1980.057	270.091	20911.18	13887.21	-10825.2	22839.7	-16553.8	13014.9	-35171.4	-2714.1	-1395	13630
1/2 L	3	4490.096	3441.9	4471.99	4149.464	3116.034	4542.82	2883.45	4133.65	2087.355	-1328.1	-1113.8	13630
1/2 L	3	4490.096	3441.9	4471.99	4149.464	3116.034	4542.82	2883.45	4133.65	2087.355	-278.4	176.34	13599
3/4 L	4.5	3161.412	770.173	-17966.53	10984.47	-11590.9	16228	-19728.3	33198.4	-10754	1107.6	457.59	13599
Tepi kanan	5.5	-1693.696	-4546.37	-43293.79	15962.88	-30220	26683.3	-46888.2	61420.6	-28530.1	2493.6	738.84	13599
Tepi kiri	0.5	-12013.79	-5293	36893.52	22700.02	-28951	39646.3	-42417.4	19559.6	-78426.7	-4111.8	-1677.6	14423
1/4 L	1.5	-1992.8	400.873	22113.42	14869.69	-11464	23508.7	-18330.2	13267.3	-36687.6	-2725.8	-1396.4	14423
1/2 L	3	4501.762	3449.926	4444.579	4150.615	3134.182	4482.34	2868.22	4086.19	2162.729	-1339.8	-1115.1	14423
1/2 L	3	4501.762	3449.926	4444.579	4150.615	3134.182	4482.34	2868.22	4086.19	2162.729	-290.67	174.85	14395
3/4 L	4.5	3198.748	656.219	-19227.19	11658.93	-12571.3	17973.2	-20523.4	34872.7	-11102.7	1095.3	456.1	14395

6	1/2 L	3	4527.341	3457.649	4244.504	3996.628	3242.462	4275.6	3012.6	4131.06	2763.859	-1219.8	-1035.7	17014
	1/2 L	3	4527.341	3457.649	4244.504	3996.628	3242.462	4275.6	3012.6	4131.06	2763.859	-168.91	258.03	16995
	3/4 L	4.5	2805.499	-219.843	23844.76	13383.94	-15100.8	21999.2	-25779.3	31502.4	-20387.5	1217.1	539.28	16995
	Tepi kanan	5.5	-2442.768	-6542.15	-54822.77	20636.68	-37087	38097.1	-58722.9	57352.1	-47794.9	2603.1	820.53	16995
	Tepi kiri	0.5	-10726.8	-3393.21	42464.77	26194.62	-31098	48720.1	-48062.4	37859.6	-70442	-3921.8	-1558.2	15954
	1/4 L	1.5	-1334.484	1355.512	24785.95	16536.84	-12480.6	27943.4	-21073.8	22442	-32406.1	-2535.8	-1276.9	15954
	1/2 L	3	4531.41	3459.414	4218.38	3990.315	3248.104	4277.98	3026.13	4135.69	2741.136	-1149.8	-995.68	15954
	1/2 L	3	4531.41	3459.414	4218.38	3990.315	3248.104	4277.98	3026.13	4135.69	2741.136	-98.45	298.76	15937
	3/4 L	4.5	2585.016	-291.367	-22379.55	12896.54	-14579.7	21029.2	-25388.1	31769.6	-20181.4	1287.6	580.01	15937
	Tepi kanan	5.5	-2887.804	-6686.97	-51806.22	19656.24	-36038.5	36143.6	-57942.9	57909.3	-47387.3	2673.6	861.26	15937
	Tepi kiri	0.5	-10188.47	-3274.46	38406.74	25196.43	-30082.1	46449.6	-44972.5	36166.7	-69203.3	-3836.9	-1510.7	14549
	1/4 L	1.5	-1062.951	1415.118	22732.57	16032.87	-11968.8	26797	-19512.6	21587.5	-31785.3	-2450.9	-1229.4	14549
	1/2 L	3	4536.142	3459.875	4169.649	3980.572	3255.702	4255.68	3058.5	4119.47	2743.944	-1064.9	-948.17	14549
	1/2 L	3	4536.142	3459.875	4169.649	3980.572	3255.702	4255.68	3058.5	4119.47	2743.944	-13.13	347.02	14535
	3/4 L	4.5	2320.326	-352.258	-20429.71	12398.81	-14098.2	19533.3	-24290.4	31153.2	-19362.8	1372.9	628.27	14535
	Tepi kanan	5.5	-3421.914	-6809.21	-47917.82	18653.17	-35065.7	33119.3	-55725.2	56673.7	-45733.8	2758.9	909.52	14535
	Tepi kiri	0.5	-9581.372	-3219.51	33094.69	23310.37	-28735.8	42412.5	-40762.7	32989.7	-65707.2	-3740.4	-1457.3	12754
	1/4 L	1.5	-757.792	1438.36	20011.36	15052.45	-11273.5	24715.1	-17359.1	19947.9	-29974.9	-2354.4	-1176.1	12754
	1/2 L	3	4539.362	3451.409	4039.283	3906.111	3299.971	4128.85	3155.75	4017.4	2868.642	-968.37	-894.8	12754
	1/2 L	3	4539.362	3451.409	4039.283	3906.111	3299.971	4128.85	3155.75	4017.4	2868.642	83.34	400.85	12745
	3/4 L	4.5	2020.725	-393.916	-17978.67	11794.95	-13273.9	17581	-22472.6	29601.5	-17935.9	1469.3	682.1	12745
	Tepi kanan	5.5	-4024.337	-6884.06	-42885.38	17401.19	-33342.4	29117.5	-51962.8	53445.6	-42778	2855.3	963.35	12745
	Tepi kiri	0.5	-9008.51	-3257.56	27235.83	20709.34	-26912.1	37071.3	-36013.1	28695.3	-60268	-3650.1	-1406.2	10792
	1/4 L	1.5	-469.903	1415.187	17020.14	13716.86	-10339.7	21981.4	-14937.9	17749.7	-27189.7	-2264.1	-1125	10792
	1/2 L	3	4542.279	3443.118	3915.696	3835.628	3343.92	4002.68	3248.52	3915.36	2999.786	-878.14	-843.73	10792
	1/2 L	3	4542.279	3443.118	3915.696	3835.628	3343.92	4002.68	3248.52	3915.36	2999.786	173.73	452.49	10788
	3/4 L	4.5	1736.997	-389.315	-15243.24	10951.02	-12084.8	15350.8	-20001.8	27087	-15950.6	1559.7	733.74	10788
	Tepi kanan	5.5	-4594.71	-6866.57	-37290.93	15669.38	-30893.9	24564.2	-46895	48285.6	-38705.3	2945.7	1015	10788
	Tepi kiri	0.5	-8335.897	-3374.31	20054.01	17608.73	-24157.7	29616.6	-29777.6	22588.3	-51776.9	-3543.4	-1346.8	8369
	1/4 L	1.5	-132.024	1355.104	13393.36	12151.36	-8951.74	18218.6	-11792.5	14667	-22907.3	-2157.4	-1065.6	8369
	1/2 L	3	4545.424	3439.699	3843.967	3805.239	3365.531	3931.91	3303.84	3856.88	3073.583	-771.41	-784.3	8369
	1/2 L	3	4545.424	3439.699	3843.967	3805.239	3365.531	3931.91	3303.84	3856.88	3073.583	280.83	512.68	8367.5
	3/4 L	4.5	1402.906	-338.415	-11766.22	9606.18	-10584.7	12318.5	-16388.2	22956.6	-12991.7	1666.8	793.93	8367.5
	Tepi kanan	5.5	-5266.037	-6761.35	-30265.15	12958.08	-27863.3	18444.5	-39597.1	39950.8	-32729	3052.8	1075.2	8367.5
	Tepi kiri	0.5	-7550.996	-3599.99	12119.57	12845.08	-19891.6	20719.2	-22335.8	14446.4	-39489.5	-3419.3	-1279	5684.8
	1/4 L	1.5	266.716	1242.685	9384.189	9746.811	-6795.57	13725.4	-8030.92	10555.3	-16698.7	-2033.3	-997.74	5684.8
	1/2 L	3	4558.003	3440.537	3760.06	3759.795	3411.735	3842.98	3385.19	3775.42	3203.296	-647.29	-716.49	5684.8
	1/2 L	3	4558.003	3440.537	3760.06	3759.795	3411.735	3842.98	3385.19	3775.42	3203.296	406.17	581.87	5684.5
	3/4 L	4.5	1023.818	-229	-7930.672	7540.334	-8278.39	8720.47	-12083.5	17010.9	-9053.49	1792.2	863.12	5684.5
	Tepi kanan	5.5	-6036.792	-6543.36	-22510.15	8780.186	-23205.3	11167	-30898.7	27929.8	-24771.2	3178.2	1144.4	5684.5

Lantai	Lokasi	momen												geser		
		Comb 1		Comb 2		Comb 3		Comb 4		Comb 5		Comb 6		Vd	VI	Ve
		Kg-m	Kg-m	Kg-m	Kg-m	Kg-m	Kg-m	max	min	max	min	max	min			
35	Tepi kiri	0.4	7469.812	5927.821	11396.14	8512.234	3292.999	11027.14	2198.118	10859.24	-2134.13	882.38	46.78	1786.94		
	1/4 L	1.5	5479.919	4268.464	6904.487	5496.983	2973.969	6717.017	2441.12	6639.87	335.377	1064.63	271.78	1786.94		
	1/2 L	3	2332.626	1741.057	1557.615	1799.713	1625.936	1829.104	1551.675	1949.841	1564.889	1246.88	496.78	1786.94		
	1/2 L	3	2644.469	1984.375	1959.438	1975.479	1938.423	1986.581	1940.242	1976.449	1921.694	2065.34	1506.93	1786.94		
	3/4 L	4.5	-4979.14	-3900.07	-6695.1	-2514.08	-5231.39	-1954.53	-6531.26	268.228	-6430.22	2247.59	1731.93	1786.94		
	Tepi kanan	5.6	-13760.1	-10652.6	-16204.9	-7847.85	-13266.7	-6726.06	-15866.1	-2273.87	-15671.7	2429.84	1956.93	1786.94		
	1/4 L	0.4	8422.858	7317.819	23390.17	16444.08	-3750.3	26102.45	-7389.59	24353.53	-22299.1	-1257.93	-605.18	5413.31		
	1/2 L	1.5	10376.36	8276.086	16354.23	12936.61	2967.082	17713.77	1169.183	16847.17	-6196.42	347.45	-42.68	5413.31		
	1/2 L	3	7376.928	5519.659	5378.231	5744.44	5489.091	5788.529	5385.018	5966.195	5400.744	1952.82	519.82	5413.31		
	3/4 L	3	7904.03	5940.88	6222.649	6143.831	5903.081	6274.203	5854.471	6254.226	5658.97	3998.01	3076.38	5445.99		
33	Tepi kanan	5.6	-8438.92	-6825.75	-14941.3	-1406.69	-11481.4	399.624	-16285.4	7810.5	-15406.4	5603.39	3638.88	5445.99		
	Tepi kiri	0.4	6571.759	6442.701	30393.53	21505.83	-12185.8	37797.01	-17956.8	34195.53	-41979.7	-1562.12	-816.48	8125.56		
	1/4 L	1.5	9579.911	7931.846	19897.69	15518.86	-1101.45	23567.97	-3951	21789.2	-15812	43.25	-253.98	8125.56		
	1/2 L	3	7635.139	5706.298	5461.785	6042.841	5591.828	6114.697	5398.858	6415.625	5442.809	1648.63	308.52	8125.56		
	1/2 L	3	8293.25	6233.427	6531.851	6446.687	6194.236	6588.826	6142.05	6567.704	5931.544	3829.1	2975.96	8151.91		
	3/4 L	4.5	-7504.64	-6383.86	-18469.7	2849.014	-14029.6	5729.398	-22176.5	17733.89	-20363.9	5434.48	3538.46	8151.91		
	Tepi kanan	5.6	-28255.5	-22715.8	-47411.4	-4436.46	-38445.7	1376.648	-54882	25596.13	-51235.5	7039.85	4100.96	8151.91		
	Tepi kiri	0.4	5411.954	5816.141	33284	22896.17	-15775.3	42682.17	-22638.3	38496.46	-51378.2	-1724.62	-934.97	9321.29		
	1/4 L	1.5	8996.989	7616.462	21347.45	16218.88	-2904.87	26019.39	-6301.4	23945.97	-20525.7	-119.24	-372.47	9321.29		
	1/2 L	3	7629.099	5702.09	5470.843	6025.503	5599.982	6095.499	5416.548	6386.702	5455.419	1486.13	190.03	9321.29		
31	1/2 L	3	8240.638	6197.892	6560.332	6452.666	6102.436	6854.79	6032.184	6620.479	5741.845	3663.72	2856.29	9357.99		
	3/4 L	4.5	-6972.37	-6103.09	-19891.9	4560.571	-14716.6	7972.335	-24561.9	22270.71	-22470.7	5269.09	3418.79	9357.99		
	Tepi kanan	5.6	-27138.3	-22118.8	-50284.2	-921.533	-39826	5972.427	-59718.6	34859.3	-55501.8	6874.47	3981.29	9357.99		
	Tepi kiri	0.4	4522.74	5389.371	36312.43	23817.63	-18283.8	46737.86	-26165.3	42384.32	-59633.3	-1850.68	-1027.15	10501.99		
	1/4 L	1.5	8555.908	7405.246	22860.01	16683.83	-4156.16	28046.64	-8060.38	25888.02	-24641.3	-245.31	-464.65	10501.99		
	1/2 L	3	7636.152	5706.427	5467.536	6031.394	5607.977	6104.687	5415.349	6411.135	5451.658	1360.07	97.85	10501.99		
	1/2 L	3	8215.05	6181.468	6588.63	6458.786	6057.589	6697.403	5975.374	6659.575	5627.985	3537.38	2764.76	10545.97		
	3/4 L	4.5	-6550.86	-5905.38	-21391.5	5777.275	-15172.7	9690.848	-26561.5	26318.37	-24391.6	5142.75	3327.26	10545.97		
	Tepi kanan	5.6	-26269.7	-21706.9	-53311.7	1556.207	-40743	9466.169	-63760.6	43068.69	-59382.8	6748.13	3889.76	10545.97		
	30	Tepi kiri	0.4	3548.244	4864.724	38585.1	24081.33	-19629.1	48831.15	-28234.5	44835.35	-65819	-2000.09	-1124.25	11466.33	
1/4 L		1.5	8083.392	7153.491	24002.1	16830.29	-4821.74	29105.45	-9086.39	27122.83	-27718.4	-394.72	-561.75	11466.33		
1/2 L		3	7665.615	5727.565	5479.037	6047.039	5635.588	6122.196	5439.701	6442.105	5470.247	1210.66	0.75	11466.33		
1/2 L		3	8210.58	6180.383	6620.37	6471.317	6041.109	6734.049	5949.828	6698.172	5554.224	3393.29	2671.3	11523.19		
3/4 L		4.5	-6071.68	-5648.47	-22524.8	6436.098	-15299.5	10709.37	-27594.8	29374.75	-25605.4	4998.66	3233.8	11523.19		
Tepi kanan		5.6	-25306.9	-21192	-55610	2890.371	-41010.3	11527.96	-65863.6	49255.22	-61849	6604.04	3796.3	11523.19		
Tepi kiri		0.45	2732.848	4450.784	40761.28	23777.57	-20235.3	49704.92	-29335.2	46531.28	-70399.1	-2125.82	-1205.02	12361.81		

1/2 L	3	8207.472	6180.147	5484.922	6055.823	5660.493	6132.106	5466.152	6464.511	5488.553	1084.99	-80.02	12361.81
3/4 L	4.5	-5669.18	-5444.96	-23611	6485.084	6031.169	6756.26	5933.47	6727.711	5498.569	3271.75	2593.45	12430.71
Tepi kanan	5.65	-24498.8	-20784.8	-57811.5	6730.053	-15148.6	11248.85	-28022.4	31638.75	-26444.3	4877.13	3155.95	12430.71
28	0.45	2222.433	4325.832	44094.54	3486.827	-40711.4	12622.47	-66740.7	53838.87	-63556.4	6482.5	3718.45	12430.71
Tepi kiri	1.5	7429.029	6888.94	26745.35	25158.86	-20982.3	50595.65	-30853	48758.95	-75118.7	-2196.11	-1267	13551.41
1/4 L	3	7682.699	5737.355	5456.102	6042.01	5660.633	6122.073	5461.859	6478.267	5472.342	1014.64	-132	13551.41
1/2 L	3	8180.292	6162.231	6667.821	6482.25	6002.587	6750.386	5896.297	6735.139	5433.96	3197.57	2539.54	13620.86
3/4 L	4.5	-5433.43	-5395.61	-25265.4	7072.848	-15827.2	11970	-28458.5	33945.37	-27547.3	4802.94	3102.04	13620.86
Tepi kanan	0.65	-24000.1	-20668.1	-61138.6	4203.049	-42076.7	14103.64	-67607.1	58516.71	-65769.5	6408.32	3664.54	13620.86
Tepi kiri	0.45	1858.855	4278.89	46981.26	25516.35	-21871.2	49959.47	-32446.9	50082.22	-77746	-2245.79	-1293.41	14563.32
1/4 L	1.5	7242.239	6860.816	28173.89	17552.52	-5950.98	29680.88	-11197.1	29739.67	-33661.4	-640.41	-730.91	14563.32
1/2 L	3	7672.698	5728.048	5426.47	6029.915	5648.625	6112.856	5462.235	6483.136	5457.066	964.96	-168.41	14563.32
1/2 L	3	8156.742	6146.696	6682.099	6469.866	5979.219	6728.587	5867.709	6732.42	5395.917	3144.33	2501.24	14632.79
3/4 L	4.5	-5269.24	-5384.14	-26700.7	7495.857	-16013.1	12741.94	-28142.2	35222.68	-28206	4749.7	3063.74	14632.79
Tepi kanan	0.65	-23648.1	-20629.7	-64023.5	5072.435	-42436	15676.11	-66951.9	61109.39	-67084.5	6355.08	3626.24	14632.79
Tepi kiri	0.45	1469.382	4154.209	48772.94	24563.02	-21850	46927.41	-32573.3	49847.04	-77199.5	-2307.97	-1330.08	15234.55
1/4 L	1.5	7052.707	6801.588	29064.07	17082.69	-5938.91	28182.71	-11258.3	29627.31	-33390.4	-702.6	-767.58	15234.55
1/2 L	3	7683.108	5734.273	5415.151	6032.688	5660.975	6123.826	5478.187	6478.695	5467.443	902.78	-205.08	15234.55
1/2 L	3	8154.356	6146.369	6698.612	6464.824	5979.633	6702.445	5867.111	6731.783	5400.681	3083.2	2465.3	15309.74
3/4 L	4.5	-5075.33	-5322.3	-27597.5	7485.575	-15541.6	12805.13	-28635.3	34953.52	-28090.5	4688.57	3027.8	15309.74
Tepi kanan	0.65	-23257.9	-20505.7	-65833.6	5051.458	-41485.7	15803.1	-63912.8	60566.3	-66852.7	6293.95	3590.3	15309.74
Tepi kiri	0.45	1192.314	4094.952	50276.79	25448.98	-21173.6	47063.89	-32979.7	49139.72	-74964.6	-2353.31	-1355.12	15787.28
1/4 L	1.5	6917.354	6773.498	29808.23	17529.86	-5602.06	28235.76	-11452	29277.74	-32280.2	-747.94	-792.62	15787.28
1/2 L	3	7689.469	5737.351	5399.606	6029.393	5658.37	6135.778	5467.579	6464.069	5475.046	857.44	-230.12	15787.28
3/4 L	4.5	-4936.24	-5292.36	-28353	7152.126	-15975.5	13018.69	-26718.9	33848.7	-27741.1	4643.24	3002.81	15866.47
Tepi kanan	0.65	-22977.3	-20445.1	-67355.3	4377.86	-42368.8	16228.77	-64066.8	58333.11	-66145.5	6248.61	3565.31	15866.47
Tepi kiri	0.5	1135.408	4241.219	52515.41	27323.03	-20714.6	48257.56	-33650.2	48635.19	-72144.7	-2358.14	-1359.27	16519.96
1/4 L	1.5	6879.108	6838.187	30907.03	18450.03	-5379	28816.23	-11789	29016.23	-30884.4	-752.77	-796.77	16519.96
1/2 L	3	7669.884	5720.461	5358.592	6017.532	5618.631	6132.175	5434.85	6435.817	5456.783	852.61	-234.27	16519.96
1/2 L	3	8129.925	6130.607	6710.038	6475.566	5979.869	6678.238	5851.603	6694.848	5445.874	3026.97	2432.59	16592.31
3/4 L	4.5	-4920.04	-5373.75	-29466	6916.763	-16912.2	13341.75	-27317.6	32435.2	-27496.4	4632.35	2995.09	16592.31
Tepi kanan	5.5	-22922.9	-20592.8	-69582.1	3913.461	-44240	16991.48	-65253.4	55484.47	-65627.2	6237.72	3557.59	16592.31
Tepi kiri	0.5	1168.62	4412.289	54140.69	28217.97	-20171.2	48528.37	-33510.8	47474.79	-68158.2	-2350.48	-1353.93	17034.84
1/4 L	1.5	6885.719	6915.263	31700.9	18883.76	-5113.38	28938.3	-11724	28428.6	-28908	-745.11	-791.43	17034.84
1/2 L	3	7649.892	5703.544	5321.041	6004.778	5585.041	6123.046	5405.148	6402.242	5440.985	860.27	-228.93	17034.84
1/2 L	3	8111.272	6117.654	6706.683	6465.089	5975.658	6660.623	5844.591	6661.01	5481.927	3029.18	2434.62	17099.11
3/4 L	4.5	-4947.54	-5466.65	-30274.3	6640.432	-17362.9	13263.4	-27457.5	30444.69	-26926.1	4634.55	2997.12	17099.11
Tepi kanan	5.5	-22959.3	-20765.6	-71195.3	3364.459	-45131	16742.09	-65515.6	51467.39	-64452.8	6239.93	3559.62	17099.11
Tepi kiri	0.5	1209.834	4512.603	54450.75	28384.36	-19417.9	48644.82	-32073.1	44886.21	-62265.5	-2348.19	-1346.18	17130.03
1/4 L	1.5	6904.175	6962.986	31845.2	18947.99	-4736.82	28969.28	-11008.8	27137.12	-25978.7	-742.81	-783.68	17130.03
1/2 L	3	7645.592	5698.674	5299.597	6010.736	5571.563	6123.494	5353.686	6394.471	5443.597	862.56	-221.18	17130.03

