LAMPIRAN

II

Lampiran 8.1

LAPORAN
PENYELIDIKAN TANAH

UNTUK

RENCANA GEDUNG FAKULTAS HUKUM
UNIVERSITAS GADJAH MADA

BANGUNAN 3 LANTAI SELUAS 3000 M2

LOKASI :
FAKULTAS HUKUM UGM
BULAKSUMUR YOGYAKARTA

Dilaksanakan oleh

Laboratorium Mekanika Tanah
PT MUMPUNI
Jln. Flamboyan CT.X/47 Karangasem Yogyakarta,
Telp.(0274)584032 Fax.(0274)589683

YOGYAKARTA
2002

Lampiran 8.2

Laboratorium Mekanika Tanah
PT MUMPUNI
Jln. Flamboyan CT.X/47 Karangasem Yogyakarta, Telp.(0274)584032 Fax.(0274)589683

LAPORAN PENYELIDIKAN TANAH

UNTUK

PERENCANAAN GEDUNG FAKULTAS HUKUM UGM

BANGUNAN 3 LANTAI SELUAS 3000 M2

LOKASI : FAKULTAS HUKUM UGM BULAKSUMUR YOGYAKARTA

I. PENDAHULUAN

A. Umum

Serangkaian penyelidikan tanah telah dilaksanakan oleh Laboratorium Mekanika Tanah, PT Mumpuni di lokasi rencana pembangunan gedung Fakultas Hukum UGM, Bulaksumur, Yogyakarta.

Penyelidikan tanah yang dilakukan bertujuan untuk mengetahui keadaan, jenis, sifat, dan parameter-parameter teknis tanah dasar bangunan. Data yang didapatkan akan digunakan untuk analisis penentuan kedalaman dan daya dukung fondasi serta perkiraan penurunan yang mungkin terjadi.

Pekerjaan penyelidikan tanah yang terdiri atas pekerjaan lapangan laboratorium dilaksanakan dalam bulan Februari 2002. Lokasi yang diselidiki terletak di dalam kompleks Fakultas Hukum UGM, Bulaksumur Yogyakarta.

B. Lingkup Pekerjaan

Pekerjaan penyelidikan tanah yang telah dilaksanakan meliputi :

1) 11 (sebelas) titik pengujian sondir berkapasitas 2,5 ton. Pengujian dilakukan sampai kedalaman lapisan tanah dengan nilai perlawanan konis mencapai 200 kg/cm^2.
2) 3 (tiga) titik pemboran dengan alat bor tangan sampai kedalaman sekitar 2,5 meter.
3) Pengujian laboratorium atas sampel tanah yang diambil untuk menentukan parameter kuat geser tanah yang meliputi berat jenis, berat volume, sudut gesek dalam, dan kohesi tanah.

Lampiran 8.3

II. HASIL PENYELIDIKAN DAN ANALISIS

A. Kondisi Lapisan Tanah

Sebagaimana umumnya daerah Sleman, Yogyakarta, kondisi tanah di lokasi Fakultas Hukum UGM yang diselidiki ini berupa endapan vulkanik, dengan kondisi yang agak bervariasi, baik jenis tanah, ketebalan, maupun kepadatannya. Secara umum deposit di lahan ini tersusun atas lapisan-lapisan pasir tipis yang berganti-ganti kondisi lapisan dan variasi campurannya. Hampir seluruh deposit beripa pasir, dari ukuran halus sampai kasar dan sebagian kecil lapisan mengandung kerikil dan fraksi halus yang non-plastis sebagai pengikat.

Lapisan bagian atas cukup bervariasi, dari yang relatif lepas sampai agak padat. Lapisan bagian atas yang kurang padat ini mempunyai ketebalan 0,70 m sampai 1,00 m dengan nilai perlawanan konis mencapai 11 kg/cm^2. Lapisan di bawahnya pada kedalaman 1,50 m sampai 1,80 m kondisinya lebih baik dengan nilai perlawanan konis sekitar 140 kg/cm^2 sampai 200 kg/cm^2.

Hasil uji laboratorium menunjukkan bahwa tanah setempat mempunyai parameter kuat geser yang berupa kohesi yang sangat rendah dan sudut gesek dalam sekitar 30° .

B. Fondasi

Mengingat tanah cukup keras tidak terlalu dalam, yaitu sekitar 1,80 m sampai 2,00 m, maka fonsai footplat dapat digunakan untuk bangunan yang lahannya diselidiki ini. Dasar fondasi diletakkan pada kedalaman -2,00 m di bawah muka tanah setempat. Kapasitas daya dukung tanah dasar yang diijinkan (qa) untuk bangunan 3 lantai dapat diambil sebesar :

$$qa = 6{,}0 - 7{,}0 \text{ kg/cm}^2 .$$

Jika pada saat penggalian ternyata pada elevasi tersebut belum mencapai tanah keras, maka disarankan untuk meneruskan sedikit sampai lapisan tanah keras.

lampiran B.4

III. PENUTUP

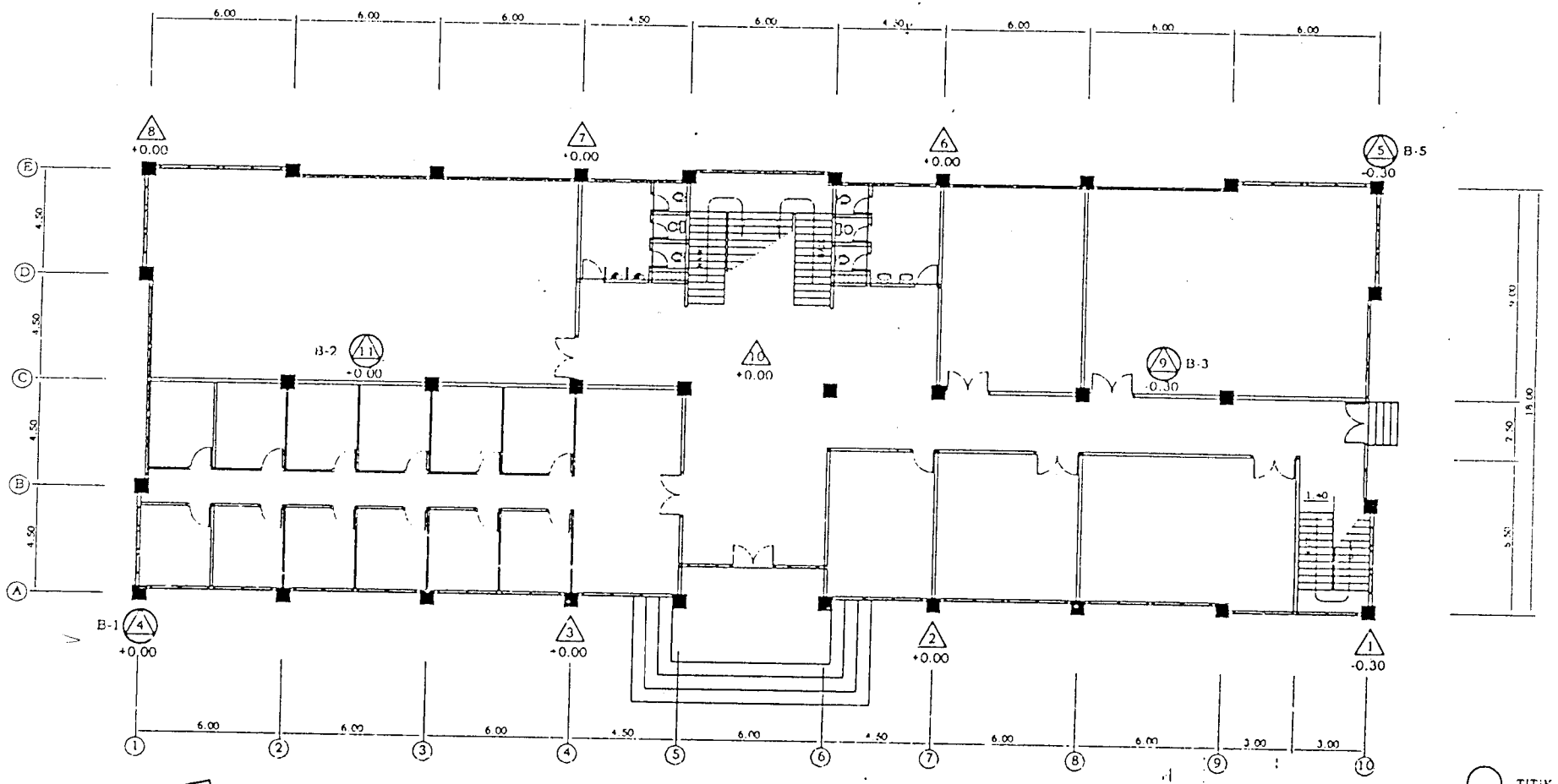
Dalam pelaksanaan pekerjaan nanti, apabila dijumpai hal-hal yang menyimpang, meragukan, atau tak terduga, maka perlu diadakan penyesuaian dengan keadaan tersebut. Keputusan hendaknya diambil oleh fihak-fihak yang menguasai permasalahan.

Yogyakarta, Februari 2002

Laboratorium Mekanika Tanah
PT MUMPUNI

Direktur,

Ir. Syaukat Ali, M.Si.



DENAH TITIK PENYELIDIKAN TANAH

RENCANA GEDUNG FAKULTAS HUKUM UGM 3 LANTAI

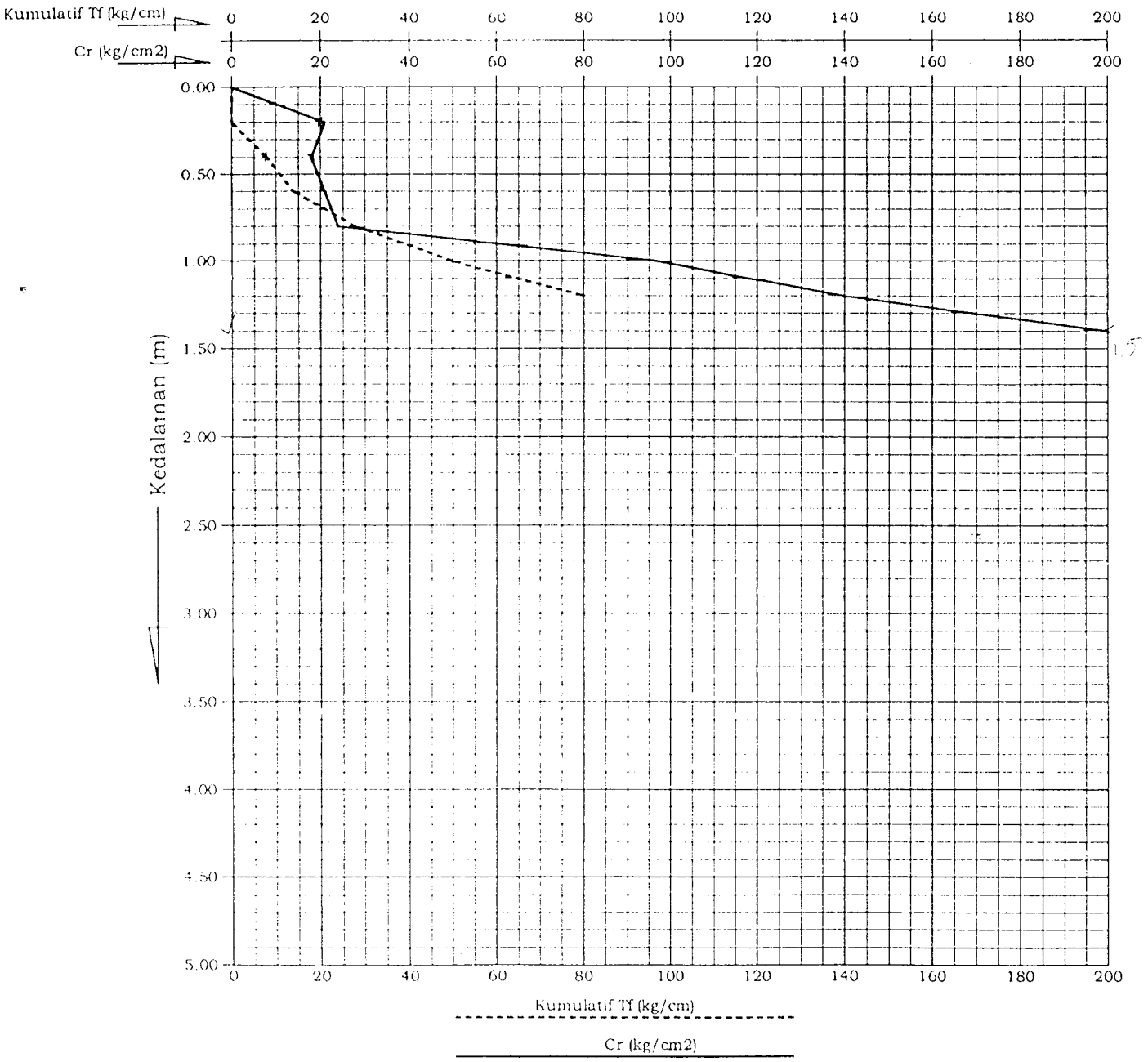
HASIL PENGUJIAN LABORATORIUM

NO. TTK BOR	KEDALAMAN (m)	BERAT/VOLUME (kg/dm^2)	σ (kg/cm^2)	ϕ (°)	C (kg/cm^2)
B-1	-0,70	1,66	0,543	29,915	0,131
	-0,90	1,78	1,958	31,183	0,513
B-2	-0,70	1,64	0,435	31,117	0,115
	-1,30	1,79	1,867	32,142	0,449
B-3	-0,70	1,65	0,765	29,292	0,234
	-1,10	1,81	2,355	31,692	0,619
B-4	-0,70	1,63	0,338	29,817	0,102
	-1,30	1,79	2,513	31,183	0,635

Laboratorium Mekanika Tanah
PT MUMPUNI
Jln. Flamboyan CT.X/47 Karangasem Yogyakarta, Telp.(0274)584032 Fax.(0274)589683

GRAFIK HASIL PENYONDIRAN

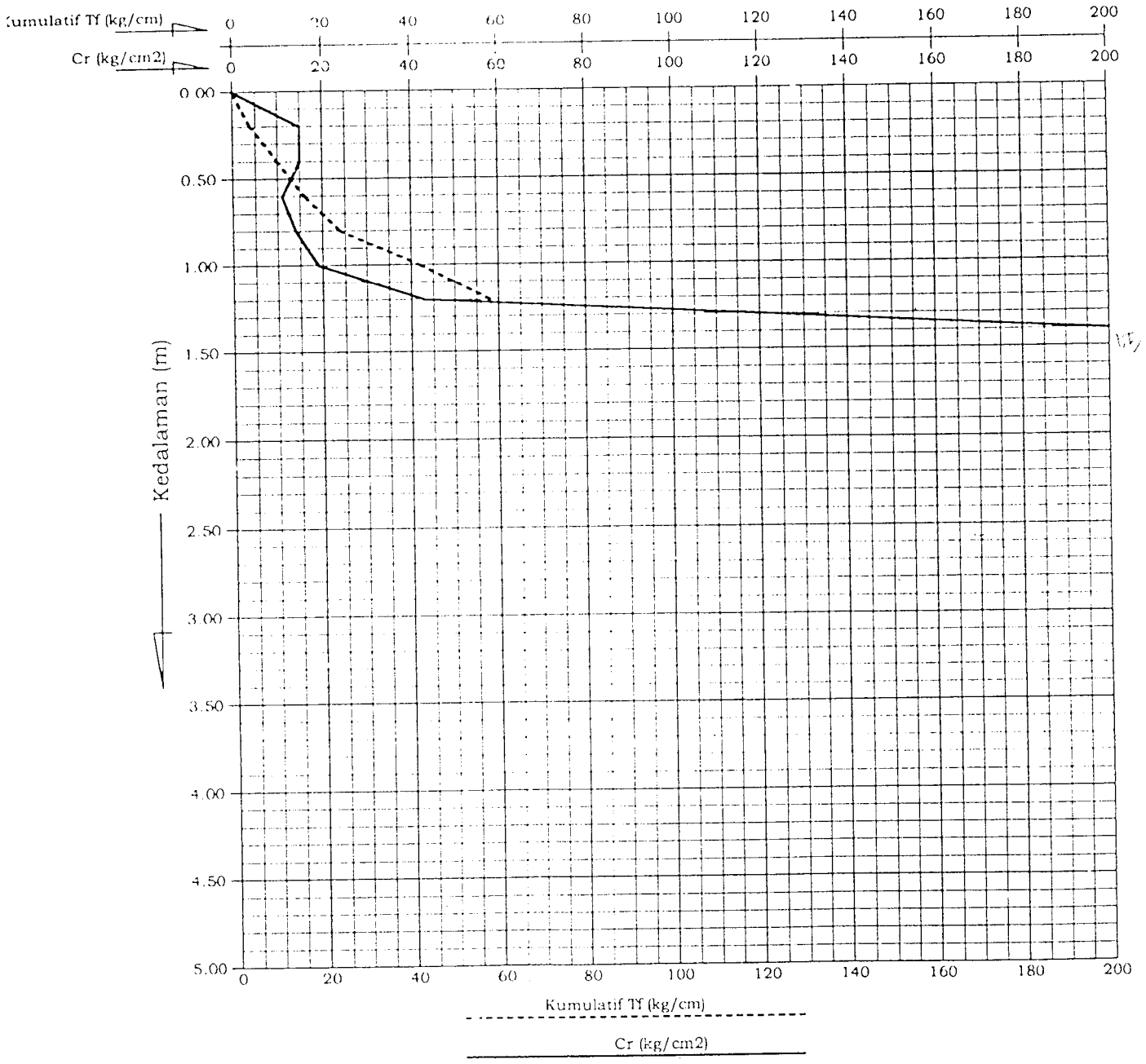
PROYEK	Gedung Fakultas Hukum UGm 3 Lantai	Nomor titik	6
LOKASI	Bulaksumur Yogyakarta	Muka tanah	+0.00
HARI/TGL.	Selasa, 19 Februari 2002	Muka air tanah	-8.00



Laboratorium Mekanika Tanah
PT MUMPUNI
Jln. Flamboyan CT.X/47 Karangasem Yogyakarta, Telp.(0274)584032 Fax.(0274)589683

GRAFIK HASIL PENYONDIRAN

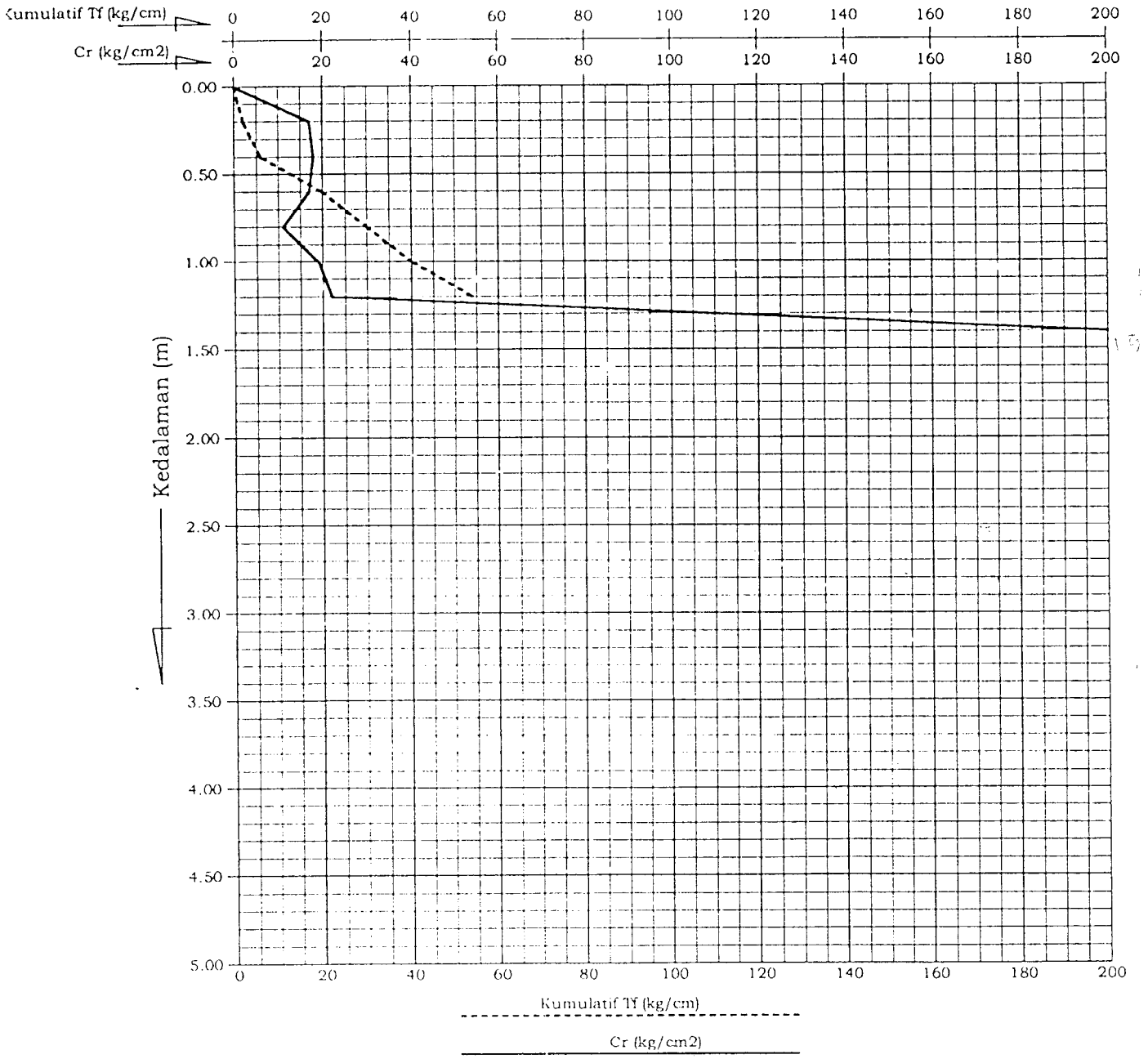
PROYEK	Gedung Fakultas Hukum UGm 3 Lantai	Nomor titik	7
LOKASI	Bulaksumur Yogyakarta	Muka tanah	+0.00
HARI/TGL.	Selasa, 19 Februari 2002	Muka air tanah	-8.00



Laboratorium Mekanika Tanah
PT MUMPUNI
Jln. Flamboyan CT.X/47 Karangasem Yogyakarta, Telp.(0274)584032 Fax.(0274)589683

GRAFIK HASIL PENYONDIRAN

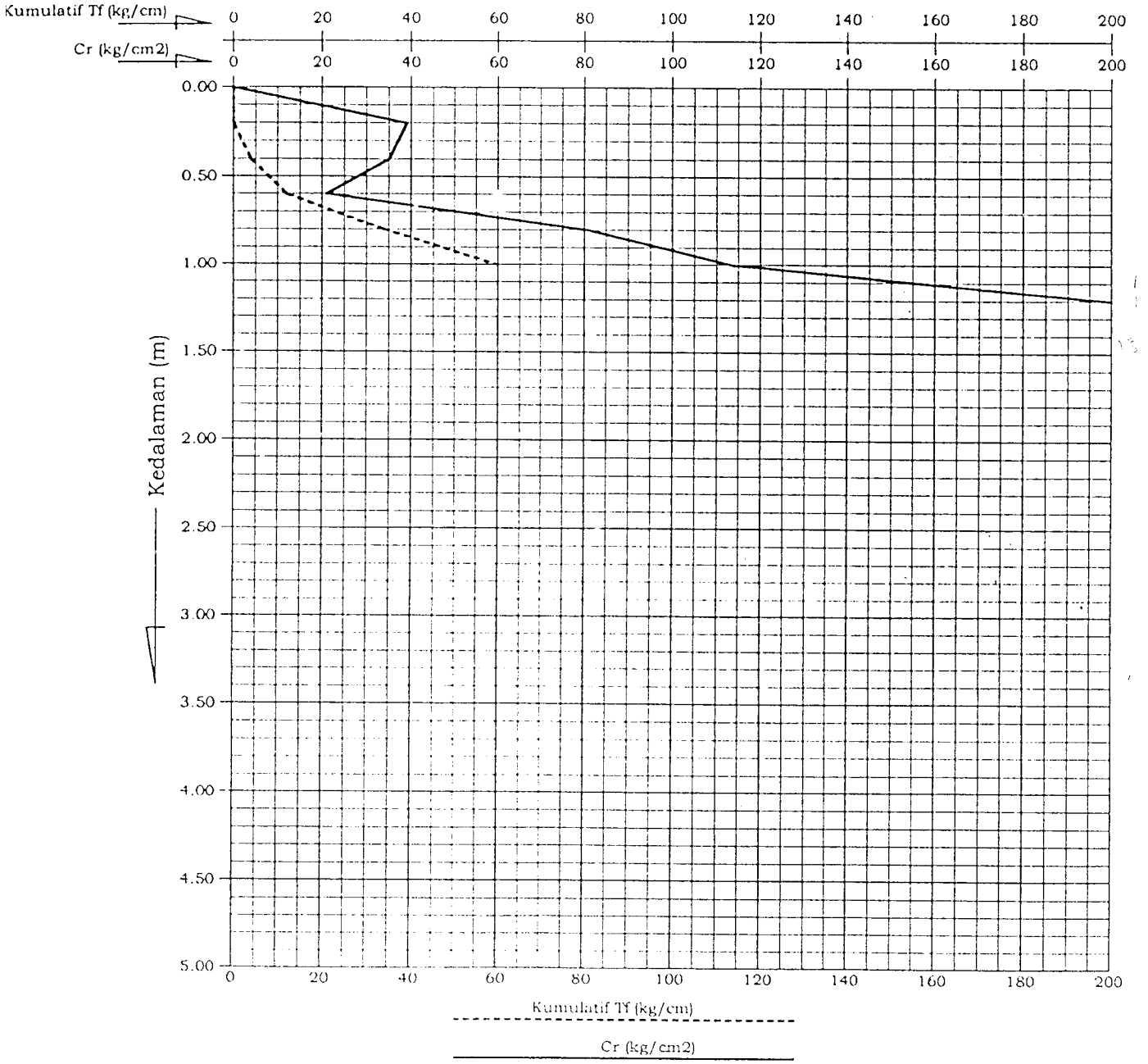
PROYEK	Gedung Fakultas Hukum UGm 3 Lantai	Nomor titik	8
LOKASI	Bulaksumur Yogyakarta	Muka tanah	+0.00
HARI/TGL.	Selasa, 19 Februari 2002	Muka air tanah	-8.00



Laboratorium Mekanika Tanah
PT MUMPUNI
Jln. Flamboyan CT.X/47 Karangasem Yogyakarta, Telp.(0274)584032 Fax.(0274)589683

