| | |
|---|---|
| 4 | Koreksi :<br>Dalam saran, *pushover analysis* tidak usah disinggung karena gedungnya teratur jadi dengan SRPMK sudah cukup<br>Jawaban :<br>Saran untuk melakukan analisa pushover yang terdapat dalam saran di Bab 5 sudah dihilangkan. |

Dosen Penguji

(Dr. Ir. H. Sumirin, MS)

**PROGRAM STUDI MAGISTER TEKNIK SIPIL**
**FAKULTAS TEKNIK**
**UNIVERSITAS ISLAM SULTAN AGUNG SEMARANG**
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## LEMBAR JAWABAN KOREKSI TESIS

Nama : Syamsul Ma'arif
NIM : MTS 2016 3510 855
Hari / Tanggal : 11 September 2020
Judul Tesis : Studi Perbandingan Parameter Akibat Beban Gempa pada Struktur Bangunan Gedung 4, 8 dan 12 Tingkat dengan Sistem Rangka Pemikul Momen Khusus Berdasarkan SNI 1726 : 2019

| No | Hasil Koreksi |
|---|---|
| 1 | Koreksi :<br>Jelaskan yang dimaksud dengan SRPMK ? apakah yang dimaksud dengan momen khusus ?<br>Jawaban :<br>SRPMK (Sistem Rangka Pemikul Momen Khusus) adalah desain struktur beton bertulang dengan pendetailn yang menghasilkan struktur yang fleksibel (memiliki daktilitas yang tinggi)<br>Yang dimaksut momen khusus adalah penggunaan faktor reduksi gempa sebesar 8 dan pengambilan nilai untuk R>1 yang berarti struktur mengalami kelelhan tanpa kegagalan fungsi. |
| 2 | Koreksi :<br>Mengapa bangunan lantai 4, 8 dan 12 yang diambil ? Jelaskan batasan angka SPT antara tanah lunak dengan tanah keras !<br>Jawaban :<br>Bangunan yang dipilih adalah kelipatan 4 dimulai dari 4, 8 dan 12 lantai dikarenakan bariasi jumlah lantai tersebut mewakili karakteristik gedung bertingkat. Gedung 4 lantai mewakili |

| | |
|---|---|
| | kategori bangunan bertingkat sedang (*Medium Rise Building*) sedangkan Gedung 8 dan 12 lantai mewakili bangunan bertingkat tinggi (*High Rise Building*).<br>Batasan angka SPT untuk tanah keras adalah nilai $\bar{N}$>50, untuk tanah sedang nilai $\bar{N}$ diantara 15 s/d 50, sedangkan untuk tanah lunak $\bar{N}$<15.<br>Penjelasan tentang pemilihan jumlah lantai dan kategori tanah akan ditambahkan dalam penjelasan di Bab 3. |
| 3 | Koreksi :<br>Mengapa memakai Program ETABS, bukan SAP 2000 ? Jelaskan ETABS singkatan dari !<br>Jawaban :<br>Kelebihan program ETABS dari SAP 2000 adalah sebagai berikut :<br>- Fitur ETABS lebih mudah dipakai, ringan untuk komputer dan cepat dioperasionalkan (*fast loading*), karena fitur dan menunya hanya dikhususkan untuk desain gedung saja<br>- Data karakteristik gedung dapat diinput dengan lebih mudah, cepat dan praktis<br>- Pemodelan elemen struktur balok, kolom dan pelat lantai bisa dilakukan dengan lebih mudah dan cepat dengan menu "*setting similar story*" sedangkan untuk kasus dimana lantai yang didesain berbeda dengan lantai yang lain maka dapat digunakan pilihan "*one story*"<br>ETABS adalah kepanjangan dari *Extended Tree Analysis Building System*. Pengertian dan penjelasan lebih terperinci tentang software komputer ETABS memang tidak dijelaskan dalam laporan tesis ini dikarenakan penuling menganggap software ini sudah banyak dan sering digunakan oleh pada *engineer* yang bergelut di dunia konstruksi sehingga penulis hanya menyinggung tentang ETABS pada batasan masalah terkait program komputer yang digunakan. |
| 4 | Koreksi :<br>Mengapa pelat tidak disinggung ?<br>Jawaban :<br>Pelat lantai memang tidak disinggung dalam perhitungan penulangan dikarenakan desain dan penulangan pelat cenderung tetap dan bukan merupakan struktur penahan beban gempa secara langsung. Tetapi didalam pemodelan struktur, pelat lantai tetap dimodelkan.<br>Sudah ditambahkan keterangan pada Bab 1.3 pada batasan masalah bahwa struktur pelat lantai tidak dibahas dalam laporan tesis ini |

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| | |
|---|---|
| 5 | Koreksi :<br>Jelaskan yang dimaksud dengan *Analisa Pushover*<br>Jawaban :<br>Analisis statik beban dorong (pushover) adalah suatu analisis nonlinier statik dimana pengaruh gempa rencana terhadap struktur bangunan gedung dianggap sebagai beban statik yang menangkap pada pusat massa masing– masing lantai, yang nilainya ditingkatkan secara berangsur–angsur sampai melampaui pembebanan yang menyebabkan terjadinya pelelehan (sendi plastis) pertama didalam struktur bangunan gedung, kemudian dengan peningkatan beban lebih lanjut mengalami perubahan bentuk pasca-elastik yang besar sampai mencapai target peralihan yang diharapkan atau sampai mencapai kondisi plastis.<br>Pada Bab 5.2 saran untuk melakukan analisa pushover sudah dihilangkan dikarenakan gedung yang dibuat pemodelan dalam analisa tesis termasuk bentuk gedung yang teratur sehingga dengan SRPMK sesuai SNI 1726 : 2019 sudah cukup |

Dosen Penguji

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## LEMBAR JAWABAN KOREKSI TESIS

Nama : Syamsul Ma'arif
NIM : MTS 2016 3510 855
Hari / Tanggal : 11 September 2020
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| No | Hasil Koreksi |
|---|---|
| 1 | Koreksi :<br>Penulisan disesuaikan dengan pedoman yang ada<br>Jawaban :<br>Penulisan sudah disesuiakan dengan Pedoman Penulisan Tesis Program Studi Magister Teknik Sipil Universitas Islam Sultan Agung Semarang |
| 2 | Koreksi :<br>Penentuan kriteria pembanding untuk tanah lunak dan keras, alasannya apa bisa dijelaskan<br>Jawaban :<br>Ditambahkan definisi tanah lunak dan tanah keras, penjelasan dan syarat-syarat sesuai SNI 2019 terdapat pada Bab 3 |
| 3 | Koreksi :<br>Apakah kesimpulan yang diambil bisa dijadikan dasar untuk semua jenis tanah lunak dan keras atau ada dasar atau kriteria khusus lain ?<br>Jawaban : |

| | |
|---|---|
| | Kesimpulan yang diambil bisa dijadikan dasar untuk semua jenis tanah lunak dan keras jika dimensi balok dan kolom yang digunakan adalah sama, karena besar atau kecilnya rasio penulangan tergantung pada dimensi balok dan kolom.<br>Penjelasan dimensi balok dan kolom sudah ada pada bab 3.2.1 dan 3.2.3, ditambahkan juga pada Bab 1.3 pada batasan masalah untuk dimensi balok dan kolom yang dipakai |

Dosen Penguji

(Dr. Hj. Hermin Poedjiastuti, S.Si., M.Si)

# LAMPIRAN B

# Kontrol Partisipasi Massa

## B.1. Gedung 4 Tingkat

| Ragam | Periode (detik) | UX (%) | UY (%) | RX (%) | RY (%) | RZ (%) | SumUX (%) | SumUY (%) | SumRX (%) | SumRY (%) | SumRZ (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1,221 | 0,240 | 66,690 | 19,350 | 0,120 | 12,510 | 0,240 | 66,690 | 19,350 | 0,120 | 12,510 |
| 2 | 1,133 | 69,390 | 2,880 | 0,750 | 19,610 | 7,760 | 69,620 | 69,570 | 20,100 | 19,720 | 20,280 |
| 3 | 1,098 | 10,460 | 9,940 | 2,470 | 2,250 | 59,570 | 80,080 | 79,510 | 22,570 | 21,970 | 79,840 |
| 4 | 0,355 | 0,010 | 11,330 | 50,900 | 0,060 | 0,190 | 80,100 | 90,840 | 73,480 | 22,030 | 80,030 |
| 5 | 0,347 | 7,950 | 0,060 | 0,340 | 38,580 | 2,680 | 88,040 | 90,900 | 73,820 | 60,610 | 82,710 |
| 6 | 0,335 | 2,800 | 0,030 | 0,250 | 12,980 | 8,080 | 90,850 | 90,930 | 74,060 | 73,590 | 90,790 |
| 7 | 0,239 | 0,990 | 1,040 | 2,430 | 2,450 | 0,260 | 91,830 | 91,970 | 76,490 | 76,040 | 91,050 |
| 8 | 0,235 | 1,280 | 0,960 | 2,110 | 3,060 | 0,160 | 93,120 | 92,930 | 78,600 | 79,100 | 91,210 |
| 9 | 0,214 | 0,080 | 0,180 | 0,260 | 0,160 | 2,630 | 93,200 | 93,110 | 78,860 | 79,260 | 93,830 |
| 10 | 0,156 | 0,010 | 4,240 | 11,680 | 0,030 | 0,040 | 93,210 | 97,350 | 90,540 | 79,290 | 93,870 |
| 11 | 0,154 | 4,100 | 0,020 | 0,050 | 11,010 | 0,150 | 97,310 | 97,370 | 90,590 | 90,300 | 94,020 |
| 12 | 0,145 | 0,110 | 0,020 | 0,070 | 0,330 | 3,530 | 97,420 | 97,380 | 90,660 | 90,620 | 97,550 |
| 13 | 0,096 | 0,010 | 2,530 | 9,050 | 0,020 | 0,070 | 97,420 | 99,910 | 99,710 | 90,640 | 97,620 |
| 14 | 0,095 | 2,570 | 0,010 | 0,030 | 9,320 | 0,020 | 99,990 | 99,920 | 99,740 | 99,960 | 97,640 |
| 15 | 0,092 | 0,010 | 0,080 | 0,260 | 0,040 | 2,360 | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 |

## B.2. Gedung 8 Tingkat

| Ragam | Periode (detik) | UX (%) | UY (%) | RX (%) | RY (%) | RZ (%) | SumUX (%) | SumUY (%) | SumRX (%) | SumRY (%) | SumRZ (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2,050 | 0,000 | 70,750 | 31,020 | 0,000 | 0,800 | 0,000 | 70,750 | 31,020 | 0,000 | 0,800 |
| 2 | 1,880 | 39,390 | 0,310 | 0,120 | 16,870 | 32,630 | 39,390 | 71,060 | 31,140 | 16,870 | 33,430 |
| 3 | 1,870 | 33,140 | 0,410 | 0,150 | 13,270 | 38,280 | 72,540 | 71,470 | 31,290 | 30,140 | 71,710 |
| 4 | 0,574 | 0,010 | 12,550 | 31,700 | 0,020 | 0,330 | 72,550 | 84,020 | 62,990 | 30,160 | 72,050 |
| 5 | 0,543 | 6,550 | 0,240 | 0,600 | 18,740 | 5,730 | 79,090 | 84,260 | 63,590 | 48,900 | 77,780 |
| 6 | 0,541 | 5,760 | 0,160 | 0,380 | 15,950 | 6,770 | 84,850 | 84,420 | 63,970 | 64,850 | 84,550 |
| 7 | 0,280 | 0,003 | 5,030 | 8,510 | 0,004 | 0,450 | 84,850 | 89,440 | 72,490 | 64,850 | 85,000 |
| 8 | 0,269 | 0,010 | 0,310 | 0,530 | 0,010 | 4,770 | 84,860 | 89,750 | 73,010 | 64,870 | 89,770 |
| 9 | 0,265 | 5,580 | 0,005 | 0,010 | 9,390 | 0,004 | 90,440 | 89,750 | 73,020 | 74,260 | 89,770 |
| 10 | 0,201 | 0,003 | 1,750 | 4,230 | 0,010 | 0,030 | 90,440 | 91,500 | 77,260 | 74,270 | 89,800 |
| 11 | 0,189 | 0,340 | 0,020 | 0,050 | 0,870 | 1,500 | 90,780 | 91,520 | 77,310 | 75,140 | 91,300 |
| 12 | 0,174 | 1,320 | 0,002 | 0,010 | 3,640 | 0,750 | 92,100 | 91,520 | 77,320 | 78,770 | 92,060 |
| 13 | 0,143 | 0,050 | 3,390 | 8,590 | 0,130 | 0,080 | 92,150 | 94,910 | 85,900 | 78,910 | 92,140 |
| 14 | 0,139 | 2,560 | 0,090 | 0,240 | 6,500 | 0,590 | 94,710 | 95,010 | 86,140 | 85,410 | 92,730 |
| 15 | 0,131 | 0,390 | 0,020 | 0,060 | 0,940 | 2,450 | 95,100 | 95,030 | 86,210 | 86,360 | 95,180 |
| 16 | 0,091 | 0,060 | 1,590 | 4,130 | 0,160 | 0,100 | 95,160 | 96,620 | 90,340 | 86,520 | 95,280 |
| 17 | 0,090 | 1,570 | 0,090 | 0,240 | 4,070 | 0,060 | 96,730 | 96,720 | 90,580 | 90,590 | 95,340 |
| 18 | 0,085 | 0,080 | 0,050 | 0,140 | 0,210 | 1,530 | 96,810 | 96,770 | 90,720 | 90,800 | 96,860 |
| 19 | 0,064 | 0,050 | 1,460 | 4,120 | 0,130 | 0,100 | 96,850 | 98,230 | 94,840 | 90,930 | 96,960 |
| 20 | 0,064 | 1,470 | 0,060 | 0,170 | 4,170 | 0,020 | 98,320 | 98,290 | 95,010 | 95,100 | 96,980 |
| 21 | 0,061 | 0,030 | 0,050 | 0,160 | 0,090 | 1,410 | 98,350 | 98,340 | 95,160 | 95,190 | 98,390 |
| 22 | 0,047 | 0,000 | 1,010 | 2,910 | 0,000 | 0,010 | 98,350 | 99,350 | 98,070 | 95,190 | 98,400 |
| 23 | 0,046 | 1,010 | 0,000 | 0,001 | 2,900 | 0,003 | 99,360 | 99,350 | 98,070 | 98,090 | 98,410 |
| 24 | 0,045 | 0,001 | 0,004 | 0,010 | 0,003 | 0,960 | 99,360 | 99,360 | 98,080 | 98,090 | 99,370 |
| 25 | 0,033 | 0,000 | 0,640 | 1,920 | 0,001 | 0,000 | 99,360 | 100,000 | 100,000 | 98,090 | 99,370 |
| 26 | 0,033 | 0,640 | 0,000 | 0,001 | 1,910 | 0,000 | 100,000 | 100,000 | 100,000 | 100,000 | 99,370 |
| 27 | 0,032 | 0,000 | 0,000 | 0,000 | 0,000 | 0,630 | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 |

B.3. Gedung 12 Tingkat

| Ragam | Periode (detik) | UX (%) | UY (%) | RX (%) | RY (%) | RZ (%) | SumUX (%) | SumUY (%) | SumRX (%) | SumRY (%) | SumRZ (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2,121 | 0,002 | 71,150 | 30,350 | 0,000 | 0,630 | 0,002 | 71,150 | 30,350 | 0,000 | 0,630 |
| 2 | 1,949 | 60,260 | 0,080 | 0,030 | 24,800 | 12,230 | 60,260 | 71,230 | 30,370 | 24,800 | 12,860 |
| 3 | 1,941 | 12,360 | 0,510 | 0,180 | 4,780 | 58,910 | 72,620 | 71,740 | 30,550 | 29,580 | 71,770 |
| 4 | 0,661 | 0,001 | 11,850 | 34,420 | 0,003 | 0,020 | 72,620 | 83,590 | 64,980 | 29,590 | 71,800 |
| 5 | 0,624 | 1,560 | 0,020 | 0,040 | 5,040 | 10,190 | 74,180 | 83,600 | 65,020 | 34,620 | 81,990 |
| 6 | 0,619 | 9,880 | 0,010 | 0,020 | 31,110 | 1,640 | 84,060 | 83,610 | 65,040 | 65,730 | 83,630 |
| 7 | 0,350 | 0,002 | 5,120 | 7,080 | 0,003 | 0,010 | 84,070 | 88,740 | 72,120 | 65,730 | 83,640 |
| 8 | 0,335 | 2,170 | 0,010 | 0,010 | 2,960 | 2,830 | 86,230 | 88,740 | 72,140 | 68,690 | 86,470 |
| 9 | 0,332 | 2,760 | 0,000 | 0,001 | 3,810 | 2,300 | 89,000 | 88,740 | 72,140 | 72,500 | 88,770 |
| 10 | 0,215 | 0,010 | 2,640 | 6,650 | 0,030 | 0,100 | 89,010 | 91,390 | 78,790 | 72,530 | 88,870 |
| 11 | 0,209 | 1,460 | 0,090 | 0,220 | 3,800 | 1,120 | 90,460 | 91,470 | 79,020 | 76,330 | 89,990 |
| 12 | 0,206 | 1,190 | 0,030 | 0,080 | 3,050 | 1,500 | 91,650 | 91,510 | 79,100 | 79,380 | 91,490 |
| 13 | 0,165 | 0,090 | 0,960 | 1,970 | 0,190 | 0,180 | 91,740 | 92,460 | 81,070 | 79,570 | 91,680 |
| 14 | 0,161 | 1,080 | 0,140 | 0,290 | 2,230 | 0,010 | 92,820 | 92,610 | 81,360 | 81,800 | 91,690 |
| 15 | 0,152 | 0,030 | 0,230 | 0,450 | 0,060 | 1,460 | 92,840 | 92,830 | 81,810 | 81,860 | 93,150 |
| 16 | 0,135 | 0,050 | 1,600 | 3,660 | 0,110 | 0,160 | 92,900 | 94,440 | 85,470 | 81,970 | 93,310 |
| 17 | 0,132 | 1,660 | 0,060 | 0,140 | 3,730 | 0,060 | 94,550 | 94,500 | 85,600 | 85,700 | 93,380 |
| 18 | 0,123 | 0,060 | 0,040 | 0,090 | 0,160 | 1,290 | 94,620 | 94,530 | 85,700 | 85,860 | 94,670 |
| 19 | 0,098 | 0,000 | 1,520 | 3,840 | 0,000 | 0,010 | 94,620 | 96,050 | 89,540 | 85,860 | 94,680 |
| 20 | 0,096 | 1,460 | 0,000 | 0,000 | 3,750 | 0,030 | 96,070 | 96,050 | 89,540 | 89,600 | 94,710 |
| 21 | 0,092 | 0,030 | 0,004 | 0,010 | 0,060 | 1,410 | 96,100 | 96,050 | 89,550 | 89,670 | 96,120 |
| 22 | 0,076 | 0,000 | 0,960 | 2,390 | 0,001 | 0,001 | 96,100 | 97,010 | 91,930 | 89,670 | 96,130 |
| 23 | 0,075 | 0,940 | 0,000 | 0,001 | 2,320 | 0,010 | 97,040 | 97,010 | 91,930 | 91,980 | 96,130 |
| 24 | 0,073 | 0,003 | 0,000 | 0,000 | 0,010 | 0,910 | 97,040 | 97,010 | 91,930 | 91,990 | 97,050 |
| 25 | 0,058 | 0,000 | 0,840 | 2,220 | 0,001 | 0,000 | 97,040 | 97,850 | 94,160 | 91,990 | 97,050 |
| 26 | 0,057 | 0,830 | 0,000 | 0,001 | 2,210 | 0,000 | 97,870 | 97,850 | 94,160 | 94,210 | 97,050 |
| 27 | 0,056 | 0,000 | 0,001 | 0,004 | 0,000 | 0,830 | 97,870 | 97,850 | 94,160 | 94,210 | 97,880 |
| 28 | 0,046 | 0,000 | 0,760 | 2,000 | 0,000 | 0,001 | 97,870 | 98,610 | 96,160 | 94,210 | 97,880 |
| 29 | 0,046 | 0,750 | 0,000 | 0,000 | 1,980 | 0,000 | 98,620 | 98,610 | 96,160 | 96,190 | 97,880 |
| 30 | 0,045 | 0,000 | 0,003 | 0,010 | 0,001 | 0,750 | 98,620 | 98,610 | 96,170 | 96,190 | 98,630 |
| 31 | 0,036 | 0,000 | 0,700 | 1,930 | 0,000 | 0,001 | 98,620 | 99,310 | 98,090 | 96,190 | 98,630 |
| 32 | 0,036 | 0,700 | 0,000 | 0,000 | 1,920 | 0,000 | 99,320 | 99,310 | 98,090 | 98,110 | 98,630 |
| 33 | 0,035 | 0,001 | 0,002 | 0,005 | 0,002 | 0,700 | 99,320 | 99,320 | 98,100 | 98,110 | 99,330 |
| 34 | 0,029 | 0,000 | 0,330 | 0,910 | 0,000 | 0,001 | 99,320 | 99,650 | 99,010 | 98,110 | 99,330 |
| 35 | 0,029 | 0,330 | 0,000 | 0,000 | 0,900 | 0,000 | 99,650 | 99,650 | 99,010 | 99,010 | 99,330 |
| 36 | 0,028 | 0,000 | 0,002 | 0,004 | 0,001 | 0,320 | 99,650 | 99,650 | 99,010 | 99,010 | 99,650 |
| 37 | 0,023 | 0,000 | 0,350 | 0,990 | 0,001 | 0,000 | 99,650 | 100,000 | 100,000 | 99,010 | 99,650 |
| 38 | 0,023 | 0,350 | 0,000 | 0,001 | 0,990 | 0,000 | 100,000 | 100,000 | 100,000 | 100,000 | 99,650 |
| 39 | 0,022 | 0,000 | 0,000 | 0,000 | 0,000 | 0,350 | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 |

# LAMPIRAN C

## Gaya Geser Gempa

C.1. Gedung 4 Tingkat

SUMMARY STATIC STORY SHEAR

| | | LUNAK | | KERAS | |
|---|---|---|---|---|---|
| *St. Height* | *Story* | *Vx (kN)* | *Vy (kN)* | *Vx (kN)* | *Vy (kN)* |
| 16,00 | Lantai Atap | 392,50 | 392,50 | 212,99 | 212,99 |
| 12,00 | Lantai 4 | 3765,71 | 3765,71 | 2043,43 | 2043,43 |
| 8,00 | Lantai 3 | 6201,45 | 6201,45 | 3365,16 | 3365,16 |
| 4,00 | Lantai 2 | 7615,32 | 7615,32 | 4132,39 | 4132,39 |
| 0,00 | Lantai 1 | 8225,09 | 8225,09 | 4463,27 | 4463,27 |
| | | 26200,07 | 26200,07 | 18680,51 | 18680,51 |

SUMMARY DINAMIC STORY SHEAR
AFTER ENLARGEMENT

| | | LUNAK | | KERAS | |
|---|---|---|---|---|---|
| *St. Height* | *Story* | *Vx (kN)* | *Vy (kN)* | *Vx (kN)* | *Vy (kN)* |
| 16,00 | Lantai Atap | 472,57 | 507,19 | 348,33 | 378,03 |
| 12,00 | Lantai 4 | 3646,81 | 3744,60 | 2105,83 | 2194,84 |
| 8,00 | Lantai 3 | 6037,08 | 6038,83 | 3226,49 | 3199,95 |
| 4,00 | Lantai 2 | 7544,94 | 7519,78 | 4012,33 | 3965,45 |
| 0,00 | Lantai 1 | 8225,01 | 8225,12 | 4463,27 | 4463,28 |
| | | 25926,41 | 26035,51 | 18619,51 | 18664,82 |

C.2. Gedung 8 Tingkat

SUMMARY STATIC STORY SHEAR

| | | LUNAK | | KERAS | |
|---|---|---|---|---|---|
| *St. Height* | *Story* | *Vx (kN)* | *Vy (kN)* | *Vx (kN)* | *Vy (kN)* |
| 32,00 | Lantai Atap | 432,27 | 432,27 | 175,6648 | 175,6648 |
| 28,00 | Lantai 8 | 4290,94 | 4290,94 | 1743,76 | 1743,76 |
| 24,00 | Lantai 7 | 7577,29 | 7577,29 | 3079,272 | 3079,272 |
| 20,00 | Lantai 6 | 10204,46 | 10204,46 | 4146,902 | 4146,902 |
| 16,00 | Lantai 5 | 12218,11 | 12218,11 | 4965,217 | 4965,217 |
| 12,00 | Lantai 4 | 13660,37 | 13660,37 | 5551,324 | 5551,324 |
| 8,00 | lantai 3 | 14592,82 | 14592,82 | 5930,253 | 5930,253 |
| 4,00 | lantai 2 | 15051,47 | 15051,47 | 6116,64 | 6116,64 |
| 0,00 | lantai 1 | 15198,54 | 15198,54 | 6176,407 | 6176,407 |
| | | 93226,28 | 93226,28 | 37885,44 | 37885,44 |

SUMMARY STATIC STORY SHEAR
AFTER ENLARGEMENT

| | | LUNAK | | KERAS | |
|---|---|---|---|---|---|
| *St. Height* | *Story* | *Vx (kN)* | *Vy (kN)* | *Vx (kN)* | *Vy (kN)* |
| 32,00 | Lantai Atap | 677,95 | 820,15 | 389,4184 | 460,3503 |
| 28,00 | Lantai 8 | 4540,17 | 4775,81 | 2262,013 | 2343,196 |
| 24,00 | Lantai 7 | 7163,08 | 7327,83 | 3196,187 | 3223,784 |
| 20,00 | Lantai 6 | 9168,30 | 9183,07 | 3704,753 | 3662,25 |
| 16,00 | Lantai 5 | 10850,24 | 10717,08 | 4083,397 | 3965,00 |
| 12,00 | Lantai 4 | 12382,51 | 12229,08 | 4597,171 | 4492,132 |
| 8,00 | lantai 3 | 13767,32 | 13659,13 | 5262,63 | 5192,796 |
| 4,00 | lantai 2 | 14751,90 | 14705,94 | 5852,84 | 5819,734 |
| 0,00 | lantai 1 | 15198,42 | 15198,62 | 6176,466 | 6176,314 |
| | | 88499,89 | 88616,71 | 29348,41 | 29159,24 |

C.3. Gedung 12 Tingkat

SUMMARY STATIC STORY SHEAR

| | | LUNAK | | KERAS | |
|---|---|---|---|---|---|
| *St. Height* | *Story* | *Vx (kN)* | *Vy (kN)* | *Vx (kN)* | *Vy (kN)* |
| 48,00 | Lantai Atap | 456,33 | 434,77 | 202,707 | 210,2326 |
| 44,00 | Lantai 12 | 4424,91 | 4189,83 | 1965,598 | 2025,986 |
| 40,00 | Lantai 11 | 8039,08 | 7583,96 | 3571,054 | 3667,216 |
| 36,00 | Lantai 10 | 11196,61 | 10524,97 | 4973,665 | 5089,337 |
| 32,00 | Lantai 9 | 13919,14 | 13037,86 | 6183,045 | 6304,441 |
| 28,00 | Lantai 8 | 16264,73 | 15180,94 | 7224,984 | 7340,726 |
| 24,00 | Lantai 7 | 18239,21 | 16964,29 | 8102,069 | 8203,059 |
| 20,00 | Lantai 6 | 19752,80 | 18313,29 | 8774,424 | 8855,369 |
| 16,00 | Lantai 5 | 20858,06 | 19283,00 | 9265,396 | 9324,27 |
| 12,00 | Lantai 4 | 21641,36 | 19957,12 | 9613,345 | 9650,24 |
| 8,00 | lantai 3 | 22139,27 | 20375,13 | 9834,525 | 9852,368 |
| 4,00 | lantai 2 | 22377,34 | 20568,12 | 9940,278 | 9945,689 |
| 0,00 | lantai 1 | 22449,51 | 20623,22 | 9972,334 | 9972,334 |
| | | 179308,84 | 187036,51 | 89623,42 | 90441,27 |

SUMMARY STATIC STORY SHEAR
AFTER ENLARGEMENT

| | | LUNAK | | KERAS | |
|---|---|---|---|---|---|
| *St. Height* | *Story* | *Vx (kN)* | *Vy (kN)* | *Vx (kN)* | *Vy (kN)* |
| 48,00 | Lantai Atap | 681,86 | 678,36 | 441,0994 | 470,5214 |
| 44,00 | Lantai 12 | 4526,40 | 4445,73 | 2514,621 | 2639,513 |
| 40,00 | Lantai 11 | 7628,92 | 7337,73 | 3952,311 | 4051,028 |
| 36,00 | Lantai 10 | 10107,63 | 9551,57 | 4928,635 | 4969,87 |
| 32,00 | Lantai 9 | 12173,86 | 11324,36 | 5606,865 | 5593,74 |
| 28,00 | Lantai 8 | 14011,10 | 12871,88 | 6144,261 | 6094,21 |
| 24,00 | Lantai 7 | 15747,32 | 14348,51 | 6657,617 | 6581,66 |
| 20,00 | Lantai 6 | 17339,04 | 15742,88 | 7192,028 | 7098,151 |
| 16,00 | Lantai 5 | 18807,75 | 17081,06 | 7797,009 | 7694,779 |
| 12,00 | Lantai 4 | 20182,48 | 18383,64 | 8495,457 | 8405,976 |
| 8,00 | lantai 3 | 21361,62 | 19533,96 | 9189,321 | 9130,109 |
| 4,00 | lantai 2 | 22131,42 | 20301,01 | 9714,679 | 9691,086 |
| 0,00 | lantai 1 | 22449,41 | 20623,11 | 9972,518 | 9972,388 |
| | | 187148,82 | 172223,80 | 82606,42 | 82393,03 |

# LAMPIRAN D

## Simpangan Arah X dan Y

D.1. Gedung 4 Tingkat tanah lunak

**Simpangan Arah X**

| Lantai | H (mm) | Simpangan Elastis, δx (mm) | Perpindahan yang diperbesar (mm) | Simpangan antar lantai (mm) | Simpangan yang diizinkan (mm) | Ket. |
|---|---|---|---|---|---|---|
| Lantai Atap | 4000 | 66,35 | 243,28 | 37,91 | 60,00 | Memenuhi |
| Lantai 4 | 4000 | 56,01 | 205,37 | 56,57 | 60,00 | Memenuhi |
| Lantai 3 | 4000 | 40,58 | 148,80 | 56,88 | 60,00 | Memenuhi |
| Lantai 2 | 4000 | 25,07 | 91,92 | 57,97 | 60,00 | Memenuhi |
| Lantai 1 | 4000 | 9,26 | 33,95 | 33,95 | 60,00 | Memenuhi |

**Simpangan Arah Y**

| Lantai | H (mm) | Simpangan Elastis, δy (mm) | Perpindahan yang diperbesar (mm) | Simpangan antar lantai (mm) | Simpangan yang diizinkan (mm) | Ket. |
|---|---|---|---|---|---|---|
| Lantai Atap | 4000 | 68,92 | 252,72 | 40,48 | 60,00 | Memenuhi |
| Lantai 4 | 4000 | 57,89 | 212,25 | 57,89 | 60,00 | Memenuhi |
| Lantai 3 | 4000 | 42,10 | 154,36 | 57,53 | 60,00 | Memenuhi |
| Lantai 2 | 4000 | 26,41 | 96,83 | 57,21 | 60,00 | Memenuhi |
| Lantai 1 | 4000 | 10,81 | 39,62 | 39,62 | 60,00 | Memenuhi |

D.2. Gedung 4 Tingkat tanah keras

**Simpangan Arah X**

| Lantai | H (mm) | Simpangan Elastis, δx (mm) | Perpindahan yang diperbesar (mm) | Simpangan antar lantai (mm) | Simpangan yang diizinkan (mm) | Ket. |
|---|---|---|---|---|---|---|
| Lantai Atap | 4000 | 36,89 | 135,28 | 16,21 | 60,00 | Memenuhi |
| Lantai 4 | 4000 | 32,47 | 119,07 | 24,33 | 60,00 | Memenuhi |
| Lantai 3 | 4000 | 25,84 | 94,74 | 35,85 | 60,00 | Memenuhi |
| Lantai 2 | 4000 | 16,06 | 58,89 | 36,71 | 60,00 | Memenuhi |
| Lantai 1 | 4000 | 6,05 | 22,18 | 22,18 | 60,00 | Memenuhi |

**Simpangan Arah Y**

| Lantai | H (mm) | Simpangan Elastis, δy (mm) | Perpindahan yang diperbesar (mm) | Simpangan antar lantai (mm) | Simpangan yang diizinkan (mm) | Ket. |
|---|---|---|---|---|---|---|
| Lantai Atap | 4000 | 54,87 | 201,18 | 22,39 | 60,00 | Memenuhi |
| Lantai 4 | 4000 | 48,76 | 178,79 | 39,69 | 60,00 | Memenuhi |
| Lantai 3 | 4000 | 37,94 | 139,10 | 54,15 | 60,00 | Memenuhi |
| Lantai 2 | 4000 | 23,17 | 84,95 | 53,65 | 60,00 | Memenuhi |
| Lantai 1 | 4000 | 8,54 | 31,30 | 31,30 | 60,00 | Memenuhi |

## D.3. Gedung 8 Tingkat tanah lunak

**Simpangan Arah X**

| Lantai | H (mm) | Simpangan Elastis, δx (mm) | Perpindahan yang diperbesar (mm) | Simpangan antar lantai (mm) | Simpangan yang diizinkan (mm) | Ket. |
|---|---|---|---|---|---|---|
| Lantai Atap | 4000 | 68,21 | 250,09 | 10,39 | 60,00 | Memenuhi |
| Lantai 8 | 4000 | 65,37 | 239,69 | 29,31 | 60,00 | Memenuhi |
| Lantai 7 | 4000 | 57,38 | 210,39 | 30,78 | 60,00 | Memenuhi |
| Lantai 6 | 4000 | 48,98 | 179,61 | 26,74 | 60,00 | Memenuhi |
| Lantai 5 | 4000 | 41,69 | 152,87 | 29,37 | 60,00 | Memenuhi |
| Lantai 4 | 4000 | 33,68 | 123,50 | 36,18 | 60,00 | Memenuhi |
| lantai 3 | 4000 | 23,81 | 87,32 | 36,20 | 60,00 | Memenuhi |
| lantai 2 | 4000 | 13,94 | 51,12 | 21,26 | 60,00 | Memenuhi |
| lantai 1 | 4000 | 8,14 | 29,86 | 29,86 | 60,00 | Memenuhi |

**Simpangan Arah Y**

| Lantai | H (mm) | Simpangan Elastis, δy (mm) | Perpindahan yang diperbesar (mm) | Simpangan antar lantai (mm) | Simpangan yang diizinkan (mm) | Ket. |
|---|---|---|---|---|---|---|
| Lantai Atap | 4000 | 118,98 | 436,26 | 33,47 | 60,00 | Memenuhi |
| Lantai 8 | 4000 | 109,85 | 402,79 | 55,63 | 60,00 | Memenuhi |
| Lantai 7 | 4000 | 94,68 | 347,15 | 56,95 | 60,00 | Memenuhi |
| Lantai 6 | 4000 | 79,15 | 290,20 | 52,37 | 60,00 | Memenuhi |
| Lantai 5 | 4000 | 64,86 | 237,83 | 54,04 | 60,00 | Memenuhi |
| Lantai 4 | 4000 | 50,13 | 183,80 | 58,48 | 60,00 | Memenuhi |
| lantai 3 | 4000 | 34,18 | 125,32 | 55,13 | 60,00 | Memenuhi |
| lantai 2 | 4000 | 19,14 | 70,19 | 34,72 | 60,00 | Memenuhi |
| lantai 1 | 4000 | 9,67 | 35,47 | 35,47 | 60,00 | Memenuhi |

## D.4. Gedung 8 Tingkat tanah keras

**Simpangan Arah X**

| Lantai | H (mm) | Simpangan Elastis, δx (mm) | Perpindahan yang diperbesar (mm) | Simpangan antar lantai (mm) | Simpangan yang diizinkan (mm) | Ket. |
|---|---|---|---|---|---|---|
| Lantai Atap | 4000 | 59,89 | 219,59 | 11,44 | 60,00 | Memenuhi |
| Lantai 8 | 4000 | 56,77 | 208,15 | 19,41 | 60,00 | Memenuhi |
| Lantai 7 | 4000 | 51,48 | 188,74 | 25,90 | 60,00 | Memenuhi |
| Lantai 6 | 4000 | 44,41 | 162,84 | 30,51 | 60,00 | Memenuhi |
| Lantai 5 | 4000 | 36,09 | 132,33 | 32,75 | 60,00 | Memenuhi |
| Lantai 4 | 4000 | 27,16 | 99,58 | 33,04 | 60,00 | Memenuhi |
| lantai 3 | 4000 | 18,15 | 66,54 | 30,83 | 60,00 | Memenuhi |
| lantai 2 | 4000 | 9,74 | 35,71 | 24,39 | 60,00 | Memenuhi |
| lantai 1 | 4000 | 3,09 | 11,32 | 11,32 | 60,00 | Memenuhi |

**Simpangan Arah Y**

| Lantai | H (mm) | Simpangan Elastis, δy (mm) | Perpindahan yang diperbesar (mm) | Simpangan antar lantai (mm) | Simpangan yang diizinkan (mm) | Ket. |
|---|---|---|---|---|---|---|
| Lantai Atap | 4000 | 77,04 | 282,49 | 19,78 | 60,00 | Memenuhi |
| Lantai 8 | 4000 | 71,65 | 262,71 | 28,42 | 60,00 | Memenuhi |
| Lantai 7 | 4000 | 63,90 | 234,28 | 34,75 | 60,00 | Memenuhi |
| Lantai 6 | 4000 | 54,42 | 199,53 | 39,13 | 60,00 | Memenuhi |
| Lantai 5 | 4000 | 43,74 | 160,39 | 40,98 | 60,00 | Memenuhi |
| Lantai 4 | 4000 | 32,57 | 119,41 | 40,43 | 60,00 | Memenuhi |
| lantai 3 | 4000 | 21,54 | 78,98 | 37,06 | 60,00 | Memenuhi |
| lantai 2 | 4000 | 11,43 | 41,92 | 28,78 | 60,00 | Memenuhi |
| lantai 1 | 4000 | 3,58 | 13,14 | 13,14 | 60,00 | Memenuhi |

## D.5. Gedung 12 Tingkat tanah lunak

**Simpangan Arah X**

| Lantai | H (mm) | Simpangan Elastis, δx (mm) | Perpindahan yang diperbesar (mm) | Simpangan antar lantai (mm) | Simpangan yang diizinkan (mm) | Ket. |
|---|---|---|---|---|---|---|
| Lantai Atap | 4000 | 144,04 | 528,14 | 8,80 | 60,00 | Memenuhi |
| Lantai 12 | 4000 | 141,64 | 519,34 | 18,82 | 60,00 | Memenuhi |
| Lantai 11 | 4000 | 136,51 | 500,53 | 27,16 | 60,00 | Memenuhi |
| Lantai 10 | 4000 | 129,10 | 473,36 | 36,63 | 60,00 | Memenuhi |
| Lantai 9 | 4000 | 119,11 | 436,73 | 46,17 | 60,00 | Memenuhi |
| Lantai 8 | 4000 | 106,52 | 390,56 | 52,42 | 60,00 | Memenuhi |
| Lantai 7 | 4000 | 92,22 | 338,14 | 56,65 | 60,00 | Memenuhi |
| Lantai 6 | 4000 | 76,77 | 281,49 | 59,74 | 60,00 | Memenuhi |
| Lantai 5 | 4000 | 60,48 | 221,75 | 56,87 | 60,00 | Memenuhi |
| Lantai 4 | 4000 | 44,97 | 164,88 | 49,97 | 60,00 | Memenuhi |
| lantai 3 | 4000 | 31,34 | 114,90 | 54,53 | 60,00 | Memenuhi |
| lantai 2 | 4000 | 16,47 | 60,38 | 41,54 | 60,00 | Memenuhi |
| lantai 1 | 4000 | 5,14 | 18,84 | 18,84 | 60,00 | Memenuhi |

**Simpangan Arah Y**

| Lantai | H (mm) | Simpangan Elastis, δy (mm) | Perpindahan yang diperbesar (mm) | Simpangan antar lantai (mm) | Simpangan yang diizinkan (mm) | Ket. |
|---|---|---|---|---|---|---|
| Lantai Atap | 4000 | 161,46 | 592,02 | 32,79 | 60,00 | Memenuhi |
| Lantai 12 | 4000 | 152,52 | 559,23 | 48,28 | 60,00 | Memenuhi |
| Lantai 11 | 4000 | 139,35 | 510,94 | 32,18 | 60,00 | Memenuhi |
| Lantai 10 | 4000 | 130,57 | 478,77 | 42,40 | 60,00 | Memenuhi |
| Lantai 9 | 4000 | 119,01 | 436,37 | 52,24 | 60,00 | Memenuhi |
| Lantai 8 | 4000 | 104,76 | 384,13 | 55,01 | 60,00 | Memenuhi |
| Lantai 7 | 4000 | 89,76 | 329,12 | 59,02 | 60,00 | Memenuhi |
| Lantai 6 | 4000 | 73,67 | 270,11 | 54,44 | 60,00 | Memenuhi |
| Lantai 5 | 4000 | 58,82 | 215,66 | 50,62 | 60,00 | Memenuhi |
| Lantai 4 | 4000 | 45,01 | 165,04 | 42,52 | 60,00 | Memenuhi |
| lantai 3 | 4000 | 33,42 | 122,53 | 56,70 | 60,00 | Memenuhi |
| lantai 2 | 4000 | 17,95 | 65,83 | 45,47 | 60,00 | Memenuhi |
| lantai 1 | 4000 | 5,55 | 20,36 | 20,36 | 60,00 | Memenuhi |

## D.6. Gedung 12 Tingkat tanah keras

**Simpangan Arah X**

| Lantai | H (mm) | Simpangan Elastis, δx (mm) | Perpindahan yang diperbesar (mm) | Simpangan antar lantai (mm) | Simpangan yang diizinkan (mm) | Ket. |
|---|---|---|---|---|---|---|
| Lantai Atap | 4000 | 64,06 | 234,87 | 5,67 | 60,00 | Memenuhi |
| Lantai 12 | 4000 | 62,51 | 229,20 | 8,18 | 60,00 | Memenuhi |
| Lantai 11 | 4000 | 60,28 | 221,02 | 13,05 | 60,00 | Memenuhi |
| Lantai 10 | 4000 | 56,72 | 207,97 | 16,54 | 60,00 | Memenuhi |
| Lantai 9 | 4000 | 52,21 | 191,42 | 20,06 | 60,00 | Memenuhi |
| Lantai 8 | 4000 | 46,74 | 171,37 | 22,39 | 60,00 | Memenuhi |
| Lantai 7 | 4000 | 40,63 | 148,97 | 24,01 | 60,00 | Memenuhi |
| Lantai 6 | 4000 | 34,08 | 124,96 | 25,41 | 60,00 | Memenuhi |
| Lantai 5 | 4000 | 27,15 | 99,55 | 26,06 | 60,00 | Memenuhi |
| Lantai 4 | 4000 | 20,04 | 73,49 | 25,15 | 60,00 | Memenuhi |
| lantai 3 | 4000 | 13,18 | 48,34 | 22,77 | 60,00 | Memenuhi |
| lantai 2 | 4000 | 6,97 | 25,57 | 17,54 | 60,00 | Memenuhi |
| lantai 1 | 4000 | 2,19 | 8,03 | 8,03 | 60,00 | Memenuhi |

**Simpangan Arah Y**

| Lantai | H (mm) | Simpangan Elastis, δy (mm) | Perpindahan yang diperbesar (mm) | Simpangan antar lantai (mm) | Simpangan yang diizinkan (mm) | Ket. |
|---|---|---|---|---|---|---|
| Lantai Atap | 4000 | 80,60 | 295,53 | 6,90 | 60,00 | Memenuhi |
| Lantai 12 | 4000 | 78,72 | 288,63 | 12,24 | 60,00 | Memenuhi |
| Lantai 11 | 4000 | 75,38 | 276,39 | 17,92 | 60,00 | Memenuhi |
| Lantai 10 | 4000 | 70,49 | 258,47 | 22,04 | 60,00 | Memenuhi |
| Lantai 9 | 4000 | 64,48 | 236,43 | 26,02 | 60,00 | Memenuhi |
| Lantai 8 | 4000 | 57,39 | 210,42 | 28,67 | 60,00 | Memenuhi |
| Lantai 7 | 4000 | 49,57 | 181,74 | 30,35 | 60,00 | Memenuhi |
| Lantai 6 | 4000 | 41,29 | 151,39 | 31,69 | 60,00 | Memenuhi |
| Lantai 5 | 4000 | 32,65 | 119,70 | 31,98 | 60,00 | Memenuhi |
| Lantai 4 | 4000 | 23,92 | 87,71 | 30,43 | 60,00 | Memenuhi |
| lantai 3 | 4000 | 15,62 | 57,28 | 27,22 | 60,00 | Memenuhi |
| lantai 2 | 4000 | 8,20 | 30,06 | 20,71 | 60,00 | Memenuhi |
| lantai 1 | 4000 | 2,55 | 9,35 | 9,35 | 60,00 | Memenuhi |