no	tepi	4.5	4.0	3.5	3.0	2.5	2.0	1.5	1.0	0.5	0.0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5						
21	Tepi kanan	4.5	4964.36	5514.34	5943.55	6274.75	17462.7	12546.79	27542.5	27531.37	25645.6	3003.41	17190.73	1/4 L	1364.499	4650.803	-71510.9	2621.409	-45314.9	15312.16	-65655	45575.11	-61858.2	6240.05	3565.91	17190.73
	1/4 L	1.5	6972.513	7028.202	31700.47	18805.27	19405.9	5165.711	31421.6	42149.07	59473.6	-132.79	17018.21	1/2 L	7637.603	5690.907	5273.838	6014.963	5556.749	6127.858	5302.939	6455.118	5435.338	880.46	-202.79	17018.21
	1/2 L	3	8108.444	6115.099	6682.123	6439.083	5996.63	6643.991	5882.748	25730.38	5617.922	3044.14	17018.21	3/4 L	5031.65	-5580.45	-30314.9	6281.606	-17331.7	12250.88	-29046.7	25730.38	-24296.7	4649.52	3019.76	17018.21
	Tepi kanan	5.5	-23124.7	-20990.7	-71252	2625.895	-45042.5	14678.95	-68677.4	41858.35	-59117.4	6254.89	17017.72	Tepi kiri	1694.157	4949.742	54275.77	28356.23	-19022.1	54139.32	-30132.7	40403.62	-62754.3	-2277.49	-1290.47	16967.51
	1/4 L	0.5	1694.157	4949.742	54275.77	28356.23	-19022.1	54139.32	-30132.7	40403.62	-62754.3	-2277.49	16967.51	1/2 L	7127.561	7165.887	31727.12	18909.62	-4540.66	31664.12	-10043.1	24878.69	-26164.2	-672.12	-727.97	16967.51
	1/2 L	3	7608.04	5667.338	5238.404	6001.678	5522.951	6106.417	5248.865	6486.577	5412.115	933.26	16967.51	3/4 L	8091.938	6102.933	6665.151	6423.368	5959.154	6649.656	5883.763	6542.216	5609.8	3089	2489.62	17006.07
	Tepi kanan	4.5	-5206.57	-5732.79	-30350.1	6086.006	-17452.4	11602.92	-30271	27835.84	-23434.7	4694.37	17006.07	Tepi kiri	2114.546	5244.447	53917.57	28552.24	-18157.5	54532.67	-27516.9	38489.36	-64510	-2213.4	-1245.45	16764.39
	1/4 L	0.5	2114.546	5244.447	53917.57	28552.24	-18157.5	54532.67	-27516.9	38489.36	-64510	-2213.4	16764.39	1/2 L	7324.535	7301.757	31516.97	18984.73	-4109.09	31826.58	-8740.55	23901.75	-27013.4	-608.03	-120.45	16764.39
	1/2 L	3	7581.598	5644.374	5176.308	5999.525	5476.313	6096.273	5180.428	6543.418	5373.215	997.35	16764.39	3/4 L	8081.599	6092.513	6614.406	6393.719	6003.056	6605.77	5919.613	6481.845	5628.317	3146.46	2530.44	16774.06
	Tepi kanan	4.5	-5418.3	-5882.71	-30190.2	5664.46	-17561.1	10314.31	-30486.4	28728.13	-22501.2	4751.84	16774.06	Tepi kiri	23871.1	-21572.6	-70934.9	1385.081	-45456	10768.95	-71518.7	47887.69	-55423.9	6357.21	-1168.18	9264.93
1/4 L	0.5	2657.992	3989.723	31020.01	16503.77	-8145.99	774	19704.19	-1455.92	15296.72	-11751.5	9264.93	1/2 L	7518.441	6627.247	20165.78	12985.29	5511.454	5805.307	5399.299	6005.865	5489.502	1088.52	-43.18	9264.93	
1/2 L	3	7425.966	5550.077	5371.489	6124.564	5755.123	5789.447	6306.534	5724.317	6190.894	5456.75	9264.93	3/4 L	7768.408	5853.638	6318.866	6124.564	5789.447	6306.534	5724.317	6190.894	5456.75	3118.05	2509	9336.68	
Tepi kanan	4.5	-5628.88	-5209.37	-18693.4	708.746	-11492.5	2926.831	-18213.2	13248.28	-13796.2	4723.42	9336.68	Tepi kiri	23979.1	-19987.1	-47645.7	-8312.84	-33049.5	-3810.77	-46673	17099.74	-37723.2	6328.8	3634	9336.68	
1/4 L	0.5	-116.127	2064.911	30293.16	17350.34	-10640.6	28896.72	-16536.9	18423.82	-38815.8	-2609.11	9336.68	1/4 L	6158.509	5684.745	19815.35	13421.55	-450.347	19134.09	-3377.42	13939.38	-14409.4	-1003.73	-829.77	9736.9	
1/2 L	1.5	6158.509	5684.745	19815.35	13421.55	-450.347	19134.09	-3377.42	13939.38	-14409.4	-1003.73	9736.9	1/2 L	7480.22	5589.886	5397.481	5800.001	5552.182	5843.411	5430.682	6057.567	5513.966	601.64	-267.27	9736.9	
1/2 L	3	7729.462	5826.941	6308.365	6138.369	5755.095	6289.811	5666.22	6141.205	5372.602	2636.32	9736.9	3/4 L	4269.34	-4267.23	-18356.8	1935.226	-11921.7	4848.55	-17652	15892.74	-12469.6	4241.69	2850.09	9819.43	
Tepi kanan	5.5	-21221.1	-18076.1	-46962	-5824.91	-33921.8	90.541	-45533.8	22472.82	-35020.3	5847.07	9819.43	Tepi kiri	1406.46	3143.188	56070.35	34057.72	-22261.9	55569.57	-35308.3	33576.74	-78360.5	-2816.67	-1538.82	18338.79	
1/4 L	0.5	1406.46	3143.188	56070.35	34057.72	-22261.9	55569.57	-35308.3	33576.74	-78360.5	-2816.67	18338.79	1/2 L	5593.501	6271.506	32602.27	21725.74	-6134.04	32357.7	-12593	21475.05	-33878.4	-1211.29	394.08	-413.82	18338.79
1/2 L	3	7640.536	5685.13	5194.132	6054.985	5453.694	6182.28	5205.771	6663.617	5433.247	394.08	18338.79	3/4 L	8019.678	6052.131	6626.314	6423.051	5939.942	6603.577	5819.943	6411.75	5462.603	2547.74	2239.02	18358.83	
Tepi kanan	4.5	-3703.12	-4863.34	-31272.4	7674.227	-20313.6	14155.13	-31015.2	35561.16	-20084.7	4153.12	18358.83	Tepi kiri	20378.9	-19493.5	-73111.1	5468.433	-50990.3	18550.26	-72574	61719.66	-50521.2	5758.49	3364.02	18358.83	
1/4 L	0.5	2327.63	2855.15	59632.84	36432.7	-24804.2	57862.34	-40626.1	33252.93	-84445.5	-2952.85	18358.83	1/4 L	5138.125	6131.982	34401.96	22923.58	-7405.04	33525.31	-15247	21333.93	-36934.7	-1347.47	-1068.27	19686.16	
1/2 L	1.5	5138.125	6131.982	34401.96	22923.58	-7405.04	33525.31	-15247	21333.93	-36934.7	-1347.47	19686.16	1/2 L	7650.958	5694.121	5231.024	6054.424	5474.395	6191.932	5248.23	6636.217	5474.27	257.9	-505.77	19686.16	
1/2 L	3	7993.79	6039.685	6692.811	6450.273	5885.582	6655.191	5730.244	6421.056	5333.244	2411.45	19736.74	3/4 L	-3264.28	-4731.57	-33017.4	8908.504	-21485.8	16759.19	-32130.6	38518.42	-19915.1	4016.82	2710.1	19736.74	
Tepi kanan	4.5	-3264.28	-4731.57	-33017.4	8908.504	-21485.8	16759.19	-32130.6	38518.42	-19915.1	4016.82	19736.74	Tepi kiri	116.127	2064.911	30293.16	17350.34	-10640.6	28896.72	-16536.9	18423.82	-38815.8	-2609.11	-1392.27	9736.9	

14		0.5	-3225.94	2480.373	62092.84	37315.98	-26437.5	57873.19	-44434.6	33311.24	-86986.6	-3089.86	3214.4	19130.14
	1/4 L	1.5	4700.195	5952.67	35640.31	23374.35	-8213.35	33546.15	-17136.2	21395.62	-38201.4	-1484.49	-1157.33	20687.89
	1/2 L	3	7673.409	5710.274	5247.722	6071.485	5492.667	6222.236	5279.05	6643.731	5511.95	120.89	-594.83	20687.89
	1/2 L	3	7981.05	6033.476	6720.678	6470.316	5863.913	6656.882	5687.059	6437.833	5299.682	2277.17	2060.63	20757.18
	3/4 L	4.5	-2826.58	-4551.95	-34248.3	9713.768	-21932.7	18644.99	-32146.1	39777.7	-19945.3	3882.54	2623.13	20757.18
13	Tepi kanan	5.5	-18587.1	-18852.1	-79157.3	9622.749	-54275.5	27662.85	-74889.2	70315.66	-50268.4	5487.92	3185.63	20757.18
	Tepi kiri	0.5	4062.99	2103.779	63947.09	37672.5	-27483.6	56630.33	-47171.3	34842.93	-87116.4	-3217.79	-1802.22	21479.97
	1/4 L	1.5	4291.155	5771.435	36578.28	23563.95	-8735.19	32945.2	-18495.5	22068.73	-38274.9	-1612.42	-1239.72	21479.97
	1/2 L	3	7692.373	5724.397	5269.414	6079.47	5515.351	6240.149	5320.019	6628.425	5545.961	-7.04	-677.22	21479.97
	1/2 L	3	7967.137	6026.268	6745.707	6476.234	5842.594	6650.096	5649.64	6454.594	5281.919	2150.99	1979.72	21566.54
	3/4 L	4.5	-2419.18	-4370.87	-35171.8	10224.12	-22113.6	19995.65	-31533	39832.25	-20610.2	3756.36	2542.22	21566.54
12	Tepi kanan	5.5	-17758.4	-18482.7	-81029.4	10664.39	-54643.4	30401.61	-73656.1	70442.52	-51614.6	5361.74	3104.72	21566.54
	Tepi kiri	0.5	4830.45	1756.922	65487.26	37665.15	-28623.3	54788.99	-49161.3	36383.14	-84962	-3333.17	-1877.29	22155.53
	1/4 L	1.5	3911.535	5600.928	37354.4	23567.47	-9305.51	32042.8	-19486.5	22943.68	-37217	-1727.79	-1314.79	22155.53
	1/2 L	3	7700.591	5730.241	5281.479	6077.745	5529.74	6248.15	5356.008	6587.991	5555.861	-122.42	-752.29	22155.53
	1/2 L	3	7944.805	6012.16	6756.935	6469.952	5817.069	6629.254	5615.952	6468.894	5282.22	2034.97	1904.64	22250.46
	3/4 L	4.5	-2052.5	-4208.81	-35936.8	10774.29	-22115.8	20968.74	-30621	38741.9	-21478.3	3640.35	2467.14	22250.46
11	Tepi kanan	5.5	-17002.7	-18144.5	-82570.6	11791.44	-54641.5	32381.47	-71811.2	68261.46	-53364.9	5245.72	3029.64	22250.46
	Tepi kiri	0.5	5493.33	1406.757	66053.71	38324.34	-29373.4	54264.28	-50187.2	38893.29	-80778.7	-3433.48	-1941.55	22495.63
	1/4 L	1.5	3583.439	5428.334	37644.39	23899.13	-9680.29	31808.52	-19998	24195.37	-35149.1	-1828.1	-1379.05	22495.63
	1/2 L	3	7707.282	5735.218	5294.996	6075.782	5633.863	6251.038	5389.209	6540.479	5554.371	-222.73	-816.55	22495.63
	1/2 L	3	7925.28	5999.19	6757.088	6467.988	5798.261	6633.337	5595.098	6486.164	5307.581	1934.28	1840.35	22595.78
	3/4 L	4.5	-1736.47	-4044.38	-36220.7	11134.97	-22448.8	21466.09	-30358.5	36649.21	-22730.6	3539.65	2402.85	22595.78
10	Tepi kanan	5.5	-16351.1	-17802.6	-83138.5	12531.62	-55305.6	33395.03	-71290.1	64050.78	-55887.2	5145.03	2965.35	22595.78
	Tepi kiri	0.5	6135.76	975.15	65257.53	38732.09	-29736.4	55101.55	-49884	41022.31	-74016.4	-3533.03	-2003.35	22395.99
	1/4 L	1.5	3268.529	5217.541	37259.28	24107.06	-9860.17	32231.42	-19847.5	25257.92	-31797.9	-1927.66	-1440.85	22395.99
	1/2 L	3	7719.895	5745.239	5320.965	6076.757	5541.976	6249.057	5420.745	6480.611	5552.428	-322.28	-878.35	22395.99
	1/2 L	3	7912.557	5990.354	6747.909	6466.981	5788.006	6638.703	5591.872	6503.892	5363.554	1835.42	1779.13	22502.57
	3/4 L	4.5	-1424.33	-3835.23	-35830.9	11309.5	-22655.2	21309.44	-30778.8	33289.34	-23791.4	3440.79	2341.63	22502.57
9	Tepi kanan	5.5	-15714.1	-17375.5	-82349.8	12890.93	-55717.4	33086.96	-72136.2	57275.07	-58026.5	5046.17	2904.13	22502.57
	Tepi kiri	0.5	6746.16	497.313	63541.26	37787.42	-30299.1	55601.62	-49364.8	42567.41	-65791.3	-3627.85	-2061.62	21994.79
	1/4 L	1.5	2968.645	4983.084	36416.01	23643.26	-10139	32492.71	-19600.1	26029.16	-27720.6	-2022.47	-1499.12	21994.79
	1/2 L	3	7730.523	5754.162	5350.701	6081.649	5559.029	6237.339	5433.698	6409.999	5550.414	-417.1	-936.62	21994.79
	1/2 L	3	7898.983	5980.102	6727.665	6452.497	5776.598	6642.99	5581.638	6513.607	5433.744	1740.77	1721.11	22104.82
	3/4 L	4.5	-1128.3	-3603.27	-34984.3	11582.63	-22191.3	21043.54	-31028.6	29203.3	-24562.7	3346.15	2283.61	22104.82
8	Tepi kanan	5.5	-15108.5	-16901.3	-80636.3	13448.53	-54775.2	32565.39	-72640.2	49032.79	-59579.1	4951.52	2846.11	22104.82
	Tepi kiri	0.5	7323.69	-5.784	61173.87	35525.28	-30640	56422.65	-50248.3	43547.63	-67500.5	-3716.32	-2116.29	21378.02
	1/4 L	1.5	2681.567	4733.327	36245.48	22523.06	-10308.5	32900.91	-20038.9	26515.24	-28606.6	-2110.95	-1553.79	21378.02
	1/2 L	3	7733.899	5757.744	5377.032	6083.068	5580.775	6230.45	5439.101	6348.921	5542.789	-505.57	-991.29	21378.02
	1/2 L	3	7879.166	5964.383	6692.895	6420.319	5764.071	6636.23	5565.096	6509.007	5388.168	1650.63	1665.53	21485.4
	3/4 L	4.5	-852.455	-3361.54	-33813.9	11744.28	-21076.7	21473.72	-31444.3	30030.45	-25056.7	3256.01	2228.03	21485.4
7	Tepi kanan	5.5	-14537	-16402.2	-78260.8	13784.44	-52513.8	33442.28	-73462.6	50732.67	-60562.5	4861.38	2790.53	21485.4
	Tepi kiri	0.5	7832.54	-528.025	58055.66	33155.84	-30358	56017.93	-49981.5	43466.01	-70246.8	-3794.8	-2164.04	20505.36

1/2 L	774.785	7761.249	5405.325	6080.533	5000.364	6228.27	19995.5	25473.82	25498.4	2189.42	1551.54	20505.36
1/2 L	7861.715	5949.61	6649.844	6386.523	5758.962	6618.178	5441.445	6369.912	5341.576	-584.05	-1039.04	20505.36
3/4 L	609.81	4109.67	3227.1	11597.57	19909.2	21433.95	31249.4	31396.08	25023.4	3170.20	2179.47	20606.70
Tepi kanan	-14034.3	-15883.6	-75132	13496.12	-50142.9	33166.62	-73057	53474.55	-60481.6	4781.63	2741.97	20606.76
Tepi kiri	-8328.36	-1160.27	53399.32	30930.03	-29917.6	53955.32	48390.5	41964.02	-71269.9	-3872.7	-2210.3	19137.72
1/4 L	2184.006	4161.46	31393.75	20245.28	-9948.62	31677.47	-19116	25729.2	-30473.8	-2267.32	-1647.8	19137.72
1/2 L	7743.445	5768.493	5448.124	6080.285	5620.463	6218.486	5459.566	6382.217	5554.181	-661.95	-1085.3	19137.72
1/2 L	7848.509	5936.943	6595.914	6356.766	5758.377	6588.358	5572.109	6470.855	5345.802	1492.43	1570.34	19233.62
3/4 L	-369.884	-2800.55	-29965.3	11374.75	-18808.4	20540.15	-30230.6	31888.72	-24282.5	3097.81	2132.84	19233.62
Tepi kanan	-13541.2	-15252.7	-70466.5	13051.06	-47913.7	31568.13	-70989.5	54491.59	-58975.9	4703.18	2695.34	19233.62
Tepi kiri	-8809.43	-1878.76	47589.64	28668.95	-29509.6	50325.03	45709.4	39098.97	-70393.3	-3948.31	-2254.88	17398.18
1/4 L	1946.025	3805.542	28513.16	19123.63	-9744.11	29875.74	-17784.3	24306.87	-30036.1	-2342.94	-1692.38	17398.18
1/2 L	7748.558	5775.149	5496.62	6081.293	5638.248	6200.632	5486.391	6381.203	5574.713	-737.56	-1129.88	17398.18
1/2 L	7834.235	5922.387	6528.168	6323.964	5758.187	6541.03	5593.738	6431.734	5353.585	1415.83	1525.1	17484.92
3/4 L	-137.725	-2448.93	-27086.9	11167.29	-17690.8	19204.91	-28434	31448.04	-22865.5	3021.21	2087.6	17484.92
Tepi kanan	-13062.6	-14534.9	-64642.1	12636.1	-45645.7	28876.03	-67348.9	53602.41	-56102.7	4626.58	2650.1	17484.92
Tepi kiri	-9276.87	-2696.76	40511.24	25360.13	-28878.2	44964.51	-41991.8	34762.04	-67410.2	-4021.09	-2297.84	15249.98
1/4 L	1712.694	3398.572	25000.47	17480.35	-9429.97	27212.73	-15939.2	22151.71	-28553.2	-2415.72	-1735.34	15249.98
1/2 L	7749.335	5779.214	5549.635	6078.206	5660.508	6173.276	5520.899	6363.76	5601.313	-810.34	-1172.84	15249.98
1/2 L	7815.98	5903.604	6443.034	6277.69	5757.991	6471.459	5623.969	6373.349	5381.957	1340.67	1480.57	15323.28
3/4 L	86.186	-2049.01	-23579	10847.73	-16054.6	17354.43	-25780	29961.29	-20719.4	2946.04	2043.07	15323.28
Tepi kanan	-12596.5	-13716.3	-57541	11996.96	-42326.9	25144.84	-61971.4	50600.56	-51752.2	4551.42	2605.57	15323.28
Tepi kiri	-9697.9	-3549.04	32882.66	21705.76	-27682.4	38335.69	-37643.7	29344.78	-62318.5	-4087.01	-2336.31	12915.53
1/4 L	1502.643	2974.646	21213.04	15664.77	-8835.19	23919.25	-13780.1	19459.72	-26022.6	-2481.64	-1773.81	12915.53
1/2 L	7750.258	5783.633	5603.368	6071.926	5883.719	6143.589	5562.757	6333.302	5634.606	-876.26	-1211.31	12915.53
1/2 L	7799.852	5885.549	6351.048	6227.442	5765.211	6389.238	5663.119	6304.361	5433.885	1272.89	1440.76	12970.96
3/4 L	287.606	-1631.59	-19796.6	10247.75	-14245.9	15190.51	-22495.1	27427.24	-18036	2878.27	2003.26	12970.96
Tepi kanan	-12177.6	-12863.4	-49884.3	10789.53	-38659.2	20777.85	-55319.1	45480.54	-46316.5	4483.64	2565.76	12970.96
Tepi kiri	-10113	-4561.59	23589.14	17217.42	-25591.3	29458.01	-31792.4	21942.88	-54092.5	-4152.58	-2374.09	10047.28
1/4 L	1296.269	2471.714	16599.81	13435.2	-7795.76	19509.23	-10874.8	15783.61	-21935.7	-2547.2	-1811.59	10047.28
1/2 L	7752.583	5790.323	5670.415	6060.192	5712.921	6103.055	5620.38	6280.99	5684.288	-941.83	-1249.09	10047.28
1/2 L	7785.285	5867.111	6244.369	6168.971	5782.663	6285.624	5716.96	6218.328	5516.846	1205.58	1401.67	10082.98
3/4 L	488.019	-1133.16	-15187.1	9204.485	-12020.9	12281.99	-18091.5	23338.23	-14366	2810.95	1964.17	10082.98
Tepi kanan	-11762.2	-11848.1	-40558.7	8686.249	-34150.8	14906.95	-46408.4	37219.56	-38890.4	4416.33	2526.67	10082.98
Tepi kiri	-10528.8	-5769.63	12981.43	10983.96	-22062.9	18920.47	-24830.8	12438.39	-42080.1	-4218.4	-2412.05	6759.94
1/4 L	1090.027	1872.067	11333.12	10339.21	-6041.87	14275.87	-7416.61	11063.73	-15968.3	-2613.03	-1849.55	6759.94
1/4 L	7755.941	5799.066	5744.751	6039.074	5754.392	6058.887	5691.206	6203.51	5749.005	-1007.65	-1287.05	6759.94
1/2 L	7771.806	5847.451	6122.448	6093.176	5815.466	6164.953	5785.043	6111.572	5639.298	1139.24	1363.29	6770.07
3/4 L	686.051	-539.766	-9926.28	7445.413	-8931.63	8819.427	-12866.3	17367.95	-9654.61	2744.62	1925.79	6770.07
Tepi kanan	-11352.6	-10641.7	-29915.1	5135.211	-27896.5	7913.753	-35837.7	25156.54	-29360.8	4349.99	2488.29	6770.07