GRAFIK HASIL PENYONDIRAN

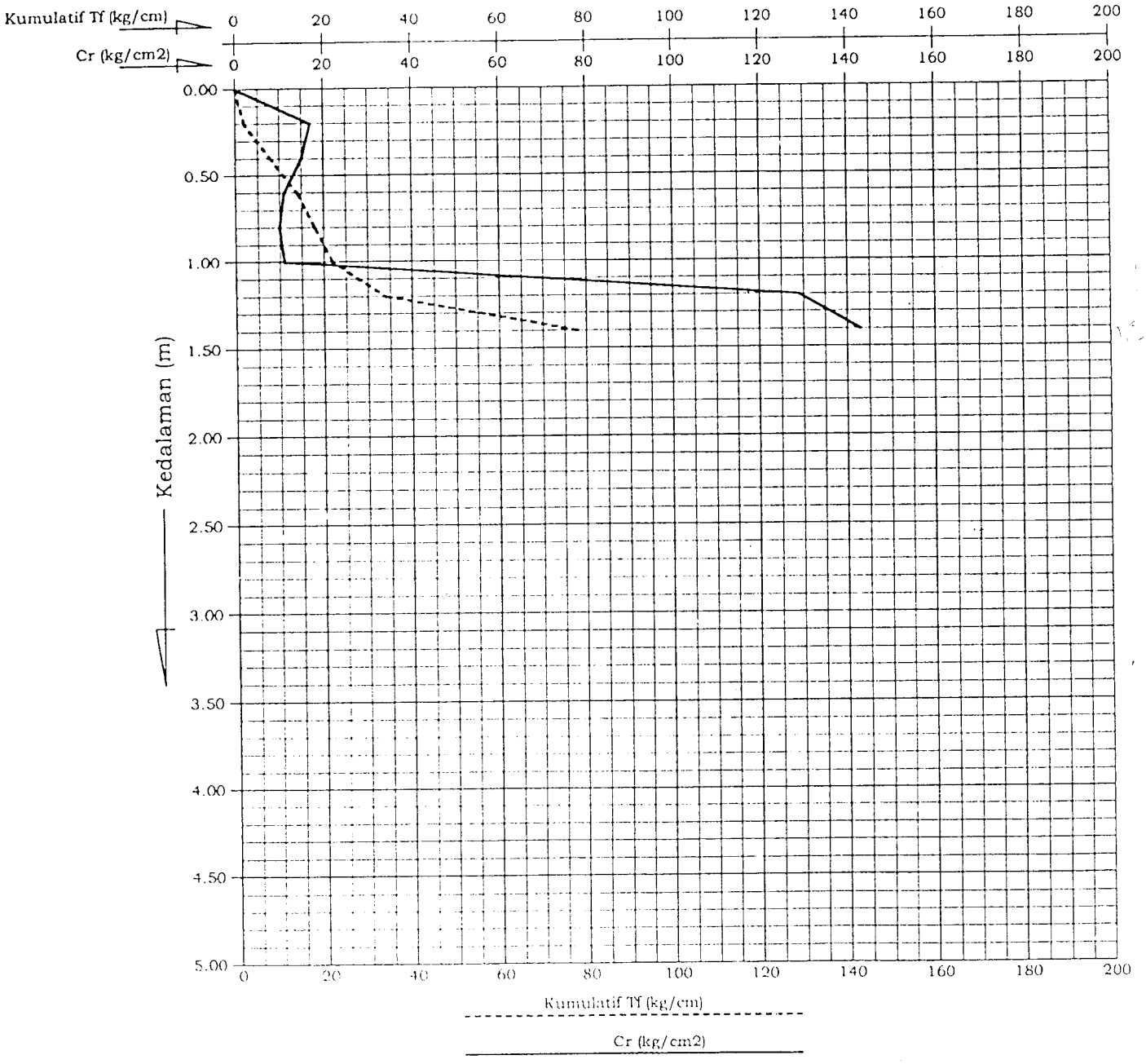
PROYEK	Gedung Fakultas Hukum UGm 3 Lantai	Nomor titik	9
LOKASI	Bulaksumur Yogyakarta	Muka tanah	+0.00
HARI/TGL.	Selasa, 19 Februari 2002	Muka air tanah	-8.00



Laboratorium Mekanika Tanah
PT MUMPUNI
Jln. Flamboyan CT.X/47 Karangasem Yogyakarta, Telp.(0274)584032 Fax.(0274)589683

GRAFIK HASIL PENYONDIRAN

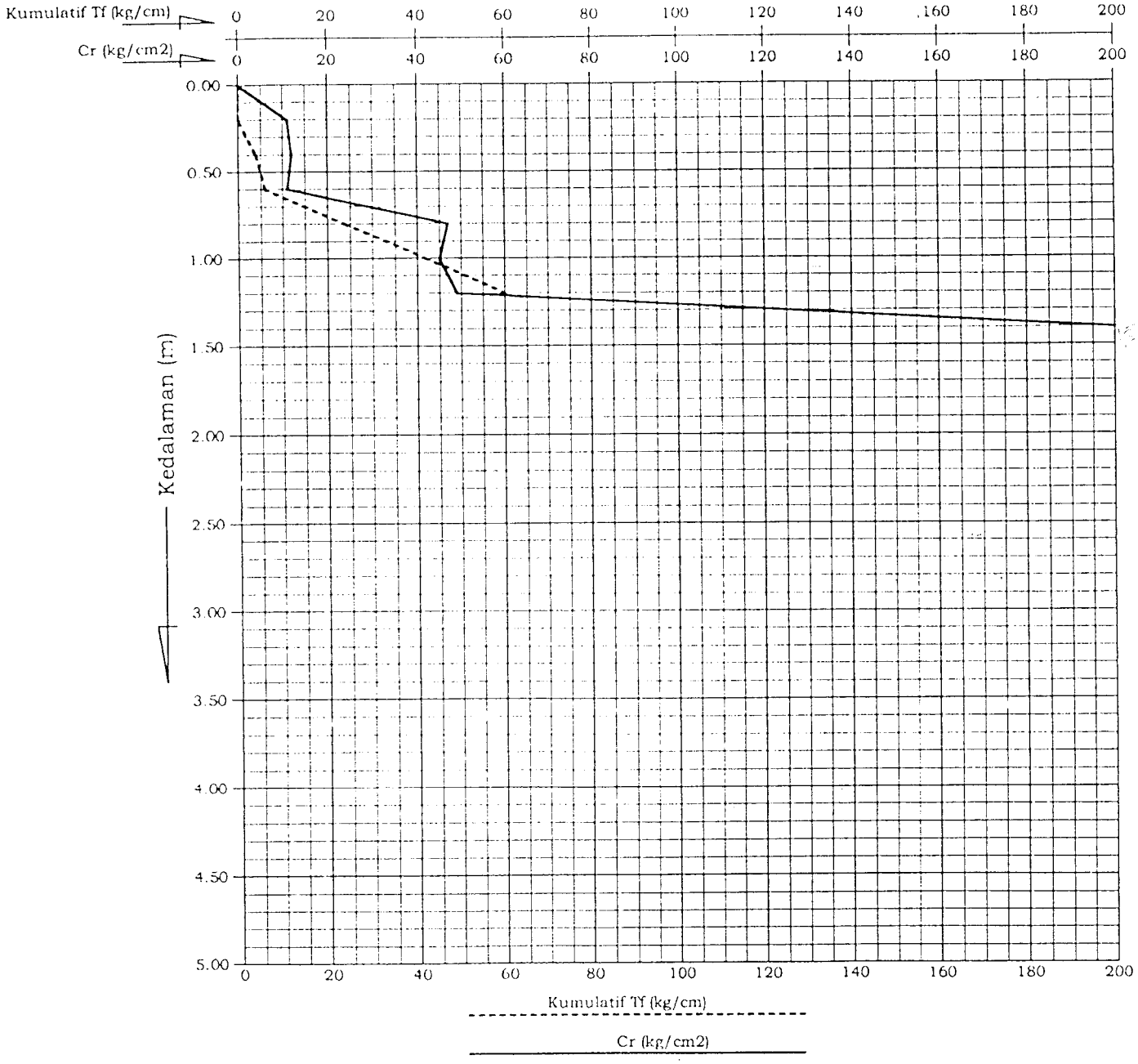
PROYEK	Gedung Fakultas Hukum UGm 3 Lantai	Nomor titik	10
LOKASI	Bulaksumur Yogyakarta	Muka tanah	+0.00
HARI/TGL.	Selasa, 19 Februari 2002	Muka air tanah	-8.00



Laboratorium Mekanika Tanah
PT MUMPUNI
Jln. Flamboyan CT.X/47 Karangasem Yogyakarta, Telp.(0274)584032 Fax.(0274)589683

GRAFIK HASIL PENYONDIRAN

PROYEK	Gedung Fakultas Hukum UGm 3 Lantai	Nomor titik	11
LOKASI	Bulaksumur Yogyakarta	Muka tanah	+0.00
HARI/TGL.	Selasa, 19 Februari 2002	Muka air tanah	-8.00



LABORATORIUM MEKANIKA TANAH

PT MUMPUNI

Jln. Flamboyan CT.X/47 Karangasem Yogyakarta, Telp.(0274)584032 Fax.(0274)589683

TABEL HASIL PENYONDIRAN

Proyek	Gedung Fakultas Hukum UGM 3 Lantai	Nomor titik	5
Lokasi	Bulaksumur, Yogyakarta	Muka tanah	0.00
Hari/Tgl.	Selasa, 19 Februari 2002	Muka air tanah	-8.00

Kedalaman (m)	Cr (kg/cm^2)	Cr + Lf (kg/cm^2)	Lf (kg/cm^2)	Tf (kg/cm)	Kumulatif Tf (kg/cm)
(1)	(2)	(3)	(4) = (3-2)x10/100	(5) = (4)x20	(6)
0.00	0	0	0.00	0.00	0.00
0.20	11	11	0.00	0.00	0.00
0.40	12	14	0.20	4.00	4.00
0.60	14	18	0.40	8.00	12.00
0.80	31	39	0.80	16.00	28.00
1.00	29	35	0.60	12.00	40.00
1.20	89	97	0.80	16.00	56.00
1.40	135	147	1.20	24.00	80.00
1.60	200				
1.80					
2.00					
2.20					
2.40					
2.60					
2.80					
3.00					
3.20					
3.40					
3.60					
3.80					
4.00					
4.20					
4.40					
4.60					
4.80					
5.00					
5.20					
5.40					
5.60					
5.80					
6.00					

LABORATORIUM MEKANIKA TANAH

PT MUMPUNI

Jln. Flamboyan CT.X/47 Karangasem Yogyakarta, Telp.(0274)584032 Fax.(0274)589683

TABEL HASIL PENYONDIRAN

Proyek	Gedung Fakultas Hukum UGM 3 Lantai	Nomor titik	6
Lokasi	Bulaksumur, Yogyakarta	Muka tanah	0.00
Hari/Tgl.	Selasa, 19 Februari 2002	Muka air tanah	-8.00

Kedalaman (m)	Cr (kg/cm^2)	Cr + Lf (kg/cm^2)	Lf (kg/cm^2)	Tf (kg/cm)	Kumulatif Tf (kg/cm)
(1)	(2)	(3)	(4) = (3-2)x10/100	(5) = (4)x20	(6)
0.00	0	0	0.00	0.00	0.00
0.20	21	21 ✓	0.00	0.00	0.00
0.40	18 ✓	22	0.40	8.00	8.00
0.60	21	24	0.30	6.00	14.00
0.80	24	31	0.70	14.00	28.00
1.00	97	108	1.10	22.00	50.00
1.20	140	155	1.50	30.00	80.00
1.40	200				
1.60					
1.80					
2.00					
2.20					
2.40					
2.60					
2.80					
3.00					
3.20					
3.40					
3.60					
3.80					
4.00					
4.20					
4.40					
4.60					
4.80					
5.00					
5.20					
5.40					
5.60					
5.80					
6.00					

LABORATORIUM MEKANIKA TANAH

PT MUMPUNI

Jln. Flamboyan CT.X/47 Karangasem Yogyakarta, Telp.(0274)584032 Fax.(0274)589683

TABEL HASIL PENYONDIRAN

Proyek	Gedung Fakultas Hukum UGM 3 Lantai	Nomor titik	7
Lokasi	Bulaksumur, Yogyakarta	Muka tanah	0.00
Hari/Tgl.	Selasa, 19 Februari 2002	Muka air tanah	-8.00

Kedalaman (m)	Cr (kg/cm^2)	Cr + Lf (kg/cm^2)	Lf (kg/cm^2)	Tf (kg/cm)	Kumulatif Tf (kg/cm)
(1)	(2)	(3)	(4) = (3-2)x10/100	(5) = (4)x20	(6)
0.00	0	C	0.00	0.00	0.00
0.20	15	17	0.20	4.00	4.00
0.40	15	18	0.30	6.00	10.00
0.60	11	14	0.30	6.00	16.00
0.80	14	18	0.40	8.00	24.00
1.00	19	28	0.90	18.00	42.00
1.20	43	51	0.80	16.00	58.00
1.40	200				
1.60					
1.80					
2.00					
2.20					
2.40					
2.60					
2.80					
3.00					
3.20					
3.40					
3.60					
3.80					
4.00					
4.20					
4.40					
4.60					
4.80					
5.00					
5.20					
5.40					
5.60					
5.80					
6.00					

LABORATORIUM MEKANIKA TANAH

PT MUMPUNI

Jln. Flamboyan CT.X/47 Karangasem Yogyakarta, Telp.(0274)584032 Fax.(0274)589683

TABEL HASIL PENYONDIRAN

Proyek	Gedung Fakultas Hukum UGM 3 Lantai	Nomor titik	8
Lokasi	Bulaksumur, Yogyakarta	Muka tanah	0.00
Hari/Tgl.	Selasa, 19 Februari 2002	Muka air tanah	-8.00

Kedalaman (m)	Cr (kg/cm^2)	Cr + Lf (kg/cm^2)	Lf (kg/cm^2)	Tf (kg/cm)	Kumulatif Tf (kg/cm)
(1)	(2)	(3)	(4) = (3-2)x10/100	(5) = (4)x20	(6)
0.00	0	0	0.00	0.00	0.00
0.20	17	18	0.10	2.00	2.00
0.40	18	20	0.20	4.00	6.00
0.60	17	24	0.70	14.00	20.00
0.80	11	16	0.50	10.00	30.00
1.00	19	24	0.50	10.00	40.00
1.20	22	29	0.70	14.00	54.00
1.40	200				
1.60					
1.80					
2.00					
2.20					
2.40					
2.60					
2.80					
3.00					
3.20					
3.40					
3.60					
3.80					
4.00					
4.20					
4.40					
4.60					
4.80					
5.00					
5.20					
5.40					
5.60					
5.80					
6.00					

LABORATORIUM MEKANIKA TANAH

PT MUMPUNI

Jln. Flamboyan CT.X/47 Karangasem Yogyakarta, Telp.(0274)584032 Fax.(0274)589683

TABEL HASIL PENYONDIRAN

Proyek	Gedung Fakultas Hukum UGM 3 Lantai	Nomor titik	9
Lokasi	Bulaksumur, Yogyakarta	Muka tanah	0.00
Hari/Tgl.	Selasa, 19 Februari 2002	Muka air tanah	-8.00

Kedalaman (m)	Cr (kg/cm^2)	Cr + Lf (kg/cm^2)	Lf (kg/cm^2)	Tf (kg/cm)	Kumulatif Tf (kg/cm)
(1)	(2)	(3)	(4) = (3-2)x10/100	(5) = (4)x20	(6)
0.00	0	0	0.00	0.00	0.00
0.20	39	39	0.00	0.00	0.00
0.40	35	37	0.20	4.00	4.00
0.60	21	25	0.40	8.00	12.00
0.80	81	92	1.10	22.00	34.00
1.00	114	127	1.30	26.00	60.00
1.20	200				
1.40					
1.60					
1.80					
2.00					
2.20					
2.40					
2.60					
2.80					
3.00					
3.20					
3.40					
3.60					
3.80					
4.00					
4.20					
4.40					
4.60					
4.80					
5.00					
5.20					
5.40					
5.60					
5.80					
6.00					

LABORATORIUM MEKANIKA TANAH

PT MUMPUNI

Jln. Flamboyan CT.X/47 Karangasem Yogyakarta, Telp.(0274)584032 Fax.(0274)589683

TABEL HASIL PENYONDIRAN

Proyek	Gedung Fakultas Hukum UGM 3 Lantai	Nomor titik	10
Lokasi	Bulaksumur, Yogyakarta	Muka tanah	0.00
Hari/Tgl.	Selasa, 19 Februari 2002	Muka air tanah	-8.00

Kedalaman (m)	Cr (kg/cm^2)	Cr + Lf (kg/cm^2)	Lf (kg/cm^2)	Tf (kg/cm)	Kumulatif Tf (kg/cm)
(1)	(2)	(3)	(4) = (3-2)x10/100	(5) = (4)x20	(6)
0.00	0	0	0.00	0.00	0.00
0.20	17	18	0.10	2.00	2.00
0.40	15	18	0.30	6.00	8.00
0.60	11	14	0.30	6.00	14.00
0.80	10	12	0.20	4.00	18.00
1.00	11	13	0.20	4.00	22.00
1.20	129	135	0.60	12.00	34.00
1.40	143	165	2.20	44.00	78.00
1.60	200				
1.80					
2.00					
2.20					
2.40					
2.60					
2.80					
3.00					
3.20					
3.40					
3.60					
3.80					
4.00					
4.20					
4.40					
4.60					
4.80					
5.00					
5.20					
5.40					
5.60					
5.80					
6.00					

LABORATORIUM MEKANIKA TANAH

PT MUMPUNI

Jln. Flamboyan CT.X/47 Karangasem Yogyakarta, Telp.(0274)584032 Fax.(0274)589683

TABEL HASIL PENYONDIRAN

Proyek	Gedung Fakultas Hukum UGM 3 Lantai	Nomor titik	11
Lokasi	Bulaksumur, Yogyakarta	Muka tanah	0.00
Hari/Tgl.	Selasa, 19 Februari 2002	Muka air tanah	-8.00

Kedalaman (m)	Cr (kg/cm^2)	Cr + Lf (kg/cm^2)	Lf (kg/cm^2)	Tf (kg/cm)	Kumulatif Tf (kg/cm)
(1)	(2)	(3)	(4) = (3-2)x10/100	(5) = (4)x20	(6)
0.00	0	0	0.00	0.00	0.00
0.20	11	11	0.00	0.00	0.00
0.40	12	14	0.20	4.00	4.00
0.60	11	12	0.10	2.00	6.00
0.80	47	56	0.90	18.00	24.00
1.00	45	54	0.90	18.00	42.00
1.20	49	58	0.90	18.00	60.00
1.40	200				
1.60					
1.80					
2.00					
2.20					
2.40					
2.60					
2.80					
3.00					
3.20					
3.40					
3.60					
3.80					
4.00					
4.20					
4.40					
4.60					
4.80					
5.00					
5.20					
5.40					
5.60					
5.80					
6.00					

LAMPIRAN

III

Perencanaan dimensi batang kuda-kuda KK-1

Batang Tarik	Batang Atas	Batang Bawah	Batang Vertikal	Batang Diagonal
Gaya Tarik Maks. (kg)	42.449	1639.128	1061.657	1811.616
Panjang Batang (cm)	173	155.5	125	418.8
fy (kg/cm2)	2400	2400	2400	2400
Fu (kg/cm2)	3700	3700	3700	3700
K (sendi-sendi)	1	1	1	1
r min (cm)	0.721	0.648	0.521	1.745
A lubang (cm2)	3.175	3.175	3.175	3.175
Ag1 (cm2)	0.029	1.138	0.737	1.258
Ag2 (cm2)	3.206	4.356	3.940	4.481
Dicoba profil 2L60x60x6				
A (cm2)	6.91	6.91	6.91	6.91
r (cm)	1.82	1.82	1.82	1.82
A bruto (cm2)	13.820	13.820	13.820	13.820
A netto (cm2)	10.645	10.645	10.645	10.645
A effektif (cm2)	7.984	7.984	7.984	7.984
Kontrol tegangan				
T/A profil (kg/cm2)	3.072	118.605	76.820	131.087
0,6 fy (kg/cm2)	1440	1440	1440	1440
T/A profil ≤ 0,6 fy	**Aman !**	**Aman !**	**Aman !**	**Aman !**
T/A effektif (kg/cm2)	5.317	205.308	132.977	226.913
0,5 Fu (kg/cm2)	1850	1850	1850	1850
T/A effektif ≤ 0,5 Fu	**Aman !**	**Aman !**	**Aman !**	**Aman !**

Batang Tekan	Batang Atas	Batang Bawah	Batang Vertikal	Batang Diagonal
Gaya Tekan Maks. (kg)	3907.326	2314.637	958.591	3852.759
Panjang Batang (cm)	173	155.5	350	223.7
fy (kg/cm2)	2400	2400	2400	2400
Fu (kg/cm2)	3700	3700	3700	3700
E (kg/cm^2)	2100000	2100000	2100000	2100000
K (sendi-sendi)	1	1	1	1
r min (cm)	0.865	0.778	1.750	1.119
Dicoba profil 2L60x60x6				
A (cm2)	6.91	6.91	6.91	6.91
r (cm)	1.82	1.82	1.82	1.82
Ix = Iy (cm^4)	22.8	22.8	22.8	22.8
ix = iy (cm)	1.82	1.82	1.82	1.82
e (cm)	1.69	1.69	1.69	1.69
x (cm)	2.19	2.19	2.19	2.19
Ix gabungan (cm^4)	45.6	45.6	45.6	45.6
Iy gabungan (cm^4)	111.882	111.882	111.882	111.882
ix gabungan (cm)	1.816	1.816	1.816	1.816
iy gabungan (cm)	2.845	2.845	2.845	2.845
Dipakai r (cm)	1.816	1.816	1.816	1.816
Syarat :				
KL/r	95.240	85.606	192.681	123.151
Cc	131.456	131.456	131.456	131.456
KL/r < Cc	**Ok !**	**Ok !**	**Ok !**	**Ok !**
Fs	1.891	1.876	1.823	1.915
Fa (kg/cm^2)	936.168	1007.866	100.397	703.235
Kontrol kapasitas				
P (kg)	12937.838	13928.702	1387.487	9718.704
P > Pterjadi	**Aman !**	**Aman !**	**Aman !**	**Aman !**

PERENCANAAN PELAT LANTAI TIPE II

(ukuran 4,5m x 2,25 m)

	Mlx	Mtx	Mly	Mty
Mu (KNm)	2,9655	2,9655	1,6741	1,6741
Mu / Ø (KNm)	3,7069	3,7069	2,0926	2,0926
h (mm)	120	120	120	120
d (mm)	95	95	85	95
ρb	0,054	0,054	0,054	0,054
ρ max	0,0405	0,0405	0,0405	0,0405
ρ min	0,0058	0,0058	0,0058	0,0058
Rn (Mpa)	0,4107	0,4107	0,2896	0,2319
m	11,2941	11,2941	11,2941	11,2941
ρ perlu	0,0017	0,0017	0,0012	0,0010
1,33 . ρ perlu	0,0023	0,0023	0,0016	0,0013
ρ pakai	0,0023	0,0023	0,0016	0,0013
As pakai (mm^2)	218,3655	218,2655	137,3736	122,7431
Pakai Tul. Ø (mm)	10	10	10	10
A1 . Ø (mm^2)	78,54	78,54	78,54	78,54
Jarak Tul. (mm)	358,774	358,774	570,728	638,9828
Pakai Jarak (mm)	240	240	240	240
As ada (mm^2)	327,25	327,25	327,25	327,25
a (mm)	3,696	3,696	3,696	3,696
Mn (KNm)	7,3162	7,3162	6,5308	7,3162
1,33. Mu / Ø (KNm)	4,9301	4,9301	2,7832	2,7832
Kontrol	AMAN	AMAN	AMAN	AMAN
Pakai Tul.	**P 10-240**	**P 10-240**	**P 10-240**	**P 10-240**
As Bagi (mm^2)		240		240
Pakai Tul. (mm)		8		8
A1 . Ø (mm^2)		50,27		50,27
x (mm)		209,458		209,458
x pakai (mm)		200		200
Pakai Tul. Bagi		**P 8-200**		**P 8-200**

PERENCANAAN PELAT LANTAI TIPE III

(ukuran 3,45m x 3,00 m)

	Mlx	**Mtx**	**Mly**	**Mty**
Mu (KNm)	3,7414	3,7414	3,1887	3,1887
Mu / Ø (KNm)	4,6768	4,6768	3,9859	3,9859
h (mm)	120	120	120	120
d (mm)	95	95	85	95
Pb	0,054	0,054	0,054	0,054
ρ max	0,0405	0,0405	0,0405	0,0405
ρ min	0,0058	0,0058	0,0058	0,0058
Rn (Mpa)	0,5182	0,5182	0,5517	0,4416
m	11,2941	11,2941	11,2941	11,2941
ρ perlu	0,0022	0,0022	0,0023	0,0019
1,33 . ρ perlu	0,0029	0,0029	0,0031	0,0025
ρ pakai	0,0029	0,0029	0,0031	0,0025
As pakai (mm^2)	277,1002	277,1002	264,2226	235,6107
Pakai Tul. Ø (mm)	10	10	10	10
A1 . Ø (mm^2)	78,54	78,54	78,54	78,54
Jarak Tul. (mm)	283,4348	283,4348	297,2487	333,3457
Pakai Jarak (mm)	240	240	240	240
As ada (mm^2)	327,25	327,25	327,25	327,25
a (mm)	3,696	3,696	3,696	3,696
Mn (KNm)	7,3162	7,3162	6,5308	7,3162
1,33. Mu / Ø (KNm)	6,2201	6,2201	5,3012	5,3012
Kontrol	AMAN	AMAN	AMAN	AMAN
Pakai Tul.	**P 10-240**	**P 10-240**	**P 10-240**	**P 10-240**
As Bagi (mm^2)		240		240
Pakai Tul. (mm)		8		8
A1 . Ø (mm^2)		50,27		50,27
x (mm)		209,458		209,458
x pakai (mm)		200		200
Pakai Tul. Bagi		**P 8-200**		**P 8-200**

PERENCANAAN PELAT LANTAI TIPE IV

(ukuran 3,00m x 3,00 m)

	Mlx	Mtx	Mly	Mty
Mu (KNm)	3,0612	3,0612	3,0612	3,0612
Mu / Ø (KNm)	3,8265	3,8265	3,8265	3,8265
h (mm)	120	120	120	120
d (mm)	95	95	85	95
ρb	0,054	0,054	0,054	0,054
ρ max	0,0405	0,0405	0,0405	0,0405
ρ min	0,0058	0,0058	0,0058	0,0058
Rn (Mpa)	0,424	0,424	0,5296	0,424
m	11,2941	11,2941	11,2941	11,2941
ρ perlu	0,0018	0,0018	0,0021	0,0018
1,33 . ρ perlu	0,0024	0,0024	0,003	0,0024
ρ pakai	0,0024	0,0024	0,003	0,0024
As pakai (mm^2)	226,0677	226,0677	253,4848	226,0677
Pakai Tul. Ø (mm)	10	10	10	10
A1 . Ø (mm^2)	78,54	78,54	78,54	78,54
Jarak Tul. (mm)	347,4173	347,4173	309,8403	347,4173
Pakai Jarak (mm)	**240**	**240**	**240**	**240**
As ada (mm^2)	327,2492	327,2492	327,2492	327,2492
a (mm)	3,696	3,696	3,696	3,696
Mn (KNm)	7,3162	7,3162	6,5308	7,3162
1,33. Mu / Ø (KNm)	5,0892	5,0892	5,0892	5,0892
Kontrol	AMAN	AMAN	AMAN	AMAN
Pakai Tul.	**P 10-240**	**P 10-240**	**P 10-240**	**P 10-240**
As Bagi (mm^2)		240		240
Pakai Tul. (mm)		8		8
A1 . Ø (mm^2)		50,27		50,27
x (mm)		209,458		209,458
x pakai (mm)		200		200
Pakai Tul. Bagi		**P 8-200**		**P 8-200**

PERENCANAAN PELAT LANTAI TIPE V

(ukuran 4,50m x 0,90 m)