# LAMPIRAN E

# Penulangan Balok

## E.1. Penulangan Longitudinal balok Gedung 4 tingkat portal As-4 (Tanah Keras)

| Lantai | Nama Balok | b | h | p | d | D | f'c | fy | j | β1 | Mu - | Mu + | AS Perlu | Tulangan | | Ast | Cek Momen Nominal | | | Cek As minimum | | | Cek rasio Tulangan | | | Cek Penampang | | | Desain Kapasitas | | ρ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | Perhitungan | Terpasang | | a | ØMn | Status | Asmin | As'min | Status | ρ | ρmax | Status | a/d | atcl/d | Status | apr | Mpr | |
| | | mm | mm | mm | mm | mm | Mpa | Mpa | | | (kN.m) | (kN.m) | mm2 | bh | bh | mm2 | mm2 | (kN.m) | | mm2 | mm2 | | | | | | | | | Kn.m | (%) |
| Atap | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 228,71 | | 1113,97 | 2,93 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 114,355 | 556,99 | 1,47 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 230,43 | | 1122,35 | 2,95 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 115,215 | 561,17 | 1,48 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B20_Lapangan | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 134,89 | 646,88 | 1,70 | 3 | 1139,82 | 56,55 | 267,44 | Ok | 771,07 | 865,333 | Ok | 0,004 | 0,025 | Ok | 0,087129 | 0,318750 | Ok, Under Reinforced | 70,683 | 349,730 | 0,44 |
| | Balok Portal B200_Tumpuan | 200 | 400 | 51 | 349 | 22 | 24,9 | 420 | 0,85 | 0,85 | 87,29 | | 778,45 | 2,05 | 2 | 759,88 | 75,40 | 89,42 | Ok | 207,32 | 232,667 | Ok | 0,011 | 0,025 | Ok | 0,216033 | 0,318750 | Ok, Under Reinforced | 94,245 | 57,348 | 1,09 |
| | Balok Portal B200_Lapangan | 200 | 400 | 51 | 349 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 43,645 | 389,22 | 1,02 | 2 | 759,88 | 75,40 | 89,42 | Ok | 207,32 | 232,667 | Ok | 0,011 | 0,025 | Ok | 0,216033 | 0,318750 | Ok, Under Reinforced | 94,245 | 57,348 | 1,09 |
| Lantai 4 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | 386,09 | | 1851,54 | 4,87 | 5 | 1899,70 | 94,24 | 432,20 | Ok | 771,07 | 865,333 | Ok | 0,007 | 0,025 | Ok | 0,145215 | 0,318750 | Ok, Under Reinforced | 117,806 | 560,504 | 0,73 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 193,045 | 925,77 | 2,44 | 3 | 1139,82 | 56,55 | 267,44 | Ok | 771,07 | 865,333 | Ok | 0,004 | 0,025 | Ok | 0,087129 | 0,318750 | Ok, Under Reinforced | 70,683 | 349,730 | 0,44 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | 386,09 | | 1851,54 | 4,87 | 5 | 1899,70 | 94,24 | 432,20 | Ok | 771,07 | 865,333 | Ok | 0,007 | 0,025 | Ok | 0,145215 | 0,318750 | Ok, Under Reinforced | 117,806 | 560,504 | 0,73 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 193,045 | 925,77 | 2,44 | 3 | 1139,82 | 56,55 | 267,44 | Ok | 771,07 | 865,333 | Ok | 0,004 | 0,025 | Ok | 0,087129 | 0,318750 | Ok, Under Reinforced | 70,683 | 349,730 | 0,44 |
| | Balok Portal B20_Lapangan | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 261,84 | 1255,68 | 3,30 | 4 | 1519,76 | 75,40 | 351,17 | Ok | 771,07 | 865,333 | Ok | 0,006 | 0,025 | Ok | 0,116172 | 0,318750 | Ok, Under Reinforced | 94,245 | 457,355 | 0,59 |
| | Balok Portal B21_Tumpuan_Kiri_Atas | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | 328,8 | | 1576,80 | 4,15 | 5 | 1899,70 | 94,24 | 432,20 | Ok | 771,07 | 865,333 | Ok | 0,007 | 0,025 | Ok | 0,145215 | 0,318750 | Ok, Under Reinforced | 117,806 | 560,504 | 0,73 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 164,4 | 788,40 | 2,08 | 3 | 1139,82 | 56,55 | 267,44 | Ok | 771,07 | 865,333 | Ok | 0,004 | 0,025 | Ok | 0,087129 | 0,318750 | Ok, Under Reinforced | 70,683 | 349,730 | 0,44 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | 328,8 | | 1576,80 | 4,15 | 5 | 1899,70 | 94,24 | 432,20 | Ok | 771,07 | 865,333 | Ok | 0,007 | 0,025 | Ok | 0,145215 | 0,318750 | Ok, Under Reinforced | 117,806 | 560,504 | 0,73 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 164,4 | 788,40 | 2,08 | 3 | 1139,82 | 56,55 | 267,44 | Ok | 771,07 | 865,333 | Ok | 0,004 | 0,025 | Ok | 0,087129 | 0,318750 | Ok, Under Reinforced | 70,683 | 349,730 | 0,44 |
| | Balok Portal B21_Lapangan | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 194,92 | 934,76 | 2,46 | 4 | 1519,76 | 75,40 | 351,17 | Ok | 771,07 | 865,333 | Ok | 0,006 | 0,025 | Ok | 0,116172 | 0,318750 | Ok, Under Reinforced | 94,245 | 457,355 | 0,59 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | 323,36 | | 1550,71 | 4,08 | 5 | 1899,70 | 94,24 | 432,20 | Ok | 771,07 | 865,333 | Ok | 0,007 | 0,025 | Ok | 0,145215 | 0,318750 | Ok, Under Reinforced | 117,806 | 560,504 | 0,73 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 161,68 | 775,36 | 2,04 | 3 | 1139,82 | 56,55 | 267,44 | Ok | 771,07 | 865,333 | Ok | 0,004 | 0,025 | Ok | 0,087129 | 0,318750 | Ok, Under Reinforced | 70,683 | 349,730 | 0,44 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | 323,36 | | 1550,71 | 4,08 | 5 | 1899,70 | 94,24 | 432,20 | Ok | 771,07 | 865,333 | Ok | 0,007 | 0,025 | Ok | 0,145215 | 0,318750 | Ok, Under Reinforced | 117,806 | 560,504 | 0,73 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 161,68 | 775,36 | 2,04 | 3 | 1139,82 | 56,55 | 267,44 | Ok | 771,07 | 865,333 | Ok | 0,004 | 0,025 | Ok | 0,087129 | 0,318750 | Ok, Under Reinforced | 70,683 | 349,730 | 0,44 |
| | Balok Portal B22_Lapangan | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 214 | 1026,26 | 2,70 | 4 | 1519,76 | 75,40 | 351,17 | Ok | 771,07 | 865,333 | Ok | 0,006 | 0,025 | Ok | 0,116172 | 0,318750 | Ok, Under Reinforced | 94,245 | 457,355 | 0,59 |
| | Balok Portal B23_Tumpuan_Kiri_Atas | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | 294,41 | | 1411,88 | 3,72 | 5 | 1899,70 | 94,24 | 432,20 | Ok | 771,07 | 865,333 | Ok | 0,007 | 0,025 | Ok | 0,145215 | 0,318750 | Ok, Under Reinforced | 117,806 | 560,504 | 0,73 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 147,205 | 705,94 | 1,86 | 3 | 1139,82 | 56,55 | 267,44 | Ok | 771,07 | 865,333 | Ok | 0,004 | 0,025 | Ok | 0,087129 | 0,318750 | Ok, Under Reinforced | 70,683 | 349,730 | 0,44 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | 294,41 | | 1411,88 | 3,72 | 5 | 1899,70 | 94,24 | 432,20 | Ok | 771,07 | 865,333 | Ok | 0,007 | 0,025 | Ok | 0,145215 | 0,318750 | Ok, Under Reinforced | 117,806 | 560,504 | 0,73 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 147,205 | 705,94 | 1,86 | 3 | 1139,82 | 56,55 | 267,44 | Ok | 771,07 | 865,333 | Ok | 0,004 | 0,025 | Ok | 0,087129 | 0,318750 | Ok, Under Reinforced | 70,683 | 349,730 | 0,44 |
| | Balok Portal B23_Lapangan | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 173,99 | 834,39 | 2,20 | 4 | 1519,76 | 75,40 | 351,17 | Ok | 771,07 | 865,333 | Ok | 0,006 | 0,025 | Ok | 0,116172 | 0,318750 | Ok, Under Reinforced | 94,245 | 457,355 | 0,59 |
| Lantai 3 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | 438,42 | | 2102,49 | 5,53 | 6 | 2279,64 | 113,09 | 510,52 | Ok | 771,07 | 865,333 | Ok | 0,009 | 0,025 | Ok | 0,174258 | 0,318750 | Ok, Under Reinforced | 141,367 | 659,177 | 0,88 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 219,21 | 1051,25 | 2,77 | 3 | 1139,82 | 56,55 | 267,44 | Ok | 771,07 | 865,333 | Ok | 0,004 | 0,025 | Ok | 0,087129 | 0,318750 | Ok, Under Reinforced | 70,683 | 349,730 | 0,44 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | 438,42 | | 2102,49 | 5,53 | 6 | 2279,64 | 113,09 | 510,52 | Ok | 771,07 | 865,333 | Ok | 0,009 | 0,025 | Ok | 0,174258 | 0,318750 | Ok, Under Reinforced | 141,367 | 659,177 | 0,88 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 219,21 | 1051,25 | 2,77 | 3 | 1139,82 | 56,55 | 267,44 | Ok | 771,07 | 865,333 | Ok | 0,004 | 0,025 | Ok | 0,087129 | 0,318750 | Ok, Under Reinforced | 70,683 | 349,730 | 0,44 |
| | Balok Portal B20_Lapangan | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 268,19 | 1286,14 | 3,39 | 4 | 1519,76 | 75,40 | 351,17 | Ok | 771,07 | 865,333 | Ok | 0,006 | 0,025 | Ok | 0,116172 | 0,318750 | Ok, Under Reinforced | 94,245 | 457,355 | 0,59 |
| | Balok Portal B21_Tumpuan | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | 387,01 | | 1855,95 | 4,88 | 6 | 2279,64 | 113,09 | 510,52 | Ok | 771,07 | 865,333 | Ok | 0,009 | 0,025 | Ok | 0,174258 | 0,318750 | Ok, Under Reinforced | 141,367 | 659,177 | 0,88 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 193,505 | 927,98 | 2,44 | 3 | 1139,82 | 56,55 | 267,44 | Ok | 771,07 | 865,333 | Ok | 0,004 | 0,025 | Ok | 0,087129 | 0,318750 | Ok, Under Reinforced | 70,683 | 349,730 | 0,44 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | 387,01 | | 1855,95 | 4,88 | 6 | 2279,64 | 113,09 | 510,52 | Ok | 771,07 | 865,333 | Ok | 0,009 | 0,025 | Ok | 0,174258 | 0,318750 | Ok, Under Reinforced | 141,367 | 659,177 | 0,88 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 193,505 | 927,98 | 2,44 | 3 | 1139,82 | 56,55 | 267,44 | Ok | 771,07 | 865,333 | Ok | 0,004 | 0,025 | Ok | 0,087129 | 0,318750 | Ok, Under Reinforced | 70,683 | 349,730 | 0,44 |
| | Balok Portal B21_Lapangan | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 194,29 | 931,74 | 2,45 | 4 | 1519,76 | 75,40 | 351,17 | Ok | 771,07 | 865,333 | Ok | 0,006 | 0,025 | Ok | 0,116172 | 0,318750 | Ok, Under Reinforced | 94,245 | 457,355 | 0,59 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | 386,81 | | 1854,99 | 4,88 | 6 | 2279,64 | 113,09 | 510,52 | Ok | 771,07 | 865,333 | Ok | 0,009 | 0,025 | Ok | 0,174258 | 0,318750 | Ok, Under Reinforced | 141,367 | 659,177 | 0,88 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 193,405 | 927,50 | 2,44 | 3 | 1139,82 | 56,55 | 267,44 | Ok | 771,07 | 865,333 | Ok | 0,004 | 0,025 | Ok | 0,087129 | 0,318750 | Ok, Under Reinforced | 70,683 | 349,730 | 0,44 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | 386,81 | | 1854,99 | 4,88 | 6 | 2279,64 | 113,09 | 510,52 | Ok | 771,07 | 865,333 | Ok | 0,009 | 0,025 | Ok | 0,174258 | 0,318750 | Ok, Under Reinforced | 141,367 | 659,177 | 0,88 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 193,405 | 927,50 | 2,44 | 3 | 1139,82 | 56,55 | 267,44 | Ok | 771,07 | 865,333 | Ok | 0,004 | 0,025 | Ok | 0,087129 | 0,318750 | Ok, Under Reinforced | 70,683 | 349,730 | 0,44 |
| | Balok Portal B22_Lapangan | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 213,11 | 1021,99 | 2,69 | 4 | 1519,76 | 75,40 | 351,17 | Ok | 771,07 | 865,333 | Ok | 0,006 | 0,025 | Ok | 0,116172 | 0,318750 | Ok, Under Reinforced | 94,245 | 457,355 | 0,59 |
| | Balok Portal B23_Tumpuan_Kiri_Atas | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | 356,58 | | 1710,02 | 4,50 | 6 | 2279,64 | 113,09 | 510,52 | Ok | 771,07 | 865,333 | Ok | 0,009 | 0,025 | Ok | 0,174258 | 0,318750 | Ok, Under Reinforced | 141,367 | 659,177 | 0,88 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 178,29 | 855,01 | 2,25 | 3 | 1139,82 | 56,55 | 267,44 | Ok | 771,07 | 865,333 | Ok | 0,004 | 0,025 | Ok | 0,087129 | 0,318750 | Ok, Under Reinforced | 70,683 | 349,730 | 0,44 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | 356,58 | | 1710,02 | 4,50 | 6 | 2279,64 | 113,09 | 510,52 | Ok | 771,07 | 865,333 | Ok | 0,009 | 0,025 | Ok | 0,174258 | 0,318750 | Ok, Under Reinforced | 141,367 | 659,177 | 0,88 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 178,29 | 855,01 | 2,25 | 3 | 1139,82 | 56,55 | 267,44 | Ok | 771,07 | 865,333 | Ok | 0,004 | 0,025 | Ok | 0,087129 | 0,318750 | Ok, Under Reinforced | 70,683 | 349,730 | 0,44 |
| | Balok Portal B23_Lapangan | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 174,75 | 838,03 | 2,21 | 4 | 1519,76 | 75,40 | 351,17 | Ok | 771,07 | 865,333 | Ok | 0,006 | 0,025 | Ok | 0,116172 | 0,318750 | Ok, Under Reinforced | 94,245 | 457,355 | 0,59 |
| Lantai 2 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | 425,22 | | 2039,19 | 5,37 | 6 | 2279,64 | 113,09 | 510,52 | Ok | 771,07 | 865,333 | Ok | 0,009 | 0,025 | Ok | 0,174258 | 0,318750 | Ok, Under Reinforced | 141,367 | 659,177 | 0,88 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 212,61 | 1019,60 | 2,68 | 3 | 1139,82 | 56,55 | 267,44 | Ok | 771,07 | 865,333 | Ok | 0,004 | 0,025 | Ok | 0,087129 | 0,318750 | Ok, Under Reinforced | 70,683 | 349,730 | 0,44 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | 425,22 | | 2039,19 | 5,37 | 6 | 2279,64 | 113,09 | 510,52 | Ok | 771,07 | 865,333 | Ok | 0,009 | 0,025 | Ok | 0,174258 | 0,318750 | Ok, Under Reinforced | 141,367 | 659,177 | 0,88 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 212,61 | 1019,60 | 2,68 | 3 | 1139,82 | 56,55 | 267,44 | Ok | 771,07 | 865,333 | Ok | 0,004 | 0,025 | Ok | 0,087129 | 0,318750 | Ok, Under Reinforced | 70,683 | 349,730 | 0,44 |
| | Balok Portal B20_Lapangan | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 216,94 | 1040,36 | 2,74 | 4 | 1519,76 | 75,40 | 351,17 | Ok | 771,07 | 865,333 | Ok | 0,006 | 0,025 | Ok | 0,116172 | 0,318750 | Ok, Under Reinforced | 94,245 | 457,355 | 0,59 |
| | Balok Portal B21_Tumpuan_Kiri_Atas | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | 404,73 | | 1940,93 | 5,11 | 6 | 2279,64 | 113,09 | 510,52 | Ok | 771,07 | 865,333 | Ok | 0,009 | 0,025 | Ok | 0,174258 | 0,318750 | Ok, Under Reinforced | 141,367 | 659,177 | 0,88 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 202,365 | 970,47 | 2,55 | 3 | 1139,82 | 56,55 | 267,44 | Ok | 771,07 | 865,333 | Ok | 0,004 | 0,025 | Ok | 0,087129 | 0,318750 | Ok, Under Reinforced | 70,683 | 349,730 | 0,44 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | 404,73 | | 1940,93 | 5,11 | 6 | 2279,64 | 113,09 | 510,52 | Ok | 771,07 | 865,333 | Ok | 0,009 | 0,025 | Ok | 0,174258 | 0,318750 | Ok, Under Reinforced | 141,367 | 659,177 | 0,88 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 202,365 | 970,47 | 2,55 | 3 | 1139,82 | 56,55 | 267,44 | Ok | 771,07 | 865,333 | Ok | 0,004 | 0,025 | Ok | 0,087129 | 0,318750 | Ok, Under Reinforced | 70,683 | 349,730 | 0,44 |
| | Balok Portal B21_Lapangan | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 190,22 | 912,22 | 2,40 | 4 | 1519,76 | 75,40 | 351,17 | Ok | 771,07 | 865,333 | Ok | 0,006 | 0,025 | Ok | 0,116172 | 0,318750 | Ok, Under Reinforced | 94,245 | 457,355 | 0,59 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | 384,26 | | 1842,76 | 4,85 | 6 | 2279,64 | 113,09 | 510,52 | Ok | 771,07 | 865,333 | Ok | 0,009 | 0,025 | Ok | 0,174258 | 0,318750 | Ok, Under Reinforced | 141,367 | 659,177 | 0,88 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 192,13 | 921,38 | 2,43 | 3 | 1139,82 | 56,55 | 267,44 | Ok | 771,07 | 865,333 | Ok | 0,004 | 0,025 | Ok | 0,087129 | 0,318750 | Ok, Under Reinforced | 70,683 | 349,730 | 0,44 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | 384,26 | | 1842,76 | 4,85 | 6 | 2279,64 | 113,09 | 510,52 | Ok | 771,07 | 865,333 | Ok | 0,009 | 0,025 | Ok | 0,174258 | 0,318750 | Ok, Under Reinforced | 141,367 | 659,177 | 0,88 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 192,13 | 921,38 | 2,43 | 3 | 1139,82 | 56,55 | 267,44 | Ok | 771,07 | 865,333 | Ok | 0,004 | 0,025 | Ok | 0,087129 | 0,318750 | Ok, Under Reinforced | 70,683 | 349,730 | 0,44 |
| | Balok Portal B22_Lapangan | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 179,94 | 862,92 | 2,27 | 4 | 1519,76 | 75,40 | 351,17 | Ok | 771,07 | 865,333 | Ok | 0,006 | 0,025 | Ok | 0,116172 | 0,318750 | Ok, Under Reinforced | 94,245 | 457,355 | 0,59 |
| | Balok Portal B23_Tumpuan | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | 381,16 | | 1827,90 | 4,81 | 6 | 2279,64 | 113,09 | 510,52 | Ok | 771,07 | 865,333 | Ok | 0,009 | 0,025 | Ok | 0,174258 | 0,318750 | Ok, Under Reinforced | 141,367 | 659,177 | 0,88 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 190,58 | 913,95 | 2,41 | 3 | 1139,82 | 56,55 | 267,44 | Ok | 771,07 | 865,333 | Ok | 0,004 | 0,025 | Ok | 0,087129 | 0,318750 | Ok, Under Reinforced | 70,683 | 349,730 | 0,44 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | 381,16 | | 1827,90 | 4,81 | 6 | 2279,64 | 113,09 | 510,52 | Ok | 771,07 | 865,333 | Ok | 0,009 | 0,025 | Ok | 0,174258 | 0,318750 | Ok, Under Reinforced | 141,367 | 659,177 | 0,88 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 190,58 | 913,95 | 2,41 | 3 | 1139,82 | 56,55 | 267,44 | Ok | 771,07 | 865,333 | Ok | 0,004 | 0,025 | Ok | 0,087129 | 0,318750 | Ok, Under Reinforced | 70,683 | 349,730 | 0,44 |
| | Balok Portal B23_Lapangan | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 169,99 | 815,21 | 2,15 | 4 | 1519,76 | 75,40 | 351,17 | Ok | 771,07 | 865,333 | Ok | 0,006 | 0,025 | Ok | 0,116172 | 0,318750 | Ok, Under Reinforced | 94,245 | 457,355 | 0,59 |

| Lantai | Nama Balok | b | h | p | d | D | f'c | fy | j | β1 | Mu - | Mu + | AS Perlu | Tulangan | | Ast | Cek Momen Nominal | | | Cek As minimum | | | Cek rasio Tulangan | | | Cek Penampang | | | Desain Kapasitas | | ρ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | Perhitungan | Terpasang | | a | ØMn | Status | Asmin | As'min | Status | ρ | ρmax | Status | a/d | atcl/d | Status | apr | Mpr | |
| | | mm | mm | mm | mm | mm | Mpa | Mpa | | | (kN.m) | (kN.m) | mm2 | bh | bh | mm2 | mm2 | (kN.m) | | mm2 | mm2 | | | | | | | | | Kn.m | (%) |
| Lantai 1 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | 400,23 | | 1919,35 | 5,05 | 6 | 2279,64 | 0,30 | 559,12 | Ok | 771,07 | 865,333 | Ok | 0,009 | 0,025 | Ok | 0,000459 | 0,318750 | Ok, Under Reinforced | 141,367 | 659,177 | 0,88 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 200,115 | 959,68 | 2,53 | 3 | 1139,82 | 0,15 | 279,59 | Ok | 771,07 | 865,333 | Ok | 0,004 | 0,025 | Ok | 0,000229 | 0,318750 | Ok, Under Reinforced | 70,683 | 349,730 | 0,44 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | 400,23 | | 1919,35 | 5,05 | 6 | 2279,64 | 0,30 | 559,12 | Ok | 771,07 | 865,333 | Ok | 0,009 | 0,025 | Ok | 0,000459 | 0,318750 | Ok, Under Reinforced | 141,367 | 659,177 | 0,88 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 200,115 | 959,68 | 2,53 | 3 | 1139,82 | 0,15 | 279,59 | Ok | 771,07 | 865,333 | Ok | 0,004 | 0,025 | Ok | 0,000229 | 0,318750 | Ok, Under Reinforced | 70,683 | 349,730 | 0,44 |
| | Balok Portal B20_Lapangan | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 214,26 | 1027,51 | 2,70 | 4 | 1519,76 | 0,20 | 372,77 | Ok | 771,07 | 865,333 | Ok | 0,006 | 0,025 | Ok | 0,000306 | 0,318750 | Ok, Under Reinforced | 94,245 | 457,355 | 0,59 |
| | Balok Portal B21_Tumpuan_Kiri_Atas | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | 379,72 | | 1820,99 | 4,79 | 6 | 2279,64 | 0,30 | 559,12 | Ok | 771,07 | 865,333 | Ok | 0,009 | 0,025 | Ok | 0,000459 | 0,318750 | Ok, Under Reinforced | 141,367 | 659,177 | 0,88 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 189,86 | 910,50 | 2,40 | 3 | 1139,82 | 0,15 | 279,59 | Ok | 771,07 | 865,333 | Ok | 0,004 | 0,025 | Ok | 0,000229 | 0,318750 | Ok, Under Reinforced | 70,683 | 349,730 | 0,44 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | 379,72 | | 1820,99 | 4,79 | 6 | 2279,64 | 0,30 | 559,12 | Ok | 771,07 | 865,333 | Ok | 0,009 | 0,025 | Ok | 0,000459 | 0,318750 | Ok, Under Reinforced | 141,367 | 659,177 | 0,88 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 189,86 | 910,50 | 2,40 | 3 | 1139,82 | 0,15 | 279,59 | Ok | 771,07 | 865,333 | Ok | 0,004 | 0,025 | Ok | 0,000229 | 0,318750 | Ok, Under Reinforced | 70,683 | 349,730 | 0,44 |
| | Balok Portal B21_Lapangan | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 188,77 | 905,27 | 2,38 | 4 | 1519,76 | 0,20 | 372,77 | Ok | 771,07 | 865,333 | Ok | 0,006 | 0,025 | Ok | 0,000306 | 0,318750 | Ok, Under Reinforced | 94,245 | 457,355 | 0,59 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | 388,66 | | 1863,86 | 4,91 | 6 | 2279,64 | 0,30 | 559,12 | Ok | 771,07 | 865,333 | Ok | 0,009 | 0,025 | Ok | 0,000459 | 0,318750 | Ok, Under Reinforced | 141,367 | 659,177 | 0,88 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 194,33 | 931,93 | 2,45 | 3 | 1139,82 | 0,15 | 279,59 | Ok | 771,07 | 865,333 | Ok | 0,004 | 0,025 | Ok | 0,000229 | 0,318750 | Ok, Under Reinforced | 70,683 | 349,730 | 0,44 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | 388,66 | | 1863,86 | 4,91 | 6 | 2279,64 | 0,30 | 559,12 | Ok | 771,07 | 865,333 | Ok | 0,009 | 0,025 | Ok | 0,000459 | 0,318750 | Ok, Under Reinforced | 141,367 | 659,177 | 0,88 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 194,33 | 931,93 | 2,45 | 3 | 1139,82 | 0,15 | 279,59 | Ok | 771,07 | 865,333 | Ok | 0,004 | 0,025 | Ok | 0,000229 | 0,318750 | Ok, Under Reinforced | 70,683 | 349,730 | 0,44 |
| | Balok Portal B22_Lapangan | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 216,17 | 1036,67 | 2,73 | 4 | 1519,76 | 0,20 | 372,77 | Ok | 771,07 | 865,333 | Ok | 0,006 | 0,025 | Ok | 0,000306 | 0,318750 | Ok, Under Reinforced | 94,245 | 457,355 | 0,59 |
| | Balok Portal B23_Tumpuan_Kiri_Atas | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | 378,01 | | 1812,79 | 4,77 | 6 | 2279,64 | 0,30 | 559,12 | Ok | 771,07 | 865,333 | Ok | 0,009 | 0,025 | Ok | 0,000459 | 0,318750 | Ok, Under Reinforced | 141,367 | 659,177 | 0,88 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 189,005 | 906,40 | 2,39 | 3 | 1139,82 | 0,15 | 279,59 | Ok | 771,07 | 865,333 | Ok | 0,004 | 0,025 | Ok | 0,000229 | 0,318750 | Ok, Under Reinforced | 70,683 | 349,730 | 0,44 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | 378,01 | | 1812,79 | 4,77 | 6 | 2279,64 | 0,30 | 559,12 | Ok | 771,07 | 865,333 | Ok | 0,009 | 0,025 | Ok | 0,000459 | 0,318750 | Ok, Under Reinforced | 141,367 | 659,177 | 0,88 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 189,005 | 906,40 | 2,39 | 3 | 1139,82 | 0,15 | 279,59 | Ok | 771,07 | 865,333 | Ok | 0,004 | 0,025 | Ok | 0,000229 | 0,318750 | Ok, Under Reinforced | 70,683 | 349,730 | 0,44 |
| | Balok Portal B23_Lapangan | 400 | 700 | 51 | 649 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 198,94 | 954,04 | 2,51 | 4 | 1519,76 | 0,20 | 372,77 | Ok | 771,07 | 865,333 | Ok | 0,006 | 0,025 | Ok | 0,000306 | 0,318750 | Ok, Under Reinforced | 94,245 | 457,355 | 0,59 |

## E.2. Penulangan Longitudinal balok Gedung 4 tingkat portal As-4 (Tanah Lunak)

| Lantai | Nama Balok | b | h | p | d | D | f'c | fy | j | β1 | Mu - | Mu + | AS Perlu | Tulangan | | Ast | Cek Momen Nominal | | | Cek As minimum | | | Cek rasio Tulangan | | | Cek Penampang | | | Desain Kapasitas | | ρ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | Perhitungan | Terpasang | | a | ØMn | Status | Asmin | As'min | Status | ρ | ρmax | Status | a/d | atcl/d | Status | apr | Mpr | |
| | | mm | mm | mm | mm | mm | Mpa | Mpa | | | (kN.m) | (kN.m) | mm2 | bh | bh | mm2 | mm2 | (kN.m) | | mm2 | mm2 | | | | | | | | | Kn.m | (%) |
| Atap | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 273,96 | | 1334,37 | 3,51 | 4 | 1519,76 | 75,40 | 345,430 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 136,98 | 667,18 | 1,76 | 3 | 1139,82 | 56,55 | 263,133 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 273,96 | | 1334,37 | 3,51 | 4 | 1519,76 | 75,40 | 345,430 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 136,98 | 667,18 | 1,76 | 3 | 1139,82 | 56,55 | 263,133 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 140,41 | 683,89 | 1,80 | 3 | 1139,82 | 56,55 | 263,133 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B200_Tumpuan | 200 | 400 | 61 | 339 | 22 | 24,9 | 420 | 0,85 | 0,85 | 88,71 | | 814,45 | 2,14 | 3 | 1139,82 | 113,09 | 121,696 | Ok | 201,38 | 226,000 | Ok | 0,017 | 0,025 | Ok | 0,333609 | 0,318750 | Ok, Under Reinforced | 141,367 | 76,458 | 1,68 |
| | Balok Portal B200_Lapangan | 200 | 400 | 61 | 339 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 44,355 | 407,22 | 1,07 | 2 | 759,88 | 75,40 | 86,544 | Ok | 201,38 | 226,000 | Ok | 0,011 | 0,025 | Ok | 0,222406 | 0,318750 | Ok, Under Reinforced | 94,245 | 55,448 | 1,12 |
| Lantai 4 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 471,05 | | 2294,33 | 6,04 | 6 | 2279,64 | 113,09 | 501,902 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,176985 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 235,525 | 1147,16 | 3,02 | 3 | 1139,82 | 56,55 | 263,133 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 471,05 | | 2294,33 | 6,04 | 6 | 2279,64 | 113,09 | 501,902 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,176985 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 235,525 | 1147,16 | 3,02 | 3 | 1139,82 | 56,55 | 263,133 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 276,77 | 1348,05 | 3,55 | 4 | 1519,76 | 75,40 | 345,430 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 411,07 | | 2002,18 | 5,27 | 6 | 2279,64 | 113,09 | 501,902 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,176985 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 205,535 | 1001,09 | 2,63 | 3 | 1139,82 | 56,55 | 263,133 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 411,07 | | 2002,18 | 5,27 | 6 | 2279,64 | 113,09 | 501,902 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,176985 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 205,535 | 1001,09 | 2,63 | 3 | 1139,82 | 56,55 | 263,133 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B21_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 194,73 | 948,46 | 2,50 | 4 | 1519,76 | 75,40 | 345,430 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 404,5 | | 1970,18 | 5,19 | 6 | 2279,64 | 113,09 | 501,902 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,176985 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 202,25 | 985,09 | 2,59 | 3 | 1139,82 | 56,55 | 263,133 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 404,5 | | 1970,18 | 5,19 | 6 | 2279,64 | 113,09 | 501,902 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,176985 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 202,25 | 985,09 | 2,59 | 3 | 1139,82 | 56,55 | 263,133 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B22_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 214 | 1042,32 | 2,74 | 4 | 1519,76 | 75,40 | 345,430 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B23_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 375,6 | | 1829,42 | 4,82 | 6 | 2279,64 | 113,09 | 501,902 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,176985 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 187,8 | 914,71 | 2,41 | 3 | 1139,82 | 56,55 | 263,133 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 375,6 | | 1829,42 | 4,82 | 6 | 2279,64 | 113,09 | 501,902 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,176985 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 187,8 | 914,71 | 2,41 | 3 | 1139,82 | 56,55 | 263,133 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B23_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 173,99 | 847,45 | 2,23 | 4 | 1519,76 | 75,40 | 345,430 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| Lantai 3 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 581,05 | | 2830,10 | 7,45 | 8 | 3039,52 | 150,79 | 647,547 | Ok | 759,19 | 852,000 | Ok | 0,012 | 0,025 | Ok | 0,235980 | 0,318750 | Ok, Under Reinforced | 188,489 | 827,898 | 1,19 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 290,525 | 1415,05 | 3,72 | 4 | 1519,76 | 75,40 | 345,430 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 581,05 | | 2830,10 | 7,45 | 8 | 3039,52 | 150,79 | 647,547 | Ok | 759,19 | 852,000 | Ok | 0,012 | 0,025 | Ok | 0,235980 | 0,318750 | Ok, Under Reinforced | 188,489 | 827,898 | 1,19 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 290,525 | 1415,05 | 3,72 | 4 | 1519,76 | 75,40 | 345,430 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 296,03 | 1441,86 | 3,79 | 5 | 1899,70 | 94,24 | 425,019 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B21_Tumpuan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 529,02 | | 2576,68 | 6,78 | 8 | 3039,52 | 150,79 | 647,547 | Ok | 759,19 | 852,000 | Ok | 0,012 | 0,025 | Ok | 0,235980 | 0,318750 | Ok, Under Reinforced | 188,489 | 827,898 | 1,19 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 264,51 | 1288,34 | 3,39 | 4 | 1519,76 | 75,40 | 345,430 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 529,02 | | 2576,68 | 6,78 | 8 | 3039,52 | 150,79 | 647,547 | Ok | 759,19 | 852,000 | Ok | 0,012 | 0,025 | Ok | 0,235980 | 0,318750 | Ok, Under Reinforced | 188,489 | 827,898 | 1,19 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 264,51 | 1288,34 | 3,39 | 4 | 1519,76 | 75,40 | 345,430 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 224,93 | 1095,56 | 2,88 | 5 | 1899,70 | 94,24 | 425,019 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 528,42 | | 2573,76 | 6,77 | 8 | 3039,52 | 150,79 | 647,547 | Ok | 759,19 | 852,000 | Ok | 0,012 | 0,025 | Ok | 0,235980 | 0,318750 | Ok, Under Reinforced | 188,489 | 827,898 | 1,19 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 264,21 | 1286,88 | 3,39 | 4 | 1519,76 | 75,40 | 345,430 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 528,42 | | 2573,76 | 6,77 | 8 | 3039,52 | 150,79 | 647,547 | Ok | 759,19 | 852,000 | Ok | 0,012 | 0,025 | Ok | 0,235980 | 0,318750 | Ok, Under Reinforced | 188,489 | 827,898 | 1,19 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 264,21 | 1286,88 | 3,39 | 4 | 1519,76 | 75,40 | 345,430 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B22_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 213,56 | 1040,18 | 2,74 | 5 | 1899,70 | 94,24 | 425,019 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B23_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 498,2 | | 2426,57 | 6,39 | 8 | 3039,52 | 150,79 | 647,547 | Ok | 759,19 | 852,000 | Ok | 0,012 | 0,025 | Ok | 0,235980 | 0,318750 | Ok, Under Reinforced | 188,489 | 827,898 | 1,19 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 249,1 | 1213,28 | 3,19 | 4 | 1519,76 | 75,40 | 345,430 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 498,2 | | 2426,57 | 6,39 | 8 | 3039,52 | 150,79 | 647,547 | Ok | 759,19 | 852,000 | Ok | 0,012 | 0,025 | Ok | 0,235980 | 0,318750 | Ok, Under Reinforced | 188,489 | 827,898 | 1,19 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 249,1 | 1213,28 | 3,19 | 4 | 1519,76 | 75,40 | 345,430 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B23_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 221,74 | 1080,02 | 2,84 | 5 | 1899,70 | 94,24 | 425,019 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| Lantai 2 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 606,45 | | 2953,82 | 7,77 | 8 | 3039,52 | 150,79 | 647,547 | Ok | 759,19 | 852,000 | Ok | 0,012 | 0,025 | Ok | 0,235980 | 0,318750 | Ok, Under Reinforced | 188,489 | 827,898 | 1,19 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 303,225 | 1476,91 | 3,89 | 4 | 1519,76 | 75,40 | 345,430 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 606,45 | | 2953,82 | 7,77 | 8 | 3039,52 | 150,79 | 647,547 | Ok | 759,19 | 852,000 | Ok | 0,012 | 0,025 | Ok | 0,235980 | 0,318750 | Ok, Under Reinforced | 188,489 | 827,898 | 1,19 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 303,225 | 1476,91 | 3,89 | 4 | 1519,76 | 75,40 | 345,430 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 297,58 | 1449,41 | 3,81 | 5 | 1899,70 | 94,24 | 425,019 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B21_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 583,29 | | 2841,01 | 7,48 | 8 | 3039,52 | 150,79 | 647,547 | Ok | 759,19 | 852,000 | Ok | 0,012 | 0,025 | Ok | 0,235980 | 0,318750 | Ok, Under Reinforced | 188,489 | 827,898 | 1,19 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 291,645 | 1420,51 | 3,74 | 4 | 1519,76 | 75,40 | 345,430 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 583,29 | | 2841,01 | 7,48 | 8 | 3039,52 | 150,79 | 647,547 | Ok | 759,19 | 852,000 | Ok | 0,012 | 0,025 | Ok | 0,235980 | 0,318750 | Ok, Under Reinforced | 188,489 | 827,898 | 1,19 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 291,645 | 1420,51 | 3,74 | 4 | 1519,76 | 75,40 | 345,430 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 284,19 | 1384,19 | 3,64 | 5 | 1899,70 | 94,24 | 425,019 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 562,01 | | 2737,36 | 7,20 | 8 | 3039,52 | 150,79 | 647,547 | Ok | 759,19 | 852,000 | Ok | 0,012 | 0,025 | Ok | 0,235980 | 0,318750 | Ok, Under Reinforced | 188,489 | 827,898 | 1,19 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 298,52 | 1453,99 | 3,83 | 4 | 1519,76 | 75,40 | 345,430 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 562,01 | | 2737,36 | 7,20 | 8 | 3039,52 | 150,79 | 647,547 | Ok | 759,19 | 852,000 | Ok | 0,012 | 0,025 | Ok | 0,235980 | 0,318750 | Ok, Under Reinforced | 188,489 | 827,898 | 1,19 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 298,52 | 1453,99 | 3,83 | 4 | 1519,76 | 75,40 | 345,430 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B22_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 298,52 | 1453,99 | 3,83 | 5 | 1899,70 | 94,24 | 425,019 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B23_Tumpuan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 558,95 | | 2722,46 | 7,17 | 8 | 3039,52 | 150,79 | 647,547 | Ok | 759,19 | 852,000 | Ok | 0,012 | 0,025 | Ok | 0,235980 | 0,318750 | Ok, Under Reinforced | 188,489 | 827,898 | 1,19 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 300,54 | 1463,83 | 3,85 | 4 | 1519,76 | 75,40 | 345,430 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 558,95 | | 2722,46 | 7,17 | 8 | 3039,52 | 150,79 | 647,547 | Ok | 759,19 | 852,000 | Ok | 0,012 | 0,025 | Ok | 0,235980 | 0,318750 | Ok, Under Reinforced | 188,489 | 827,898 | 1,19 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 300,54 | 1463,83 | 3,85 | 4 | 1519,76 | 75,40 | 345,430 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B23_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 300,54 | 1463,83 | 3,85 | 5 | 1899,70 | 94,24 | 425,019 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |

| Lantai | Nama Balok | b | h | p | d | D | f'c | fy | j | β1 | Mu - | Mu + | AS Perlu | Tulangan | | Ast | Cek Momen Nominal | | | Cek As minimum | | | Cek rasio Tulangan | | | Cek Penampang | | | Desain Kapasitas | | ρ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | Perhitungan | Terpasang | | a | ØMn | Status | Asmin | As'min | Status | ρ | ρmax | Status | a/d | atcl/d | Status | apr | Mpr | |
| | | mm | mm | mm | mm | mm | Mpa | Mpa | | | (kN.m) | (kN.m) | mm2 | bh | bh | mm2 | mm2 | (kN.m) | | mm2 | mm2 | | | | | | | | | Kn.m | (%) |
| Lantai 1 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 554,94 | | 2702,93 | 7,11 | 8 | 3039,52 | 150,79 | 647,547 | Ok | 759,19 | 852,000 | Ok | 0,012 | 0,025 | Ok | 0,235980 | 0,318750 | Ok, Under Reinforced | 188,489 | 827,898 | 1,19 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 277,47 | 1351,46 | 3,56 | 4 | 1519,76 | 75,40 | 345,430 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 554,94 | | 2702,93 | 7,11 | 8 | 3039,52 | 150,79 | 647,547 | Ok | 759,19 | 852,000 | Ok | 0,012 | 0,025 | Ok | 0,235980 | 0,318750 | Ok, Under Reinforced | 188,489 | 827,898 | 1,19 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 277,47 | 1351,46 | 3,56 | 4 | 1519,76 | 75,40 | 345,430 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 243,1 | 1184,06 | 3,12 | 5 | 1899,70 | 94,24 | 425,019 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B21_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 531,77 | | 2590,07 | 6,82 | 8 | 3039,52 | 150,79 | 647,547 | Ok | 759,19 | 852,000 | Ok | 0,012 | 0,025 | Ok | 0,235980 | 0,318750 | Ok, Under Reinforced | 188,489 | 827,898 | 1,19 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 265,885 | 1295,04 | 3,41 | 4 | 1519,76 | 75,40 | 345,430 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 531,77 | | 2590,07 | 6,82 | 8 | 3039,52 | 150,79 | 647,547 | Ok | 759,19 | 852,000 | Ok | 0,012 | 0,025 | Ok | 0,235980 | 0,318750 | Ok, Under Reinforced | 188,489 | 827,898 | 1,19 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 265,885 | 1295,04 | 3,41 | 4 | 1519,76 | 75,40 | 345,430 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 231,82 | 1129,12 | 2,97 | 5 | 1899,70 | 94,24 | 425,019 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 540,47 | | 2632,45 | 6,93 | 8 | 3039,52 | 150,79 | 647,547 | Ok | 759,19 | 852,000 | Ok | 0,012 | 0,025 | Ok | 0,235980 | 0,318750 | Ok, Under Reinforced | 188,489 | 827,898 | 1,19 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 270,235 | 1316,22 | 3,46 | 4 | 1519,76 | 75,40 | 345,430 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 540,47 | | 2632,45 | 6,93 | 8 | 3039,52 | 150,79 | 647,547 | Ok | 759,19 | 852,000 | Ok | 0,012 | 0,025 | Ok | 0,235980 | 0,318750 | Ok, Under Reinforced | 188,489 | 827,898 | 1,19 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 270,235 | 1316,22 | 3,46 | 4 | 1519,76 | 75,40 | 345,430 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B22_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 228,49 | 1112,90 | 2,93 | 5 | 1899,70 | 94,24 | 425,019 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B23_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 529,83 | | 2580,63 | 6,79 | 8 | 3039,52 | 150,79 | 647,547 | Ok | 759,19 | 852,000 | Ok | 0,012 | 0,025 | Ok | 0,235980 | 0,318750 | Ok, Under Reinforced | 188,489 | 827,898 | 1,19 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 264,915 | 1290,31 | 3,40 | 4 | 1519,76 | 75,40 | 345,430 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 529,83 | | 2580,63 | 6,79 | 8 | 3039,52 | 150,79 | 647,547 | Ok | 759,19 | 852,000 | Ok | 0,012 | 0,025 | Ok | 0,235980 | 0,318750 | Ok, Under Reinforced | 188,489 | 827,898 | 1,19 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 264,915 | 1290,31 | 3,40 | 4 | 1519,76 | 75,40 | 345,430 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B23_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 229,66 | 1118,60 | 2,94 | 5 | 1899,70 | 94,24 | 425,019 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |

## E.3. Penulangan Transversal balok Gedung 4 tingkat portal As-4 (Tanah Keras)

| Lantai | Lokasi | Nama Balok | b | h | d | fc | fy | Mpr1 | Mpr3 | Wu= 1.2D+1LL | Vg | V-sway | Reaksi Geser Kiri Balok | | Reaksi Geser Kanan Balok | | Vc | Vs | Vs max | Syarat | Desain Tulangan | | Av | s | Digunakan Sengkang | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | Vu | 1/2vu | Vu | 1/2vu | | | | | Kaki | D | | | | |
| | | | mm | mm | mm | Mpa | Mpa | (kN.m) | (kN.m) | kN | kN | kN | kN | kN | kN | kN | kN | kN | kN | Vs<Vs max | bh | mm | mm | mm | Tumpuan | Lapangan |
| Atap | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 449,76 | 344,03 | 89,80 | 347,98 | 102,42 | 245,55 | 122,78 | 450,40 | 225,20 | 212,57 | 387,96 | 850,29 | Ok | 4 | 10 | 314,00 | 207 | 4 D-10 - 150 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 449,76 | 344,03 | 89,80 | 347,98 | 102,42 | 245,55 | 122,78 | 450,40 | 225,20 | 212,57 | 244,28 | 850,29 | Ok | 4 | 10 | 314,00 | 329 | | 4 D-10 - 300 |
| | Sendi Plastis | Balok Portal B200 | 200 | 400 | 639 | 24,9 | 420 | 57,35 | 57,35 | 40,68 | 157,64 | 14,80 | 142,84 | 71,42 | 172,43 | 86,22 | 106,29 | 123,63 | 425,15 | Ok | 2 | 10 | 157,00 | 162 | 2 D-10 - 100 | |
| | Luar Sendi Plastis | | 200 | 400 | 639 | 24,9 | 420 | 57,35 | 57,35 | 40,68 | 157,64 | 14,80 | 142,84 | 71,42 | 172,43 | 86,22 | 106,29 | 80,23 | 425,15 | Ok | 2 | 10 | 157,00 | 250 | | 2 D-10 - 200 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lantai 4 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 560,50 | 349,73 | 165,03 | 639,49 | 117,45 | 522,04 | 261,02 | 756,94 | 378,47 | 212,57 | 796,68 | 850,29 | Ok | 4 | 10 | 314,00 | 101 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 560,50 | 349,73 | 165,03 | 639,49 | 117,45 | 522,04 | 261,02 | 756,94 | 378,47 | 212,57 | 532,63 | 850,29 | Ok | 4 | 10 | 314,00 | 151 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 560,50 | 349,73 | 147,89 | 573,07 | 117,45 | 455,62 | 227,81 | 690,52 | 345,26 | 212,57 | 708,12 | 850,29 | Ok | 4 | 10 | 314,00 | 113 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 560,50 | 349,73 | 147,89 | 573,07 | 117,45 | 455,62 | 227,81 | 690,52 | 345,26 | 212,57 | 471,50 | 850,29 | Ok | 4 | 10 | 314,00 | 170 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 560,50 | 349,73 | 150,21 | 582,06 | 117,45 | 464,61 | 232,31 | 699,51 | 349,76 | 212,57 | 720,11 | 850,29 | Ok | 4 | 10 | 314,00 | 111 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 560,50 | 349,73 | 150,21 | 582,06 | 117,45 | 464,61 | 232,31 | 699,51 | 349,76 | 212,57 | 479,77 | 850,29 | Ok | 4 | 10 | 314,00 | 167 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 560,50 | 349,73 | 131,90 | 511,11 | 117,45 | 393,66 | 196,83 | 628,56 | 314,28 | 212,57 | 625,51 | 850,29 | Ok | 4 | 10 | 314,00 | 128 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 560,50 | 349,73 | 131,90 | 511,11 | 117,45 | 393,66 | 196,83 | 628,56 | 314,28 | 212,57 | 414,47 | 850,29 | Ok | 4 | 10 | 314,00 | 194 | | 4 D-10 - 150 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lantai 3 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 659,18 | 349,73 | 165,64 | 641,86 | 130,18 | 511,67 | 255,84 | 772,04 | 386,02 | 212,57 | 816,81 | 850,29 | Ok | 4 | 10 | 314,00 | 98 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 659,18 | 349,73 | 165,64 | 641,86 | 130,18 | 511,67 | 255,84 | 772,04 | 386,02 | 212,57 | 551,78 | 850,29 | Ok | 4 | 10 | 314,00 | 145 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 659,18 | 349,73 | 147,89 | 573,07 | 130,18 | 442,89 | 221,45 | 703,26 | 351,63 | 212,57 | 725,10 | 850,29 | Ok | 4 | 10 | 314,00 | 111 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 659,18 | 349,73 | 147,89 | 573,07 | 130,18 | 442,89 | 221,45 | 703,26 | 351,63 | 212,57 | 488,48 | 850,29 | Ok | 4 | 10 | 314,00 | 164 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 659,18 | 349,73 | 149,76 | 580,32 | 130,18 | 450,14 | 225,07 | 710,50 | 355,25 | 212,57 | 734,76 | 850,29 | Ok | 4 | 10 | 314,00 | 109 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 659,18 | 349,73 | 149,76 | 580,32 | 130,18 | 450,14 | 225,07 | 710,50 | 355,25 | 212,57 | 495,15 | 850,29 | Ok | 4 | 10 | 314,00 | 162 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 659,18 | 349,73 | 132,19 | 512,24 | 130,18 | 382,05 | 191,03 | 642,42 | 321,21 | 212,57 | 643,98 | 850,29 | Ok | 4 | 10 | 314,00 | 125 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 659,18 | 349,73 | 132,19 | 512,24 | 130,18 | 382,05 | 191,03 | 642,42 | 321,21 | 212,57 | 432,48 | 850,29 | Ok | 4 | 10 | 314,00 | 186 | | 4 D-10 - 150 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lantai 2 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 659,18 | 349,73 | 151,64 | 587,61 | 130,18 | 457,42 | 228,71 | 717,79 | 358,89 | 212,57 | 744,48 | 850,29 | Ok | 4 | 10 | 314,00 | 108 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 659,18 | 349,73 | 151,64 | 587,61 | 130,18 | 457,42 | 228,71 | 717,79 | 358,89 | 212,57 | 501,85 | 850,29 | Ok | 4 | 10 | 314,00 | 160 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 659,18 | 349,73 | 144,52 | 560,02 | 130,18 | 429,83 | 214,92 | 690,20 | 345,10 | 212,57 | 707,69 | 850,29 | Ok | 4 | 10 | 314,00 | 113 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 659,18 | 349,73 | 144,52 | 560,02 | 130,18 | 429,83 | 214,92 | 690,20 | 345,10 | 212,57 | 476,46 | 850,29 | Ok | 4 | 10 | 314,00 | 168 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 659,18 | 349,73 | 133,14 | 515,92 | 130,18 | 385,74 | 192,87 | 646,10 | 323,05 | 212,57 | 648,89 | 850,29 | Ok | 4 | 10 | 314,00 | 124 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 659,18 | 349,73 | 133,14 | 515,92 | 130,18 | 385,74 | 192,87 | 646,10 | 323,05 | 212,57 | 435,87 | 850,29 | Ok | 4 | 10 | 314,00 | 184 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 659,18 | 349,73 | 129,22 | 500,73 | 130,18 | 370,55 | 185,27 | 630,91 | 315,45 | 212,57 | 628,64 | 850,29 | Ok | 4 | 10 | 314,00 | 128 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 659,18 | 349,73 | 129,22 | 500,73 | 130,18 | 370,55 | 185,27 | 630,91 | 315,45 | 212,57 | 421,89 | 850,29 | Ok | 4 | 10 | 314,00 | 190 | | 4 D-10 - 150 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lantai 1 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 659,18 | 349,73 | 152,75 | 591,91 | 130,18 | 461,72 | 230,86 | 722,09 | 361,04 | 212,57 | 750,21 | 850,29 | Ok | 4 | 10 | 314,00 | 107 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 659,18 | 349,73 | 152,75 | 591,91 | 130,18 | 461,72 | 230,86 | 722,09 | 361,04 | 212,57 | 505,81 | 850,29 | Ok | 4 | 10 | 314,00 | 159 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 659,18 | 349,73 | 144,94 | 561,64 | 130,18 | 431,46 | 215,73 | 691,82 | 345,91 | 212,57 | 709,86 | 850,29 | Ok | 4 | 10 | 314,00 | 113 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 659,18 | 349,73 | 144,94 | 561,64 | 130,18 | 431,46 | 215,73 | 691,82 | 345,91 | 212,57 | 477,95 | 850,29 | Ok | 4 | 10 | 314,00 | 168 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 659,18 | 349,73 | 150,98 | 585,05 | 130,18 | 454,87 | 227,43 | 715,23 | 357,61 | 212,57 | 741,07 | 850,29 | Ok | 4 | 10 | 314,00 | 108 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 659,18 | 349,73 | 150,98 | 585,05 | 130,18 | 454,87 | 227,43 | 715,23 | 357,61 | 212,57 | 499,50 | 850,29 | Ok | 4 | 10 | 314,00 | 161 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 659,18 | 349,73 | 143,06 | 554,36 | 130,18 | 424,18 | 212,09 | 684,54 | 342,27 | 212,57 | 700,15 | 850,29 | Ok | 4 | 10 | 314,00 | 115 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 659,18 | 349,73 | 143,06 | 554,36 | 130,18 | 424,18 | 212,09 | 684,54 | 342,27 | 212,57 | 471,25 | 850,29 | Ok | 4 | 10 | 314,00 | 170 | | 4 D-10 - 150 |

## E.4. Penulangan Transversal balok Gedung 4 tingkat portal As-4 (Tanah Lunak)

| Lantai | Lokasi | Nama Balok | b | h | d | fc | fy | Mpr+ | Mpr- | Wu= 1.2D+1LL | Vg | V-sway | Reaksi Geser Kiri Balok | | Reaksi Geser Kanan Balok | | Vc | Vs | Vs max | Syarat | Desain Tulangan | | Av | s | Digunakan Sengkang | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | Vu | 1/2vu | Vu | 1/2vu | | | | | Kaki | D | | | Tumpuan | | | Lapangan | | | |
| | | | mm | mm | mm | Mpa | Mpa | (kN.m) | (kN.m) | kN | kN | kN | kN | kN | kN | kN | kN | kN | kN | Vs<Vs max | bh | mm | mm | mm | | | | | | | |
| Atap | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 449,76 | 344,03 | 89,38 | 346,35 | 102,42 | 243,92 | 121,96 | 448,77 | 224,39 | 212,57 | 385,79 | 850,29 | Ok | 4 | 10 | 314,00 | 208 | 4 | D-10 | - | 150 | | | | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 449,76 | 344,03 | 89,38 | 346,35 | 102,42 | 243,92 | 121,96 | 448,77 | 224,39 | 212,57 | 242,78 | 850,29 | Ok | 4 | 10 | 314,00 | 331 | | | | | 4 | D-10 | - | 300 |
| | Sendi Plastis | Balok Portal B200 | 200 | 400 | 639 | 24,9 | 420 | 76,46 | 55,45 | 40,66 | 157,56 | 17,02 | 140,54 | 70,27 | 174,58 | 87,29 | 106,29 | 126,48 | 425,15 | Ok | 2 | 10 | 157,00 | 159 | 2 | D-10 | - | 100 | | | | |
| | Luar Sendi Plastis | | 200 | 400 | 639 | 24,9 | 420 | 76,46 | 55,45 | 40,66 | 157,56 | 17,02 | 140,54 | 70,27 | 174,58 | 87,29 | 106,29 | 83,11 | 425,15 | Ok | 2 | 10 | 157,00 | 241 | | | | | 2 | D-10 | - | 200 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lantai 4 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 165,03 | 639,49 | 127,98 | 511,52 | 255,76 | 767,47 | 383,73 | 212,57 | 810,72 | 850,29 | Ok | 4 | 10 | 314,00 | 99 | 4 | D-10 | - | 100 | | | | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 165,03 | 639,49 | 127,98 | 511,52 | 255,76 | 767,47 | 383,73 | 212,57 | 546,67 | 850,29 | Ok | 4 | 10 | 314,00 | 147 | | | | | 4 | D-10 | - | 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 147,90 | 573,11 | 127,98 | 445,14 | 222,57 | 701,09 | 350,54 | 212,57 | 722,21 | 850,29 | Ok | 4 | 10 | 314,00 | 111 | 4 | D-10 | - | 100 | | | | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 147,90 | 573,11 | 127,98 | 445,14 | 222,57 | 701,09 | 350,54 | 212,57 | 485,57 | 850,29 | Ok | 4 | 10 | 314,00 | 165 | | | | | 4 | D-10 | - | 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 150,21 | 582,06 | 127,98 | 454,09 | 227,04 | 710,04 | 355,02 | 212,57 | 734,15 | 850,29 | Ok | 4 | 10 | 314,00 | 109 | 4 | D-10 | - | 100 | | | | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 150,21 | 582,06 | 127,98 | 454,09 | 227,04 | 710,04 | 355,02 | 212,57 | 493,81 | 850,29 | Ok | 4 | 10 | 314,00 | 163 | | | | | 4 | D-10 | - | 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 131,90 | 511,11 | 127,98 | 383,14 | 191,57 | 639,09 | 319,54 | 212,57 | 639,54 | 850,29 | Ok | 4 | 10 | 314,00 | 125 | 4 | D-10 | - | 100 | | | | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 131,90 | 511,11 | 127,98 | 383,14 | 191,57 | 639,09 | 319,54 | 212,57 | 428,50 | 850,29 | Ok | 4 | 10 | 314,00 | 187 | | | | | 4 | D-10 | - | 150 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lantai 3 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 827,90 | 449,76 | 165,00 | 639,38 | 164,86 | 474,52 | 237,26 | 804,23 | 402,12 | 212,57 | 859,74 | 850,29 | Not Ok | 4 | 10 | 314,00 | 93 | 4 | D-10 | - | 100 | | | | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 827,90 | 449,76 | 165,00 | 639,38 | 164,86 | 474,52 | 237,26 | 804,23 | 402,12 | 212,57 | 595,74 | 850,29 | Ok | 4 | 10 | 314,00 | 135 | | | | | 4 | D-10 | - | 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 827,90 | 449,76 | 147,90 | 573,11 | 164,86 | 408,25 | 204,13 | 737,97 | 368,99 | 212,57 | 771,39 | 850,29 | Ok | 4 | 10 | 314,00 | 104 | 4 | D-10 | - | 100 | | | | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 827,90 | 449,76 | 147,90 | 573,11 | 164,86 | 408,25 | 204,13 | 737,97 | 368,99 | 212,57 | 534,75 | 850,29 | Ok | 4 | 10 | 314,00 | 150 | | | | | 4 | D-10 | - | 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 827,90 | 449,76 | 147,46 | 571,41 | 164,86 | 406,55 | 203,27 | 736,27 | 368,13 | 212,57 | 769,11 | 850,29 | Ok | 4 | 10 | 314,00 | 104 | 4 | D-10 | - | 100 | | | | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 827,90 | 449,76 | 147,46 | 571,41 | 164,86 | 406,55 | 203,27 | 736,27 | 368,13 | 212,57 | 533,18 | 850,29 | Ok | 4 | 10 | 314,00 | 151 | | | | | 4 | D-10 | - | 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 827,90 | 449,76 | 132,92 | 515,07 | 164,86 | 350,21 | 175,10 | 679,92 | 339,96 | 212,57 | 693,99 | 850,29 | Ok | 4 | 10 | 314,00 | 116 | 4 | D-10 | - | 100 | | | | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 827,90 | 449,76 | 132,92 | 515,07 | 164,86 | 350,21 | 175,10 | 679,92 | 339,96 | 212,57 | 481,32 | 850,29 | Ok | 4 | 10 | 314,00 | 167 | | | | | 4 | D-10 | - | 150 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lantai 2 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 827,90 | 449,76 | 151,64 | 587,61 | 164,86 | 422,75 | 211,37 | 752,46 | 376,23 | 212,57 | 790,71 | 850,29 | Ok | 4 | 10 | 314,00 | 102 | 4 | D-10 | - | 100 | | | | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 827,90 | 449,76 | 151,64 | 587,61 | 164,86 | 422,75 | 211,37 | 752,46 | 376,23 | 212,57 | 548,09 | 850,29 | Ok | 4 | 10 | 314,00 | 146 | | | | | 4 | D-10 | - | 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 827,90 | 449,76 | 144,52 | 560,02 | 164,86 | 395,16 | 197,58 | 724,87 | 362,44 | 212,57 | 753,92 | 850,29 | Ok | 4 | 10 | 314,00 | 106 | 4 | D-10 | - | 100 | | | | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 827,90 | 449,76 | 144,52 | 560,02 | 164,86 | 395,16 | 197,58 | 724,87 | 362,44 | 212,57 | 522,69 | 850,29 | Ok | 4 | 10 | 314,00 | 154 | | | | | 4 | D-10 | - | 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 827,90 | 449,76 | 133,14 | 515,92 | 164,86 | 351,06 | 175,53 | 680,78 | 340,39 | 212,57 | 695,13 | 850,29 | Ok | 4 | 10 | 314,00 | 115 | 4 | D-10 | - | 100 | | | | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 827,90 | 449,76 | 133,14 | 515,92 | 164,86 | 351,06 | 175,53 | 680,78 | 340,39 | 212,57 | 482,10 | 850,29 | Ok | 4 | 10 | 314,00 | 166 | | | | | 4 | D-10 | - | 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 827,90 | 449,76 | 129,22 | 500,73 | 164,86 | 335,87 | 167,93 | 665,59 | 332,79 | 212,57 | 674,87 | 850,29 | Ok | 4 | 10 | 314,00 | 119 | 4 | D-10 | - | 100 | | | | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 827,90 | 449,76 | 129,22 | 500,73 | 164,86 | 335,87 | 167,93 | 665,59 | 332,79 | 212,57 | 468,12 | 850,29 | Ok | 4 | 10 | 314,00 | 171 | | | | | 4 | D-10 | - | 150 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lantai 1 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 827,90 | 449,76 | 152,75 | 591,91 | 164,86 | 427,05 | 213,52 | 756,76 | 378,38 | 212,57 | 796,45 | 850,29 | Ok | 4 | 10 | 314,00 | 101 | 4 | D-10 | - | 100 | | | | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 827,90 | 449,76 | 152,75 | 591,91 | 164,86 | 427,05 | 213,52 | 756,76 | 378,38 | 212,57 | 552,05 | 850,29 | Ok | 4 | 10 | 314,00 | 145 | | | | | 4 | D-10 | - | 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 827,90 | 449,76 | 144,94 | 561,64 | 164,86 | 396,78 | 198,39 | 726,50 | 363,25 | 212,57 | 756,09 | 850,29 | Ok | 4 | 10 | 314,00 | 106 | 4 | D-10 | - | 100 | | | | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 827,90 | 449,76 | 144,94 | 561,64 | 164,86 | 396,78 | 198,39 | 726,50 | 363,25 | 212,57 | 524,19 | 850,29 | Ok | 4 | 10 | 314,00 | 153 | | | | | 4 | D-10 | - | 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 827,90 | 449,76 | 150,96 | 584,97 | 164,86 | 420,11 | 210,06 | 749,83 | 374,91 | 212,57 | 787,20 | 850,29 | Ok | 4 | 10 | 314,00 | 102 | 4 | D-10 | - | 100 | | | | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 827,90 | 449,76 | 150,96 | 584,97 | 164,86 | 420,11 | 210,06 | 749,83 | 374,91 | 212,57 | 545,66 | 850,29 | Ok | 4 | 10 | 314,00 | 147 | | | | | 4 | D-10 | - | 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 827,90 | 449,76 | 143,06 | 554,36 | 164,86 | 389,50 | 194,75 | 719,22 | 359,61 | 212,57 | 746,38 | 850,29 | Ok | 4 | 10 | 314,00 | 108 | 4 | D-10 | - | 100 | | | | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 827,90 | 449,76 | 143,06 | 554,36 | 164,86 | 389,50 | 194,75 | 719,22 | 359,61 | 212,57 | 517,49 | 850,29 | Ok | 4 | 10 | 314,00 | 155 | | | | | 4 | D-10 | - | 150 |

## E.5. Penulangan Longitudinal balok Gedung 8 tingkat portal As-8 (Tanah Keras)

| Lantai | Nama Balok | b | h | p | d | D | f'c | fy | j | β1 | Mu - | Mu + | AS Perlu | Tulangan | | Ast | Cek Momen Nominal | | | Cek As minimum | | | Cek rasio Tulangan | | | Cek Penampang | | | Desain Kapasitas | | ρ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | Perhitungan | Terpasang | | a | ØMn | Status | Asmin | As'min | Status | ρ | ρmax | Status | a/d | atcl/d | Status | apr | Mpr | |
| | | mm | mm | mm | mm | mm | Mpa | Mpa | | | (kN.m) | (kN.m) | mm2 | bh | bh | mm2 | mm2 | (kN.m) | | mm2 | mm2 | | | | | | | | | Kn.m | (%) |
| Atap | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 198,98 | | 969,17 | 2,55 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 99,49 | 484,58 | 1,28 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 198,98 | | 969,17 | 2,55 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 99,49 | 484,58 | 1,28 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 129,74 | 631,92 | 1,66 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B200_Tumpuan | 200 | 400 | 61 | 339 | 22 | 24,9 | 420 | 0,85 | 0,85 | 84,53 | | 776,07 | 2,04 | 2 | 759,88 | 75,40 | 86,54 | Ok | 201,38 | 226,000 | Ok | 0,011 | 0,025 | Ok | 0,222406 | 0,318750 | Ok, Under Reinforced | 94,245 | 55,448 | 1,12 |
| | Balok Portal B200_Lapangan | 200 | 400 | 61 | 339 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 42,265 | 388,03 | 1,02 | 2 | 759,88 | 75,40 | 86,54 | Ok | 201,38 | 226,000 | Ok | 0,011 | 0,025 | Ok | 0,222406 | 0,318750 | Ok, Under Reinforced | 94,245 | 55,448 | 1,12 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lantai 8 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 365,4 | | 1779,74 | 4,68 | 5 | 1899,70 | 94,24 | 425,02 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 182,7 | 889,87 | 2,34 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 365,4 | | 1779,74 | 4,68 | 6 | 2279,64 | 113,09 | 501,90 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,176985 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 182,7 | 889,87 | 2,34 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 254,44 | 1239,29 | 3,26 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 327,7 | | 1596,12 | 4,20 | 5 | 1899,70 | 94,24 | 425,02 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 163,85 | 798,06 | 2,10 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 327,7 | | 1596,12 | 4,20 | 5 | 1899,70 | 94,24 | 425,02 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 163,85 | 798,06 | 2,10 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B21_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 194,89 | 949,24 | 2,50 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 325,81 | | 1586,91 | 4,18 | 5 | 1899,70 | 94,24 | 425,02 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 162,905 | 793,46 | 2,09 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 325,81 | | 1586,91 | 4,18 | 5 | 1899,70 | 94,24 | 425,02 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 162,905 | 793,46 | 2,09 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B22_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 213,04 | 1037,65 | 2,73 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B23_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 298,61 | | 1454,43 | 3,83 | 5 | 1899,70 | 94,24 | 425,02 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 149,305 | 727,21 | 1,91 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 298,61 | | 1454,43 | 3,83 | 5 | 1899,70 | 94,24 | 425,02 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 149,305 | 727,21 | 1,91 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B23_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 174,65 | 850,66 | 2,24 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lantai 7 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 400,09 | | 1948,71 | 5,13 | 6 | 2279,64 | 113,09 | 501,90 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,176985 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 200,045 | 974,35 | 2,56 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 400,09 | | 1948,71 | 5,13 | 6 | 2279,64 | 113,09 | 501,90 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,176985 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 200,045 | 974,35 | 2,56 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 258 | 1256,63 | 3,31 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Tumpuan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 360,67 | | 1756,70 | 4,62 | 6 | 2279,64 | 113,09 | 501,90 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,176985 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 180,335 | 878,35 | 2,31 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 360,67 | | 1756,70 | 4,62 | 6 | 2279,64 | 113,09 | 501,90 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,176985 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 180,335 | 878,35 | 2,31 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B21_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 194,87 | 949,15 | 2,50 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 360,26 | | 1754,71 | 4,62 | 6 | 2279,64 | 113,09 | 501,90 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,176985 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 180,13 | 877,35 | 2,31 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 360,26 | | 1754,71 | 4,62 | 6 | 2279,64 | 113,09 | 501,90 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,176985 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 180,13 | 877,35 | 2,31 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B22_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 212,68 | 1035,89 | 2,73 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B23_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 332,77 | | 1620,81 | 4,27 | 6 | 2279,64 | 113,09 | 501,90 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,176985 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 166,385 | 810,41 | 2,13 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 332,77 | | 1620,81 | 4,27 | 6 | 2279,64 | 113,09 | 501,90 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,176985 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 166,385 | 810,41 | 2,13 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B23_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 174,88 | 851,78 | 2,24 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lantai 6 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 405,22 | | 1973,69 | 5,19 | 6 | 2279,64 | 113,09 | 501,90 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,176985 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 202,61 | 986,85 | 2,60 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 405,22 | | 1973,69 | 5,19 | 6 | 2279,64 | 113,09 | 501,90 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,176985 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 202,61 | 986,85 | 2,60 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 260,47 | 1268,66 | 3,34 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 367,66 | | 1790,75 | 4,71 | 6 | 2279,64 | 113,09 | 501,90 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,176985 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 183,83 | 895,37 | 2,36 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 367,66 | | 1790,75 | 4,71 | 6 | 2279,64 | 113,09 | 501,90 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,176985 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 183,83 | 895,37 | 2,36 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B21_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 194,91 | 949,34 | 2,50 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 368,23 | | 1793,53 | 4,72 | 6 | 2279,64 | 113,09 | 501,90 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,176985 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 184,115 | 896,76 | 2,36 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 368,23 | | 1793,53 | 4,72 | 6 | 2279,64 | 113,09 | 501,90 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,176985 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 184,115 | 896,76 | 2,36 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B22_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 212,58 | 1035,41 | 2,73 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B23_Tumpuan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 342,26 | | 1667,03 | 4,39 | 6 | 2279,64 | 113,09 | 501,90 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,176985 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 171,13 | 833,52 | 2,19 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 342,26 | | 1667,03 | 4,39 | 6 | 2279,64 | 113,09 | 501,90 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,176985 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 171,13 | 833,52 | 2,19 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B23_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 174,91 | 851,93 | 2,24 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lantai 5 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 415 | | 2021,33 | 5,32 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 207,5 | 1010,66 | 2,66 | 3 | 1139,82 | 0,15 | 275,28 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,000233 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 415 | | 2021,33 | 5,32 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 207,5 | 1010,66 | 2,66 | 3 | 1139,82 | 0,15 | 275,28 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,000233 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 261,55 | 1273,92 | 3,35 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 375,61 | | 1829,47 | 4,82 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 187,805 | 914,74 | 2,41 | 3 | 1139,82 | 0,15 | 275,28 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,000233 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 375,61 | | 1829,47 | 4,82 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 187,805 | 914,74 | 2,41 | 3 | 1139,82 | 0,15 | 275,28 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,000233 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B21_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 194,91 | 949,34 | 2,50 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 376,97 | | 1836,10 | 4,83 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 188,485 | 918,05 | 2,42 | 3 | 1139,82 | 0,15 | 275,28 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,000233 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 376,97 | | 1836,10 | 4,83 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 188,485 | 918,05 | 2,42 | 3 | 1139,82 | 0,15 | 275,28 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,000233 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B22_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 212,55 | 1035,26 | 2,72 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B23_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 350,77 | | 1708,48 | 4,50 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 175,385 | 854,24 | 2,25 | 3 | 1139,82 | 0,15 | 275,28 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,000233 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 350,77 | | 1708,48 | 4,50 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 175,385 | 854,24 | 2,25 | 3 | 1139,82 | 0,15 | 275,28 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,000233 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B23_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 174,92 | 851,98 | 2,24 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |

| Lantai | Nama Balok | b | h | p | d | D | f'c | fy | j | β1 | Mu - | Mu + | AS Perlu | Tulangan | | Ast | Cek Momen Nominal | | | Cek As minimum | | | Cek rasio Tulangan | | | Cek Penampang | | | Desain Kapasitas | | ρ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | Perhitungan | Terpasang | | a | ØMn | Status | Asmin | As'min | Status | ρ | ρmax | Status | a/d | atcl/d | Status | apr | Mpr | |
| | | mm | mm | mm | mm | mm | Mpa | Mpa | | | (kN.m) | (kN.m) | mm2 | bh | bh | mm2 | mm2 | (kN.m) | | mm2 | mm2 | | | | | | | | | Kn.m | (%) |
| Lantai 4 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 394,05 | | 1919,29 | 5,05 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 197,025 | 959,64 | 2,53 | 3 | 1139,82 | 0,15 | 275,28 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,000233 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 394,05 | | 1919,29 | 5,05 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 197,025 | 959,64 | 2,53 | 3 | 1139,82 | 0,15 | 275,28 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,000233 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 261,24 | 1272,41 | 3,35 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 355,02 | | 1729,18 | 4,55 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 177,51 | 864,59 | 2,28 | 3 | 1139,82 | 0,15 | 275,28 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,000233 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 355,02 | | 1729,18 | 4,55 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 177,51 | 864,59 | 2,28 | 3 | 1139,82 | 0,15 | 275,28 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,000233 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B21_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 194,92 | 949,39 | 2,50 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 357,18 | | 1739,70 | 4,58 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 178,59 | 869,85 | 2,29 | 3 | 1139,82 | 0,15 | 275,28 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,000233 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 357,18 | | 1739,70 | 4,58 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 178,59 | 869,85 | 2,29 | 3 | 1139,82 | 0,15 | 275,28 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,000233 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B22_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 212 | 1032,58 | 2,72 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B23_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 332,48 | | 1619,40 | 4,26 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 166,24 | 809,70 | 2,13 | 3 | 1139,82 | 0,15 | 275,28 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,000233 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 332,48 | | 1619,40 | 4,26 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 166,24 | 809,70 | 2,13 | 3 | 1139,82 | 0,15 | 275,28 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,000233 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B23_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 174,91 | 851,93 | 2,24 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| Lantai 3 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 387,41 | | 1886,95 | 4,97 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 193,705 | 943,47 | 2,48 | 3 | 1139,82 | 0,15 | 275,28 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,000233 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 387,41 | | 1886,95 | 4,97 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 193,705 | 943,47 | 2,48 | 3 | 1139,82 | 0,15 | 275,28 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,000233 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 260,17 | 1267,20 | 3,34 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 346,43 | | 1687,35 | 4,44 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 173,215 | 843,67 | 2,22 | 3 | 1139,82 | 0,15 | 275,28 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,000233 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 346,43 | | 1687,35 | 4,44 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 173,215 | 843,67 | 2,22 | 3 | 1139,82 | 0,15 | 275,28 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,000233 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B21_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 194,91 | 949,34 | 2,50 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 349,16 | | 1700,64 | 4,48 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 174,58 | 850,32 | 2,24 | 3 | 1139,82 | 0,15 | 275,28 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,000233 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 349,16 | | 1700,64 | 4,48 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 174,58 | 850,32 | 2,24 | 3 | 1139,82 | 0,15 | 275,28 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,000233 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B22_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 212,5 | 1035,02 | 2,72 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B23_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 324,17 | | 1578,92 | 4,16 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 162,085 | 789,46 | 2,08 | 3 | 1139,82 | 0,15 | 275,28 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,000233 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 324,17 | | 1578,92 | 4,16 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 162,085 | 789,46 | 2,08 | 3 | 1139,82 | 0,15 | 275,28 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,000233 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B23_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 174,9 | 851,88 | 2,24 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| Lantai 2 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 329,02 | | 1602,55 | 4,22 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 164,51 | 801,27 | 2,11 | 3 | 1139,82 | 0,15 | 275,28 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,000233 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 329,02 | | 1602,55 | 4,22 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 164,51 | 801,27 | 2,11 | 3 | 1139,82 | 0,15 | 275,28 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,000233 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 204 | 993,62 | 2,62 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 315 | | 1534,26 | 4,04 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 157,5 | 767,13 | 2,02 | 3 | 1139,82 | 0,15 | 275,28 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,000233 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 315 | | 1534,26 | 4,04 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 157,5 | 767,13 | 2,02 | 3 | 1139,82 | 0,15 | 275,28 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,000233 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B21_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 189,466 | 922,83 | 2,43 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 298,35 | | 1453,16 | 3,82 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 149,175 | 726,58 | 1,91 | 3 | 1139,82 | 0,15 | 275,28 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,000233 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 298,35 | | 1453,16 | 3,82 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 149,175 | 726,58 | 1,91 | 3 | 1139,82 | 0,15 | 275,28 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,000233 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B22_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 179,19 | 872,77 | 2,30 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B23_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 294,8 | | 1435,87 | 3,78 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 147,4 | 717,94 | 1,89 | 3 | 1139,82 | 0,15 | 275,28 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,000233 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 294,8 | | 1435,87 | 3,78 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 147,4 | 717,94 | 1,89 | 3 | 1139,82 | 0,15 | 275,28 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,000233 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B23_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 169,99 | 827,96 | 2,18 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| Lantai 1 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 276,82 | | 1348,30 | 3,55 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 138,41 | 674,15 | 1,77 | 3 | 1139,82 | 0,15 | 275,28 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,000233 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 276,82 | | 1348,30 | 3,55 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 138,41 | 674,15 | 1,77 | 3 | 1139,82 | 0,15 | 275,28 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,000233 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 197,59 | 962,40 | 2,53 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 262,65 | | 1279,28 | 3,37 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 131,325 | 639,64 | 1,68 | 3 | 1139,82 | 0,15 | 275,28 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,000233 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 262,65 | | 1279,28 | 3,37 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 131,325 | 639,64 | 1,68 | 3 | 1139,82 | 0,15 | 275,28 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,000233 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B21_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 189 | 920,56 | 2,42 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 271,18 | | 1320,83 | 3,48 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 135,59 | 660,41 | 1,74 | 3 | 1139,82 | 0,15 | 275,28 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,000233 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 271,18 | | 1320,83 | 3,48 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 135,59 | 660,41 | 1,74 | 3 | 1139,82 | 0,15 | 275,28 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,000233 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B22_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 215,24 | 1048,36 | 2,76 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B23_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 262,51 | | 1278,60 | 3,37 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 131,255 | 639,30 | 1,68 | 3 | 1139,82 | 0,15 | 275,28 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,000233 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 262,51 | | 1278,60 | 3,37 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 131,255 | 639,30 | 1,68 | 3 | 1139,82 | 0,15 | 275,28 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,000233 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B23_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 199,28 | 970,63 | 2,55 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |

# E.6. Penulangan Longitudinal balok Gedung 8 tingkat portal As-8 (Tanah Lunak)

| Lantai | Nama Balok | b | h | p | d | D | f'c | fy | j | β1 | Mu - | Mu + | AS Perlu | Tulangan | | Ast | Cek Momen Nominal | | | Cek As minimum | | | Cek rasio Tulangan | | | Cek Penampang | | | Desain Kapasitas | | ρ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | Perhitungan | Terpasang | | a | ØMn | Status | Asmin | As'min | Status | ρ | ρmax | Status | a/d | atcl/d | Status | apr | Mpr | |
| | | mm | mm | mm | mm | mm | Mpa | Mpa | | | (kN.m) | (kN.m) | mm2 | bh | bh | mm2 | mm2 | (kN.m) | | mm2 | mm2 | | | | | | | | | Kn.m | (%) |
| Atap | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 275,21 | | 1340,46 | 3,53 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 137,605 | 670,23 | 1,76 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 275,21 | | 1340,46 | 3,53 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 137,605 | 670,23 | 1,76 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 148,65 | 724,02 | 1,91 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B200_Tumpuan | 200 | 400 | 61 | 339 | 22 | 24,9 | 420 | 0,85 | 0,85 | 44,42 | | 407,82 | 1,07 | 2 | 759,88 | 75,40 | 86,54 | Ok | 201,38 | 226,000 | Ok | 0,011 | 0,025 | Ok | 0,222406 | 0,318750 | Ok, Under Reinforced | 94,245 | 55,448 | 1,12 |
| | Balok Portal B200_Lapangan | 200 | 400 | 61 | 339 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 22,21 | 203,91 | 0,54 | 2 | 759,88 | 75,40 | 86,54 | Ok | 201,38 | 226,000 | Ok | 0,011 | 0,025 | Ok | 0,222406 | 0,318750 | Ok, Under Reinforced | 94,245 | 55,448 | 1,12 |
| Lantai 8 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 511,97 | | 2493,64 | 6,56 | 7 | 2659,58 | 131,94 | 576,08 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,206482 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 255,985 | 1246,82 | 3,28 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 511,97 | | 2493,64 | 6,56 | 7 | 2659,58 | 131,94 | 576,08 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,206482 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 255,985 | 1246,82 | 3,28 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 277,37 | 1350,98 | 3,56 | 5 | 1899,70 | 94,24 | 425,02 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B21_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 473,65 | | 2306,99 | 6,07 | 7 | 2659,58 | 131,94 | 576,08 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,206482 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 236,825 | 1153,50 | 3,04 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 473,65 | | 2306,99 | 6,07 | 7 | 2659,58 | 131,94 | 576,08 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,206482 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 236,825 | 1153,50 | 3,04 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 214,75 | 1045,98 | 2,75 | 5 | 1899,70 | 94,24 | 425,02 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 471,8 | | 2297,98 | 6,05 | 7 | 2659,58 | 131,94 | 576,08 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,206482 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 235,9 | 1148,99 | 3,02 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 471,8 | | 2297,98 | 6,05 | 7 | 2659,58 | 131,94 | 576,08 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,206482 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 235,9 | 1148,99 | 3,02 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B22_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 213,04 | 1037,65 | 2,73 | 5 | 1899,70 | 94,24 | 425,02 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B23_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 444,55 | | 2165,25 | 5,70 | 7 | 2659,58 | 131,94 | 576,08 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,206482 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 222,275 | 1082,63 | 2,85 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 444,55 | | 2165,25 | 5,70 | 7 | 2659,58 | 131,94 | 576,08 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,206482 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 222,275 | 1082,63 | 2,85 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B23_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 188,89 | 920,02 | 2,42 | 5 | 1899,70 | 94,24 | 425,02 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| Lantai 7 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 614,84 | | 2994,68 | 7,88 | 8 | 3039,52 | 150,79 | 647,55 | Ok | 759,19 | 852,000 | Ok | 0,012 | 0,025 | Ok | 0,235980 | 0,318750 | Ok, Under Reinforced | 188,489 | 827,898 | 1,19 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 307,42 | 1497,34 | 3,94 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 614,84 | | 2994,68 | 7,88 | 8 | 3039,52 | 150,79 | 647,55 | Ok | 759,19 | 852,000 | Ok | 0,012 | 0,025 | Ok | 0,235980 | 0,318750 | Ok, Under Reinforced | 188,489 | 827,898 | 1,19 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 307,42 | 1497,34 | 3,94 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 291,19 | 1418,29 | 3,73 | 5 | 1899,70 | 94,24 | 425,02 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B21_Tumpuan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 570,64 | | 2779,40 | 7,32 | 8 | 3039,52 | 150,79 | 647,55 | Ok | 759,19 | 852,000 | Ok | 0,012 | 0,025 | Ok | 0,235980 | 0,318750 | Ok, Under Reinforced | 188,489 | 827,898 | 1,19 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 285,32 | 1389,70 | 3,66 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 570,64 | | 2779,40 | 7,32 | 8 | 3039,52 | 150,79 | 647,55 | Ok | 759,19 | 852,000 | Ok | 0,012 | 0,025 | Ok | 0,235980 | 0,318750 | Ok, Under Reinforced | 188,489 | 827,898 | 1,19 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 285,32 | 1389,70 | 3,66 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 270,06 | 1315,37 | 3,46 | 5 | 1899,70 | 94,24 | 425,02 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 569,09 | | 2771,85 | 7,30 | 8 | 3039,52 | 150,79 | 647,55 | Ok | 759,19 | 852,000 | Ok | 0,012 | 0,025 | Ok | 0,235980 | 0,318750 | Ok, Under Reinforced | 188,489 | 827,898 | 1,19 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 284,545 | 1385,92 | 3,65 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 569,09 | | 2771,85 | 7,30 | 8 | 3039,52 | 150,79 | 647,55 | Ok | 759,19 | 852,000 | Ok | 0,012 | 0,025 | Ok | 0,235980 | 0,318750 | Ok, Under Reinforced | 188,489 | 827,898 | 1,19 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 284,545 | 1385,92 | 3,65 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B22_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 270,01 | 1315,13 | 3,46 | 5 | 1899,70 | 94,24 | 425,02 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B23_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 541,58 | | 2637,86 | 6,94 | 8 | 3039,52 | 150,79 | 647,55 | Ok | 759,19 | 852,000 | Ok | 0,012 | 0,025 | Ok | 0,235980 | 0,318750 | Ok, Under Reinforced | 188,489 | 827,898 | 1,19 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 270,79 | 1318,93 | 3,47 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 541,58 | | 2637,86 | 6,94 | 8 | 3039,52 | 150,79 | 647,55 | Ok | 759,19 | 852,000 | Ok | 0,012 | 0,025 | Ok | 0,235980 | 0,318750 | Ok, Under Reinforced | 188,489 | 827,898 | 1,19 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 270,79 | 1318,93 | 3,47 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B23_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 285,74 | 1391,74 | 3,66 | 5 | 1899,70 | 94,24 | 425,02 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| Lantai 6 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 690,02 | | 3360,86 | 8,85 | 9 | 3419,46 | 169,64 | 716,31 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,265477 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 345,01 | 1680,43 | 4,42 | 5 | 1899,70 | 94,24 | 425,02 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 690,02 | | 3360,86 | 8,85 | 9 | 3419,46 | 169,64 | 716,31 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,265477 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 345,01 | 1680,43 | 4,42 | 5 | 1899,70 | 94,24 | 425,02 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 347 | 1690,12 | 4,45 | 6 | 2279,64 | 113,09 | 501,90 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,176985 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B21_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 647,82 | | 3155,32 | 8,30 | 9 | 3419,46 | 169,64 | 716,31 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,265477 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 323,91 | 1577,66 | 4,15 | 5 | 1899,70 | 94,24 | 425,02 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 647,82 | | 3155,32 | 8,30 | 9 | 3419,46 | 169,64 | 716,31 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,265477 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 323,91 | 1577,66 | 4,15 | 5 | 1899,70 | 94,24 | 425,02 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B21_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 369,47 | 1799,57 | 4,74 | 6 | 2279,64 | 113,09 | 501,90 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,176985 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 647,19 | | 3152,25 | 8,30 | 9 | 3419,46 | 169,64 | 716,31 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,265477 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 323,595 | 1576,12 | 4,15 | 5 | 1899,70 | 94,24 | 425,02 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 647,19 | | 3152,25 | 8,30 | 9 | 3419,46 | 169,64 | 716,31 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,265477 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 323,595 | 1576,12 | 4,15 | 5 | 1899,70 | 94,24 | 425,02 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B22_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 370,89 | 1806,48 | 4,75 | 6 | 2279,64 | 113,09 | 501,90 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,176985 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B23_Tumpuan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 621,21 | | 3025,71 | 7,96 | 9 | 3419,46 | 169,64 | 716,31 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,265477 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 310,605 | 1512,85 | 3,98 | 5 | 1899,70 | 94,24 | 425,02 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 621,21 | | 3025,71 | 7,96 | 9 | 3419,46 | 169,64 | 716,31 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,265477 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 310,605 | 1512,85 | 3,98 | 5 | 1899,70 | 94,24 | 425,02 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B23_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 385,56 | 1877,93 | 4,94 | 6 | 2279,64 | 113,09 | 501,90 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,176985 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| Lantai 5 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 728,41 | | 3547,84 | 9,34 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 364,205 | 1773,92 | 4,67 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 728,41 | | 3547,84 | 9,34 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 364,205 | 1773,92 | 4,67 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 385,799 | 1879,10 | 4,95 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B21_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 685,03 | | 3336,55 | 8,78 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 342,515 | 1668,28 | 4,39 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 685,03 | | 3336,55 | 8,78 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 342,515 | 1668,28 | 4,39 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B21_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 407,61 | 1985,33 | 5,23 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 684,94 | | 3336,11 | 8,78 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 342,47 | 1668,06 | 4,39 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 684,94 | | 3336,11 | 8,78 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 342,47 | 1668,06 | 4,39 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B22_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 408,76 | 1990,93 | 5,24 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B23_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 658,76 | | 3208,60 | 8,45 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 329,38 | 1604,30 | 4,22 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 658,76 | | 3208,60 | 8,45 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 329,38 | 1604,30 | 4,22 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B23_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 423,29 | 2061,70 | 5,43 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |

| Lantai | Nama Balok | b | h | p | d | D | f'c | fy | j | β1 | Mu - | Mu + | AS Perlu | Tulangan | | Ast | Cek Momen Nominal | | | Cek As minimum | | | Cek rasio Tulangan | | | Cek Penampang | | | Desain Kapasitas | | ρ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | Perhitungan | Terpasang | | a | ØMn | Status | Asmin | As'min | Status | ρ | ρmax | Status | a/d | atcl/d | Status | apr | Mpr | |
| | | mm | mm | mm | mm | mm | Mpa | Mpa | | | (kN.m) | (kN.m) | mm2 | bh | bh | mm2 | mm2 | (kN.m) | | mm2 | mm2 | | | | | | | | | Kn.m | (%) |
| Lantai 4 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 705,24 | | 3434,99 | 9,04 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 352,62 | 1717,49 | 4,52 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 705,24 | | 3434,99 | 9,04 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 352,62 | 1717,49 | 4,52 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 388,52 | 1892,35 | 4,98 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B21_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 663,17 | | 3230,08 | 8,50 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 331,585 | 1615,04 | 4,25 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 663,17 | | 3230,08 | 8,50 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 331,585 | 1615,04 | 4,25 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B21_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 409,96 | 1996,78 | 5,26 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 663,92 | | 3233,73 | 8,51 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 331,96 | 1616,87 | 4,26 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 663,92 | | 3233,73 | 8,51 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 331,96 | 1616,87 | 4,26 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B22_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 410,38 | 1998,82 | 5,26 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B23_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 639,22 | | 3113,43 | 8,19 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 319,61 | 1556,71 | 4,10 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 639,22 | | 3113,43 | 8,19 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 319,61 | 1556,71 | 4,10 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B23_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 423,84 | 2064,38 | 5,43 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| Lantai 3 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 682,03 | | 3321,94 | 8,74 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 341,015 | 1660,97 | 4,37 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 682,03 | | 3321,94 | 8,74 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 341,015 | 1660,97 | 4,37 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 363,86 | 1772,24 | 4,66 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B21_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 638,15 | | 3108,22 | 8,18 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 319,075 | 1554,11 | 4,09 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 638,15 | | 3108,22 | 8,18 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 319,075 | 1554,11 | 4,09 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B21_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 386,55 | 1882,76 | 4,96 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 639,53 | | 3114,94 | 8,20 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 319,765 | 1557,47 | 4,10 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 639,53 | | 3114,94 | 8,20 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 319,765 | 1557,47 | 4,10 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B22_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 386,29 | 1881,49 | 4,95 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B23_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 614,55 | | 2993,27 | 7,88 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 307,275 | 1496,63 | 3,94 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 614,55 | | 2993,27 | 7,88 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 307,275 | 1496,63 | 3,94 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B23_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 399,45 | 1945,59 | 5,12 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| Lantai 2 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 576,42 | | 2807,55 | 7,39 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 288,21 | 1403,77 | 3,69 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 576,42 | | 2807,55 | 7,39 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 288,21 | 1403,77 | 3,69 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 313,54 | 1527,15 | 4,02 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B21_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 559,57 | | 2725,48 | 7,17 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 279,785 | 1362,74 | 3,59 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 559,57 | | 2725,48 | 7,17 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 279,785 | 1362,74 | 3,59 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B21_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 317,72 | 1547,51 | 4,07 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 541,366 | | 2636,81 | 6,94 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 270,683 | 1318,41 | 3,47 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 541,366 | | 2636,81 | 6,94 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 270,683 | 1318,41 | 3,47 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B22_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 328 | 1597,58 | 4,20 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B23_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 537,81 | | 2619,49 | 6,89 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 268,905 | 1309,75 | 3,45 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 537,81 | | 2619,49 | 6,89 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 268,905 | 1309,75 | 3,45 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B23_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 329,13 | 1603,08 | 4,22 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| Lantai 1 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 431,78 | | 2103,06 | 5,54 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 215,89 | 1051,53 | 2,77 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 431,78 | | 2103,06 | 5,54 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 215,89 | 1051,53 | 2,77 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 222,31 | 1082,80 | 2,85 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B21_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 416,19 | | 2027,12 | 5,34 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 208,095 | 1013,56 | 2,67 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 416,19 | | 2027,12 | 5,34 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 208,095 | 1013,56 | 2,67 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B21_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 209,39 | 1019,87 | 2,68 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 423,25 | | 2061,51 | 5,43 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 211,625 | 1030,75 | 2,71 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 423,25 | | 2061,51 | 5,43 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 211,625 | 1030,75 | 2,71 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B22_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 215,25 | 1048,41 | 2,76 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B23_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 414,58 | | 2019,28 | 5,31 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 207,29 | 1009,64 | 2,66 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 414,58 | | 2019,28 | 5,31 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 207,29 | 1009,64 | 2,66 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B23_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 199,27 | 970,58 | 2,55 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |

## E.7. Penulangan Transversal balok Gedung 8 tingkat portal As-4 (Tanah Keras)

| Lantai | Lokasi | Nama Balok | b | h | d | fc | fy | Mpr1 | Mpr3 | Wu= 1.2D+1LL | Vg | V-sway | Reaksi Geser Kiri Balok | | Reaksi Geser Kanan Balok | | Vc | Vs | Vs max | Syarat | Desain Tulangan | | Av | s | Digunakan Sengkang | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | Vu | 1/2vu | Vu | 1/2vu | | | | | Kaki | D | | | | |
| | | | mm | mm | mm | Mpa | Mpa | (kN.m) | (kN.m) | kN | kN | kN | kN | kN | kN | kN | kN | kN | kN | Vs<Vs max | bh | mm | mm | mm | Tumpuan | Lapangan |
| Atap | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 449,76 | 344,03 | 85,23 | 330,27 | 102,42 | 227,84 | 113,92 | 432,69 | 216,35 | 212,57 | 364,35 | 850,29 | Ok | 4 | 10 | 314,00 | 220 | 4 D-10 - 150 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 449,76 | 344,03 | 85,23 | 330,27 | 102,42 | 227,84 | 113,92 | 432,69 | 216,35 | 212,57 | 227,98 | 850,29 | Ok | 4 | 10 | 314,00 | 352 | | 4 D-10 - 300 |
| | Sendi Plastis | Balok Portal B200 | 200 | 400 | 639 | 24,9 | 420 | 55,45 | 55,45 | 39,41 | 152,71 | 14,31 | 138,40 | 69,20 | 167,02 | 83,51 | 106,29 | 116,41 | 425,15 | Ok | 2 | 10 | 157,00 | 172 | 2 D-10 - 100 | |
| | Luar Sendi Plastis | | 200 | 400 | 639 | 24,9 | 420 | 55,45 | 55,45 | 39,41 | 152,71 | 14,31 | 138,40 | 69,20 | 167,02 | 83,51 | 106,29 | 74,37 | 425,15 | Ok | 2 | 10 | 157,00 | 270 | | 2 D-10 - 200 |
| Lantai 8 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 551,01 | 344,03 | 167,49 | 649,02 | 115,49 | 533,54 | 266,77 | 764,51 | 382,26 | 212,57 | 806,78 | 850,29 | Ok | 4 | 10 | 314,00 | 99 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 551,01 | 344,03 | 167,49 | 649,02 | 115,49 | 533,54 | 266,77 | 764,51 | 382,26 | 212,57 | 538,79 | 850,29 | Ok | 4 | 10 | 314,00 | 149 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 551,01 | 344,03 | 147,80 | 572,73 | 115,49 | 457,24 | 228,62 | 688,21 | 344,11 | 212,57 | 705,04 | 850,29 | Ok | 4 | 10 | 314,00 | 114 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 551,01 | 344,03 | 147,80 | 572,73 | 115,49 | 457,24 | 228,62 | 688,21 | 344,11 | 212,57 | 468,56 | 850,29 | Ok | 4 | 10 | 314,00 | 171 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 551,01 | 344,03 | 148,70 | 576,21 | 115,49 | 460,72 | 230,36 | 691,70 | 345,85 | 212,57 | 709,69 | 850,29 | Ok | 4 | 10 | 314,00 | 113 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 551,01 | 344,03 | 148,70 | 576,21 | 115,49 | 460,72 | 230,36 | 691,70 | 345,85 | 212,57 | 471,77 | 850,29 | Ok | 4 | 10 | 314,00 | 170 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 551,01 | 344,03 | 172,61 | 668,86 | 115,49 | 553,38 | 276,69 | 784,35 | 392,18 | 212,57 | 833,23 | 850,29 | Ok | 4 | 10 | 314,00 | 96 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 551,01 | 344,03 | 172,61 | 668,86 | 115,49 | 553,38 | 276,69 | 784,35 | 392,18 | 212,57 | 557,05 | 850,29 | Ok | 4 | 10 | 314,00 | 144 | | 4 D-10 - 150 |
| Lantai 7 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 167,45 | 648,87 | 127,98 | 520,89 | 260,45 | 776,84 | 388,42 | 212,57 | 823,22 | 850,29 | Ok | 4 | 10 | 314,00 | 97 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 167,45 | 648,87 | 127,98 | 520,89 | 260,45 | 776,84 | 388,42 | 212,57 | 555,30 | 850,29 | Ok | 4 | 10 | 314,00 | 145 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 147,32 | 570,87 | 127,98 | 442,89 | 221,44 | 698,84 | 349,42 | 212,57 | 719,21 | 850,29 | Ok | 4 | 10 | 314,00 | 112 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 147,32 | 570,87 | 127,98 | 442,89 | 221,44 | 698,84 | 349,42 | 212,57 | 483,50 | 850,29 | Ok | 4 | 10 | 314,00 | 166 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 149,03 | 577,49 | 127,98 | 449,52 | 224,76 | 705,47 | 352,73 | 212,57 | 728,05 | 850,29 | Ok | 4 | 10 | 314,00 | 110 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 149,03 | 577,49 | 127,98 | 449,52 | 224,76 | 705,47 | 352,73 | 212,57 | 489,60 | 850,29 | Ok | 4 | 10 | 314,00 | 164 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 132,42 | 513,13 | 127,98 | 385,15 | 192,58 | 641,10 | 320,55 | 212,57 | 642,23 | 850,29 | Ok | 4 | 10 | 314,00 | 125 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 132,42 | 513,13 | 127,98 | 385,15 | 192,58 | 641,10 | 320,55 | 212,57 | 430,36 | 850,29 | Ok | 4 | 10 | 314,00 | 186 | | 4 D-10 - 150 |
| Lantai 6 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 166,32 | 644,49 | 127,98 | 516,51 | 258,26 | 772,47 | 386,23 | 212,57 | 817,38 | 850,29 | Ok | 4 | 10 | 314,00 | 98 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 166,32 | 644,49 | 127,98 | 516,51 | 258,26 | 772,47 | 386,23 | 212,57 | 551,27 | 850,29 | Ok | 4 | 10 | 314,00 | 146 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 145,62 | 564,28 | 127,98 | 436,30 | 218,15 | 692,25 | 346,13 | 212,57 | 710,43 | 850,29 | Ok | 4 | 10 | 314,00 | 113 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 145,62 | 564,28 | 127,98 | 436,30 | 218,15 | 692,25 | 346,13 | 212,57 | 477,44 | 850,29 | Ok | 4 | 10 | 314,00 | 168 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 147,65 | 572,14 | 127,98 | 444,17 | 222,08 | 700,12 | 350,06 | 212,57 | 720,92 | 850,29 | Ok | 4 | 10 | 314,00 | 111 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 147,65 | 572,14 | 127,98 | 444,17 | 222,08 | 700,12 | 350,06 | 212,57 | 484,68 | 850,29 | Ok | 4 | 10 | 314,00 | 166 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 160,51 | 621,98 | 127,98 | 494,00 | 247,00 | 749,95 | 374,98 | 212,57 | 787,36 | 850,29 | Ok | 4 | 10 | 314,00 | 102 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 160,51 | 621,98 | 127,98 | 494,00 | 247,00 | 749,95 | 374,98 | 212,57 | 530,55 | 850,29 | Ok | 4 | 10 | 314,00 | 151 | | 4 D-10 - 150 |
| Lantai 5 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 166,17 | 643,91 | 127,98 | 515,93 | 257,97 | 771,88 | 385,94 | 212,57 | 816,61 | 850,29 | Ok | 4 | 10 | 314,00 | 98 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 166,17 | 643,91 | 127,98 | 515,93 | 257,97 | 771,88 | 385,94 | 212,57 | 550,73 | 850,29 | Ok | 4 | 10 | 314,00 | 146 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 145,31 | 563,08 | 127,98 | 435,10 | 217,55 | 691,05 | 345,53 | 212,57 | 708,83 | 850,29 | Ok | 4 | 10 | 314,00 | 113 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 145,31 | 563,08 | 127,98 | 435,10 | 217,55 | 691,05 | 345,53 | 212,57 | 476,33 | 850,29 | Ok | 4 | 10 | 314,00 | 168 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 147,54 | 571,72 | 127,98 | 443,74 | 221,87 | 699,69 | 349,85 | 212,57 | 720,35 | 850,29 | Ok | 4 | 10 | 314,00 | 111 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 147,54 | 571,72 | 127,98 | 443,74 | 221,87 | 699,69 | 349,85 | 212,57 | 484,29 | 850,29 | Ok | 4 | 10 | 314,00 | 166 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 130,85 | 507,04 | 127,98 | 379,07 | 189,53 | 635,02 | 317,51 | 212,57 | 634,12 | 850,29 | Ok | 4 | 10 | 314,00 | 127 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 130,85 | 507,04 | 127,98 | 379,07 | 189,53 | 635,02 | 317,51 | 212,57 | 424,76 | 850,29 | Ok | 4 | 10 | 314,00 | 189 | | 4 D-10 - 150 |
| Lantai 4 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 449,76 | 647,78 | 164,85 | 638,79 | 141,62 | 497,18 | 248,59 | 780,41 | 390,21 | 212,57 | 827,97 | 850,29 | Ok | 4 | 10 | 314,00 | 97 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 449,76 | 647,78 | 164,85 | 638,79 | 141,62 | 497,18 | 248,59 | 780,41 | 390,21 | 212,57 | 564,21 | 850,29 | Ok | 4 | 10 | 314,00 | 142 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 449,76 | 647,78 | 144,24 | 558,93 | 141,62 | 417,31 | 208,66 | 700,55 | 350,27 | 212,57 | 721,49 | 850,29 | Ok | 4 | 10 | 314,00 | 111 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 449,76 | 647,78 | 144,24 | 558,93 | 141,62 | 417,31 | 208,66 | 700,55 | 350,27 | 212,57 | 490,71 | 850,29 | Ok | 4 | 10 | 314,00 | 164 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 449,76 | 0,00 | 145,71 | 564,63 | 58,03 | 506,59 | 253,30 | 622,66 | 311,33 | 212,57 | 617,64 | 850,29 | Ok | 4 | 10 | 314,00 | 130 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 449,76 | 0,00 | 145,71 | 564,63 | 58,03 | 506,59 | 253,30 | 622,66 | 311,33 | 212,57 | 384,50 | 850,29 | Ok | 4 | 10 | 314,00 | 209 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 344,03 | 449,76 | 128,97 | 499,76 | 102,42 | 397,33 | 198,67 | 602,18 | 301,09 | 212,57 | 590,34 | 850,29 | Ok | 4 | 10 | 314,00 | 136 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 344,03 | 449,76 | 128,97 | 499,76 | 102,42 | 397,33 | 198,67 | 602,18 | 301,09 | 212,57 | 383,98 | 850,29 | Ok | 4 | 10 | 314,00 | 209 | | 4 D-10 - 150 |
| Lantai 3 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 344,03 | 449,76 | 164,88 | 638,91 | 102,42 | 536,49 | 268,24 | 741,33 | 370,67 | 212,57 | 775,87 | 850,29 | Ok | 4 | 10 | 314,00 | 103 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 344,03 | 449,76 | 164,88 | 638,91 | 102,42 | 536,49 | 268,24 | 741,33 | 370,67 | 212,57 | 512,06 | 850,29 | Ok | 4 | 10 | 314,00 | 157 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 144,77 | 560,98 | 127,98 | 433,01 | 216,50 | 688,96 | 344,48 | 212,57 | 706,04 | 850,29 | Ok | 4 | 10 | 314,00 | 114 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 144,77 | 560,98 | 127,98 | 433,01 | 216,50 | 688,96 | 344,48 | 212,57 | 474,41 | 850,29 | Ok | 4 | 10 | 314,00 | 169 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 145,39 | 563,39 | 127,98 | 435,41 | 217,71 | 691,36 | 345,68 | 212,57 | 709,24 | 850,29 | Ok | 4 | 10 | 314,00 | 113 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 145,39 | 563,39 | 127,98 | 435,41 | 217,71 | 691,36 | 345,68 | 212,57 | 476,62 | 850,29 | Ok | 4 | 10 | 314,00 | 168 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 128,56 | 498,17 | 127,98 | 370,19 | 185,10 | 626,15 | 313,07 | 212,57 | 622,29 | 850,29 | Ok | 4 | 10 | 314,00 | 129 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 128,56 | 498,17 | 127,98 | 370,19 | 185,10 | 626,15 | 313,07 | 212,57 | 416,59 | 850,29 | Ok | 4 | 10 | 314,00 | 193 | | 4 D-10 - 150 |
| Lantai 2 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 344,03 | 647,78 | 147,48 | 571,47 | 127,98 | 443,50 | 221,75 | 699,45 | 349,72 | 212,57 | 720,02 | 850,29 | Ok | 4 | 10 | 314,00 | 111 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 344,03 | 647,78 | 147,48 | 571,47 | 127,98 | 443,50 | 221,75 | 699,45 | 349,72 | 212,57 | 484,06 | 850,29 | Ok | 4 | 10 | 314,00 | 166 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 344,03 | 647,78 | 141,97 | 550,13 | 127,98 | 422,16 | 211,08 | 678,11 | 339,05 | 212,57 | 691,57 | 850,29 | Ok | 4 | 10 | 314,00 | 116 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 344,03 | 647,78 | 141,97 | 550,13 | 127,98 | 422,16 | 211,08 | 678,11 | 339,05 | 212,57 | 464,42 | 850,29 | Ok | 4 | 10 | 314,00 | 173 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 344,03 | 647,78 | 129,15 | 500,46 | 127,98 | 372,48 | 186,24 | 628,43 | 314,22 | 212,57 | 625,34 | 850,29 | Ok | 4 | 10 | 314,00 | 128 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 344,03 | 647,78 | 129,15 | 500,46 | 127,98 | 372,48 | 186,24 | 628,43 | 314,22 | 212,57 | 418,70 | 850,29 | Ok | 4 | 10 | 314,00 | 192 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 125,56 | 486,55 | 127,98 | 358,57 | 179,28 | 614,52 | 307,26 | 212,57 | 606,79 | 850,29 | Ok | 4 | 10 | 314,00 | 132 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 125,56 | 486,55 | 127,98 | 358,57 | 179,28 | 614,52 | 307,26 | 212,57 | 405,89 | 850,29 | Ok | 4 | 10 | 314,00 | 198 | | 4 D-10 - 150 |
| Lantai 1 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 148,21 | 574,31 | 127,98 | 446,34 | 223,17 | 702,29 | 351,14 | 212,57 | 723,81 | 850,29 | Ok | 4 | 10 | 314,00 | 111 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 148,21 | 574,31 | 127,98 | 446,34 | 223,17 | 702,29 | 351,14 | 212,57 | 486,68 | 850,29 | Ok | 4 | 10 | 314,00 | 165 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 0,00 | 647,78 | 142,89 | 553,70 | 83,58 | 470,11 | 235,06 | 637,28 | 318,64 | 212,57 | 637,14 | 850,29 | Ok | 4 | 10 | 314,00 | 126 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 0,00 | 647,78 | 142,89 | 553,70 | 83,58 | 470,11 | 235,06 | 637,28 | 318,64 | 212,57 | 408,51 | 850,29 | Ok | 4 | 10 | 314,00 | 196 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 449,76 | 647,78 | 147,56 | 571,80 | 141,62 | 430,18 | 215,09 | 713,41 | 356,71 | 212,57 | 738,64 | 850,29 | Ok | 4 | 10 | 314,00 | 109 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 449,76 | 647,78 | 147,56 | 571,80 | 141,62 | 430,18 | 215,09 | 713,41 | 356,71 | 212,57 | 502,55 | 850,29 | Ok | 4 | 10 | 314,00 | 160 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 449,76 | 647,78 | 138,48 | 536,61 | 141,62 | 394,99 | 197,50 | 678,23 | 339,11 | 212,57 | 691,73 | 850,29 | Ok | 4 | 10 | 314,00 | 116 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 449,76 | 647,78 | 138,48 | 536,61 | 141,62 | 394,99 | 197,50 | 678,23 | 339,11 | 212,57 | 470,16 | 850,29 | Ok | 4 | 10 | 314,00 | 171 | | 4 D-10 - 150 |

## E.8. Penulangan Transversal balok Gedung 8 tingkat portal As-4 (Tanah Lunak)

| Lantai | Lokasi | Nama Balok | b | h | d | fc | fy | Mpr1 | Mpr3 | Wu= 1.2D+1LL | Vg | V-sway | Reaksi Geser Kiri Balok | | Reaksi Geser Kanan Balok | | Vc | Vs | Vs max | Syarat | Desain Tulangan | | Av | s | Digunakan Sengkang | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | Vu | 1/2vu | Vu | 1/2vu | | | | | Kaki | D | | | | |
| | | | mm | mm | mm | Mpa | Mpa | (kN.m) | (kN.m) | kN | kN | kN | kN | kN | kN | kN | kN | kN | kN | Vs<Vs max | bh | mm | mm | mm | Tumpuan | Lapangan |
| Atap | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 449,76 | 344,03 | 85,23 | 330,27 | 102,42 | 227,84 | 113,92 | 432,69 | 216,35 | 212,57 | 364,35 | 850,29 | Ok | 4 | 10 | 314,00 | 220 | 4 D-10 - 150 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 449,76 | 344,03 | 85,23 | 330,27 | 102,42 | 227,84 | 113,92 | 432,69 | 216,35 | 212,57 | 227,98 | 850,29 | Ok | 4 | 10 | 314,00 | 352 | | 4 D-10 - 300 |
| | Sendi Plastis | Balok Portal B200 | 200 | 400 | 639 | 24,9 | 420 | 55,45 | 55,45 | 39,41 | 152,71 | 14,31 | 138,40 | 69,20 | 167,02 | 83,51 | 106,29 | 116,41 | 425,15 | Ok | 2 | 10 | 157,00 | 172 | 2 D-10 - 100 | |
| | Luar Sendi Plastis | | 200 | 400 | 639 | 24,9 | 420 | 55,45 | 55,45 | 39,41 | 152,71 | 14,31 | 138,40 | 69,20 | 167,02 | 83,51 | 106,29 | 74,37 | 425,15 | Ok | 2 | 10 | 157,00 | 270 | | 2 D-10 - 200 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lantai 8 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 167,49 | 649,02 | 153,53 | 495,50 | 247,75 | 802,55 | 401,28 | 212,57 | 857,49 | 850,29 | Ok | 5 | 10 | 392,50 | 117 | 5 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 167,49 | 649,02 | 153,53 | 495,50 | 247,75 | 802,55 | 401,28 | 212,57 | 589,51 | 850,29 | Ok | 5 | 10 | 392,50 | 170 | | 5 D-10 - 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 147,80 | 572,73 | 153,53 | 419,20 | 209,60 | 726,25 | 363,13 | 212,57 | 755,76 | 850,29 | Ok | 5 | 10 | 392,50 | 133 | 5 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 147,80 | 572,73 | 153,53 | 419,20 | 209,60 | 726,25 | 363,13 | 212,57 | 519,28 | 850,29 | Ok | 5 | 10 | 392,50 | 193 | | 5 D-10 - 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 148,70 | 576,21 | 153,53 | 422,69 | 211,34 | 729,74 | 364,87 | 212,57 | 760,41 | 850,29 | Ok | 5 | 10 | 392,50 | 132 | 5 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 148,70 | 576,21 | 153,53 | 422,69 | 211,34 | 729,74 | 364,87 | 212,57 | 522,49 | 850,29 | Ok | 5 | 10 | 392,50 | 192 | | 5 D-10 - 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 172,61 | 668,86 | 153,53 | 515,34 | 257,67 | 822,39 | 411,20 | 212,57 | 883,95 | 850,29 | Ok | 5 | 10 | 392,50 | 113 | 5 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 172,61 | 668,86 | 153,53 | 515,34 | 257,67 | 822,39 | 411,20 | 212,57 | 607,77 | 850,29 | Ok | 5 | 10 | 392,50 | 165 | | 5 D-10 - 150 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lantai 7 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 827,90 | 449,76 | 167,45 | 648,87 | 164,86 | 484,01 | 242,01 | 813,73 | 406,86 | 212,57 | 872,40 | 850,29 | Ok | 5 | 10 | 392,50 | 115 | 5 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 827,90 | 449,76 | 167,45 | 648,87 | 164,86 | 484,01 | 242,01 | 813,73 | 406,86 | 212,57 | 604,48 | 850,29 | Ok | 5 | 10 | 392,50 | 166 | | 5 D-10 - 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 827,90 | 449,76 | 147,32 | 570,87 | 164,86 | 406,01 | 203,00 | 735,72 | 367,86 | 212,57 | 768,39 | 850,29 | Ok | 5 | 10 | 392,50 | 131 | 5 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 827,90 | 449,76 | 147,32 | 570,87 | 164,86 | 406,01 | 203,00 | 735,72 | 367,86 | 212,57 | 532,68 | 850,29 | Ok | 5 | 10 | 392,50 | 188 | | 5 D-10 - 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 827,90 | 449,76 | 149,03 | 577,49 | 164,86 | 412,63 | 206,32 | 742,35 | 371,17 | 212,57 | 777,23 | 850,29 | Ok | 5 | 10 | 392,50 | 129 | 5 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 827,90 | 449,76 | 149,03 | 577,49 | 164,86 | 412,63 | 206,32 | 742,35 | 371,17 | 212,57 | 538,78 | 850,29 | Ok | 5 | 10 | 392,50 | 186 | | 5 D-10 - 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 827,90 | 449,76 | 132,42 | 513,13 | 164,86 | 348,27 | 174,13 | 677,99 | 338,99 | 212,57 | 691,41 | 850,29 | Ok | 5 | 10 | 392,50 | 145 | 5 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 827,90 | 449,76 | 132,42 | 513,13 | 164,86 | 348,27 | 174,13 | 677,99 | 338,99 | 212,57 | 479,54 | 850,29 | Ok | 5 | 10 | 392,50 | 209 | | 5 D-10 - 150 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lantai 6 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 166,32 | 644,49 | 188,68 | 455,81 | 227,91 | 833,17 | 416,58 | 212,57 | 898,32 | 850,29 | Ok | 5 | 10 | 392,50 | 112 | 5 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 166,32 | 644,49 | 188,68 | 455,81 | 227,91 | 833,17 | 416,58 | 212,57 | 632,20 | 850,29 | Ok | 5 | 10 | 392,50 | 159 | | 5 D-10 - 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 145,62 | 564,28 | 188,68 | 375,60 | 187,80 | 752,95 | 376,48 | 0,00 | 1003,94 | 850,29 | Ok | 5 | 10 | 392,50 | 100 | 5 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 145,62 | 564,28 | 188,68 | 375,60 | 187,80 | 752,95 | 376,48 | 0,00 | 770,95 | 850,29 | Ok | 5 | 10 | 392,50 | 130 | | 5 D-10 - 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 147,65 | 572,14 | 188,68 | 383,47 | 191,73 | 760,82 | 380,41 | 212,57 | 801,85 | 850,29 | Ok | 5 | 10 | 392,50 | 125 | 5 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 147,65 | 572,14 | 188,68 | 383,47 | 191,73 | 760,82 | 380,41 | 212,57 | 565,61 | 850,29 | Ok | 5 | 10 | 392,50 | 177 | | 5 D-10 - 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 160,51 | 621,98 | 188,68 | 433,30 | 216,65 | 810,65 | 405,33 | 212,57 | 868,30 | 850,29 | Ok | 5 | 10 | 392,50 | 116 | 5 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 160,51 | 621,98 | 188,68 | 433,30 | 216,65 | 810,65 | 405,33 | 212,57 | 611,48 | 850,29 | Ok | 5 | 10 | 392,50 | 164 | | 5 D-10 - 150 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lantai 5 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 166,17 | 643,91 | 188,68 | 455,23 | 227,62 | 832,59 | 416,29 | 212,57 | 897,54 | 850,29 | Ok | 5 | 10 | 392,50 | 112 | 5 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 166,17 | 643,91 | 188,68 | 455,23 | 227,62 | 832,59 | 416,29 | 212,57 | 631,67 | 850,29 | Ok | 5 | 10 | 392,50 | 159 | | 5 D-10 - 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 145,31 | 563,08 | 188,68 | 374,40 | 187,20 | 751,75 | 375,88 | 0,00 | 1002,34 | 850,29 | Ok | 5 | 10 | 392,50 | 100 | 5 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 145,31 | 563,08 | 188,68 | 374,40 | 187,20 | 751,75 | 375,88 | 0,00 | 769,84 | 850,29 | Ok | 5 | 10 | 392,50 | 130 | | 5 D-10 - 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 147,54 | 571,72 | 188,68 | 383,04 | 191,52 | 760,39 | 380,20 | 212,57 | 801,29 | 850,29 | Ok | 5 | 10 | 392,50 | 125 | 5 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 147,54 | 571,72 | 188,68 | 383,04 | 191,52 | 760,39 | 380,20 | 212,57 | 565,22 | 850,29 | Ok | 5 | 10 | 392,50 | 177 | | 5 D-10 - 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 130,85 | 507,04 | 188,68 | 318,37 | 159,18 | 695,72 | 347,86 | 0,00 | 927,63 | 850,29 | Ok | 5 | 10 | 392,50 | 108 | 5 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 130,85 | 507,04 | 188,68 | 318,37 | 159,18 | 695,72 | 347,86 | 0,00 | 718,27 | 850,29 | Ok | 5 | 10 | 392,50 | 140 | | 5 D-10 - 150 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lantai 4 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 164,85 | 638,79 | 188,68 | 450,12 | 225,06 | 827,47 | 413,74 | 212,57 | 890,72 | 850,29 | Ok | 5 | 10 | 392,50 | 113 | 5 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 164,85 | 638,79 | 188,68 | 450,12 | 225,06 | 827,47 | 413,74 | 212,57 | 626,96 | 850,29 | Ok | 5 | 10 | 392,50 | 160 | | 5 D-10 - 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 144,24 | 558,93 | 188,68 | 370,25 | 185,13 | 747,61 | 373,80 | 0,00 | 996,81 | 850,29 | Ok | 5 | 10 | 392,50 | 101 | 5 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 144,24 | 558,93 | 188,68 | 370,25 | 185,13 | 747,61 | 373,80 | 0,00 | 766,03 | 850,29 | Ok | 5 | 10 | 392,50 | 131 | | 5 D-10 - 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 145,71 | 564,63 | 188,68 | 375,95 | 187,97 | 753,30 | 376,65 | 0,00 | 1004,40 | 850,29 | Ok | 5 | 10 | 392,50 | 100 | 5 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 145,71 | 564,63 | 188,68 | 375,95 | 187,97 | 753,30 | 376,65 | 0,00 | 771,27 | 850,29 | Ok | 5 | 10 | 392,50 | 130 | | 5 D-10 - 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 128,97 | 499,76 | 188,68 | 311,08 | 155,54 | 688,44 | 344,22 | 0,00 | 917,91 | 850,29 | Ok | 5 | 10 | 392,50 | 109 | 5 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 128,97 | 499,76 | 188,68 | 311,08 | 155,54 | 688,44 | 344,22 | 0,00 | 711,56 | 850,29 | Ok | 5 | 10 | 392,50 | 141 | | 5 D-10 - 150 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lantai 3 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 164,88 | 638,91 | 188,68 | 450,23 | 225,12 | 827,59 | 413,79 | 212,57 | 890,88 | 850,29 | Ok | 5 | 10 | 392,50 | 113 | 5 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 164,88 | 638,91 | 188,68 | 450,23 | 225,12 | 827,59 | 413,79 | 212,57 | 627,07 | 850,29 | Ok | 5 | 10 | 392,50 | 160 | | 5 D-10 - 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 144,77 | 560,98 | 188,68 | 372,31 | 186,15 | 749,66 | 374,83 | 0,00 | 999,55 | 850,29 | Ok | 5 | 10 | 392,50 | 100 | 5 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 144,77 | 560,98 | 188,68 | 372,31 | 186,15 | 749,66 | 374,83 | 0,00 | 767,92 | 850,29 | Ok | 5 | 10 | 392,50 | 131 | | 5 D-10 - 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 145,39 | 563,39 | 188,68 | 374,71 | 187,35 | 752,06 | 376,03 | 0,00 | 1002,75 | 850,29 | Ok | 5 | 10 | 392,50 | 100 | 5 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 145,39 | 563,39 | 188,68 | 374,71 | 187,35 | 752,06 | 376,03 | 0,00 | 770,13 | 850,29 | Ok | 5 | 10 | 392,50 | 130 | | 5 D-10 - 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 128,56 | 498,17 | 188,68 | 309,49 | 154,75 | 686,85 | 343,42 | 0,00 | 915,80 | 850,29 | Ok | 5 | 10 | 392,50 | 110 | 5 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 128,56 | 498,17 | 188,68 | 309,49 | 154,75 | 686,85 | 343,42 | 0,00 | 710,10 | 850,29 | Ok | 5 | 10 | 392,50 | 141 | | 5 D-10 - 150 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lantai 2 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 147,48 | 571,47 | 188,68 | 382,80 | 191,40 | 760,15 | 380,08 | 212,57 | 800,96 | 850,29 | Ok | 5 | 10 | 392,50 | 125 | 5 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 147,48 | 571,47 | 188,68 | 382,80 | 191,40 | 760,15 | 380,08 | 212,57 | 565,00 | 850,29 | Ok | 5 | 10 | 392,50 | 178 | | 5 D-10 - 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 141,97 | 550,13 | 188,68 | 361,46 | 180,73 | 738,81 | 369,41 | 0,00 | 985,08 | 850,29 | Ok | 5 | 10 | 392,50 | 102 | 5 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 141,97 | 550,13 | 188,68 | 361,46 | 180,73 | 738,81 | 369,41 | 0,00 | 757,93 | 850,29 | Ok | 5 | 10 | 392,50 | 132 | | 5 D-10 - 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 129,15 | 500,46 | 188,68 | 311,78 | 155,89 | 689,13 | 344,57 | 0,00 | 918,84 | 850,29 | Ok | 5 | 10 | 392,50 | 109 | 5 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 129,15 | 500,46 | 188,68 | 311,78 | 155,89 | 689,13 | 344,57 | 0,00 | 712,20 | 850,29 | Ok | 5 | 10 | 392,50 | 141 | | 5 D-10 - 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 125,56 | 486,55 | 188,68 | 297,87 | 148,93 | 675,22 | 337,61 | 0,00 | 900,30 | 850,29 | Ok | 5 | 10 | 392,50 | 111 | 5 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 125,56 | 486,55 | 188,68 | 297,87 | 148,93 | 675,22 | 337,61 | 0,00 | 699,40 | 850,29 | Ok | 5 | 10 | 392,50 | 143 | | 5 D-10 - 150 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lantai 1 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 148,21 | 574,31 | 188,68 | 385,64 | 192,82 | 762,99 | 381,50 | 212,57 | 804,75 | 850,29 | Ok | 5 | 10 | 392,50 | 125 | 5 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 148,21 | 574,31 | 188,68 | 385,64 | 192,82 | 762,99 | 381,50 | 212,57 | 567,61 | 850,29 | Ok | 5 | 10 | 392,50 | 177 | | 5 D-10 - 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 142,89 | 553,70 | 188,68 | 365,02 | 182,51 | 742,38 | 371,19 | 0,00 | 989,83 | 850,29 | Ok | 5 | 10 | 392,50 | 101 | 5 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 142,89 | 553,70 | 188,68 | 365,02 | 182,51 | 742,38 | 371,19 | 0,00 | 761,21 | 850,29 | Ok | 5 | 10 | 392,50 | 132 | | 5 D-10 - 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 147,56 | 571,80 | 188,68 | 383,12 | 191,56 | 760,47 | 380,24 | 212,57 | 801,39 | 850,29 | Ok | 5 | 10 | 392,50 | 125 | 5 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 147,56 | 571,80 | 188,68 | 383,12 | 191,56 | 760,47 | 380,24 | 212,57 | 565,29 | 850,29 | Ok | 5 | 10 | 392,50 | 177 | | 5 D-10 - 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 138,48 | 536,61 | 188,68 | 347,93 | 173,97 | 725,29 | 362,64 | 0,00 | 967,05 | 850,29 | Ok | 5 | 10 | 392,50 | 104 | 5 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 138,48 | 536,61 | 188,68 | 347,93 | 173,97 | 725,29 | 362,64 | 0,00 | 745,48 | 850,29 | Ok | 5 | 10 | 392,50 | 135 | | 5 D-10 - 150 |

# E.9. Penulangan Longitudinal balok Gedung 12 tingkat portal As-4 (Tanah Keras)

| Lantai | Nama Balok | b | h | p | d | D | f'c | fy | j | β1 | Mu - | Mu + | AS Perlu | Tulangan | | Ast | Cek Momen Nominal | | | Cek As minimum | | | Cek rasio Tulangan | | | Cek Penampang | | | Desain Kapasitas | | ρ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | Perhitungan | Terpasang | | a | ØMn | Status | Asmin | As'min | Status | ρ | ρmax | Status | a/d | atcl/d | Status | apr | Mpr | |
| | | mm | mm | mm | mm | mm | Mpa | Mpa | | | (kN.m) | (kN.m) | mm2 | bh | bh | mm2 | mm2 | (kN.m) | | mm2 | mm2 | | | | | | | | | Kn.m | (%) |
| Atap | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 241,2 | | 1174,80 | 3,09 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 120,6 | 587,40 | 1,55 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 241,2 | | 1174,80 | 3,09 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 120,6 | 587,40 | 1,55 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 126,94 | 618,28 | 1,63 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B200_Tumpuan | 200 | 400 | 61 | 339 | 22 | 24,9 | 420 | 0,85 | 0,85 | 87,09 | | 799,57 | 2,10 | 2 | 759,88 | 75,40 | 86,54 | Not Ok | 201,38 | 226,000 | Ok | 0,011 | 0,025 | Ok | 0,222406 | 0,318750 | Ok, Under Reinforced | 94,245 | 55,448 | 1,12 |
| | Balok Portal B200_Lapangan | 200 | 400 | 61 | 339 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 43,545 | 399,79 | 1,05 | 2 | 759,88 | 75,40 | 86,54 | Ok | 201,38 | 226,000 | Ok | 0,011 | 0,025 | Ok | 0,222406 | 0,318750 | Ok, Under Reinforced | 94,245 | 55,448 | 1,12 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lantai 12 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 409,52 | | 1994,64 | 5,25 | 5 | 1899,70 | 94,24 | 425,02 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 204,76 | 997,32 | 2,62 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 409,52 | | 1994,64 | 5,25 | 6 | 2279,64 | 113,09 | 501,90 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,176985 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 204,76 | 997,32 | 2,62 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 259,07 | 1261,84 | 3,32 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 358,84 | | 1747,79 | 4,60 | 5 | 1899,70 | 94,24 | 425,02 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 179,42 | 873,90 | 2,30 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 358,84 | | 1747,79 | 4,60 | 5 | 1899,70 | 94,24 | 425,02 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 179,42 | 873,90 | 2,30 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B21_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 194,9 | 949,29 | 2,50 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 340,68 | | 1659,34 | 4,37 | 5 | 1899,70 | 94,24 | 425,02 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 170,34 | 829,67 | 2,18 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 340,68 | | 1659,34 | 4,37 | 5 | 1899,70 | 94,24 | 425,02 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 170,34 | 829,67 | 2,18 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B22_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 215,21 | 1048,22 | 2,76 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B23_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 319,35 | | 1555,45 | 4,09 | 5 | 1899,70 | 94,24 | 425,02 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 159,675 | 777,72 | 2,05 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 319,35 | | 1555,45 | 4,09 | 5 | 1899,70 | 94,24 | 425,02 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 159,675 | 777,72 | 2,05 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B23_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 175,07 | 852,71 | 2,24 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lantai 11 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 482,91 | | 2352,09 | 6,19 | 6 | 2279,64 | 113,09 | 501,90 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,176985 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 241,455 | 1176,05 | 3,10 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 482,91 | | 2352,09 | 6,19 | 6 | 2279,64 | 113,09 | 501,90 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,176985 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 241,455 | 1176,05 | 3,10 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 266,5 | 1298,03 | 3,42 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Tumpuan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 435,02 | | 2118,84 | 5,58 | 6 | 2279,64 | 113,09 | 501,90 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,176985 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 217,51 | 1059,42 | 2,79 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 435,02 | | 2118,84 | 5,58 | 6 | 2279,64 | 113,09 | 501,90 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,176985 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 217,51 | 1059,42 | 2,79 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B21_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 197,58 | 962,35 | 2,53 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 422,77 | | 2059,17 | 5,42 | 6 | 2279,64 | 113,09 | 501,90 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,176985 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 211,385 | 1029,59 | 2,71 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 422,77 | | 2059,17 | 5,42 | 6 | 2279,64 | 113,09 | 501,90 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,176985 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 211,385 | 1029,59 | 2,71 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B22_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 214 | 1042,32 | 2,74 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B23_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 400,66 | | 1951,48 | 5,14 | 6 | 2279,64 | 113,09 | 501,90 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,176985 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 200,33 | 975,74 | 2,57 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 400,66 | | 1951,48 | 5,14 | 6 | 2279,64 | 113,09 | 501,90 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,176985 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 200,33 | 975,74 | 2,57 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B23_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 175,66 | 855,58 | 2,25 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lantai 10 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 537,68 | | 2618,86 | 6,89 | 7 | 2659,58 | 131,94 | 576,08 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,206482 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 268,84 | 1309,43 | 3,45 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 537,68 | | 2618,86 | 6,89 | 7 | 2659,58 | 131,94 | 576,08 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,206482 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 268,84 | 1309,43 | 3,45 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 272,58 | 1327,65 | 3,49 | 5 | 1899,70 | 94,24 | 425,02 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B21_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 486,97 | | 2371,87 | 6,24 | 7 | 2659,58 | 131,94 | 576,08 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,206482 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 243,485 | 1185,93 | 3,12 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 486,97 | | 2371,87 | 6,24 | 7 | 2659,58 | 131,94 | 576,08 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,206482 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 243,485 | 1185,93 | 3,12 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 227,75 | 1109,29 | 2,92 | 5 | 1899,70 | 94,24 | 425,02 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 477,25 | | 2324,53 | 6,12 | 7 | 2659,58 | 131,94 | 576,08 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,206482 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 238,625 | 1162,26 | 3,06 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 477,25 | | 2324,53 | 6,12 | 7 | 2659,58 | 131,94 | 576,08 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,206482 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 238,625 | 1162,26 | 3,06 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B22_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 214 | 1042,32 | 2,74 | 5 | 1899,70 | 94,24 | 425,02 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B23_Tumpuan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 456,21 | | 2222,05 | 5,85 | 7 | 2659,58 | 131,94 | 576,08 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,206482 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 228,105 | 1111,02 | 2,92 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 456,21 | | 2222,05 | 5,85 | 7 | 2659,58 | 131,94 | 576,08 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,206482 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 228,105 | 1111,02 | 2,92 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B23_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 215 | 1047,19 | 2,76 | 5 | 1899,70 | 94,24 | 425,02 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lantai 9 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 573 | | 2790,89 | 7,35 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 286,5 | 1395,45 | 3,67 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 573 | | 2790,89 | 7,35 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 286,5 | 1395,45 | 3,67 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 277 | 1349,17 | 3,55 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B21_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 522 | | 2542,49 | 6,69 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 261 | 1271,24 | 3,35 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 522 | | 2542,49 | 6,69 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 261 | 1271,24 | 3,35 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 243 | 1183,57 | 3,12 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 514,67 | | 2506,79 | 6,60 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 257,335 | 1253,39 | 3,30 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 514,67 | | 2506,79 | 6,60 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 257,335 | 1253,39 | 3,30 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B22_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 233 | 1134,87 | 2,99 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B23_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 493 | | 2401,24 | 6,32 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 246,5 | 1200,62 | 3,16 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 493 | | 2401,24 | 6,32 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 246,5 | 1200,62 | 3,16 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B23_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 174,92 | 851,98 | 2,24 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Lantai | Nama Balok | b | h | p | d | D | f'c | fy | j | β1 | Mu - | Mu + | AS Perlu | Tulangan | | Ast | Cek Momen Nominal | | | Cek As minimum | | | Cek rasio Tulangan | | | Cek Penampang | | | Desain Kapasitas | | ρ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | Perhitungan | Terpasang | | a | ØMn | Status | Asmin | As'min | Status | ρ | ρmax | Status | a/d | atcl/d | Status | apr | Mpr | |
| | | mm | mm | mm | mm | mm | Mpa | Mpa | | | (kN.m) | (kN.m) | mm2 | bh | bh | mm2 | mm2 | (kN.m) | | mm2 | mm2 | | | | | | | | | Kn.m | (%) |
| Lantai 8 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 567 | | 2761,67 | 7,27 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 283,5 | 1380,83 | 3,63 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 567 | | 2761,67 | 7,27 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 283,5 | 1380,83 | 3,63 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 280 | 1363,79 | 3,59 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B21_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 521,72 | | 2541,12 | 6,69 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 260,86 | 1270,56 | 3,34 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 521,72 | | 2541,12 | 6,69 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 260,86 | 1270,56 | 3,34 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 277 | 1349,17 | 3,55 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 516 | | 2513,26 | 6,61 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 258 | 1256,63 | 3,31 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 516 | | 2513,26 | 6,61 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 258 | 1256,63 | 3,31 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B22_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 268 | 1305,34 | 3,44 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B23_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 496 | | 2415,85 | 6,36 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 248 | 1207,93 | 3,18 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 496 | | 2415,85 | 6,36 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 248 | 1207,93 | 3,18 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B23_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 286 | 1393,01 | 3,67 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| Lantai 7 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 581,65 | | 2833,02 | 7,46 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 290,825 | 1416,51 | 3,73 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 581,65 | | 2833,02 | 7,46 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 290,825 | 1416,51 | 3,73 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 282,32 | 1375,09 | 3,62 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B21_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 537 | | 2615,55 | 6,88 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 268,5 | 1307,77 | 3,44 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 537 | | 2615,55 | 6,88 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 268,5 | 1307,77 | 3,44 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 293 | 1427,11 | 3,76 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 532 | | 2591,19 | 6,82 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 266 | 1295,60 | 3,41 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 532 | | 2591,19 | 6,82 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 266 | 1295,60 | 3,41 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B22_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 285 | 1388,14 | 3,65 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B23_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 512 | | 2493,78 | 6,56 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 256 | 1246,89 | 3,28 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 512 | | 2493,78 | 6,56 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 256 | 1246,89 | 3,28 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B23_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 302 | 1470,94 | 3,87 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| Lantai 6 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 593 | | 2888,31 | 7,60 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 296,5 | 1444,15 | 3,80 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 593 | | 2888,31 | 7,60 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 296,5 | 1444,15 | 3,80 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 285 | 1388,14 | 3,65 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B21_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 549 | | 2674,00 | 7,04 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 274,5 | 1337,00 | 3,52 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 549 | | 2674,00 | 7,04 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 274,5 | 1337,00 | 3,52 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 305 | 1485,55 | 3,91 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 546,71 | | 2662,84 | 7,01 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 273,355 | 1331,42 | 3,50 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 546,71 | | 2662,84 | 7,01 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 273,355 | 1331,42 | 3,50 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B22_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 299 | 1456,33 | 3,83 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B23_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 525 | | 2557,10 | 6,73 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 262,5 | 1278,55 | 3,37 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 525 | | 2557,10 | 6,73 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 262,5 | 1278,55 | 3,37 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B23_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 315 | 1534,26 | 4,04 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| Lantai 5 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 598 | | 2912,66 | 7,67 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 299 | 1456,33 | 3,83 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 598 | | 2912,66 | 7,67 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 299 | 1456,33 | 3,83 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 286 | 1393,01 | 3,67 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B21_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 554,9 | | 2702,73 | 7,11 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 277,45 | 1351,37 | 3,56 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 554,9 | | 2702,73 | 7,11 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 277,45 | 1351,37 | 3,56 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 311 | 1514,78 | 3,99 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 553,59 | | 2696,35 | 7,10 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 276,795 | 1348,18 | 3,55 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 553,59 | | 2696,35 | 7,10 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 276,795 | 1348,18 | 3,55 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B22_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 306 | 1490,42 | 3,92 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B23_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 531 | | 2586,32 | 6,81 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 265,5 | 1293,16 | 3,40 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 531 | | 2586,32 | 6,81 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 265,5 | 1293,16 | 3,40 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B23_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 322 | 1568,35 | 4,13 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |

| Lantai | Nama Balok | b | h | p | d | D | f'c | fy | j | β1 | Mu - | Mu + | AS Perlu | Tulangan | | Ast | Cek Momen Nominal | | | Cek As minimum | | | Cek rasio Tulangan | | | Cek Penampang | | | Desain Kapasitas | | ρ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | Perhitungan | Terpasang | | a | ØMn | Status | Asmin | As'min | Status | ρ | ρmax | Status | a/d | atcl/d | Status | apr | Mpr | |
| | | mm | mm | mm | mm | mm | Mpa | Mpa | | | (kN.m) | (kN.m) | mm2 | bh | bh | mm2 | mm2 | (kN.m) | | mm2 | mm2 | | | | | | | | | Kn.m | (%) |
| Lantai 4 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 558 | | 2717,83 | 7,15 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 279 | 1358,92 | 3,58 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 558 | | 2717,83 | 7,15 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 279 | 1358,92 | 3,58 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 285 | 1388,14 | 3,65 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B21_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 518,28 | | 2524,37 | 6,64 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 259,14 | 1262,18 | 3,32 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 518,28 | | 2524,37 | 6,64 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 259,14 | 1262,18 | 3,32 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 298 | 1451,46 | 3,82 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 518,52 | | 2525,54 | 6,65 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 259,26 | 1262,77 | 3,32 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 518,52 | | 2525,54 | 6,65 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 259,26 | 1262,77 | 3,32 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B22_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 294 | 1431,98 | 3,77 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B23_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 497 | | 2420,72 | 6,37 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 248,5 | 1210,36 | 3,19 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 497 | | 2420,72 | 6,37 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 248,5 | 1210,36 | 3,19 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B23_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 308 | 1500,17 | 3,95 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| Lantai 3 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 533 | | 2596,07 | 6,83 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 266,5 | 1298,03 | 3,42 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 533 | | 2596,07 | 6,83 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 266,5 | 1298,03 | 3,42 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 282 | 1373,53 | 3,62 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B21_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 493 | | 2401,24 | 6,32 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 246,5 | 1200,62 | 3,16 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 493 | | 2401,24 | 6,32 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 246,5 | 1200,62 | 3,16 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 254 | 1237,15 | 3,26 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 494 | | 2406,11 | 6,33 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 247 | 1203,05 | 3,17 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 494 | | 2406,11 | 6,33 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 247 | 1203,05 | 3,17 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B22_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 273 | 1329,69 | 3,50 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B23_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 473 | | 2303,83 | 6,06 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 236,5 | 1151,91 | 3,03 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 473 | | 2303,83 | 6,06 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 236,5 | 1151,91 | 3,03 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B23_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 285 | 1388,14 | 3,65 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| Lantai 2 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 437,44 | | 2130,62 | 5,61 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 218,72 | 1065,31 | 2,80 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 437,44 | | 2130,62 | 5,61 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 218,72 | 1065,31 | 2,80 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 226 | 1100,77 | 2,90 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B21_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 431 | | 2099,26 | 5,53 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 215,5 | 1049,63 | 2,76 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 431 | | 2099,26 | 5,53 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 215,5 | 1049,63 | 2,76 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 229 | 1115,38 | 2,94 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 415 | | 2021,33 | 5,32 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 207,5 | 1010,66 | 2,66 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 415 | | 2021,33 | 5,32 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 207,5 | 1010,66 | 2,66 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B22_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 229 | 1115,38 | 2,94 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B23_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 413 | | 2011,59 | 5,29 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 206,5 | 1005,79 | 2,65 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 413 | | 2011,59 | 5,29 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 206,5 | 1005,79 | 2,65 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B23_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 231 | 1125,12 | 2,96 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| Lantai 1 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 333,58 | | 1624,76 | 4,28 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 166,79 | 812,38 | 2,14 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 333,58 | | 1624,76 | 4,28 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 166,79 | 812,38 | 2,14 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 207 | 1008,23 | 2,65 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B21_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 323 | | 1573,23 | 4,14 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 161,5 | 786,61 | 2,07 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 323 | | 1573,23 | 4,14 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 161,5 | 786,61 | 2,07 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 188 | 915,69 | 2,41 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 334 | | 1626,80 | 4,28 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 167 | 813,40 | 2,14 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 334 | | 1626,80 | 4,28 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 167 | 813,40 | 2,14 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B22_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 217 | 1056,93 | 2,78 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B23_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 325 | | 1582,97 | 4,17 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 162,5 | 791,48 | 2,08 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 325 | | 1582,97 | 4,17 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 162,5 | 791,48 | 2,08 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B23_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 199 | 969,26 | 2,55 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |

# E.10. Penulangan Longitudinal balok Gedung 12 tingkat portal As-4 (Tanah Lunak)

| Lantai | Nama Balok | b | h | p | d | D | f'c | fy | j | β1 | Mu - | Mu + | AS Perlu | Tulangan | | Ast | Cek Momen Nominal | | | Cek As minimum | | | Cek rasio Tulangan | | | Cek Penampang | | | Desain Kapasitas | | ρ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | Perhitungan | Terpasang | | a | ØMn | Status | Asmin | As'min | Status | ρ | ρmax | Status | a/d | atcl/d | Status | apr | Mpr | |
| | | mm | mm | mm | mm | mm | Mpa | Mpa | | | (kN.m) | (kN.m) | mm2 | bh | bh | mm2 | mm2 | (kN.m) | | mm2 | mm2 | | | | | | | | | Kn.m | (%) |
| Atap | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 297,89 | | 1450,92 | 3,82 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 148,945 | 725,46 | 1,91 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 297,89 | | 1450,92 | 3,82 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 148,945 | 725,46 | 1,91 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 136,19 | 663,34 | 1,75 | 3 | 1139,82 | 56,55 | 263,13 | Ok | 759,19 | 852,000 | Ok | 0,004 | 0,025 | Ok | 0,088492 | 0,318750 | Ok, Under Reinforced | 70,683 | 344,031 | 0,45 |
| | Balok Portal B200_Tumpuan | 200 | 400 | 61 | 339 | 22 | 24,9 | 420 | 0,85 | 0,85 | 88 | | 807,93 | 2,13 | 3 | 1139,82 | 113,09 | 121,70 | Ok | 201,38 | 226,000 | Ok | 0,017 | 0,025 | Ok | 0,333609 | 0,318750 | Not Ok | 141,367 | 76,458 | 1,68 |
| | Balok Portal B200_Lapangan | 200 | 400 | 61 | 339 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 44 | 403,96 | 1,06 | 2 | 759,88 | 75,40 | 86,54 | Ok | 201,38 | 226,000 | Ok | 0,011 | 0,025 | Ok | 0,222406 | 0,318750 | Ok, Under Reinforced | 94,245 | 55,448 | 1,12 |
| Lantai 12 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 530 | | 2581,45 | 6,79 | 7 | 2659,58 | 131,94 | 576,08 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,206482 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 265 | 1290,73 | 3,40 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 530 | | 2581,45 | 6,79 | 7 | 2659,58 | 131,94 | 576,08 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,206482 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 265 | 1290,73 | 3,40 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 276 | 1344,30 | 3,54 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 481 | | 2342,79 | 6,17 | 7 | 2659,58 | 131,94 | 576,08 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,206482 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 240,5 | 1171,40 | 3,08 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 481 | | 2342,79 | 6,17 | 7 | 2659,58 | 131,94 | 576,08 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,206482 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 240,5 | 1171,40 | 3,08 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 219 | 1066,68 | 2,81 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 461 | | 2245,38 | 5,91 | 7 | 2659,58 | 131,94 | 576,08 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,206482 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 230,5 | 1122,69 | 2,95 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 461 | | 2245,38 | 5,91 | 7 | 2659,58 | 131,94 | 576,08 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,206482 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 230,5 | 1122,69 | 2,95 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B22_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 215 | 1047,19 | 2,76 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B23_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 440 | | 2143,09 | 5,64 | 7 | 2659,58 | 131,94 | 576,08 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,206482 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 220 | 1071,55 | 2,82 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 440 | | 2143,09 | 5,64 | 7 | 2659,58 | 131,94 | 576,08 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,206482 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 220 | 1071,55 | 2,82 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B23_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 181 | 881,59 | 2,32 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| Lantai 11 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 691 | | 3365,63 | 8,86 | 9 | 3419,46 | 169,64 | 716,31 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,265477 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 345,5 | 1682,82 | 4,43 | 5 | 1899,70 | 94,24 | 425,02 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 691 | | 3365,63 | 8,86 | 9 | 3419,46 | 169,64 | 716,31 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,265477 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 345,5 | 1682,82 | 4,43 | 5 | 1899,70 | 94,24 | 425,02 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 302 | 1470,94 | 3,87 | 4 | 1519,76 | 75,40 | 345,43 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,117990 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Tumpuan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 645 | | 3141,58 | 8,27 | 9 | 3419,46 | 169,64 | 716,31 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,265477 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 322,5 | 1570,79 | 4,13 | 5 | 1899,70 | 94,24 | 425,02 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 645 | | 3141,58 | 8,27 | 9 | 3419,46 | 169,64 | 716,31 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,265477 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 322,5 | 1570,79 | 4,13 | 5 | 1899,70 | 94,24 | 425,02 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B21_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 343 | 1670,64 | 4,40 | 5 | 1899,70 | 94,24 | 425,02 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 633 | | 3083,13 | 8,11 | 9 | 3419,46 | 169,64 | 716,31 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,265477 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 316,5 | 1541,57 | 4,06 | 5 | 1899,70 | 94,24 | 425,02 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 633 | | 3083,13 | 8,11 | 9 | 3419,46 | 169,64 | 716,31 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,265477 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 316,5 | 1541,57 | 4,06 | 5 | 1899,70 | 94,24 | 425,02 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B22_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 333 | 1621,93 | 4,27 | 5 | 1899,70 | 94,24 | 425,02 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B23_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 611 | | 2975,98 | 7,83 | 9 | 3419,46 | 169,64 | 716,31 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,265477 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 305,5 | 1487,99 | 3,92 | 5 | 1899,70 | 94,24 | 425,02 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 611 | | 2975,98 | 7,83 | 9 | 3419,46 | 169,64 | 716,31 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,265477 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 305,5 | 1487,99 | 3,92 | 5 | 1899,70 | 94,24 | 425,02 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B23_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 352 | 1714,47 | 4,51 | 5 | 1899,70 | 94,24 | 425,02 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,147487 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| Lantai 10 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 855 | | 4164,42 | 10,96 | 12 | 4559,28 | 226,19 | 906,35 | Ok | 759,19 | 852,000 | Ok | 0,018 | 0,025 | Ok | 0,353970 | 0,318750 | Not Ok | 282,734 | 1134,425 | 1,78 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 427,5 | 2082,21 | 5,48 | 6 | 2279,64 | 113,09 | 501,90 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,176985 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 855 | | 4164,42 | 10,96 | 12 | 4559,28 | 226,19 | 906,35 | Ok | 759,19 | 852,000 | Ok | 0,018 | 0,025 | Ok | 0,353970 | 0,318750 | Not Ok | 282,734 | 1134,425 | 1,78 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 427,5 | 2082,21 | 5,48 | 6 | 2279,64 | 113,09 | 501,90 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,176985 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 494 | 2406,11 | 6,33 | 7 | 2659,58 | 131,94 | 576,08 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,206482 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B21_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 809 | | 3940,37 | 10,37 | 11 | 4179,34 | 207,34 | 845,71 | Ok | 759,19 | 852,000 | Ok | 0,016 | 0,025 | Ok | 0,324472 | 0,318750 | Not Ok | 259,172 | 1064,507 | 1,64 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 404,5 | 1970,18 | 5,19 | 6 | 2279,64 | 113,09 | 501,90 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,176985 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 809 | | 3940,37 | 10,37 | 11 | 4179,34 | 207,34 | 845,71 | Ok | 759,19 | 852,000 | Ok | 0,016 | 0,025 | Ok | 0,324472 | 0,318750 | Not Ok | 259,172 | 1064,507 | 1,64 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 404,5 | 1970,18 | 5,19 | 6 | 2279,64 | 113,09 | 501,90 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,176985 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B21_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 531 | 2586,32 | 6,81 | 7 | 2659,58 | 131,94 | 576,08 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,206482 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 799 | | 3891,66 | 10,24 | 11 | 4179,34 | 207,34 | 845,71 | Ok | 759,19 | 852,000 | Ok | 0,016 | 0,025 | Ok | 0,324472 | 0,318750 | Not Ok | 259,172 | 1064,507 | 1,64 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 399,5 | 1945,83 | 5,12 | 6 | 2279,64 | 113,09 | 501,90 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,176985 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 799 | | 3891,66 | 10,24 | 11 | 4179,34 | 207,34 | 845,71 | Ok | 759,19 | 852,000 | Ok | 0,016 | 0,025 | Ok | 0,324472 | 0,318750 | Not Ok | 259,172 | 1064,507 | 1,64 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 399,5 | 1945,83 | 5,12 | 6 | 2279,64 | 113,09 | 501,90 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,176985 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B22_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 520 | 2532,75 | 6,67 | 7 | 2659,58 | 131,94 | 576,08 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,206482 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B23_Tumpuan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 777 | | 3784,51 | 9,96 | 11 | 4179,34 | 207,34 | 845,71 | Ok | 759,19 | 852,000 | Ok | 0,016 | 0,025 | Ok | 0,324472 | 0,318750 | Not Ok | 259,172 | 1064,507 | 1,64 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 388,5 | 1892,25 | 4,98 | 6 | 2279,64 | 113,09 | 501,90 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,176985 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 777 | | 3784,51 | 9,96 | 11 | 4179,34 | 207,34 | 845,71 | Ok | 759,19 | 852,000 | Ok | 0,016 | 0,025 | Ok | 0,324472 | 0,318750 | Not Ok | 259,172 | 1064,507 | 1,64 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 388,5 | 1892,25 | 4,98 | 6 | 2279,64 | 113,09 | 501,90 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,176985 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B23_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 539 | 2625,29 | 6,91 | 7 | 2659,58 | 131,94 | 576,08 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,206482 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| Lantai 9 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 967 | | 4709,93 | 12,40 | 13 | 4939,22 | 0,64 | 1192,43 | Ok | 759,19 | 852,000 | Ok | 0,019 | 0,025 | Ok | 0,001009 | 0,318750 | Ok, Under Reinforced | 306,295 | 1199,867 | 1,93 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 483,5 | 2354,97 | 6,20 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 967 | | 4709,93 | 12,40 | 13 | 4939,22 | 0,64 | 1192,43 | Ok | 759,19 | 852,000 | Ok | 0,019 | 0,025 | Ok | 0,001009 | 0,318750 | Ok, Under Reinforced | 306,295 | 1199,867 | 1,93 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 483,5 | 2354,97 | 6,20 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 609 | 2966,24 | 7,81 | 8 | 3039,52 | 0,40 | 733,94 | Ok | 759,19 | 852,000 | Ok | 0,012 | 0,025 | Ok | 0,000621 | 0,318750 | Ok, Under Reinforced | 188,489 | 827,898 | 1,19 |
| | Balok Portal B21_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 920 | | 4481,01 | 11,79 | 12 | 4559,28 | 0,60 | 1100,74 | Ok | 759,19 | 852,000 | Ok | 0,018 | 0,025 | Ok | 0,000932 | 0,318750 | Ok, Under Reinforced | 282,734 | 1134,425 | 1,78 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 460 | 2240,51 | 5,90 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 920 | | 4481,01 | 11,79 | 12 | 4559,28 | 0,60 | 1100,74 | Ok | 759,19 | 852,000 | Ok | 0,018 | 0,025 | Ok | 0,000932 | 0,318750 | Ok, Under Reinforced | 282,734 | 1134,425 | 1,78 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 460 | 2240,51 | 5,90 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B21_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 642 | 3126,97 | 8,23 | 8 | 3039,52 | 0,40 | 733,94 | Ok | 759,19 | 852,000 | Ok | 0,012 | 0,025 | Ok | 0,000621 | 0,318750 | Ok, Under Reinforced | 188,489 | 827,898 | 1,19 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 912 | | 4442,05 | 11,69 | 12 | 4559,28 | 0,60 | 1100,74 | Ok | 759,19 | 852,000 | Ok | 0,018 | 0,025 | Ok | 0,000932 | 0,318750 | Ok, Under Reinforced | 282,734 | 1134,425 | 1,78 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 456 | 2221,02 | 5,85 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 912 | | 4442,05 | 11,69 | 12 | 4559,28 | 0,60 | 1100,74 | Ok | 759,19 | 852,000 | Ok | 0,018 | 0,025 | Ok | 0,000932 | 0,318750 | Ok, Under Reinforced | 282,734 | 1134,425 | 1,78 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 456 | 2221,02 | 5,85 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B22_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 633 | 3083,13 | 8,11 | 8 | 3039,52 | 0,40 | 733,94 | Ok | 759,19 | 852,000 | Ok | 0,012 | 0,025 | Ok | 0,000621 | 0,318750 | Ok, Under Reinforced | 188,489 | 827,898 | 1,19 |
| | Balok Portal B23_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 890 | | 4334,89 | 11,41 | 12 | 4559,28 | 0,60 | 1100,74 | Ok | 759,19 | 852,000 | Ok | 0,018 | 0,025 | Ok | 0,000932 | 0,318750 | Ok, Under Reinforced | 282,734 | 1134,425 | 1,78 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 445 | 2167,45 | 5,70 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 890 | | 4334,89 | 11,41 | 12 | 4559,28 | 0,60 | 1100,74 | Ok | 759,19 | 852,000 | Ok | 0,018 | 0,025 | Ok | 0,000932 | 0,318750 | Ok, Under Reinforced | 282,734 | 1134,425 | 1,78 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 445 | 2167,45 | 5,70 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B23_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 652 | 3175,67 | 8,36 | 8 | 3039,52 | 0,40 | 733,94 | Ok | 759,19 | 852,000 | Ok | 0,012 | 0,025 | Ok | 0,000621 | 0,318750 | Ok, Under Reinforced | 188,489 | 827,898 | 1,19 |

| Lantai | Nama Balok | b | h | p | d | D | f'c | fy | j | β1 | Mu - | Mu + | AS Perlu | Tulangan | | Ast | Cek Momen Nominal | | | Cek As minimum | | | Cek rasio Tulangan | | | Cek Penampang | | | Desain Kapasitas | | ρ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | Perhitungan | Terpasang | | a | ØMn | Status | Asmin | As'min | Status | ρ | ρmax | Status | a/d | atcl/d | Status | apr | Mpr | |
| | | mm | mm | mm | mm | mm | Mpa | Mpa | | | (kN.m) | (kN.m) | mm2 | bh | bh | mm2 | mm2 | (kN.m) | | mm2 | mm2 | | | | | | | | | Kn.m | (%) |
| Lantai 8 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 1030 | | 5016,79 | 13,20 | 12 | 4559,28 | 0,60 | 1100,74 | Ok | 759,19 | 852,000 | Ok | 0,018 | 0,025 | Ok | 0,000932 | 0,318750 | Ok, Under Reinforced | 282,734 | 1134,425 | 1,78 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 515 | 2508,39 | 6,60 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 1030 | | 5016,79 | 13,20 | 12 | 4559,28 | 0,60 | 1100,74 | Ok | 759,19 | 852,000 | Ok | 0,018 | 0,025 | Ok | 0,000932 | 0,318750 | Ok, Under Reinforced | 282,734 | 1134,425 | 1,78 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 515 | 2508,39 | 6,60 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 716 | 3487,40 | 9,18 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B21_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 991 | | 4826,83 | 12,70 | 12 | 4559,28 | 0,60 | 1100,74 | Ok | 759,19 | 852,000 | Ok | 0,018 | 0,025 | Ok | 0,000932 | 0,318750 | Ok, Under Reinforced | 282,734 | 1134,425 | 1,78 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 495,5 | 2413,42 | 6,35 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 991 | | 4826,83 | 12,70 | 12 | 4559,28 | 0,60 | 1100,74 | Ok | 759,19 | 852,000 | Ok | 0,018 | 0,025 | Ok | 0,000932 | 0,318750 | Ok, Under Reinforced | 282,734 | 1134,425 | 1,78 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 495,5 | 2413,42 | 6,35 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B21_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 747 | 3638,39 | 9,58 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 986 | | 4802,48 | 12,64 | 12 | 4559,28 | 0,60 | 1100,74 | Ok | 759,19 | 852,000 | Ok | 0,018 | 0,025 | Ok | 0,000932 | 0,318750 | Ok, Under Reinforced | 282,734 | 1134,425 | 1,78 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 493 | 2401,24 | 6,32 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 986 | | 4802,48 | 12,64 | 12 | 4559,28 | 0,60 | 1100,74 | Ok | 759,19 | 852,000 | Ok | 0,018 | 0,025 | Ok | 0,000932 | 0,318750 | Ok, Under Reinforced | 282,734 | 1134,425 | 1,78 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 493 | 2401,24 | 6,32 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B22_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 740 | 3604,29 | 9,49 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B23_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 966 | | 4705,06 | 12,38 | 12 | 4559,28 | 0,60 | 1100,74 | Ok | 759,19 | 852,000 | Ok | 0,018 | 0,025 | Ok | 0,000932 | 0,318750 | Ok, Under Reinforced | 282,734 | 1134,425 | 1,78 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 483 | 2352,53 | 6,19 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 966 | | 4705,06 | 12,38 | 12 | 4559,28 | 0,60 | 1100,74 | Ok | 759,19 | 852,000 | Ok | 0,018 | 0,025 | Ok | 0,000932 | 0,318750 | Ok, Under Reinforced | 282,734 | 1134,425 | 1,78 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 483 | 2352,53 | 6,19 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B23_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 757 | 3687,09 | 9,70 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| Lantai 7 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 1082 | | 5270,06 | 13,87 | 13 | 4939,22 | 0,64 | 1192,43 | Ok | 759,19 | 852,000 | Ok | 0,019 | 0,025 | Ok | 0,001009 | 0,318750 | Ok, Under Reinforced | 306,295 | 1199,867 | 1,93 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 541 | 2635,03 | 6,94 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 1082 | | 5270,06 | 13,87 | 13 | 4939,22 | 0,64 | 1192,43 | Ok | 759,19 | 852,000 | Ok | 0,019 | 0,025 | Ok | 0,001009 | 0,318750 | Ok, Under Reinforced | 306,295 | 1199,867 | 1,93 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 541 | 2635,03 | 6,94 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 771 | 3755,28 | 9,88 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B21_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 1045 | | 5089,85 | 13,40 | 13 | 4939,22 | 0,64 | 1192,43 | Ok | 759,19 | 852,000 | Ok | 0,019 | 0,025 | Ok | 0,001009 | 0,318750 | Ok, Under Reinforced | 306,295 | 1199,867 | 1,93 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 522,5 | 2544,92 | 6,70 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 1045 | | 5089,85 | 13,40 | 13 | 4939,22 | 0,64 | 1192,43 | Ok | 759,19 | 852,000 | Ok | 0,019 | 0,025 | Ok | 0,001009 | 0,318750 | Ok, Under Reinforced | 306,295 | 1199,867 | 1,93 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 522,5 | 2544,92 | 6,70 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B21_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 801 | 3901,40 | 10,27 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 1040 | | 5065,49 | 13,33 | 13 | 4939,22 | 0,64 | 1192,43 | Ok | 759,19 | 852,000 | Ok | 0,019 | 0,025 | Ok | 0,001009 | 0,318750 | Ok, Under Reinforced | 306,295 | 1199,867 | 1,93 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 520 | 2532,75 | 6,67 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 1040 | | 5065,49 | 13,33 | 13 | 4939,22 | 0,64 | 1192,43 | Ok | 759,19 | 852,000 | Ok | 0,019 | 0,025 | Ok | 0,001009 | 0,318750 | Ok, Under Reinforced | 306,295 | 1199,867 | 1,93 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 520 | 2532,75 | 6,67 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B22_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 795 | 3872,18 | 10,19 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B23_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 1020 | | 4968,08 | 13,08 | 13 | 4939,22 | 0,64 | 1192,43 | Ok | 759,19 | 852,000 | Ok | 0,019 | 0,025 | Ok | 0,001009 | 0,318750 | Ok, Under Reinforced | 306,295 | 1199,867 | 1,93 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 510 | 2484,04 | 6,54 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 1020 | | 4968,08 | 13,08 | 13 | 4939,22 | 0,64 | 1192,43 | Ok | 759,19 | 852,000 | Ok | 0,019 | 0,025 | Ok | 0,001009 | 0,318750 | Ok, Under Reinforced | 306,295 | 1199,867 | 1,93 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 510 | 2484,04 | 6,54 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B23_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 811 | 3950,11 | 10,40 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| Lantai 6 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 1126 | | 5484,37 | 14,43 | 13 | 4939,22 | 0,64 | 1192,43 | Ok | 759,19 | 852,000 | Ok | 0,019 | 0,025 | Ok | 0,001009 | 0,318750 | Ok, Under Reinforced | 306,295 | 1199,867 | 1,93 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 563 | 2742,19 | 7,22 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 1126 | | 5484,37 | 14,43 | 13 | 4939,22 | 0,64 | 1192,43 | Ok | 759,19 | 852,000 | Ok | 0,019 | 0,025 | Ok | 0,001009 | 0,318750 | Ok, Under Reinforced | 306,295 | 1199,867 | 1,93 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 563 | 2742,19 | 7,22 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 818 | 3984,21 | 10,49 | 10 | 3799,40 | 0,50 | 917,36 | Ok | 759,19 | 852,000 | Ok | 0,015 | 0,025 | Ok | 0,000776 | 0,318750 | Ok, Under Reinforced | 235,611 | 990,113 | 1,49 |
| | Balok Portal B21_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 1089 | | 5304,16 | 13,96 | 13 | 4939,22 | 0,64 | 1192,43 | Ok | 759,19 | 852,000 | Ok | 0,019 | 0,025 | Ok | 0,001009 | 0,318750 | Ok, Under Reinforced | 306,295 | 1199,867 | 1,93 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 544,5 | 2652,08 | 6,98 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 1089 | | 5304,16 | 13,96 | 13 | 4939,22 | 0,64 | 1192,43 | Ok | 759,19 | 852,000 | Ok | 0,019 | 0,025 | Ok | 0,001009 | 0,318750 | Ok, Under Reinforced | 306,295 | 1199,867 | 1,93 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 544,5 | 2652,08 | 6,98 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B21_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 845 | 4115,71 | 10,83 | 10 | 3799,40 | 0,50 | 917,36 | Ok | 759,19 | 852,000 | Ok | 0,015 | 0,025 | Ok | 0,000776 | 0,318750 | Ok, Under Reinforced | 235,611 | 990,113 | 1,49 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 1085 | | 5284,67 | 13,91 | 13 | 4939,22 | 0,64 | 1192,43 | Ok | 759,19 | 852,000 | Ok | 0,019 | 0,025 | Ok | 0,001009 | 0,318750 | Ok, Under Reinforced | 306,295 | 1199,867 | 1,93 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 542,5 | 2642,34 | 6,95 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 1085 | | 5284,67 | 13,91 | 13 | 4939,22 | 0,64 | 1192,43 | Ok | 759,19 | 852,000 | Ok | 0,019 | 0,025 | Ok | 0,001009 | 0,318750 | Ok, Under Reinforced | 306,295 | 1199,867 | 1,93 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 542,5 | 2642,34 | 6,95 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B22_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 840 | 4091,36 | 10,77 | 10 | 3799,40 | 0,50 | 917,36 | Ok | 759,19 | 852,000 | Ok | 0,015 | 0,025 | Ok | 0,000776 | 0,318750 | Ok, Under Reinforced | 235,611 | 990,113 | 1,49 |
| | Balok Portal B23_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 1064 | | 5182,39 | 13,64 | 13 | 4939,22 | 0,64 | 1192,43 | Ok | 759,19 | 852,000 | Ok | 0,019 | 0,025 | Ok | 0,001009 | 0,318750 | Ok, Under Reinforced | 306,295 | 1199,867 | 1,93 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 532 | 2591,19 | 6,82 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 1064 | | 5182,39 | 13,64 | 13 | 4939,22 | 0,64 | 1192,43 | Ok | 759,19 | 852,000 | Ok | 0,019 | 0,025 | Ok | 0,001009 | 0,318750 | Ok, Under Reinforced | 306,295 | 1199,867 | 1,93 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 532 | 2591,19 | 6,82 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B23_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 856 | 4169,29 | 10,97 | 10 | 3799,40 | 0,50 | 917,36 | Ok | 759,19 | 852,000 | Ok | 0,015 | 0,025 | Ok | 0,000776 | 0,318750 | Ok, Under Reinforced | 235,611 | 990,113 | 1,49 |
| Lantai 5 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 1145 | | 5576,91 | 14,68 | 13 | 4939,22 | 0,64 | 1192,43 | Ok | 759,19 | 852,000 | Ok | 0,019 | 0,025 | Ok | 0,001009 | 0,318750 | Ok, Under Reinforced | 306,295 | 1199,867 | 1,93 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 572,5 | 2788,46 | 7,34 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 1145 | | 5576,91 | 14,68 | 13 | 4939,22 | 0,64 | 1192,43 | Ok | 759,19 | 852,000 | Ok | 0,019 | 0,025 | Ok | 0,001009 | 0,318750 | Ok, Under Reinforced | 306,295 | 1199,867 | 1,93 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 572,5 | 2788,46 | 7,34 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 839 | 4086,49 | 10,76 | 10 | 3799,40 | 0,50 | 917,36 | Ok | 759,19 | 852,000 | Ok | 0,015 | 0,025 | Ok | 0,000776 | 0,318750 | Ok, Under Reinforced | 235,611 | 990,113 | 1,49 |
| | Balok Portal B21_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 1106 | | 5386,96 | 14,18 | 13 | 4939,22 | 0,64 | 1192,43 | Ok | 759,19 | 852,000 | Ok | 0,019 | 0,025 | Ok | 0,001009 | 0,318750 | Ok, Under Reinforced | 306,295 | 1199,867 | 1,93 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 553 | 2693,48 | 7,09 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 1106 | | 5386,96 | 14,18 | 13 | 4939,22 | 0,64 | 1192,43 | Ok | 759,19 | 852,000 | Ok | 0,019 | 0,025 | Ok | 0,001009 | 0,318750 | Ok, Under Reinforced | 306,295 | 1199,867 | 1,93 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 553 | 2693,48 | 7,09 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B21_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 863 | 4203,39 | 11,06 | 10 | 3799,40 | 0,50 | 917,36 | Ok | 759,19 | 852,000 | Ok | 0,015 | 0,025 | Ok | 0,000776 | 0,318750 | Ok, Under Reinforced | 235,611 | 990,113 | 1,49 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 1104 | | 5377,22 | 14,15 | 13 | 4939,22 | 0,64 | 1192,43 | Ok | 759,19 | 852,000 | Ok | 0,019 | 0,025 | Ok | 0,001009 | 0,318750 | Ok, Under Reinforced | 306,295 | 1199,867 | 1,93 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 552 | 2688,61 | 7,08 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 1104 | | 5377,22 | 14,15 | 13 | 4939,22 | 0,64 | 1192,43 | Ok | 759,19 | 852,000 | Ok | 0,019 | 0,025 | Ok | 0,001009 | 0,318750 | Ok, Under Reinforced | 306,295 | 1199,867 | 1,93 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 552 | 2688,61 | 7,08 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B22_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 859 | 4183,90 | 11,01 | 10 | 3799,40 | 0,50 | 917,36 | Ok | 759,19 | 852,000 | Ok | 0,015 | 0,025 | Ok | 0,000776 | 0,318750 | Ok, Under Reinforced | 235,611 | 990,113 | 1,49 |
| | Balok Portal B23_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 1082 | | 5270,06 | 13,87 | 13 | 4939,22 | 0,64 | 1192,43 | Ok | 759,19 | 852,000 | Ok | 0,019 | 0,025 | Ok | 0,001009 | 0,318750 | Ok, Under Reinforced | 306,295 | 1199,867 | 1,93 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 541 | 2635,03 | 6,94 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 1082 | | 5270,06 | 13,87 | 13 | 4939,22 | 0,64 | 1192,43 | Ok | 759,19 | 852,000 | Ok | 0,019 | 0,025 | Ok | 0,001009 | 0,318750 | Ok, Under Reinforced | 306,295 | 1199,867 | 1,93 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 541 | 2635,03 | 6,94 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B23_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 875 | 4261,83 | 11,22 | 10 | 3799,40 | 0,50 | 917,36 | Ok | 759,19 | 852,000 | Ok | 0,015 | 0,025 | Ok | 0,000776 | 0,318750 | Ok, Under Reinforced | 235,611 | 990,113 | 1,49 |

| Lantai | Nama Balok | b | h | p | d | D | f'c | fy | j | β1 | Mu - | Mu + | AS Perlu | Tulangan | | Ast | Cek Momen Nominal | | | Cek As minimum | | | Cek rasio Tulangan | | | Cek Penampang | | | Desain Kapasitas | | ρ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | Perhitungan | Terpasang | | a | ØMn | Status | Asmin | As'min | Status | ρ | ρmax | Status | a/d | atcl/d | Status | apr | Mpr | |
| | | mm | mm | mm | mm | mm | Mpa | Mpa | | | (kN.m) | (kN.m) | mm2 | bh | bh | mm2 | mm2 | (kN.m) | | mm2 | mm2 | | | | | | | | | Kn.m | (%) |
| Lantai 4 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 1068 | | 5201,87 | 13,69 | 13 | 4939,22 | 0,64 | 1192,43 | Ok | 759,19 | 852,000 | Ok | 0,019 | 0,025 | Ok | 0,001009 | 0,318750 | Ok, Under Reinforced | 306,295 | 1199,867 | 1,93 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 534 | 2600,94 | 6,85 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 1068 | | 5201,87 | 13,69 | 13 | 4939,22 | 0,64 | 1192,43 | Ok | 759,19 | 852,000 | Ok | 0,019 | 0,025 | Ok | 0,001009 | 0,318750 | Ok, Under Reinforced | 306,295 | 1199,867 | 1,93 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 534 | 2600,94 | 6,85 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 791 | 3852,70 | 10,14 | 10 | 3799,40 | 0,50 | 917,36 | Ok | 759,19 | 852,000 | Ok | 0,015 | 0,025 | Ok | 0,000776 | 0,318750 | Ok, Under Reinforced | 235,611 | 990,113 | 1,49 |
| | Balok Portal B21_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 1033 | | 5031,40 | 13,24 | 13 | 4939,22 | 0,64 | 1192,43 | Ok | 759,19 | 852,000 | Ok | 0,019 | 0,025 | Ok | 0,001009 | 0,318750 | Ok, Under Reinforced | 306,295 | 1199,867 | 1,93 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 516,5 | 2515,70 | 6,62 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 1033 | | 5031,40 | 13,24 | 13 | 4939,22 | 0,64 | 1192,43 | Ok | 759,19 | 852,000 | Ok | 0,019 | 0,025 | Ok | 0,001009 | 0,318750 | Ok, Under Reinforced | 306,295 | 1199,867 | 1,93 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 516,5 | 2515,70 | 6,62 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B21_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 812 | 3954,98 | 10,41 | 10 | 3799,40 | 0,50 | 917,36 | Ok | 759,19 | 852,000 | Ok | 0,015 | 0,025 | Ok | 0,000776 | 0,318750 | Ok, Under Reinforced | 235,611 | 990,113 | 1,49 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 1032 | | 5026,53 | 13,23 | 13 | 4939,22 | 0,64 | 1192,43 | Ok | 759,19 | 852,000 | Ok | 0,019 | 0,025 | Ok | 0,001009 | 0,318750 | Ok, Under Reinforced | 306,295 | 1199,867 | 1,93 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 516 | 2513,26 | 6,61 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 1032 | | 5026,53 | 13,23 | 13 | 4939,22 | 0,64 | 1192,43 | Ok | 759,19 | 852,000 | Ok | 0,019 | 0,025 | Ok | 0,001009 | 0,318750 | Ok, Under Reinforced | 306,295 | 1199,867 | 1,93 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 516 | 2513,26 | 6,61 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B22_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 810 | 3945,24 | 10,38 | 10 | 3799,40 | 0,50 | 917,36 | Ok | 759,19 | 852,000 | Ok | 0,015 | 0,025 | Ok | 0,000776 | 0,318750 | Ok, Under Reinforced | 235,611 | 990,113 | 1,49 |
| | Balok Portal B23_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 1012 | | 4929,11 | 12,97 | 13 | 4939,22 | 0,64 | 1192,43 | Ok | 759,19 | 852,000 | Ok | 0,019 | 0,025 | Ok | 0,001009 | 0,318750 | Ok, Under Reinforced | 306,295 | 1199,867 | 1,93 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 506 | 2464,56 | 6,49 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 1012 | | 4929,11 | 12,97 | 13 | 4939,22 | 0,64 | 1192,43 | Ok | 759,19 | 852,000 | Ok | 0,019 | 0,025 | Ok | 0,001009 | 0,318750 | Ok, Under Reinforced | 306,295 | 1199,867 | 1,93 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 506 | 2464,56 | 6,49 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B23_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 824 | 4013,43 | 10,56 | 10 | 3799,40 | 0,50 | 917,36 | Ok | 759,19 | 852,000 | Ok | 0,015 | 0,025 | Ok | 0,000776 | 0,318750 | Ok, Under Reinforced | 235,611 | 990,113 | 1,49 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lantai 3 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 1001 | | 4875,54 | 12,83 | 12 | 4559,28 | 0,60 | 1100,74 | Ok | 759,19 | 852,000 | Ok | 0,018 | 0,025 | Ok | 0,000932 | 0,318750 | Ok, Under Reinforced | 282,734 | 1134,425 | 1,78 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 500,5 | 2437,77 | 6,42 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 1001 | | 4875,54 | 12,83 | 13 | 4939,22 | 0,64 | 1192,43 | Ok | 759,19 | 852,000 | Ok | 0,019 | 0,025 | Ok | 0,001009 | 0,318750 | Ok, Under Reinforced | 306,295 | 1199,867 | 1,93 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 500,5 | 2437,77 | 6,42 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 726 | 3536,10 | 9,31 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B21_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 966 | | 4705,06 | 12,38 | 12 | 4559,28 | 0,60 | 1100,74 | Ok | 759,19 | 852,000 | Ok | 0,018 | 0,025 | Ok | 0,000932 | 0,318750 | Ok, Under Reinforced | 282,734 | 1134,425 | 1,78 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 483 | 2352,53 | 6,19 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 966 | | 4705,06 | 12,38 | 12 | 4559,28 | 0,60 | 1100,74 | Ok | 759,19 | 852,000 | Ok | 0,018 | 0,025 | Ok | 0,000932 | 0,318750 | Ok, Under Reinforced | 282,734 | 1134,425 | 1,78 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 483 | 2352,53 | 6,19 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B21_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 746 | 3633,52 | 9,56 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 967 | | 4709,93 | 12,40 | 12 | 4559,28 | 0,60 | 1100,74 | Ok | 759,19 | 852,000 | Ok | 0,018 | 0,025 | Ok | 0,000932 | 0,318750 | Ok, Under Reinforced | 282,734 | 1134,425 | 1,78 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 483,5 | 2354,97 | 6,20 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 967 | | 4709,93 | 12,40 | 12 | 4559,28 | 0,60 | 1100,74 | Ok | 759,19 | 852,000 | Ok | 0,018 | 0,025 | Ok | 0,000932 | 0,318750 | Ok, Under Reinforced | 282,734 | 1134,425 | 1,78 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 483,5 | 2354,97 | 6,20 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B22_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 745 | 3628,65 | 9,55 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | Balok Portal B23_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 946 | | 4607,65 | 12,13 | 12 | 4559,28 | 0,60 | 1100,74 | Ok | 759,19 | 852,000 | Ok | 0,018 | 0,025 | Ok | 0,000932 | 0,318750 | Ok, Under Reinforced | 282,734 | 1134,425 | 1,78 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 473 | 2303,83 | 6,06 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 946 | | 4607,65 | 12,13 | 12 | 4559,28 | 0,60 | 1100,74 | Ok | 759,19 | 852,000 | Ok | 0,018 | 0,025 | Ok | 0,000932 | 0,318750 | Ok, Under Reinforced | 282,734 | 1134,425 | 1,78 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 473 | 2303,83 | 6,06 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B23_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 758 | 3691,97 | 9,72 | 9 | 3419,46 | 0,45 | 825,65 | Ok | 759,19 | 852,000 | Ok | 0,013 | 0,025 | Ok | 0,000699 | 0,318750 | Ok, Under Reinforced | 212,050 | 911,243 | 1,34 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0,00 |
| Lantai 2 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 824 | | 4013,43 | 10,56 | 10 | 3799,40 | 0,50 | 917,36 | Ok | 759,19 | 852,000 | Ok | 0,015 | 0,025 | Ok | 0,000776 | 0,318750 | Ok, Under Reinforced | 235,611 | 990,113 | 1,49 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 412 | 2006,71 | 5,28 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 824 | | 4013,43 | 10,56 | 10 | 3799,40 | 0,50 | 917,36 | Ok | 759,19 | 852,000 | Ok | 0,015 | 0,025 | Ok | 0,000776 | 0,318750 | Ok, Under Reinforced | 235,611 | 990,113 | 1,49 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 412 | 2006,71 | 5,28 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 602 | 2932,14 | 7,72 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B21_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 819 | | 3989,08 | 10,50 | 10 | 3799,40 | 0,50 | 917,36 | Ok | 759,19 | 852,000 | Ok | 0,015 | 0,025 | Ok | 0,000776 | 0,318750 | Ok, Under Reinforced | 235,611 | 990,113 | 1,49 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 409,5 | 1994,54 | 5,25 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 819 | | 3989,08 | 10,50 | 10 | 3799,40 | 0,50 | 917,36 | Ok | 759,19 | 852,000 | Ok | 0,015 | 0,025 | Ok | 0,000776 | 0,318750 | Ok, Under Reinforced | 235,611 | 990,113 | 1,49 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 409,5 | 1994,54 | 5,25 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B21_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 606 | 2951,62 | 7,77 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 802 | | 3906,27 | 10,28 | 10 | 3799,40 | 0,50 | 917,36 | Ok | 759,19 | 852,000 | Ok | 0,015 | 0,025 | Ok | 0,000776 | 0,318750 | Ok, Under Reinforced | 235,611 | 990,113 | 1,49 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 401 | 1953,14 | 5,14 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 802 | | 3906,27 | 10,28 | 10 | 3799,40 | 0,50 | 917,36 | Ok | 759,19 | 852,000 | Ok | 0,015 | 0,025 | Ok | 0,000776 | 0,318750 | Ok, Under Reinforced | 235,611 | 990,113 | 1,49 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 401 | 1953,14 | 5,14 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B22_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 617 | 3005,20 | 7,91 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B23_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 800 | | 3896,53 | 10,26 | 10 | 3799,40 | 0,50 | 917,36 | Ok | 759,19 | 852,000 | Ok | 0,015 | 0,025 | Ok | 0,000776 | 0,318750 | Ok, Under Reinforced | 235,611 | 990,113 | 1,49 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 400 | 1948,27 | 5,13 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 800 | | 3896,53 | 10,26 | 10 | 3799,40 | 0,50 | 917,36 | Ok | 759,19 | 852,000 | Ok | 0,015 | 0,025 | Ok | 0,000776 | 0,318750 | Ok, Under Reinforced | 235,611 | 990,113 | 1,49 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 400 | 1948,27 | 5,13 | 6 | 2279,64 | 0,30 | 550,50 | Ok | 759,19 | 852,000 | Ok | 0,009 | 0,025 | Ok | 0,000466 | 0,318750 | Ok, Under Reinforced | 141,367 | 647,779 | 0,89 |
| | Balok Portal B23_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 618 | 3010,07 | 7,92 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lantai 1 | Balok Portal B20_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 573 | | 2790,89 | 7,35 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B20_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 286,5 | 1395,45 | 3,67 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B20_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 573 | | 2790,89 | 7,35 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B20_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 286,5 | 1395,45 | 3,67 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B20_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 346 | 1685,25 | 4,44 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B21_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 563 | | 2742,19 | 7,22 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B21_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 281,5 | 1371,09 | 3,61 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 563 | | 2742,19 | 7,22 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B21_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 281,5 | 1371,09 | 3,61 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B21_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 353 | 1719,35 | 4,53 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B22_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 572 | | 2786,02 | 7,33 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B22_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 286 | 1393,01 | 3,67 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B22_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 572 | | 2786,02 | 7,33 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B22_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 286 | 1393,01 | 3,67 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B22_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 348 | 1694,99 | 4,46 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |
| | Balok Portal B23_Tumpuan_Kiri_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 564 | | 2747,06 | 7,23 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B23_Tumpuan_Kiri_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 282 | 1373,53 | 3,62 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B23_Tumpuan_Kanan_Atas | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | 564 | | 2747,06 | 7,23 | 7 | 2659,58 | 0,35 | 642,23 | Ok | 759,19 | 852,000 | Ok | 0,010 | 0,025 | Ok | 0,000543 | 0,318750 | Ok, Under Reinforced | 164,928 | 740,076 | 1,04 |
| | Balok Portal B23_Tumpuan_Kanan_Bawah | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 282 | 1373,53 | 3,62 | 4 | 1519,76 | 0,20 | 367,03 | Ok | 759,19 | 852,000 | Ok | 0,006 | 0,025 | Ok | 0,000311 | 0,318750 | Ok, Under Reinforced | 94,245 | 449,756 | 0,59 |
| | Balok Portal B23_Lapangan | 400 | 700 | 61 | 639 | 22 | 24,9 | 420 | 0,85 | 0,85 | | 35 | 170,47 | 0,45 | 5 | 1899,70 | 0,25 | 458,77 | Ok | 759,19 | 852,000 | Ok | 0,007 | 0,025 | Ok | 0,000388 | 0,318750 | Ok, Under Reinforced | 117,806 | 551,005 | 0,74 |