2 - outrigger

Lantai	Lokasi	momen										geser		
		Comb 1	Comb 2	Comb 3	Comb 4		Comb 5		Comb 6		Vd	VI	Ve	
		Kg-m	Kg-m	Kg-m	max	min	max	min	max	min	Kg-m	Kg-m	Kg-m	
35	Tepi kiri	0.4	-1851.09	-1681.26	-6564.44	2112.275	-4747.48	3335.128	-8609.87	8604.426	-7766.85	-1841.4	-228.92	-1513.9
	1/4 L	1.5	241.201	26.512	-2430.11	2142.736	-1472.54	2787.212	-3508.13	5564.275	-3063.83	-12.15	-3.92	-1513.9
	1/2 L	3	-1788.51	-1357.22	-1745.03	-1276.05	-1646.84	-1209.95	-1855.65	-925.127	-1810.07	1817.1	221.08	-1513.9
	1/2 L	3	-1788.55	-1325.57	-1200.03	-1298.27	-1669.16	-1089.48	-1735.27	-1135.04	-2020.15	-1816.94	-221.04	-1513.87
	3/4 L	4.5	240.791	334.989	2883.319	1925.704	-1689.6	3961.262	-2334.08	3516.985	-5111.15	12.31	3.96	-1513.87
	Tepi kanan	5.6	-1851.87	-1095.95	3517.415	1700.43	-5159.3	5662.75	-6382.15	4719.761	-11651.4	1841.56	228.96	-1513.87
	Tepi kiri	0.4	-2138.06	-1917.94	-7146.21	1873.738	-4953.93	3200.276	-9063.7	8943.138	-8306.61	-1877.82	-285.68	-1591.15
	1/4 L	1.5	88.709	-102.013	-2792.49	2042.959	-1617.24	2754.099	-3820.42	5832.774	-3414.57	-11.44	-4.43	-1591.15
	1/2 L	3	-2075.62	-1579.41	-2084.11	-1433.16	-1925.88	-1337.42	-2222.49	-922.927	-2167.86	1854.93	276.82	-1591.15
	1/2 L	3	-2075.57	-1533.98	-1304.28	-1462.51	-1955.38	-1165.84	-2051.13	-1220.49	-2465.71	-1854.95	-276.95	-1591.01
33	Tepi kanan	5.6	89.089	235.354	2999.464	1824.291	-1835.77	4027.383	-2546.87	3621.536	-5625.41	11.43	4.3	-1591.01
	Tepi kiri	5.5	-2137.35	-1288.63	3657.868	1465.758	-5361.49	5575.271	-6687.95	4818.226	-12430.5	1877.8	285.55	-1591.01
	1/4 L	0.4	-1400.83	-1008.89	-455.99	520.713	-2626.47	949.507	-3226.51	958.879	-3806.56	-1878.38	-286.06	208.59
	1/4 L	1.5	827.868	643.3	1064.632	1588.109	-99.866	1818.429	-421.42	1823.341	-732.82	-12	-4.81	208.59
	1/2 L	3	-1334.53	-997.832	-1060.08	-989.891	-1218.6	-957.987	-1261.66	-957.534	-1304.41	1854.37	276.44	208.59
	1/2 L	3	-1334.38	-1003.83	-1163.98	-1006.25	-1234.27	-963.16	-1265.55	-920.843	-1266.06	-1854.63	-276.66	208.82
	3/4 L	4.5	829.009	599.354	304.068	1468.402	-219.307	1789.842	-449.35	2101.111	-454.225	11.75	4.59	208.82
	Tepi kanan	5.6	-1398.71	-1090.78	-1873.23	297.712	-2849.68	897.507	-3278.48	1477.729	-3287.72	1878.12	285.84	208.82
	Tepi kiri	0.4	-1630.86	-1224.24	-1438.25	74.969	-2623.29	436.348	-3606.18	899.958	-3678.39	-1878.31	-286.02	-27.69
	1/4 L	1.5	597.611	447.659	454.336	1265.335	-181.693	1458.934	-708.928	1707.555	-748.27	-11.93	-4.77	-27.69
31	1/2 L	3	-1565.02	-1173.77	-1298.42	-1189.64	-1385.44	-1163.82	-1457.02	-1130.18	-1463.49	1854.44	276.48	-27.69
	1/2 L	3	-1564.94	-1173.66	-1286.94	-1200.84	-1396.02	-1129.71	-1422.06	-1124.1	-1455.33	-1854.56	-276.62	-27.38
	3/4 L	4.5	598.237	449.246	552.958	1188.53	-258.128	1715.49	-451.865	1754.378	-700.104	11.81	4.63	-27.38
	Tepi kanan	5.6	-1629.69	-1221.18	-1252.48	-67.437	-2765.58	915.348	-3127	987.518	-3590.21	1878.19	285.88	-27.38
	Tepi kiri	0.4	-1578.96	-1182.06	-1379.74	200.832	-2591.8	552.198	-3780.64	1264.159	-4035.09	-1878.27	-285.99	-22.58
	1/4 L	1.5	649.376	488.239	504.692	1351.367	-146.623	1540.869	-783.642	1921.625	-920.854	-11.89	-4.74	-22.58
	1/2 L	3	-1513.39	-1134.78	-1256.22	-1143.44	-1346.79	-1115.8	-1431.98	-1066.25	-1451.96	1854.48	276.51	-22.58
	1/2 L	3	-1513.33	-1135.19	-1247.74	-1159.26	-1361.38	-1073.65	-1387.36	-1054.84	-1438.14	-1854.55	-276.61	-22.2
	3/4 L	4.5	649.807	486.18	583.968	1234.168	-263.063	1871.357	-451.619	2007.908	-832.967	11.82	4.64	-22.2
	Tepi kanan	5.6	-1578.16	-1185.78	-1229.66	-17.74	-2810.09	1171.021	-3161.22	1425.317	-3873.13	1878.2	285.89	-22.2
30	Tepi kiri	0.4	-1604.6	-1197.31	-1377.29	68.968	-2609.66	846.055	-3664.09	1276.462	-4145.42	-1878.24	-285.98	-16.06
	1/4 L	1.5	623.653	471.088	496.805	1271.262	-165.603	1689.192	-730.439	1918.793	-989.439	-11.87	-4.73	-16.06
	1/2 L	3	-1539.2	-1153.84	-1274.44	-1171.7	-1366.88	-1113.01	-1442.13	-1084.22	-1478.81	1854.51	276.52	-16.06
	1/2 L	3	-1539.16	-1154.85	-1269.58	-1179.63	-1373.47	-1103.75	-1430.22	-1068.52	-1460.62	-1854.54	-276.6	-15.63
	3/4 L	4.5	623.922	464.638	551.73	1212.737	-223.34	1777.885	-640.057	2036.027	-870.509	11.84	4.65	-15.63
	Tepi kanan	5.6	-1604.09	-1209.2	-1272.3	-40.239	-2718.55	1014.178	-3495.24	1495.24	-3925.74	1878.21	285.9	-15.63
	Tepi kiri	0.45	-1605.63	-1191.43	-1313.76	98.064	-2477.28	1133.182	-3221.66	1067.516	-4002.28	-1878.22	-285.96	2.77

23	1/2 L	3	-1540.36	-1154.21	-1270.33	-1169.45	-1358.14	-1092.82	-1410.68	-1100.34	-913.098	-11.84	-4.71	2.77
	1/2 L	3	1540.34	1156.22	-1275.11	-1190.11	-1376.77	-1136.67	-1451.87	-1079.81	-1469.26	1854.53	276.54	2.77
	3/4 L	4.5	622.707	460.16	516.424	1140.406	240.321	1539.424	799.205	195.7963	-759.748	11.85	4.66	3.26
	Tepi kanan	5.65	-1605.34	1216.79	-1337.37	-174.299	-2749.21	570.179	-3783.88	1350.399	-3718.46	1878.22	285.91	3.26
	Tepi kiri	0.45	1605.93	1187.43	1245.96	1194.89	2417.56	1199.398	2762.17	848.039	4009.03	1878.21	285.91	10.96
	1/4 L	1.5	622.207	475.856	545.497	1217.264	-8.842	1878.234	-248.335	1689.673	-918.823	-11.83	-4.7	10.96
	1/2 L	3	-1540.75	-1154.18	-1268.39	-1178.96	-1346.99	-1088.27	-1379.84	-1114.03	-1473.06	1854.54	276.55	10.96
	1/2 L	3	-1540.75	-1156.83	-1277.53	-1202.16	-1367.76	-1169.78	-1457.03	-1078.99	-1431.49	-1854.52	-276.59	11.5
	3/4 L	4.5	622.272	457.567	501.009	1054.187	-171.16	1292.629	-831.223	1961.615	-642.753	11.86	4.66	11.5
	Tepi kanan	0.65	-1605.81	-1221.36	-1365.79	-334.56	-2619.9	109.697	-3850.75	1356.883	-3499.35	1878.23	285.91	11.5
	Tepi kiri	0.45	-1603.46	-1180.2	-1235.62	-130.676	-2432.1	1056.199	-2974.2	783.745	-4069.21	-1878.2	-285.95	11.5
27	1/4 L	1.5	624.652	480.58	573.435	1165.146	-70.255	1802.281	-361.201	1656.119	-949.814	-11.83	-4.7	25.17
	1/2 L	3	-1538.33	-1151.96	-1262.85	-1184.37	-1353.75	-1096.97	-1393.54	-1116.84	-1475.76	1854.55	276.55	25.17
	1/2 L	3	-1538.33	-1155.41	-1279.25	-1191.76	-1358.67	-1152.46	-1444.72	-1072.69	-1424.91	-1854.51	-276.58	25.75
	3/4 L	4.5	624.666	456.478	476.83	1118.499	-115.366	1409.139	-751.649	1996.245	-605.465	11.86	4.67	25.75
	Tepi kanan	0.65	-1603.44	-1224.96	-1412.43	-216.582	-2517.4	325.401	-3703.91	1419.845	-3431.36	1878.24	285.92	25.75
	Tepi kiri	0.45	-1602.85	-1169.38	-1113.21	-256.487	-2435.64	727.344	-3035.28	753.984	-4072.71	-1878.2	-285.95	61.02
	1/4 L	1.5	625.256	486.592	639.369	1097.893	-71.932	1626.146	-393.747	1640.39	-951.466	-11.82	-4.7	61.02
	1/2 L	3	-1537.74	-1150.76	-1253.39	-1193.06	-1353.56	-1120.39	-1397.56	-1118.54	-1475.56	1854.55	276.55	61.02
	1/2 L	3	-1537.74	-1155.72	-1287.6	-1190.98	-1349.04	-1147.53	-1420.41	-1071.94	-1422.21	-1854.51	-276.58	61.63
	3/4 L	4.5	625.246	451.36	411.958	1121.138	-47.159	1442.616	-574.579	1998.842	-588.736	11.87	4.67	61.63
	Tepi kanan	0.65	-1602.87	-1234.89	-1533.82	-212.077	-2390.62	387.42	-3374.09	1424.287	-3400.6	1878.24	285.92	61.63
	Tepi kiri	0.45	-1600.36	-1155.22	-964.453	-83.88	-2516.26	320.166	-3061.09	745.67	-3931.62	-1878.2	-285.95	104.22
25	1/4 L	1.5	627.749	495.062	720.091	1191.411	-113.675	1408.705	-405.707	1636.82	-874.825	-11.83	-4.7	104.22
	1/2 L	3	-1535.24	-1147.99	-1240.7	-1178.64	-1356.42	-1148.09	-1395.66	-1117.37	-1463.37	1854.55	276.55	104.22
	1/2 L	3	-1535.24	-1154.74	-1296.25	-1183.31	-1359.4	-1144.09	-1388.92	-1080.06	-1419.48	-1854.51	-276.58	104.85
	3/4 L	4.5	627.741	446.635	335.231	1167.331	-2559.24	417.3	-2963.11	1287.153	-581.247	11.87	4.67	104.85
	Tepi kanan	0.65	-1600.38	-1245.32	-1678.62	-127.366	-2517.26	993.299	-3132.97	757.259	-3623.84	-1878.21	-285.95	143.25
	Tepi kiri	0.5	-1591.17	-1136.79	-824.787	246.999	-2517.26	1772.345	-440.929	1646.264	-706.34	-11.83	-4.7	143.25
	1/4 L	1.5	636.958	508.156	798.307	1372.191	-110.869	1772.345	-440.929	1646.264	-706.34	-11.83	-4.7	143.25
	1/2 L	3	-1526.01	-1140.23	-1223.94	-1147.96	-1349.82	-1093.95	-1394.22	-1110.07	-1434.18	1854.54	276.55	143.25
	1/2 L	3	-1526.01	-1148.65	-1298.73	-1175.57	-1375.67	-1131.23	-1429.64	-1094.63	-1412.67	-1854.51	-276.58	143.89
	3/4 L	4.5	636.976	447.372	271.272	1178.841	-303.075	1508.78	-703.226	1772.251	-576.55	11.87	4.67	143.89
	Tepi kanan	0.5	-1591.14	-1249.93	-1804.07	-112.084	-2875.82	503.454	-3622.15	993.793	-3385.77	1878.24	285.92	143.89
	Tepi kiri	0.5	-1581.98	-1115.71	-643.667	503.751	-2797.09	1503.78	-3120.39	774.086	-3419.8	-1878.22	-285.95	194.51
	1/4 L	1.5	646.179	522.676	898.711	1513.14	-257.941	2049.462	-431.634	1658.489	-592.924	-11.84	-4.7	194.51
	1/2 L	3	-1516.77	-1132.27	-1204.25	-1122.81	-1364.13	-1050.19	-1388.22	-1102.45	-1411.39	1854.53	276.55	194.51
	1/2 L	3	-1516.76	-1142.74	-1304.19	-1147.47	-1386.58	-1123.92	-1458.95	-1101.92	-1406.22	-1854.51	-276.58	195.15
	3/4 L	4.5	646.232	446.707	185.072	1339.928	-429.798	1513.302	-965.988	1673.907	-574.664	11.87	4.67	195.15
	Tepi kanan	0.5	-1581.88	-1257.17	-1971	181.984	-3118.36	505.189	-4118.37	804.393	-3388.45	1878.24	285.92	195.15
	Tepi kiri	0.5	-1579.57	-1093.09	-374.967	655.324	-2981.73	1881.434	-3506.89	914.433	-4343.26	-1878.23	-285.96	273.12
22	1/4 L	1.5	648.622	535.665	1043.627	1595.111	-356.045	2252.896	-637.954	1733.405	-1086.72	-11.86	-4.71	273.12
	1/2 L	3	-1514.28	-1128.9	-1183.12	-1110.44	-1375.7	-1020.98	-1414.36	-1092.96	-1475.51	1854.52	276.54	273.12