	Mlx	**Mtx**	**Mly**	**Mty**
Mu (KNm)	0,4821	0,4821	0,0995	0,2908
Mu / Ø (KNm)	0,6026	0,6026	0,1244	0,3635
h (mm)	120	120	120	120
d (mm)	95	95	85	95
ρb	0,054	0,054	0,054	0,054
ρ max	0,0405	0,0405	0,0405	0,0405
ρ min	0,0058	0,0058	0,0058	0,0058
Rn (Mpa)	0,0668	0,0668	0,0172	0,0403
m	11,2941	11,2941	11,2941	11,2941
ρ perlu	0,0003	0,0003	0,0001	0,0002
1,33 . ρ perlu	0,0004	0,0004	0,0001	0,0002
ρ pakai	0,0004	0,0004	0,0001	0,0002
As pakai (mm^2)	35,2224	35,2224	8,1129	21,2293
Pakai Tul. Ø (mm)	10	10	10	10
A1 . Ø (mm^2)	78,54	78,54	78,54	78,54
Jarak Tul. (mm)	2229,8236	2229,8236	9680,8894	3699,5873
Pakai Jarak (mm)	**240**	**240**	**240**	**240**
As ada (mm^2)	327,2492	327,2492	327,2492	327,2492
a (mm)	3,696	3,696	3,696	3,696
Mn (KNm)	7,3162	7,3162	6,5308	7,3162
1,33. Mu / Ø (KNm)	0,8015	0,8015	0,1654	0,4835
Kontrol	AMAN	AMAN	AMAN	AMAN
Pakai Tul.	**P 10-240**	**P 10-240**	**P 10-240**	**P 10-240**
As Bagi (mm^2)		240		240
Pakai Tul. (mm)		8		8
A1 . Ø (mm^2)		50,27		50,27
x (mm)		209,458		209,458
x pakai (mm)		200		200
Pakai Tul. Bagi		**P 8-200**		**P 8-200**

PERENCANAAN PELAT LANTAI TIPE VI

(ukuran 3,00m x 0,90 m)

	Mlx	**Mtx**	**Mly**	**Mty**
Mu (KNm)	0,4821	0,4821	0,0995	0,2908
Mu / Ø (KNm)	0,6026	0,6026	0,1244	0,3635
h (mm)	120	120	120	120
d (mm)	95	95	85	95
ρb	0,054	0,054	0,054	0,054
ρ max	0,0405	0,0405	0,0405	0,0405
ρ min	0,0058	0,0058	0,0058	0,0058
Rn (Mpa)	0,0668	0,0668	0,0172	0,0403
m	11,2941	11,2941	11,2941	11,2941
ρ perlu	0,0003	0,0003	0,0001	0,0002
1,33 . ρ perlu	0,0004	0,0004	0,0001	0,0002
ρ pakai	0,0004	0,0004	0,0001	0,0002
As pakai (mm^2)	35,2224	35,2224	8,1129	21,2293
Pakai Tul. Ø (mm)	10	10	10	10
A1 . Ø (mm^2)	78,54	78,54	78,54	78,54
Jarak Tul. (mm)	2229,8236	2229,8236	9680,8894	3699,5873
Pakai Jarak (mm)	**240**	**240**	**240**	**240**
As ada (mm^2)	327,2492	327,2492	327,2492	327,2492
a (mm)	3,696	3,696	3,696	3,696
Mn (KNm)	7,3162	7,3162	6,5308	7,3162
1,33. Mu / Ø (KNm)	0,8015	0,8015	0,1654	0,4835
Kontrol	AMAN	AMAN	AMAN	AMAN
Pakai Tul.	**P 10-240**	**P 10-240**	**P 10-240**	**P 10-240**
As Bagi (mm^2)		240		240
Pakai Tul. (mm)		8		8
A1 . Ø (mm^2)		50,27		50,27
x (mm)		209,458		209,458
x pakai (mm)		200		200
Pakai Tul. Bagi		**P 8-200**		**P 8-200**

PERENCANAAN PELAT LANTAI TIPE VII

(ukuran 2,25m x 0,90 m)

	Mlx	**Mtx**	**Mly**	**Mty**
Mu (KNm)	0,4821	0,4821	0,2602	0,2602
Mu / Ø (KNm)	0,6026	0,6026	0,3253	0,3253
h (mm)	120	120	120	120
d (mm)	95	95	85	95
ρb	0,054	0,054	0,054	0,054
ρ max	0,0405	0,0405	0,0405	0,0405
ρ min	0,0058	0,0058	0,0058	0,0058
Rn (Mpa)	0,0668	0,0668	0,045	0,036
m	11,2941	11,2941	11,2941	11,2941
ρ perlu	0,0003	0,0003	0,0002	0,0002
1,33 . ρ perlu	0,0004	0,0004	0,0002	0,0002
ρ pakai	0,0004	0,0004	0,0002	0,0002
As pakai (mm^2)	35,2224	35,2224	21,2332	18,9931
Pakai Tul. Ø (mm)	10	10	10	10
A1 . Ø (mm^2)	78,54	78,54	78,54	78,54
Jarak Tul. (mm)	2229,8236	2229,8236	3698,92	4135,1828
Pakai Jarak (mm)	**240**	**240**	**240**	**240**
As ada (mm^2)	327,2492	327,2492	327,2492	327,2492
a (mm)	3,696	3,696	3,696	3,696
Mn (KNm)	7,3162	7,3162	6,5308	7,3162
1,33. Mu / Ø (KNm)	0,8015	0,8015	0,4326	0,4326
Kontrol	AMAN	AMAN	AMAN	AMAN
Pakai Tul.	**P 10-240**	**P 10-240**	**P 10-240**	**P 10-240**
As Bagi (mm^2)		240		240
Pakai Tul. (mm)		8		8
A1 . Ø (mm^2)		50,27		50,27
x (mm)		209,458		209,458
x pakai (mm)		200		200
Pakai Tul. Bagi		**P 8-200**		**P 8-200**

PERENCANAAN PELAT LANTAI TIPE VIII

(ukuran 4,50m x 1,80 m)

	Mlx	**Mtx**	**Mly**	**Mty**
Mu (KNm)	1,9285	1,9285	1,0408	1,0408
Mu / Ø (KNm)	2,4106	2,4106	1,301	1,301
h (mm)	120	120	120	120
d (mm)	95	95	85	95
ρb	0,054	0,054	0,054	0,054
ρ max	0,0405	0,0405	0,0405	0,0405
ρ min	0,0058	0,0058	0,0058	0,0058
Rn (Mpa)	0,2671	0,2671	0,1801	0,1442
m	11,2941	11,2941	11,2941	11,2941
ρ perlu	0,0011	0,0011	0,0008	0,0006
1,33 . ρ perlu	0,0015	0,0015	0,0010	0,0008
ρ pakai	0,0015	0,0015	0,0010	0,0008
As pakai (mm^2)	141,7422	141,7422	85,2741	76,2162
Pakai Tul. Ø (mm)	10	10	10	10
A1 . Ø (mm^2)	78,54	78,54	78,54	78,54
Jarak Tul. (mm)	554,1032	554,1032	921,0274	1030,4872
Pakai Jarak (mm)	**240**	**240**	**240**	**240**
As ada (mm^2)	327,2492	327,2492	327,2492	327,2492
a (mm)	3,696	3,696	3,696	3,696
Mn (KNm)	7,3162	7,3162	6,5308	7,3162
1,33. Mu / Ø (KNm)	3,2061	3,2061	1,7303	1,7303
Kontrol	AMAN	AMAN	AMAN	AMAN
Pakai Tul.	**P 10-240**	**P 10-240**	**P 10-240**	**P 10-240**
As Bagi (mm^2)		240		240
Pakai Tul. (mm)		8		8
A1 . Ø (mm^2)		50,27		50,27
x (mm)		209,458		209,458
x pakai (mm)		200		200
Pakai Tul. Bagi		**P 8-200**		**P 8-200**

PERENCANAAN PELAT LANTAI TIPE IX

(ukuran 3,00m x 1,80 m)

	Mlx	**Mtx**	**Mly**	**Mty**
Mu (KNm)	1,796	1,796	1,102	1,102
Mu / Ø (KNm)	2,245	2,245	1,3775	1,3775
h (mm)	120	120	120	120
d (mm)	95	95	85	95
ρb	0,054	0,054	0,054	0,054
ρ max	0,0405	0,0405	0,0405	0,0405
ρ min	0,0058	0,0058	0,0058	0,0058
Rn (Mpa)	0,2488	0,2488	0,1907	0,1526
m	11,2941	11,2941	11,2941	11,2941
ρ perlu	0,0010	0,0010	0,0008	0,0006
1,33 . ρ perlu	0,0014	0,0014	0,0011	0,0008
ρ pakai	0,0014	0,0014	0,0011	0,0008
As pakai (mm^2)	131,9307	131,9307	90,3169	80,7182
Pakai Tul. Ø (mm)	10	10	10	10
A1 . Ø (mm^2)	78,54	78,54	78,54	78,54
Jarak Tul. (mm)	595,311	595,311	869,6024	973,0129
Pakai Jarak (mm)	**240**	**240**	**240**	**240**
As ada (mm^2)	327,2492	327,2492	327,2492	327,2492
a (mm)	3,696	3,696	3,696	3,696
Mn (KNm)	7,3162	7,3162	6,5308	7,3162
1,33. Mu / Ø (KNm)	2,9859	2,9859	1,8321	1,8321
Kontrol	AMAN	AMAN	AMAN	AMAN
Pakai Tul.	**P 10-240**	**P 10-240**	**P 10-240**	**P 10-240**
As Bagi (mm^2)		240		240
Pakai Tul. (mm)		8		8
A1 . Ø (mm^2)		50,27		50,27
x (mm)		209,458		209,458
x pakai (mm)		200		200
Pakai Tul. Bagi		**P 8-200**		**P 8-200**

PERENCANAAN PELAT LANTAI TIPE X

(ukuran 2,25m x 1,80 m)

	Mlx	**Mtx**	**Mly**	**Mty**
Mu (KNm)	1,4694	1,4694	1,1632	1,1632
Mu / Ø (KNm)	1,8368	1,8368	1,454	1,454
h (mm)	120	120	120	120
d (mm)	95	95	85	95
ρb	0,054	0,054	0,054	0,054
ρ max	0,0405	0,0405	0,0405	0,0405
ρ min	0,0058	0,0058	0,0058	0,0058
Rn (Mpa)	0,2035	0,2035	0,2012	0,1611
m	11,2941	11,2941	11,2941	11,2941
ρ perlu	0,0009	0,0009	0,0008	0,0007
1,33 . ρ perlu	0,0011	0,0011	0,0011	0,0009
ρ pakai	0,0011	0,0011	0,0011	0,0009
As pakai (mm^2)	107,7929	107,7929	95,3629	85,2224
Pakai Tul. Ø (mm)	10	10	10	10
A1 . Ø (mm^2)	78,54	78,54	78,54	78,54
Jarak Tul. (mm)	728,6178	728,6178	823,5885	921,5863
Pakai Jarak (mm)	**240**	**240**	**240**	**240**
As ada (mm^2)	327,2492	327,2492	327,2492	327,2492
a (mm)	3,696	3,696	3,696	3,696
Mn (KNm)	7,3162	7,3162	6,5308	7,3162
1,33. Mu / Ø (KNm)	2,4429	2,4429	1,9338	1,9338
Kontrol	AMAN	AMAN	AMAN	AMAN
Pakai Tul.	**P 10-240**	**P 10-240**	**P 10-240**	**P 10-240**
As Bagi (mm^2)		240		240
Pakai Tul. (mm)		8		8
A1 . Ø (mm^2)		50,27		50,27
x (mm)		209,458		209,458
x pakai (mm)		200		200
Pakai Tul. Bagi		**P 8-200**		**P 8-200**

PERENCANAAN PELAT TALANG TIPE II

(ukuran 2,25m x 1,8 m)

	Mlx	**Mtx**	**Mly**	**Mty**
Mu (KNm)	0,7788	0,7788	0,6166	0,6166
Mu / Ø (KNm)	0,9735	0,9735	0,7708	0,7708
h (mm)	100	100	100	100
d (mm)	76	76	68	76
ρb	0,054	0,054	0,054	0,054
ρ max	0,0405	0,0405	0,0405	0,0405
ρ min	0,0058	0,0058	0,0058	0,0058
Rn (Mpa)	0,1685	0,1685	0,1667	0,1334
m	11,2941	11,2941	11,2941	11,2941
ρ perlu	0,0007	0,0007	0,0007	0,0007
1,33 . ρ perlu	0,0009	0,0009	0,0009	0,0009
ρ pakai	0,0009	0,0009	0,0009	0,0009
As pakai (mm^2)	71,3398	71,3398	63,1233	56,4228
Pakai Tul. Ø (mm)	8	8	8	8
A1 . Ø (mm^2)	50,27	50,27	50,27	50,27
Jarak Tul. (mm)	704,5926	704,5926	796,3058	890,8712
Pakai Jarak (mm)	**200**	**200**	**200**	**200**
As ada (mm^2)	251,35	251,35	251,35	251,35
a (mm)	2,8388	2,8388	2,8388	2,8388
Mn (KNm)	4,499	4,499	4,0164	4,499
1,33. Mu / Ø (KNm)	1,2948	1,2948	1,0251	1,0251
Kontrol	AMAN	AMAN	AMAN	AMAN
Pakai Tul.	**P 8-200**	**P 8-200**	**P 8-200**	**P 8-200**
As Bagi (mm^2)		200		200
Pakai Tul. (mm)		8		8
A1 . Ø (mm^2)		50,27		50,27
x (mm)		251,35		251,35
x pakai (mm)		200		200
Pakai Tul. Bagi		**P 8-200**		**P 8-200**

PERENCANAAN PELAT TALANG TIPE III

(ukuran 3,00m x 3,00 m)

	Mlx	**Mtx**	**Mly**	**Mty**
Mu (KNm)	1,6226	1,6226	1,6226	1,6226
Mu / Ø (KNm)	2,0283	2,0283	2,0283	2,0283
h (mm)	100	100	100	100
d (mm)	76	76	68	76
ρb	0,054	0,054	0,054	0,054
ρ max	0,0405	0,0405	0,0405	0,0405
ρ min	0,0058	0,0058	0,0058	0,0058
Rn (Mpa)	0,3512	0,3512	0,4386	0,3512
m	11,2941	11,2941	11,2941	11,2941
ρ perlu	0,0015	0,0015	0,0019	0,0015
1,33 . ρ perlu	0,0020	0,0020	0,0025	0,0020
ρ pakai	0,0020	0,0020	0,0025	0,0020
As pakai (mm^2)	149,4531	149,4531	167,4817	149,4531
Pakai Tul. Ø (mm)	8	8	8	8
A1 . Ø (mm^2)	50,27	50,27	50,27	50,27
Jarak Tul. (mm)	336,3296	336,3296	300,1252	336,3296
Pakai Jarak (mm)	**200**	**200**	**200**	**200**
As ada (mm^2)	251,35	251,35	251,35	251,35
a (mm)	2,8388	2,8388	2,8388	2,8388
Mn (KNm)	4,499	4,499	4,0164	4,499
1,33. Mu / Ø (KNm)	2,6976	2,6976	2,6976	2,6976
Kontrol	AMAN	AMAN	AMAN	AMAN
Pakai Tul.	**P 8-200**	**P 8-200**	**P 8-200**	**P 8-200**
As Bagi (mm^2)		200		200
Pakai Tul. (mm)		8		8
A1 . Ø (mm^2)		50,27		50,27
x (mm)		251,35		251,35
x pakai (mm)		200		200
Pakai Tul. Bagi		**P 8-200**		**P 8-200**

PERENCANAAN TULANGAN BALOK RING

Balok	R 1 Induk (9 m)		R 2 Induk (6 m)		R 3 Induk (4,5 m)		R 4 Induk (3 m)	
	Tumpuan	Lapangan	Tumpuan	Lapangan	Tumpuan	Lapangan	Tumpuan	Lapangan
f'c (Mpa)	25	25	25	25	25	25	25	25
fy (Mpa)	400	400	400	400	400	400	400	400
Φ	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
β	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
d' (mm)	60	60	60	60	60	60	60	60
ρb	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027
ρ maks	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
ρ min	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
ρ rencana	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
m	18.824	18.824	18.824	18.824	18.824	18.824	18.824	18.824
Rn (Mpa)	3.675	3.675	3.675	3.675	3.675	3.675	3.675	3.675
Mu (KNm)	132.914	85.703	111.412	89.527	106.653	20.191	212.529	166.327
Mn (KNm)	166.143	107.129	139.265	111.909	133.316	25.239	265.661	207.909
Ø (mm)	22	22	22	22	22	22	22	22
A 1Ø (mm^2)	380.286	380.286	380.286	380.286	380.286	380.286	380.286	380.286
b (mm)	400	400	400	400	400	400	400	400
h (mm)	600	600	600	600	600	600	600	600
d ada (mm)	540	540	540	540	540	540	540	540
d perlu (mm)	336.168	269.941	307.777	275.897	301.132	131.024	425.089	376.055
	SEBELAH	SEBELAH	SEBELAH	SEBELAH	SEBELAH	SEBELAH	SEBELAH	SEBELAH
Kontrol Momen								
Rn baru (Mpa)	1.424	0.918	1.194	0.959	1.143	0.216	2.278	1.782
ρ baru	0.004	0.003	0.003	0.003	0.003	0.001	0.006	0.005
As (mm^2)	850.511	548.408	712.918	572.877	682.466	129.201	1359.959	1064.316
n	3	2	3	2	2	2	4	3
As ada (mm^2)	1140.857	760.571	1140.857	760.571	760.571	760.571	1521.143	1140.857
a	53.687	35.792	53.687	35.792	35.792	35.792	71.583	53.687
Mn (KNm)	234.175	158.839	234.175	158.839	158.839	158.839	306.789	234.175
	AMAN	**AMAN**	**AMAN**	**AMAN**	**AMAN**	**AMAN**	**AMAN**	**AMAN**
Kontrol Momen								
ρ 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
As 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
a	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mn 1 (KNm)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mn 2 (KNm)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
fs '	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
As'=As2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
n	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
As' ada (mm^2)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
As	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
n	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
As ada (mm^2)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ρ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ρ'	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ρ1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
fs '	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
a	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mn (KNm)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	-	-	-	-	-	-	-	-

PERENCANAAN TULANGAN BALOK RING

Balok	R 5 Induk (1,8 m)		R 1 Anak (9 m)		R 2 Anak (6 m)		R 3 Anak (4,5 m)	
	Tumpuan	Lapangan	Tumpuan	Lapangan	Tumpuan	Lapangan	Tumpuan	Lapangan
f'c (Mpa)	25	25	25	25	25	25	25	25
fy (Mpa)	400	400	400	400	400	400	400	400
Φ	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
β	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
d' (mm)	60	60	40	40	40	40	40	40
ρb	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027
ρ maks	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
ρ min	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
ρ rencana	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
m	18.824	18.824	18.824	18.824	18.824	18.824	18.824	18.824
Rn (Mpa)	3.675	3.675	3.675	3.675	3.675	3.675	3.675	3.675
Mu (KNm)	126.040	56.119	38.937	26.053	35.398	15.313	29.468	6.296
Mn (KNm)	157.550	70.148	48.671	32.566	44.248	19.141	36.835	7.870
Ø (mm)	22	22	16	16	16	16	16	16
A 1Ø (mm^2)	380.286	380.286	201.143	201.143	201.143	201.143	201.143	201.143
b (mm)	400	400	200	200	200	200	200	200
h (mm)	600	600	400	400	400	400	400	400
d ada (mm)	540	540	360	360	360	360	360	360
d perlu (mm)	327.359	218.436	257.316	210.482	245.344	161.367	223.852	103.471
	SEBELAH	SEBELAH	SEBELAH	SEBELAH	SEBELAH	SEBELAH	SEBELAH	SEBELAH
Kontrol Momen								
Rn baru (Mpa)	1.351	0.601	1.878	1.256	1.707	0.738	1.421	0.304
ρ baru	0.004	0.002	0.005	0.003	0.005	0.002	0.004	0.001
As (mm^2)	806.520	359.100	373.733	250.067	339.764	146.980	282.846	60.432
n	3	2	2	2	2	2	2	2
As ada (mm^2)	1140.857	760.571	402.286	402.286	402.286	402.286	402.286	402.286
a	53.687	35.792	37.862	37.862	37.862	37.862	37.862	37.862
Mn (KNm)	234.175	158.839	54.883	54.883	54.883	54.883	54.883	54.883
	AMAN	**AMAN**	**AMAN**	**AMAN**	**AMAN**	**AMAN**	**AMAN**	**AMAN**
Kontrol Momen								
ρ 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
As 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
a	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mn 1 (KNm)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mn 2 (KNm)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
fs '	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
As'=As2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
n	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
As' ada (mm^2)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
As	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
n	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
As ada (mm^2)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ρ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ρ'	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ρ1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
fs '	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
a	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mn (KNm)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	-	-	-	-	-	-	-	-

PERENCANAAN TULANGAN BALOK RING

Balok	R 4 Anak (3 m)		R 5 Anak (2,6 m)		R 6 Anak (1,8 m)	
	Tumpuan	Lapangan	Tumpuan	Lapangan	Tumpuan	Lapangan
f'c (Mpa)	25	25	25	25	25	25
fy (Mpa)	400	400	400	400	400	400
Φ	0.8	0.8	0.8	0.8	0.8	0.8
β	0.85	0.85	0.85	0.85	0.85	0.85
d' (mm)	40	40	40	40	40	40
ρb	0.027	0.027	0.027	0.027	0.027	0.027
ρ maks	0.020	0.020	0.020	0.020	0.020	0.020
ρ min	0.004	0.004	0.004	0.004	0.004	0.004
ρ rencana	0.010	0.010	0.010	0.010	0.010	0.010
m	18.824	18.824	18.824	18.824	18.824	18.824
Rn (Mpa)	3.675	3.675	3.675	3.675	3.675	3.675
Mu (KNm)	46.405	1.000	24.225	0.966	31.072	1.809
Mn (KNm)	58.006	1.250	30.281	1.208	38.840	2.261
Ø (mm)	16	16	16	16	16	16
A 1Ø (mm^2)	201.143	201.143	201.143	201.143	201.143	201.143
b (mm)	200	200	200	200	200	200
h (mm)	400	400	400	400	400	400
d ada (mm)	360	360	360	360	360	360
d perlu (mm)	280.910	41.237	202.963	40.530	229.864	55.463
	SEBELAH	SEBELAH	SEBELAH	SEBELAH	SEBELAH	SEBELAH
Kontrol Momen						
Rn baru (Mpa)	2.238	0.048	1.168	0.047	1.498	0.087
ρ baru	0.006	0.000	0.003	0.000	0.004	0.000
As (mm^2)	445.414	9.598	232.521	9.272	298.242	17.364
n	3	2	2	2	2	2
As ada (mm^2)	603.429	402.286	402.286	402.286	402.286	402.286
a	56.793	37.862	37.862	37.862	37.862	37.862
Mn (KNm)	80.040	54.883	54.883	54.883	54.883	54.883
	AMAN	**AMAN**	**AMAN**	**AMAN**	**AMAN**	**AMAN**
Kontrol Momen						
ρ 1	0.000	0.000	0.000	0.000	0.000	0.000
As 1	0.000	0.000	0.000	0.000	0.000	0.000
a	0.000	0.000	0.000	0.000	0.000	0.000
Mn 1 (KNm)	0.000	0.000	0.000	0.000	0.000	0.000
Mn 2 (KNm)	0.000	0.000	0.000	0.000	0.000	0.000
fs '	0.000	0.000	0.000	0.000	0.000	0.000
As'=As2	0.000	0.000	0.000	0.000	0.000	0.000
n	**0**	**0**	**0**	**0**	**0**	**0**
As' ada (mm^2)	0.000	0.000	0.000	0.000	0.000	0.000
As	0.000	0.000	0.000	0.000	0.000	0.000
n	**0**	**0**	**0**	**0**	**0**	**0**
As ada (mm^2)	0.000	0.000	0.000	0.000	0.000	0.000
ρ	0.000	0.000	0.000	0.000	0.000	0.000
ρ'	0.000	0.000	0.000	0.000	0.000	0.000
ρ1	0.000	0.000	0.000	0.000	0.000	0.000
fs '	0.000	0.000	0.000	0.000	0.000	0.000
a	0.000	0.000	0.000	0.000	0.000	0.000
Mn (KNm)	0.000	0.000	0.000	0.000	0.000	0.000
	-	-	-	-	-	-

PERENCANAAN TULANGAN BALOK INDUK LANTAI 3

Balok	B 1 a Induk (9 m)		B 1 b Induk (9 m)		B 2 a Induk (6 m)		B 2 b Induk (6 m)	
	Tumpuan	Lapangan	Tumpuan	Lapangan	Tumpuan	Lapangan	Tumpuan	Lapangan
f'c (Mpa)	25	25	25	25	25	25	25	25
fy (Mpa)	400	400	400	400	400	400	400	400
Φ	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
β	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
d' (mm)	60	60	60	60	60	60	60	60
ρb	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032
ρ maks	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.024
ρ min	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
ρ rencana	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018
m	18.824	18.824	18.824	18.824	18.824	18.824	18.824	18.824
Rn (Mpa)	5.962	5.962	5.962	5.962	5.962	5.962	5.962	5.962
Mu (KNm)	364.700	314.445	434.391	275.122	156.022	134.964	306.419	166.342
Mn (KNm)	455.875	393.056	542.989	343.903	195.028	168.705	383.024	207.928
Ø (mm)	22	22	22	22	22	22	22	22
A 1Ø (mm^2)	380.286	380.286	380.286	380.286	380.286	380.286	380.286	380.286
b (mm)	400	400	400	400	400	400	400	400
h (mm)	600	600	600	600	600	600	600	600
d ada (mm)	540	540	540	540	540	540	540	540
d perlu (mm)	437.231	405.990	477.181	379.757	285.980	265.982	400.775	295.287
	SEBELAH	SEBELAH	SEBELAH	SEBELAH	SEBELAH	SEBELAH	SEBELAH	SEBELAH
Kontrol Momen								
Rn baru (Mpa)	3.908	3.370	4.655	2.948	1.672	1.446	3.284	1.783
ρ baru	0.012	0.010	0.014	0.009	0.005	0.004	0.010	0.005
As (mm^2)	2538.986	2189.119	3024.165	1915.358	1086.202	939.599	2133.243	1158.048
n	7	6	8	6	3	3	6	4
As ada (mm^2)	2662.000	2281.714	3042.286	2281.714	1140.857	1140.857	2281.714	1521.143
a	125.271	107.375	143.166	107.375	53.687	53.687	107.375	71.583
Mn (KNm)	508.298	443.851	570.023	443.851	234.175	234.175	443.851	306.789
	AMAN	**AMAN**	**AMAN**	**AMAN**	**AMAN**	**AMAN**	**AMAN**	**AMAN**
Kontrol Momen								
ρ 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
As 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
a	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mn 1 (KNm)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mn 2 (KNm)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
fs '	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
As'=As2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
n	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
As' ada (mm^2)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
As	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
n	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
As ada (mm^2)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ρ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ρ'	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ρ1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
fs '	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
a	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mn (KNm)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	-	-	-	-	-	-	-	-