E.11. Penulangan Transversal balok Gedung 12 tingkat portal As-4 (Tanah Keras)

| Lantai | Lokasi | Nama Balok | b | h | d | fc | fy | Mpr1 | Mpr3 | Wu= 1.2D+1LL | Vg | V-sway | Reaksi Geser Kiri Balok | | Reaksi Geser Kanan Balok | | Vc | Vs | Vs max | Syarat | Desain Tulangan | | Av | s | Digunakan Sengkang | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | Vu | 1/2vu | Vu | 1/2vu | | | | | Kaki | D | | | | |
| | | | mm | mm | mm | Mpa | Mpa | (kN.m) | (kN.m) | kN | kN | kN | kN | kN | kN | kN | kN | kN | kN | Vs<Vs max | bh | mm | mm | mm | Tumpuan | Lapangan |
| Atap | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 449,76 | 344,03 | 86,00 | 333,25 | 102,42 | 230,83 | 115,41 | 435,67 | 217,84 | 212,57 | 368,33 | 850,29 | Ok | 4 | 10 | 314,00 | 218 | 4 D-10 - 150 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 449,76 | 344,03 | 86,00 | 333,25 | 102,42 | 230,83 | 115,41 | 435,67 | 217,84 | 212,57 | 230,73 | 850,29 | Ok | 4 | 10 | 314,00 | 348 | | 4 D-10 - 300 |
| | Sendi Plastis | Balok Portal B200 | 200 | 400 | 639 | 24,9 | 420 | 55,45 | 55,45 | 78,00 | 302,25 | 14,31 | 287,94 | 143,97 | 316,56 | 158,28 | 106,29 | 315,79 | 425,15 | Ok | 2 | 10 | 157,00 | 64 | 2 D-10 - 100 | |
| | Luar Sendi Plastis | | 200 | 400 | 639 | 24,9 | 420 | 55,45 | 55,45 | 78,00 | 302,25 | 14,31 | 287,94 | 143,97 | 316,56 | 158,28 | 106,29 | 232,59 | 425,15 | Ok | 2 | 10 | 157,00 | 86 | | 2 D-10 - 200 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lantai 12 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 551,01 | 344,03 | 249,00 | 964,88 | 115,49 | 849,39 | 424,69 | 1080,36 | 540,18 | 212,57 | 1227,91 | 850,29 | Not Ok | 4 | 10 | 314,00 | 65 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 551,01 | 344,03 | 249,00 | 964,88 | 115,49 | 849,39 | 424,69 | 1080,36 | 540,18 | 212,57 | 829,51 | 850,29 | Ok | 4 | 10 | 314,00 | 97 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 551,01 | 344,03 | 149,00 | 577,38 | 115,49 | 461,89 | 230,94 | 692,86 | 346,43 | 212,57 | 711,24 | 850,29 | Ok | 4 | 10 | 314,00 | 113 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 551,01 | 344,03 | 149,00 | 577,38 | 115,49 | 461,89 | 230,94 | 692,86 | 346,43 | 212,57 | 472,84 | 850,29 | Ok | 4 | 10 | 314,00 | 170 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 551,01 | 344,03 | 149,68 | 580,01 | 115,49 | 464,52 | 232,26 | 695,50 | 347,75 | 212,57 | 714,76 | 850,29 | Ok | 4 | 10 | 314,00 | 112 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 551,01 | 344,03 | 149,68 | 580,01 | 115,49 | 464,52 | 232,26 | 695,50 | 347,75 | 212,57 | 475,27 | 850,29 | Ok | 4 | 10 | 314,00 | 169 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 551,01 | 344,03 | 132,66 | 514,06 | 115,49 | 398,57 | 199,28 | 629,55 | 314,77 | 212,57 | 626,82 | 850,29 | Ok | 4 | 10 | 314,00 | 128 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 551,01 | 344,03 | 132,66 | 514,06 | 115,49 | 398,57 | 199,28 | 629,55 | 314,77 | 212,57 | 414,57 | 850,29 | Ok | 4 | 10 | 314,00 | 194 | | 4 D-10 - 150 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lantai 11 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 178,44 | 691,46 | 127,98 | 563,48 | 281,74 | 819,43 | 409,72 | 212,57 | 880,00 | 850,29 | Not Ok | 4 | 10 | 314,00 | 91 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 178,44 | 691,46 | 127,98 | 563,48 | 281,74 | 819,43 | 409,72 | 212,57 | 594,50 | 850,29 | Ok | 4 | 10 | 314,00 | 135 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 149,62 | 579,78 | 127,98 | 451,80 | 225,90 | 707,75 | 353,88 | 212,57 | 731,10 | 850,29 | Ok | 4 | 10 | 314,00 | 110 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 149,62 | 579,78 | 127,98 | 451,80 | 225,90 | 707,75 | 353,88 | 212,57 | 491,70 | 850,29 | Ok | 4 | 10 | 314,00 | 163 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 148,00 | 573,50 | 127,98 | 445,52 | 222,76 | 701,48 | 350,74 | 212,57 | 722,73 | 850,29 | Ok | 4 | 10 | 314,00 | 111 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 148,00 | 573,50 | 127,98 | 445,52 | 222,76 | 701,48 | 350,74 | 212,57 | 485,93 | 850,29 | Ok | 4 | 10 | 314,00 | 165 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 133,38 | 516,85 | 127,98 | 388,87 | 194,44 | 644,82 | 322,41 | 212,57 | 647,19 | 850,29 | Ok | 4 | 10 | 314,00 | 124 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 647,78 | 344,03 | 133,38 | 516,85 | 127,98 | 388,87 | 194,44 | 644,82 | 322,41 | 212,57 | 433,78 | 850,29 | Ok | 4 | 10 | 314,00 | 185 | | 4 D-10 - 150 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lantai 10 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 177,90 | 689,36 | 153,53 | 535,84 | 267,92 | 842,89 | 421,44 | 212,57 | 911,28 | 850,29 | Not Ok | 4 | 10 | 314,00 | 88 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 177,90 | 689,36 | 153,53 | 535,84 | 267,92 | 842,89 | 421,44 | 212,57 | 626,64 | 850,29 | Ok | 4 | 10 | 314,00 | 128 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 147,77 | 572,61 | 153,53 | 419,08 | 209,54 | 726,14 | 363,07 | 212,57 | 755,61 | 850,29 | Ok | 4 | 10 | 314,00 | 106 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 147,77 | 572,61 | 153,53 | 419,08 | 209,54 | 726,14 | 363,07 | 212,57 | 519,18 | 850,29 | Ok | 4 | 10 | 314,00 | 155 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 186,27 | 721,80 | 153,53 | 568,27 | 284,13 | 875,32 | 437,66 | 212,57 | 954,52 | 850,29 | Not Ok | 4 | 10 | 314,00 | 84 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 186,27 | 721,80 | 153,53 | 568,27 | 284,13 | 875,32 | 437,66 | 212,57 | 656,49 | 850,29 | Ok | 4 | 10 | 314,00 | 122 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 132,77 | 514,48 | 153,53 | 360,96 | 180,48 | 668,01 | 334,01 | 212,57 | 678,11 | 850,29 | Ok | 4 | 10 | 314,00 | 118 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 132,77 | 514,48 | 153,53 | 360,96 | 180,48 | 668,01 | 334,01 | 212,57 | 465,68 | 850,29 | Ok | 4 | 10 | 314,00 | 172 | | 4 D-10 - 150 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lantai 9 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 177,00 | 685,88 | 153,53 | 532,35 | 266,17 | 839,40 | 419,70 | 212,57 | 906,63 | 850,29 | Not Ok | 4 | 10 | 314,00 | 89 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 177,00 | 685,88 | 153,53 | 532,35 | 266,17 | 839,40 | 419,70 | 212,57 | 623,43 | 850,29 | Ok | 4 | 10 | 314,00 | 129 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 147,00 | 569,63 | 153,53 | 416,10 | 208,05 | 723,15 | 361,58 | 212,57 | 751,63 | 850,29 | Ok | 4 | 10 | 314,00 | 107 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 147,00 | 569,63 | 153,53 | 416,10 | 208,05 | 723,15 | 361,58 | 212,57 | 516,43 | 850,29 | Ok | 4 | 10 | 314,00 | 155 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 147,54 | 571,72 | 153,53 | 418,19 | 209,10 | 725,24 | 362,62 | 212,57 | 754,42 | 850,29 | Ok | 4 | 10 | 314,00 | 106 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 147,54 | 571,72 | 153,53 | 418,19 | 209,10 | 725,24 | 362,62 | 212,57 | 518,35 | 850,29 | Ok | 4 | 10 | 314,00 | 155 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 132,00 | 511,50 | 153,53 | 357,97 | 178,99 | 665,03 | 332,51 | 212,57 | 674,13 | 850,29 | Ok | 4 | 10 | 314,00 | 119 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 132,00 | 511,50 | 153,53 | 357,97 | 178,99 | 665,03 | 332,51 | 212,57 | 462,93 | 850,29 | Ok | 4 | 10 | 314,00 | 173 | | 4 D-10 - 150 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lantai 8 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 174,00 | 674,25 | 153,53 | 520,72 | 260,36 | 827,78 | 413,89 | 212,57 | 891,13 | 850,29 | Not Ok | 4 | 10 | 314,00 | 90 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 174,00 | 674,25 | 153,53 | 520,72 | 260,36 | 827,78 | 413,89 | 212,57 | 612,73 | 850,29 | Ok | 4 | 10 | 314,00 | 131 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 144,24 | 558,93 | 153,53 | 405,40 | 202,70 | 712,46 | 356,23 | 212,57 | 737,37 | 850,29 | Ok | 4 | 10 | 314,00 | 109 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 144,24 | 558,93 | 153,53 | 405,40 | 202,70 | 712,46 | 356,23 | 212,57 | 506,58 | 850,29 | Ok | 4 | 10 | 314,00 | 158 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 145,00 | 561,88 | 153,53 | 408,35 | 204,17 | 715,40 | 357,70 | 212,57 | 741,30 | 850,29 | Ok | 4 | 10 | 314,00 | 108 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 145,00 | 561,88 | 153,53 | 408,35 | 204,17 | 715,40 | 357,70 | 212,57 | 509,30 | 850,29 | Ok | 4 | 10 | 314,00 | 158 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 129,00 | 499,88 | 153,53 | 346,35 | 173,17 | 653,40 | 326,70 | 212,57 | 658,63 | 850,29 | Ok | 4 | 10 | 314,00 | 122 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 129,00 | 499,88 | 153,53 | 346,35 | 173,17 | 653,40 | 326,70 | 212,57 | 452,23 | 850,29 | Ok | 4 | 10 | 314,00 | 177 | | 4 D-10 - 150 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lantai 7 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 174,00 | 674,25 | 153,53 | 520,72 | 260,36 | 827,78 | 413,89 | 212,57 | 891,13 | 850,29 | Not Ok | 4 | 10 | 314,00 | 90 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 174,00 | 674,25 | 153,53 | 520,72 | 260,36 | 827,78 | 413,89 | 212,57 | 612,73 | 850,29 | Ok | 4 | 10 | 314,00 | 131 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 144,77 | 560,98 | 153,53 | 407,46 | 203,73 | 714,51 | 357,26 | 212,57 | 740,11 | 850,29 | Ok | 4 | 10 | 314,00 | 108 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 144,77 | 560,98 | 153,53 | 407,46 | 203,73 | 714,51 | 357,26 | 212,57 | 508,48 | 850,29 | Ok | 4 | 10 | 314,00 | 158 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 145,39 | 563,39 | 153,53 | 409,86 | 204,93 | 716,91 | 358,46 | 212,57 | 743,31 | 850,29 | Ok | 4 | 10 | 314,00 | 108 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 145,39 | 563,39 | 153,53 | 409,86 | 204,93 | 716,91 | 358,46 | 212,57 | 510,69 | 850,29 | Ok | 4 | 10 | 314,00 | 157 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 128,56 | 498,17 | 153,53 | 344,64 | 172,32 | 651,70 | 325,85 | 212,57 | 656,36 | 850,29 | Ok | 4 | 10 | 314,00 | 122 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 128,56 | 498,17 | 153,53 | 344,64 | 172,32 | 651,70 | 325,85 | 212,57 | 450,66 | 850,29 | Ok | 4 | 10 | 314,00 | 178 | | 4 D-10 - 150 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Lantai | Lokasi | Nama Balok | b | h | d | fc | fy | Mpr1 | Mpr3 | Wu= 1.2D+1LL | Vg | V-sway | Reaksi Geser Kiri Balok | | Reaksi Geser Kanan Balok | | Vc | Vs | Vs max | Syarat | Desain Tulangan | | Av | s | Digunakan Sengkang | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | Vu | 1/2vu | Vu | 1/2vu | | | | | Kaki | D | | | | |
| | | | mm | mm | mm | Mpa | Mpa | (kN.m) | (kN.m) | kN | kN | kN | kN | kN | kN | kN | kN | kN | kN | Vs<Vs max | bh | mm | mm | mm | Tumpuan | Lapangan |
| Lantai 6 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 172,00 | 666,50 | 153,53 | 512,97 | 256,49 | 820,03 | 410,01 | 212,57 | 880,80 | 850,29 | Not Ok | 4 | 10 | 314,00 | 91 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 172,00 | 666,50 | 153,53 | 512,97 | 256,49 | 820,03 | 410,01 | 212,57 | 605,60 | 850,29 | Ok | 4 | 10 | 314,00 | 133 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 141,97 | 550,13 | 153,53 | 396,61 | 198,30 | 703,66 | 351,83 | 212,57 | 725,64 | 850,29 | Ok | 4 | 10 | 314,00 | 111 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 141,97 | 550,13 | 153,53 | 396,61 | 198,30 | 703,66 | 351,83 | 212,57 | 498,49 | 850,29 | Ok | 4 | 10 | 314,00 | 161 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 129,15 | 500,46 | 153,53 | 346,93 | 173,46 | 653,98 | 326,99 | 212,57 | 659,40 | 850,29 | Ok | 4 | 10 | 314,00 | 122 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 129,15 | 500,46 | 153,53 | 346,93 | 173,46 | 653,98 | 326,99 | 212,57 | 452,76 | 850,29 | Ok | 4 | 10 | 314,00 | 177 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 125,56 | 486,55 | 153,53 | 333,02 | 166,51 | 640,07 | 320,04 | 212,57 | 640,86 | 850,29 | Ok | 4 | 10 | 314,00 | 125 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 125,56 | 486,55 | 153,53 | 333,02 | 166,51 | 640,07 | 320,04 | 212,57 | 439,96 | 850,29 | Ok | 4 | 10 | 314,00 | 182 | | 4 D-10 - 150 |
| Lantai 5 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 171,00 | 662,63 | 153,53 | 509,10 | 254,55 | 816,15 | 408,08 | 212,57 | 875,63 | 850,29 | Not Ok | 4 | 10 | 314,00 | 92 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 171,00 | 662,63 | 153,53 | 509,10 | 254,55 | 816,15 | 408,08 | 212,57 | 602,03 | 850,29 | Ok | 4 | 10 | 314,00 | 133 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 142,89 | 553,70 | 153,53 | 400,17 | 200,09 | 707,23 | 353,61 | 212,57 | 730,39 | 850,29 | Ok | 4 | 10 | 314,00 | 110 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 142,89 | 553,70 | 153,53 | 400,17 | 200,09 | 707,23 | 353,61 | 212,57 | 501,77 | 850,29 | Ok | 4 | 10 | 314,00 | 160 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 147,56 | 571,80 | 153,53 | 418,27 | 209,13 | 725,32 | 362,66 | 212,57 | 754,52 | 850,29 | Ok | 4 | 10 | 314,00 | 106 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 147,56 | 571,80 | 153,53 | 418,27 | 209,13 | 725,32 | 362,66 | 212,57 | 518,43 | 850,29 | Ok | 4 | 10 | 314,00 | 155 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 138,48 | 536,61 | 153,53 | 383,08 | 191,54 | 690,14 | 345,07 | 212,57 | 707,61 | 850,29 | Ok | 4 | 10 | 314,00 | 113 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 138,48 | 536,61 | 153,53 | 383,08 | 191,54 | 690,14 | 345,07 | 212,57 | 486,04 | 850,29 | Ok | 4 | 10 | 314,00 | 165 | | 4 D-10 - 150 |
| Lantai 4 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 169,00 | 654,88 | 153,53 | 501,35 | 250,67 | 808,40 | 404,20 | 212,57 | 865,30 | 850,29 | Not Ok | 4 | 10 | 314,00 | 93 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 169,00 | 654,88 | 153,53 | 501,35 | 250,67 | 808,40 | 404,20 | 212,57 | 594,90 | 850,29 | Ok | 4 | 10 | 314,00 | 135 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 144,24 | 558,93 | 153,53 | 405,40 | 202,70 | 712,46 | 356,23 | 212,57 | 737,37 | 850,29 | Ok | 4 | 10 | 314,00 | 109 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 144,24 | 558,93 | 153,53 | 405,40 | 202,70 | 712,46 | 356,23 | 212,57 | 506,58 | 850,29 | Ok | 4 | 10 | 314,00 | 158 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 145,71 | 564,63 | 153,53 | 411,10 | 205,55 | 718,15 | 359,08 | 212,57 | 744,96 | 850,29 | Ok | 4 | 10 | 314,00 | 108 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 145,71 | 564,63 | 153,53 | 411,10 | 205,55 | 718,15 | 359,08 | 212,57 | 511,83 | 850,29 | Ok | 4 | 10 | 314,00 | 157 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 128,97 | 499,76 | 153,53 | 346,23 | 173,12 | 653,29 | 326,64 | 212,57 | 658,47 | 850,29 | Ok | 4 | 10 | 314,00 | 122 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 128,97 | 499,76 | 153,53 | 346,23 | 173,12 | 653,29 | 326,64 | 212,57 | 452,12 | 850,29 | Ok | 4 | 10 | 314,00 | 178 | | 4 D-10 - 150 |
| Lantai 3 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 168,00 | 651,00 | 153,53 | 497,47 | 248,74 | 804,53 | 402,26 | 212,57 | 860,13 | 850,29 | Not Ok | 4 | 10 | 314,00 | 93 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 168,00 | 651,00 | 153,53 | 497,47 | 248,74 | 804,53 | 402,26 | 212,57 | 591,33 | 850,29 | Ok | 4 | 10 | 314,00 | 136 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 144,77 | 560,98 | 153,53 | 407,46 | 203,73 | 714,51 | 357,26 | 212,57 | 740,11 | 850,29 | Ok | 4 | 10 | 314,00 | 108 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 144,77 | 560,98 | 153,53 | 407,46 | 203,73 | 714,51 | 357,26 | 212,57 | 508,48 | 850,29 | Ok | 4 | 10 | 314,00 | 158 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 145,39 | 563,39 | 153,53 | 409,86 | 204,93 | 716,91 | 358,46 | 212,57 | 743,31 | 850,29 | Ok | 4 | 10 | 314,00 | 108 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 145,39 | 563,39 | 153,53 | 409,86 | 204,93 | 716,91 | 358,46 | 212,57 | 510,69 | 850,29 | Ok | 4 | 10 | 314,00 | 157 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 128,56 | 498,17 | 153,53 | 344,64 | 172,32 | 651,70 | 325,85 | 212,57 | 656,36 | 850,29 | Ok | 4 | 10 | 314,00 | 122 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 128,56 | 498,17 | 153,53 | 344,64 | 172,32 | 651,70 | 325,85 | 212,57 | 450,66 | 850,29 | Ok | 4 | 10 | 314,00 | 178 | | 4 D-10 - 150 |
| Lantai 2 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 147,48 | 571,47 | 153,53 | 417,95 | 208,97 | 725,00 | 362,50 | 212,57 | 754,09 | 850,29 | Ok | 4 | 10 | 314,00 | 106 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 147,48 | 571,47 | 153,53 | 417,95 | 208,97 | 725,00 | 362,50 | 212,57 | 518,13 | 850,29 | Ok | 4 | 10 | 314,00 | 155 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 141,97 | 550,13 | 153,53 | 396,61 | 198,30 | 703,66 | 351,83 | 212,57 | 725,64 | 850,29 | Ok | 4 | 10 | 314,00 | 111 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 141,97 | 550,13 | 153,53 | 396,61 | 198,30 | 703,66 | 351,83 | 212,57 | 498,49 | 850,29 | Ok | 4 | 10 | 314,00 | 161 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 129,15 | 500,46 | 153,53 | 346,93 | 173,46 | 653,98 | 326,99 | 212,57 | 659,40 | 850,29 | Ok | 4 | 10 | 314,00 | 122 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 129,15 | 500,46 | 153,53 | 346,93 | 173,46 | 653,98 | 326,99 | 212,57 | 452,76 | 850,29 | Ok | 4 | 10 | 314,00 | 177 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 125,56 | 486,55 | 153,53 | 333,02 | 166,51 | 640,07 | 320,04 | 212,57 | 640,86 | 850,29 | Ok | 4 | 10 | 314,00 | 125 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 125,56 | 486,55 | 153,53 | 333,02 | 166,51 | 640,07 | 320,04 | 212,57 | 439,96 | 850,29 | Ok | 4 | 10 | 314,00 | 182 | | 4 D-10 - 150 |
| Lantai 1 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 148,21 | 574,31 | 153,53 | 420,79 | 210,39 | 727,84 | 363,92 | 212,57 | 757,88 | 850,29 | Ok | 4 | 10 | 314,00 | 106 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 148,21 | 574,31 | 153,53 | 420,79 | 210,39 | 727,84 | 363,92 | 212,57 | 520,74 | 850,29 | Ok | 4 | 10 | 314,00 | 154 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 142,89 | 553,70 | 153,53 | 400,17 | 200,09 | 707,23 | 353,61 | 212,57 | 730,39 | 850,29 | Ok | 4 | 10 | 314,00 | 110 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 142,89 | 553,70 | 153,53 | 400,17 | 200,09 | 707,23 | 353,61 | 212,57 | 501,77 | 850,29 | Ok | 4 | 10 | 314,00 | 160 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 147,56 | 571,80 | 153,53 | 418,27 | 209,13 | 725,32 | 362,66 | 212,57 | 754,52 | 850,29 | Ok | 4 | 10 | 314,00 | 106 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 147,56 | 571,80 | 153,53 | 418,27 | 209,13 | 725,32 | 362,66 | 212,57 | 518,43 | 850,29 | Ok | 4 | 10 | 314,00 | 155 | | 4 D-10 - 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 138,48 | 536,61 | 153,53 | 383,08 | 191,54 | 690,14 | 345,07 | 212,57 | 707,61 | 850,29 | Ok | 4 | 10 | 314,00 | 113 | 4 D-10 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 138,48 | 536,61 | 153,53 | 383,08 | 191,54 | 690,14 | 345,07 | 212,57 | 486,04 | 850,29 | Ok | 4 | 10 | 314,00 | 165 | | 4 D-10 - 150 |

E.12. Penulangan Transversal balok Gedung 12 tingkat portal As-4 (Tanah Lunak)

| Lantai | Lokasi | Nama Balok | b | h | d | fc | fy | Mpr1 | Mpr3 | Wu= 1.2D+1LL | Vg | V-sway | Reaksi Geser Kiri Balok | | Reaksi Geser Kanan Balok | | Vc | Vs | Vs max | Syarat | Desain Tulangan | | Av | s | Digunakan Sengkang | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | Vu | 1/2vu | Vu | 1/2vu | | | | | Kaki | D | | | | |
| | | | mm | mm | mm | Mpa | Mpa | (kN.m) | (kN.m) | kN | kN | kN | kN | kN | kN | kN | kN | kN | kN | Vs<Vs max | bh | mm | mm | mm | Tumpuan | Lapangan |
| Atap | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 449,76 | 344,03 | 86,00 | 333,25 | 102,42 | 230,83 | 115,41 | 435,67 | 217,84 | 212,57 | 368,33 | 850,29 | Ok | 4 | 10 | 314,00 | 218 | 4 D-10 - 150 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 449,76 | 344,03 | 86,00 | 333,25 | 102,42 | 230,83 | 115,41 | 435,67 | 217,84 | 212,57 | 230,73 | 850,29 | Ok | 4 | 10 | 314,00 | 348 | | 4 D-10 - 300 |
| | Sendi Plastis | Balok Portal B200 | 200 | 400 | 639 | 24,9 | 420 | 76,46 | 55,45 | 78,00 | 302,25 | 17,02 | 285,23 | 142,61 | 319,27 | 159,64 | 106,29 | 319,41 | 425,15 | Ok | 2 | 10 | 157,00 | 63 | 2 D-10 - 100 | |
| | Luar Sendi Plastis | | 200 | 400 | 639 | 24,9 | 420 | 76,46 | 55,45 | 78,00 | 302,25 | 17,02 | 285,23 | 142,61 | 319,27 | 159,64 | 106,29 | 236,21 | 425,15 | Ok | 2 | 10 | 157,00 | 85 | | 2 D-10 - 200 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lantai 12 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 249,00 | 964,88 | 153,53 | 811,35 | 405,67 | 1118,40 | 559,20 | 212,57 | 1278,63 | 850,29 | Not Ok | 4 | 13 | 530,66 | 106 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 249,00 | 964,88 | 153,53 | 811,35 | 405,67 | 1118,40 | 559,20 | 212,57 | 880,23 | 850,29 | Not Ok | 4 | 13 | 530,66 | 154 | | 4 D-13 - 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 149,00 | 577,38 | 153,53 | 423,85 | 211,92 | 730,90 | 365,45 | 212,57 | 761,96 | 850,29 | Ok | 4 | 13 | 530,66 | 178 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 149,00 | 577,38 | 153,53 | 423,85 | 211,92 | 730,90 | 365,45 | 212,57 | 523,56 | 850,29 | Ok | 4 | 13 | 530,66 | 259 | | 4 D-13 - 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 149,68 | 580,01 | 153,53 | 426,48 | 213,24 | 733,54 | 366,77 | 212,57 | 765,48 | 850,29 | Ok | 4 | 13 | 530,66 | 177 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 149,68 | 580,01 | 153,53 | 426,48 | 213,24 | 733,54 | 366,77 | 212,57 | 525,99 | 850,29 | Ok | 4 | 13 | 530,66 | 258 | | 4 D-13 - 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 132,66 | 514,06 | 153,53 | 360,53 | 180,27 | 667,58 | 333,79 | 212,57 | 677,54 | 850,29 | Ok | 4 | 13 | 530,66 | 200 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 132,66 | 514,06 | 153,53 | 360,53 | 180,27 | 667,58 | 333,79 | 212,57 | 465,28 | 850,29 | Ok | 4 | 13 | 530,66 | 292 | | 4 D-13 - 150 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lantai 11 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 178,44 | 691,46 | 188,68 | 502,78 | 251,39 | 880,13 | 440,07 | 212,57 | 960,94 | 850,29 | Not Ok | 4 | 13 | 530,66 | 141 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 178,44 | 691,46 | 188,68 | 502,78 | 251,39 | 880,13 | 440,07 | 212,57 | 675,43 | 850,29 | Ok | 4 | 13 | 530,66 | 201 | | 4 D-13 - 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 149,62 | 579,78 | 188,68 | 391,10 | 195,55 | 768,45 | 384,23 | 212,57 | 812,03 | 850,29 | Ok | 4 | 13 | 530,66 | 167 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 149,62 | 579,78 | 188,68 | 391,10 | 195,55 | 768,45 | 384,23 | 212,57 | 572,64 | 850,29 | Ok | 4 | 13 | 530,66 | 237 | | 4 D-13 - 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 148,00 | 573,50 | 188,68 | 384,82 | 192,41 | 762,18 | 381,09 | 212,57 | 803,66 | 850,29 | Ok | 4 | 13 | 530,66 | 169 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 148,00 | 573,50 | 188,68 | 384,82 | 192,41 | 762,18 | 381,09 | 212,57 | 566,86 | 850,29 | Ok | 4 | 13 | 530,66 | 239 | | 4 D-13 - 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 133,38 | 516,85 | 188,68 | 328,17 | 164,09 | 705,52 | 352,76 | 0,00 | 940,70 | 850,29 | Not Ok | 4 | 13 | 530,66 | 144 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 911,24 | 551,01 | 133,38 | 516,85 | 188,68 | 328,17 | 164,09 | 705,52 | 352,76 | 0,00 | 727,29 | 850,29 | Ok | 4 | 13 | 530,66 | 186 | | 4 D-13 - 150 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lantai 10 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 1134,42 | 647,78 | 177,90 | 689,36 | 229,96 | 459,40 | 229,70 | 919,32 | 459,66 | 0,00 | 1225,77 | 850,29 | Not Ok | 4 | 13 | 530,66 | 111 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 1134,42 | 647,78 | 177,90 | 689,36 | 229,96 | 459,40 | 229,70 | 919,32 | 459,66 | 0,00 | 941,13 | 850,29 | Not Ok | 4 | 13 | 530,66 | 144 | | 4 D-13 - 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 1064,51 | 647,78 | 147,77 | 572,61 | 220,94 | 351,67 | 175,83 | 793,55 | 396,77 | 0,00 | 1058,07 | 850,29 | Not Ok | 4 | 13 | 530,66 | 128 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 1064,51 | 647,78 | 147,77 | 572,61 | 220,94 | 351,67 | 175,83 | 793,55 | 396,77 | 0,00 | 821,63 | 850,29 | Ok | 4 | 13 | 530,66 | 165 | | 4 D-13 - 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 1064,51 | 647,78 | 186,27 | 721,80 | 220,94 | 500,86 | 250,43 | 942,74 | 471,37 | 212,57 | 1044,41 | 850,29 | Not Ok | 4 | 13 | 530,66 | 130 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 1064,51 | 647,78 | 186,27 | 721,80 | 220,94 | 500,86 | 250,43 | 942,74 | 471,37 | 212,57 | 746,38 | 850,29 | Ok | 4 | 13 | 530,66 | 182 | | 4 D-13 - 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 1064,51 | 647,78 | 132,77 | 514,48 | 220,94 | 293,54 | 146,77 | 735,42 | 367,71 | 0,00 | 980,57 | 850,29 | Not Ok | 4 | 13 | 530,66 | 138 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 1064,51 | 647,78 | 132,77 | 514,48 | 220,94 | 293,54 | 146,77 | 735,42 | 367,71 | 0,00 | 768,13 | 850,29 | Ok | 4 | 13 | 530,66 | 177 | | 4 D-13 - 150 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lantai 9 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 1199,87 | 740,08 | 177,00 | 685,88 | 250,32 | 435,56 | 217,78 | 936,19 | 468,10 | 0,00 | 1248,25 | 850,29 | Not Ok | 4 | 13 | 530,66 | 109 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 1199,87 | 740,08 | 177,00 | 685,88 | 250,32 | 435,56 | 217,78 | 936,19 | 468,10 | 0,00 | 965,05 | 850,29 | Not Ok | 4 | 13 | 530,66 | 141 | | 4 D-13 - 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 1134,42 | 647,78 | 147,00 | 569,63 | 229,96 | 339,66 | 169,83 | 799,59 | 399,79 | 0,00 | 1066,12 | 850,29 | Not Ok | 4 | 13 | 530,66 | 127 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 1134,42 | 647,78 | 147,00 | 569,63 | 229,96 | 339,66 | 169,83 | 799,59 | 399,79 | 0,00 | 830,92 | 850,29 | Ok | 4 | 13 | 530,66 | 163 | | 4 D-13 - 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 1134,42 | 647,78 | 147,54 | 571,72 | 229,96 | 341,76 | 170,88 | 801,68 | 400,84 | 0,00 | 1068,91 | 850,29 | Not Ok | 4 | 13 | 530,66 | 127 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 1134,42 | 647,78 | 147,54 | 571,72 | 229,96 | 341,76 | 170,88 | 801,68 | 400,84 | 0,00 | 832,84 | 850,29 | Ok | 4 | 13 | 530,66 | 163 | | 4 D-13 - 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 1134,42 | 647,78 | 132,00 | 511,50 | 229,96 | 281,54 | 140,77 | 741,46 | 370,73 | 0,00 | 988,62 | 850,29 | Not Ok | 4 | 13 | 530,66 | 137 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 1134,42 | 647,78 | 132,00 | 511,50 | 229,96 | 281,54 | 140,77 | 741,46 | 370,73 | 0,00 | 777,42 | 850,29 | Ok | 4 | 13 | 530,66 | 174 | | 4 D-13 - 150 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lantai 8 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 1134,42 | 740,08 | 174,00 | 674,25 | 241,87 | 432,38 | 216,19 | 916,12 | 458,06 | 0,00 | 1221,49 | 850,29 | Not Ok | 4 | 13 | 530,66 | 111 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 1134,42 | 740,08 | 174,00 | 674,25 | 241,87 | 432,38 | 216,19 | 916,12 | 458,06 | 0,00 | 943,09 | 850,29 | Not Ok | 4 | 13 | 530,66 | 144 | | 4 D-13 - 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 1134,42 | 740,08 | 144,24 | 558,93 | 241,87 | 317,06 | 158,53 | 800,80 | 400,40 | 0,00 | 1067,73 | 850,29 | Not Ok | 4 | 13 | 530,66 | 127 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 1134,42 | 740,08 | 144,24 | 558,93 | 241,87 | 317,06 | 158,53 | 800,80 | 400,40 | 0,00 | 836,95 | 850,29 | Ok | 4 | 13 | 530,66 | 162 | | 4 D-13 - 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 1134,42 | 740,08 | 145,00 | 561,88 | 241,87 | 320,00 | 160,00 | 803,75 | 401,87 | 0,00 | 1071,66 | 850,29 | Not Ok | 4 | 13 | 530,66 | 127 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 1134,42 | 740,08 | 145,00 | 561,88 | 241,87 | 320,00 | 160,00 | 803,75 | 401,87 | 0,00 | 839,66 | 850,29 | Ok | 4 | 13 | 530,66 | 162 | | 4 D-13 - 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 1134,42 | 740,08 | 129,00 | 499,88 | 241,87 | 258,00 | 129,00 | 741,75 | 370,87 | 0,00 | 988,99 | 850,29 | Not Ok | 4 | 13 | 530,66 | 137 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 1134,42 | 740,08 | 129,00 | 499,88 | 241,87 | 258,00 | 129,00 | 741,75 | 370,87 | 0,00 | 782,59 | 850,29 | Ok | 4 | 13 | 530,66 | 173 | | 4 D-13 - 150 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lantai 7 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 1199,87 | 740,08 | 174,00 | 674,25 | 250,32 | 423,93 | 211,97 | 924,57 | 462,28 | 0,00 | 1232,75 | 850,29 | Not Ok | 4 | 13 | 530,66 | 110 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 1199,87 | 740,08 | 174,00 | 674,25 | 250,32 | 423,93 | 211,97 | 924,57 | 462,28 | 0,00 | 954,35 | 850,29 | Not Ok | 4 | 13 | 530,66 | 142 | | 4 D-13 - 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 1134,42 | 740,08 | 144,77 | 560,98 | 241,87 | 319,11 | 159,56 | 802,85 | 401,43 | 0,00 | 1070,47 | 850,29 | Not Ok | 4 | 13 | 530,66 | 127 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 1134,42 | 740,08 | 144,77 | 560,98 | 241,87 | 319,11 | 159,56 | 802,85 | 401,43 | 0,00 | 838,84 | 850,29 | Ok | 4 | 13 | 530,66 | 162 | | 4 D-13 - 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 1134,42 | 740,08 | 145,39 | 563,39 | 241,87 | 321,52 | 160,76 | 805,26 | 402,63 | 0,00 | 1073,68 | 850,29 | Not Ok | 4 | 13 | 530,66 | 126 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 1134,42 | 740,08 | 145,39 | 563,39 | 241,87 | 321,52 | 160,76 | 805,26 | 402,63 | 0,00 | 841,05 | 850,29 | Ok | 4 | 13 | 530,66 | 161 | 4 D-13 - 100 | |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 1134,42 | 740,08 | 128,56 | 498,17 | 241,87 | 256,30 | 128,15 | 740,04 | 370,02 | 0,00 | 986,72 | 850,29 | Not Ok | 4 | 13 | 530,66 | 137 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 1134,42 | 740,08 | 128,56 | 498,17 | 241,87 | 256,30 | 128,15 | 740,04 | 370,02 | 0,00 | 781,03 | 850,29 | Ok | 4 | 13 | 530,66 | 174 | 4 D-13 - 150 | |

| Lantai | Lokasi | Nama Balok | b | h | d | fc | fy | Mpr1 | Mpr3 | Wu= 1.2D+1LL | Vg | V-sway | Reaksi Geser Kiri Balok | | Reaksi Geser Kanan Balok | | Vc | Vs | Vs max | Syarat | Desain Tulangan | | Av | s | Digunakan Sengkang | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | Vu | 1/2vu | Vu | 1/2vu | | | | | Kaki | D | | | | |
| | | | mm | mm | mm | Mpa | Mpa | (kN.m) | (kN.m) | kN | kN | kN | kN | kN | kN | kN | kN | kN | kN | Vs<Vs max | bh | mm | mm | mm | Tumpuan | Lapangan |
| Lantai 6 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 1199,87 | 740,08 | 172,00 | 666,50 | 250,32 | 416,18 | 208,09 | 916,82 | 458,41 | 0,00 | 1222,42 | 850,29 | Not Ok | 4 | 13 | 530,66 | 111 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 1199,87 | 740,08 | 172,00 | 666,50 | 250,32 | 416,18 | 208,09 | 916,82 | 458,41 | 0,00 | 947,22 | 850,29 | Not Ok | 4 | 13 | 530,66 | 143 | | 4 D-13 - 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 1199,87 | 740,08 | 141,97 | 550,13 | 250,32 | 299,82 | 149,91 | 800,45 | 400,22 | 0,00 | 1067,27 | 850,29 | Not Ok | 4 | 13 | 530,66 | 127 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 1199,87 | 740,08 | 141,97 | 550,13 | 250,32 | 299,82 | 149,91 | 800,45 | 400,22 | 0,00 | 840,11 | 850,29 | Ok | 4 | 13 | 530,66 | 161 | | 4 D-13 - 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 1199,87 | 740,08 | 129,15 | 500,46 | 250,32 | 250,14 | 125,07 | 750,77 | 375,39 | 0,00 | 1001,03 | 850,29 | Not Ok | 4 | 13 | 530,66 | 135 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 1199,87 | 740,08 | 129,15 | 500,46 | 250,32 | 250,14 | 125,07 | 750,77 | 375,39 | 0,00 | 794,39 | 850,29 | Ok | 4 | 13 | 530,66 | 171 | | 4 D-13 - 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 1199,87 | 740,08 | 125,56 | 486,55 | 250,32 | 236,23 | 118,11 | 736,86 | 368,43 | 0,00 | 982,48 | 850,29 | Not Ok | 4 | 13 | 530,66 | 138 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 1199,87 | 740,08 | 125,56 | 486,55 | 250,32 | 236,23 | 118,11 | 736,86 | 368,43 | 0,00 | 781,58 | 850,29 | Ok | 4 | 13 | 530,66 | 174 | | 4 D-13 - 150 |
| Lantai 5 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 1199,87 | 740,08 | 171,00 | 662,63 | 250,32 | 412,31 | 206,15 | 912,94 | 456,47 | 0,00 | 1217,25 | 850,29 | Not Ok | 4 | 13 | 530,66 | 111 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 1199,87 | 740,08 | 171,00 | 662,63 | 250,32 | 412,31 | 206,15 | 912,94 | 456,47 | 0,00 | 943,65 | 850,29 | Not Ok | 4 | 13 | 530,66 | 144 | | 4 D-13 - 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 1199,87 | 740,08 | 142,89 | 553,70 | 250,32 | 303,38 | 151,69 | 804,01 | 402,01 | 0,00 | 1072,02 | 850,29 | Not Ok | 4 | 13 | 530,66 | 127 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 1199,87 | 740,08 | 142,89 | 553,70 | 250,32 | 303,38 | 151,69 | 804,01 | 402,01 | 0,00 | 843,39 | 850,29 | Ok | 4 | 13 | 530,66 | 161 | | 4 D-13 - 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 1199,87 | 740,08 | 147,56 | 571,80 | 250,32 | 321,48 | 160,74 | 822,11 | 411,06 | 0,00 | 1096,15 | 850,29 | Not Ok | 4 | 13 | 530,66 | 124 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 1199,87 | 740,08 | 147,56 | 571,80 | 250,32 | 321,48 | 160,74 | 822,11 | 411,06 | 0,00 | 860,05 | 850,29 | Not Ok | 4 | 13 | 530,66 | 158 | | 4 D-13 - 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 1199,87 | 740,08 | 138,48 | 536,61 | 250,32 | 286,29 | 143,15 | 786,93 | 393,46 | 0,00 | 1049,23 | 850,29 | Not Ok | 4 | 13 | 530,66 | 129 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 1199,87 | 740,08 | 138,48 | 536,61 | 250,32 | 286,29 | 143,15 | 786,93 | 393,46 | 0,00 | 827,67 | 850,29 | Ok | 4 | 13 | 530,66 | 164 | | 4 D-13 - 150 |
| Lantai 4 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 1199,87 | 740,08 | 169,00 | 654,88 | 250,32 | 404,56 | 202,28 | 905,19 | 452,60 | 0,00 | 1206,92 | 850,29 | Not Ok | 4 | 13 | 530,66 | 112 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 1199,87 | 740,08 | 169,00 | 654,88 | 250,32 | 404,56 | 202,28 | 905,19 | 452,60 | 0,00 | 936,52 | 850,29 | Not Ok | 4 | 13 | 530,66 | 145 | | 4 D-13 - 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 1199,87 | 740,08 | 144,24 | 558,93 | 250,32 | 308,61 | 154,31 | 809,25 | 404,62 | 0,00 | 1078,99 | 850,29 | Not Ok | 4 | 13 | 530,66 | 126 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 1199,87 | 740,08 | 144,24 | 558,93 | 250,32 | 308,61 | 154,31 | 809,25 | 404,62 | 0,00 | 848,21 | 850,29 | Ok | 4 | 13 | 530,66 | 160 | | 4 D-13 - 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 1199,87 | 740,08 | 145,71 | 564,63 | 250,32 | 314,31 | 157,16 | 814,94 | 407,47 | 0,00 | 1086,59 | 850,29 | Not Ok | 4 | 13 | 530,66 | 125 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 1199,87 | 740,08 | 145,71 | 564,63 | 250,32 | 314,31 | 157,16 | 814,94 | 407,47 | 0,00 | 853,45 | 850,29 | Not Ok | 4 | 13 | 530,66 | 159 | | 4 D-13 - 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 1199,87 | 740,08 | 128,97 | 499,76 | 250,32 | 249,44 | 124,72 | 750,07 | 375,04 | 0,00 | 1000,10 | 850,29 | Not Ok | 4 | 13 | 530,66 | 136 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 1199,87 | 740,08 | 128,97 | 499,76 | 250,32 | 249,44 | 124,72 | 750,07 | 375,04 | 0,00 | 793,75 | 850,29 | Ok | 4 | 13 | 530,66 | 171 | | 4 D-13 - 150 |
| Lantai 3 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 1134,42 | 740,08 | 168,00 | 651,00 | 241,87 | 409,13 | 204,56 | 892,87 | 446,44 | 0,00 | 1190,49 | 850,29 | Not Ok | 4 | 13 | 530,66 | 114 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 1134,42 | 740,08 | 168,00 | 651,00 | 241,87 | 409,13 | 204,56 | 892,87 | 446,44 | 0,00 | 921,69 | 850,29 | Not Ok | 4 | 13 | 530,66 | 147 | | 4 D-13 - 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 1134,42 | 740,08 | 144,77 | 560,98 | 241,87 | 319,11 | 159,56 | 802,85 | 401,43 | 0,00 | 1070,47 | 850,29 | Not Ok | 4 | 13 | 530,66 | 127 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 1134,42 | 740,08 | 144,77 | 560,98 | 241,87 | 319,11 | 159,56 | 802,85 | 401,43 | 0,00 | 838,84 | 850,29 | Ok | 4 | 13 | 530,66 | 162 | | 4 D-13 - 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 1134,42 | 740,08 | 145,39 | 563,39 | 241,87 | 321,52 | 160,76 | 805,26 | 402,63 | 0,00 | 1073,68 | 850,29 | Not Ok | 4 | 13 | 530,66 | 126 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 1134,42 | 740,08 | 145,39 | 563,39 | 241,87 | 321,52 | 160,76 | 805,26 | 402,63 | 0,00 | 841,05 | 850,29 | Ok | 4 | 13 | 530,66 | 161 | | 4 D-13 - 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 1134,42 | 740,08 | 128,56 | 498,17 | 241,87 | 256,30 | 128,15 | 740,04 | 370,02 | 0,00 | 986,72 | 850,29 | Not Ok | 4 | 13 | 530,66 | 137 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 1134,42 | 740,08 | 128,56 | 498,17 | 241,87 | 256,30 | 128,15 | 740,04 | 370,02 | 0,00 | 781,03 | 850,29 | Ok | 4 | 13 | 530,66 | 174 | | 4 D-13 - 150 |
| Lantai 2 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 1199,87 | 740,08 | 147,48 | 571,47 | 250,32 | 321,16 | 160,58 | 821,79 | 410,89 | 0,00 | 1095,72 | 850,29 | Not Ok | 4 | 13 | 530,66 | 124 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 1199,87 | 740,08 | 147,48 | 571,47 | 250,32 | 321,16 | 160,58 | 821,79 | 410,89 | 0,00 | 859,75 | 850,29 | Not Ok | 4 | 13 | 530,66 | 158 | | 4 D-13 - 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 1199,87 | 740,08 | 141,97 | 550,13 | 250,32 | 299,82 | 149,91 | 800,45 | 400,22 | 0,00 | 1067,27 | 850,29 | Not Ok | 4 | 13 | 530,66 | 127 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 1199,87 | 740,08 | 141,97 | 550,13 | 250,32 | 299,82 | 149,91 | 800,45 | 400,22 | 0,00 | 840,11 | 850,29 | Ok | 4 | 13 | 530,66 | 161 | | 4 D-13 - 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 1199,87 | 740,08 | 129,15 | 500,46 | 250,32 | 250,14 | 125,07 | 750,77 | 375,39 | 0,00 | 1001,03 | 850,29 | Not Ok | 4 | 13 | 530,66 | 135 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 1199,87 | 740,08 | 129,15 | 500,46 | 250,32 | 250,14 | 125,07 | 750,77 | 375,39 | 0,00 | 794,39 | 850,29 | Ok | 4 | 13 | 530,66 | 171 | | 4 D-13 - 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 1199,87 | 740,08 | 125,56 | 486,55 | 250,32 | 236,23 | 118,11 | 736,86 | 368,43 | 0,00 | 982,48 | 850,29 | Not Ok | 4 | 13 | 530,66 | 138 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 1199,87 | 740,08 | 125,56 | 486,55 | 250,32 | 236,23 | 118,11 | 736,86 | 368,43 | 0,00 | 781,58 | 850,29 | Ok | 4 | 13 | 530,66 | 174 | | 4 D-13 - 150 |
| Lantai 1 | Sendi Plastis | Balok Portal B20 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 148,21 | 574,31 | 153,53 | 420,79 | 210,39 | 727,84 | 363,92 | 212,57 | 757,88 | 850,29 | Ok | 4 | 13 | 530,66 | 179 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 148,21 | 574,31 | 153,53 | 420,79 | 210,39 | 727,84 | 363,92 | 212,57 | 520,74 | 850,29 | Ok | 4 | 13 | 530,66 | 260 | | 4 D-13 - 150 |
| | Sendi Plastis | Balok Portal B21 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 142,89 | 553,70 | 153,53 | 400,17 | 200,09 | 707,23 | 353,61 | 212,57 | 730,39 | 850,29 | Ok | 4 | 13 | 530,66 | 186 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 142,89 | 553,70 | 153,53 | 400,17 | 200,09 | 707,23 | 353,61 | 212,57 | 501,77 | 850,29 | Ok | 4 | 13 | 530,66 | 270 | | 4 D-13 - 150 |
| | Sendi Plastis | Balok Portal B22 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 147,56 | 571,80 | 153,53 | 418,27 | 209,13 | 725,32 | 362,66 | 212,57 | 754,52 | 850,29 | Ok | 4 | 13 | 530,66 | 180 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 147,56 | 571,80 | 153,53 | 418,27 | 209,13 | 725,32 | 362,66 | 212,57 | 518,43 | 850,29 | Ok | 4 | 13 | 530,66 | 262 | | 4 D-13 - 150 |
| | Sendi Plastis | Balok Portal B23 | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 138,48 | 536,61 | 153,53 | 383,08 | 191,54 | 690,14 | 345,07 | 212,57 | 707,61 | 850,29 | Ok | 4 | 13 | 530,66 | 192 | 4 D-13 - 100 | |
| | Luar Sendi Plastis | | 400 | 600 | 639 | 24,9 | 420 | 740,08 | 449,76 | 138,48 | 536,61 | 153,53 | 383,08 | 191,54 | 690,14 | 345,07 | 212,57 | 486,04 | 850,29 | Ok | 4 | 13 | 530,66 | 279 | | 4 D-13 - 150 |