3/4 L	4.5	648.738	437.427	43.946	1441.887	-508.178	1723.486	-1165.52	2172.125	-646.943	11.86	-210.00	4.67	273.75
Tepi kanan	5.5	-1579.36	-1276.1	-2235.91	370.468	-3266.25	895.538	-4492.18	1732.046	-3525.43	1878.24	285.92	285.92	273.75
Tepi kiri	0.5	-1556.64	-1049.98	-23.701	927.209	-3014.37	2268.149	-3735.09	1585.884	-5319.97	-1878.25	-285.97	-285.97	371.36
1/4 L	1.5	671.613	566.796	1240.215	1749.235	-363.174	2468.573	-751.905	2101.88	-1602.1	-11.87	-4.72	-4.72	371.36
1/2 L	3	-1491.24	-1109.76	-1141.21	-1074.08	-1361.31	-976.341	-1414.06	-1027.46	-1529.57	1854.5	276.53	276.53	371.36
1/2 L	3	-1491.21	-1126.96	-1327.62	-1110.37	-1395.8	-1058.12	-1492.88	-943.18	-1443.08	-1854.52	-276.59	-276.59	371.95
3/4 L	4.5	671.818	440.841	-116.786	1487.036	-626.328	1873.482	-1345.26	2723.446	-979.307	11.85	4.66	4.66	371.95
Tepi kanan	5.5	-1556.25	-1284.69	-2551.29	439.101	-3502.19	1159.742	-4842.98	2744.735	-4160.88	1878.23	285.91	285.91	371.95
Tepi kiri	0.5	-1596.03	-1050.17	331.455	997.199	-3152.81	2769.216	-3877.37	2197.52	-6381.81	-1878.27	-285.98	-285.98	485.15
1/4 L	1.5	632.294	553.037	1416.209	1772.438	-453.585	2723.049	-842.342	2415.61	-2185.62	-11.9	-4.73	-4.73	485.15
1/2 L	3	-1530.48	-1137.08	-1144.37	-1097.66	-1399.7	-968.455	-1452.66	-1011.64	-1634.79	1854.48	276.52	276.52	485.15
1/2 L	3	-1530.44	-1158.5	-1386.3	-1133.33	-1433.87	-1080.81	-1562.33	-899.351	-1520.33	-1854.53	-276.59	-276.59	485.7
3/4 L	4.5	632.608	395.691	-354.596	1514.009	-711.208	1902.521	-1661.45	3245.53	-1354.57	11.85	4.66	4.66	485.7
Tepi kanan	5.5	-1595.45	-1343.45	-2968.23	516.011	-3633.88	1240.513	-5405.92	3745.077	-4834.14	1878.22	285.91	285.91	485.7
Tepi kiri	0.5	-1391.86	-769.536	2443.278	1910.94	-3650.18	4797.586	-4391.88	3155.932	-8855.69	-1878.29	-285.99	-285.99	1060.28
1/4 L	1.5	836.521	774.555	2622.247	2336.249	-646.133	3884.382	-1044.01	3003.487	-3437.81	-11.92	-4.74	-4.74	1060.28
1/2 L	3	-1326.2	-974.68	-844.121	-883.78	-1287.44	-674.159	-1341.48	-794.295	-1665.27	1854.46	276.51	276.51	1060.28
1/2 L	3	-1326.13	-1014.48	-1367.81	-926.282	-1328.84	-872.535	-1537.83	-549.402	-1418.53	-1854.55	-276.61	-276.61	1060.76
3/4 L	4.5	837.01	480.625	-1241.76	2025.865	-956.033	2423.581	-2503.88	4817.159	-1623.3	11.82	4.64	4.64	1060.76
Tepi kanan	5.5	-1390.95	-1317.59	-4761.05	1332.673	-4228.57	2074.36	-7115.28	6538.382	-5473.4	1878.2	285.89	285.89	1060.76
Tepi kiri	0.5	-2079.12	-2651.73	-17783.1	3206.55	-9202.64	6030.676	-15404	16164.87	-10650.1	-1877.72	-285.61	-285.61	-4738.33
1/4 L	1.5	147.303	-475.134	-8472.82	2779.35	-3873	4293.363	-7197.37	9726.057	-4648.88	-11.34	-4.36	-4.36	-4738.33
1/2 L	3	-2017.37	-1591.86	-2807.89	-1293.19	-2188.69	-1089.29	-2636.07	-358.093	-2293	1855.03	276.89	276.89	-4738.33
1/2 L	3	-2017.4	-1434.16	-485.316	-1104.9	-2001.04	-657.126	-2205.02	-1000.43	-2936.81	-1854.91	-276.91	-276.91	-4737.97
3/4 L	4.5	147.089	695.945	8774.754	4174.863	-2477.68	7499.365	-3991.7	4950.812	-9424.6	11.47	4.34	4.34	-4737.97
Tepi kanan	5.5	-2079.52	-467.274	14389.49	5809.292	-6599.65	12010.52	-9423.73	7256.719	-19557.7	1877.84	285.59	285.59	-4737.97
Tepi kiri	0.5	-2136.35	-271.142	-18013.3	3222.869	-9338.77	6135.825	-15620.2	16207.52	-10589.6	-1877.69	-285.59	-285.59	-4792.68
1/4 L	1.5	89.978	-527.113	-8617.46	2766.841	-3967.19	4328.383	-7334.53	9727.576	-4637.76	-11.31	-4.34	-4.34	-4792.68
1/2 L	3	-2074.79	-1636.13	-2867	-1334.53	-2240.95	-1124.4	-2694.18	-397.702	-2331.23	1855.06	276.91	276.91	-4792.68
1/2 L	3	-2074.86	-1476.05	-517.913	-1144.29	-2051.37	-690.708	-2261.7	-1053.96	-2988.96	-1854.86	-276.89	-276.89	-4792.31
3/4 L	4.5	89.506	661.74	8827.638	4177.347	-2556.87	7544.784	-4118.48	4847.921	-9517.84	11.51	4.36	4.36	-4792.31
Tepi kanan	5.5	-2137.23	-493.796	14527.85	5853.644	-6707.7	12134.94	-9620.59	7104.462	-19692.1	1877.89	285.61	285.61	-4792.31
Tepi kiri	0.5	-1376.48	-723.119	2770.583	3325.091	-3764.86	5129.617	-4671.08	3615.141	-10166.1	-1878.27	-285.98	-285.98	1152.94
1/4 L	1.5	851.839	804.784	2803.554	3100.277	-702.072	4068.148	-1188.19	3255.33	-4135.13	-11.9	-4.73	-4.73	1152.94
1/2 L	3	-1310.95	-960.678	-808.813	-769.875	-1284.62	-638.66	-1350.66	-749.818	-1749.53	1854.48	276.52	276.52	1152.94
1/2 L	3	-1310.9	-1005.59	-1378.55	-905.02	-1418.16	-839.368	-1548.89	-441.619	-1438.78	-1854.53	-276.6	-276.6	1153.5
3/4 L	4.5	852.145	473.28	-1398.65	2105.883	-1695.64	2591.802	-2663.31	5538.204	-1850.96	11.85	4.65	4.65	1153.5
Tepi kanan	5.5	-1375.91	-1341.17	-5064.08	1471.449	-5618.46	2377.64	-7423.07	7872.689	-5908.47	1878.22	285.9	285.9	1153.5
Tepi kiri	0.5	-1579.63	-985.656	843.094	2167.685	-3403.38	3503.112	-4259.83	2655.828	-8379.63	-1878.25	-285.97	-285.97	631.92
1/4 L	1.5	648.624	593.309	1696.629	2406.09	-582.249	3122.498	-1041.75	2774.403	-3251.58	-11.88	-4.72	-4.72	631.92
1/2 L	3	-1514.23	-1121.05	-1095.17	-1000.84	-1406.46	-903.453	-1469	-952.36	-1768.87	1854.5	276.53	276.53	631.92
1/2 L	3	-1514.21	-1150.12	-1410.07	-1101.84	-1505.29	-1039.77	-1602.12	-741.356	-1554.65	-1854.5	-276.57	-276.57	632.6
3/4 L	4.5	648.735	379.795	-609.821	1667.449	-1319.7	2126.677	-2035.84	4335.764	-1688.48	11.88	4.68	4.68	632.6

14	Tepi kiri	0.5	-1526.65	-958.669	636.42	1830.651	-3208.06	3144.846	-4156.95	2432.46	-7877.06	-1878.23	400.50	558.64
	1/4 L	1.5	701.541	626.184	1605.324	2244.782	-458.37	2949.782	-967.516	2566.621	-2963.15	-11.86	-4.7	558.64
	1/2 L	3	-1461.37	-1082.29	-1071.11	-986.424	-1354.02	-890.619	-1423.46	-944.555	-1694.57	1854.52	276.55	558.64
	1/2 L	3	-1461.37	-1109.57	-1350.71	-1071.48	-1436.5	-1002.72	-1531.76	-733.207	-1479.57	-1854.49	-276.57	559.41
	3/4 L	4.5	701.561	426.255	-435.209	1626.441	-1075.24	2135.205	-1779.97	4129.945	-1397.76	11.88	4.68	559.41
13	Tepi kanan	5.5	-1526.61	-1331.25	-3165.04	679.027	-4359.31	1627.792	-5673.51	5347.759	-4961.29	1878.26	285.93	559.41
	Tepi kiri	0.5	-1541.82	-974.844	485.951	1737.665	-3137.39	2629.017	-4100.18	1945.112	-7341.53	-1878.23	-285.93	517.67
	1/4 L	1.5	686.332	612.225	1519.355	2189.377	-426.088	2667.816	-942.855	2299.781	-2681.65	-11.85	-4.7	517.67
	1/2 L	3	-1476.61	-1094.03	-1092.58	-1004.25	-1360.13	-938.723	-1430.87	-990.887	-1667.12	1854.52	276.55	517.67
	1/2 L	3	-1476.62	-1120.66	-1352.6	-1089.34	-1442.46	-1019.47	-1507.21	-784.657	-1457.06	-1854.48	-276.56	518.52
	3/4 L	4.5	686.281	417.37	-372.701	1570.249	-1043.58	2086.512	-1521.6	3824.515	-1154.71	11.89	4.69	518.52
12	Tepi kanan	5.5	-1541.92	-1337.93	-3038.15	584.495	-4290.03	1547.152	-5181.33	4788.349	-4497.7	1878.27	285.94	518.52
	Tepi kiri	0.5	-1533.12	-964.395	454.127	1399.544	-3145.64	2282.853	-3965.7	1620.641	-6693.07	-1878.22	-285.94	506.21
	1/4 L	1.5	695.016	620.85	1505.568	2011.275	-427.427	2485.04	-867.703	2129.606	-2330.86	-11.85	-4.69	506.21
	1/2 L	3	-1467.95	-1087.23	-1088.33	-1022.33	-1354.55	-958.11	-1415.04	-1006.77	-1613.98	1854.53	276.56	506.21
	1/2 L	3	-1467.97	-1114.46	-1343.12	-1081.48	-1410.82	-1021.9	-1474.71	-824.274	-1426.72	-1854.48	-276.56	507.11
	3/4 L	4.5	694.917	421.745	-345.268	1585.045	-851.939	2024.8	-1325.49	3487.243	-970.478	11.9	4.69	507.11
11	Tepi kanan	5.5	-1533.3	-1335.38	-2992.76	606.237	-3938.4	1426.167	-4821.6	4153.423	-4159.58	1878.27	285.94	507.11
	Tepi kiri	0.5	-1531.01	-953.922	489.226	1501.405	-3135.19	1887.495	-4078.26	1300.051	-5944.19	-1878.22	-285.94	516.02
	1/4 L	1.5	697.109	627.194	1525.191	2066.835	-421.13	2273.792	-927.356	1958.421	-1928.53	-11.84	-4.69	516.02
	1/2 L	3	-1465.88	-1085.01	-1084.18	-1013.07	-1352.4	-985.248	-1421.79	-1028.55	-1558.2	1854.53	276.56	516.02
	1/2 L	3	-1465.9	-1113.55	-1344.03	-1080.54	-1416.6	-1012.06	-1444.48	-876.738	-1401.87	-1854.48	-276.56	516.02
	3/4 L	4.5	696.973	418.519	-361.707	1581.862	-904.157	2087.574	-1111.15	3088.169	-796.204	11.9	4.69	516.02
10	Tepi kanan	5.5	-1531.26	-1342.73	-3024.73	598.926	-4037.05	1541.869	-4423.15	3407.739	-3835.88	1878.27	285.94	516.96
	Tepi kiri	0.5	-1528.99	-937.867	594.694	1946.535	-3185.64	1843.458	-4134.05	1108.397	-4954.93	-1878.21	-285.93	546.58
	1/4 L	1.5	699.113	636.501	1582.528	2306.261	-447.454	2251.123	-956.516	1857.153	-1397.26	-11.84	-4.68	546.58
	1/2 L	3	-1463.88	-1082.46	-1074.98	-979.351	-1354.6	-986.549	-1424.32	-1039.43	-1484.92	1854.54	276.57	546.58
	1/2 L	3	-1463.91	-1113.11	-1349.93	-1075.2	-1447.06	-1006.35	-1439.65	-946.625	-1386.54	-1854.47	-276.55	547.53
	3/4 L	4.5	698.95	412.208	-415.764	1611.325	-1140.34	2119.896	-1085.07	2560.183	-690.929	11.9	4.7	547.53
9	Tepi kanan	5.5	-1529.3	-1355.8	-3126.94	652.516	-4478.96	1600.805	-4375.82	2421.653	-3640.66	1878.28	285.95	547.53
	Tepi kiri	0.5	-1526.66	-917.04	747.828	2063.214	-3403.93	2217.666	-4045.03	1526.263	-4717.84	-1878.21	-285.93	591.13
	1/4 L	1.5	701.436	648.477	1665.491	2369.673	-563.638	2453.198	-907.892	2082.109	-1269.25	-11.84	-4.68	591.13
	1/2 L	3	-1461.56	-1079.33	-1062.18	-969.206	-1368.69	-956.606	-1416.09	-1007.38	-1465.99	1854.54	276.57	591.13
	1/2 L	3	-1461.59	-1112.75	-1358.99	-1057.47	-1453.5	-1010.85	-1464.94	-962.028	-1414.77	-1854.47	-276.55	592.08
	3/4 L	4.5	701.257	403.711	-494.996	1731.157	-1200.05	2074.967	-1282.85	2435.621	-912.116	11.9	4.7	592.08
8	Tepi kanan	5.5	-1527	-1373.15	-3276.35	874.444	-4591.94	1515.447	-4746.1	2187.934	-4054.8	1878.28	285.95	592.08
	Tepi kiri	0.5	-1519.83	-885.98	960.838	1816.04	-3513.76	2824.902	-4168.7	2006.575	-5490.41	-1878.22	-285.93	652.35
	1/4 L	1.5	708.277	667.507	1782.086	2239.562	-620.064	2781.228	-971.879	2342.091	-1681.08	-11.84	-4.68	652.35
	1/2 L	3	-1454.72	-1072.33	-1042	-982.254	-1371.7	-907.784	-1420.4	-967.73	-1517.08	1854.53	276.57	652.35
	1/2 L	3	-1454.74	-1109.49	-1368.72	-1043.85	-1429.98	-996.199	-1503.2	-900.453	-1443.86	-1854.47	-276.55	653.28
	3/4 L	4.5	708.096	394.935	-601.119	1798.18	-1059.45	2149.374	-1600.34	2857.987	-1161.56	11.91	4.7	653.28
7	Tepi kanan	5.5	-1520.17	-1393.96	-3478.86	994.869	-4334.26	1649.609	-5342.83	2971.089	-4524.6	1878.28	285.95	653.28
	Tepi kiri	0.5	-1515.19	-848.148	1284.484	1766.062	-3590.32	3408.739	-4406.3	2483.484	-6274.29	-1878.22	-285.93	746.69

	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	5.0
1/2 L	3	-1450.08	-1066.38	-1015.55	-982.724	-1373.89	-862.392	-1434.2	-930.042	-1570.54	1854.53	-4.68	746.69																											
1/2 L	3	-1450.11	-1108.5	-1388.29	-1034.52	-1422.56	-975.223	-1541.62	-839.946	-1474.55	-1854.47	-276.55	747.59																											
3/4 L	4.5	712.729	379.986	-769.237	1844.673	-1027.25	2282.224	-1907.98	3283.737	-1411.86	11.91	4.7	747.59																											
Tepi kanan	5.5	-1515.54	-1424.86	-3795.52	1078.528	-4277.27	1894.334	-5919.67	3762.083	-4994.5	1878.28	285.95	747.59																											
Tepi kiri	0.5	-1511.69	-807.567	1644.516	2442.337	-3865.99	3968.466	-4581.8	2923.163	-7181.95	-1878.22	-285.93	852.01																											
1/4 L	1.5	716.428	712.372	2151.306	2578.053	-805.888	3397.136	-1190.33	2836.341	-2585.11	-11.85	-4.68	852.01																											
1/2 L	3	-1446.56	-1061.02	-987.242	-931.568	-1391.13	-819.532	-1444.19	-895.819	-1633.6	1854.53	276.57	852.01																											
1/2 L	3	-1446.58	-1108.59	-1411.26	-1011.68	-1468.38	-959.635	-1579.06	-771.416	-1503.34	-1854.47	-276.55	852.85																											
3/4 L	4.5	716.248	362.283	-957.989	1996.675	-1385.55	2380.514	-2203.81	3774.562	-1643.35	11.91	4.7	852.85																											
Tepi kanan	5.5	-1512.02	-1460.17	-4150.05	1359.694	-4948.05	2075.326	-6473.9	4675.201	-5428.69	1878.28	285.95	852.85																											
Tepi kiri	0.5	-1507.6	-762.486	2034.254	3059.2	-4329.07	4486.556	-4748.15	3308.117	-8164.77	-1878.23	-285.93	965.97																											
1/4 L	1.5	720.526	737.958	2361.556	2910.222	-1022.63	3676.238	-1277.91	3044.112	-3110.46	-11.85	-4.68	965.97																											
1/2 L	3	-1442.45	-1054.92	-956.479	-884.095	-1421.52	-779.417	-1453	-865.229	-1701.48	1854.52	276.57	965.97																											
1/2 L	3	-1442.47	-1108.54	-1435.87	-974.804	-1509.49	-944.24	-1612.98	-697.01	-1527.66	-1854.47	-276.55	966.74																											
3/4 L	4.5	720.356	342.842	-1161.97	2249.859	-1711.33	2474.593	-2476.63	4306.371	-1844.79	11.91	4.7	966.74																											
Tepi kanan	5.5	-1507.92	-1499.11	-4533.41	1829.183	-5558.51	2248.088	-6985.62	5664.414	-5807.26	1878.28	285.95	966.74																											
Tepi kiri	0.5	-1500.14	-704.013	2507.844	3391.559	-4888.31	5081.359	-5100.49	3735.939	-9311.44	-1878.23	-285.94	1103.94																											
1/4 L	1.5	727.999	771.893	2617.868	3090.966	-1349.69	3997.572	-1463.63	3275.967	-3722.35	-11.86	-4.69	1103.94																											
1/2 L	3	-1434.96	-1045.53	-917.444	-854.964	-1456.43	-731.552	-1472.1	-829.343	-1778.59	1854.52	276.56	1103.94																											
1/2 L	3	-1434.98	-1106.73	-1463.83	-928.247	-1527.31	-912.811	-1649.73	-608.017	-1552.36	-1854.47	-276.55	1104.6																											
3/4 L	4.5	727.849	320.11	-1407.06	2558.525	-1880.71	2672.319	-2786.72	4930.018	-2065.36	11.9	4.7	1104.6																											
Tepi kanan	5.5	-1500.42	-1546.37	-4995.63	2399.96	-5879.45	2612.111	-7569.06	6822.716	-6223.7	1878.28	285.95	1104.6																											
Tepi kiri	0.5	-1495.32	-629.599	3201.933	3751.031	-5571.12	5761.495	-5798.38	4229.853	-10558.6	-1878.24	-285.94	1307.47																											
1/4 L	1.5	732.837	813.454	2991.406	3285.231	-1713.96	4363.65	-1835.95	3542.26	-4388.96	-11.86	-4.69	1307.47																											
1/2 L	3	-1430.11	-1036.82	-864.459	-825.906	-1502.13	-679.533	-1518.86	-790.671	-1864.68	1854.51	276.56	1307.47																											
1/2 L	3	-1430.13	-1108.2	-1509.87	-874.948	-1549.23	-858.439	-1694.78	-514.013	-1583.98	-1854.47	-276.55	1308.01																											
3/4 L	4.5	732.707	285.797	-1773.47	2930.306	-2067.74	3052.179	-3145.68	5604.36	-2324.48	11.9	4.7	1308.01																											
Tepi kanan	5.5	-1495.56	-1613.53	-5682.41	3090.223	-6231.58	3317.461	-8241.9	8077.395	-6710.31	1878.28	285.95	1308.01																											
Tepi kiri	0.5	-1489.74	-551.822	3961.841	4557.65	-6212.32	6521.008	-6278.58	4614.124	-11717.8	-1878.24	-285.94	1530.26																											
1/4 L	1.5	738.437	857.08	3400.433	3719.493	-2055.63	4772.475	-2091.27	3749.795	-5008.1	-11.87	-4.69	1530.26																											
1/2 L	3	-1424.49	-1027.34	-806.313	-764.001	-1544.28	-621.395	-1549.29	-759.872	-1943.72	1854.51	276.56	1530.26																											
1/2 L	3	-1424.5	-1109.28	-1560.01	-824.105	-1602.86	-819.254	-1744.92	-425.874	-1606.95	-1854.47	-276.55	1530.65																											
3/4 L	4.5	738.334	250.569	-2174.27	3280.592	-2493.62	3316.135	-3546.28	6232.344	-2523.9	11.9	4.7	1530.65																											
Tepi kanan	5.5	-1489.93	-1682.91	-6433.87	3739.951	-7029.73	3806.187	-8992.99	9245.226	-7086.18	1878.28	285.95	1530.65																											
Tepi kiri	0.5	-1488.26	-507.83	4577.992	5174.524	-6495.59	7080.696	-6354.07	4987.66	-12193.5	-1878.25	-285.95	1711.56																											
1/4 L	1.5	739.941	881.163	3731.058	4050.691	-2206.6	5072.842	-2130.83	3950.519	-5261.85	-11.88	-4.7	1711.56																											
1/2 L	3	-1422.96	-1023.17	-761.214	-718.481	-1562.95	-580.349	-1552.93	-731.96	-1975.59	1854.5	276.55	1711.56																											
1/2 L	3	-1422.97	-1111.21	-1602.62	-802.031	-1645.63	-812.202	-1783.47	-390.07	-1632.13	-1854.48	-276.55	1711.77																											
3/4 L	4.5	739.877	228.74	-2502.14	3434.847	-2821.93	3358.988	-3843.9	6489.689	-2721.74	11.9	4.7	1711.77																											
Tepi kanan	5.5	-1488.38	-1724.63	-7046.99	4026.387	-7643.56	3884.842	-9549.67	9724.11	-7456.68	1878.27	285.95	1711.77																											