PERENCANAAN TULANGAN BALOK INDUK LANTAI 3

Balok	B 3 a Induk (4,5 m)		B 3 b Induk (4,5 m)		B 4 Induk (3 m)		B 5 Induk (1,8 m)	
	Tumpuan	Lapangan	Tumpuan	Lapangan	Tumpuan	Lapangan	Tumpuan	Lapangan
f'c (Mpa)	25	25	25	25	25	25	25	25
fy (Mpa)	400	400	400	400	400	400	400	400
Φ	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
β	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
d' (mm)	60	60	60	60	60	60	60	60
ρb	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032
ρ maks	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.024
ρ min	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
ρ rencana	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018
m	18.824	18.824	18.824	18.824	18.824	18.824	18.824	18.824
Rn (Mpa)	5.962	5.962	5.962	5.962	5.962	5.962	5.962	5.962
Mu (KNm)	109.037	59.669	134.943	74.380	343.987	139.096	199.402	51.071
Mn (KNm)	136.296	74.586	168.679	92.975	429.984	173.870	249.253	63.839
Ø (mm)	22	22	22	22	22	22	22	22
A 1Ø (mm^2)	380.286	380.286	380.286	380.286	380.286	380.286	380.286	380.286
b (mm)	400	400	400	400	400	400	400	400
h (mm)	600	600	600	600	600	600	600	600
d ada (mm)	540	540	540	540	540	540	540	540
d perlu (mm)	239.073	176.855	265.961	197.456	424.633	270.023	323.301	163.618
	SEBELAH	SEBELAH	SEBELAH	SEBELAH	SEBELAH	SEBELAH	SEBELAH	SEBELAH
Kontrol Momen								
Rn baru (Mpa)	1.169	0.639	1.446	0.797	3.686	1.491	2.137	0.547
ρ baru	0.004	0.002	0.004	0.002	0.011	0.004	0.006	0.002
As (mm^2)	759.099	415.407	939.453	517.822	2394.786	968.365	1388.207	355.549
n	3	2	3	2	8	4	4	2
As ada (mm^2)	1140.857	760.571	1140.857	760.571	3042.286	1521.143	1521.143	760.571
a	53.687	35.792	53.687	35.792	143.166	71.583	71.583	35.792
Mn (KNm)	234.175	158.839	234.175	158.839	570.023	306.789	306.789	158.839
	AMAN	**AMAN**	**AMAN**	**AMAN**	**AMAN**	**AMAN**	**AMAN**	**AMAN**
Kontrol Momen								
ρ 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
As 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
a	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mn 1 (KNm)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mn 2 (KNm)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
fs '	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
As'=As2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
n	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
As' ada (mm^2)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
As	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
n	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
As ada (mm^2)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ρ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ρ'	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ρ1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
fs '	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
a	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mn (KNm)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	-	-	-	-	-	-	-	-

PERENCANAAN TULANGAN BALOK ANAK LANTAI 3

Balok	B 1 a Anak (9 m)		B 1 b Anak (9 m)		B 2 a Anak (6 m)		B 2 b Anak (6 m)	
	Tumpuan	Lapangan	Tumpuan	Lapangan	Tumpuan	Lapangan	Tumpuan	Lapangan
f'c (Mpa)	25	25	25	25	25	25	25	25
fy (Mpa)	400	400	400	400	400	400	400	400
Φ	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
β	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
d' (mm)	40	40	40	40	40	40	40	40
ρb	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032
ρ maks	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.024
ρ min	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
ρ rencana	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018
m	18.824	18.824	18.824	18.824	18.824	18.824	18.824	18.824
Rn (Mpa)	5.962	5.962	5.962	5.962	5.962	5.962	5.962	5.962
Mu (KNm)	65.057	18.928	114.180	28.070	45.906	33.434	83.564	56.017
Mn (KNm)	81.321	23.660	142.725	35.088	57.383	41.793	104.455	70.021
Ø (mm)	16	16	16	16	16	16	16	16
A 1Ø (mm^2)	201.143	201.143	201.143	201.143	201.143	201.143	201.143	201.143
b (mm)	200	200	200	200	200	200	200	200
h (mm)	400	400	400	400	400	400	400	400
d ada (mm)	360	360	360	360	360	360	360	360
d perlu (mm)	261.159	140.867	345.981	171.545	219.378	187.220	295.983	242.336
	SEBELAH	SEBELAH	SEBELAH	SEBELAH	SEBELAH	SEBELAH	SEBELAH	SEBELAH
Kontrol Momen								
Rn baru (Mpa)	3.137	0.913	5.506	1.354	2.214	1.612	4.030	2.701
ρ baru	0.009	0.003	0.017	0.004	0.007	0.005	0.012	0.008
As (mm^2)	679.376	197.661	1192.356	293.129	479.386	349.144	872.640	584.973
n	4	2	6	3	3	2	5	3
As ada (mm^2)	804.571	402.286	1206.857	603.429	603.429	402.286	1005.714	603.429
a	75.724	37.862	113.587	56.793	56.793	37.862	94.655	56.793
Mn (KNm)	103.673	54.883	146.371	80.040	80.040	54.883	125.784	80.040
	AMAN	**AMAN**	**AMAN**	**AMAN**	**AMAN**	**AMAN**	**AMAN**	**AMAN**
Kontrol Momen								
ρ 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
As 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
a	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mn 1 (KNm)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mn 2 (KNm)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
fs '	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
As'=As2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
n	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
As' ada (mm^2)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
As	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
n	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
As ada (mm^2)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ρ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ρ'	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ρ 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
fs '	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
a	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mn (KNm)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	-	-	-	-	-	-	-	-

PERENCANAAN TULANGAN BALOK LANTAI 2

Balok	B 1 a Induk (9 m)		B 1 b Induk (9 m)		B 2 a Induk (6 m)		B 2 b Induk (6 m)	
	Tumpuan	Lapangan	Tumpuan	Lapangan	Tumpuan	Lapangan	Tumpuan	Lapangan
f'c (Mpa)	25	25	25	25	25	25	25	25
fy (Mpa)	400	400	400	400	400	400	400	400
Φ	0,8	0,8	0,8	0,8	0,8	0,8	0,8	0,8
β	0,85	0,85	0,85	0,85	0,85	0,85	0,85	0,85
d' (mm)	60	60	90	60	60	60	60	60
ρb	0,027	0,027	0,027	0,027	0,027	0,027	0,027	0,027
ρ maks	0,020	0,020	0,020	0,020	0,020	0,020	0,020	0,020
ρ min	0,004	0,004	0,004	0,004	0,004	0,004	0,004	0,004
ρ rencana	0,010	0,010	0,010	0,010	0,010	0,010	0,010	0,010
m	18,824	18,824	18,824	18,824	18,824	18,824	18,824	18,824
Rn (Mpa)	3,675	3,675	3,675	3,675	3,675	3,675	3,675	3,675
Mu (KNm)	297,071	251,961	440,658	284,701	143,319	114,423	322,608	164,548
Mn (KNm)	371,339	314,951	550,823	355,876	179,149	143,029	403,260	205,685
Ø (mm)	22	22	22	22	22	22	22	22
A Ø (mm²)	380,286	380,286	380,286	380,286	380,286	380,286	380,286	380,286
b (mm)	400	400	400	400	400	400	400	400
h (mm)	600	600	600	600	600	600	600	600
d ada (mm)	540	540	540	540	540	540	540	540
d perlu (mm)	502,575	462,847	612,099	492,060	349,078	311,909	523,731	374,039
	SEBELAH	SEBELAH	RANGKAP	SEBELAH	SEBELAH	SEBELAH	SEBELAH	SEBELAH
Kontrol Momen								
Rn baru (Mpa)	3,184	2,700	0,000	3,051	1,536	1,226	3,457	1,763
ρ baru	0,009	0,007	0,000	0,008	0,004	0,003	0,010	0,005
As (mm²)	1900,938	1612,282	0,000	1821,783	917,089	732,185	2064,548	1052,932
n	5	5	0	5	3	3	6	3
As ada (mm²)	1901,429	1901,429	0,000	1901,429	1140,857	1140,857	2281,714	1140,857
a	89,479	89,479	0,000	89,479	53,687	53,687	107,375	53,687
Mn (KNm)	376,681	376,681	0,000	376,681	234,175	234,175	443,851	234,175
	AMAN	AMAN	-	AMAN	AMAN	AMAN	AMAN	AMAN
Kontrol Momen								
ρ 1	0,000	0,000	0,010	0,000	0,000	0,000	0,000	0,000
As 1	0,000	0,000	2072,672	0,000	0,000	0,000	0,000	0,000
a	0,000	0,000	97,538	0,000	0,000	0,000	0,000	0,000
Mn 1 (KNm)	0,000	0,000	382,392	0,000	0,000	0,000	0,000	0,000
Mn 2 (KNm)	0,000	0,000	168,430	0,000	0,000	0,000	0,000	0,000
fs '	0,000	0,000	129,412	0,000	0,000	0,000	0,000	0,000
As'=As2	0,000	0,000	3098,822	0,000	0,000	0,000	0,000	0,000
n	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**
As' ada (mm²)	0,000	0,000	1521,143	0,000	0,000	0,000	0,000	0,000
As	0,000	0,000	5171,494	0,000	0,000	0,000	0,000	0,000
n	**0**	**0**	**8**	**0**	**0**	**0**	**0**	**0**
As ada (mm²)	0,000	0,000	3042,286	0,000	0,000	0,000	0,000	0,000
ρ	0,000	0,000	0,015	0,000	0,000	0,000	0,000	0,000
ρ'	0,000	0,000	0,007	0,000	0,000	0,000	0,000	0,000
ρ1	0,000	0,000	0,007	0,000	0,000	0,000	0,000	0,000
fs '	0,000	0,000	-41,212	0,000	0,000	0,000	0,000	0,000
a	0,000	0,000	150,542	0,000	0,000	0,000	0,000	0,000
Mn (KNm)	0,000	0,000	529,952	0,000	0,000	0,000	0,000	0,000
	-	-	AMAN	-	-	-	-	-

PERENCANAAN TULANGAN BALOK LANTAI 2

Balok	B 3 a Induk (4,5 m)		B 3 b Induk (4,5 m)		B 4 Induk (0,9 m)		B 1 a Anak (9 m)	
	Tumpuan	Lapangan	Tumpuan	Lapangan	Tumpuan	Lapangan	Tumpuan	Lapangan
f'c (Mpa)	25	25	25	25	25	25	25	25
fy (Mpa)	400	400	400	400	400	400	400	400
Φ	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
β	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
d' (mm)	60	60	60	60	60	60	40	40
ρb	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027
ρ maks	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
ρ min	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
ρ rencana	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
m	18.824	18.824	18.824	18.824	18.824	18.824	18.824	18.824
Rn (Mpa)	3.675	3.675	3.675	3.675	3.675	3.675	3.675	3.675
Mu (KNm)	189.072	54.106	127.952	82.528	63.605	14.041	57.320	12.386
Mn (KNm)	236.340	67.633	159.940	103.160	79.506	17.551	71.650	15.483
Ø (mm)	22	22	22	22	22	22	16	16
A 1Ø (mm^2)	380.286	380.286	380.286	380.286	380.286	380.286	201.143	201.143
b (mm)	400	400	400	400	400	400	200	200
h (mm)	600	600	600	600	600	600	400	400
d ada (mm)	540	540	540	540	540	540	360	360
d perlu (mm)	400.944	214.483	329.833	264.893	232.550	109.262	312.204	145.128
	SEBELAH	SEBELAH	SEBELAH	SEBELAH	SEBELAH	SEBELAH	SEBELAH	SEBELAH
Kontrol Momen								
Rn baru (Mpa)	2.026	0.580	1.371	0.884	0.682	0.150	2.764	0.597
ρ baru	0.006	0.002	0.004	0.002	0.002	0.000	0.008	0.002
As (mm^2)	1209.859	346.221	818.757	528.091	407.004	89.847	550.180	118.886
n	4	2	3	2	2	2	3	2
As ada (mm^2)	1521.143	760.571	1140.857	760.571	760.571	760.571	603.429	402.286
a	71.583	35.792	53.687	35.792	35.792	35.792	56.793	37.862
Mn (KNm)	306.789	158.839	234.175	158.839	158.839	158.839	80.040	54.883
	AMAN	**AMAN**	**AMAN**	**AMAN**	**AMAN**	**AMAN**	**AMAN**	**AMAN**
Kontrol Momen								
ρ 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
As 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
a	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mn 1 (KNm)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mn 2 (KNm)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
fs '	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
As'=As2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
n	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
As' ada (mm^2)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
As	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
n	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
As ada (mm^2)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ρ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ρ'	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ρ1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
fs '	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
a	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mn (KNm)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	-	-	-	-	-	-	-	-

PERENCANAAN TULANGAN BALOK LANTAI 2

Balok	B 1 b Anak (9 m)		B 2 a Anak (6 m)		B 2 b Anak (6 m)		B 3 a Anak (4,5 m)	
	Tumpuan	Lapangan	Tumpuan	Lapangan	Tumpuan	Lapangan	Tumpuan	Lapangan
f'c (Mpa)	25	25	25	25	25	25	25	25
fy (Mpa)	400	400	400	400	400	400	400	400
Φ	0,8	0,8	0,8	0,8	0,8	0,8	0,8	0,8
β	0,85	0,85	0,85	0,85	0,85	0,85	0,85	0,85
d' (mm)	60	40	40	40	60	40	40	40
ρb	0,027	0,027	0,027	0,027	0,027	0,027	0,027	0,027
ρ maks	0,020	0,020	0,020	0,020	0,020	0,020	0,020	0,020
ρ min	0,004	0,004	0,004	0,004	0,004	0,004	0,004	0,004
ρ rencana	0,010	0,010	0,010	0,010	0,010	0,010	0,010	0,010
m	18,824	18,824	18,824	18,824	18,824	18,824	18,824	18,824
Rn (Mpa)	3,675	3,675	3,675	3,675	3,675	3,675	3,675	3,675
Mu (KNm)	116,324	28,401	44,077	36,191	83,744	55,456	16,751	5,059
Mn (KNm)	145,405	35,501	55,096	45,239	104,680	69,320	20,939	6,324
O (mm)	16	16	16	16	16	16	16	16
A 10 (mm²)	201,143	201,143	201,143	201,143	201,143	201,143	201,143	201,143
b (mm)	200	200	200	200	200	200	200	200
h (mm)	400	400	400	400	400	400	400	400
d ada (mm)	340	360	360	360	340	360	360	360
d perlu (mm)	444,754	419,762	273,774	248,077	377,366	307,086	168,774	92,751
	RANGKAP	SEBELAH	SEBELAH	SEBELAH	RANGKAP	SEBELAH	SEBELAH	SEBELAH
Kontrol Momen								
Rn baru (Mpa)	0,000	1,370	2,126	1,745	0,000	2,674	0,808	0,244
ρ baru	0,000	0,004	0,006	0,005	0,000	0,007	0,002	0,001
As (mm²)	0,000	272,604	423,069	347,376	0,000	532,289	160,783	48,558
n	0	4	3	2	0	3	2	2
As ada (mm²)	0,000	804,571	603,429	402,286	0,000	603,429	402,286	402,286
a	0,000	75,724	56,793	37,862	0,000	56,793	37,862	37,862
Mn (KNm)	0,000	103,673	80,040	54,883	0,000	80,040	54,883	54,883
	-	AMAN	AMAN	AMAN	-	AMAN	AMAN	AMAN
Kontrol Momen								
ρ 1	0,010	0,000	0,000	0,000	0,010	0,000	0,000	0,000
As 1	690,891	0,000	0,000	0,000	690,891	0,000	0,000	0,000
a	65,025	0,000	0,000	0,000	65,025	0,000	0,000	0,000
Mn 1 (KNm)	84,976	0,000	0,000	0,000	84,976	0,000	0,000	0,000
Mn 2 (KNm)	60,429	0,000	0,000	0,000	19,704	0,000	0,000	0,000
fs '	129,412	0,000	0,000	0,000	129,412	0,000	0,000	0,000
As'=As2	1667,681	0,000	0,000	0,000	543,777	0,000	0,000	0,000
n	**4**	**0**	**0**	**0**	**3**	**0**	**0**	**0**
As' ada (mm²)	804,571	0,000	0,000	0,000	603,429	0,000	0,000	0,000
As	2358,572	0,000	0,000	0,000	1234,667	0,000	0,000	0,000
n	**7**	**0**	**0**	**0**	**5**	**0**	**0**	**0**
As ada (mm²)	1408,000	0,000	0,000	0,000	1005,714	0,000	0,000	0,000
ρ	0,021	0,000	0,000	0,000	0,015	0,000	0,000	0,000
ρ'	0,012	0,000	0,000	0,000	0,009	0,000	0,000	0,000
ρ1	0,009	0,000	0,000	0,000	0,006	0,000	0,000	0,000
fs '	61,204	0,000	0,000	0,000	-208,194	0,000	0,000	0,000
a	120,931	0,000	0,000	0,000	124,216	0,000	0,000	0,000
Mn (KNm)	157,457	0,000	0,000	0,000	111,527	0,000	0,000	0,000
	AMAN	-	-	-	**AMAN**	-	-	-

PERENCANAAN TULANGAN BALOK LANTAI 2

Balok	B 3 b Anak (4,5 m)		B 4 Anak (3 m)		B 5 Anak (0,9 m)	
	Tumpuan	Lapangan	Tumpuan	Lapangan	Tumpuan	Lapangan
f'c (Mpa)	25	25	25	25	25	25
fy (Mpa)	400	400	400	400	400	400
Φ	0,8	0,8	0,8	0,8	0,8	0,8
β	0,85	0,85	0,85	0,85	0,85	0,85
d' (mm)	40	40	60	40	40	40
ρb	0,027	0,027	0,027	0,027	0,027	0,027
ρ maks	0,020	0,020	0,020	0,020	0,020	0,020
ρ min	0,004	0,004	0,004	0,004	0,004	0,004
ρ rencana	0,010	0,010	0,010	0,010	0,010	0,010
m	18,824	18,824	18,824	18,824	18,824	18,824
Rn (Mpa)	3,675	3,675	3,675	3,675	3,675	3,675
Mu (KNm)	55,362	33,396	84,849	9,431	46,009	5,054
Mn (KNm)	69,203	41,745	106,061	11,789	57,511	6,318
Ø (mm)	16	16	16	16	16	16
A Ø (mm^2)	201,143	201,143	201,143	201,143	201,143	201,143
b (mm)	200	200	200	200	200	200
h (mm)	400	400	400	400	400	400
d ada (mm)	360	360	340	360	360	360
d perlu (mm)	306,825	238,305	379,847	126,638	279,709	92,705
	SEBELAH	SEBELAH	RANGKAP	SEBELAH	SEBELAH	SEBELAH
Kontrol Momen						
Rn baru (Mpa)	2,670	1,611	0,000	0,455	2,219	0,244
ρ baru	0,007	0,004	0,000	0,001	0,006	0,001
As (mm^2)	531,387	320,548	0,000	90,523	441,613	48,510
n	3	2	0	3	3	2
As ada (mm^2)	603,429	402,286	0,000	603,429	603,429	402,286
a	56,793	37,852	0,000	56,793	56,793	37,862
Mn (KNm)	80,040	54,883	0,000	80,040	80,040	54,883
	AMAN	**AMAN**	-	**AMAN**	**AMAN**	**AMAN**
Kontrol Momen						
ρ 1	0,000	0,000	0,010	0,000	0,000	0,000
As 1	0,000	0,000	690,891	0,000	0,000	0,000
a	0,000	0,000	65,025	0,000	0,000	0,000
Mn 1 (KNm)	0,000	0,000	84,976	0,000	0,000	0,000
Mn 2 (KNm)	0,000	0,000	21,085	0,000	0,000	0,000
fs '	0,000	0,000	129,412	0,000	0,000	0,000
As'=As2	0,000	0,000	581,896	0,000	0,000	0,000
n	**0**	**0**	**3**	**0**	**0**	**0**
As' ada (mm^2)	0,000	0,000	603,429	0,000	0,000	0,000
As	0,000	0,000	1272,786	0,000	0,000	0,000
n	**0**	**0**	**5**	**0**	**0**	**0**
As ada (mm^2)	0,000	0,000	1005,714	0,000	0,000	0,000
ρ	0,000	0,000	0,015	0,000	0,000	0,000
ρ'	0,000	0,000	0,009	0,000	0,000	0,000
ρ1	0,000	0,000	0,006	0,000	0,000	0,000
fs '	0,000	0,000	-208,194	0,000	0,000	0,000
a	0,000	0,000	124,216	0,000	0,000	0,000
Mn (KNm)	0,000	0,000	111,527	0,000	0,000	0,000
	-	-	**AMAN**	-	-	-

PERENCANAAN TULANGAN BALOK SLOOF

Balok	S 1 (9 m)		S 2 (6 m)		S 3 (4,5 m)	
	Tumpuan	Lapangan	Tumpuan	Lapangan	Tumpuan	Lapangan
f'c (Mpa)	25	25	25	25	25	25
fy (Mpa)	400	400	400	400	400	400
Φ	0.8	0.8	0.8	0.8	0.8	0.8
β	0.85	0.85	0.85	0.85	0.85	0.85
d' (mm)	40	40	40	40	40	40
ρb	0.032	0.032	0.032	0.032	0.032	0.032
ρ maks	0.024	0.024	0.024	0.024	0.024	0.024
ρ min	0.004	0.004	0.004	0.004	0.004	0.004
ρ rencana	0.018	0.018	0.018	0.018	0.018	0.018
m	18.824	18.824	18.824	18.824	18.824	18.824
Rn (Mpa)	5.962	5.962	5.962	5.962	5.962	5.962
Mu (KNm)	135.539	78.948	91.746	20.595	72.788	11.085
Mn (KNm)	169.424	98.685	114.683	25.744	90.985	13.856
Ø (mm)	16	16	16	16	16	16
A 1Ø (mm^2)	201.143	201.143	201.143	201.143	201.143	201.143
b (mm)	250	250	250	250	250	250
h (mm)	500	500	500	500	500	500
d ada (mm)	460	460	460	460	460	460
d perlu (mm)	337.159	257.320	277.394	131.427	247.077	96.421
	SEBELAH	SEBELAH	SEBELAH	SEBELAH	SEBELAH	SEBELAH
Kontrol Momen						
Rn baru (Mpa)	3.203	1.866	2.168	0.487	1.720	0.262
ρ baru	0.010	0.006	0.007	0.001	0.005	0.001
As (mm^2)	1107.707	645.211	749.804	168.315	594.868	90.593
n	5	3	4	2	3	2
As ada (mm^2)	1005.714	603.429	804.571	402.286	603.429	402.286
a	75.724	45.435	60.579	30.290	45.435	30.290
Mn (KNm)	169.820	105.548	138.293	71.584	105.548	71.584
	AMAN	**AMAN**	**AMAN**	**AMAN**	**AMAN**	**AMAN**
Kontrol Momen						
ρ 1	0.000	0.000	0.000	0.000	0.000	0.000
As 1	0.000	0.000	0.000	0.000	0.000	0.000
a	0.000	0.000	0.000	0.000	0.000	0.000
Mn 1 (KNm)	0.000	0.000	0.000	0.000	0.000	0.000
Mn 2 (KNm)	0.000	0.000	0.000	0.000	0.000	0.000
fs '	0.000	0.000	0.000	0.000	0.000	0.000
As'=As2	0.000	0.000	0.000	0.000	0.000	0.000
n	**0**	**0**	**0**	**0**	**0**	**0**
As' ada (mm^2)	0.000	0.000	0.000	0.000	0.000	0.000
As	0.000	0.000	0.000	0.000	0.000	0.000
n	**0**	**0**	**0**	**0**	**0**	**0**
As ada (mm^2)	0.000	0.000	0.000	0.000	0.000	0.000
ρ	0.000	0.000	0.000	0.000	0.000	0.000
ρ'	0.000	0.000	0.000	0.000	0.000	0.000
ρ1	0.000	0.000	0.000	0.000	0.000	0.000
fs '	0.000	0.000	0.000	0.000	0.000	0.000
a	0.000	0.000	0.000	0.000	0.000	0.000
Mn (KNm)	0.000	0.000	0.000	0.000	0.000	0.000
	-	-	-	-	-	-

LANTAI	BALOK	JENIS TUL.	LUAS TUL. SAP 2000 (-) (mm2)	LUAS TUL SAP 2000 (+) (mm2)	Ø TUL. (mm)	LUAS TUL. (mm2)	JUMLAH TUL. (-)	JUMLAH TUL. (+)	TUL. PAKAI (-)	TUL. PAKAI (+)
ATAP	R 1 Induk	Tump	772.213	502.428	22	380.133	2.031	1.322	3	2
	(9 m)	Lap	130.692	651.024	22	380.133	0.344	1.713	2	2
ATAP	R 2 Induk	Tump	772.213	420.039	22	380.133	2.031	1.105	3	2
	(6 m)	Lap	0	680.728	22	380.133	0.000	1.791	2	2
ATAP	R 3 Induk	Tump	669.473	331.13	22	380.133	1.761	0.871	2	2
	(4,5 m)	Lap	58.383	150.947	22	380.133	0.154	0.397	2	2
ATAP	R 4 Induk	Tump	1251.828	772.213	22	380.133	3.293	2.031	4	3
	(3 m)	Lap	641.841	400.38	22	380.133	1.688	1.053	2	3
ATAP	R 5 Induk	Tump	772.213	476.039	22	380.133	2.031	1.252	3	2
	(1,8 m)	Lap	423.194	236.207	22	380.133	1.113	0.621	2	2
ATAP	R 1 Anak	Tump	334.022	217.88	16	201.062	1.661	1.084	2	2
	(9 m)	Lap	42.132	262.001	16	201.062	0.210	1.303	2	2
ATAP	R 2 Anak	Tump	302.428	197.698	16	201.062	1.504	0.983	2	2
	(6 m)	Lap	0	170.606	16	201.062	0.000	0.849	2	2
ATAP	R 3 Anak	Tump	262.001	164.057	16	201.062	1.303	0.816	2	2
	(4,5 m)	Lap	0	69.488	16	201.062	0.000	0.346	2	2
ATAP	R 4 Anak	Tump	401.595	260.729	16	201.062	1.997	1.297	3	2
	(3 m)	Lap	128.747	128.747	16	201.062	0.640	0.640	2	2
ATAP	R 5 Anak	Tump	262.001	134.495	16	201.062	1.303	0.669	2	2
	(2,6 m)	Lap	66.522	66.522	16	201.062	0.331	0.331	2	2
ATAP	R 6 Anak	Tump	264.169	173.136	16	201.062	1.314	0.861	2	2
	(1,8 m)	Lap	92.891	85.86	16	201.062	0.462	0.427	2	2
LT 3	B 1 a Induk	Tump	2247.37	1065.258	22	380.133	5.912	2.802	7	4
	(9 m)	Lap	0	1914.261	22	380.133	0.000	5.036	3	6
LT 3	B 1 b Induk	Tump	2739.353	1280.973	22	380.133	7.206	3.370	8	4
	(9 m)	Lap	0	1382.21	22	380.133	0.000	3.636	3	6
LT 3	B 2 a Induk	Tump	905.079	591.464	22	380.133	2.381	1.556	3	2
	(6 m)	Lap	0	772.213	22	380.133	0.000	2.031	2	3
LT 3	B 2 b Induk	Tump	1854.418	888.104	22	380.133	4.878	2.336	6	3
	(6 m)	Lap	0	967.584	22	380.133	0.000	2.545	2	4
LT 3	B 3 a Induk	Tump	929.809	607.277	22	380.133	2.446	1.598	3	2
	(4,5 m)	Lap	0	450.354	22	380.133	0.000	1.185	2	2
LT 3	B 3 b Induk	Tump	778.495	510.224	22	380.133	2.048	1.342	3	2
	(4,5 m)	Lap	0	563.425	22	380.133	0.000	1.482	2	2
LT 3	B 4 Induk	Tump	1736.189	910.108	22	380.133	4.567	2.394	8	4
	(3 m)	Lap	899.778	551.027	22	380.133	2.367	1.450	3	4
LT 3	B 5 Induk	Tump	1170.275	760.024	22	380.133	3.079	1.999	4	2
	(1,8 m)	Lap	501.863	280.492	22	380.133	1.320	0.738	2	2
LT 3	B 1a Anak	Tump	576.208	277.051	16	201.062	2.866	1.378	4	2
	(9 m)	Lap	0	211.702	16	201.062	0.000	1.053	2	2
LT 3	B 1 b Anak	Tump	1084.681	500.514	16	201.062	5.395	2.489	6	3
	(9 m)	Lap	0	262.001	16	201.062	0.000	1.303	2	3
LT 3	B 2 a Anak	Tump	397.037	257.852	16	201.062	1.975	1.282	3	2
	(6 m)	Lap	0	285.013	16	201.062	0.000	1.418	2	2
LT 3	B 2 b Anak	Tump	758.444	359.619	16	201.062	3.772	1.789	5	3
	(6 m)	Lap	0	490.46	16	201.062	0.000	2.439	2	3
LT 3	B 3 a Anak	Tump	262.001	160.404	16	201.062	1.303	0.798	2	2
	(4,5 m)	Lap	0	28.557	16	201.062	0.000	0.142	2	2
LT 3	B 3 b Anak	Tump	474.963	262.001	16	201.062	2.362	1.303	3	2
	(4,5 m)	Lap	0	283.529	16	201.062	0.000	1.410	2	2
LT 3	B 4 Anak	Tump	794.766	375.757	16	201.062	3.953	1.869	5	3
	(3 m)	Lap	244.395	244.395	16	201.062	1.216	1.216	2	3
LT 3	B 5 Anak	Tump	587.085	282.052	16	201.062	2.920	1.403	4	2
	(1,8 m)	Lap	216.231	135.870	16	201.062	1.075	0.676	2	2