# LAMPIRAN F

## Penulangan Kolom

F.1. Penulangan Longitudinal kolom Gedung 4 tingkat kolom As-4 (Tanah Keras)

| Lantai | Lokasi | Kolom | | Tulangan | 0,01<ρ<0,06 | Momen desain balok | | 1,2 $\sum Mg$ | Gaya aksial kolom | | | Ø $M_{n\text{-}abv}$ | Ø $M_{n\text{-}dsn}$ | Ø $M_{n\text{-}blw}$ | $\sum Mc$ | Status | ρ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Mpr1 | Mpr3 | | Ø $P_{n\text{-}abv}$ | Ø $P_{n\text{-}dsn}$ | Ø $P_{n\text{-}blw}$ | | | | | | |
| | | b (mm) | h (mm) | | | (kN.m) | (kN.m) | (kN.m) | (kN) | (kN) | (kN) | (kN.m) | (kN.m) | (kN.m) | (kN.m) | | (%) |
| Atap | Atas | 500 | 500 | 16 D 22 | 0,02431616 | 449,756 | 344,031 | 952,544 | 314,72 | 314,72 | | 491 | 491 | | 982 | Ok | 2,431616 |
| | Bawah | 500 | 500 | 16 D 22 | 0,02431616 | 449,756 | 344,031 | 952,544 | | 314,72 | 1214,42 | | 491 | 497 | 988 | Ok | 2,431616 |
| 4 | **Atas** | **600** | **600** | **20 D 22** | **0,02110778** | **560,504** | **349,730** | **1092,28** | **314,72** | **1214,42** | | **875** | **996** | | **1871** | **Ok** | **2,110778** |
| | **Bawah** | **600** | **600** | **20 D 22** | **0,02110778** | **560,50** | **349,73** | **1092,28** | | **1214,42** | **2085,67** | | **996** | **837** | **1833** | **Ok** | **2,110778** |
| 3 | Atas | 600 | 600 | 24 D 22 | 0,02532933 | 659,177 | 349,730 | 1210,69 | 1214,42 | 2085,67 | | **996** | **837** | | 1833 | Ok | **2,532933** |
| | Bawah | 600 | 600 | 24 D 22 | 0,02532933 | 659,18 | 349,73 | 1210,69 | | 2085,67 | 2852,33 | | **837** | **735** | 1572 | Ok | **2,532933** |
| 2 | **Atas** | **700** | **700** | **28 D 22** | **0,02171086** | **659,18** | **349,73** | **1210,69** | **2085,67** | **2852,33** | | **1488** | **1270** | | **2758** | **Ok** | **2,171086** |
| | **Bawah** | **700** | **700** | **28 D 22** | **0,02171086** | **659,18** | **349,73** | **1210,69** | | **2852,33** | **3660,14** | | **1270** | **1122** | **2392** | **Ok** | **2,171086** |
| 1 | Atas | 700 | 700 | 28 D 22 | 0,02171086 | 659,177 | 349,730 | 1210,69 | 2852,33 | 3660,14 | | **1270** | **1122** | | 2392 | Ok | **2,171086** |
| | Bawah | 700 | 700 | 28 D 22 | 0,02171086 | 659,18 | 349,73 | 1210,69 | | 3660,14 | 3660,14 | | **1122** | **1122** | 2244 | Ok | **2,171086** |

F.2. Penulangan Transversal kolom Gedung 4 tingkat kolom As-4 (Tanah Keras)

| Lantai | Lokasi | Kolom | | Tulangan | Diameter | Confinement | | | | | | | | | Luar Sendi Plastis | | | | Sengkang Luar Sendi Plastis | | | | | | Sengkang Terpasang | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Ash-dsn | bc | Ach | Ash | Ash/s | s Desain 100≤s≤150 | Ash-1 min | Ash-2 min | Cek | Nu Etabs | Nu/Ag | Vc | Cek | Tulangan | Diameter | Ash-dsn | Coba S-dsn | Vs | Cek | | | | | |
| | | b(mm) | h(mm) | (kaki) | tul | (mm2) | (mm) | (mm2) | (mm2) | (mm2) | mm | (mm2) | (mm2) | Ash-dsn>Ash 1,2 | Kn | Mpa | Kn | Vc>Vereduksi | (kaki) | tul | (mm2) | mm | Kn | Vs>Ve reduksi | | | | | |
| Atap | Sendi Plastis | 500 | 500 | 4 | 10 | 314 | 410 | 176400 | 3,04 | 2,19 | 100 | 304 | 219 | Ok | 129 | 0,51600 | 191,3052 | Pasang tulangan sengkang | 4 | 10 | 314 | 150 | 384,65 | Ok | **4** | **D** | **10** | **-** | **100** |
| | Luar Sendi Plastis | 500 | 500 | 4 | 10 | 314 | 410 | 176400 | 3,04 | 2,19 | 100 | 304 | 219 | Ok | | | | | 4 | 10 | 314 | | | | **4** | **D** | **10** | **-** | **150** |
| 4 | Sendi Plastis | 600 | 600 | 4 | 10 | 314 | 510 | 270400 | 3,01 | 2,72 | 100 | 301 | 272 | Ok | 560 | 1,55556 | 302,55973 | Pasang tulangan sengkang | 4 | 10 | 314 | 150 | 472,57 | Ok | **4** | **D** | **10** | **-** | **100** |
| | Luar Sendi Plastis | 600 | 600 | 4 | 10 | 314 | 510 | 270400 | 3,01 | 2,72 | 100 | 301 | 272 | Ok | | | | | 4 | 10 | 314 | | | | **4** | **D** | **10** | **-** | **150** |
| 3 | Sendi Plastis | 600 | 600 | 4 | 10 | 314 | 510 | 270400 | 3,01 | 2,72 | 100 | 301 | 272 | Ok | 994 | 2,76111 | 326,0081 | Pasang tulangan sengkang | 4 | 10 | 314 | 150 | 472,57 | Ok | **4** | **D** | **10** | **-** | **100** |
| | Luar Sendi Plastis | 600 | 600 | 4 | 10 | 314 | 510 | 270400 | 3,01 | 2,72 | 100 | 301 | 272 | Ok | | | | | 4 | 10 | 314 | | | | **4** | **D** | **10** | **-** | **150** |
| 2 | Sendi Plastis | 700 | 700 | 5 | 10 | 392,5 | 610 | 384400 | 2,98 | 3,25 | 100 | 298 | 325 | Ok | 1363 | 2,78163 | 451,98761 | Sengkang tidak dibutuhkan | 4 | 10 | 314 | 200 | 420,37 | Ok | **5** | **D** | **10** | **-** | **100** |
| | Luar Sendi Plastis | 700 | 700 | 5 | 10 | 392,5 | 610 | 384400 | 2,98 | 3,25 | 100 | 298 | 325 | Ok | | | | | 4 | 10 | 314 | | | | **4** | **D** | **10** | **-** | **200** |
| 1 | Sendi Plastis | 700 | 700 | 5 | 10 | 392,5 | 610 | 384400 | 2,98 | 3,25 | 100 | 298 | 325 | Ok | 1363 | 2,78163 | 451,98761 | Sengkang tidak dibutuhkan | 4 | 10 | 314 | 200 | 420,37 | Ok | **5** | **D** | **10** | **-** | **100** |
| | Luar Sendi Plastis | 700 | 700 | 5 | 10 | 392,5 | 610 | 384400 | 2,98 | 3,25 | 100 | 298 | 325 | Ok | | | | | 4 | 10 | 314 | | | | **4** | **D** | **10** | **-** | **200** |

F.3. Penulangan Longitudinal kolom Gedung 4 tingkat kolom As-4 (Tanah Lunak)

| Lantai | Lokasi | Kolom | | Tulangan | | | 0,01<ρ<0,06 | Momen Desain Balok | | 1,2 $\sum Mg$ | Gaya aksial kolom | | | Ø $M_{n-abv}$ | Ø $M_{n-dsn}$ | Ø $M_{n-blw}$ | $\sum Mc$ | Status | ρ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Mpr1 | Mpr2 | | Ø $P_{n-abv}$ | Ø $P_{n-dsn}$ | Ø $P_{n-blw}$ | | | | | | |
| | | b (mm) | h (mm) | | | | | (kN.m) | (kN.m) | (kN.m) | (kN) | (kN) | (kN) | (kN.m) | (kN.m) | (kN.m) | (kN.m) | | (%) |
| Atap | Atas | 500 | 500 | 16 | D | 22 | 0,02431616 | 449,756 | 344,031 | 952,544 | 360 | 360 | | 497 | 497 | | 994 | Ok | 2,431616 |
| | Bawah | 500 | 500 | 16 | D | 22 | 0,02431616 | 449,756 | 344,031 | 952,544 | | 360 | 1244 | | 497 | 492,78 | 989,78 | Ok | 2,431616 |
| 4 | Atas | 600 | 600 | 20 | D | 22 | 0,02110778 | 647,779 | 344,031 | 1190,17 | 360 | 1244 | | 766,85 | 893 | | 1659,85 | Ok | 2,110778 |
| | Bawah | 600 | 600 | 20 | D | 22 | 0,02110778 | 647,779 | 344,031 | 1190,17 | | 1244 | 2126 | | 893 | 756 | 1649 | Ok | 2,110778 |
| 3 | Atas | 600 | 600 | 24 | D | 22 | 0,02532933 | 827,898 | 449,756 | 1533,18 | 1244 | 2126 | | 999 | 827 | | 1826 | Ok | 2,532933 |
| | Bawah | 600 | 600 | 24 | D | 22 | 0,02532933 | 827,898 | 449,756 | 1533,18 | | 2126 | 2906 | | 827 | 730 | 1557 | Ok | 2,532933 |
| 2 | Atas | 700 | 700 | 28 | D | 22 | 0,02171086 | 827,90 | 449,76 | 1533,18 | 2126 | 2906 | | 1458 | 1255 | | 2713 | Ok | 2,171086 |
| | Bawah | 700 | 700 | 28 | D | 22 | 0,02171086 | 827,898 | 449,756 | 1533,18 | | 2906 | 3716 | | 1255 | 1117 | 2372 | Ok | 2,171086 |
| 1 | Atas | 700 | 700 | 28 | D | 22 | 0,02171086 | 827,898 | 449,756 | 1533,18 | 2906 | 3716 | | 1255 | 1117 | | 2372 | Ok | 2,171086 |
| | Bawah | 700 | 700 | 28 | D | 22 | 0,02171086 | 827,898 | 449,756 | 1533,18 | | 3716 | 3716 | | 1117 | 1117 | 2234 | Ok | 2,171086 |

F.4. Penulangan Transversal kolom Gedung 4 tingkat kolom As-4 (Tanah Lunak)

| | | | | | | Confinement | | | | | | | | | Luar Sendi Plastis | | | | | Sengkang Luar Sendi Plastis | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lantai | Lokasi | Kolom | | Tulangan | Diameter | Ash-dsn | bc | Ach | Ash | Ash/s | s Desain | Ash-1 min | Ash-2 min | Cek | Nu Etabs | Nu/Ag | Vc | Cek | Tulangan | Diameter | Ash-dsn | Coba S-dsn | Vs | Cek | Sengkang Terpasang |
| | | b(mm) | h(mm) | (kaki) | tul | (mm2) | (mm) | (mm2) | (mm2) | (mm2) | 100<s<150 mm | (mm2) | (mm2) | Ash-dsn>Ash 1,2 | Kn | Mpa | Kn | Vc>Vereduksi | (kaki) | tul | (mm2) | mm | Kn | Vs>Ve reduksi | |
| Atap | Sendi Plastis | 500 | 500 | 4 | 10 | 314 | 410 | 176400 | 3,04 | 2,19 | 100 | 304 | 219 | Ok | 112 | 0,44800 | 190,40904 | Pasang tulangan sengkang | 4 | 10 | 314 | 150 | 384,65 | Ok | 4 D 10 - 100 |
| | Luar Sendi Plastis | 500 | 500 | 4 | 10 | 314 | 410 | 176400 | 3,04 | 2,19 | 100 | 304 | 219 | Ok | | | | | 4 | 10 | 314 | | | | 4 D 10 - 150 |
| 4 | Sendi Plastis | 600 | 600 | 4 | 10 | 314 | 510 | 270400 | 3,01 | 2,72 | 100 | 301 | 272 | Ok | 538 | 1,49444 | 301,3711 | Pasang tulangan sengkang | 4 | 10 | 314 | 150 | 472,57 | Ok | 4 D 10 - 100 |
| | Luar Sendi Plastis | 600 | 600 | 4 | 10 | 314 | 510 | 270400 | 3,01 | 2,72 | 100 | 301 | 272 | Ok | | | | | 4 | 10 | 314 | | | | 4 D 10 - 150 |
| 3 | Sendi Plastis | 600 | 600 | 4 | 10 | 314 | 510 | 270400 | 3,01 | 2,72 | 100 | 301 | 272 | Ok | 968 | 2,68889 | 324,60336 | Pasang tulangan sengkang | 5 | 10 | 393 | 150 | 590,71 | Ok | 4 D 10 - 100 |
| | Luar Sendi Plastis | 600 | 600 | 4 | 10 | 314 | 510 | 270400 | 3,01 | 2,72 | 100 | 301 | 272 | Ok | | | | | 5 | 10 | 393 | | | | 5 D 10 - 150 |
| 2 | Sendi Plastis | 700 | 700 | 5 | 10 | 392,5 | 610 | 384400 | 2,98 | 3,25 | 100 | 298 | 325 | Ok | 1333 | 2,72041 | 450,33863 | Pasang tulangan sengkang | 5 | 10 | 393 | 200 | 525,46 | Ok | 5 D 10 - 100 |
| | Luar Sendi Plastis | 700 | 700 | 5 | 10 | 392,5 | 610 | 384400 | 2,98 | 3,25 | 100 | 298 | 325 | Ok | | | | | 5 | 10 | 393 | | | | 5 D 10 - 200 |
| 1 | Sendi Plastis | 700 | 700 | 5 | 10 | 392,5 | 610 | 384400 | 2,98 | 3,25 | 100 | 298 | 325 | Ok | 1718 | 3,50612 | 471,50064 | Pasang tulangan sengkang | 5 | 10 | 393 | 200 | 525,46 | Ok | 5 D 10 - 100 |
| | Luar Sendi Plastis | 700 | 700 | 5 | 10 | 392,5 | 610 | 384400 | 2,98 | 3,25 | 100 | 298 | 325 | Ok | | | | | 5 | 10 | 393 | | | | 5 D 10 - 200 |

F.5. Penulangan Longitudinal kolom Gedung 8 tingkat kolom As-4 (Tanah Keras)

| Lantai | Lokasi | Kolom | | Tulangan | 0,01<ρ<0,06 | Momen desain balok | | 1,2 $\sum Mg$ | Gaya aksial kolom | | | Ø $M_{n\text{-}abv}$ | Ø $M_{n\text{-}dsn}$ | Ø $M_{n\text{-}blw}$ | $\sum Mc$ | Status | ρ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Mpr1 | Mpr3 | | Ø $P_{n\text{-}abv}$ | Ø $P_{n\text{-}dsn}$ | Ø $P_{n\text{-}blw}$ | | | | | | |
| | | b (mm) | h (mm) | | | (kN.m) | (kN.m) | (kN.m) | (kN) | (kN) | (kN) | (kN.m) | (kN.m) | (kN.m) | (kN.m) | | (%) |
| Atap | Atas | 600 | 600 | 20 D 25 | 0,02725694 | 449,756 | 344,031 | 952,544 | 361,92 | 361,92 | | 937 | 937 | | 1874 | Ok | 2,725694 |
| | Bawah | 600 | 600 | 20 D 25 | 0,02725694 | 449,756 | 344,031 | 952,544 | | 361,92 | 1254,26 | | 937 | 1037 | 1974 | Ok | 2,725694 |
| 8 | Atas | 800 | 800 | 28 D 25 | 0,02146484 | 551,005 | 344,031 | 1074,04 | 361,92 | 1254,26 | | 1627 | 2024 | | 3651 | Ok | 2,146484 |
| | Bawah | 800 | 800 | 28 D 25 | 0,02146484 | 551,005 | 344,031 | 1074,04 | | 1254,26 | 2145,75 | | 2024 | 2178 | 4202 | Ok | 2,146484 |
| 7 | Atas | 800 | 800 | 32 D 25 | 0,02453125 | 647,779 | 344,031 | 1190,17 | 1254,26 | 2145,75 | | 2228 | 2371 | | 4599 | Ok | 2,453125 |
| | Bawah | 800 | 800 | 32 D 25 | 0,02453125 | 647,779 | 344,031 | 1190,17 | | 2145,75 | 3079,07 | | 2371 | 2252 | 4623 | Ok | 2,453125 |
| 6 | Atas | 1000 | 1000 | 32 D 25 | 0,01570000 | 647,78 | 344,03 | 1190,17 | 2145,75 | 3079,07 | | 3270 | 3505 | | 6775 | Ok | 1,57 |
| | Bawah | 1000 | 1000 | 32 D 25 | 0,01570000 | 647,779 | 344,031 | 1190,17 | | 3079,07 | 4013,23 | | 3505 | 3788 | 7293 | Ok | 1,57 |
| 5 | Atas | 1000 | 1000 | 36 D 25 | 0,01766250 | 647,779 | 344,031 | 1190,17 | 3079,07 | 4013,23 | | 3763 | 3953 | | 7716 | Ok | 1,76625 |
| | Bawah | 1000 | 1000 | 36 D 25 | 0,01766250 | 647,779 | 344,031 | 1190,17 | | 4013,23 | 4999,06 | | 3953 | 4000 | 7953 | Ok | 1,76625 |
| 4 | Atas | 1200 | 1200 | 36 D 25 | 0,01226563 | 647,779 | 344,031 | 1190,17 | 4013,23 | 4999,06 | | 5165 | 5433 | | 10598 | Ok | 1,226563 |
| | Bawah | 1200 | 1200 | 36 D 25 | 0,01226563 | 647,779 | 344,031 | 1190,17 | | 4999,06 | 5985,62 | | 5433 | 5721 | 11154 | Ok | 1,226563 |
| 3 | Atas | 1200 | 1200 | 36 D 25 | 0,01226563 | 647,779 | 344,031 | 1190,17 | 4999,06 | 5985,62 | | 5433 | 5721 | | 11154 | Ok | 1,226563 |
| | Bawah | 1200 | 1200 | 36 D 25 | 0,01226563 | 647,779 | 344,031 | 1190,17 | | 5985,62 | 6854,38 | | 5721 | 5917 | 11638 | Ok | 1,226563 |
| 2 | Atas | 1200 | 1200 | 40 D 25 | 0,01362847 | 647,779 | 344,031 | 1190,17 | 5985,62 | 6854,38 | | 6029 | 6226 | | 12255 | Ok | 1,362847 |
| | Bawah | 1200 | 1200 | 40 D 25 | 0,01362847 | 647,779 | 344,031 | 1190,17 | | 6854,38 | 7764,84 | | 6226 | 5946 | 12172 | Ok | 1,362847 |
| 1 | Atas | 1200 | 1200 | 40 D 25 | 0,01362847 | 647,779 | 344,031 | 1190,17 | 6854,38 | 7764,84 | | 6226 | 5946 | | 12172 | Ok | 1,362847 |
| | Bawah | 1200 | 1200 | 40 D 25 | 0,01362847 | 647,779 | 344,031 | 1190,17 | | 7764,84 | 7764,84 | | 5946 | 5946 | 11892 | Ok | 1,362847 |

F.6. Penulangan Transversal kolom Gedung 8 tingkat kolom As-4 (Tanah Keras)

| | | | | | | Confinement | | | | | | | | | Sengkang Sendi Plastis | | | | | | | | | | | | Sengkang Luar Sendi Plastis | | | | | | Sengkang Terpasang | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lantai | Lokasi | Kolom | | Tulangan | Diameter | Ash-dsn | bc | Ach | Ash | Ash/s | s Desain 100<s<150 | Ash-1 min | Ash-2 min | Cek | Mpr1 | Mpr3 | Vsway | Vu Etabs | Ve ve>vu | Vc | 1/2 Vc | Ve reduksi | Cek | Av-min | Pakai Ash | Cek | Tulangan | Diameter | Ash-dsn | Coba S-dsn | Vs | Cek | | | | | |
| | | b(mm) | h(mm) | (kaki) | tul | (mm2) | (mm) | (mm2) | (mm2) | (mm2) | mm | (mm2) | (mm2) | Ash-dsn>Ash 1,2 | Kn | Kn | Kn | Kn | Kn | Kn | Kn | Kn | Ve-reduksi>1/2 Vc | (mm2) | (mm2) | Ash-dsn>Avmin | (kaki) | tul | (mm2) | mm | Kn | Vs>Ve reduksi | | | | | |
| Atap | Sendi Plastis | 600 | 600 | 4 | 10 | 314 | 510 | 270400 | 3,01 | 2,72 | 100 | 301 | 272 | Ok | 450 | 344 | 256 | 49 | 256 | 266 | 133 | 341 | Perlu Sengkang | 47,62 | 314 | Ok | 4 | 10 | 314 | 200 | 354,43 | Ok | 4 | D | 10 | - | 100 |
| | Luar Sendi Plastis | 600 | 600 | 4 | 10 | 314 | 510 | 270400 | 3,01 | 2,72 | 100 | 301 | 272 | Ok | 551 | 344 | | | | | | | | | | | 4 | 10 | 314 | | | | 4 | D | 10 | - | 200 |
| 8 | Sendi Plastis | 800 | 800 | 5 | 10 | 392,5 | 710 | 518400 | 2,96 | 3,79 | 100 | 296 | 379 | Ok | 551 | 344 | 286 | 119 | 286 | 487 | 243 | 381 | Perlu Sengkang | 63,49 | 392,5 | Ok | 5 | 10 | 392,5 | 200 | 486,31 | Ok | 5 | D | 10 | - | 100 |
| | Luar Sendi Plastis | 800 | 800 | 5 | 10 | 392,5 | 710 | 518400 | 2,96 | 3,79 | 100 | 296 | 379 | Ok | 648 | 344 | | | | | | | | | | | 4 | 10 | 314 | | | | 4 | D | 10 | - | 200 |
| 7 | Sendi Plastis | 800 | 800 | 5 | 10 | 392,5 | 710 | 518400 | 2,96 | 3,79 | 100 | 296 | 379 | Ok | 648 | 344 | 301 | 132 | 301 | 487 | 243 | 401 | Perlu Sengkang | 63,49 | 392,5 | Ok | 5 | 10 | 392,5 | 200 | 486,31 | Ok | 5 | D | 10 | - | 100 |
| | Luar Sendi Plastis | 800 | 800 | 5 | 10 | 392,5 | 710 | 518400 | 2,96 | 3,79 | 100 | 296 | 379 | Ok | 648 | 344 | | | | | | | | | | | 4 | 10 | 314 | | | | 4 | D | 10 | - | 200 |
| 6 | Sendi Plastis | 1000 | 1000 | 5 | 13 | 663,325 | 907 | 846400 | 2,93 | 4,84 | 100 | 293 | 484 | Ok | 648 | 344 | 301 | 165 | 301 | 773 | 387 | 401 | Perlu Sengkang | 79,37 | 663,325 | Ok | 4 | 10 | 314 | 200 | 618,19 | Ok | 5 | D | 13 | - | 100 |
| | Luar Sendi Plastis | 1000 | 1000 | 5 | 13 | 663,325 | 907 | 846400 | 2,93 | 4,84 | 100 | 293 | 484 | Ok | 648 | 344 | | | | | | | | | | | 4 | 10 | 314 | | | | 4 | D | 10 | - | 200 |
| 5 | Sendi Plastis | 1000 | 1000 | 5 | 13 | 663,325 | 907 | 846400 | 2,93 | 4,84 | 100 | 293 | 484 | Ok | 648 | 344 | 301 | 171 | 301 | 773 | 387 | 401 | Perlu Sengkang | 79,37 | 663,325 | Ok | 4 | 10 | 314 | 200 | 618,19 | Ok | 5 | D | 13 | - | 100 |
| | Luar Sendi Plastis | 1000 | 1000 | 5 | 13 | 663,325 | 907 | 846400 | 2,93 | 4,84 | 100 | 293 | 484 | Ok | 648 | 344 | | | | | | | | | | | 4 | 10 | 314 | | | | 4 | D | 10 | - | 200 |
| 4 | Sendi Plastis | 1200 | 1200 | 5 | 13 | 663,325 | 1107 | 1254400 | 2,91 | 5,91 | 100 | 291 | 591 | Ok | 648 | 344 | 301 | 198 | 301 | 1126 | 563 | 401 | Tidak Perlu Sengkang | 95,24 | 663,325 | Ok | 4 | 10 | 314 | 200 | 750,07 | Ok | 5 | D | 13 | - | 100 |
| | Luar Sendi Plastis | 1200 | 1200 | 5 | 13 | 663,325 | 1107 | 1254400 | 2,91 | 5,91 | 100 | 291 | 591 | Ok | 648 | 344 | | | | | | | | | | | 4 | 10 | 314 | | | | 4 | D | 10 | - | 200 |
| 3 | Sendi Plastis | 1200 | 1200 | 5 | 13 | 663,325 | 1107 | 1254400 | 2,91 | 5,91 | 100 | 291 | 591 | Ok | 648 | 344 | 301 | 213 | 301 | 1126 | 563 | 401 | Tidak Perlu Sengkang | 95,24 | 663,325 | Ok | 4 | 10 | 314 | 200 | 750,07 | Ok | 5 | D | 13 | - | 100 |
| | Luar Sendi Plastis | 1200 | 1200 | 5 | 13 | 663,325 | 1107 | 1254400 | 2,91 | 5,91 | 100 | 291 | 591 | Ok | 648 | 344 | | | | | | | | | | | 4 | 10 | 314 | | | | 4 | D | 10 | - | 200 |
| 2 | Sendi Plastis | 1200 | 1200 | 5 | 13 | 663,325 | 1107 | 1254400 | 2,91 | 5,91 | 100 | 291 | 591 | Ok | 648 | 344 | 301 | 228 | 301 | 1126 | 563 | 401 | Tidak Perlu Sengkang | 95,24 | 663,325 | Ok | 4 | 10 | 314 | 200 | 750,07 | Ok | 5 | D | 13 | - | 100 |
| | Luar Sendi Plastis | 1200 | 1200 | 5 | 13 | 663,325 | 1107 | 1254400 | 2,91 | 5,91 | 100 | 291 | 591 | Ok | 648 | 344 | | | | | | | | | | | 4 | 10 | 314 | | | | 4 | D | 10 | - | 200 |
| 1 | Sendi Plastis | 1200 | 1200 | 5 | 13 | 663,325 | 1107 | 1254400 | 2,91 | 5,91 | 100 | 291 | 591 | Ok | 648 | 344 | 301 | 232 | 301 | 1126 | 563 | 401 | Tidak Perlu Sengkang | 95,24 | 663,325 | Ok | 4 | 10 | 314 | 200 | 750,07 | Ok | 5 | D | 13 | - | 100 |
| | Luar Sendi Plastis | 1200 | 1200 | 5 | 13 | 663,325 | 1107 | 1254400 | 2,91 | 5,91 | 100 | 291 | 591 | Ok | 648 | 344 | | | | | | | | | | | 4 | 10 | 314 | | | | 4 | D | 10 | - | 200 |

F.7. Penulangan Longitudinal kolom Gedung 8 tingkat kolom As-4 (Tanah Lunak)

| Lantai | Lokasi | Kolom | | Tulangan | 0,01<ρ<0,06 | Momen desain balok | | 1,2 $\sum Mg$ | Gaya aksial kolom | | | $\emptyset$ $M_{n\text{-}abv}$ | $\emptyset$ $M_{n\text{-}dsn}$ | $\emptyset$ $M_{n\text{-}blw}$ | $\sum Mc$ | Status | ρ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Mpr1 | Mpr3 | | $\emptyset$ $P_{n\text{-}abv}$ | $\emptyset$ $P_{n\text{-}dsn}$ | $\emptyset$ $P_{n\text{-}blw}$ | | | | | | |
| | | b (mm) | h (mm) | | | (kN.m) | (kN.m) | (kN.m) | (kN) | (kN) | (kN) | (kN.m) | (kN.m) | (kN.m) | (kN.m) | | (%) |
| Atap | Atas | 600 | 600 | 20 D 25 | 0,02725694 | 449,756 | 55,448 | 606,245 | 418,2 | 418,2 | | 1095 | 1095 | | 2190 | Ok | 2,725694 |
| | Bawah | 600 | 600 | 20 D 25 | 0,02725694 | 449,756 | 55,448 | 606,245 | | 418,2 | 1316,97 | | 1095 | 1118 | 2213 | Ok | 2,725694 |
| 8 | Atas | 800 | 800 | 28 D 25 | 0,02146484 | 740,076 | 449,756 | 1427,8 | 418,2 | 1316,97 | | 1841 | 2239 | | 4080 | Ok | 2,146484 |
| | Bawah | 800 | 800 | 28 D 25 | 0,02146484 | 740,076 | 449,756 | 1427,8 | | 1316,97 | 2217,93 | | 2239 | 2381 | 4620 | Ok | 2,146484 |
| 7 | Atas | 800 | 800 | 32 D 25 | 0,02453125 | 827,898 | 449,756 | 1533,18 | 1316,97 | 2217,93 | | 2239 | 2381 | | 4620 | Ok | 2,453125 |
| | Bawah | 800 | 800 | 32 D 25 | 0,02453125 | 827,898 | 449,756 | 1533,18 | | 2217,93 | 3163,76 | | 2381 | 2227 | 4608 | Ok | 2,453125 |
| 6 | Atas | 1000 | 1000 | 32 D 25 | 0,01570000 | 911,24 | 551,01 | 1754,7 | 2217,93 | 3163,76 | | 3288 | 3525 | | 6813 | Ok | 1,57 |
| | Bawah | 1000 | 1000 | 32 D 25 | 0,01570000 | 911,243 | 551,005 | 1754,7 | | 3163,76 | 4111,2 | | 3525 | 3718 | 7243 | Ok | 1,57 |
| 5 | Atas | 1000 | 1000 | 36 D 25 | 0,01766250 | 911,243 | 551,005 | 1754,7 | 3163,76 | 4111,2 | | 3781 | 3970 | | 7751 | Ok | 1,76625 |
| | Bawah | 1000 | 1000 | 36 D 25 | 0,01766250 | 911,243 | 551,005 | 1754,7 | | 4111,2 | 5111,95 | | 3970 | 3838 | 7808 | Ok | 1,76625 |
| 4 | Atas | 1200 | 1200 | 36 D 25 | 0,01226563 | 911,243 | 551,005 | 1754,7 | 4111,2 | 5111,95 | | 5197 | 5488 | | 10685 | Ok | 1,226563 |
| | Bawah | 1200 | 1200 | 36 D 25 | 0,01226563 | 911,243 | 551,005 | 1754,7 | | 5111,95 | 6112,01 | | 5488 | 5754 | 11242 | Ok | 1,226563 |
| 3 | Atas | 1200 | 1200 | 36 D 25 | 0,01226563 | 911,243 | 551,005 | 1754,7 | 5111,95 | 6112,0 | | 5488 | 5754 | | 11242 | Ok | 1,226563 |
| | Bawah | 1200 | 1200 | 36 D 25 | 0,01226563 | 911,243 | 551,005 | 1754,7 | | 6112,0 | 6993,53 | | 5754 | 5946 | 11700 | Ok | 1,226563 |
| 2 | Atas | 1200 | 1200 | 40 D 25 | 0,01362847 | 911,24 | 551,01 | 1754,7 | 6112,01 | 6993,53 | | 6059 | 6253 | | 12312 | Ok | 1,362847 |
| | Bawah | 1200 | 1200 | 40 D 25 | 0,01362847 | 911,243 | 551,005 | 1754,7 | | 6993,53 | 7900 | | 6253 | 5885,79 | 12138,8 | Ok | 1,362847 |
| 1 | Atas | 1200 | 1200 | 40 D 25 | 0,01362847 | 911,243 | 551,005 | 1754,7 | 6993,53 | 7900 | | 6253 | 5885 | | 12138 | Ok | 1,362847 |
| | Bawah | 1200 | 1200 | 40 D 25 | 0,01362847 | 911,243 | 551,005 | 1754,7 | | 7900 | 7900 | | 5885 | 5885 | 11770 | Ok | 1,362847 |

F.8. Penulangan Transversal kolom Gedung 8 tingkat kolom As-4 (Tanah Lunak)

| | | | | | | Confinement | | | | | | | | | Sengkang Sendi Plastis | | | | | | | | | | | | Sengkang Luar Sendi Plastis | | | | | | Sengkang Terpasang | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lantai | Lokasi | Kolom | | Tulangan | Diameter | Ash-dsn | bc | Ach | Ash | Ash/s | s Desain | Ash-1 min | Ash-2 min | Cek | Mpr1 | Mpr3 | Vsway | Vu Etabs | Ve ve>vu | Vc | 1/2 Vc | Ve reduksi | Cek | Av-min | Pakai Ash | Cek | Tulangan | Diameter | Ash-dsn | Coba S-dsn | Vs | Cek | | | | | |
| | | | | | | | | | | | 100≤s≤150 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | b(mm) | h(mm) | (kaki) | tul | (mm2) | (mm) | (mm2) | (mm2) | (mm2) | mm | (mm2) | (mm2) | Ash-dsn>Ash 1,2 | Kn | Kn | Kn | Kn | Kn | Kn | Kn | Kn | Ve-reduksi>1/2 Vc | (mm2) | (mm2) | Ash-dsn>Avmin | (kaki) | tul | (mm2) | mm | Kn | Vs>Ve reduksi | | | | | |
| Atap | Sendi Plastis | 600 | 600 | 4 | 10 | 314 | 510 | 270400 | 3,01 | 2,72 | 100 | 301 | 272 | Ok | 450 | 55 | 257 | 79 | 257 | 266 | 133 | 342 | Perlu Sengkang | 47,62 | 314 | Ok | 4 | 10 | 314,0 | 200 | 354,43 | Ok | 4 | D | 10 | - | 100 |
| | Luar Sendi Plastis | 600 | 600 | 4 | 10 | 314 | 510 | 270400 | 3,01 | 2,72 | 100 | 301 | 272 | Ok | 740 | 450 | | | | | | | | | | | 4 | 10 | 314,0 | | | | 4 | D | 10 | - | 200 |
| 8 | Sendi Plastis | 800 | 800 | 5 | 10 | 392,5 | 710 | 518400 | 2,96 | 3,79 | 100 | 296 | 379 | Ok | 740 | 450 | 374 | 226 | 374 | 487 | 243 | 498 | Perlu Sengkang | 63,49 | 392,5 | Ok | 5 | 10 | 392,5 | 200 | 607,88 | Ok | 5 | D | 10 | - | 100 |
| | Luar Sendi Plastis | 800 | 800 | 5 | 10 | 392,5 | 710 | 518400 | 2,96 | 3,79 | 100 | 296 | 379 | Ok | 828 | 450 | | | | | | | | | | | 5 | 10 | 392,5 | | | | 5 | D | 10 | - | 200 |
| 7 | Sendi Plastis | 800 | 800 | 5 | 10 | 392,5 | 710 | 518400 | 2,96 | 3,79 | 100 | 296 | 379 | Ok | 828 | 450 | 415 | 286 | 415 | 487 | 243 | 554 | Perlu Sengkang | 63,49 | 392,5 | Ok | 5 | 10 | 392,5 | 200 | 607,88 | Ok | 5 | D | 10 | - | 100 |
| | Luar Sendi Plastis | 800 | 800 | 5 | 10 | 392,5 | 710 | 518400 | 2,96 | 3,79 | 100 | 296 | 379 | Ok | 911 | 551 | | | | | | | | | | | 5 | 10 | 392,5 | | | | 5 | D | 10 | - | 200 |
| 6 | Sendi Plastis | 1000 | 1000 | 5 | 13 | 663,325 | 907 | 846400 | 2,93 | 4,84 | 100 | 293 | 484 | Ok | 911 | 551 | 443 | 390 | 443 | 773 | 387 | 591 | Perlu Sengkang | 79,37 | 663,325 | Ok | 4 | 10 | 314,0 | 200 | 618,19 | Ok | 5 | D | 13 | - | 100 |
| | Luar Sendi Plastis | 1000 | 1000 | 5 | 13 | 663,325 | 907 | 846400 | 2,93 | 4,84 | 100 | 293 | 484 | Ok | 911 | 551 | | | | | | | | | | | 4 | 10 | 314,0 | | | | 4 | D | 10 | - | 200 |
| 5 | Sendi Plastis | 1000 | 1000 | 5 | 13 | 663,325 | 907 | 846400 | 2,93 | 4,84 | 100 | 293 | 484 | Ok | 911 | 551 | 443 | 432 | 443 | 773 | 387 | 591 | Perlu Sengkang | 79,37 | 663,325 | Ok | 4 | 10 | 314,0 | 200 | 618,19 | Ok | 5 | D | 13 | - | 100 |
| | Luar Sendi Plastis | 1000 | 1000 | 5 | 13 | 663,325 | 907 | 846400 | 2,93 | 4,84 | 100 | 293 | 484 | Ok | 911 | 551 | | | | | | | | | | | 4 | 10 | 314,0 | | | | 4 | D | 10 | - | 200 |
| 4 | Sendi Plastis | 1200 | 1200 | 5 | 13 | 663,325 | 1107 | 1254400 | 2,91 | 5,91 | 100 | 291 | 591 | Ok | 911 | 551 | 443 | 477 | 477 | 1126 | 563 | 636 | Perlu Sengkang | 95,24 | 663,325 | Ok | 4 | 10 | 314,0 | 200 | 750,07 | Ok | 5 | D | 13 | - | 100 |
| | Luar Sendi Plastis | 1200 | 1200 | 5 | 13 | 663,325 | 1107 | 1254400 | 2,91 | 5,91 | 100 | 291 | 591 | Ok | 911 | 551 | | | | | | | | | | | 4 | 10 | 314,0 | | | | 4 | D | 10 | - | 200 |
| 3 | Sendi Plastis | 1200 | 1200 | 5 | 13 | 663,325 | 1107 | 1254400 | 2,91 | 5,91 | 100 | 291 | 591 | Ok | 911 | 551 | 443 | 552 | 552 | 1126 | 563 | 736 | Perlu Sengkang | 95,24 | 663,325 | Ok | 4 | 10 | 314,0 | 200 | 750,07 | Ok | 5 | D | 13 | - | 100 |
| | Luar Sendi Plastis | 1200 | 1200 | 5 | 13 | 663,325 | 1107 | 1254400 | 2,91 | 5,91 | 100 | 291 | 591 | Ok | 911 | 551 | | | | | | | | | | | 4 | 10 | 314,0 | | | | 4 | D | 10 | - | 200 |
| 2 | Sendi Plastis | 1200 | 1200 | 5 | 13 | 663,325 | 1107 | 1254400 | 2,91 | 5,91 | 100 | 291 | 591 | Ok | 911 | 551 | 443 | 560 | 560 | 1126 | 563 | 747 | Perlu Sengkang | 95,24 | 663,325 | Ok | 4 | 10 | 314,0 | 200 | 750,07 | Ok | 5 | D | 13 | - | 100 |
| | Luar Sendi Plastis | 1200 | 1200 | 5 | 13 | 663,325 | 1107 | 1254400 | 2,91 | 5,91 | 100 | 291 | 591 | Ok | 911 | 551 | | | | | | | | | | | 4 | 10 | 314,0 | | | | 4 | D | 10 | - | 200 |
| 1 | Sendi Plastis | 1200 | 1200 | 5 | 13 | 663,325 | 1107 | 1254400 | 2,91 | 5,91 | 100 | 291 | 591 | Ok | 911 | 551 | 443 | 565 | 565 | 1126 | 563 | 753 | Perlu Sengkang | 95,24 | 663,325 | Ok | 5 | 10 | 392,5 | 200 | 937,58 | Ok | 5 | D | 13 | - | 100 |
| | Luar Sendi Plastis | 1200 | 1200 | 5 | 13 | 663,325 | 1107 | 1254400 | 2,91 | 5,91 | 100 | 291 | 591 | Ok | 911 | 551 | | | | | | | | | | | 5 | 10 | 392,5 | | | | 5 | D | 10 | - | 200 |

F.9. Penulangan Longitudinal kolom Gedung 12 tingkat kolom As-4 (Tanah Keras)

| Lantai | Lokasi | Kolom | | Tulangan | | | 0,01<ρ<0,06 | Momen desain balok | | 1,2 $\sum Mg$ | Gaya aksial kolom | | | $\emptyset M_{n\text{-}abv}$ | $\emptyset M_{n\text{-}dsn}$ | $\emptyset M_{n\text{-}blw}$ | $\sum Mc$ | Status | ρ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Mpr1 | Mpr3 | | $\emptyset P_{n\text{-}abv}$ | $\emptyset P_{n\text{-}dsn}$ | $\emptyset P_{n\text{-}blw}$ | | | | | | |
| | | b (mm) | h (mm) | | | | | (kN.m) | (kN.m) | (kN.m) | (kN) | (kN) | (kN) | (kN.m) | (kN.m) | (kN.m) | (kN.m) | | (%) |
| Atap | Atas | 600 | 600 | 16 | D | 25 | 0,02180556 | 449,756 | 344,031 | 952,544 | 361,92 | 361,92 | | 783 | 783 | | 1566 | Ok | 2,180556 |
| | Bawah | 600 | 600 | 16 | D | 25 | 0,02180556 | 449,756 | 344,031 | 952,544 | | 361,92 | 1254,26 | | 783 | 912 | 1695 | Ok | 2,180556 |
| 12 | Atas | 800 | 800 | 28 | D | 25 | 0,02146484 | 551,005 | 344,031 | 1074,04 | 361,92 | 1254,26 | | 1827 | 2024 | | 3851 | Ok | 2,146484 |
| | Bawah | 800 | 800 | 28 | D | 25 | 0,02146484 | 551,005 | 344,031 | 1074,04 | | 1254,26 | 2145,75 | | 2024 | 2177 | 4201 | Ok | 2,146484 |
| 11 | Atas | 800 | 800 | 28 | D | 25 | 0,02146484 | 647,779 | 344,031 | 1190,17 | 1254,26 | 2145,75 | | 2024 | 2177 | | 4201 | Ok | 2,146484 |
| | Bawah | 800 | 800 | 28 | D | 25 | 0,02146484 | 647,779 | 344,031 | 1190,17 | | 2145,75 | 3079,07 | | 2177 | 2116 | 4293 | Ok | 2,146484 |
| 10 | Atas | 1000 | 1000 | 36 | D | 25 | 0,01766250 | 740,08 | 449,76 | 1427,8 | 2145,75 | 3079,07 | | 3541 | 3763 | | 7304 | Ok | 1,76625 |
| | Bawah | 1000 | 1000 | 36 | D | 25 | 0,01766250 | 740,076 | 449,756 | 1427,8 | | 3079,07 | 4013,23 | | 3763 | 3953 | 7716 | Ok | 1,76625 |
| 9 | Atas | 1000 | 1000 | 44 | D | 25 | 0,02158750 | 740,076 | 449,756 | 1427,8 | 3079,07 | 4013,23 | | 4280 | 4453 | | 8733 | Ok | 2,15875 |
| | Bawah | 1000 | 1000 | 44 | D | 25 | 0,02158750 | 740,076 | 449,756 | 1427,8 | | 4013,23 | 4999,06 | | 4453 | 4228 | 8681 | Ok | 2,15875 |
| 8 | Atas | 1300 | 1300 | 56 | D | 25 | 0,01625740 | 740,076 | 449,756 | 1427,8 | 4013,23 | 4999,06 | | 7586 | 7901 | | 15487 | Ok | 1,62574 |
| | Bawah | 1300 | 1300 | 56 | D | 25 | 0,01625740 | 740,076 | 449,756 | 1427,8 | | 4999,06 | 5920 | | 7901 | 8171 | 16072 | Ok | 1,62574 |
| 7 | Atas | 1300 | 1300 | 56 | D | 25 | 0,01625740 | 740,076 | 449,756 | 1427,8 | 4999,06 | 5920 | | 7901 | 8171 | | 16072 | Ok | 1,62574 |
| | Bawah | 1300 | 1300 | 56 | D | 25 | 0,01625740 | 740,076 | 449,756 | 1427,8 | | 5920 | 6925 | | 8171 | 8437 | 16608 | Ok | 1,62574 |
| 6 | Atas | 1300 | 1300 | 60 | D | 25 | 0,01741864 | 740,08 | 449,76 | 1427,8 | 5920 | 6925 | | 8517 | 8772 | | 17289 | Ok | 1,741864 |
| | Bawah | 1300 | 1300 | 60 | D | 25 | 0,01741864 | 740,076 | 449,756 | 1427,8 | | 6925 | 7933 | | 8772 | 8994 | 17766 | Ok | 1,741864 |
| 5 | Atas | 1300 | 1300 | 60 | D | 25 | 0,01741864 | 740,076 | 449,756 | 1427,8 | 6925 | 7933 | | 8772 | 8994 | | 17766 | Ok | 1,741864 |
| | Bawah | 1300 | 1300 | 60 | D | 25 | 0,01741864 | 740,076 | 449,756 | 1427,8 | | 7933 | 9007 | | 8994 | 8437 | 17431 | Ok | 1,741864 |
| 4 | Atas | 1500 | 1500 | 60 | D | 25 | 0,01308333 | 740,076 | 449,756 | 1427,8 | 7933 | 9007 | | 11173 | 11532 | | 22705 | Ok | 1,308333 |
| | Bawah | 1500 | 1500 | 60 | D | 25 | 0,01308333 | 740,076 | 449,756 | 1427,8 | | 9007 | 10087 | | 11532 | 11849 | 23381 | Ok | 1,308333 |
| 3 | Atas | 1500 | 1500 | 60 | D | 25 | 0,01308333 | 740,076 | 449,756 | 1427,8 | 9007 | 10087 | | 11532 | 11849 | | 23381 | Ok | 1,308333 |
| | Bawah | 1500 | 1500 | 60 | D | 25 | 0,01308333 | 740,076 | 449,756 | 1427,8 | | 10087 | 11048 | | 11849 | 12106 | 23955 | Ok | 1,308333 |
| 2 | Atas | 1500 | 1500 | 68 | D | 25 | 0,01482778 | 740,08 | 449,76 | 1427,8 | 10087 | 11048 | | 12634 | 12876 | | 25510 | Ok | 1,482778 |
| | Bawah | 1500 | 1500 | 68 | D | 25 | 0,01482778 | 740,076 | 449,756 | 1427,8 | | 11048 | 12044 | | 12876 | 12293 | 25169 | Ok | 1,482778 |
| 1 | Atas | 1500 | 1500 | 68 | D | 25 | 0,01482778 | 740,076 | 449,756 | 1427,8 | 11048 | 12044 | | 12876 | 12293 | | 25169 | Ok | 1,482778 |
| | Bawah | 1500 | 1500 | 68 | D | 25 | 0,01482778 | 740,076 | 449,756 | 1427,8 | | 12044 | 12044 | | 12293 | 12293 | 24586 | Ok | 1,482778 |