L	Lokasi	momen										geser					
		Comb 1		Comb 2		Comb 3		Comb 4		Comb 5		Comb 6		Vd	VI	Ve	
		Kg-m	Kg-m	Kg-m	Kg-m	max	min	max	min	max	min	max	min				Kg-m
35	Tepi kiri	0.4	-10541	-7997.07	-9860.758	-7282.19	-9360.19	-7013.67	-9792.14	-6058.03	-9654.57	-5709.2	-1220.3	-517.44	1/4 L	Kg-m	Kg-m
	1/4 L	2.8	-1370.656	-1045.06	-1442.479	-947.686	-1412.45	-902.479	-1472.59	-752.949	-1426.38	-3558.8	-921.33	-517.44			
	1/2 L	4	2385.584	1807.715	2120.406	1926.861	1613.61	2061.8	1553.04	2046.022	1314.898	-2708.6	-853.28	-517.44			
	1/2 L	4	2385.584	1807.715	2120.406	1926.861	1613.61	2061.8	1553.04	2046.022	1314.898	93.36	-180.52	-542.95			
	3/4 L	5.2	4109.034	3141.005	4282.37	3824.176	2640.174	4150.2	2457.54	4107.5	1770.076	1031.65	-100.3	-542.95			
	Tepi kanan	7.7	6033.54	4662.575	7411.231	6447.513	3587.069	7173.93	3168.39	7043.341	1618.849	3161.29	189.98	-542.95			
	Tepi kiri	0.4	-23977.81	-18129.9	-21289.01	-17537.3	-20875.8	-17082.6	-21596.9	-15543.6	-21308.8	-8013.4	-2643.8	-737.72			
1/4 L	2.8	1581.103	1157.739	986.899	1645.189	903.7	1728.89	791.33	1977.783	893.592	-5280.9	-1896.5	-737.72				
1/2 L	4	9489.583	7145.875	8082.457	7764.7	7253.276	7987.44	7160.26	7953.918	6783.478	-4187.8	-1726.3	-737.72				
1/2 L	4	9489.583	7145.875	8082.457	7764.7	7253.276	7987.44	7160.26	7953.918	6783.478	-587.12	-60.1	-745.38				
3/4 L	5.2	10436.56	7918.337	9905.412	9304.436	7467.874	9805.86	7183.17	9718.768	6138.195	617.95	140.46	-745.38				
Tepi kanan	7.7	2907.038	2390.74	5698.911	4560.483	170.396	5680.32	-486.201	5400.647	-2817.03	3325.51	866.15	-745.38				
Tepi kiri	0.4	-23174.71	-17500.5	-19520.44	-17170.3	-19845.2	-16771.5	-20469	-15547.4	-20083.2	-8049.8	-2673.2	-498.52	1/4 L	Kg-m	Kg-m	
1/4 L	2.8	564.148	407.096	526.749	636.35	149.459	670.282	57.751	794.318	180.61	-5317.2	-1925.8	-498.52				
1/2 L	4	8407.027	6338.843	7259.896	6861.682	6250.526	7122.93	6144.64	7079.078	5708.374	-4224.1	-1755.7	-498.52				
1/2 L	4	8407.027	6338.843	7259.896	6861.682	6250.526	7122.93	6144.64	7079.078	5708.374	-577.13	-71.59	-454.26				
3/4 L	5.2	9741.522	7389.75	9029.638	8590.979	6972.968	9057.17	6708.44	8931.799	5788.441	627.94	128.96	-454.26				
Tepi kanan	7.7	4686.433	3694.553	6234.654	5726.479	2161.311	6699.05	1590.59	6298.862	-276.815	3335.5	854.66	-454.26				
Tepi kiri	0.4	-23534.12	-17741.1	-18916.53	-17770.6	-19829	-17458.9	-20299.6	-16587.9	-19872.4	-8168.2	-2724.9	-256.7				1/4 L
1/4 L	2.8	369.066	267.995	623.902	486.734	65.424	484.134	-41.003	599.449	55.444	-5448.7	-1977.7	-256.7				
1/2 L	4	8337.939	6283.832	7152.395	6770.127	6233.533	7002.01	6137.91	6964.72	5749.966	-4364.7	-1810	-256.7				
1/2 L	4	8337.939	6283.832	7152.395	6770.127	6233.533	7002.01	6137.91	6964.72	5749.966	-706.64	-121.98	-202.6				
3/4 L	5.2	9858.448	7462.103	8725.868	8522.514	7235.534	8896.79	7023.05	8737.1	6324.781	488.99	75.95	-202.6				
Tepi kanan	7.6	5263.131	4088.383	5636.956	5786.498	3043.339	6530.46	2596.41	6039.435	1266.644	3184.52	802.32	-202.6				
Tepi kiri	0.4	-24065.98	-18117.9	-18630.46	-18281.5	-20050.7	-18169.8	-20460.2	-17502.7	-20087	-8266.6	-2764.8	-62.58	1/4 L	Kg-m	Kg-m	
1/4 L	2.8	155.177	113.555	661.874	341.731	-61.407	331.171	-174.79	403.262	-170.614	-5547.1	-2017.6	-62.58				
1/2 L	4	8276.454	6235.955	7071.452	6695.607	6206.708	6914.04	6114.91	6881.699	5749.71	-4463.1	-1849.9	-62.58				
1/2 L	4	8276.454	6235.955	7071.452	6695.607	6206.708	6914.04	6114.91	6881.699	5749.71	-799.96	-159.9	7.46				
3/4 L	5.2	9951.912	7520.678	8486.257	8482.847	7429.282	8784.56	7257.82	8601.19	6720.422	395.67	38.02	7.46				
Tepi kanan	7.6	5654.179	4351.401	5092.618	5819.387	3651.503	6369.33	3319.87	5960.715	2378.954	3091.2	764.39	7.46				
Tepi kiri	0.4	-24139.14	-18157.9	-18102.92	-18342.1	-19979.3	-18345.7	-20382.7	-17634.6	-20017.8	-8285.1	-2773.9	79.57				1/4 L
1/4 L	2.8	116.857	90.761	851.506	362.504	-56.022	362.664	-186.569	353.901	-281.293	-5565.6	-2026.7	79.57				
1/2 L	4	8254.837	6221.406	7099.119	6678.485	6190.981	6902.85	6092.4	6875.866	5709.18	-4481.7	-1859	79.57				
1/2 L	4	8254.837	6221.406	7099.119	6678.485	6190.981	6902.85	6092.4	6875.866	5709.18	-816.86	-168.29	163.13				
3/4 L	5.2	9945.291	7511.426	8317.673	8425.287	7483.942	8695.83	7334.58	8520.399	6872.903	378.77	29.63	163.13				
Tepi kanan	7.6	5676.357	4352.322	4547.127	5696.875	3658.515	6163.71	3517.14	5825.118	2592.717	3074.3	756.01	163.13				
Tepi kiri	0.4	-24104.13	-13120.9	-17567.45	-18308.6	-19872.1	-18261.4	-20269.9	-17641.2	-19946.1	-8281.1	-2774.6	200.83				

1/4 I	2.8	114.357	93.557	1045.898	406.04	83.51	448.046	-249.217	413.183	-420.039	-5561.6	-2027.4	200.83
1/2 I	4	8234.353	6207.808	7130.03	6659.723	6181.158	6884.32	6075.49	6866.444	5675.018	-4477.7	-1859.7	200.83
1/2 I	4	8234.353	6207.808	7130.03	6659.723	6181.158	6884.32	6075.49	6866.444	5675.018	-811.88	-168.45	297.36
3/4 I	5.2	6603.157	7177.148	8152.215	8303.271	7494.097	8900.71	7395.88	8445.804	6366.1	811.75	29.48	297.36
Tepi kanan	7.6	5592.64	4278.327	4004.537	5601.256	3689.69	6001.04	3490.6	5653.47	2562.675	3079.28	755.85	297.36
Tepi kiri	0.4	-24010.03	-18038.8	-16981.91	-18234	-19768.7	-18070.8	-20094.6	-17615.3	-19956	-8300.6	-2789.7	349.18
1/4 L	2.8	95.962	82.156	1166.083	422.227	-126.009	477.087	-298.741	438.579	-509.16	-5594.3	-2042.8	349.18
1/2 L	4	8208.959	6186.793	7065.459	6612.513	6193.955	6808.19	6094.11	6803.071	5720.41	-4519.5	-1877.5	349.18
1/2 L	4	8208.959	6186.793	7065.459	6612.513	6193.955	6808.19	6094.11	6803.071	5720.41	-850.46	-184.97	455.54
3/4 L	5.2	9931.282	7490.724	7922.151	8347.447	7530.156	8504.76	7441.48	8402.23	7037.066	335.75	10.34	455.54
Tepi kanan	7.6	5825.513	4434.8	3539.81	5719.441	3755.011	6034.67	3638.76	5669.47	2860.673	3019.05	737.22	455.54
Tepi kiri	0.4	-24131.9	-18123.1	-16662.14	-18258.5	-19871.3	-18061.4	-20147.1	-17714.8	-20130.3	-8328.9	-2800.9	470.29
1/4 L	2.8	46.979	46.591	1235.011	405.902	-183.781	462.202	-356.863	425.046	-589.06	-5622.5	-2054	470.29
1/2 L	4	8194.902	6174.544	7014.193	6581.992	6209.949	6747.61	6116.24	6755.092	5768.136	-4547.8	-1888.7	470.29
1/2 L	4	8194.902	6174.544	7014.193	6581.992	6209.949	6747.61	6116.24	6755.092	5768.136	-876.25	-195.24	583.49
3/4 L	5.2	9950.609	7499.752	7727.674	8341.565	7546.1	8457.86	7491.55	8364.939	7084.951	309.96	0.08	583.49
Tepi kanan	7.6	5908.938	4484.68	3070.368	5760.398	3819.011	6058.64	3670.66	5808.172	2983.425	2993.26	726.95	583.49
Tepi kiri	0.4	-23868.98	-17926.7	-16172.69	-18029.8	-19714.4	-17780	-20037.1	-17435.5	-19974.9	-8282.4	-2783.9	535.62
1/4 L	2.8	129.507	109.245	1416.27	486.445	-129.818	538.19	-299.633	502	-543.864	-5576	-2037	535.62
1/2 L	4	8190.991	6173.103	7047.774	6579.459	6212.788	6747.21	6119.01	6752.295	5768.006	-4501.3	-1871.7	535.62
1/2 L	4	8190.991	6173.103	7047.774	6579.459	6212.788	6747.21	6119.01	6752.295	5768.006	-830	-178.22	656.68
3/4 L	5.2	9853.192	7428.091	7590.817	8288.851	7458.611	8394.38	7386.92	8297.483	6960.427	366.21	17.09	656.68
Tepi kanan	7.6	5631.99	4278.196	2606.268	5604.112	3581.002	5950.75	3366.13	5645.257	2685.763	3039.51	743.97	656.68
Tepi kiri	0.4	-23512.53	-17664.4	-15686.8	-17763.9	-19510.7	-17457.5	-19868.4	-17029.6	-19737	-8217.3	-2759.9	580.4
1/4 L	2.8	243.961	194.446	1597.721	579.52	-38.65	619.666	-197.835	585.56	-432.787	-5510.9	-2013	580.4
1/2 L	4	8189.49	6173.464	7083.353	6584.263	6217.841	6754.08	6123.86	6749.719	5779.277	-4436.2	-1847.7	580.4
1/2 L	4	8189.49	6173.464	7083.353	6584.263	6217.841	6754.08	6123.86	6749.719	5779.277	-765.51	-154.31	707.7
3/4 L	5.2	9726.786	7336.301	7460.607	8223.885	7345.158	8365.67	7255.71	8221.697	6749.453	420.7	41	707.7
Tepi kanan	7.6	5265.765	4009.476	2157.746	5405.855	3270.52	5781.55	3026.87	5398.564	2168.718	3104	767.87	707.7
Tepi kiri	0.4	-23031.99	-17308.9	-15123.42	-17413	-19206.5	-17067.3	-19589.5	-16428.9	-19405.2	-8163	-2745.5	647.25
1/4 L	2.8	366.995	293.787	1718.97	659.027	62.788	710.367	-112.399	656.943	-265.556	-5470.1	-1999.2	647.25
1/2 L	4	8187.978	6170.351	7031.007	6575.585	6233.238	6726.44	6143.06	6711.199	5853.866	-4704.5	-1836.2	647.25
1/2 L	4	8187.978	6170.351	7031.007	6575.585	6233.238	6726.44	6143.06	6711.199	5853.866	-732.86	-142.44	776.27
3/4 L	5.2	9655.337	7281.632	7268.905	8174.795	7287.786	8335.02	7187.66	8149.964	6635.683	443.95	50.28	776.27
Tepi kanan	7.6	5161.755	3932.102	1781.656	5373.981	3197.909	5770.37	2924.64	5362.318	1933.569	3114.81	777.49	776.27
Tepi kiri	0.4	-22819.65	-17157	-14824.37	-17252.3	-19124.7	-16918.8	-19505.4	-16012.6	-19315.1	-8127.6	-2731.2	695.19
1/4 L	2.8	436.184	332.098	1784.802	689.017	83.006	752.129	-87.574	727.099	-134.532	-5434.6	-1984.8	695.19
1/2 L	4	8188.595	6169.033	6985.126	6567.307	6246.17	6715.77	6161.8	6680.749	5920.515	-4369.1	-1821.9	695.19
1/2 L	4	8188.595	6169.033	6985.126	6567.307	6246.17	6715.77	6161.8	6680.749	5920.515	-696.69	-127.71	823.77
3/4 L	5.2	9580.171	7225.385	7101.18	8129.995	7225.978	8315.48	7113.9	8087.474	6508.933	480.12	65.01	823.77
Tepi kanan	7.6	4941.129	3770.423	1380.055	5260.955	3027.621	5850.49	2764.45	5257.002	1567.268	3150.98	792.21	823.77
Tepi kiri	0.4	-22296.37	-16779.6	-14410.39	-16816.8	-18830.9	-16570.6	-19171.6	-15252.1	-18999.6	-8030.5	-2693.4	689.53
1/4 L	2.8	608.72	457.306	1937.513	790.685	188.717	861.266	32.783	947.025	45.912	-5337.5	-1947	689.53
1/2 L	4	8193.116	6173.432	7012.681	6577.014	6248.562	6749.05	6153.98	6684.111	5944.406	-4271.9	-1784.1	689.53

3/4 L	5.2	9404.331	7099.914	6994.892	8043.177	7069.679	8294.88	6934.16	8003.709	6219.33	576.09	102.42	817.85
Tepi kanan	7.6	4419.09	3395.672	1016.859	4977.456	2592.315	5320.57	2315.76	4925.414	790.612	3246.95	829.62	817.85
Tepi kiri	0.4	-21685.42	-16340.8	-14026	-16293.3	-18488.1	-15990	-19013.6	-14358.2	-18647.7	-7915.9	-2649.1	657.98
1/4 L	2.8	811.28	603.582	2080.471	905.137	315.355	981.993	184.596	1214.369	182.732	-5223	-1902.7	657.98
1/2 L	4	8200.047	6179.562	7039.989	6588.825	6249.099	6780.86	6151.52	6692.709	5916.969	-4157.4	-1739.8	657.98
1/2 L	4	8200.047	6179.562	7039.989	6588.825	6249.099	6780.86	6151.52	6692.709	5916.969	-4157.4	-1739.8	657.98
3/4 L	5.2	9201.622	6955.904	6902.512	7944.877	6882.499	8278.65	6721.17	7916.887	5883.595	689.08	146.25	783.57
Tepi kanan	7.6	3813.987	2963.471	694.742	4646.206	2072.173	5220.4	1729.85	4576.431	-126.561	3359.95	873.46	783.57
Tepi kiri	0.5	-20892.04	-15765.4	-13609.07	-15603.4	-18001	-15246.6	-18756.9	-13316.7	-18190.8	-7797.5	-2608.9	622.85
1/4 L	2.8	1038.995	766.43	2149.691	1036.365	449.273	1113.76	330.218	1537.239	320.699	-5118.1	-1863.2	622.85
1/2 L	4	8203.507	6179.847	6980.849	6580.549	6257.546	6763.32	6174.35	6667.952	5931.628	-4061.6	-1702.6	622.85
1/2 L	4	8203.507	6179.847	6980.849	6580.549	6257.546	6763.32	6174.35	6667.952	5931.628	-4061.6	-1702.6	622.85
3/4 L	5.2	9028.481	6830.586	6767.302	7845.212	6724.711	8247.94	6547.54	7825.148	5623.617	775.11	180.87	740.35
Tepi kanan	7.6	3403.55	2673.311	496.607	4432.593	1706.347	5247.27	1307.75	4414.954	-835.017	3433.34	908.23	740.35
Tepi kiri	0.5	-20378.62	-15400.8	-13933.04	-15096.2	-17754.8	-14701.6	-18720.6	-12485	-17994	-7703.8	-2570.7	439.73
1/4 L	2.8	1207.844	885.224	2010.873	1198.043	533.21	1288.11	332.765	1817.221	394.259	-5024.4	-1825	439.73
1/2 L	4	8207.351	6180.923	6930.693	6575.539	6266.693	6746.04	6198.64	6647.713	5946.47	-3968	-1664.5	439.73
1/2 L	4	8207.351	6180.923	6930.693	6575.539	6266.693	6746.04	6198.64	6647.713	5946.47	-3968	-1664.5	439.73
3/4 L	5.2	8854.498	6705.261	6820.408	7753.714	6555.336	8218.73	6366.26	7752.211	5357.88	868.15	218.79	553.1
Tepi kanan	7.6	2888.329	2305.431	747.864	4153.619	1213.396	5192.21	777.759	4218.986	-1640.91	3526.38	946.15	553.1
Tepi kiri	0.5	-19631.53	-14863.9	-16231.1	-14358.8	-17344.4	-13976.1	-18461.3	-11465	-17607.4	-7541.2	-2507.4	-296.92
1/4 L	2.8	1395.711	1015.338	1106.473	1405.299	603.577	1495.75	331.383	2157.391	464.723	-4861.8	-1761.8	-296.92
1/2 L	4	8127.42	6116.207	6693.68	6483.076	6229.238	6616.05	6180.64	6529.86	5965.511	-3805.4	-1601.2	-296.92
1/2 L	4	8127.42	6116.207	6693.68	6483.076	6229.238	6616.05	6180.64	6529.86	5965.511	-3805.4	-1601.2	-296.92
3/4 L	5.2	8585.708	6512.183	7475.594	7609.151	6286.915	8136.28	6096.04	7671.034	4976.447	972.87	261.66	-249.17
Tepi kanan	7.6	2257.135	1866.035	3115.108	3909.083	519.427	5193.78	58.373	4001.214	-2782.87	3631.1	989.02	-249.17
Tepi kiri	0.5	-19361.09	-14692	-16442.19	-14179.4	-17379.1	-13794.8	-18700	-11011.7	-17602.8	-7204.8	-2408.9	-395.09
1/4 L	2.8	2682.482	1971.701	2110.287	2505.517	1660.957	2592.5	1315.89	3331.784	1584.156	-4525.4	-1663.2	-395.09
1/2 L	4	9138.692	6876.586	7612.36	7396.779	7111.245	7518.77	7054.91	7423.434	6818.295	-3469	-1502.6	-395.09
1/2 L	4	9138.692	6876.586	7612.36	7396.779	7111.245	7518.77	7054.91	7423.434	6818.295	-3469	-1502.6	-395.09
3/4 L	5.2	8760.782	6556.115	7827.416	7874.886	6458.298	8477.3	6263.31	7998.896	5031.17	1314.45	361.79	-343.07
Tepi kanan	7.6	-809.503	-400.782	946.695	1499.413	-2091.89	3023.24	-2552.53	1809.764	-5691.57	3972.69	1089.15	-343.07
Tepi kiri	0.5	-17842.09	-13517.6	-11716.54	-13088.9	-15741.1	-12662.9	-16998.6	-10340.3	-16052.7	-7198.3	-2412	503.22
1/4 L	2.8	1987.371	1463.628	2686.077	1803.241	1165.786	1948.82	848.919	2472.662	1021.704	-4532.8	-1667.2	503.22
1/2 L	4	8192.252	6169.53	6905.994	6587.458	6256.808	6718.01	6187.16	6610.918	5921.48	-3485.4	-1509	503.22
1/2 L	4	8192.252	6169.53	6905.994	6587.458	6256.808	6718.01	6187.16	6610.918	5921.48	-3485.4	-1509	503.22
3/4 L	5.2	8033.268	6093.865	6059.876	7088.719	5908.788	7638.71	5747.99	7170.873	4688.884	1345.87	373.59	632.51
Tepi kanan	7.5	622.035	619.029	-1341.571	2274.717	-537.835	3626.66	-1025.66	2600.595	-3470.33	3991.27	1100.93	632.51
Tepi kiri	0.5	-17733.81	-13403.9	-10417.93	-13157.9	-15379.5	-12679	-16474.5	-10846.1	-15802.9	-7193.3	-2409.2	843.49
1/4 L	2.8	2024.042	1500.802	3084.739	1809.899	1274.703	1959.44	1002.67	2331.987	1077.373	-4527.8	-1664.3	843.49
1/2 L	4	8194.64	6170.071	6873.828	6579.008	6265.206	6694.7	6191.01	6588.737	5950.802	-3480.4	-1506.1	843.49
1/2 L	4	8194.64	6170.071	6873.828	6579.008	6265.206	6694.7	6191.01	6588.737	5950.802	-3480.4	-1506.1	843.49
3/4 L	5.2	7993.699	6049.579	5539.264	6934.607	5946.473	7410.82	5772.56	7054.574	4920.207	1353.39	377.66	985.07