LANTAI	BALOK	JENIS TUL.	LUAS TUL. SAP 2000 (-) (mm2)	LUAS TUL SAP 2000 (+) (mm2)	Ø TUL. (mm)	LUAS TUL. (mm2)	JUMLAH TUL. (-)	JUMLAH TUL. (+)	TUL. PAKAI (-)	TUL. PAKAI (+)
LT 2	B 1 a Induk	Tump	1792.813	859.954	22	380.133	4.716	2.262	5	3
	(9 m)	Lap	0	1500.65	22	380.133	0.000	3.948	3	5
LT 2	B 1 b Induk	Tump	2784.899	1300.588	22	380.133	7.326	3.421	8	4
	(9 m)	Lap	0	1711.859	22	380.133	0.000	4.503	3	5
LT 2	B 2 a Induk	Tump	828.621	542.454	22	380.133	2.180	1.427	3	2
	(6 m)	Lap	0	772.213	22	380.133	0.000	2.031	2	3
LT 2	B 2 b Induk	Tump	1962.01	937.025	22	380.133	5.161	2.465	6	3
	(6 m)	Lap	0	956.694	22	380.133	0.000	2.517	2	3
LT 2	B 3 a Induk	Tump	1106.534	632.313	22	380.133	2.911	1.663	4	2
	(4,5 m)	Lap	355.683	407.819	22	380.133	0.936	1.073	2	2
LT 2	B 3 b Induk	Tump	772.213	483.375	22	380.133	2.031	1.272	3	2
	(4,5 m)	Lap	0	626.411	22	380.133	0.000	1.648	2	2
LT 2	B 4 Induk	Tump	480.524	238.415	22	380.133	1.264	0.627	2	2
	(0,9 m)	Lap	213.039	118.756	22	380.133	0.560	0.312	2	2
LT 2	B 1 a Anak	Tump	502.671	262.001	16	201.062	2.500	1.303	3	2
	(9 m)	Lap	0	137.569	16	201.062	0.000	0.684	2	2
LT 2	B 1 b Anak	Tump	1108.883	510.589	16	201.062	5.515	2.539	7	4
	(9 m)	Lap	0	262.001	16	201.062	0.000	1.303	2	4
LT 2	B 2 a Anak	Tump	380.398	247.334	16	201.062	1.892	1.230	3	2
	(6 m)	Lap	32.624	309.489	16	201.062	0.162	1.539	2	2
LT 2	B 2 b Anak	Tump	760.259	360.428	16	201.062	3.781	1.793	5	3
	(6 m)	Lap	0	485.21	16	201.062	0.000	2.413	2	3
LT 2	B 3 a Anak	Tump	186.918	92.633	16	201.062	0.930	0.461	2	2
	(4,5 m)	Lap	71.199	35.481	16	201.062	0.354	0.176	2	2
LT 2	B 3 b Anak	Tump	484.327	262.001	16	201.062	2.409	1.303	3	2
	(4,5 m)	Lap	0	284.67	16	201.062	0.000	1.416	2	2
LT 2	B 4 Anak	Tump	771.473	237.843	16	201.062	3.837	1.183	5	3
	(3 m)	Lap	365.42	365.42	16	201.062	1.817	1.817	2	3
LT 2	B 5 Anak	Tump	346.104	214.864	16	201.062	1.721	1.069	3	2
	(0,9 m)	Lap	217.151	106.338	16	201.062	1.080	0.529	2	2
SLOOF	S 1	Tump	953.760	457.633	16	201.062	4.744	2.276	5	3
	(9 m)	Lap	216.148	413.685	16	201.062	1.075	2.058	2	3
SLOOF	S 2	Tump	628.264	407.996	16	201.062	3.125	1.962	4	2
	(6 m)	Lap	201.490	201.490	16	201.062	1.002	1.002	2	2
SLOOF	S 3	Tump	492.936	298.478	16	201.062	2.452	1.485	3	2
	(4,5 m)	Lap	143.819	143.819	16	201.062	0.715	0.715	2	2

PERENCANAAN TULANGAN GESER BALOK INDUK RING

Balok	R 1 Induk (9 m)	R 2 Induk (6 m)	R 3 Induk (4,5 m)	R 4 Induk (3 m)	R 5 Induk (1,8 m)
Tumpuan (di dalam daerah sendi plastis)					
Φ	1.25	1.25	1.25	1.25	1.25
ln (m)	8.6	5.6	4.1	2.7	1.5
Mnak (KNm)	234.175	234.175	158.839	306.789	234.175
Mn'ak (KNm)	158.839	158.839	158.839	234.175	158.839
VD (KN)	54.895	62.619	49.302	65.118	52.074
VL (KN)	12.380	8.983	6.671	16.675	12.972
VE (KN)	4.615	15.689	17.063	18.213	22.851
Vu (KN)	110.626	136.591	126.569	261.195	297.556
Vu' (KN)	201.325	143.763	132.921	165.470	167.402
Vu pakai (KN)	110.626	136.591	126.569	165.470	167.402
Φ	0.6	0.6	0.6	0.6	0.6
f'c (MPa)	25	25	25	25	25
fy (MPa)	240	240	240	240	240
b (mm)	400	400	400	400	400
h (mm)	600	600	600	600	600
d (mm)	540	540	540	540	540
Vc (KN)	180	180	180	180	180
Vs min (KN)	72	72	72	72	72
Vu / Φ (KN)	184.376	227.651	210.948	275.783	279.003
Ø (mm)	10	10	10	10	10
Kaki	2	2	2	2	2
Av (mm2)	157.143	157.143	157.143	157.143	157.143
S 1 (mm)	282.857	282.857	282.857	212.624	205.708
S 2 (mm)	270	270	270	270	270
S 3 (mm)	600	600	600	600	600
S pakai (mm)	***P10-270***	***P10-270***	***P10-270***	***P10-210***	***P10-205***
Lapangan (di luar daerah sendi plastis)					
Vu" (KN)	-30.652	-13.774	9.025	89.430	160.960
2.h (m)	1.20	1.20	1.20	1.20	1.20
x (m)	1.866	0.513	0	0	0
y (KN)	90.913	104.370	83.140	42.245	1.288
Vu pakai (KN)	90.913	104.370	83.140	42.245	1.288
Vc (KN)	180	180	180	180	180
Vs min (KN)	72	72	72	72	72
Vu / Φ (KN)	151.521	173.949	138.567	70.408	2.147
Ø (mm)	10	10	10	10	10
Kaki	2	2	2	2	2
Av (mm2)	157.143	157.143	157.143	157.143	157.143
S 1 (mm)	282.857	282.857	282.857	282.857	282.857
S 2 (mm)	270	270	270	270	270
S 3 (mm)	600	600	600	600	600
S pakai (mm)	***P10-270***	***P10-270***	***P10-270***	***P10-270***	***P10-270***

PERENCANAAN TULANGAN GESER BALOK ANAK RING

Balok	R 1 Anak (9 m)	R 2 Anak (6 m)	R 3 Anak (4,5 m)	R 4 Anak (3 m)	R 5 Anak (2,6 m)	R 6 Anak (1,8 m)
Tumpuan (di dalam daerah sendi plastis)						
Φ	1.25	1.25	1.25	1.25	1.25	1.25
ln (m)	8.6	5.6	4.1	2.7	2.3	1.5
Mnak (KNm)	54.883	54.883	54.883	80.04	54.883	54.883
Mn'ak (KNm)	54.883	54.883	54.883	54.883	54.883	54.883
VD (KN)	18.512	19.3	14.005	21.865	14.582	16.695
VL (KN)	5.510	6.654	3.859	8.756	5.424	5.424
VE (KN)	1.003	4.132	1.785	0.022	0.319	12.514
Vu (KN)	36.391	44.403	42.183	75.877	62.765	87.255
Vu' (KN)	29.996	45.456	26.754	201.325	22.772	77.227
Vu pakai (KN)	29.996	44.403	26.754	75.877	22.772	77.227
Φ	0.6	0.6	0.6	0.6	0.6	0.6
f'c (MPa)	25	25	25	25	25	25
fy (MPa)	240	240	240	240	240	240
b (mm)	200	200	200	200	200	200
h (mm)	400	400	400	400	400	400
d (mm)	360	360	360	360	360	360
Vc (KN)	60	60	60	60	60	60
Vs min (KN)	24	24	24	24	24	24
Vu / Φ (KN)	49.993	74.004	44.590	126.462	37.953	128.712
Ø (mm)	8	8	8	8	8	8
Kaki	2	2	2	2	2	2
Av (mm2)	100.571	100.571	100.571	100.571	100.571	100.571
S 1 (mm)	362.056	362.056	362.056	68.711	362.056	67.51
S 2 (mm)	180	180	180	180	180	180
S 3 (mm)	600	600	600	600	600	600
S pakai (mm)	***P10-180***	***P10-180***	***P10-180***	***P10-65***	***P10-180***	***P10-65***
Lapangan (di luar daerah sendi plastis)						
Vu" (KN)	-14.055	-10.101	4.668	11.573	20.753	40.805
2.h (m)	0.80	0.80	0.80	0.80	0.80	0.80
x (m)	2.744	1.038	0	0	0	0
y (KN)	25.898	36.616	17.776	45.251	1.317	16.997
Vu pakai (KN)	25.898	36.616	17.776	45.251	1.317	16.997
Vc (KN)	60	60	60	60	60	60
Vs min (KN)	24	24	24	24	24	24
Vu / Φ (KN)	43.164	61.027	29.627	75.418	2.195	28.328
Ø (mm)	8	8	8	8	8	8
Kaki	2	2	2	2	3	2
Av (mm2)	100.571	100.571	100.571	100.571	150.857	100.571
S 1 (mm)	362.056	362.056	362.056	362.056	362.056	362.056
S 2 (mm)	180	180	180	180	180	180
S 3 (mm)	600	600	600	600	600	600
S pakai (mm)	***P10-180***	***P10-180***	***P10-180***	***P10-180***	***P10-180***	***P10-180***

PERENCANAAN TULANGAN GESER BALOK INDUK LANTAI 3

Balok	B 1 a Induk (9 m)	B 1 b Induk (9 m)	B 2 a Induk (6 m)	B 2 b Induk (6 m)	B 3 a Induk (4.5 m)	B 3 b Induk (4.5 m)	B 4 Induk (3 m)	B 5 Induk (1.8 m)
Tumpuan (di dalam daerah sendi plastis)								
Φ	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
ln (m)	8.6	8.6	5.6	5.6	4.1	4.1	2.7	1.5
Mnak (KNm)	508.298	570.023	234.175	443.851	234.175	234.175	508.298	306.789
Mn'ak (KNm)	234.175	306.789	158.839	234.175	158.839	158.839	234.175	158.839
VD (KN)	128.848	142.492	73.858	108.743	56.236	77.384	120.776	96.787
VL (KN)	29.781	40.149	24.554	30.702	15.474	19.654	15.470	10.684
VE (KN)	10.027	21.866	4.485	4.296	32.762	3.150	6.653	3.506
Vu (KN)	242.103	280.984	164.741	252.359	159.170	185.765	383.675	384.461
Vu' (KN)	201.325	289.012	124.497	167.593	216.951	201.325	174.258	130.000
Vu pakai (KN)	201.325	280.984	124.497	167.593	159.170	185.765	174.258	130.000
Φ	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
f'c (MPa)	25	25	25	25	25	25	25	25
fy (MPa)	240	240	240	240	240	240	240	240
b (mm)	400	400	400	400	400	400	400	400
h (mm)	600	600	600	600	600	600	600	600
d (mm)	540	540	540	540	540	540	540	540
Vc (KN)	180	180	180	180	180	180	180	180
Vs min (KN)	72	72	72	72	72	72	72	72
Vu / Φ (KN)	335.542	468.306	207.495	279.322	265.284	309.608	290.430	216.667
Ø (mm)	10	10	10	10	10	10	10	10
Kaki	2	3	2	2	2	2	2	2
Av (mm2)	157.143	235.714	157.143	157.143	157.143	157.143	157.143	157.143
S 1 (mm)	60.695	65.232	282.857	72.911	76.77	65.779	70.123	282.857
S 2 (mm)	270	270	270	270	270	270	270	270
S 3 (mm)	600	600	600	600	600	600	600	600
S pakai (mm)	***P10-60***	***P10-65***	***P10-270***	***P10-70***	***P10-75***	***P10-65***	***P10-70***	***P10-270***
Lapangan (di luar daerah sendi plastis)								
Vu" (KN)	-91.018	-102.563	-41.924	-40.476	8.579	-18.015	97.558	158.772
2.h (m)	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
x (m)	2.678	2.300	1.411	1.089	0	0.362	0	0
y (KN)	160.533	227.466	88.835	123.007	106.516	126.122	42.611	5.754
Vu pakai (KN)	160.533	227.466	88.835	123.007	106.516	126.122	42.611	5.754
Vc (KN)	180	180	180	180	180	180	180	180
Vs min (KN)	72	72	72	72	72	72	72	72
Vu / Φ (KN)	267.555	379.109	148.059	205.011	177.526	210.203	71.019	9.591
Ø (mm)	10	10	10	10	10	10	10	10
Kaki	2	2	2	2	2	2	2	2
Av (mm2)	157.143	157.143	157.143	157.143	157.143	157.143	157.143	157.143
S 1 (mm)	232.605	102.284	282.857	282.857	282.857	282.857	282.857	282.857
S 2 (mm)	270	270	270	270	270	270	270	270
S 3 (mm)	600	600	600	600	600	600	600	600
S pakai (mm)	***P10-230***	***P10-100***	***P10-270***	***P10-270***	***P10-270***	***P10-270***	***P10-270***	***P10-270***

PERENCANAAN TULANGAN GESER BALOK ANAK LANTAI 3

Balok	B 1 a Anak (9 m)	B 1 b Anak (9 m)	B 2 a Anak (6 m)	B 2 b Anak (6 m)	B 3 a Anak (4,5 m)	B 3 b Anak (4,5 m)	B 4 Anak (3 m)	B 5 Anak (1,8 m)
Tumpuan (di dalam daerah sendi plastis)								
Φ	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
ln (m)	8.6	8.6	5.6	5.6	4.1	4.1	2.7	1.5
Mnak (KNm)	103.673	146.371	80.04	125.784	54.883	80.04	125.784	103.673
Mn'ak (KNm)	54.883	80.04	54.883	54.883	54.883	54.883	54.883	54.883
VD (KN)	43.749	41.803	39.914	35.417	24.767	24.783	32.161	30.703
VL (KN)	6.310	17.644	5.908	16.742	2.268	12.515	10.249	6.885
VE (KN)	0.895	2.428	1.317	1.040	1.282	0.847	1.337	2.374
Vu (KN)	68.694	85.455	69.195	82.996	51.812	67.957	103.080	131.958
Vu' (KN)	57.394	74.000	54.666	201.325	34.414	43.534	51.101	50.380
Vu pakai (KN)	57.394	74.000	54.666	82.996	34.414	43.534	51.101	50.380
Φ	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
f'c (MPa)	25	25	25	25	25	25	25	25
fy (MPa)	240	240	240	240	240	240	240	240
b (mm)	200	200	200	200	200	200	200	200
h (mm)	400	400	400	400	400	400	400	400
d (mm)	360	360	360	360	360	360	360	360
Vc (KN)	60	60	60	60	60	60	60	60
Vs min (KN)	24	24	24	24	24	24	24	24
Vu / Φ (KN)	95.657	123.333	91.110	138.327	57.357	72.557	85.168	83.967
Ø (mm)	8	8	8	8	8	8	8	8
Kaki	2	2	2	2	2	2	2	2
Av (mm2)	100.571	100.571	100.571	100.571	100.571	100.571	100.571	100.571
S 1 (mm)	90.838	70.454	95.371	62.817	362.056	362.056	102.026	362.056
S 2 (mm)	180	180	180	180	180	180	180	180
S 3 (mm)	600	600	600	600	600	600	600	600
S pakai (mm)	***P10-90***	***P10-70***	***P10-95***	***P10-60***	***P10-180***	***P10-180***	***P10-100***	***P10-180***
Lapangan (di luar daerah sendi plastis)								
Vu" (KN)	-36.430	-39.383	-27.031	-26.538	-4.961	-10.368	14.019	53.024
2.h (m)	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
x (m)	3.339	2.987	1.853	1.357	0.517	0.789	0	0
y (KN)	48.666	63.453	42.995	67.348	26.731	33.016	26.095	1.234
Vu pakai (KN)	48.666	63.453	42.995	67.348	26.731	33.016	26.095	1.234
Vc (KN)	60	60	60	60	60	60	60	60
Vs min (KN)	24	24	24	24	24	24	24	24
Vu / Φ (KN)	81.110	105.755	71.658	112.247	44.552	55.027	43.491	2.056
Ø (mm)	8	8	8	8	8	8	8	8
Kaki	2	2	2	2	2	2	2	2
Av (mm2)	100.571	100.571	100.571	100.571	100.571	100.571	100.571	100.571
S 1 (mm)	362.056	189.91	362.056	166.313	362.056	362.056	362.056	362.056
S 2 (mm)	180	180	180	180	180	180	180	180
S 3 (mm)	600	600	600	600	600	600	600	600
S pakai (mm)	***P10-180***	***P10-180***	***P10-180***	***P10-165***	***P10-180***	***P10-180***	***P10-180***	***P10-180***

PERENCANAAN TULANGAN GESER BALOK INDUK LANTAI 2

Balok	B 1 a Induk (9 m)	B 1 b Induk (9 m)	B 2 a Induk (6 m)	B 2 b Induk (6 m)	B 3 a Induk (4,5 m)	B 3 b Induk (4.5 m)	B 4 Induk (0,9 m)
Tumpuan (di dalam daerah sendi plastis)							
Φ	1.25	1.25	1.25	1.25	1.25	1.25	1.25
ln (m)	8.6	8.6	5.6	5.6	4.1	4.1	0.6
Mnak (KNm)	376.681	587.798	80.04	443.851	306.789	234.175	158.839
Mn'ak (KNm)	234.175	306.789	54.883	234.175	158.839	158.839	158.839
VD (KN)	107.97	147.165	68.335	119.191	54.292	77.885	63.774
VL (KN)	23.125	40.780	18.711	31.890	13.644	19.600	4.651
VE (KN)	13.807	22.584	2.234	1.841	49.930	0.831	2.537
Vu (KN)	199.801	288.361	112.480	264.577	170.705	186.234	535.127
Vu' (KN)	201.325	297.761	102.701	169.536	286.392	201.325	84.073
Vu pakai (KN)	199.801	288.361	102.701	169.536	170.705	186.234	84.073
Φ	0.6	0.6	0.6	0.6	0.6	0.6	0.6
f'c (MPa)	25	25	25	25	25	25	25
fy (MPa)	240	240	240	240	240	240	240
b (mm)	400	400	400	400	400	400	400
h (mm)	600	600	600	600	600	600	600
d (mm)	540	540	540	540	540	540	540
Vc (KN)	180	180	180	180	180	180	180
Vs min (KN)	72	72	72	72	72	72	72
Vu / Φ (KN)	333.001	480.602	171.168	282.560	284.508	310.390	140.122
Ø (mm)	10	10	10	10	10	10	10
Kaki	2	3	2	2	2	2	2
Av (mm2)	157.143	235.714	157.143	157.143	157.143	157.143	157.143
S 1 (mm)	61.158	63.563	282.857	72.076	71.582	65.613	282.857
S 2 (mm)	270	270	270	270	270	270	270
S 3 (mm)	600	600	600	600	600	600	600
S pakai (mm)	***P10-60***	***P10-60***	***P10-270***	***P10-70***	***P10-70***	***P10-65***	***P10-270***
Lapangan (di luar daerah sendi plastis)							
Vu" (KN)	-75.499	-106.323	-70.317	-52.693	28.039	-18.484	391.434
2.h (m)	1.20	1.20	1.20	1.20	1.20	1.20	1.20
x (m)	2.358	2.317	2.276	1.328	0	0.370	0
y (KN)	161.387	233.289	65.626	121.915	100.910	126.317	307.361
Vu pakai (KN)	161.387	233.289	65.626	121.915	100.910	126.317	307.361
Vc (KN)	180	180	180	180	180	180	180
Vs min (KN)	72	72	72	72	72	72	72
Vu / Φ (KN)	268.978	388.815	109.376	203.192	168.183	210.528	512.269
Ø (mm)	10	10	10	10	10	10	10
Kaki	2	2	2	2	2	2	2
Av (mm2)	157.143	157.143	157.143	157.143	157.143	157.143	157.143
S 1 (mm)	228.885	97.530	282.857	282.857	282.857	282.857	282.857
S 2 (mm)	270	270	270	270	270	270	270
S 3 (mm)	600	600	600	600	600	600	600
S pakai (mm)	***P10-225***	***P10-95***	***P10-270***	***P10-270***	***P10-270***	***P10-270***	***P10-270***

PERENCANAAN TULANGAN GESER BALOK ANAK LANTAI 2

Balok	B 1 a Anak (9 m)	B 1 b Anak (9 m)	B 2 a Anak (6 m)	B 2 b Anak (6 m)	B 3 a Anak (4,5 m)	B 3 b Anak (4,5 m)	B 4 Anak (3 m)	B 5 Anak (0,9 m)
Tumpuan (di dalam daerah sendi plastis)								
Φ	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
ln (m)	8.6	8.6	5.6	5.6	4.1	4.1	2.7	0.6
Mnak (KNm)	80.04	179.21	80.04	129.974	54.883	80.04	129.974	80.04
Mn'ak (KNm)	54.883	80.04	54.883	54.883	54.883	54.883	54.883	54.883
VD (KN)	38.501	43.2	39.12	35.637	18.784	26.813	31.748	50.521
VL (KN)	4.155	17.674	5.947	16.823	1.646	12.543	10.172	3.988
VE (KN)	1.495	2.897	1.068	0.454	1.483	0.403	1.175	2.952
Vu (KN)	58.516	90.295	68.402	83.967	44.877	70.118	103.923	253.997
Vu' (KN)	52.041	77.534	52.793	201.325	28.207	43.836	49.883	70.959
Vu pakai (KN)	52.041	77.534	52.793	83.967	28.207	43.836	49.883	70.959
Φ	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
f'c (MPa)	25	25	25	25	25	25	25	25
fy (MPa)	240	240	240	240	240	240	240	240
b (mm)	200	200	200	200	200	200	200	200
h (mm)	400	400	400	400	400	400	400	400
d (mm)	360	360	360	360	360	360	360	360
Vc (KN)	60	60	60	60	60	60	60	60
Vs min (KN)	24	24	24	24	24	24	24	24
Vu / Φ (KN)	86.735	129.223	87.988	139.945	47.012	73.060	83.138	118.265
Ø (mm)	8	8	8	8	8	8	8	8
Kaki	2	2	2	2	2	2	2	2
Av (mm2)	100.571	100.571	100.571	100.571	100.571	100.571	100.571	100.571
S 1 (mm)	100.183	67.243	98.756	62.091	362.056	362.056	362.056	73.473
S 2 (mm)	180	180	180	180	180	180	180	180
S 3 (mm)	600	600	600	600	600	600	600	600
S pakai (mm)	***P10-100***	***P10-65***	***P10-95***	***P10-60***	***P10-180***	***P10-180***	***P10-180***	***P10-70***
Lapangan (di luar daerah sendi plastis)								
Vu" (KN)	-31.061	-37.541	-26.239	-26.199	1.974	-12.529	15.891	139.528
2.h (m)	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
x (m)	3.214	2.806	1.859	1.332	0	0.911	0	0
y (KN)	44.311	66.829	41.503	68.229	21.114	32.838	23.920	22.856
Vu pakai (KN)	44.311	66.829	41.503	68.229	21.114	32.838	23.920	22.856
Vc (KN)	60	60	60	60	60	60	60	60
Vs min (KN)	24	24	24	24	24	24	24	24
Vu / Φ (KN)	73.851	111.382	69.171	113.715	35.190	54.730	39.867	38.094
Ø (mm)	8	8	8	8	8	8	8	8
Kaki	2	2	2	2	2	2	2	2
Av (mm2)	100.571	100.571	100.571	100.571	100.571	100.571	100.571	100.571
S 1 (mm)	362.056	169.112	362.056	161.767	362.056	362.056	362.056	362.056
S 2 (mm)	180	180	180	180	180	180	180	180
S 3 (mm)	600	600	600	600	600	600	600	600
S pakai (mm)	***P10-180***	***P10-165***	***P10-180***	***P10-160***	***P10-180***	***P10-180***	***P10-180***	***P10-180***

PERENCANAAN TULANGAN GESER BALOK SLOOF

Balok	S 1 (9 m)	S 2 (6 m)	S 3 (4,5 m)
Tumpuan (di dalam daerah sendi plastis)			
Φ	1.25	1.25	1.25
ln (m)	8.75	5.75	4.25
Mnak (KNm)	190.318	131.234	131.234
Mn'ak (KNm)	131.234	131.234	131.234
VD (KN)	64.233	48.361	27.724
VL (KN)	0.226	0.226	0.396
VE (KN)	7.039	0.051	20.751
Vu (KN)	99.837	90.957	83.564
Vu' (KN)	99.098	52.206	118.903
Vu pakai (KN)	99.098	52.206	83.564
Φ	0.6	0.6	0.6
f'c (MPa)	25	25	25
fy (MPa)	240	240	240
b (mm)	250	250	250
h (mm)	500	500	500
d (mm)	460	460	460
Vc (KN)	96	96	96
Vs min (KN)	38	38	38
Vu / Φ (KN)	165.163	87.010	139.273
Ø (mm)	10	10	10
Kaki	2	2	2
Av (mm2)	157.143	157.143	157.143
S 1 (mm)	105.039	456.542	124.565
S 2 (mm)	230	230	180
S 3 (mm)	600	600	600
S pakai (mm)	***P10-105***	***P10-230***	***P10-120***
Lapangan (di luar daerah sendi plastis)			
Vu" (KN)	-35.527	-11.076	24.512
2.h (m)	1.00	1.00	1.00
x (m)	2.309	1.006	0
y (KN)	83.712	41.201	45.158
Vu pakai (KN)	83.712	41.201	45.158
Vc (KN)	96	96	96
Vs min (KN)	38	38	38
Vu / Φ (KN)	139.521	68.668	75.263
Ø (mm)	10	10	10
Kaki	2	2	2
Av (mm2)	157.143	157.143	157.143
S 1 (mm)	398.626	456.542	456.542
S 2 (mm)	230	230	230
S 3 (mm)	600	600	600
S pakai (mm)	***P10-230***	***P10-230***	***P10-230***