F.10. Penulangan Transversal kolom Gedung 12 tingkat kolom As-4 (Tanah Keras)

| | | | | | | Confinement | | | | | | | | Sengkang Sendi Plastis | | | | | | | | | | | Sengkang Luar Sendi Plastis | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lantai | Lokasi | Kolom | | Tulangan | Diameter | Ash-dsn | bc | Ach | Ash | Ash/s | s Desain 100<s<150 | Ash-1 min | Ash-2 min | Cek | Mpr1 | Mpr3 | Vsway | Vu Etabs | Ve ve>vu | Vc | 1/2 Vc | Ve reduksi | Cek | Av-min | Pakai Ash | Cek | Tulangan | Diameter | Ash-dsn | Coba S-dsn | Vs | Cek | Sengkang Terpasang |
| | | b(mm) | h(mm) | (kaki) | tul | (mm2) | (mm) | (mm2) | (mm2) | (mm2) | mm | (mm2) | (mm2) | Ash-dsn>Ash 1,2 | Kn | Kn | Kn | Kn | Kn | Kn | Kn | Kn | Ve-reduksi>1/2 Vc | (mm2) | (mm2) | Ash-dsn>Avmin | (kaki) | tul | (mm2) | mm | Kn | Vs>Ve reduksi | |
| Atap | Sendi Plastis | 600 | 600 | 4 | 10 | 314 | 510 | 270400 | 3,01 | 2,72 | 100 | 301 | 272 | Ok | 450 | 344 | 256 | 61 | 256 | 266 | 133 | 341 | Perlu Sengkang | 47,62 | 314 | Ok | 4 | 10 | 314 | 200 | 354,43 | Ok | 4 D 10 - 100 |
| | Luar Sendi Plastis | 600 | 600 | 4 | 10 | 314 | 510 | 270400 | 3,01 | 2,72 | 100 | 301 | 272 | Ok | 551 | 344 | | | | | | | | | | | 4 | 10 | 314 | | | | 4 D 10 - 200 |
| 12 | Sendi Plastis | 800 | 800 | 5 | 10 | 392,5 | 710 | 518400 | 2,96 | 3,79 | 100 | 296 | 379 | Ok | 551 | 344 | 286 | 112 | 286 | 487 | 243 | 381 | Perlu Sengkang | 63,49 | 392,5 | Ok | 5 | 10 | 392,5 | 200 | 486,31 | Ok | 5 D 10 - 100 |
| | Luar Sendi Plastis | 800 | 800 | 5 | 10 | 392,5 | 710 | 518400 | 2,96 | 3,79 | 100 | 296 | 379 | Ok | 648 | 344 | | | | | | | | | | | 4 | 10 | 314 | | | | 4 D 10 - 200 |
| 11 | Sendi Plastis | 800 | 800 | 5 | 10 | 392,5 | 710 | 518400 | 2,96 | 3,79 | 100 | 296 | 379 | Ok | 648 | 344 | 331 | 164 | 331 | 487 | 243 | 441 | Perlu Sengkang | 63,49 | 392,5 | Ok | 5 | 10 | 392,5 | 200 | 486,31 | Ok | 5 D 10 - 100 |
| | Luar Sendi Plastis | 800 | 800 | 5 | 10 | 392,5 | 710 | 518400 | 2,96 | 3,79 | 100 | 296 | 379 | Ok | 740 | 450 | | | | | | | | | | | 4 | 10 | 314 | | | | 4 D 10 - 200 |
| 10 | Sendi Plastis | 1000 | 1000 | 5 | 13 | 663,325 | 907 | 846400 | 2,93 | 4,84 | 100 | 293 | 484 | Ok | 740 | 450 | 361 | 210 | 361 | 773 | 387 | 481 | Perlu Sengkang | 79,37 | 663,325 | Ok | 4 | 10 | 314 | 200 | 618,19 | Ok | 5 D 13 - 100 |
| | Luar Sendi Plastis | 1000 | 1000 | 5 | 13 | 663,325 | 907 | 846400 | 2,93 | 4,84 | 100 | 293 | 484 | Ok | 740 | 450 | | | | | | | | | | | 4 | 10 | 314 | | | | 4 D 10 - 200 |
| 9 | Sendi Plastis | 1000 | 1000 | 5 | 13 | 663,325 | 907 | 846400 | 2,93 | 4,84 | 100 | 293 | 484 | Ok | 740 | 450 | 361 | 227 | 361 | 773 | 387 | 481 | Perlu Sengkang | 79,37 | 663,325 | Ok | 4 | 10 | 314 | 200 | 618,19 | Ok | 5 D 13 - 100 |
| | Luar Sendi Plastis | 1000 | 1000 | 5 | 13 | 663,325 | 907 | 846400 | 2,93 | 4,84 | 100 | 293 | 484 | Ok | 740 | 450 | | | | | | | | | | | 4 | 10 | 314 | | | | 4 D 10 - 200 |
| 8 | Sendi Plastis | 1000 | 1000 | 5 | 13 | 663,325 | 907 | 846400 | 2,93 | 4,84 | 100 | 293 | 484 | Ok | 740 | 450 | 361 | 259 | 361 | 773 | 387 | 481 | Perlu Sengkang | 79,37 | 663,325 | Ok | 4 | 10 | 314 | 200 | 618,19 | Ok | 5 D 13 - 100 |
| | Luar Sendi Plastis | 1000 | 1000 | 5 | 13 | 663,325 | 907 | 846400 | 2,93 | 4,84 | 100 | 293 | 484 | Ok | 740 | 450 | | | | | | | | | | | 4 | 10 | 314 | | | | 4 D 10 - 200 |
| 7 | Sendi Plastis | 1300 | 1300 | 5 | 13 | 663,325 | 1207 | 1488400 | 2,91 | 6,44 | 100 | 291 | 644 | Ok | 740 | 450 | 361 | 273 | 361 | 1327 | 664 | 481 | Tidak Perlu Sengkang | 103,17 | 663,325 | Ok | 4 | 10 | 314 | 200 | 816,01 | Ok | 5 D 13 - 100 |
| | Luar Sendi Plastis | 1300 | 1300 | 5 | 13 | 663,325 | 1207 | 1488400 | 2,91 | 6,44 | 100 | 291 | 644 | Ok | 740 | 450 | | | | | | | | | | | 4 | 10 | 314 | | | | 4 D 10 - 200 |
| 6 | Sendi Plastis | 1300 | 1300 | 5 | 13 | 663,325 | 1207 | 1488400 | 2,91 | 6,44 | 100 | 291 | 644 | Ok | 740 | 450 | 361 | 297 | 361 | 1327 | 664 | 481 | Tidak Perlu Sengkang | 103,17 | 663,325 | Ok | 4 | 10 | 314 | 200 | 816,01 | Ok | 5 D 13 - 100 |
| | Luar Sendi Plastis | 1300 | 1300 | 5 | 13 | 663,325 | 1207 | 1488400 | 2,91 | 6,44 | 100 | 291 | 644 | Ok | 740 | 450 | | | | | | | | | | | 4 | 10 | 314 | | | | 4 D 10 - 200 |
| 5 | Sendi Plastis | 1300 | 1300 | 5 | 13 | 663,325 | 1207 | 1488400 | 2,91 | 6,44 | 100 | 291 | 644 | Ok | 740 | 450 | 361 | 317 | 361 | 1327 | 664 | 481 | Tidak Perlu Sengkang | 103,17 | 663,325 | Ok | 4 | 10 | 314 | 200 | 816,01 | Ok | 5 D 13 - 100 |
| | Luar Sendi Plastis | 1300 | 1300 | 5 | 13 | 663,325 | 1207 | 1488400 | 2,91 | 6,44 | 100 | 291 | 644 | Ok | 740 | 450 | | | | | | | | | | | 4 | 10 | 314 | | | | 4 D 10 - 200 |
| 4 | Sendi Plastis | 1500 | 1500 | 6 | 13 | 795,99 | 1407 | 2016400 | 2,90 | 7,51 | 100 | 290 | 751 | Ok | 740 | 450 | 361 | 350 | 361 | 1779 | 889 | 481 | Tidak Perlu Sengkang | 119,05 | 795,99 | Ok | 4 | 10 | 314 | 200 | 947,89 | Ok | 6 D 13 - 100 |
| | Luar Sendi Plastis | 1500 | 1500 | 6 | 13 | 795,99 | 1407 | 2016400 | 2,90 | 7,51 | 100 | 290 | 751 | Ok | 740 | 450 | | | | | | | | | | | 4 | 10 | 314 | | | | 4 D 10 - 200 |
| 3 | Sendi Plastis | 1500 | 1500 | 6 | 13 | 795,99 | 1407 | 2016400 | 2,90 | 7,51 | 100 | 290 | 751 | Ok | 740 | 450 | 361 | 365 | 361 | 1779 | 889 | 481 | Tidak Perlu Sengkang | 119,05 | 795,99 | Ok | 4 | 10 | 314 | 200 | 947,89 | Ok | 6 D 13 - 100 |
| | Luar Sendi Plastis | 1500 | 1500 | 6 | 13 | 795,99 | 1407 | 2016400 | 2,90 | 7,51 | 100 | 290 | 751 | Ok | 740 | 450 | | | | | | | | | | | 4 | 10 | 314 | | | | 4 D 10 - 200 |
| 2 | Sendi Plastis | 1500 | 1500 | 6 | 13 | 795,99 | 1407 | 2016400 | 2,90 | 7,51 | 100 | 290 | 751 | Ok | 740 | 450 | 361 | 375 | 361 | 1779 | 889 | 481 | Tidak Perlu Sengkang | 119,05 | 795,99 | Ok | 4 | 10 | 314 | 200 | 947,89 | Ok | 6 D 13 - 100 |
| | Luar Sendi Plastis | 1500 | 1500 | 6 | 13 | 795,99 | 1407 | 2016400 | 2,90 | 7,51 | 100 | 290 | 751 | Ok | 740 | 450 | | | | | | | | | | | 4 | 10 | 314 | | | | 4 D 10 - 200 |
| 1 | Sendi Plastis | 1500 | 1500 | 6 | 13 | 795,99 | 1407 | 2016400 | 2,90 | 7,51 | 100 | 290 | 751 | Ok | 740 | 450 | 361 | 375 | 361 | 1779 | 889 | 481 | Tidak Perlu Sengkang | 119,05 | 795,99 | Ok | 4 | 10 | 314 | 200 | 947,89 | Ok | 6 D 13 - 100 |
| | Luar Sendi Plastis | 1500 | 1500 | 6 | 13 | 795,99 | 1407 | 2016400 | 2,90 | 7,51 | 100 | 290 | 751 | Ok | 740 | 450 | | | | | | | | | | | 4 | 10 | 314 | | | | 4 D 10 - 200 |

F.11. Penulangan Longitudinal kolom Gedung 12 tingkat kolom As-4 (Tanah Lunak)

| Lantai | Lokasi | Kolom | | Tulangan | 0,01<ρ<0,06 | Momen desain balok | | 1,2 $\sum Mg$ | Gaya aksial kolom | | | $\emptyset M_{n\text{-}abv}$ | $\emptyset M_{n\text{-}dsn}$ | $\emptyset M_{n\text{-}blw}$ | $\sum Mc$ | Status | ρ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Mpr1 | Mpr3 | | $\emptyset P_{n\text{-}abv}$ | $\emptyset P_{n\text{-}dsn}$ | $\emptyset P_{n\text{-}blw}$ | | | | | | |
| | | b (mm) | h (mm) | | | (kN.m) | (kN.m) | (kN.m) | (kN) | (kN) | (kN) | (kN.m) | (kN.m) | (kN.m) | (kN.m) | | (%) |
| Atap | Atas | 600 | 600 | 16 D 25 | 0,02180556 | 449,756 | 344,031 | 952,544 | 361,92 | 361,92 | | 783 | 783 | | 1566 | Ok | 2,180556 |
| | Bawah | 600 | 600 | 16 D 25 | 0,02180556 | 449,756 | 344,031 | 952,544 | | 361,92 | 1254,26 | | 783 | 912 | 1695 | Ok | 2,180556 |
| 12 | Atas | 800 | 800 | 28 D 25 | 0,02146484 | 740,076 | 449,756 | 1427,8 | 361,92 | 1254,26 | | 1827 | 2024 | | 3851 | Ok | 2,146484 |
| | Bawah | 800 | 800 | 28 D 25 | 0,02146484 | 740,076 | 449,756 | 1427,8 | | 1254,26 | 2145,75 | | 2024 | 2177 | 4201 | Ok | 2,146484 |
| 11 | Atas | 800 | 800 | 28 D 25 | 0,02146484 | 911,243 | 551,005 | 1754,7 | 1254,26 | 2145,75 | | 2024 | 2177 | | 4201 | Ok | 2,146484 |
| | Bawah | 800 | 800 | 28 D 25 | 0,02146484 | 911,243 | 551,005 | 1754,7 | | 2145,75 | 3079,07 | | 2177 | 2116 | 4293 | Ok | 2,146484 |
| 10 | Atas | 1000 | 1000 | 36 D 25 | 0,01766250 | 1134,42 | 647,78 | 2138,64 | 2145,75 | 3079,07 | | 3541 | 3763 | | 7304 | Ok | 1,76625 |
| | Bawah | 1000 | 1000 | 36 D 25 | 0,01766250 | 1134,425 | 647,779 | 2138,64 | | 3079,07 | 4013,23 | | 3763 | 3953 | 7716 | Ok | 1,76625 |
| 9 | Atas | 1000 | 1000 | 44 D 25 | 0,02158750 | 1199,867 | 740,076 | 2327,93 | 3079,07 | 4013,23 | | 4280 | 4453 | | 8733 | Ok | 2,15875 |
| | Bawah | 1000 | 1000 | 44 D 25 | 0,02158750 | 1199,867 | 740,076 | 2327,93 | | 4013,23 | 4999,06 | | 4453 | 4228 | 8681 | Ok | 2,15875 |
| 8 | Atas | 1300 | 1300 | 56 D 25 | 0,01625740 | 1134,425 | 740,076 | 2249,4 | 4013,23 | 4999,06 | | 7586 | 7901 | | 15487 | Ok | 1,62574 |
| | Bawah | 1300 | 1300 | 56 D 25 | 0,01625740 | 1134,425 | 740,076 | 2249,4 | | 4999,06 | 5920 | | 7901 | 8171 | 16072 | Ok | 1,62574 |
| 7 | Atas | 1300 | 1300 | 56 D 25 | 0,01625740 | 1199,867 | 740,076 | 2327,93 | 4999,06 | 5920 | | 7901 | 8171 | | 16072 | Ok | 1,62574 |
| | Bawah | 1300 | 1300 | 56 D 25 | 0,01625740 | 1199,867 | 740,076 | 2327,93 | | 5920 | 6925 | | 8171 | 8437 | 16608 | Ok | 1,62574 |
| 6 | Atas | 1300 | 1300 | 60 D 25 | 0,01741864 | 1199,87 | 740,08 | 2327,93 | 5920 | 6925 | | 8517 | 8772 | | 17289 | Ok | 1,741864 |
| | Bawah | 1300 | 1300 | 60 D 25 | 0,01741864 | 1199,867 | 740,076 | 2327,93 | | 6925 | 7933 | | 8772 | 8994 | 17766 | Ok | 1,741864 |
| 5 | Atas | 1300 | 1300 | 60 D 25 | 0,01741864 | 1199,867 | 740,076 | 2327,93 | 6925 | 7933 | | 8772 | 8994 | | 17766 | Ok | 1,741864 |
| | Bawah | 1300 | 1300 | 60 D 25 | 0,01741864 | 1199,867 | 740,076 | 2327,93 | | 7933 | 9007 | | 8994 | 8437 | 17431 | Ok | 1,741864 |
| 4 | Atas | 1500 | 1500 | 60 D 25 | 0,01308333 | 1199,867 | 740,076 | 2327,93 | 7933 | 9007 | | 11173 | 11532 | | 22705 | Ok | 1,308333 |
| | Bawah | 1500 | 1500 | 60 D 25 | 0,01308333 | 1199,867 | 740,076 | 2327,93 | | 9007 | 10087 | | 11532 | 11849 | 23381 | Ok | 1,308333 |
| 3 | Atas | 1500 | 1500 | 60 D 25 | 0,01308333 | 1134,425 | 740,076 | 2249,4 | 9007 | 10087 | | 11532 | 11849 | | 23381 | Ok | 1,308333 |
| | Bawah | 1500 | 1500 | 60 D 25 | 0,01308333 | 1134,425 | 740,076 | 2249,4 | | 10087 | 11048 | | 11849 | 12106 | 23955 | Ok | 1,308333 |
| 2 | Atas | 1500 | 1500 | 68 D 25 | 0,01482778 | 1199,87 | 740,08 | 2327,93 | 10087 | 11048 | | 12634 | 12876 | | 25510 | Ok | 1,482778 |
| | Bawah | 1500 | 1500 | 68 D 25 | 0,01482778 | 1199,867 | 740,076 | 2327,93 | | 11048 | 12044 | | 12876 | 12293 | 25169 | Ok | 1,482778 |
| 1 | Atas | 1500 | 1500 | 68 D 25 | 0,01482778 | 740,076 | 449,756 | 1427,8 | 11048 | 12044 | | 12876 | 12293 | | 25169 | Ok | 1,482778 |
| | Bawah | 1500 | 1500 | 68 D 25 | 0,01482778 | 740,076 | 449,756 | 1427,8 | | 12044 | 12044 | | 12293 | 12293 | 24586 | Ok | 1,482778 |

F.12. Penulangan Transversal kolom Gedung 12 tingkat kolom As-4 (Tanah Lunak)

| Lantai | Lokasi | Kolom | | Tulangan | Diameter | Confinement | | | | | | | | | Sengkang Sendi Plastis | | | | | | | | | | | | Sengkang Luar Sendi Plastis | | | | | | Sengkang Terpasang |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Ash-dsn | bc | Ach | Ash | Ash/s | s Desain 100<s<150 | Ash-1 min | Ash-2 min | Cek | Mpr1 | Mpr3 | Vsway | Vu Etabs | Ve ve>vu | Vc | 1/2 Vc | Ve reduksi | Cek | Av-min | Pakai Ash | Cek | Tulangan | Diameter | Ash-dsn | Coba S-dsn | Vs | Cek | |
| | | b(mm) | h(mm) | (kaki) | tul | (mm2) | (mm) | (mm2) | (mm2) | (mm2) | mm | (mm2) | (mm2) | Ash-dsn>Ash 1,2 | Kn | Kn | Kn | Kn | Kn | Kn | Kn | Kn | Ve-reduksi>1/2 Vc | (mm2) | (mm2) | Ash-dsn>Avmin | (kaki) | tul | (mm2) | mm | Kn | Vs>Ve reduksi | |
| Atap | Sendi Plastis | 600 | 600 | 4 | 10 | 314 | 510 | 270400 | 3,01 | 2,72 | 100 | 301 | 272 | Ok | 450 | 344 | 301 | 61 | 301 | 266 | 133 | 401 | Perlu Sengkang | 47,62 | 314 | Ok | 4 | 10 | 314 | 200 | 354,43 | Not Ok | 4 D 10 - 100 |
| | Luar Sendi Plastis | 600 | 600 | 4 | 10 | 314 | 510 | 270400 | 3,01 | 2,72 | 100 | 301 | 272 | Ok | 740 | 450 | | | | | | | | | | | 4 | 10 | 314 | | | | 4 D 10 - 200 |
| 12 | Sendi Plastis | 800 | 800 | 5 | 10 | 392,5 | 710 | 518400 | 2,96 | 3,79 | 100 | 296 | 379 | Ok | 740 | 450 | 402 | 112 | 402 | 487 | 243 | 536 | Perlu Sengkang | 63,49 | 392,5 | Ok | 5 | 10 | 392,5 | 200 | 486,31 | Not Ok | 5 D 10 - 100 |
| | Luar Sendi Plastis | 800 | 800 | 5 | 10 | 392,5 | 710 | 518400 | 2,96 | 3,79 | 100 | 296 | 379 | Ok | 911 | 551 | | | | | | | | | | | 4 | 10 | 314 | | | | 4 D 10 - 200 |
| 11 | Sendi Plastis | 800 | 800 | 5 | 10 | 392,5 | 710 | 518400 | 2,96 | 3,79 | 100 | 296 | 379 | Ok | 911 | 551 | 492 | 164 | 492 | 487 | 243 | 655 | Perlu Sengkang | 63,49 | 392,5 | Ok | 5 | 10 | 392,5 | 200 | 486,31 | Not Ok | 5 D 10 - 100 |
| | Luar Sendi Plastis | 800 | 800 | 5 | 10 | 392,5 | 710 | 518400 | 2,96 | 3,79 | 100 | 296 | 379 | Ok | 1134 | 648 | | | | | | | | | | | 4 | 10 | 314 | | | | 4 D 10 - 200 |
| 10 | Sendi Plastis | 1000 | 1000 | 5 | 13 | 663,325 | 907 | 846400 | 2,93 | 4,84 | 100 | 293 | 484 | Ok | 1134 | 648 | 564 | 210 | 564 | 773 | 387 | 752 | Perlu Sengkang | 79,37 | 663,325 | Ok | 4 | 10 | 314 | 200 | 772,73 | Ok | 5 D 13 - 100 |
| | Luar Sendi Plastis | 1000 | 1000 | 5 | 13 | 663,325 | 907 | 846400 | 2,93 | 4,84 | 100 | 293 | 484 | Ok | 1200 | 740 | | | | | | | | | | | 5 | 10 | 392,5 | | | | 5 D 10 - 200 |
| 9 | Sendi Plastis | 1000 | 1000 | 5 | 13 | 663,325 | 907 | 846400 | 2,93 | 4,84 | 100 | 293 | 484 | Ok | 1200 | 740 | 578 | 227 | 578 | 773 | 387 | 771 | Perlu Sengkang | 79,37 | 663,325 | Ok | 4 | 10 | 314 | 200 | 772,73 | Ok | 5 D 13 - 100 |
| | Luar Sendi Plastis | 1000 | 1000 | 5 | 13 | 663,325 | 907 | 846400 | 2,93 | 4,84 | 100 | 293 | 484 | Ok | 1134 | 740 | | | | | | | | | | | 5 | 10 | 392,5 | | | | 5 D 10 - 200 |
| 8 | Sendi Plastis | 1000 | 1000 | 5 | 13 | 663,325 | 907 | 846400 | 2,93 | 4,84 | 100 | 293 | 484 | Ok | 1134 | 740 | 578 | 259 | 578 | 773 | 387 | 771 | Perlu Sengkang | 79,37 | 663,325 | Ok | 4 | 10 | 314 | 200 | 772,73 | Ok | 5 D 13 - 100 |
| | Luar Sendi Plastis | 1000 | 1000 | 5 | 13 | 663,325 | 907 | 846400 | 2,93 | 4,84 | 100 | 293 | 484 | Ok | 1200 | 740 | | | | | | | | | | | 5 | 10 | 392,5 | | | | 5 D 10 - 200 |
| 7 | Sendi Plastis | 1300 | 1300 | 5 | 13 | 663,325 | 1207 | 1488400 | 2,91 | 6,44 | 100 | 291 | 644 | Ok | 1200 | 740 | 588 | 273 | 588 | 1327 | 664 | 784 | Perlu Sengkang | 103,17 | 663,325 | Ok | 4 | 10 | 314 | 200 | 816,01 | Ok | 5 D 13 - 100 |
| | Luar Sendi Plastis | 1300 | 1300 | 5 | 13 | 663,325 | 1207 | 1488400 | 2,91 | 6,44 | 100 | 291 | 644 | Ok | 1200 | 740 | | | | | | | | | | | 4 | 10 | 314 | | | | 4 D 10 - 200 |
| 6 | Sendi Plastis | 1300 | 1300 | 5 | 13 | 663,325 | 1207 | 1488400 | 2,91 | 6,44 | 100 | 291 | 644 | Ok | 1200 | 740 | 588 | 297 | 588 | 1327 | 664 | 784 | Perlu Sengkang | 103,17 | 663,325 | Ok | 4 | 10 | 314 | 200 | 816,01 | Ok | 5 D 13 - 100 |
| | Luar Sendi Plastis | 1300 | 1300 | 5 | 13 | 663,325 | 1207 | 1488400 | 2,91 | 6,44 | 100 | 291 | 644 | Ok | 1200 | 740 | | | | | | | | | | | 4 | 10 | 314 | | | | 4 D 10 - 200 |
| 5 | Sendi Plastis | 1300 | 1300 | 5 | 13 | 663,325 | 1207 | 1488400 | 2,91 | 6,44 | 100 | 291 | 644 | Ok | 1200 | 740 | 588 | 317 | 588 | 1327 | 664 | 784 | Perlu Sengkang | 103,17 | 663,325 | Ok | 4 | 10 | 314 | 200 | 816,01 | Ok | 5 D 13 - 100 |
| | Luar Sendi Plastis | 1300 | 1300 | 5 | 13 | 663,325 | 1207 | 1488400 | 2,91 | 6,44 | 100 | 291 | 644 | Ok | 1200 | 740 | | | | | | | | | | | 4 | 10 | 314 | | | | 4 D 10 - 200 |
| 4 | Sendi Plastis | 1500 | 1500 | 6 | 13 | 795,99 | 1407 | 2016400 | 2,90 | 7,51 | 100 | 290 | 751 | Ok | 1200 | 740 | 578 | 350 | 578 | 1779 | 889 | 771 | Tidak Perlu Sengkang | 119,05 | 795,99 | Ok | 4 | 10 | 314 | 200 | 947,89 | Ok | 6 D 13 - 100 |
| | Luar Sendi Plastis | 1500 | 1500 | 6 | 13 | 795,99 | 1407 | 2016400 | 2,90 | 7,51 | 100 | 290 | 751 | Ok | 1134 | 740 | | | | | | | | | | | 4 | 10 | 314 | | | | 4 D 10 - 200 |
| 3 | Sendi Plastis | 1500 | 1500 | 6 | 13 | 795,99 | 1407 | 2016400 | 2,90 | 7,51 | 100 | 290 | 751 | Ok | 1134 | 740 | 578 | 365 | 578 | 1779 | 889 | 771 | Tidak Perlu Sengkang | 119,05 | 795,99 | Ok | 4 | 10 | 314 | 200 | 947,89 | Ok | 6 D 13 - 100 |
| | Luar Sendi Plastis | 1500 | 1500 | 6 | 13 | 795,99 | 1407 | 2016400 | 2,90 | 7,51 | 100 | 290 | 751 | Ok | 1200 | 740 | | | | | | | | | | | 4 | 10 | 314 | | | | 4 D 10 - 200 |
| 2 | Sendi Plastis | 1500 | 1500 | 6 | 13 | 795,99 | 1407 | 2016400 | 2,90 | 7,51 | 100 | 290 | 751 | Ok | 1200 | 740 | 474 | 375 | 474 | 1779 | 889 | 632 | Tidak Perlu Sengkang | 119,05 | 795,99 | Ok | 4 | 10 | 314 | 200 | 947,89 | Ok | 6 D 13 - 100 |
| | Luar Sendi Plastis | 1500 | 1500 | 6 | 13 | 795,99 | 1407 | 2016400 | 2,90 | 7,51 | 100 | 290 | 751 | Ok | 740 | 450 | | | | | | | | | | | 4 | 10 | 314 | | | | 4 D 10 - 200 |
| 1 | Sendi Plastis | 1500 | 1500 | 6 | 13 | 795,99 | 1407 | 2016400 | 2,90 | 7,51 | 100 | 290 | 751 | Ok | 740 | 450 | 361 | 375 | 361 | 1779 | 889 | 481 | Tidak Perlu Sengkang | 119,05 | 795,99 | Ok | 4 | 10 | 314 | 200 | 947,89 | Ok | 6 D 13 - 100 |
| | Luar Sendi Plastis | 1500 | 1500 | 6 | 13 | 795,99 | 1407 | 2016400 | 2,90 | 7,51 | 100 | 290 | 751 | Ok | 740 | 450 | | | | | | | | | | | 4 | 10 | 314 | | | | 4 D 10 - 200 |

# LAMPIRAN G

## Perhitungan Hubungan Balok-Kolom (HBK)

G.1. Perhitungan Balok-Kolom Gedung 4 tingkat As-4 (Tanah Keras)

| Lantai | Kolom | | Ast | fy | Mpr1 | Mpr3 | Me | Vsway | Balok Kiri | | Balok Kanan | | Vu | Vn | Cek |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | T1 | C1 | T2 | C2 | | | |
| | b(mm) | h(mm) | (mm2) | Mpa | (kN.m) | (kN.m) | Kn | Kn | Kn | Kn | Kn | Kn | Kn | Kn | Vn>Vu |
| Atap | 500 | 500 | 1520 | 420 | 449,76 | 344,03 | 396,89 | 240,54 | 797,87 | 797,87 | 797,87 | 797,87 | 1355,21 | 1590,56 | Ok, Kuat Geser Memadai |
| 4 | 600 | 600 | 1899,70 | 420 | 560,50 | 349,73 | 455,12 | 275,83 | 997,34 | 997,34 | 997,34 | 997,34 | 1718,86 | 2290,41 | Ok, Kuat Geser Memadai |
| 3 | 600 | 600 | 2279,64 | 420 | 659,18 | 349,73 | 504,45 | 305,73 | 1196,81 | 1196,81 | 1196,81 | 1196,81 | 2087,89 | 2290,41 | Ok, Kuat Geser Memadai |
| 2 | 700 | 700 | 2279,64 | 420 | 659,18 | 349,73 | 504,45 | 305,73 | 1196,81 | 1196,81 | 1196,81 | 1196,81 | 2087,89 | 3117,50 | Ok, Kuat Geser Memadai |
| 1 | 700 | 700 | 2279,64 | 420 | 659,18 | 349,73 | 504,45 | 305,73 | 1196,81 | 1196,81 | 1196,81 | 1196,81 | 2087,89 | 3117,50 | Ok, Kuat Geser Memadai |

G.2. Perhitungan Balok-Kolom Gedung 4 tingkat As-4 (Tanah Lunak)

| Lantai | Kolom | | Ast | fy | Mpr1 | Mpr3 | Me | Vsway | Balok Kiri | | Balok Kanan | | Vu | Vn | Cek |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | T1 | C1 | T2 | C2 | | | |
| | b(mm) | h(mm) | (mm2) | Mpa | (kN.m) | (kN.m) | Kn | Kn | Kn | Kn | Kn | Kn | Kn | Kn | Vn>Vu |
| Atap | 500 | 500 | 1520 | 420 | 449,76 | 344,03 | 396,89 | 240,54 | 797,87 | 797,87 | 797,87 | 797,87 | 1355,21 | 1590,56 | Ok, Kuat Geser Memadai |
| 4 | 600 | 600 | 1899,70 | 420 | 560,50 | 349,73 | 455,12 | 275,83 | 997,34 | 997,34 | 997,34 | 997,34 | 1718,86 | 2290,41 | Ok, Kuat Geser Memadai |
| 3 | 600 | 600 | 2279,64 | 420 | 659,18 | 349,73 | 504,45 | 305,73 | 1196,81 | 1196,81 | 1196,81 | 1196,81 | 2087,89 | 2290,41 | Ok, Kuat Geser Memadai |
| 2 | 700 | 700 | 2279,64 | 420 | 659,18 | 349,73 | 504,45 | 305,73 | 1196,81 | 1196,81 | 1196,81 | 1196,81 | 2087,89 | 3117,50 | Ok, Kuat Geser Memadai |
| 1 | 700 | 700 | 2279,64 | 420 | 659,18 | 349,73 | 504,45 | 305,73 | 1196,81 | 1196,81 | 1196,81 | 1196,81 | 2087,89 | 3117,50 | Ok, Kuat Geser Memadai |

G.3. Perhitungan Balok-Kolom Gedung 8 tingkat As-4 (Tanah Keras)

| Lantai | Kolom | | Ast | fy | Mpr1 | Mpr3 | Me | Vsway | Balok Kiri | | Balok Kanan | | Vu | Vn | Cek |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Blk tmpn | | | | | | T1 | C1 | T2 | C2 | | | |
| | b(mm) | h(mm) | (mm2) | Mpa | (kN.m) | (kN.m) | Kn | Kn | Kn | Kn | Kn | Kn | Kn | Kn | Vn>Vu |
| Atap | 600 | 600 | 1519,76 | 420 | 449,76 | 344,03 | 396,89 | 240,54 | 797,87 | 797,87 | 797,87 | 797,87 | 1355,21 | 2290,41 | Ok, Kuat Geser Memadai |
| 8 | 800 | 800 | 1899,70 | 420 | 551,01 | 344,03 | 447,52 | 271,22 | 997,34 | 997,34 | 997,34 | 997,34 | 1723,46 | 4071,83 | Ok, Kuat Geser Memadai |
| 7 | 800 | 800 | 2279,64 | 420 | 647,78 | 344,03 | 495,90 | 300,55 | 1196,81 | 1196,81 | 1196,81 | 1196,81 | 2093,07 | 4071,83 | Ok, Kuat Geser Memadai |
| 6 | 1000 | 1000 | 2279,64 | 420 | 647,78 | 344,03 | 495,90 | 300,55 | 1196,81 | 1196,81 | 1196,81 | 1196,81 | 2093,07 | 6362,24 | Ok, Kuat Geser Memadai |
| 5 | 1000 | 1000 | 2279,64 | 420 | 647,78 | 344,03 | 495,90 | 300,55 | 1196,81 | 1196,81 | 1196,81 | 1196,81 | 2093,07 | 6362,24 | Ok, Kuat Geser Memadai |
| 4 | 1200 | 1200 | 2279,64 | 420 | 647,78 | 344,03 | 495,90 | 300,55 | 1196,81 | 1196,81 | 1196,81 | 1196,81 | 2093,07 | 9161,62 | Ok, Kuat Geser Memadai |
| 3 | 1200 | 1200 | 2279,64 | 420 | 647,78 | 344,03 | 495,90 | 300,55 | 1196,81 | 1196,81 | 1196,81 | 1196,81 | 2093,07 | 9161,62 | Ok, Kuat Geser Memadai |
| 2 | 1200 | 1200 | 2279,64 | 420 | 647,78 | 344,03 | 495,90 | 300,55 | 1196,81 | 1196,81 | 1196,81 | 1196,81 | 2093,07 | 9161,62 | Ok, Kuat Geser Memadai |
| 1 | 1200 | 1200 | 2279,64 | 420 | 647,78 | 344,03 | 495,90 | 300,55 | 1196,81 | 1196,81 | 1196,81 | 1196,81 | 2093,07 | 9161,62 | Ok, Kuat Geser Memadai |

G.4. Perhitungan Balok-Kolom Gedung 8 tingkat As-4 (Tanah Lunak)

| Lantai | Kolom | | Ast | fy | Mpr1 | Mpr3 | Me | Vsway | Balok Kiri | | Balok Kanan | | Vu | Vn | Cek |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Blk tmpn | | | | | | T1 | C1 | T2 | C2 | | | |
| | b(mm) | h(mm) | (mm2) | Mpa | (kN.m) | (kN.m) | Kn | Kn | Kn | Kn | Kn | Kn | Kn | Kn | Vn>Vu |
| Atap | 600 | 600 | 1519,76 | 420 | 449,76 | 55,45 | 252,60 | 153,09 | 797,87 | 797,87 | 797,87 | 797,87 | 1442,66 | 2290,41 | Ok, Kuat Geser Memadai |
| 8 | 800 | 800 | 2659,58 | 420 | 740,08 | 449,76 | 594,92 | 360,56 | 1396,28 | 1396,28 | 1396,28 | 1396,28 | 2432,00 | 4071,83 | Ok, Kuat Geser Memadai |
| 7 | 800 | 800 | 3039,52 | 420 | 827,90 | 449,76 | 638,83 | 387,17 | 1595,75 | 1595,75 | 1595,75 | 1595,75 | 2804,33 | 4071,83 | Ok, Kuat Geser Memadai |
| 6 | 1000 | 1000 | 3419,46 | 420 | 911,24 | 551,01 | 731,12 | 443,11 | 1795,22 | 1795,22 | 1795,22 | 1795,22 | 3147,33 | 6362,24 | Ok, Kuat Geser Memadai |
| 5 | 1000 | 1000 | 3419,46 | 420 | 911,24 | 551,01 | 731,12 | 443,11 | 1795,22 | 1795,22 | 1795,22 | 1795,22 | 3147,33 | 6362,24 | Ok, Kuat Geser Memadai |
| 4 | 1200 | 1200 | 3419,46 | 420 | 911,24 | 551,01 | 731,12 | 443,11 | 1795,22 | 1795,22 | 1795,22 | 1795,22 | 3147,33 | 9161,62 | Ok, Kuat Geser Memadai |
| 3 | 1200 | 1200 | 3419,46 | 420 | 911,24 | 551,01 | 731,12 | 443,11 | 1795,22 | 1795,22 | 1795,22 | 1795,22 | 3147,33 | 9161,62 | Ok, Kuat Geser Memadai |
| 2 | 1200 | 1200 | 3419,46 | 420 | 911,24 | 551,01 | 731,12 | 443,11 | 1795,22 | 1795,22 | 1795,22 | 1795,22 | 3147,33 | 9161,62 | Ok, Kuat Geser Memadai |
| 1 | 1200 | 1200 | 3419,46 | 420 | 911,24 | 551,01 | 731,12 | 443,11 | 1795,22 | 1795,22 | 1795,22 | 1795,22 | 3147,33 | 9161,62 | Ok, Kuat Geser Memadai |

## G.5. Perhitungan Balok-Kolom Gedung 12 tingkat As-4 (Tanah Keras)

| Lantai | Kolom | | Ast | fy | Mpr1 | Mpr3 | Me | Vsway | Balok Kiri | | Balok Kanan | | Vu | Vn | Cek |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Blk tmpn | | | | | | T1 | C1 | T2 | C2 | | | |
| | b(mm) | h(mm) | (mm2) | Mpa | (kN.m) | (kN.m) | Kn | Kn | Kn | Kn | Kn | Kn | Kn | Kn | Vn>Vu |
| Atap | 600 | 600 | 1519,76 | 420 | 449,76 | 344,03 | 396,89 | 240,54 | 797,87 | 797,87 | 797,87 | 797,87 | 1355,21 | 2290,41 | Ok, Kuat Geser Memadai |
| 12 | 800 | 800 | 1899,70 | 420 | 551,01 | 344,03 | 447,52 | 271,22 | 997,34 | 997,34 | 997,34 | 997,34 | 1723,46 | 4071,83 | Ok, Kuat Geser Memadai |
| 11 | 800 | 800 | 2279,64 | 420 | 647,78 | 344,03 | 495,90 | 300,55 | 1196,81 | 1196,81 | 1196,81 | 1196,81 | 2093,07 | 4071,83 | Ok, Kuat Geser Memadai |
| 10 | 1000 | 1000 | 2659,58 | 420 | 740,08 | 449,76 | 594,92 | 360,56 | 1396,28 | 1396,28 | 1396,28 | 1396,28 | 2432,00 | 6362,24 | Ok, Kuat Geser Memadai |
| 9 | 1000 | 1000 | 2659,58 | 420 | 740,08 | 449,76 | 594,92 | 360,56 | 1396,28 | 1396,28 | 1396,28 | 1396,28 | 2432,00 | 6362,24 | Ok, Kuat Geser Memadai |
| 8 | 1000 | 1000 | 2659,58 | 420 | 740,08 | 449,76 | 594,92 | 360,56 | 1396,28 | 1396,28 | 1396,28 | 1396,28 | 2432,00 | 6362,24 | Ok, Kuat Geser Memadai |
| 7 | 1300 | 1300 | 2659,58 | 420 | 740,08 | 449,76 | 594,92 | 360,56 | 1396,28 | 1396,28 | 1396,28 | 1396,28 | 2432,00 | 10752,18 | Ok, Kuat Geser Memadai |
| 6 | 1300 | 1300 | 2659,58 | 420 | 740,08 | 449,76 | 594,92 | 360,56 | 1396,28 | 1396,28 | 1396,28 | 1396,28 | 2432,00 | 10752,18 | Ok, Kuat Geser Memadai |
| 5 | 1300 | 1300 | 2659,58 | 420 | 740,08 | 449,76 | 594,92 | 360,56 | 1396,28 | 1396,28 | 1396,28 | 1396,28 | 2432,00 | 10752,18 | Ok, Kuat Geser Memadai |
| 4 | 1300 | 1300 | 2659,58 | 420 | 740,08 | 449,76 | 594,92 | 360,56 | 1396,28 | 1396,28 | 1396,28 | 1396,28 | 2432,00 | 10752,18 | Ok, Kuat Geser Memadai |
| 3 | 1300 | 1300 | 2659,58 | 420 | 740,08 | 449,76 | 594,92 | 360,56 | 1396,28 | 1396,28 | 1396,28 | 1396,28 | 2432,00 | 10752,18 | Ok, Kuat Geser Memadai |
| 2 | 1500 | 1500 | 2659,58 | 420 | 740,08 | 449,76 | 594,92 | 360,56 | 1396,28 | 1396,28 | 1396,28 | 1396,28 | 2432,00 | 14315,03 | Ok, Kuat Geser Memadai |
| 1 | 1500 | 1500 | 2659,58 | 420 | 740,08 | 449,76 | 594,92 | 360,56 | 1396,28 | 1396,28 | 1396,28 | 1396,28 | 2432,00 | 14315,03 | Ok, Kuat Geser Memadai |

## G.6. Perhitungan Balok-Kolom Gedung 12 tingkat As-4 (Tanah Lunak)

| Lantai | Kolom | | Ast | fy | Mpr1 | Mpr3 | Me | Vsway | Balok Kiri | | Balok Kanan | | Vu | Vn | Cek |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Blk tmpn | | | | | | T1 | C1 | T2 | C2 | | | |
| | b(mm) | h(mm) | (mm2) | Mpa | (kN.m) | (kN.m) | Kn | Kn | Kn | Kn | Kn | Kn | Kn | Kn | Vn>Vu |
| Atap | 600 | 600 | 1519,76 | 420 | 449,76 | 344,03 | 396,89 | 240,54 | 797,87 | 797,87 | 797,87 | 797,87 | 1355,21 | 2290,41 | Ok, Kuat Geser Memadai |
| 12 | 800 | 800 | 2659,58 | 420 | 740,08 | 449,76 | 594,92 | 360,56 | 1396,28 | 1396,28 | 1396,28 | 1396,28 | 2432,00 | 4071,83 | Ok, Kuat Geser Memadai |
| 11 | 800 | 800 | 3419,46 | 420 | 911,24 | 551,01 | 731,12 | 443,11 | 1795,22 | 1795,22 | 1795,22 | 1795,22 | 3147,33 | 4071,83 | Ok, Kuat Geser Memadai |
| 10 | 1000 | 1000 | 4559,28 | 420 | 1134,42 | 647,78 | 891,10 | 540,06 | 2393,62 | 2393,62 | 2393,62 | 2393,62 | 4247,18 | 6362,24 | Ok, Kuat Geser Memadai |
| 9 | 1000 | 1000 | 4939,22 | 420 | 1199,87 | 740,08 | 969,97 | 587,86 | 2593,09 | 2593,09 | 2593,09 | 2593,09 | 4598,32 | 6362,24 | Ok, Kuat Geser Memadai |
| 8 | 1000 | 1000 | 4559,28 | 420 | 1134,42 | 740,08 | 937,25 | 568,03 | 2393,62 | 2393,62 | 2393,62 | 2393,62 | 4219,21 | 6362,24 | Ok, Kuat Geser Memadai |
| 7 | 1300 | 1300 | 4939,22 | 420 | 1199,87 | 740,08 | 969,97 | 587,86 | 2593,09 | 2593,09 | 2593,09 | 2593,09 | 4598,32 | 10752,18 | Ok, Kuat Geser Memadai |
| 6 | 1300 | 1300 | 4939,22 | 420 | 1199,87 | 740,08 | 969,97 | 587,86 | 2593,09 | 2593,09 | 2593,09 | 2593,09 | 4598,32 | 10752,18 | Ok, Kuat Geser Memadai |
| 5 | 1300 | 1300 | 4939,22 | 420 | 1199,87 | 740,08 | 969,97 | 587,86 | 2593,09 | 2593,09 | 2593,09 | 2593,09 | 4598,32 | 10752,18 | Ok, Kuat Geser Memadai |
| 4 | 1300 | 1300 | 4939,22 | 420 | 1199,87 | 740,08 | 969,97 | 587,86 | 2593,09 | 2593,09 | 2593,09 | 2593,09 | 4598,32 | 10752,18 | Ok, Kuat Geser Memadai |
| 3 | 1300 | 1300 | 4559,28 | 420 | 1134,42 | 740,08 | 937,25 | 568,03 | 2393,62 | 2393,62 | 2393,62 | 2393,62 | 4219,21 | 10752,18 | Ok, Kuat Geser Memadai |
| 2 | 1500 | 1500 | 3799,40 | 420 | 1199,87 | 740,08 | 969,97 | 587,86 | 1994,69 | 1994,69 | 1994,69 | 1994,69 | 3401,51 | 14315,03 | Ok, Kuat Geser Memadai |
| 1 | 1500 | 1500 | 2659,58 | 420 | 740,08 | 449,76 | 594,92 | 360,56 | 1396,28 | 1396,28 | 1396,28 | 1396,28 | 2432,00 | 14315,03 | Ok, Kuat Geser Memadai |