1/4 L	3293.490	4494.201	4880.989	2610.844	4441.353	2814.8	2314.12	2896.348	2245.621	-3886.1	-1411.1	1658.2
1/2 L	8205.85	6173.546	6742.398	6524.312	6309.876	6593.04	6241.05	6545.477	6178.613	-2857.5	-1258.2	1658.2
1/2 L	8205.85	6173.546	6742.398	6524.312	6309.876	6593.04	6241.05	6545.477	6178.613	827.44	443.87	1826.79
3/4 L	6741.769	5058.246	3357.036	5489.733	5182.218	5587.8	5088.77	5610.249	5008.493	1966.85	626.38	1826.79
Tepi kanan	-2969.18	-2258.02	-8747.584	-1889.36	-2875.93	-1750.84	-3133.76	-1294.3	-3180.96	4585.98	1353.17	1826.79
Tepi kiri	-12933.26	-9683.93	-3774.309	-9817.16	-10507.7	-9536.09	-10776.4	-9467.58	-10933.8	-6400.9	-2105	1689.24
1/4 L	3525.456	2661.583	5087.34	2979.697	2534.829	3036.95	2568.45	3071.395	2415.14	-3763.5	-1362.4	1689.24
1/2 L	8210.399	6175.995	6732.034	6521.102	6315.164	6591.13	6250.53	6545	6176.589	-2734.3	-1208.8	1689.24
1/2 L	8210.399	6175.995	6732.034	6521.102	6315.164	6591.13	6250.53	6545	6176.589	951.68	493.93	1848.49
3/4 L	6503.419	4878.289	3127.769	5277.373	5014.455	5380.23	4915.89	5381.547	4821.919	2091.1	676.44	1848.49
Tepi kanan	-3673.226	-2787.69	-9396.538	-2491.17	-3396.49	-2353.72	-3649.93	-1920.93	-3720.71	4710.23	1403.23	1848.49
Tepi kiri	-12169.51	-9112.13	-3136.587	-9262.79	-9855.12	-8975.87	-10154.9	-8808.24	-10293.1	-6262.9	-2050.4	1704.51
1/4 L	3776.235	2848.434	5283.36	3155.365	2850.64	3220.71	2782.48	3262.927	2605.993	-3625.5	-1307.8	1704.51
1/2 L	8215.762	6178.681	6716.736	6517.989	6320.106	6584.39	6264.48	6540.487	6181.261	-2596.3	-1154.2	1704.51
1/2 L	8215.762	6178.681	6716.736	6517.989	6320.106	6584.39	6264.48	6540.487	6181.261	1090.7	549.28	1850.84
3/4 L	6239.764	4680.104	2897.509	5045.804	4825.082	5156.03	4724.26	5154.898	4609.67	2230.12	731.79	1850.84
Tepi kanan	-4452.655	-3370.99	-10038.93	-3159.33	-3955.75	-2965.68	-4215.71	-2521.44	-4310.5	4849.25	1458.58	1850.84
Tepi kiri	-11155.72	-8354.48	-2438.722	-8519.27	-9061.65	-8220	-9333.6	-7959.03	-9494.62	-6093.9	-1989.4	1701.46
1/4 L	4073.581	3069.047	5451.779	3360.213	3104.636	3438.18	3013.02	3481.906	2850.184	-3470.9	-1248.2	1701.46
1/2 L	8216.988	6177.342	6670.361	6504.668	6324.8	6563.78	6282.18	6525.023	6196.462	-2450.8	-1096.9	1701.46
1/2 L	8216.988	6177.342	6670.361	6504.668	6324.8	6563.78	6282.18	6525.023	6196.462	1237.71	607.51	1828.8
3/4 L	5980.043	4485.109	2689.102	4821.278	4630.873	4932.79	4535.44	4925.976	4403.928	2367.82	787.51	1828.8
Tepi kanan	-5110.867	-3860.91	-10474.14	-3736.28	-4402.24	-3466.18	-4676.2	-3060.01	-4846.65	4973.52	1513.76	1828.8
Tepi kiri	-10411.4	-7797.98	-2005.49	-7980.66	-8486.83	-7675.57	-8734.07	-7374.81	-8881.08	-5960.7	-1935.3	1671.07
1/4 L	4315.542	3248.451	5562.393	3525.001	3314.339	3612.54	3193.74	3650.984	3064.506	-3337.8	-1194	1671.07
1/2 L	8218.69	6176.396	6626.679	6491.872	6331.496	6541.55	6300.7	6508.021	6217.615	-2317.7	-1042.8	1671.07
1/2 L	8218.69	6176.396	6626.679	6491.872	6331.496	6541.55	6300.7	6508.021	6217.615	1372.59	662.62	1778.22
3/4 L	5717.175	4287.547	2500.796	4615.202	4431.164	4703.58	4343.31	4710.254	4209.418	2502.7	842.62	1778.22
Tepi kanan	-5880.827	-4435.32	-10939.64	-4365.77	-4947.4	-4039.3	-5234.9	-3720.74	-5453.38	5108.4	1568.87	1778.22
Tepi kiri	-9570.258	-7170.68	-1818.498	-7349.38	-7817.15	-7080.5	-8069.39	-6764.41	-8124.3	-5808.6	-1874.3	1547.75
1/4 L	4589.573	3451.263	5600.085	3713.371	3534.079	3800.46	3412.26	3856.499	3328.241	-3185.6	-1133.1	1547.75
1/2 L	8221.494	6176.192	6592.966	6480.496	6340.798	6516.42	6321.81	6488.313	6245.335	-2165.5	-981.8	1547.75
1/2 L	8221.494	6176.192	6592.966	6480.496	6340.798	6516.42	6321.81	6488.313	6245.335	1526.32	724.57	1631.68
3/4 L	5421.902	4066.539	2416.919	4377.144	4208.753	4447.37	4133.53	4450.196	4003.809	2656.43	904.57	1631.68
Tepi kanan	-6747.414	-5079.53	-11119.66	-5048.99	-5550.28	-4728.67	-5836.56	-4533.17	-6085.31	5262.13	1630.82	1631.68
Tepi kiri	-8597.601	-6445.66	-2461.634	-6631.01	-6988.95	-6443.76	-7185.67	-6160.29	-7162.7	-5633	-1805.3	1167.84
1/4 L	4917.587	3693.864	5365.919	3940.624	3808.24	4005.76	3714.44	4067.378	3675.754	-3010	-1064	1167.84
1/2 L	8241.201	6188.072	6554.395	6477.631	6367.648	6500.49	6359.16	6480.187	6298.613	-1989.9	-912.77	1167.84
1/2 L	8241.201	6188.072	6554.395	6477.631	6367.648	6500.49	6359.16	6480.187	6298.613	1702.51	794.26	1226.05
3/4 L	5104.568	3829.167	2623.807	4103.638	3978.068	4159.49	3924.82	4143.295	3820.722	2832.62	974.26	1226.05
epi kanan	-7710.743	-5794.64	-10442.31	-5863.91	-6232.55	-5614.4	-6442.96	-5539.06	-6658.87	5438.32	1700.51	1226.05

Lantai	Lokasi	momen										geser		
		Comb 1	Comb 2	Comb 3	Comb 4		Comb 5		Comb 6		Vd	VI	Ve	
		Kg-m	Kg-m	Kg-m	max Kg-m	min Kg-m	max Kg-m	min Kg-m	max Kg-m	min Kg-m	max Kg-m	min Kg-m	Kg-m	Kg-m
35	Tepi kiri	0.4	6108.853	5007.287	12245.2	8466.811	1411.399	11801.95	-20.423	11495.49	-5708.67	-4921.48	-586.48	1935.59
	1/4 L	2.2	6027.788	4657.343	6945.05	5719.993	3483.837	6772.057	3027.154	6681.341	1218.959	-2072.44	3.24	1935.59
	1/2 L	4	4625.602	3461.13	3288.821	3513.905	3340.933	3544.791	3250.961	3676.652	3267.805	-1000.68	151.27	1935.59
	1/2 L	4	4851.641	3638.353	3584.627	3624.295	3573.621	3636.167	3552.193	3650.616	3550.64	4701.53	1516.51	1923.3
	3/4 L	6.114	-1115.21	-980.375	-3426.59	278.638	-2170.01	766.719	-3328.64	2718.175	-3209.2	5773.29	1664.54	1923.3
	Tepi kanan	7.7	-15772.2	-12260.3	-19461.3	-8424.96	-15671.2	-6987.79	-19102.7	-1158.59	-18766.6	8622.33	2254.26	1923.3
	1/4 L	0.4	2494.921	2603.154	14824.54	8100.245	-3934.98	13754.33	-6369.96	13246.79	-16059.7	-5519.85	-2161.57	3372.93
34	1/2 L	2.2	13562.18	10406.55	14588.87	12405.19	8580.838	14191.97	7803.34	14039.91	4718.789	-1949	-687.27	3372.93
	1/2 L	4	13667.01	10236.65	10184.08	10551.78	10270.7	10603.24	10123.82	10821.06	10149.5	-586.89	-317.2	3372.93
	1/2 L	4	14071.05	10555.93	10754.44	10750.32	10681.36	10770.15	10682.47	10748.85	10643.09	6752.38	3071.94	3335.32
	3/4 L	6.114	1743.613	1064.739	-2932.27	3345.897	-737.529	4159.138	-2653.37	7411.895	-2463.87	8114.48	3442.01	3335.32
	Tepi kanan	7.7	-33768.9	-26060.8	-38879.6	-19987.3	-32199.5	-17535.6	-37940	-7752.23	-37397	11685.33	4916.32	3335.32
	Tepi kiri	0.4	850.6	1339.723	13250.3	6387.164	-4692.05	11430.74	-6952.03	11072.06	-15875.3	-5839.73	-2299.2	3281.46
	1/4 L	2.2	13100.8	10052.2	14166.22	11929.98	8367.292	13546.27	7638.97	13433.85	4770.1	-2268.89	-824.9	3281.46
33	1/2 L	4	13797.1	10336.84	10337.21	10610	10414.43	10647.6	10317.04	10805.82	10327.58	-906.78	-454.83	3281.46
	1/2 L	4	14265.62	10703.69	10949.38	10900.72	10844.14	10922.84	10829.85	10922	10779.27	6487.08	2957.83	3279.25
	3/4 L	6.114	2411.945	1576.03	-2299.75	3686.406	-64.182	4439.398	-1763.8	7426.24	-1629.43	7849.18	3327.9	3279.25
	Tepi kanan	7.7	-32153	-24822.5	-37371.9	-19209.6	-30546.4	-16921.4	-35705.9	-7854.4	-35305	1420.03	4802.21	3279.25
	Tepi kiri	0.425	-143.238	586.881	12495.27	5347.978	-5090.31	9941.058	-7265.49	9727.86	-15705.5	-6045.52	-2402.21	3303.42
	1/4 L	2.213	12747.93	9785.341	13900.45	11575.42	8200.163	13060.08	7496.61	12989.76	4769.571	-2486.89	-927.38	3303.42
	1/2 L	4	13839.75	10369.25	10375.28	10617.64	10461.38	10649.9	10391.83	10779.37	10392.96	-1137.01	-562.36	3303.42
32	1/2 L	4	14280.49	10715.59	10975.55	10919.99	10836.21	10968.94	10815.82	10962.73	10738.08	6260.21	2853.08	3315.21
	3/4 L	6.1	2914.051	1954.935	-1918.18	3933.427	421.208	4656.536	-1113.75	7470.379	-1034.98	7610.08	3218.09	3315.21
	Tepi kanan	7.675	-30526.4	-23597	-36161.2	-18329.5	-29022.7	-16120.8	-33734.7	-7520.78	-33485.8	11168.71	4692.92	3315.21
	Tepi kiri	0.425	-1063.48	-100.301	11945.29	4457.989	-5530.34	8798.997	-7672.56	8629.983	-15794.4	-6227.34	-2484.41	3341.35
	1/4 L	2.213	12456.47	9568.142	13734.89	11298.45	8052.02	12704.5	7356.162	12655.34	4716.911	-2668.71	-1009.58	3341.35
	1/2 L	4	13862.68	10387.04	10401.93	10615.44	10487.91	10642.9	10429.44	10744.81	10440	-1318.83	-644.56	3341.35
	3/4 L	4	14283.33	10718.6	10994.24	10932.67	10823.06	11000.74	10797.73	10990.24	10696.56	6082.74	2773.16	3365.52
31	Tepi kanan	6.1	3220.667	2184.034	-1731.32	4068.053	724.169	4778.25	-714.409	7475.104	-656.303	7432.62	3138.18	3365.52
	Tepi kiri	7.675	-29612.2	-22915.7	-35638	-17899.5	-28138.7	-15719.9	-32546.8	-7423.55	-32404.5	10991.25	4613	3365.52
	1/4 L	0.425	-1941.72	-760.532	11323.21	3571.135	-5899.13	7819.168	-7998.61	7477.838	-15734.5	-6390.56	-2557.44	3356.09
	1/2 L	2.213	12187.08	9365.593	13546.36	11019.06	7941.596	12400.54	7258.122	12300.82	4735.254	-2831.93	-1082.62	3356.09
	1/2 L	4	13897.72	10413.33	10430.18	10634.2	10513.76	10659.14	10463.01	10742.82	10483.54	-1482.05	-717.6	3356.09
	3/4 L	4	14298.42	10730.14	11012.6	10951.96	10829.78	11024.8	10802.27	11013.22	10688.88	5926.57	2703.83	3392.1
	Tepi kanan	6.1	3526.471	2413.193	-1521.63	4201.586	1034.01	4897.945	-383.322	7467.364	-263.991	7276.44	3068.85	3392.1
29	Tepi kanan	7.675	-28725	-22251.4	-35045.6	-17517.8	-27232.6	-15372.8	-31585.5	-7431.18	-31273.4	10835.07	4543.67	3392.1
	Tepi kiri	0.425	-2679.85	-1310.7	10880.5	2898.344	-6186.82	7013.198	-8256.57	6487.798	-15656.6	-6527.13	-2617.9	3390.56

1/4 L	2.213	11959.93	9196.25	13412.16	10808.92	7856.651	12148.75	7182.105	11994.16	4/60.313	-2968.5	-1143.08	3390.56
1/2 L	4	13926.05	10434.4	10450.23	10650.83	10529.94	10674.13	10485.97	10759.08	10513.67	-1618.62	-778.06	3390.56
1/2 L	4	14310.36	10739.23	11026.69	10966.77	10835.24	11042.05	10805.29	11030.57	10684.01	5794.76	2646.01	3436.77
3/4 L	6.1	3784.386	2604.717	-1373.44	4306.751	1265.936	4994.846	-111.353	7453.086	73.462	7144.64	3011.03	3436.77
Tepi kanan	7.675	-27975.1	-21694.9	-34629.2	-17220.1	-26548	-15098.7	-30791.3	-7464.29	-30294.6	10703.27	4485.86	3436.77
Tepi kiri	0.45	-3002.97	-1538.89	10950.38	2617.45	-6200.99	6663.617	-8279.57	5937.937	-15437.3	-6609.39	-2660.3	3496.29
1/4 L	2.225	11798.9	9080.472	13396.64	10675.1	7804.388	11996.84	7124.435	11781.29	4769.066	-3063.37	-1185.3	3496.29
1/2 L	4	13920.92	10430.97	10451.05	10645.46	10522.82	10668.14	10479.2	10752.58	10518.02	-1725.68	-825.3	3496.29
1/2 L	4	14293.58	10727.63	11029.74	10960.78	10813.73	11041.26	10779.28	11032.51	10644.21	5686.34	2598.5	3551.55
3/4 L	6.433	4028.505	2783.531	-1285.39	4407.899	1467.644	5096.78	118.466	7463.609	372.262	7024.03	2958.5	3551.55
Tepi kanan	7.65	-27059.5	-21023	-34253.1	-16765.1	-25807.2	-14632.5	-29979.4	-7235.03	-29283.4	10570.04	4433.5	3551.55
Tepi kiri	0.45	-3401.36	-1816.69	11066.04	2336.157	-6338.59	6365.551	-8448.8	5450.686	-15454.2	-6687.29	-2693.88	3606.89
1/4 L	2.225	11658.04	8982.01	13430.71	10575.46	7749.029	11896.11	7056.97	11621.41	4742.036	-3141.28	-1218.88	3606.89
1/2 L	4	13908.82	10422.17	10444.34	10639.01	10510.43	10663.75	10469.83	10742.78	10514.36	-1803.59	-858.88	3606.89
1/2 L	4	14273.14	10713.17	11027.31	10947.83	10792.33	11030.19	10755.36	11026.03	10612.07	5607.07	2564.45	3668.24
3/4 L	6.433	4137.009	2858.374	-1336.32	4429.464	1541.006	5127.65	205.97	7435.015	523.314	6944.76	2924.45	3668.24
Tepi kanan	7.65	-26693.1	-20769.6	-34401	-16668.3	-25547.6	-14502.3	-29702	-7256.52	-2887.3	10490.78	4399.45	3668.24
Tepi kiri	0.45	-3750.75	-2062.84	11100.91	2158.064	-6414.56	6033.113	-8540.61	4933.353	-15301.2	-6749.16	-2719.54	3690.2
1/4 L	2.225	11546.28	8903.226	13442.01	10505.28	7730.052	11787.9	7030.921	11455.17	4794.001	-3203.14	-1244.54	3690.2
1/2 L	4	13915.88	10427.07	10443.84	10648.89	10508.96	10674.61	10473.03	10754.39	10519.59	-1865.45	-884.54	3690.2
1/2 L	4	14272.75	10712.98	11029.58	10948.39	10793.16	11021.89	10756.3	11024.16	10616.34	5545.47	2539.15	3756.96
3/4 L	6.433	4254.491	2940.671	-1353.33	4457.937	1589.236	5162.526	312.538	7389.182	693.403	6883.16	2899.15	3756.96
Tepi kanan	7.65	-26339.9	-20522.3	-34456.6	-16600.3	-25352.7	-14409.1	-29378	-7402.57	-28304	10429.18	4374.15	3756.96
Tepi kiri	0.45	-4003.81	-2232.65	11262.99	2110.609	-6441.42	5826.631	-8601.07	4555.739	-15112.3	-6792.09	-2736.39	3788.55
1/4 L	2.225	11462.94	8846.975	13490.63	10485.25	7725.092	11718.42	7013.384	11329.35	4858.653	-3246.08	-1261.39	3788.55
1/2 L	4	13917.4	10427.6	10435.73	10654.22	10502.71	10680.44	10470.98	10763.82	10518.85	-1908.39	-901.39	3788.55
1/2 L	4	14269.22	10710.3	11026.75	10949.87	10793.83	11008.85	10758.3	11017.37	10623.85	5501.22	2521.92	3858.75
3/4 L	6.433	4337.669	2995.799	-1415.78	4468.748	1598.976	5185.611	375.381	7330.169	812.737	6838.91	2881.92	3858.75
Tepi kanan	7.65	-26083.3	-20351.6	-34638.3	-16592.1	-25309.1	-14347.8	-29180.6	-7594.63	-27926.6	10384.93	4356.92	3858.75
Tepi kiri	0.475	-3899.52	-2126.27	11838.21	2408.728	-6241.13	6120.178	-8456.58	4625.557	-14827.6	-6790.24	-2739.14	3947.78
1/4 L	2.238	11429.79	8831.471	13627.04	10529.01	7739.681	11751.36	7007.704	11294.84	4926.275	-3257.24	-1264.32	3947.78
1/2 L	4	13890.18	10407.15	10411.61	10633.27	10479.1	10656.96	10456.05	10738.3	10501.12	-1931.7	-909.3	3947.78
1/2 L	4	14240.47	10689.48	11014.3	10932.92	10773.31	10980.6	10740.04	10994.3	10607.04	5472.48	2511.63	4018.79
3/4 L	5.813	4427.839	3054.695	-1503.35	4494.983	1598.616	5228.488	361.971	7352.985	884.025	6798.01	2866.64	4018.79
Tepi kanan	7.625	-25605.9	-20021.3	-34758.3	-16351.7	-25153.5	-14059.7	-29007.9	-7523.68	-27523	10331.02	4341.47	4018.79
Tepi kiri	0.475	-3938.51	-2121.79	12386.17	2640.378	-6222.76	6670.627	-8516.48	4743.491	-15181.3	-6796.18	-2739	4103.47
1/4 L	2.238	11397.92	8818.682	13791.74	10590.43	7731.404	11921.72	6972.517	11315.34	4815.462	-3263.17	-1264.17	4103.47
1/2 L	4	13861.87	10385.73	10384.68	10610.78	10455.61	10632.99	10437.42	10714.31	10480.51	-1937.64	-909.15	4103.47
1/2 L	4	14212.95	10669.42	11000.15	10913.3	10754.03	10980.98	10718.17	10969.47	10594.92	5461.47	2509.37	4172.89
3/4 L	5.813	4411.672	3031.927	-1701.33	4463.983	1502.248	5224.629	162.405	7454.341	823.264	6787	2864.39	4172.89
Tepi kanan	7.625	-25599.4	-20049.4	-35324	-16407.2	-25408.4	-14923.8	-29594.3	-7226.98	-27649.2	10320	4339.21	4172.89
Tepi kiri	0.475	-3912.61	-2072.33	12887.57	2910.7	-6173.5	7228.747	-8577.9	4900.833	-15641.7	-6784.72	-2730.64	4237.81
1/4 L	2.238	11398.6	8828.52	13941.86	10671.35	7742.784	12096.79	6951.475	11354.4	4669.987	-3251.72	-1255.82	4237.81
1/2 L	4	13849.95	10375.75	10359.16	10602.77	10441.83	10526.94	10420.58	10716.49	10465.12	-1926.18	-900.8	4237.81