PERENCANAAN KOLOM

1.a. Perhitungan momen rencana (Mc) arah x

Btg	Ujung Kolom	Lt	KL Tengah		KL Tepi		k.l/r	Perbesaran Momen	PD (KN)	PL (KN)	PE (KN)	Pu (KN)	EI_1 (KNm^2)	EI_2 (KNm^2)	EI Pakai (KNm^2)	Pc (KN)	δb
			ψ	K	ψ	K											
K1A=K10A	Atas	1			4.041	1.8	36	OK	458.270	71.480	101.721	664.293	79056.301	35998.892	79056.301	18596.695	1.063
	Bawah				2.02	1.8	36	OK	493.893	71.480	101.721	707.040	78608.650	35795.050	78608.650	18491.392	1.068
	Atas	2			4.041	2.1	42	OK	326.611	57.659	50.696	484.187	79858.813	36364.321	79858.813	13801.571	1.062
	Bawah				4.041	2.1	42	OK	362.234	57.659	50.696	526.935	79182.382	36056.303	79182.382	13684.668	1.069
	Atas	3			2.02	1.8	36	OK	197.831	44.726	17.729	308.958	81714.254	37209.211	81714.254	19221.934	1.028
	Bawah				4.041	1.8	36	OK	233.453	44.726	17.729	351.705	80433.788	36626.141	80433.788	18920.726	1.032
K2A=K9A	Atas	1			2.02	1.45	29	OK	892.961	169.071	40.842	1342.066	80348.616	36587.357	80348.616	29126.391	1.083
	Bawah				1.01	1.45	29	OK	928.584	169.071	40.842	1384.813	80071.588	36461.210	80071.588	29025.968	1.086
	Atas	2			2.02	1.6	32	OK	552.522	101.475	20.110	825.387	80132.202	36488.811	80132.202	23856.756	1.061
	Bawah				2.02	1.6	32	OK	588.145	101.475	20.110	868.134	79704.089	36293.867	79704.089	23729.299	1.065
	Atas	3			1.01	1.45	29	OK	186.140	27.339	0.295	267.111	78694.544	35834.163	78694.544	28526.790	1.016
	Bawah				2.02	1.45	29	OK	221.763	27.339	0.295	309.859	77738.075	35398.627	77738.075	28180.069	1.019
K3A=8A	Atas	1			2.02	1.45	29	OK	973.082	199.660	41.942	1487.154	80944.764	36858.817	80944.764	29342.495	1.092
	Bawah				1.01	1.45	29	OK	1008.705	199.660	41.942	1529.902	80673.547	36735.317	80673.547	29244.179	1.096
	Atas	2			2.02	1.6	32	OK	604.142	121.631	21.098	919.579	80800.753	36793.241	80800.753	24055.796	1.068
	Bawah				2.02	1.6	32	OK	639.765	121.631	21.098	962.327	80378.243	36600.848	80378.243	23930.007	1.072
	Atas	3			1.01	1.45	29	OK	190.354	29.226	0.107	275.186	78959.541	35954.831	78959.541	28622.851	1.016
	Bawah				2.02	1.45	29	OK	225.976	29.226	0.107	317.933	77985.937	35511.493	77985.937	28269.919	1.019
K4A=7A	Atas	1			1.695	1.4	28	OK	814.960	155.080	46.069	1226.081	80384.872	36603.867	80384.872	31258.097	1.070
	Bawah				0.847	1.4	28	OK	850.583	155.080	46.069	1268.828	80081.131	36465.555	80081.131	31139.985	1.073
	Atas	2			1.695	1.5	30	OK	497.849	92.913	23.548	746.079	80245.593	36540.445	80245.593	27182.097	1.048
	Bawah				1.695	1.5	30	OK	533.472	92.913	23.548	788.827	79767.285	36322.644	79767.285	27020.076	1.051
	Atas	3			0.847	1.4	28	OK	151.105	23.744	0.051	219.317	79102.002	36019.702	79102.002	30759.246	1.012
	Bawah				1.695	1.4	28	OK	186.728	23.744	0.051	262.064	77897.130	35471.054	77897.130	30290.725	1.015
K5A=K6A	Atas	1			3.389	2.3	46	OK	624.286	77.408	46.311	872.996	77767.361	35411.963	77767.361	11204.332	1.149
	Bawah				8.082	2.3	46	OK	642.097	77.408	46.311	894.370	77625.727	35347.469	77625.727	11183.926	1.154
	Atas	2			2.542	2.18	43.6	OK	389.614	52.015	23.967	550.760	78155.819	35588.850	78155.819	12534.084	1.079
	Bawah				8.082	2.18	43.6	OK	407.425	52.015	23.967	572.134	77917.926	35480.523	77917.926	12495.933	1.083
K5A'=K6A'	Atas	1			8.082	1.95	39	OK	647.752	77.408	46.311	901.155	77582.264	35327.677	77582.264	15550.255	1.107
	Bawah				1.695	1.95	39	OK	665.563	77.408	46.311	922.528	77449.858	35267.385	77449.858	15523.716	1.110
	Atas	2			8.082	2.18	43.6	OK	413.080	52.015	23.967	578.919	77846.356	35447.934	77846.356	12484.455	1.084
	Bawah				2.542	2.18	43.6	OK	430.891	52.015	23.967	600.292	77632.292	35350.458	77632.292	12450.125	1.087

K5A"=K6A"	Atas	3			0.847	1.5	30	OK	159.900	26.735	0.382	234.656	79496.640	36199.403	79496.640	26928.399	1.015
	Bawah				2.542	1.5	30	OK	195.523	26.735	0.382	277.403	78286.802	35648.494	78286.802	26518.583	1.018
K2C=K9C	Atas	1	2.02	1.45			29	OK	1051.480	277.179	3.461	1705.262	83050.311	37817.594	83050.311	30105.756	1.104
	Bawah		1.01	1.45			29	OK	1087.103	277.179	3.461	1748.009	82747.829	37679.857	82747.829	29996.106	1.108
	Atas	2	2.02	1.6			32	OK	498.717	137.606	4.162	818.630	83476.362	38011.600	83476.362	24852.371	1.058
	Bawah		2.02	1.6			32	OK	534.339	137.606	4.162	861.377	82837.651	37720.758	82837.651	24662.215	1.062
K3C=K8C	Atas	1	2.02	1.45			29	OK	1026.978	275.755	6.102	1673.581	83220.662	37895.165	83220.662	30167.509	1.102
	Bawah		1.01	1.45			29	OK	1062.601	275.755	6.102	1716.328	82907.136	37752.399	82907.136	30053.855	1.105
	Atas	2	2.02	1.6			32	OK	490.028	137.201	7.387	807.556	83615.762	38075.077	83615.762	24893.873	1.057
	Bawah		2.02	1.6			32	OK	525.651	137.201	7.387	850.303	82959.732	37776.348	82959.732	24698.561	1.061
K4C=K7C	Atas	1	1.695	1.4			28	OK	930.477	237.048	6.716	1495.849	82740.416	37676.481	82740.416	32174.063	1.084
	Bawah		0.847	1.4			28	OK	966.100	237.048	6.716	1538.597	82408.030	37525.127	82408.030	32044.813	1.087
	Atas	2	1.695	1.5			30	OK	441.183	117.554	8.090	717.506	83149.254	37862.649	83149.254	28165.672	1.044
	Bawah		1.695	1.5			30	OK	476.806	117.554	8.090	760.254	82449.958	37544.219	82449.958	27928.795	1.048
K5C=K6C	Atas	1	1.695	1.4			28	OK	900.827	212.772	8.070	1421.428	82080.095	37375.799	82080.095	31917.294	1.080
	Bawah		0.847	1.4			28	OK	936.450	212.772	8.070	1464.175	81755.368	37227.932	81755.368	31791.022	1.083
	Atas	2	1.695	1.5			30	OK	428.458	105.603	8.834	683.115	82447.361	37543.036	82447.361	27927.915	1.042
	Bawah		1.695	1.5			30	OK	464.081	105.603	8.834	725.862	81767.773	37233.581	81767.773	27697.714	1.046
K1E=K10E	Atas	1			4.041	1.8	36	OK	462.439	71.971	101.980	670.079	79042.642	35992.672	79042.642	18593.482	1.064
	Bawah				2.02	1.8	36	OK	498.061	71.971	101.980	712.827	78599.565	35790.913	78599.565	18489.255	1.069
	Atas	2			4.041	2.1	42	OK	328.532	57.877	51.094	486.842	79844.598	36357.848	79844.598	13799.115	1.062
	Bawah				4.041	2.1	42	OK	364.155	57.877	51.094	529.589	79172.922	36051.996	79172.922	13683.033	1.069
	Atas	3			2.02	1.8	36	OK	198.491	44.798	18.001	309.866	81700.101	37202.766	81700.101	19218.605	1.028
	Bawah				4.041	1.8	36	OK	234.114	44.798	18.001	352.613	80424.974	36622.127	80424.974	18918.652	1.032
K2E=K9E	Atas	1			2.02	1.45	29	OK	896.823	169.536	40.699	1347.445	80337.349	36582.226	80337.349	29122.307	1.084
	Bawah				1.01	1.45	29	OK	932.446	169.536	40.699	1390.192	80061.810	36456.758	80061.810	29022.424	1.087
	Atas	2			2.02	1.6	32	OK	554.643	101.746	19.985	828.365	80124.030	36485.090	80124.030	23854.323	1.061
	Bawah				2.02	1.6	32	OK	590.266	101.746	19.985	871.112	79697.856	36291.029	79697.856	23727.444	1.065
	Atas	3			1.01	1.45	29	OK	186.126	27.338	0.305	267.091	78694.691	35834.229	78694.691	28526.843	1.016
	Bawah				2.02	1.45	29	OK	221.748	27.338	0.305	309.839	77738.154	35398.663	77738.154	28180.098	1.019
K3E=K8E	Atas	1			2.02	1.45	29	OK	978.812	200.182	41.931	1494.865	80919.868	36847.481	80919.868	29333.470	1.093
	Bawah				1.01	1.45	29	OK	1014.435	200.182	41.931	1537.612	80650.826	36724.970	80650.826	29235.942	1.096
	Atas	2			2.02	1.6	32	OK	607.001	121.803	21.022	923.285	80775.870	36781.910	80775.870	24048.387	1.068
	Bawah				2.02	1.6	32	OK	642.624	121.803	21.022	966.033	80356.320	36590.865	80356.320	23923.480	1.072
	Atas	3			1.01	1.45	29	OK	190.072	29.104	0.043	274.653	78943.103	35947.346	78943.103	28616.892	1.016
	Bawah				2.02	1.45	29	OK	225.695	29.104	0.043	317.400	77970.432	35504.433	77970.432	28264.299	1.019

K4E=K7E	Atas	1			1.695	1.4	28	OK	877.674	172.698	46.025	1329.526	80629.594	36715.302	80629.594	31353.258	1.076
	Bawah				0.847	1.4	28	OK	913.296	172.698	46.025	1372.273	80339.362	36583.143	80339.362	31240.400	1.079
	Atas	2			1.695	1.5	30	OK	540.613	106.065	23.554	818.440	80607.981	36705.461	80607.981	27304.851	1.053
	Bawah				1.695	1.5	30	OK	576.235	106.065	23.554	861.187	80147.818	36495.922	80147.818	27148.977	1.056
	Atas	3			0.847	1.4	28	OK	157.083	25.701	0.013	229.622	79356.814	36135.732	79356.814	30858.331	1.013
	Bawah				1.695	1.4	28	OK	192.705	25.701	0.013	272.369	78150.492	35586.424	78150.492	30389.246	1.015
K5E=K6E	Atas	1			1.695	1.4	28	OK	1011.068	209.108	47.391	1547.855	81005.711	36886.570	81005.711	31499.514	1.089
	Bawah				0.847	1.4	28	OK	1046.691	209.108	47.391	1590.603	80742.780	36766.842	80742.780	31397.271	1.092
	Atas	2			1.695	1.5	30	OK	603.695	124.165	24.340	923.099	80963.134	36867.182	80963.134	27425.154	1.059
	Bawah				1.695	1.5	30	OK	639.318	124.165	24.340	965.846	80533.335	36671.470	80533.335	27279.565	1.063
	Atas	3			0.847	1.4	28	OK	181.800	33.763	0.063	272.180	80210.755	36524.581	80210.755	31190.391	1.015
	Bawah				1.695	1.4	28	OK	217.422	33.763	0.063	314.927	79028.940	35986.432	79028.940	30730.835	1.017

1.b. Perhitungan momen rencana (Mc) arah y

Btg	Ujung Kolom	Lt	KL Tengah		KL Tepi		k.l/r	Perbesaran Momen	PD (KN)	PL (KN)	PE (KN)	Pu (KN)	EI_1 (KNm^2)	EI_2 (KNm^2)	EI Pakai (KNm^2)	Pc (KN)	δb
			ψ	K	ψ	K											
K1A=K10A	Atas	1			2.918	1.65	33	OK	458.270	71.480	101.721	664.293	79056.301	35998.892	79056.301	22131.604	1.053
	Bawah				1.459	1.65	33	OK	493.893	71.480	101.721	707.040	78608.650	35795.050	78608.650	22006.285	1.057
	Atas	2			2.918	1.8	36	OK	326.611	57.659	50.696	484.187	79858.813	36364.321	79858.813	18785.472	1.045
	Bawah				2.918	1.8	36	OK	362.234	57.659	50.696	526.935	79182.382	36056.303	79182.382	18626.353	1.049
	Atas	3			1.459	1.65	33	OK	197.831	44.726	17.729	308.958	81714.254	37209.211	81714.254	22875.690	1.023
	Bawah				2.918	1.65	33	OK	233.453	44.726	17.729	351.705	80433.788	36626.141	80433.788	22517.228	1.027
K1B=K10B	Atas	1			1.993	1.9	38	OK	831.683	164.882	73.999	1261.831	80685.369	36740.700	80685.369	17034.597	1.141
	Bawah				0.997	1.9	38	OK	867.305	164.882	73.999	1304.578	80377.902	36600.693	80377.902	16969.684	1.147
	Atas	2			1.993	1.6	32	OK	500.290	101.921	38.071	763.422	80890.346	36834.038	80890.346	24082.469	1.056
	Bawah				1.993	1.6	32	OK	535.913	101.921	38.071	806.169	80380.687	36601.961	80380.687	23930.735	1.059
	Atas	3			0.997	1.9	38	OK	119.112	27.193	13.001	186.443	81794.763	37245.871	81794.763	17268.817	1.018
	Bawah				1.993	1.9	38	OK	154.735	27.193	13.001	229.190	79828.002	36350.291	79828.002	16853.587	1.023
K1D=K10D	Atas	1			1.993	1.9	38	OK	828.267	164.496	73.817	1257.115	80698.576	36746.714	80698.576	17037.385	1.140
	Bawah				0.997	1.9	38	OK	863.890	164.496	73.817	1299.862	80389.466	36605.958	80389.466	16972.125	1.146
	Atas	2			1.993	1.6	32	OK	498.327	101.691	37.962	760.698	80903.086	36839.839	80903.086	24086.262	1.056
	Bawah				1.993	1.6	32	OK	533.950	101.691	37.962	803.445	80390.887	36606.605	80390.887	23933.771	1.059
	Atas	3			0.997	1.9	38	OK	118.448	27.111	12.966	185.516	81816.133	37255.602	81816.133	17273.328	1.018
	Bawah				1.993	1.9	38	OK	154.071	27.111	12.966	228.263	79836.731	36354.266	79836.731	16855.430	1.023
K1E=K10E	Atas	1			2.918	1.65	33	OK	462.439	71.971	101.980	670.079	79042.642	35992.672	79042.642	22127.780	1.053
	Bawah				1.459	1.65	33	OK	498.061	71.971	101.980	712.827	78599.565	35790.913	78599.565	22003.742	1.057
	Atas	2			2.918	1.8	36	OK	328.532	57.877	51.094	486.842	79844.598	36357.848	79844.598	18782.128	1.045
	Bawah				2.918	1.8	36	OK	364.155	57.877	51.094	529.589	79172.922	36051.996	79172.922	18624.128	1.050
	Atas	3			1.459	1.65	33	OK	198.491	44.798	18.001	309.866	81700.101	37202.766	81700.101	22871.728	1.023
	Bawah				2.918	1.65	33	OK	234.114	44.798	18.001	352.613	80424.974	36622.127	80424.974	22514.760	1.027
K2A=K9A	Atas	1			6.286	1.95	39	OK	892.961	169.071	40.842	1342.066	80348.616	36587.357	80348.616	16104.730	1.161
	Bawah				3.143	1.95	39	OK	928.584	169.071	40.842	1384.813	80071.588	36461.210	80071.588	16049.204	1.168
	Atas	2			6.286	2.43	48.6	OK	552.522	101.475	20.110	825.387	80132.202	36488.811	80132.202	10342.816	1.153
	Bawah				6.286	2.43	48.6	OK	588.145	101.475	20.110	868.134	79704.089	36293.867	79704.089	10287.559	1.164
	Atas	3			3.143	1.95	39	OK	186.140	27.339	0.295	267.111	78694.544	35834.163	78694.544	15773.195	1.029
	Bawah				6.286	1.95	39	OK	221.763	27.339	0.295	309.859	77738.075	35398.627	77738.075	15581.485	1.034
K2C=K9C	Atas	1	3.143	1.65			33	OK	1051.480	277.179	3.461	1705.262	83050.311	37817.594	83050.311	23249.716	1.139
	Bawah		1.571	1.65			33	OK	1087.103	277.179	3.461	1748.009	82747.829	37679.857	82747.829	23165.037	1.144
	Atas	2	3.143	1.85			37	OK	498.717	137.606	4.162	818.630	83476.362	38011.600	83476.362	18589.356	1.079
	Bawah		3.143	1.85			37	OK	534.339	137.606	4.162	861.377	82837.651	37720.758	82837.651	18447.121	1.084

K2E=K9E	Atas	1			6.286	1.95	39	OK	186.126	27.338	0.305	267.091	78694.691	35834.229	78694.691	15773.225	1.029
	Bawah				3.143	1.95	39	OK	221.748	27.338	0.305	309.839	77738.154	35398.663	77738.154	15581.501	1.034
	Atas	2			6.286	2.43	48.6	OK	554.643	101.746	19.985	828.365	80124.030	36485.090	80124.030	10341.761	1.154
	Bawah				6.286	2.43	48.6	OK	590.266	101.746	19.985	871.112	79697.856	36291.029	79697.856	10286.754	1.164
	Atas	3			3.143	1.95	39	OK	186.126	27.338	0.305	267.091	78694.691	35834.229	78694.691	15773.225	1.029
	Bawah				6.286	1.95	39	OK	221.748	27.338	0.305	309.839	77738.154	35398.663	77738.154	15581.501	1.034
K3A=K8A	Atas	1			6.286	1.95	39	OK	973.082	199.660	41.942	1487.154	80944.764	36858.817	80944.764	16224.220	1.180
	Bawah				3.143	1.95	39	OK	1008.705	199.660	41.942	1529.902	80673.547	36735.317	80673.547	16169.858	1.187
	Atas	2			6.286	2.43	48.6	OK	604.142	121.631	21.098	919.579	80800.753	36793.241	80800.753	10429.107	1.172
	Bawah				6.286	2.43	48.6	OK	639.765	121.631	21.098	962.327	80378.243	36600.848	80378.243	10374.573	1.183
	Atas	3			3.143	1.95	39	OK	190.354	29.226	0.107	275.186	78959.541	35954.831	78959.541	15826.310	1.030
	Bawah				6.286	1.95	39	OK	225.976	29.226	0.107	317.933	77985.937	35511.493	77985.937	15631.165	1.035
K3C=K8C	Atas	1	3.143	1.65			33	OK	1026.978	275.755	6.102	1673.581	83220.662	37895.165	83220.662	23297.406	1.136
	Bawah		1.571	1.65			33	OK	1062.601	275.755	6.102	1716.328	82907.136	37752.399	82907.136	23209.635	1.141
	Atas	2	3.143	1.85			37	OK	490.028	137.201	7.387	807.556	83615.762	38075.077	83615.762	18620.399	1.078
	Bawah		3.143	1.85			37	OK	525.651	137.201	7.387	850.303	82959.732	37776.348	82959.732	18474.307	1.083
K3E=K8E	Atas	1			6.286	1.95	39	OK	978.812	200.182	41.931	1494.865	80919.868	36847.481	80919.868	16219.230	1.181
	Bawah				3.143	1.95	39	OK	1014.435	200.182	41.931	1537.612	80650.826	36724.970	80650.826	16165.304	1.188
	Atas	2			6.286	2.43	48.6	OK	607.001	121.803	21.022	923.285	80775.870	36781.910	80775.870	10425.896	1.173
	Bawah				6.286	2.43	48.6	OK	642.624	121.803	21.022	966.033	80356.320	36590.865	80356.320	10371.744	1.184
	Atas	3			3.143	1.95	39	OK	190.072	29.104	0.043	274.653	78943.103	35947.346	78943.103	15823.015	1.030
	Bawah				6.286	1.95	39	OK	225.695	29.104	0.043	317.400	77970.432	35504.433	77970.432	15628.057	1.035
K4A=K7A	Atas	1			6.286	1.95	39	OK	814.960	155.080	46.069	1226.081	80384.872	36603.867	80384.872	16111.997	1.145
	Bawah				3.143	1.95	39	OK	850.583	155.080	46.069	1268.828	80081.131	36465.555	80081.131	16051.117	1.152
	Atas	2			6.286	2.43	48.6	OK	497.849	92.913	23.548	746.079	80245.593	36540.445	80245.593	10357.452	1.136
	Bawah				6.286	2.43	48.6	OK	533.472	92.913	23.548	788.827	79767.285	36322.644	79767.285	10295.716	1.146
	Atas	3			3.143	1.95	39	OK	151.105	23.744	0.051	219.317	79102.002	36019.702	79102.002	15854.864	1.024
	Bawah				6.286	1.95	39	OK	186.728	23.744	0.051	262.064	77897.130	35471.054	77897.130	15613.365	1.029
K4C=K7C	Atas	1	3.143	1.65			33	OK	930.477	237.048	6.716	1495.849	82740.416	37676.481	82740.416	23162.962	1.121
	Bawah		1.571	1.65			33	OK	966.100	237.048	6.716	1538.597	82408.030	37525.127	82408.030	23069.911	1.125
	Atas	2	3.143	1.85			37	OK	441.183	117.554	8.090	717.506	83149.254	37862.649	83149.254	18516.512	1.069
	Bawah		3.143	1.85			37	OK	476.806	117.554	8.090	760.254	82449.958	37544.219	82449.958	18360.786	1.074
K4E=K7E	Atas	1			6.286	1.95	39	OK	157.083	25.701	0.013	229.622	79356.814	36135.732	79356.814	15905.938	1.025
	Bawah				3.143	1.95	39	OK	192.705	25.701	0.013	272.369	78150.492	35586.424	78150.492	15664.148	1.030
	Atas	2			6.286	2.43	48.6	OK	540.613	106.065	23.554	818.440	80607.981	36705.461	80607.981	10404.226	1.151
	Bawah				6.286	2.43	48.6	OK	576.235	106.065	23.554	861.187	80147.818	36495.922	80147.818	10344.832	1.161
	Atas	3			3.143	1.95	39	OK	157.083	25.701	0.013	229.622	79356.814	36135.732	79356.814	15905.938	1.025
	Bawah				6.286	1.95	39	OK	192.705	25.701	0.013	272.369	78150.492	35586.424	78150.492	15664.148	1.030

K5A=K6A	Atas	1			12.571	4.5	90	OK	624.286	77.408	46.311	872.996	77767.361	35411.963	77767.361	2926.959	1.988
	Bawah				123095.238	4.5	90	OK	642.097	77.408	46.311	894.370	77625.727	35347.469	77625.727	2921.628	2.042
	Atas	2			9.429	4.3	86	OK	389.614	52.015	23.967	550.760	78155.819	35588.850	78155.819	3221.578	1.398
	Bawah				246190.476	4.3	86	OK	407.425	52.015	23.967	572.134	77917.926	35480.523	77917.926	3211.772	1.422
K5A'=K6A'	Atas	1			123095.238	3.5	70	OK	647.752	77.408	46.311	901.155	77582.264	35327.677	77582.264	4826.926	1.452
	Bawah				6.286	3.5	70	OK	665.563	77.408	46.311	922.528	77449.858	35267.385	77449.858	4818.688	1.469
	Atas	2			246190.476	4.3	86	OK	413.080	52.015	23.967	578.919	77846.356	35447.934	77846.356	3208.822	1.430
	Bawah				9.429	4.3	86	OK	430.891	52.015	23.967	600.292	77632.292	35350.458	77632.292	3199.999	1.455
K5A"=K6A"	Atas	3			3.143	2.9	58	OK	159.900	26.735	0.382	234.656	79496.640	36199.403	79496.640	7204.387	1.057
	Bawah				184642.857	2.9	58	OK	195.523	26.735	0.382	277.403	78286.802	35648.494	78286.802	7094.746	1.070
K5C=K6C	Atas	1	3.143	1.65			33	OK	900.827	212.772	8.070	1421.428	82080.095	37375.799	82080.095	22978.107	1.115
	Bawah		1.571	1.65			33	OK	936.450	212.772	8.070	1464.175	81755.368	37227.932	81755.368	22887.200	1.119
	Atas	2	3.143	1.85			37	OK	428.458	105.603	8.834	683.115	82447.361	37543.036	82447.361	18360.207	1.066
	Bawah		3.143	1.85			37	OK	464.081	105.603	8.834	725.862	81767.773	37233.581	81767.773	18208.870	1.071
K5E=K6E	Atas	1			6.286	1.95	39	OK	1011.068	209.108	47.391	1547.855	81005.711	36886.570	81005.711	16236.436	1.189
	Bawah				3.143	1.95	39	OK	1046.691	209.108	47.391	1590.603	80742.780	36766.842	80742.780	16183.735	1.196
	Atas	2			6.286	2.43	48.6	OK	603.695	124.165	24.340	923.099	80963.134	36867.182	80963.134	10450.066	1.173
	Bawah				6.286	2.43	48.6	OK	639.318	124.165	24.340	965.846	80533.335	36671.470	80533.335	10394.591	1.183
	Atas	3			3.143	1.95	39	OK	181.800	33.763	0.063	272.180	80210.755	36524.581	80210.755	16077.098	1.029
	Bawah				6.286	1.95	39	OK	217.422	33.763	0.063	314.927	79028.940	35986.432	79028.940	15840.220	1.034

2.a. Perhitungan momen momen lentur dan aksial kolom arah x

Btg	Ujung Kolom	Lt	ΣPu (KN)	ΣPc (KN)	δs	MD (KNm)	ML (KNm)	ME (KNm)	Mcx (KNm)	Rv	Mnak,bx$_{ki}$ (KNm)	Mnak,bx$_{ka}$ (KNm)	Lbx$_{ki}$ (m)	Lbx$_{ka}$ (m)	Nuk$_{1x}$ (KN)	Nuk$_{2x}$=Nuk$_{2y}$ (KN)	Nuk pakai (KN)
K1A=K10A	Atas	1	12987.489	270156.529	1.087	19.948	1.280	0.254	27.906	1	0	234.175	0	6	590.389	983.466	590.389
	Bawah		13414.962	269218.332	1.091	31.433	5.790	0.465	50.689	1	0	131.234	0	6	612.780	1020.870	612.780
	Atas	2	8209.823	227829.518	1.064	36.922	7.671	0.561	60.692	1	0	234.175	0	6	437.634	616.405	437.634
	Bawah		8637.295	226620.215	1.068	40.203	8.257	1.638	67.418	1	0	234.175	0	6	475.038	653.809	475.038
	Atas	3	2610.454	268118.439	1.016	14.575	5.803	2.753	30.310	1	158.839	234.172	1.80	6	366.048	329.146	329.146
	Bawah		3037.927	264360.045	1.020	23.501	4.242	2.741	38.902	1	0	234.175	0	6	326.238	366.550	326.238
K2A=K9A	Atas	1	12987.489	270156.529	1.087	3.274	1.021	0.071	6.102	1	158.839	234.175	6	6	1172.448	1286.670	1172.448
	Bawah		13414.962	269218.332	1.091	11.580	3.869	0.222	22.062	1	131.234	131.234	6	6	1190.813	1324.074	1190.813
	Atas	2	8209.823	227829.518	1.064	12.295	5.939	0.563	26.340	1	158.839	234.175	6	6	744.012	771.159	744.012
	Bawah		8637.295	226620.215	1.068	13.009	5.078	0.464	25.772	1	158.839	234.175	6	6	781.415	808.563	781.415
	Atas	3	2610.454	268118.439	1.016	34.461	6.026	2.676	54.524	1	158.839	234.175	6	6	281.468	225.391	225.391
	Bawah		3037.927	264360.045	1.020	27.818	8.117	4.699	52.026	1	158.839	234.175	6	6	318.872	262.795	262.795
K3A=8A	Atas	1	12987.489	270156.529	1.087	0.210	0.036	0.272	0.634	1	158.839	234.175	6	6	1288.694	1407.535	1288.694
	Bawah		13414.962	269218.332	1.091	0.270	0.320	0.394	1.345	1	131.234	131.234	6	6	1307.060	1444.939	1307.060
	Atas	2	8209.823	227829.518	1.064	2.266	1.027	1.761	6.533	1	158.839	234.175	6	6	819.376	850.673	819.376
	Bawah		8637.295	226620.215	1.068	2.665	0.903	0.636	5.656	1	158.839	234.175	6	6	856.780	888.077	856.780
	Atas	3	2610.454	268118.439	1.016	7.542	0.371	2.191	12.028	1	158.839	234.175	6	6	287.873	231.008	231.008
	Bawah		3037.927	264360.045	1.020	0.487	0.722	2.868	4.698	1	158.839	234.175	6	6	325.277	268.412	268.412
K4A=7A	Atas	1	12987.489	270156.529	1.087	10.903	1.691	0.189	17.098	1	158.839	306.789	6	4.50	1101.360	1212.033	1101.360
	Bawah		13414.962	269218.332	1.091	18.506	4.832	0.153	32.285	1	131.234	131.234	6	4.50	1100.602	1249.437	1100.602
	Atas	2	8209.823	227829.518	1.064	30.483	10.356	0.579	56.313	1	158.839	234.175	6	4.50	688.998	719.200	688.998
	Bawah		8637.295	226620.215	1.068	28.735	9.337	0.040	51.991	1	158.839	306.789	6	4.50	740.521	756.604	740.521
	Atas	3	2610.454	268118.439	1.016	26.303	6.864	1.784	44.871	1	158.839	234.175	6	4.50	252.290	183.806	183.806
	Bawah		3037.927	264360.045	1.020	26.753	8.576	2.240	48.781	1	158.839	234.175	6	4.50	289.694	221.210	221.210
K5A=K6A	Atas	1	12987.489	270156.529	1.087	1.316	4.335	0.100	9.896	1	306.789	158.839	4.50	6	819.596	931.285	819.596
	Bawah		13414.962	269218.332	1.091	2.263	0.264	0.185	3.822	1	0	234.175	0	6	789.631	949.987	789.631
	Atas	2	8209.823	227829.518	1.064	2.075	0.170	0.383	3.388	1	306.789	158.839	4.50	6	546.527	564.370	546.527
	Bawah		8637.295	226620.215	1.068	6.846	6.267	0.069	19.823	1	0	234.175	0	6	516.562	583.072	516.562
K5A'=K6A'	Atas	1	12987.489	270156.529	1.087	3.350	0.242	0.181	5.074	1	0	234.175	0	6	795.568	955.924	795.568
	Bawah		13414.962	269218.332	1.091	6.430	0.370	0.055	9.281	1	131.234	131.234	4.50	6	824.776	974.626	824.776
	Atas	2	8209.823	227829.518	1.064	2.649	5.097	0.836	13.172	1	0	234.175	0	6	522.499	589.009	522.499
	Bawah		8637.295	226620.215	1.068	3.451	0.109	0.386	5.104	1	306.789	158.839	4.50	6	589.868	607.711	589.868
K5A"=K6A"	Atas	3	2610.454	268118.439	1.016	15.330	0.736	0.858	20.734	1	234.175	158.839	4.50	6	264.665	197.570	197.570
	Bawah		3037.927	264360.045	1.020	4.113	2.744	1.349	10.867	1	306.789	158.839	4.50	6	316.188	234.974	234.974

K2C=K9C	Atas	1	12592.240	248729.243	1.092	21.375	2.545	0.162	32.998	1	234.175	443.851	6	6	1493.970	1409.627	1409.627
	Bawah		12934.218	247771.593	1.095	20.115	0.461	0.017	27.569	1	131.234	131.234	6	6	1470.772	1447.031	1447.031
	Atas	2	6053.614	211679.662	1.050	27.754	6.365	0.929	46.991	1	234.175	443.851	6	6	767.018	685.621	685.621
	Bawah		6395.592	209974.572	1.053	23.527	5.330	0.287	39.335	1	234.175	443.851	6	6	804.422	723.025	723.025
K3C=K8C	Atas	1	12592.240	248729.243	1.092	0.201	0.241	0.057	0.753	1	234.175	443.851	6	6	1466.748	1393.498	1393.498
	Bawah		12934.218	247771.593	1.095	0.168	0.227	0.053	0.682	1	131.234	131.234	6	6	1443.550	1430.902	1430.902
	Atas	2	6053.614	211379.662	1.050	2.780	0.752	0.085	4.890	1	234.175	443.851	6	6	757.470	689.616	689.616
	Bawah		6395.592	209974.572	1.053	3.902	1.182	0.084	7.061	1	234.175	443.851	6	6	794.873	727.020	727.020
K4C=K7C	Atas	1	12592.240	248729.243	1.092	11.075	1.961	0.033	17.844	1	443.851	158.839	6	4.50	1321.515	1254.109	1254.109
	Bawah		12934.218	247771.593	1.095	19.575	6.220	0.039	36.392	1	131.234	131.234	6	4.50	1307.961	1291.513	1291.513
	Atas	2	6053.614	211379.662	1.050	32.157	11.913	0.042	60.250	1	443.851	158.839	6	4.50	682.288	620.654	620.654
	Bawah		6395.592	209974.572	1.053	39.357	14.287	0.037	73.456	1	443.851	158.839	6	4.50	719.692	658.058	658.058
K5C=K6C	Atas	1	12592.240	248729.243	1.092	9.600	1.341	0.102	14.872	1	158.839	443.851	4.50	6	1264.893	1203.172	1203.172
	Bawah		12934.218	247771.593	1.095	15.678	4.027	0.299	27.683	1	131.234	131.234	4.50	6	1251.339	1240.576	1240.576
	Atas	2	6053.614	211379.662	1.050	27.461	8.095	0.538	48.421	1	158.839	443.851	4.50	6	656.378	597.867	597.867
	Bawah		6395.592	209974.572	1.053	34.158	9.826	0.630	59.964	1	158.839	443.851	4.50	6	693.782	635.271	635.271
K1E=K10E	Atas	1	12779.541	279804.061	1.082	31.530	5.808	0.370	50.540	1	0	234.175	0	6	595.280	989.446	595.280
	Bawah		13207.013	278770.585	1.086	19.974	1.259	0.085	27.859	1	0	131.234	0	6	617.672	1026.850	617.672
	Atas	2	7960.062	232863.659	1.060	40.604	8.281	0.744	66.636	1	0	234.175	0	6	439.880	620.324	439.880
	Bawah		8387.535	231524.997	1.064	36.994	7.643	0.332	60.881	1	0	234.175	0	6	477.284	657.728	477.284
	Atas	3	2706.823	276822.123	1.017	14.559	5.799	1.978	29.499	1	158.839	234.172	1.80	6	366.817	331.057	331.057
	Bawah		3134.296	272966.261	1.020	22.912	4.150	1.242	36.495	1	0	234.175	0	6	327.008	368.461	327.008
K2E=K9E	Atas	1	12779.541	279804.061	1.082	11.721	3.886	0.393	22.402	1	158.839	234.175	6	6	1176.991	1290.611	1176.991
	Bawah		13207.013	278770.585	1.086	3.283	0.984	0.186	6.193	1	131.234	131.234	6	6	1195.357	1328.014	1195.357
	Atas	2	7960.062	232863.659	1.060	13.090	6.025	0.629	27.572	1	158.839	234.175	6	6	746.523	773.145	746.523
	Bawah		8387.535	231524.997	1.064	13.339	-5.087	0.816	9.248	1	158.839	234.175	6	6	783.927	810.549	783.927
	Atas	3	2706.823	276822.123	1.017	33.327	5.837	1.176	51.310	1	158.839	234.175	6	6	281.451	225.417	225.417
	Bawah		3134.296	272966.261	1.020	26.287	7.887	2.836	47.879	1	158.839	234.175	6	6	318.855	262.821	262.821
K3E=K8E	Atas	1	12779.541	279804.061	1.082	0.242	0.344	0.274	1.215	1	158.839	234.175	6	6	1295.258	1414.055	1295.258
	Bawah		13207.013	278770.585	1.086	0.330	0.104	0.074	0.696	1	131.234	131.234	6	6	1313.624	1451.460	1313.624
	Atas	2	7960.062	232863.659	1.060	1.515	0.988	1.051	4.747	1	158.839	234.175	6	6	822.558	853.538	822.558
	Bawah		8387.535	231524.997	1.064	2.510	0.906	0.385	5.194	1	158.839	234.175	6	6	859.962	890.941	859.962
	Atas	3	2706.823	276822.123	1.017	8.563	0.178	0.760	11.505	1	158.839	234.175	6	6	287.449	230.315	230.315
	Bawah		3134.296	272966.261	1.020	2.262	0.402	1.199	4.644	1	158.839	234.175	6	6	324.853	267.719	267.719

K4E=K7E	Atas	1	12779.541	279804.061	1.082	14.215	3.702	0.092	24.828	1	158.839	306.789	6	4.50	1185.708	1296.195	1185.708
	Bawah		13207.013	278770.585	1.086	9.225	1.278	0.059	14.215	1	131.234	131.234	6	4.50	1184.951	1333.599	1184.951
	Atas	2	7960.062	232863.659	1.060	20.093	6.966	0.174	37.296	1	158.839	234.175	6	4.50	747.710	777.940	747.710
	Bawah		8387.535	231524.997	1.064	20.650	6.886	0.080	37.881	1	158.839	306.789	6	4.50	799.233	815.344	799.233
	Atas	3	2706.823	276822.123	1.017	16.364	3.355	0.540	25.867	1	158.839	234.175	6	4.50	260.621	191.977	191.977
	Bawah		3134.296	272966.261	1.020	17.174	4.906	0.887	29.794	1	158.839	234.175	6	4.50	298.025	229.381	229.381
K5E=K6E	Atas	1	12779.541	279804.061	1.082	24.495	8.162	0.204	46.462	1	306.789	158.839	4.50	6	1364.002	1480.228	1364.002
	Bawah		13207.013	278770.585	1.086	12.559	2.653	0.115	21.222	1	131.234	131.234	4.50	6	1363.245	1517.632	1363.245
	Atas	2	7960.062	232863.659	1.060	28.255	10.469	0.257	53.940	1	158.839	234.175	4.50	6	829.290	866.482	829.290
	Bawah		8387.535	231524.997	1.064	31.500	11.716	0.156	60.258	1	158.839	234.175	4.50	6	866.694	903.886	866.694
	Atas	3	2706.823	276822.123	1.017	35.157	9.251	0.063	57.895	1	158.839	234.175	4.50	6	291.376	226.607	226.607
	Bawah		3134.296	272966.261	1.020	30.204	9.443	0.073	52.320	1	158.839	234.175	4.50	6	328.780	264.011	264.011

2.b. Perhitungan momen momen lentur dan aksial kolom arah y

Btg	Ujung Kolom	Lt	ΣPu (KN)	ΣPc (KN)	δs	MD (KNm)	ML (KNm)	ME (KNm)	Mcy (KNm)	Rv	Mnak,by$_{ki}$ (KNm)	Mnak,by$_{ka}$ (KNm)	Lby$_{ki}$ (m)	Lby$_{ka}$ (m)	Nuk$_{1y}$ (KN)	Nuk$_{2x}$=Nuk$_{2y}$ (KN)	Nuk pakai (KN)
K1A=K10A	Atas	1	3853.318	78331.366	1.089	13.907	2.882	78.615	108.057	1	0	306.789	0	4.50	615.891	983.466	615.891
	Bawah		4024.307	77951.835	1.094	8.896	0.411	79.144	98.568	1	0	131.234	0	4.50	619.159	1020.870	619.159
	Atas	2	2495.149	85736.332	1.051	23.373	6.455	66.133	109.603	1	0	234.175	0	4.50	449.018	616.405	449.018
	Bawah		2666.138	85114.987	1.055	18.738	5.195	41.741	76.361	1	0	306.789	0	4.50	500.541	653.809	500.541
	Atas	3	990.782	80289.564	1.021	38.691	10.857	34.189	100.176	1	234.172	158.839	1.80	4.50	399.403	329.146	329.146
	Bawah		1161.771	78741.003	1.025	0.472	0.136	11.768	12.869	1	0	234.175	0	4.50	337.622	366.550	337.622
K1B=K10B	Atas	1	3853.318	78331.366	1.089	69.181	11.819	108.034	233.966	1	158.839	376.681	4.50	9	1113.900	1357.190	1113.900
	Bawah		4024.307	77951.835	1.094	45.804	3.515	95.493	173.976	1	131.234	131.234	4.50	9	1122.073	1394.594	1122.073
	Atas	2	2495.149	85736.332	1.051	102.878	22.146	93.510	266.026	1	158.839	508.298	4.50	9	712.625	792.219	712.625
	Bawah		2666.138	85114.987	1.055	95.304	20.449	76.762	236.822	1	158.839	376.681	4.50	9	737.233	829.623	737.233
	Atas	3	990.782	80289.564	1.021	80.820	19.969	54.711	187.158	1	158.839	234.175	4.50	9	207.272	208.226	207.272
	Bawah		1161.771	78741.003	1.025	98.442	22.443	33.899	192.365	1	158.839	508.298	4.50	9	271.327	245.630	245.630
K1D=K10D	Atas	1	3853.318	78331.366	1.089	73.941	12.402	107.956	241.394	1	376.681	158.839	9	4.50	1109.909	1352.434	1109.909
	Bawah		4024.307	77951.835	1.094	49.966	4.025	94.792	179.832	1	131.234	131.234	9	4.50	1118.082	1389.838	1118.082
	Atas	2	2495.149	85736.332	1.051	107.037	22.655	93.404	272.008	1	508.298	158.839	9	4.50	710.322	789.459	710.322
	Bawah		2666.138	85114.987	1.055	98.634	20.856	76.654	241.599	1	376.681	158.839	9	4.50	734.930	826.863	734.930
	Atas	3	990.782	80289.564	1.021	83.123	20.255	57.006	192.767	1	234.175	158.839	9	4.50	206.490	207.295	206.490
	Bawah		1161.771	78741.003	1.025	99.652	22.591	33.810	193.988	1	508.298	158.839	9	4.50	270.545	244.699	244.699
K1E=K10E	Atas	1	3853.318	78331.366	1.089	17.235	3.288	78.563	112.901	1	306.789	0	4.50	0	620.783	989.446	620.783
	Bawah		4024.307	77951.835	1.094	12.255	0.822	79.079	103.459	1	131.234	0	4.50	0	624.051	1026.850	624.051
	Atas	2	2495.149	85736.332	1.051	26.123	6.793	66.039	113.528	1	234.175	0	4.50	0	451.264	620.324	451.264
	Bawah		2666.138	85114.987	1.055	20.337	5.391	41.657	78.625	1	306.789	0	4.50	0	502.787	657.728	502.787
	Atas	3	990.782	80289.564	1.021	39.027	10.927	34.314	100.837	1	158.839	234.175	4.50	1.80	400.174	331.057	331.057
	Bawah		1161.771	78741.003	1.025	0.186	0.182	11.893	12.721	1	234.175	0	4.50	0	338.391	368.461	338.391
K2A=K9A	Atas	1	4656.485	55127.671	1.164	92.236	27.368	69.974	260.827	1	158.839	587.798	0.90	9	1326.707	1286.670	1286.670
	Bawah		3442.661	54795.742	1.117	48.439	6.387	74.978	163.574	1	0	190.318	0	9	1171.040	1324.074	1171.040
	Atas	2	2472.382	39273.933	1.117	85.522	41.501	64.874	267.437	1	158.839	587.798	1.80	9	821.057	771.159	771.159
	Bawah		2600.624	39021.434	1.125	106.075	42.467	34.592	266.105	1	158.839	587.798	0.90	9	935.675	808.563	808.563
	Atas	3	534.203	31546.420	1.029	78.817	21.637	11.697	144.988	1	234.175	0	1.80	0	337.989	225.391	225.391
	Bawah		619.697	31162.985	1.034	60.837	20.072	96.772	208.812	1	158.839	587.798	1.80	9	395.918	262.795	262.795
K2C=K9C	Atas	1	4656.485	55127.671	1.164	2.429	0.279	91.138	109.900	1	306.789	587.798	9	9	1482.065	1409.627	1409.627
	Bawah		3442.661	54795.742	1.117	3.169	0.382	90.974	106.663	1	131.234	190.318	9	9	1463.758	1447.031	1447.031
	Atas	2	2472.382	39273.933	1.117	6.337	0.831	120.105	143.825	1	306.789	587.798	9	9	755.113	685.621	685.621
	Bawah		2600.624	39021.434	1.125	4.827	0.639	85.509	103.585	1	306.789	587.798	9	9	792.517	723.025	723.025

K2E=K9E	Atas	1	4656.485	55127.671	1.164	96.290	27.845	69.900	246.103	1	587.798	158.839	9	0.90	435.710	225.417	225.417
	Bawah		3442.661	54795.742	1.117	53.828	7.041	74.941	162.165	1	190.318	0	9	0	280.044	262.821	262.821
	Atas	2	2472.382	39273.933	1.117	83.738	41.174	65.044	264.663	1	587.798	158.839	9	1.80	823.569	773.145	773.145
	Bawah		2600.624	39021.434	1.125	108.834	42.817	34.676	270.837	1	587.798	158.839	9	0.90	938.186	810.549	810.549
	Atas	3	534.203	31546.420	1.029	80.453	21.917	11.687	147.460	1	0	234.175	0	1.80	337.972	225.417	225.417
	Bawah		619.697	31162.985	1.034	71.266	21.504	96.340	223.678	1	587.798	158.839	9	1.80	395.901	262.821	262.821
K3A=K8A	Atas	1	4874.917	55740.855	1.171	91.294	29.896	76.624	275.464	1	158.839	587.798	0.90	9	1442.953	1407.535	1407.535
	Bawah		4783.842	55544.797	1.168	45.266	6.608	82.640	173.533	1	0	190.318	0	9	1287.286	1444.939	1287.286
	Atas	2	2650.420	39475.402	1.126	40.885	38.492	74.877	214.023	1	158.839	587.798	1.80	9	896.422	850.673	850.673
	Bawah		2778.662	39220.624	1.134	84.594	43.212	43.628	251.328	1	158.839	587.798	0.90	9	1011.039	888.077	888.077
	Atas	3	549.838	31649.326	1.030	84.811	23.333	5.729	149.158	1	234.175	0	1.80	0	344.393	231.008	231.008
	Bawah		635.333	31259.223	1.035	60.826	21.332	137.645	253.352	1	158.839	587.798	1.80	9	402.323	268.412	268.412
K3C=K8C	Atas	1	4874.917	55740.855	1.171	5.985	0.661	97.416	123.400	1	306.789	587.798	9	9	1454.843	1393.498	1393.498
	Bawah		4783.842	55544.797	1.168	3.254	0.262	92.051	112.411	1	131.234	190.318	9	9	1436.535	1430.902	1430.902
	Atas	2	2650.420	39475.402	1.126	12.199	1.649	99.031	130.132	1	306.789	587.798	9	9	745.565	689.616	689.616
	Bawah		2778.662	39220.624	1.134	15.763	2.112	139.451	182.270	1	306.789	587.798	9	9	782.968	727.020	727.020
K3E=K8E	Atas	1	4874.917	55740.855	1.171	97.982	30.587	76.562	286.365	1	587.798	158.839	9	0.90	1449.517	1414.055	1414.055
	Bawah		4783.842	55544.797	1.168	55.961	7.825	82.620	191.152	1	190.318	0	9	0	1293.851	1451.460	1293.851
	Atas	2	2650.420	39475.402	1.126	35.141	37.302	75.196	204.159	1	587.798	158.839	9	1.80	899.604	853.538	853.538
	Bawah		2778.662	39220.624	1.134	92.948	44.284	43.742	265.507	1	587.798	158.839	9	0.90	1014.221	890.941	890.941
	Atas	3	549.838	31649.326	1.030	88.235	23.983	5.659	154.380	1	0	234.175	0	1.80	343.970	230.315	231.315
	Bawah		635.333	31259.223	1.035	86.783	25.159	136.875	291.126	1	587.798	158.839	9	1.80	401.899	267.719	267.719
K4A=K7A	Atas	1	4625.133	55180.897	1.162	95.968	27.265	81.254	276.297	1	158.839	587.798	0.90	9	1230.116	1212.033	1212.033
	Bawah		3079.794	54785.176	1.103	43.852	5.774	87.740	168.058	1	0	190.318	0	9	1074.449	1249.437	1074.449
	Atas	2	2282.025	39278.190	1.107	58.662	34.819	79.258	231.065	1	158.839	587.798	1.80	9	754.660	719.200	719.200
	Bawah		2410.267	39001.334	1.115	84.205	37.591	48.014	238.314	1	158.839	587.798	0.90	9	869.278	756.604	756.604
	Atas	3	448.939	31760.802	1.024	80.122	20.673	2.581	134.917	1	234.175	0	1.80	0	297.427	183.806	183.806
	Bawah		534.433	31277.513	1.029	80.125	23.848	153.554	296.227	1	158.839	587.798	1.80	9	355.356	221.210	221.210
K4C=K7C	Atas	1	4625.133	55180.897	1.162	8.019	0.647	103.231	131.937	1	306.789	587.798	9	9	1312.875	1254.109	1254.109
	Bawah		3079.794	54785.176	1.103	0.649	0.604	96.403	108.334	1	131.234	190.318	9	9	1294.567	1291.513	1291.513
	Atas	2	2282.025	39278.190	1.107	31.431	3.768	108.249	166.621	1	306.789	587.798	9	9	673.648	620.654	620.654
	Bawah		2410.267	39001.334	1.115	37.443	4.382	151.570	224.767	1	306.789	587.798	9	9	711.052	658.058	658.058
K4E=K7E	Atas	1	4625.133	55180.897	1.162	88.711	26.681	81.359	247.390	1	587.798	158.839	9	0.90	403.497	191.977	191.977
	Bawah		3079.794	54785.176	1.103	56.524	7.055	87.810	178.365	1	190.318	0	9	0	247.830	229.381	229.381
	Atas	2	2282.025	39278.190	1.107	16.342	28.281	79.685	162.876	1	587.798	158.839	9	1.80	813.372	777.940	777.940
	Bawah		2410.267	39001.334	1.115	89.306	38.825	48.293	250.397	1	587.798	158.839	9	0.90	927.990	815.344	815.344
	Atas	3	448.939	31760.802	1.024	88.750	23.547	1.998	149.774	1	0	234.175	0	1.80	305.758	191.977	191.977
	Bawah		534.433	31277.513	1.029	114.860	29.811	152.638	348.179	1	587.798	158.839	9	1.80	363.688	229.381	229.381

K5A=K6A	Atas	1	4743.434	46968.427	1.202	25.545	6.935	11.385	96.707	1	234.175	587.798	0	9	793.926	931.285	793.926
	Bawah		4871.676	46811.251	1.210	90.844	16.775	81.137	375.527	1	0	0	0	0	0.000	949.987	0.000
	Atas	2	2735.892	35240.674	1.149	2.186	0.736	26.861	36.168	1	234.175	587.798	0	9	520.857	564.370	520.857
	Bawah		2864.134	35015.232	1.158	60.278	17.100	79.070	233.340	1	0	0	0	0	0.000	583.072	0.000
K5A'=K6A'	Atas	1	4743.434	46968.427	1.202	39.755	2.904	89.087	183.117	1	0	0	0	0	0.000	955.924	0.000
	Bawah		4871.676	46811.251	1.210	25.545	6.935	11.385	75.088	1	0	190.318	0	9	798.623	974.626	798.623
	Atas	2	2735.892	35240.674	1.149	64.649	18.571	47.486	207.971	1	0	0	0	0	0.000	589.009	0.000
	Bawah		2864.134	35015.232	1.158	2.186	0.736	26.861	36.630	1	234.175	587.798	0	9	564.198	607.711	564.198
K5A"=K6A"	Atas	3	506.836	23281.485	1.038	80.972	20.980	1.638	139.938	1	234.175	0	0	9	0.000	197.570	0.000
	Bawah		592.330	22934.966	1.045	96.574	18.784	156.052	319.189	1	234.175	587.798	1.80	0	347.205	234.974	234.974
K5C=K6C	Atas	1	4743.434	46968.427	1.202	8.283	1.386	105.070	139.889	1	306.789	587.798	9	9	1256.253	1203.172	1203.172
	Bawah		4871.676	46811.251	1.210	13.416	8.053	97.272	150.127	1	131.234	190.318	9	9	1237.945	1240.576	1237.945
	Atas	2	2735.892	35240.674	1.149	36.441	7.280	111.150	186.707	1	306.789	587.798	9	9	647.738	597.867	597.867
	Bawah		2864.134	35015.232	1.158	39.068	9.454	155.467	246.427	1	306.789	587.798	9	9	685.142	635.271	635.271
K5E=K6E	Atas	1	4743.434	46968.427	1.202	22.077	16.869	82.794	163.135	1	587.798	0	9	0.90	1338.332	1480.228	1338.332
	Bawah		4871.676	46811.251	1.210	43.603	4.981	89.542	180.436	1	190.318	0	9	0	1337.092	1517.632	1337.092
	Atas	2	2735.892	35240.674	1.149	50.973	16.463	80.628	195.227	1	587.798	0	9	1.80	821.401	866.482	821.401
	Bawah		2864.134	35015.232	1.158	14.195	26.509	49.819	128.025	1	587.798	0	9	0.90	858.805	903.886	858.805
	Atas	3	506.836	23281.485	1.038	141.055	37.968	2.263	239.042	1	0	234.175	0	1.80	340.175	226.607	226.607
	Bawah		592.330	22934.966	1.045	96.337	28.039	159.685	332.835	1	587.798	0	9	1.80	320.891	264.011	264.011