6	1/2 L	7.525	13862.57	10403.21	10575.85	10605.5	10495.54	10396.4	10465.55	1145.100	44503.342	-4311.49	-1032.01	2599.5
	1/2 L	6.675	13954.6	10490.96	10883.48	10753.96	10548.25	10829.68	10484.14	10787.94	10416.37	4095.54	1919.87	2746.47
	3/4 L	2.288	7090.801	9200.761	2360.07	5923.053	4643.39	6255.094	4010.235	7290.652	4536.172	5372.87	2255.31	2746.47
	Tepi kanan	4	10445.4	12741.3	22439.2	11143.1	15251.8	10007.9	-17405.6	-6875.48	-15441.3	8849.81	3725.97	2746.47
	Tepi kiri	4	-11340.5	-8175.93	26.371	-6583.6	-9893.78	-4926.56	-10794.5	-6398.2	-13477.4	-8116.91	-3336.48	2374.59
	1/4 L	5.763	8734.617	6665.317	9648.135	7444.048	6312.908	7972.934	5994.261	7456.11	5139.854	-4639.96	-1865.82	2374.59
	1/2 L	7.525	13864.36	10405.1	10582.8	10614.22	10496.45	10671.36	10466.91	10659.82	10405.24	-3362.64	-1530.38	2374.59
	1/2 L	0.575	13950.62	10479.53	10857.98	10735.97	10540.88	10811.76	10480.43	10771.91	10405.28	4032.13	1886.19	2515.4
	3/4 L	2.288	7233.939	5319.83	2731.544	5947.637	4873.08	6233.732	4326.642	7124.454	4797.286	5309.46	2221.63	2515.4
	Tepi kanan	4	-16015	-12361.2	-21273.8	-11055.6	-14528.7	-10084.2	-16193.1	-7410.26	-14613.7	8786.4	3692.29	2515.4
	Tepi kiri	4	-11769.5	-8554.94	-1152.12	-7259.76	-9986.72	-5907.14	-10732	-7196.65	-12988.3	-8177.42	-3368.66	2143.05
	1/4 L	5.763	8591.305	6538.951	9256.808	7221.951	6280.896	7642.712	6019.056	7190.856	5305.292	-4700.47	-1898	2143.05
	1/2 L	7.525	13863.93	10405.05	10585.05	10617.64	10496.09	10670.17	10469.33	10657.02	10403.52	-3423.15	-1562.56	2143.05
	1/2 L	0.6	13934.64	10466.26	10826.81	10715.97	10532.38	10786.94	10478.8	10749.78	10399.04	3970.02	1853.23	2274.26
	3/4 L	2.3	7363.603	5435.732	3107.74	5969.556	5089.801	6206.795	4637.874	6957.097	5050.313	5247.35	2188.66	2274.26
	Tepi kanan	4	-15594.1	-11987	-20082.8	-10975.2	-13859.9	-10175.5	-15192	-7938.61	-13811.5	8724.3	3659.32	2274.26
	Tepi kiri	4	-11901.2	-8712.28	-2178.23	-7727.01	-9850.37	-6664.44	-10436	-7754.69	-12264.9	-8209.68	-3393.46	1905.25
	1/4 L	5.75	8494.858	6446.982	8871.868	7027.686	6284.624	7345.931	6082.174	6966.281	5505.349	-4747.75	-1924.71	1905.25
	1/2 L	7.5	13858.63	10400.91	10578.6	10611.12	10493.88	10658.17	10472.09	10644.64	10406.21	-3482.38	-1594.08	1905.25
	1/2 L	0.6	13913.94	10448.93	10785.57	10687.88	10522.03	10750.34	10478.52	10717.17	10399.12	3907.99	1820.37	2020.8
	3/4 L	2.3	7542.211	5588.851	3547.241	6028.277	5347.153	6215.487	4989.629	6823.537	5338.226	5173.37	2150.99	2020.8
	Tepi kanan	4	-14869.8	-11382.7	-18566.1	-10662.6	-12929.6	-10043.1	-13946.2	-8236.35	-12787.5	8635.3	3619.74	2020.8
	Tepi kiri	4	-12281.2	-9050.07	-3348.88	-8357.93	-9936.17	-7542.88	-10380.3	-8439.68	-11827.1	-8262.96	-3421.66	1665.46
	1/4 L	5.75	8365.153	6331.81	8476.57	6815.622	6253.685	7049.577	6103.997	6768.98	5645.54	-4801.03	-1952.91	1665.46
	1/2 L	7.5	13854.04	10397.04	10570.98	10601.26	10493.91	10643.12	10477.01	10629.91	10414.96	-3535.65	-1622.29	1665.46
	1/2 L	0.6	13895.43	10433.05	10744.04	10660.43	10514.96	10712.17	10481.42	10683.47	10407.16	3852.62	1790.94	1764.17
	3/4 L	2.3	7652.817	5688.881	3916.732	6045.709	5542.958	6188.663	5265.993	6668.577	5563.025	5117.99	2121.56	1764.17
	Tepi kanan	4	-14501	-11050.9	-17374.5	-10693.5	-12298	-10132.9	-13054.3	-8702.68	-12167.2	8579.92	3590.31	1764.17
	Tepi kiri	4	-12654.5	-9384.15	-4723.32	-8994.31	-10023.6	-8430.27	-10329.9	-9010.55	-11369.3	-8314.47	-3449.06	1369.3
	1/4 L	5.75	8238.721	6218.303	8011.315	6598.73	6224.632	6751.704	6116.031	6578.483	5792.133	-4852.54	-1980.31	1369.3
	1/2 L	7.5	13851.05	10393.83	10560.32	10591.85	10498.06	10622.11	10487.61	10610.64	10433.83	-3587.17	-1649.68	1369.3
	1/2 L	0.6	13878.59	10417.83	10695.17	10630.83	10512.12	10667.72	10490.44	10645.15	10426.53	3798.57	1762.13	1445.71
	3/4 L	2.3	7764.246	5789.759	4353.034	6066.932	5741.599	6168.728	5546.826	6510.423	5742.367	5063.94	2092.75	1445.71
	Tepi kanan	4	-14133	-10717.8	-15967.9	-10520.7	-11649.7	-10198.8	-12153.2	-9177.7	-11597.7	8525.88	3561.5	1445.71
	Tepi kiri	4	-13033.3	-9722.5	-6656.12	-9631.98	-10140.7	-9337.82	-10402.2	-9614.98	-10894.7	-8366.79	-3476.72	919.43
	1/4 L	5.75	8109.05	6102.081	7360.689	6375.072	6185.412	6448.37	6101.031	6373.653	5939.791	-4904.86	-2007.97	919.43
	1/2 L	7.5	13845.95	10388.67	10550.77	10576.33	10503.39	10596.32	10499.24	10585.16	10458.18	-3639.48	-1677.35	919.43
	1/2 L		13859.58	10400.57	10635.72	10596.26	10510.38	10618.07	10500.19	10600.9	10453.25	3744.26	1733.23	970.61
	3/4 L		7873.664	5889.094	4968.015	6095.194	5935.403	6181.186	5831.968	6342.988	5927.744	5009.63	2063.85	970.61
	Tepi kanan		-13766.7	-10385.3	-14004	-10426.8	-10992.9	-10168.1	-11241.5	-9670.03	-10993.8	8471.57	3532.6	970.61

Lantai	Tipe	inomen												geser		
		Comb 1		Comb 2		Comb 3		Comb 4		Comb 5		Comb 6		Vd	VI	Ve
		Kg-m	Kg-m	Kg-m	Kg-m	max	min	Kg-m	Kg-m	max	min	Kg-m	Kg-m			
35	Tepi kiri	0.35	-802.428	-588.443	-367.312	-525.149	-887.546	-279.521	-957.094	-317.641	-1264.49	-2006.82	-312.15	120.73		
	1/4 L	2.783	786.826	588.822	664.679	664.272	640.182	669.339	634.108	675.754	640.058	1142.66	277.58	120.73		
	1/2 L	4	-2705.82	-2038	-2385.4	-2139.19	-2335.74	-2103.34	-2446.42	-1950.3	-2423.47	2598.46	425.6	120.73		
	1/2 L	4	-2792.78	-2105.27	-2497.59	-2179.64	-2427.87	-2133.94	-2572.55	-1937.61	-2542.46	-2337.71	-302.32	119.98		
	3/4 L	5.217	79.184	41.414	-245.63	325.963	-105.94	406.584	-369.733	755.6	-314.505	-881.91	-154.29	119.98		
	Tepi kanan	7.65	-2751.44	-2096.12	-2873.85	-1794.7	-2594.92	-1644.27	-3096.24	-990.114	-2991.07	2267.57	435.43	119.98		
	1/4 L	0.35	-701.838	-493.53	130.085	-253.43	1017.08	239.111	-1167.08	145.076	-1824.54	-2015.77	-378.14	241.23		
	1/2 L	2.783	801.927	604.685	777.114	700.212	614.286	756.003	595.373	749.095	517.724	1231.01	359.02	241.23		
	1/2 L	4	-3050.06	-2299.11	-2696.14	-2365.07	-2629.68	-2316.28	-2782.53	-2106.81	-2751.46	2711.24	544.05	241.23		
	3/4 L	4	-3206.76	-2422.07	-2933.53	-2421.11	-2810.24	-2347.93	-3043.71	-2031.8	-2997.3	-2356.78	-370.75	239.87		
33	Tepi kanan	5.217	-209.655	-188.948	-749.112	252.994	-474.177	392.017	-923.611	995.308	-835.897	-876.55	-185.71	239.87		
	1/4 L	7.65	-3423.18	-2628.5	-3973.79	-1992.33	-3397.63	-1721.62	-4276.94	-544.003	-4106.62	2370.23	551.44	239.87		
	Tepi kiri	0.35	-608.955	-438.67	7.491	-339.322	-687.618	-172.531	-776.89	-187.775	-1077.45	-2035.76	-397.3	145.49		
	1/4 L	2.783	1027.822	775.155	999.191	886.282	804.376	922.676	781.32	918.552	713.865	1211.02	339.85	145.49		
	1/2 L	4	-2757.65	-2070.83	-2301.72	-2246.1	-2297.68	-2235.9	-2326.98	-2185.62	-2325.43	2691.24	524.88	145.49		
	1/2 L	4	-2891.17	-2173.46	-2476.3	-2329.13	-2429.25	-2306.92	-2481.82	-2214.53	-2478.28	-2376.32	-389.58	144.2		
	3/4 L	5.217	171.131	116.48	-120.645	274.043	42.503	328.941	-73.958	536.118	-64.963	-896.09	-204.55	144.2		
	Tepi kanan	7.65	-2912.01	-2209.44	-3002.86	-2113.03	-2607.52	-1992.56	-2851.76	-1555.7	-2831.85	2350.69	532.61	144.2		
	1/4 L	0.375	-1095.55	-824.092	-683.063	-776.235	-1060.91	-686.872	-1112	-620.731	-1146.32	-2081.55	-430.36	66.96		
	1/2 L	2.792	802.121	598.642	713.324	722.159	598.643	737.297	553.757	810.902	553.021	1147.14	307.05	66.96		
31	1/2 L	4	-2789.6	-2095.41	-2333.07	-2269.13	-2325.94	-2257.65	-2358.41	-2200.38	-2358.66	2616.24	489.56	66.96		
	1/2 L	4	-2856.78	-2145.81	-2417.68	-2324.67	-2385.75	-2312.02	-2406.04	-2271.76	-2402.69	-2451.28	-424.88	65.48		
	3/4 L	5.208	370.684	274.639	169.317	388.46	249.625	385.43	203.482	429.715	238.89	-982.17	-242.37	65.48		
	Tepi kanan	7.625	-2255.49	-1695.29	-2145.88	-1664.97	-1975.16	-1665.08	-2096.64	-1570.27	-2077.74	2246.51	495.04	65.48		
	1/4 L	0.375	-1232.93	-931.682	-821.318	-820.446	-1212.47	-759.25	-1372.74	-556.444	-1380.82	-2104.65	-442.58	55.36		
	1/2 L	2.792	778.978	580.113	694.135	719.283	570.09	739.005	496.412	846.331	501.553	1124.03	294.84	55.36		
	1/2 L	4	-2755.62	-2069.4	-2292.73	-2248.08	-2292.38	-2237.12	-2315.52	-2196.18	-2319.12	2593.14	477.35	55.36		
	1/2 L	4	-2801.53	-2103.22	-2355.1	-2276.96	-2337.78	-2278.49	-2361.62	-2253.24	-2338.61	-2474.38	-437.08	53.73		
	3/4 L	5.208	483.026	361.752	291.596	494.879	339.202	516.252	263.32	558.002	244.888	-1005.27	-254.57	53.73		
	Tepi kanan	7.625	-2028.97	-1519.14	-1904.19	-1446.73	-1839.13	-1325.32	-1975.98	-1291.24	-2077.29	2223.41	482.84	53.73		
30	Tepi kiri	0.375	-1369.5	-1038.3	-950	-894.279	-1355.48	-845.995	-1598.86	-504.575	-1573.24	-2123.7	-452.02	50.2		
	1/4 L	2.792	734.144	544.875	650.818	696.732	521.617	720.736	420.901	868.237	435.551	1104.98	285.4	50.2		
	1/2 L	4	-2754.59	-2068.95	-2293.36	-2246.53	-2294.07	-2233.48	-2318.47	-2189.95	-2322.54	2574.09	467.91	50.2		
	1/2 L	4	-2783.42	-2089.46	-2339.77	-2262.88	-2322.55	-2263.29	-2348	-2233.38	-2332.38	-2493.41	-446.51	48.36		
	3/4 L	5.208	546.976	411.192	349.851	547.154	376.085	618.571	318.974	622.236	265.577	-1024.31	-264	48.36		
	Tepi kanan	7.625	-1873.35	-1398.33	-1760.08	-1288.83	-1751.19	-1072.15	-1836.27	-1079.93	-2064.83	2204.37	473.41	48.36		
	1/4 L	0.375	-1437.99	-1092.45	-999.237	-946.748	-1417.05	-898.735	-1706.91	-474.811	-1658.05	-2133.71	-457.1	51.35		

1/4 L	4	-2750.02	-2065.73	-2289.48	-2243.36	-2290.95	-2228.34	-2317.34	-2183.95	-2320.88	2564.08	462.82	51.35
1/2 L	4	-2769.83	-2079.15	-2329.29	-2257.71	-2309.8	-2254.39	-2329.2	-2224.27	-2320.61	-2503.42	-451.59	49.3
3/4 L	5.208	584.898	440.629	378.294	579.372	409.72	673.722	381.256	661.959	280.769	-1034.31	-269.08	49.3
Tepi kanan	7.625	-1786.76	-1330.65	-1695.72	-1213.65	-1677.3	-941.599	-1709.71	-982.81	-2086.81	2194.37	468.33	49.3
28	0.4	-1393.5	-1061.46	-950.1	900.517	-1377.25	-822.522	-1674.56	-398.408	-1621.46	-2110.41	-457.52	54.27
Tepi kiri	2.8	690.588	510.203	622.361	668.601	481.166	699.399	365.052	878.128	385.406	1100.04	279.98	54.27
1/4 L	4	-2744.91	-2062.1	-2284.06	-2238.98	-2287.86	-2222.74	-2317.49	-2175.57	-2319.64	2558.04	459.98	54.27
1/2 L	4	-2759.47	-2071.29	-2321.07	-2259.24	-2298.99	-2251.79	-2316.11	-2225.4	-2301.76	-2509.44	-454.42	52.15
3/4 L	5.2	595.344	449.284	383.027	579.712	419.433	681.281	392.927	662.996	276.132	-1051.44	-274.42	52.15
Tepi kanan	7.6	-1650.05	-1225.83	-1594.08	-1114.31	-1568.94	-828.599	-1643.25	-880.716	-2011.06	2159.01	463.08	52.15
27	0.4	-1401.42	-1068.61	-926.707	900.022	-1379.18	-808.716	-1655.31	-405.471	-1620.09	-2112.09	-458.24	61.8
Tepi kiri	2.8	690.23	509.413	632.794	670.627	481.14	708.179	371.983	879.071	381.027	1098.36	279.26	61.8
1/4 L	4	-2741.45	-2059.71	-2280.11	-2236.07	-2286.69	-2218.85	-2317.69	-2170.25	-2318.84	2556.36	459.26	61.8
1/2 L	4	-2754.65	-2067.75	-2319.59	-2254.81	-2296.94	-2247.49	-2310.29	-2226.98	-2290.36	-2511.1	-455.13	59.62
3/4 L	5.2	603.914	455.973	378.078	581.851	423.28	674.091	391.141	662.74	286.207	-1053.1	-275.13	59.62
Tepi kanan	7.6	-1633.98	-1212.84	-1611.9	-1110.35	-1563.52	-848.543	-1652.33	-881.443	-1993.26	2157.35	462.37	59.62
26	0.4	-1409.87	-1076.64	-913.782	910.498	-1363.5	-806.767	-1609.43	-428.365	-1619.08	-2113.44	-458.89	66.78
Tepi kiri	2.8	688.173	507.185	638.22	667.853	485.733	714.524	387.094	872.384	376.333	1097.01	278.61	66.78
1/4 L	4	-2740.31	-2059.03	-2278.43	-2235.07	-2286.99	-2217.41	-2318.31	-2168.41	-2318.68	2555.01	458.61	66.78
1/2 L	4	-2752.35	-2066	-2319.29	-2253.11	-2297.93	-2247.18	-2301.99	-2232.64	-2286.85	-2512.45	-455.77	64.47
3/4 L	5.2	609.395	460.625	374.777	573.623	429.551	652.449	395.18	659.502	299.111	-1054.45	-275.77	64.47
Tepi kanan	7.6	-1622.14	-1202.38	-1622.4	-1129.85	-1549.65	-900.691	-1644.9	-889.375	-1963.57	2156	461.73	64.47
25	0.4	-1412.76	-1080.46	-897.008	927.356	-1385.99	-796.142	-1613.27	-472.776	-1621.66	-2114.18	-459.16	71.41
Tepi kiri	2.8	688.487	506.803	645.909	669.229	479.775	719.085	382.481	858.446	377.034	1096.27	278.34	71.41
1/4 L	4	-2738.4	-2057.7	-2275.29	-2233.59	-2286.12	-2215.91	-2316.5	-2167.56	-2316.78	2554.27	458.34	71.41
1/2 L	4	-2749.85	-2064.03	-2317.79	-2250.72	-2293.57	-2248.06	-2303.92	-2237.69	-2281.26	-2513.19	-456.04	68.99
3/4 L	5.2	613.472	464.315	371.853	586.935	439.511	646.258	404.885	654.616	321.137	-1055.19	-276.04	68.99
Tepi kanan	7.6	-1614.91	-1195.27	-1634.17	-1099.73	-1527.33	-907.918	-1638.95	-904.78	-1911.39	2155.26	461.46	68.99
24	0.425	-1319.18	-1011.26	-789.679	861.486	-1338.52	-722.758	-1524.94	-480.016	-1521.49	-2084.2	-455.95	78.84
Tepi kiri	2.808	682.12	501.694	653.778	653.179	464.665	711.93	380.448	823.881	380.262	1107.88	281.46	78.84
1/4 L	4	-2731.97	-2052.89	-2265.45	-2228.75	-2281.1	-2211.34	-2309.58	-2164.74	-2310.48	2554.79	458.97	78.84
1/2 L	4	-2744.16	-2059.63	-2311.99	-2241.98	-2291.21	-2234.55	-2299.49	-2230.44	-2279.6	-2512.65	-455.4	76.45
3/4 L	5.192	602.862	456.807	355.74	592.134	423.158	653.03	396.075	634.02	348.717	-1065.74	-277.89	76.45
Tepi kanan	7.575	-1532.57	-1132.43	-1590.72	-998.032	-1459.12	-853.643	-1568.78	-861.615	-1751.22	2126.34	459.53	76.45
23	0.425	-1286.94	-986.986	-720.649	824.161	-1324.28	-707.879	-1477.28	-518.024	-1470.36	-2080.59	-453.81	89.08
Tepi kiri	2.808	695.855	512.057	682.772	661.235	472.158	718.115	400.188	808.402	402.019	1111.49	283.6	89.08
1/4 L	4	-2727.49	-2049.48	-2256.48	-2226.44	-2276.83	-2209.68	-2303.77	-2166.96	-2303.42	2558.4	461.11	89.08
1/2 L	4	-2743.19	-2058.85	-2310.56	-2240.78	-2289.83	-2231.18	-2297.55	-2221.13	-2284.85	-2509.03	-453.25	86.74
3/4 L	5.192	594.547	450.61	337.066	591.554	407.149	662.53	387.64	623.319	339.318	-1062.12	-275.74	86.74
Tepi kanan	7.575	-1559.45	-1152.58	-1649.6	-1005.51	-1505.12	-831.961	-1581.75	-905.406	-1744.87	2129.96	461.68	86.74
22	0.425	-1259.46	-965.607	-652.8	-797.812	-1296.37	-706.458	-1468.84	-522.258	-1404.26	-2077.08	-451.66	101.5
Tepi kiri	2.808	705.107	519.114	705.396	671.116	484.137	717.835	413.96	795.881	425.383	1115	285.75	101.5
1/4 L	4	-2727.35	-2049.58	-2256.46	-2226.86	-2277.29	-2210.45	-2305.01	-2169.37	-2301.16	2561.91	463.26	101.5

3/4 L	5.192	582.128	440.646	305.98	535.906	397.348	654.138	375.86	613.285	328.274	2.002.241	2.002.241	921.922	99.15
Tepi kanan	7.575	1500.13	1176.88	1726.91	1026.83	1511.5	847.921	1596.8	963.789	1743.8	2133.48	2133.48	463.83	69.15
Tepi kiri	0.422	1193.02	988.978	472.021	780.380	1211.01	717.290	1353.13	960.413	-1261.9	-2009.3	-2009.3	-447.09	134.54
1/4 L	2.808	731.852	541.592	772.564	678.418	517.261	715.385	462.546	777.423	483.684	1122.78	1122.78	290.33	134.54
1/2 L	4	-2720.45	-2044.18	-2246.1	-2222.47	-2271.71	-2208.26	-2296.12	-2169.16	-2291.28	2569.69	2569.69	467.84	134.54
1/2 L	4	-2747.09	-2062.7	-2330.19	-2240.74	-2301.37	-2235.18	-2321.11	-2210.19	-2297.56	-2497.73	-2497.73	-446.52	132.22
3/4 L	5.192	561.658	422.505	237.975	555.76	399.469	610.505	377.573	621.604	330.867	-1050.82	-1050.82	-269.01	132.22
Tepi kanan	7.575	-1650.32	-1229.19	-1907.61	-1109.69	-1533.66	-964.292	-1583.72	-996.731	-1737.59	2141.26	2141.26	468.41	132.22
Tepi kiri	0.45	-1089.55	-822.301	-231.767	-768.123	-1055.25	-733.925	-1156.25	-582.889	-1188.92	-2035.08	-2035.08	-440.52	187.98
1/4 L	2.817	713.017	528.589	783.28	650.614	512.118	675.332	453.053	757.453	495.841	1138.5	1138.5	296.63	187.98
1/2 L	4	-2737.95	-2060.16	-2298.7	-2228.99	-2303.65	-2206.83	-2339.32	-2153.32	-2322.43	2574.33	2574.33	471.66	187.98
1/2 L	4	-2769.82	-2084.1	-2412.14	-2250.27	-2339.82	-2231.42	-2362.05	-2178.77	-2338.96	-2493.08	-2493.08	-442.68	185.78
3/4 L	5.183	510.896	376.091	68.477	496.013	329.289	507.3	287.451	577.644	350.781	-1057.25	-1057.25	-267.64	185.78
Tepi kanan	7.55	-1632.19	-1231.9	-2149.3	-1179.36	-1511.5	-1132.61	-1601.67	-975.6	-1505.7	2116.33	2116.33	469.51	185.78
Tepi kiri	0.45	-691.052	-465.874	890.701	-226.501	-768.445	-6.619	-919.672	-151.952	-1290.31	-1991.34	-1991.34	-416.95	385.05
1/4 L	2.817	898.04	690.196	1248.764	848.372	673.003	921.083	623.899	871.549	501.713	1182.24	1182.24	320.2	385.05
1/2 L	4	-2659.67	-1995.96	-2161.71	-2182.07	-2211.65	-2174.45	-2223.89	-2152.86	-2222.83	2618.07	2618.07	495.23	385.05
1/2 L	4	-2732.46	-2057.28	-2401.35	-2217.76	-2310.78	-2195.58	-2341.93	-2127.57	-2327.2	-2449.35	-2449.35	-419.11	383.11
3/4 L	5.183	441.539	305.508	-249.527	468.978	201.9	541.237	100.213	727.575	159.767	-1013.52	-1013.52	-244.08	383.11
Tepi kanan	7.55	-1914.97	-1497.31	-3124.9	-1326.52	-1959.52	-1154.53	-2206.76	-719.482	-2052.1	2160.06	2160.06	493.07	383.11
Tepi kiri	0.45	-1380.29	-996.453	-131.749	-838.008	-1325.94	-664.7	-1463.6	-677.71	-1825.6	-2048.17	-2048.17	-440.98	395.64
1/4 L	2.817	461.168	335.72	400.93	461.19	285.959	503.385	226.702	626.548	290.059	1125.41	1125.41	296.17	395.64
1/2 L	4	-2970.35	-2262.38	-2922.24	-2269.02	-2677.55	-2197.02	-2907.34	-1839.71	-2752.6	2561.24	2561.24	471.21	395.64
1/2 L	4	-2993.19	-2288.71	-3126.33	-2244.55	-2757.34	-2143	-3039.08	-1721.15	-2860.51	-2506.63	-2506.63	-443.46	392.94
3/4 L	5.183	308.236	163.127	-885.31	600.157	-194.47	777.47	-609.959	1369.484	-370.317	-1070.8	-1070.8	-268.42	392.94
Tepi kanan	7.55	-1793.42	-1461.59	-3582.29	-885.697	-2250.28	-559.905	-2930.73	371.74	-2573.41	2102.78	2102.78	468.73	392.94
Tepi kiri	0.45	-654.433	-446.559	462.947	-206.306	-757.098	-76.105	-934.51	-191.325	-1198.69	-1934.17	-1934.17	-390.58	404.35
1/4 L	2.817	672.444	494.832	565.461	623.601	472.191	662.768	387.949	768.149	429.222	1239.41	1239.41	346.57	404.35
1/2 L	4	-3016.37	-2298.66	-2972.79	-2301.76	-2743.55	-2198.7	-2954.71	-1842.09	-2773.29	2675.24	2675.24	521.6	404.35
1/2 L	4	-3138.52	-2400.39	-3259.67	-2355.12	-2913.68	-2212.63	-3166.56	-1778.88	-2934.63	-2392.58	-2392.58	-393.03	401.51
3/4 L	5.183	-94.502	-144.015	-1233.66	286.08	-583.624	530.994	-945.572	1168.914	-581.52	-956.75	-956.75	-218	401.51
Tepi kanan	7.55	-2710.98	-2159.66	-4360.64	-1608.79	-3106.4	-1160	-3682.98	-113.196	-3055.83	2216.83	2216.83	519.15	401.51
Tepi kiri	0.475	-221.348	-116.273	1298.097	170.806	-418.8	318.766	-536.926	153.457	-871.648	-1898.79	-1898.79	-386.23	394.61
1/4 L	2.825	993.794	760.735	1339.569	927.019	743.714	977.77	701.168	933.675	596.195	1256.15	1256.15	350.49	394.61
1/2 L	4	-2688.68	-2018.3	-2178	-2205.45	-2236.77	-2200.79	-2244.41	-2186.26	-2240.51	2680.91	2680.91	523.07	394.61
1/2 L	4	-2816.5	-2120.65	-2465.76	-2286.87	-2384.05	-2263.7	-2404.68	-2224.34	-2372.58	-2386.44	-2386.44	-391.24	392.47
3/4 L	5.175	202.929	126.925	445.207	290.729	-7.633	351.926	-70.574	503.617	28.305	-961.68	-961.68	-218.66	392.47
Tepi kanan	7.525	-2338.31	-1812.99	-3480.71	-1630.45	-2331.4	-1493.43	-2489.49	-1116.53	-2271.16	2193.26	2193.26	518.06	392.47
Tepi kiri	0.475	-718.855	-549.427	172.079	-456.516	-813.236	-386.423	-914.367	-139.793	-886.221	-1962.35	-1962.35	-417.96	214.74
1/4 L	2.825	794.802	587.712	892.478	720.41	550.647	756.895	494.272	879.459	550.052	1192.59	1192.59	318.76	214.74
1/2 L	4	-2738.42	-2061.26	-2285.63	-2227.13	-2309	-2201.99	-2343.99	-2148.98	-2307.17	2617.36	2617.36	491.34	214.74
1/2 L	4	-2808.6	-2113.37	-2442.13	-2284.24	-2370.68	-2270.88	-2382.83	-2229.66	-2363.25	-2449.97	-2449.97	-422.94	212.33
3/4 L	5.175	360.003	264.235	-81.837	359.929	205.808	387.871	179.667	446.816	205.609	-1025.21	-1025.21	-250.36	212.33

14	Tepi kanan	1415,62	2437,85	1373,68	1118,44	1278,5	1792,36	1200,71	-1818,82	2129,73	485,35	212,35
0.475	Tepi kiri	841,055	33,686	-493,942	-994,058	-385,964	-1130,52	-53,676	-1006,28	-1983,7	-428,87	174,89
1/4 L	1/4 L	664,679	717,131	517,976	271,27	762,967	459,811	894,388	518,346	1171,24	307,85	174,89
1/2 L	1/2 L	2708,72	2708,72	2708,72	2708,72	2708,72	2708,72	2708,72	2708,72	2708,72	2708,72	174,89
3/4 L	3/4 L	-2759,44	-2072,44	-2346,77	-2316,9	-2244,49	-2323,32	-2220,61	-2308,74	-2471,32	-433,85	172,3
5.175	Tepi kanan	1681,89	1246,57	102,701	485,742	531,348	278,192	534,964	180,542	-1046,55	-261,27	172,3
0.475	Tepi kiri	970,395	-760,491	-239,535	-552,564	-1155,06	-417,402	-1305,94	-1160,08	-2002,37	-438,24	148,25
1/4 L	1/4 L	732,393	534,492	793,741	700,858	463,363	759,319	398,774	904,731	1152,57	298,48	148,25
1/2 L	1/2 L	-2706,26	-2035,55	-2227,92	-2210,33	-2273,11	-2189,36	-2295,5	-2276,38	2577,33	471,06	148,25
3/4 L	3/4 L	-2740,09	-2057,32	-2324,35	-2296,01	-2235,34	-2302,19	-2207,27	-2295,71	-2489,97	-443,2	145,52
5.175	Tepi kanan	523,016	399,188	192,729	557,981	355,876	602,953	318,255	572,698	187,165	-270,62	145,52
0.5	Tepi kiri	1530,88	-1122,87	-1849,73	-903,006	-1475,19	-774,609	-1590,14	-881,311	2089,73	466,1	145,52
2.833	Tepi kanan	956,067	-753,539	-230,55	-523,177	-1130,07	-382,939	-1261,93	-65,376	-1132,83	-440,28	146,37
1/4 L	1/4 L	703,073	511,234	772,266	683,02	439,854	743,116	383,229	866,406	436,911	1152,9	146,37
1/2 L	1/2 L	-2695,49	-2027,48	-2213,68	-2200,98	-2263,87	-2180,93	-2288,46	-2155,03	-2270,98	2566,61	146,37
3/4 L	3/4 L	553,379	423,729	226,407	574,278	373,688	619,333	336,464	588,992	225,182	-1086,97	143,6
7.5	Tepi kanan	1356,42	-987,717	-1691,74	-779,151	-1349,85	-666,465	-1469,01	-756,538	2049,2	457,97	143,6
0.5	Tepi kiri	977,056	-771,19	-229,661	-536,781	-1165,78	-390,173	-1296,16	-148,947	-1188,48	-442,05	150,25
2.833	Tepi kanan	699,168	507,582	777,154	681,706	429,598	743,302	369,086	840,26	1149,16	294,06	150,25
1/4 L	1/4 L	-2690,86	-2024,13	-2206,79	-2196,03	-2261	-2174,99	-2287,83	-2152,11	-2271,08	2562,87	150,25
1/2 L	1/2 L	-2711,97	-2035,64	-2294,39	-2217,9	-2260,69	-2218,46	-2266,56	-2196,11	-2265,56	-2504,41	147,49
3/4 L	3/4 L	569,787	436,722	235,859	589,135	387,063	615,349	345,415	589,306	267,912	-1090,7	147,49
7.5	Tepi kanan	1322,98	-960,765	-1678,35	-739,845	-1324,21	-644,615	-1452,59	-737,456	2045,46	456,21	147,49
0.5	Tepi kiri	997,647	-788,499	-244,964	-548,81	-1210,34	-409,488	-1351,15	-259,571	-1256,32	-443,68	150,45
2.833	Tepi kanan	693,795	502,85	773,362	679,302	415,619	737,986	350,308	805,464	391,144	292,43	150,45
1/4 L	1/4 L	-2688,62	-2022,58	-2204,83	-2193,33	-2260,48	-2171,32	-2288,93	-2148,13	-2272,61	2559,61	150,45
1/2 L	1/2 L	-2706,83	-2031,69	-2290,35	-2216,35	-2255,41	-2214,99	-2260,98	-2198,99	-2255,56	-2507,67	147,68
3/4 L	3/4 L	582,505	446,942	245,641	611,57	395,687	637,414	356,682	612,999	322,272	-1093,96	147,68
7.5	Tepi kanan	1295,11	-938,011	-1657,09	-686,879	-1306,13	-411,719	-1413,37	-242,778	-1318,97	-1993,3	150,84
0.5	Tepi kiri	1015,78	-803,628	-256,642	-551,458	-1231,02	-411,719	-1413,37	-242,778	-1318,97	-1993,3	150,84
2.833	Tepi kanan	689,507	499,124	771,66	679,563	409,958	741,826	330,459	811,479	370,478	290,99	150,84
1/4 L	1/4 L	-2685,98	-2020,6	-2201,54	-2190,78	-2258,68	-2168,6	-2288,22	-2145,89	-2272,32	2556,58	150,84
1/2 L	1/2 L	-2701,54	-2027,54	-2285,27	-2215,8	-2250,26	-2208,04	-2257,17	-2205,09	-2245,43	-2510,69	148,12
3/4 L	3/4 L	594,678	456,767	255,623	623,694	399,262	668,404	368,258	642,565	317,012	-1096,98	148,12
7.5	Tepi kanan	1269,15	-916,836	-1637,29	-659,853	-1299,79	-510,75	-1409,81	-591,849	-1561,81	2039,18	148,12
0.525	Tepi kiri	950,084	-754,541	-171,278	-494,78	-1151,06	-350,5	-1393,93	-131,048	-1300,38	-1966,22	158,35
2.842	Tepi kanan	674,567	488,036	774,741	667,325	406,476	730,847	307,688	817,226	346,347	151,04	158,35
1/4 L	1/4 L	-2679,63	-2015,57	-2188,91	-2186,44	-2252,15	-2165,02	-2281,57	-2142,93	-2267,14	2553,71	158,35
1/2 L	1/2 L	-2692,91	-2020,71	-2274,53	-2210,91	-2246,73	-2201,09	-2249,34	-2191,61	-2240,61	-2513,55	155,76
3/4 L	3/4 L	594,374	457,032	250,97	612,121	396,586	636,866	362,297	659,284	287,99	-1110,88	155,76
7.475	Tepi kanan	1164,09	-837,266	-1571,34	-601,788	-1217,77	-381,143	-1334,57	-464,594	-1543,34	2006,38	155,76
0.525	Tepi kiri	937,736	-746,549	-147,518	-484,566	-1131,79	-336,535	-1415,05	-74,968	-1320,27	-1965,1	159,7

	4.974	501.120	492.03	18.1921	511.311	410.229	139.366	304.611	639.099	942.191	1122.10	295.1	159.1
1/2 L	4	-2675.96	-2012.37	-2176.8	-2185.12	-2247.14	-2164.99	-2274.88	-2143.79	-2262.55	2554.83	460.81	159.7
1/2 L	4	-2690.42	-2018.18	-2264.11	-2207.12	-2243.33	-2201.24	-2246.94	-2183.74	-2248.86	-2512.42	-453.38	157.29
3/4 L	5.158	593.95	457.933	257.265	618.633	393.245	705.48	356.09	675.004	262.044	-1109.75	-285.66	157.29
Tepi kanan	7.475	-1170.36	-839.63	-1573.29	-603.175	-1226.72	-344.584	-1349.87	-432.845	-1606.68	2007.5	449.67	157.29
Tepi kiri	0.525	-938.48	-748.471	-159.35	-475.917	-1168.47	-338.579	-1439.59	-30.853	-1344.15	-1965.58	-442.41	155.06
1/4 L	2.842	682.381	493.625	791.798	673.48	411.488	733.833	300.799	848.264	337.913	1151.68	292.92	155.06
1/2 L	4	-2673.71	-2010.22	-2169.28	-2185.04	-2243.1	-2166.62	-2268.43	-2146.37	-2257.91	2554.35	460.63	155.06
1/2 L	4	-2687.8	-2015.52	-2254.21	-2197.09	-2239.18	-2194.57	-2245.68	-2174.32	-2259.98	-2512.9	-453.54	152.83
3/4 L	5.158	597.541	461.912	273.371	643.276	386.933	726.236	354.797	692.612	237.092	-1110.23	-285.83	152.83
Tepi kanan	7.475	-1164.82	-833.008	-1544.77	-549.034	-1239.78	-303.811	-1350.7	-396.524	-1663.24	2007.03	449.5	152.83
Tepi kiri	0.525	-946.4	-754.845	-175.441	-464.806	-1196.59	-356.095	-1451.87	-9.346	-1357.4	-1967.29	-443.11	150.56
1/4 L	2.842	681.828	493.483	792.515	676.174	406.164	726.407	302.812	851.697	338.349	1149.96	292.22	150.56
1/2 L	4	-2670.58	-2007.25	-2160.16	-2184.74	-2237.44	-2168.89	-2259.07	-2150.15	-2250.65	2552.63	459.93	150.56
1/2 L	4	-2683.24	-2011.35	-2241.95	-2186.73	-2240.23	-2182.52	-2244.83	-2163.66	-2270.51	-2514.61	-454.23	148.58
3/4 L	5.158	605.749	469.154	293.718	665.057	379.426	745.488	359.63	709.085	219.036	-1111.94	-286.52	148.58
Tepi kanan	7.475	-1149.31	-819.622	-1508.26	-504.689	-1256.14	-270.155	-1335.49	-366.656	-1699.1	2005.32	448.81	148.58
Tepi kiri	0.55	-880.799	-703.709	-106.279	-399.205	-1128.24	-330.718	-1369.57	34.349	-1280.16	-1940.12	-440.68	153.06
1/4 L	2.85	667.141	483.641	792.008	665.086	401.13	700.348	305.789	829.535	337.999	1158.09	293.7	153.06
1/2 L	4	-2664.1	-2001.59	-2145.07	-2182.88	-2227.49	-2170.03	-2245.3	-2153.18	-2239.35	2549.73	459.01	153.06
1/2 L	4	-2674.52	-2004.14	-2226.39	-2177.23	-2239.33	-2169.31	-2241.69	-2152.69	-2274.76	-2517.5	-455.15	151.39
3/4 L	5.15	605.128	468.948	299.489	663.113	367.465	744.12	362.636	706.807	207.991	-1125.86	-289.83	151.39
Tepi kanan	7.45	-1045.98	-742.689	-1421.2	-428.564	-1192.67	-199.985	-1231.64	-295.267	-1623.71	1972.36	444.54	151.39
Tepi kiri	0.55	-874.665	-698.762	-135.306	-386.418	-1114.07	-341.471	-1342.54	27.79	-1255.42	-1939.93	-440.41	141.3
1/4 L	2.85	671.74	487.827	790.257	668.885	409.174	693.82	323.48	821.534	353.542	1158.29	293.96	141.3
1/2 L	4	-2660.27	-1997.78	-2133.18	-2183.85	-2218.29	-2174.47	-2232.64	-2160.05	-2228.34	2549.93	459.28	141.3
1/2 L	4	-2671	-2000.5	-2209.28	-2170.17	-2241.37	-2158.31	-2239.11	-2154.64	-2279.67	-2517.3	-454.87	140
3/4 L	5.15	607.856	472.151	329.765	665.387	360.709	750.349	356.375	710.996	199.038	-1125.66	-289.55	140
Tepi kanan	7.45	-1044.84	-740.352	-1364.59	-434.565	-1207.7	-203.66	-1228.19	-300.895	-1633.39	1972.56	444.82	140
Tepi kiri	0.55	-883.371	-700.645	-211.395	-421.246	-1093.6	-398.785	-1278.65	-67.315	-1190.2	-1942.32	-441.03	122.2
1/4 L	2.85	671.921	490.166	767.556	656.949	423.273	671.584	353.922	783.548	384.108	1155.89	293.35	122.2
1/2 L	4	-2655.64	-1993.33	-2129.19	-2184.23	-2208.08	-2177.79	-2218.34	-2167.82	-2215.05	2547.54	458.66	122.2
1/2 L	4	-2664.63	-1995.24	-2194.9	-2162.64	-2237.06	-2151.51	-2235.1	-2156.45	-2274.9	-2519.69	-455.47	121.32
3/4 L	5.15	618.649	479.471	370.321	669.816	376.547	739.469	374.267	699.606	229.983	-1128.05	-290.16	121.32
Tepi kanan	7.45	-1025.21	-728.928	-1271.68	-435.467	-1168.69	-249.305	-1179.44	-347.752	-1543.9	1970.16	444.21	121.32
Tepi kiri	0.55	-926.147	-719.797	-360.21	-550.712	-1009.48	-536.651	-1127.53	-327.152	-1059.65	-1947.82	-444.73	93.53
1/4 L	2.85	657.917	484.569	710.18	612.607	456.127	620.553	412.484	690.599	434.918	1150.4	289.65	93.53
1/2 L	4	-2655.26	-1992.15	-2140.85	-2187.57	-2200.21	-2183.77	-2206	-2178.59	-2204.1	2542.04	454.96	93.53
1/2 L	4	-2658.56	-1991.39	-2188.65	-2166.97	-2221.57	-2158.66	-2220.13	-2167	-2248.55	-2525.18	-459.16	93.17
3/4 L	5.15	639.074	490.02	421.651	640.648	434.776	686.303	435.121	664.26	335.719	-1133.54	-293.84	93.17
Tepi kanan	7.45	-976.084	-704.973	-1130.2	-516.565	-1025.14	-396.208	-1031.07	-473.747	-1268.68	1964.67	440.53	93.17