3. Perencanaan tulangan kolom

Btg	Ujung Kolom	Lt	Mmaks (KNm)	αk	ω_d	MD (KNm)	ML (KNm)	ME (KNm)	$Mnak,bx_{ki}$ (KNm)	$Mnak,bx_{ka}$ (KNm)	$Mnak,by_{ki}$ (KNm)	$Mnak,by_{ka}$ (KNm)	$Lbnx_{ki}$ (m)	$Lbnx_{ka}$ (m)	$Lbny_{ki}$ (m)	$Lbny_{ka}$ (m)	Mcx (KNm)	Mcy (KNm)	Muk1 (KNm)	Muk2 (KNm)	Muk3 (KNm)
K1A=K10A	Atas	1	97.490	0.517	1	13.907	2.882	78.615	0	234.175	0	306.789	0	5.40	0	3.90	27.906	108.057	193.412	228.071	347.812
	Bawah		91.038	0.483	1	8.896	0.411	79.144	0	131.234	0	131.234	0	5.40	0	3.90	50.689	98.568	94.273	96.208	342.177
	Atas	2	97.270	0.594	1.3	23.373	6.455	66.133	0	234.175	0	234.175	0	5.40	0	3.90	60.692	109.603	269.174	274.699	309.080
	Bawah		66.383	0.406	1.3	18.738	5.195	41.741	0	234.175	0	306.789	0	5.40	0	3.90	67.418	76.361	197.231	232.573	200.441
	Atas	3	72.726	0.851	1	38.691	10.857	34.189	158.839	234.172	234.172	158.839	1.50	5.40	1.50	3.90	30.310	100.176	552.221	569.577	195.618
	Bawah		12.765	0.149	1	0.472	0.136	11.768	0	234.175	0	234.175	0	5.40	0	3.90	38.902	12.869	52.016	53.084	50.062
K1B=K10B	Atas	1	192.805	0.563	1	69.181	11.819	108.034	158.839	443.851	158.839	376.681	0.60	5.50	3.90	8.40	233.966	233.966	566.514	476.791	538.792
	Bawah		149.760	0.437	1	45.804	3.515	95.493	0	0	131.234	131.234	0	0	3.90	8.40	173.976	173.976	39.098	130.328	452.857
	Atas	2	219.951	0.532	1.3	102.878	22.146	93.510	158.839	443.851	158.839	508.298	1.50	5.50	3.90	8.40	266.026	266.026	658.974	665.517	524.017
	Bawah		193.327	0.468	1.3	95.304	20.449	76.762	158.839	443.851	158.839	376.681	0.60	5.50	3.90	8.40	236.822	236.822	612.109	515.165	443.941
	Atas	3	154.888	0.501	1	80.820	19.969	54.711	234.175	0	158.839	234.175	1.50	0	3.90	8.40	187.158	187.158	234.464	272.560	335.615
	Bawah		154.039	0.499	1	98.442	22.443	33.899	158.839	443.851	158.839	508.298	1.50	5.50	3.90	8.40	192.365	192.365	474.915	479.630	269.303
K1D=K10D	Atas	1	198.250	0.562	1	73.941	12.402	107.956	158.839	443.851	376.681	158.839	0.60	5.50	8.40	3.90	241.394	241.394	565.642	476.058	544.076
	Bawah		154.532	0.438	1	49.966	4.025	94.792	0	0	131.234	131.234	0	0	8.40	3.90	179.832	179.832	39.176	130.586	454.819
	Atas	2	224.727	0.533	1.3	107.037	22.655	93.404	158.839	443.851	508.298	158.839	1.50	5.50	8.40	3.90	272.008	272.008	659.501	666.049	528.473
	Bawah		197.188	0.467	1.3	98.634	20.856	76.654	158.839	443.851	376.681	158.839	0.60	5.50	8.40	3.90	241.599	241.599	611.552	514.697	447.413
	Atas	3	157.638	0.503	1	83.123	20.255	57.006	234.175	0	234.175	158.839	1.50	0	8.40	3.90	192.767	192.767	235.245	273.468	347.972
	Bawah		155.729	0.497	1	99.652	22.591	33.810	158.839	443.851	508.298	158.839	1.50	5.50	8.40	3.90	193.988	193.988	473.323	478.023	270.360
K1E=K10E	Atas	1	101.294	0.516	1	17.235	3.288	78.563	0	234.175	306.789	0	0	5.40	3.90	0	50.540	112.901	193.116	227.722	351.514
	Bawah		94.890	0.484	1	12.255	0.822	79.079	0	131.234	131.234	0	0	5.40	3.90	0	27.859	103.459	94.427	96.366	345.862
	Atas	2	100.397	0.595	1.3	26.123	6.793	66.039	0	234.175	234.175	0	0	5.40	3.90	0	66.636	113.528	269.611	275.145	311.924
	Bawah		68.243	0.405	1.3	20.337	5.391	41.657	0	234.175	306.789	0	0	5.40	3.90	0	60.881	78.625	196.762	232.020	201.973
	Atas	3	73.061	0.853	1	39.027	10.927	34.314	158.839	234.172	158.839	234.175	1.50	5.40	3.90	1.50	29.499	100.837	553.874	571.284	196.572
	Bawah		12.568	0.147	1	0.186	0.182	11.893	0	234.175	234.175	0	0	5.40	3.90	0	36.495	12.721	51.130	52.179	50.337
K2A=K9A	Atas	1	175.562	0.574	1	92.236	27.368	69.974	158.839	234.175	158.839	587.798	5.40	5.40	0.60	8.40	6.102	260.827	422.138	631.500	419.476
	Bawah		130.506	0.426	1	48.439	6.387	74.978	131.234	131.234	0	190.318	5.40	5.40	0	8.40	22.062	163.574	153.569	126.841	372.477
	Atas	2	184.062	0.485	1.3	85.522	41.501	64.874	158.839	234.175	158.839	587.798	5.40	5.40	1.50	8.40	26.340	267.437	445.854	633.149	405.846
	Bawah		195.237	0.515	1.3	106.075	42.467	34.592	158.839	234.175	158.839	587.798	5.40	5.40	0.90	8.40	25.772	266.105	481.605	700.524	301.258
	Atas	3	129.199	0.551	1	78.817	21.637	11.697	158.839	234.175	234.175	0	5.40	5.40	1.50	0	54.524	144.988	301.155	258.272	154.6
	Bawah		105.119	0.449	1	60.837	20.072	96.772	158.839	234.175	158.839	587.798	5.40	5.40	1.50	8.40	52.026	208.812	317.062	450.253	491.398
K2C=K9C	Atas	1	98.421	0.498	1	2.429	0.279	91.138	234.175	443.851	306.789	587.798	5.40	5.40	8.40	8.40	32.998	109.900	529.496	602.537	385.624
	Bawah		99.091	0.502	1	3.169	0.382	90.974	131.234	131.234	131.234	190.318	5.40	5.40	8.40	8.40	27.569	106.663	202.291	221.252	385.819
	Atas	2	133.288	0.583	1.3	6.337	0.831	120.105	234.175	443.851	306.789	587.798	5.40	5.40	8.40	8.40	46.991	143.825	805.621	916.751	511.968
	Bawah		95.256	0.417	1.3	4.827	0.639	85.509	234.175	443.851	306.789	587.798	5.40	5.40	8.40	8.40	39.335	103.585	575.751	655.172	364.879

K2E=K9E	Atas	1	180.110	0.569	1	96.290	27.845	69.900	158.839	234.175	587.798	158.839	5.40	5.40	8.40	0.60	22.402	246.103	418.514	626.080	423.920
	Bawah		136.606	0.431	1	53.828	7.041	74.941	131.234	131.234	190.318	0	5.40	5.40	8.40	0	6.193	162.165	155.342	128.306	378.664
	Atas	2	182.160	0.478	1.3	83.738	41.174	65.044	158.839	234.175	587.798	158.839	5.40	5.40	8.40	1.50	27.572	264.663	438.969	623.370	404.342
	Bawah		199.109	0.522	1.3	108.834	42.817	34.676	158.839	234.175	587.798	158.839	5.40	5.40	8.40	0.60	9.248	270.837	499.625	747.417	304.872
	Atas	3	131.611	0.523	1	80.453	21.917	11.687	158.839	234.175	0	234.175	5.40	5.40	0	1.50	51.310	147.460	285.779	245.086	156.575
	Bawah		119.925	0.477	1	71.266	21.504	96.340	158.839	234.175	587.798	158.839	5.40	5.40	9	1.50	47.879	223.678	336.550	477.146	502.036
K3A=K8A	Atas	1	178.012	0.569	1	91.294	29.896	76.624	158.839	234.175	158.839	587.798	5.40	5.40	0.60	8.40	0.634	275.464	419.053	626.886	449.072
	Bawah		134.612	0.431	1	45.266	6.608	82.640	131.234	131.234	0	190.318	5.40	5.40	0	8.40	1.345	173.533	155.078	128.088	401.556
	Atas	2	145.800	0.461	1.3	40.885	38.492	74.877	158.839	234.175	158.839	587.798	5.40	5.40	1.50	8.40	6.533	214.023	423.313	601.138	397.829
	Bawah		170.652	0.539	1.3	84.594	43.212	43.628	158.839	234.175	158.839	587.798	5.40	5.40	0.60	8.40	5.656	251.328	515.927	771.805	317.434
	Atas	3	139.106	0.565	1	84.811	23.333	5.729	158.839	234.175	234.175	0	5.40	5.40	1.50	0	12.028	149.158	308.565	264.627	137.615
	Bawah		107.122	0.435	1	60.826	21.332	137.645	158.839	234.175	158.839	587.798	5.40	5.40	1.50	8.40	4.698	253.352	307.474	436.638	664.376
K3C=K8C	Atas	1	100.207	0.479	1	5.985	0.661	97.416	234.175	443.851	306.789	587.798	5.40	5.40	8.40	8.40	0.753	123.400	508.996	579.209	416.127
	Bawah		108.988	0.521	1	3.254	0.262	92.051	131.234	131.234	131.234	190.318	5.40	5.40	8.40	8.40	0.682	112.411	210.070	229.760	390.307
	Atas	2	164.306	0.582	1.3	12.199	1.649	99.031	234.175	443.851	306.789	587.798	5.40	5.40	8.40	8.40	4.890	130.132	804.462	915.432	430.470
	Bawah		117.830	0.418	1.3	15.763	2.112	139.451	234.175	443.851	306.789	587.798	5.40	5.40	8.40	8.40	7.061	182.270	576.910	656.491	604.463
K3E=K8E	Atas	1	185.391	0.558	1	97.982	30.587	76.562	158.839	234.175	587.798	158.839	5.40	5.40	8.40	0.60	1.215	286.365	410.958	614.775	456.558
	Bawah		146.606	0.442	1	55.961	7.825	82.620	131.234	131.234	190.318	0	5.40	5.40	8.40	0	0.696	191.152	159.040	131.360	413.982
	Atas	2	139.354	0.433	1.3	35.141	37.302	75.196	158.839	234.175	587.798	158.839	5.40	5.40	8.40	1.50	4.747	204.159	397.940	565.106	391.890
	Bawah		182.392	0.567	1.3	92.948	44.284	43.742	158.839	234.175	587.798	158.839	5.40	5.40	8.40	0.60	5.194	265.507	542.348	811.329	327.810
	Atas	3	144.255	0.500	1	88.235	23.983	5.659	158.839	234.175	0	234.175	5.40	5.40	0	1.50	11.505	154.380	272.961	234.093	141.597
	Bawah		144.393	0.500	1	86.783	25.159	136.875	158.839	234.175	587.798	158.839	5.40	5.40	8.40	1.50	4.644	291.126	353.545	502.062	692.413
K4A=K7A	Atas	1	184.191	0.572	1	95.968	27.265	81.254	158.839	306.789	158.839	587.798	5.40	3.90	0.60	8.40	17.098	276.297	475.880	646.376	470.660
	Bawah		137.716	0.428	1	43.852	5.774	87.740	131.234	131.234	0	190.318	5.40	3.90	0	8.40	32.285	168.058	156.528	127.997	420.616
	Atas	2	166.752	0.506	1.3	58.662	34.819	79.258	158.839	234.175	158.839	587.798	5.40	3.90	1.50	8.40	56.313	231.065	472.031	662.788	431.039
	Bawah		162.512	0.494	1.3	84.205	37.591	48.014	158.839	306.789	158.839	587.798	5.40	3.90	0.60	8.40	51.991	238.314	533.635	724.822	329.543
	Atas	3	129.224	0.490	1	80.122	20.673	2.581	158.839	234.175	234.175	0	5.40	3.90	1.50	0	44.871	134.917	272.833	231.190	116.677
	Bawah		134.307	0.510	1	80.125	23.848	153.554	158.839	234.175	158.839	587.798	5.40	3.90	1.50	8.40	48.781	296.227	365.400	513.065	754.099
K4C=K7C	Atas	1	102.286	0.466	1	8.019	0.647	103.231	443.851	158.839	306.789	587.798	5.40	3.90	8.40	8.40	17.844	131.937	458.730	552.681	442.670
	Bawah		117.139	0.534	1	0.649	0.604	96.403	131.234	131.234	131.234	190.318	5.40	3.90	8.40	8.40	36.392	108.334	218.311	236.348	406.210
	Atas	2	201.218	0.574	1.3	31.431	3.768	108.249	443.851	158.839	306.789	587.798	5.40	3.90	8.40	8.40	60.250	166.621	734.940	885.459	491.605
	Bawah		149.038	0.426	1.3	37.443	4.382	151.570	443.851	158.839	306.789	587.798	5.40	3.90	8.40	8.40	73.456	224.767	544.354	655.840	680.508
K4E=K7E	Atas	1	176.197	0.537	1	88.711	26.681	81.359	158.839	306.789	587.798	158.839	5.40	3.90	8.40	0.60	24.828	247.390	446.794	606.868	462.870
	Bawah		151.786	0.463	1	56.524	7.055	87.810	131.234	131.234	190.318	0	5.40	3.90	8.40	0	14.215	178.365	169.324	138.461	435.560
	Atas	2	118.646	0.412	1.3	16.342	28.281	79.685	158.839	234.175	587.798	158.839	5.40	3.90	8.40	1.50	37.296	162.876	384.065	539.273	381.531
	Bawah		169.287	0.588	1.3	89.306	38.825	48.293	158.839	306.789	587.798	158.839	5.40	3.90	8.40	0.60	37.881	250.397	635.676	863.422	337.366
	Atas	3	144.174	0.437	1	88.750	23.547	1.998	158.839	234.175	0	234.175	5.40	3.90	0	1.50	25.867	149.774	243.304	206.168	126.302
	Bawah		185.529	0.563	1	114.860	29.811	152.638	158.839	234.175	587.798	158.839	5.40	3.90	8.40	1.50	29.794	348.179	403.450	566.492	792.985

K5A=K6A	Atas	1	171.407	0.804	1	25.545	6.935	11.385	306.789	158.839	234.175	587.798	3.90	5.40	0	8.40	9.896	96.707	590.555	647.620	81.920
	Bawah		41.750	0.196	1	90.844	16.775	81.137	0	234.175	0	0	0	5.40	0	0	3.822	375.527	52.025	15.607	453.773
	Atas	2	157.088	0.861	1.3	2.186	0.736	26.861	306.789	158.839	234.175	587.798	3.90	5.40	0	8.40	3.388	36.168	821.626	901.019	115.886
	Bawah		25.446	0.139	1.3	60.278	17.100	79.070	0	234.175	0	0	0	5.40	0	0	19.823	233.340	48.136	14.441	413.340
K5A'=K6A'	Atas	1	41.750	0.239	1	39.755	2.904	89.087	0	234.175	0	0	0	5.40	0	0	5.074	183.117	63.483	19.045	418.956
	Bawah		132.933	0.761	1	25.545	6.935	11.385	131.234	131.234	0	190.318	3.90	5.40	0	8.40	9.281	75.088	278.433	227.682	81.920
	Atas	2	25.446	0.164	1.3	64.649	18.571	47.486	0	234.175	0	0	0	5.40	0	0	13.172	207.971	56.728	17.018	286.821
	Bawah		129.442	0.836	1.3	2.186	0.736	26.861	306.789	158.839	234.175	587.798	3.90	5.40	0	8.40	5.104	36.630	797.870	874.967	115.886
K5A"=K6A"	Atas	3	130.734	0.473	1	80.972	20.980	1.638	234.175	158.839	234.175	0	3.90	5.40	0	8.40	20.734	139.938	215.464	64.639	113.931
	Bawah		145.944	0.527	1	96.574	18.784	156.052	306.789	158.839	234.175	587.798	3.90	5.40	1.50	0	10.867	319.189	338.609	262.231	776.545
K5C=K6C	Atas	1	121.296	0.507	1	8.283	1.386	105.070	158.839	443.851	306.789	587.798	3.90	5.40	8.40	8.40	14.872	139.889	498.699	600.835	451.445
	Bawah		118.055	0.493	1	13.416	8.053	97.272	131.234	131.234	131.234	190.318	3.90	5.40	8.40	8.40	27.683	150.127	201.702	218.366	431.085
	Atas	2	198.036	0.568	1.3	36.441	7.280	111.150	158.839	443.851	306.789	587.798	3.90	5.40	8.40	8.40	48.421	186.707	727.266	876.213	512.738
	Bawah		150.318	0.432	1.3	39.068	9.454	155.467	158.839	443.851	306.789	587.798	3.90	5.40	8.40	8.40	59.964	246.427	552.029	665.087	703.908
K5E=K6E	Atas	1	100.992	0.421	1	22.077	16.869	82.794	306.789	158.839	587.798	0	3.90	5.40	8.40	0.60	46.462	163.135	309.531	339.440	388.627
	Bawah		138.624	0.579	1	43.603	4.981	89.542	131.234	131.234	190.318	0	3.90	5.40	8.40	0	21.222	180.436	211.671	173.089	427.090
	Atas	2	41.510	0.331	1.3	50.973	16.463	80.628	158.839	234.175	587.798	0	3.90	5.40	8.40	1.50	53.940	195.227	277.756	335.037	409.446
	Bawah		83.916	0.669	1.3	14.195	26.509	49.819	158.839	234.175	587.798	0	3.90	5.40	8.40	0.60	60.258	128.025	561.498	677.295	251.978
	Atas	3	230.015	0.589	1	141.055	37.968	2.263	158.839	234.175	0	234.175	3.90	5.40	0	1.50	57.895	239.042	325.812	277.142	197.480
	Bawah		160.468	0.411	1	96.337	28.039	159.685	158.839	234.175	587.798	0	3.90	5.40	8.40	1.50	52.320	332.835	265.299	320.011	801.272

3. Perencanaan tulangan kolom lanjutan

Btg	Ujung Kolom	Lt	Muk pakai (KNm)	Muk terpakai (KNm)	Nuk_{1x} (KN)	Nuk_{1y} (KN)	Nuk_{2x}=Nuk_{2y} (KN)	Nuk pakai (KN)	Mn (KNm)	Pn (KN)	%	Ast (mm^2)	As'=As perlu (mm^2)	n tul.	n tul. terpakai	As=As ada (mm^2)
K1A=K10A	Atas	1	193.412	193.412	590.389	615.891	983.466	590.389	322.353	983.981	1.0	3600	1800	4.735	5	1900.7
	Bawah		94.273	98.568	612.780	619.159	1020.870	612.780	164.280	1021.300	1.0	3600	1800	4.735	5	1900.7
	Atas	2	269.174	269.174	437.634	449.018	616.405	437.634	448.623	729.390	1.0	3600	1800	4.735	5	1900.7
	Bawah		197.231	197.231	475.038	500.541	653.809	475.038	328.718	791.730	1.0	3600	1800	4.735	5	1900.7
	Atas	3	195.618	195.618	366.048	399.403	329.146	329.146	326.030	548.577	1.0	3600	1800	4.735	5	1900.7
	Bawah		50.062	50.062	326.238	337.622	366.550	326.238	83.437	543.731	1.0	3600	1800	4.735	5	1900.7
K1B=K10B	Atas	1	476.791	476.791	1113.900	1113.900	1357.190	1113.900	794.652	1856.500	1.2	4320	2160	5.682	6	2280.8
	Bawah		39.098	173.976	1122.073	1122.073	1394.594	1122.073	289.960	1870.122	1.1	3960	1980	5.209	6	2280.8
	Atas	2	524.017	524.017	712.625	712.625	792.219	712.625	873.362	1187.708	1.3	4680	2340	6.156	7	2660.9
	Bawah		443.941	443.941	737.233	737.233	829.623	737.233	739.902	1228.721	1.2	4320	2160	5.682	6	2280.8
	Atas	3	234.464	234.464	207.272	207.272	208.226	207.272	390.773	345.454	1.0	3600	1800	4.735	5	1900.7
	Bawah		269.303	269.303	271.327	271.327	245.630	245.630	448.838	409.383	1.0	3600	1800	4.735	5	1900.7
K1D=K10D	Atas	1	476.058	476.058	1109.909	1109.909	1352.434	1109.909	793.430	1849.848	1.1	3960	1980	5.209	6	2280.8
	Bawah		39.176	179.832	1118.082	1118.082	1389.838	1118.082	299.720	1863.470	1.1	3960	1980	5.209	6	2280.8
	Atas	2	528.473	528.473	710.322	710.322	789.459	710.322	880.788	1183.870	1.2	4320	2160	5.682	6	2280.8
	Bawah		447.413	447.413	734.930	734.930	826.863	734.930	745.688	1224.883	1.2	4320	2160	5.682	6	2280.8
	Atas	3	235.245	235.245	206.490	206.490	207.295	206.490	392.075	344.150	1.0	3600	1800	4.735	5	1900.7
	Bawah		270.360	270.360	270.545	270.545	244.699	244.699	450.600	407.832	1.0	3600	1800	4.735	5	1900.7
K1E=K10E	Atas	1	193.116	193.116	595.280	620.783	989.446	595.280	321.860	992.134	1.0	3600	1800	4.735	5	1900.7
	Bawah		94.427	103.459	617.672	624.051	1026.850	617.672	172.432	1029.453	1.0	3600	1800	4.735	5	1900.7
	Atas	2	269.611	269.611	439.880	451.264	620.324	439.880	449.352	733.134	1.0	3600	1800	4.735	5	1900.7
	Bawah		196.762	196.762	477.284	502.787	657.728	477.284	327.937	795.474	1.0	3600	1800	4.735	5	1900.7
	Atas	3	196.572	196.572	366.817	400.174	331.057	331.057	327.620	551.762	1.0	3600	1800	4.735	5	1900.7
	Bawah		50.337	50.337	327.008	338.391	368.461	327.008	83.895	545.013	1.0	3600	1800	4.735	5	1900.7
K2A=K9A	Atas	1	419.476	419.476	1172.448	1326.707	1286.670	1172.448	699.127	1954.079	1.0	3600	1800	4.735	5	1900.7
	Bawah		126.841	163.574	1190.813	1171.040	1324.074	1171.040	272.623	1951.733	1.0	3600	1800	4.735	5	1900.7
	Atas	2	405.846	405.846	744.012	821.057	771.159	744.012	676.410	1240.019	1.0	3600	1800	4.735	5	1900.7
	Bawah		301.258	301.258	781.415	935.675	808.563	781.415	502.097	1302.359	1.0	3600	1800	4.735	5	1900.7
	Atas	3	154.603	154.603	281.468	337.989	225.391	225.391	257.672	375.652	1.0	3600	1800	4.735	5	1900.7
	Bawah		317.062	317.062	318.872	395.918	262.795	262.795	528.437	437.992	1.0	3600	1800	4.735	5	1900.7
K2C=K9C	Atas	1	385.624	385.624	1493.970	1482.065	1409.627	1409.627	642.707	2349.378	1.0	3600	1800	4.735	5	1900.7
	Bawah		202.291	202.291	1470.772	1463.758	1447.031	1447.031	337.152	2411.718	1.0	3600	1800	4.735	5	1900.7
	Atas	2	511.968	511.968	767.018	755.113	685.621	685.621	853.280	1142.702	1.0	3600	1800	4.735	5	1900.7
	Bawah		364.879	364.879	804.422	792.517	723.025	723.025	608.132	1205.042	1.0	3600	1800	4.735	5	1900.7

K2E=K9E	Atas	1	418.514	418.514	1176.991	435.710	225.417	225.417	697.523	375.695	1.3	4680	2340	6.156	7	2660.9
	Bawah		128.306	162.165	1195.357	280.044	262.821	262.821	270.275	438.035	1.2	4320	2160	5.682	6	2280.8
	Atas	2	404.342	404.342	746.523	823.569	773.145	746.523	673.903	1244.205	1.0	3600	1800	4.735	5	1900.7
	Bawah		304.872	304.872	783.927	938.186	810.549	783.927	508.120	1306.545	1.0	3600	1800	4.735	5	1900.7
	Atas	3	156.575	156.575	281.451	337.972	225.417	225.417	260.958	375.695	1.0	3600	1800	4.735	5	1900.7
	Bawah		336.550	336.550	318.855	395.901	262.821	262.821	560.917	438.035	1.0	3600	1800	4.735	5	1900.7
K3A=K8A	Atas	1	419.053	419.053	1288.694	1442.953	1407.535	1288.694	698.422	2147.823	1.0	3600	1800	4.735	5	1900.7
	Bawah		128.088	173.533	1307.060	1287.286	1444.939	1287.286	289.222	2145.477	1.0	3600	1800	4.735	5	1900.7
	Atas	2	397.829	397.829	819.376	896.422	850.673	819.376	663.048	1365.626	1.0	3600	1800	4.735	5	1900.7
	Bawah		307.434	307.434	856.780	1011.039	888.077	856.780	512.390	1427.966	1.0	3600	1800	4.735	5	1900.7
	Atas	3	137.615	149.158	287.873	344.393	231.008	231.008	248.597	385.013	1.0	3600	1800	4.735	5	1900.7
	Bawah		307.474	307.474	325.277	402.323	268.412	268.412	512.457	447.353	1.0	3600	1800	4.735	5	1900.7
K3C=K8C	Atas	1	416.127	416.127	1466.748	1454.843	1393.498	1393.498	693.545	2322.497	1.0	3600	1800	4.735	5	1900.7
	Bawah		210.070	210.070	1443.550	1436.535	1430.902	1430.902	350.117	2384.837	1.0	3600	1800	4.735	5	1900.7
	Atas	2	430.470	430.470	757.470	745.565	689.616	689.616	717.450	1149.360	1.2	4320	2160	5.682	6	2280.8
	Bawah		576.910	576.910	794.873	782.968	727.020	727.020	961.517	1211.700	1.2	4320	2160	5.682	6	2280.8
K3E=K8E	Atas	1	410.958	410.958	1295.258	1449.517	1414.055	1295.258	684.930	2158.763	1.0	3600	1800	4.735	5	1900.7
	Bawah		131.360	191.152	1313.624	1293.851	1451.460	1293.851	318.587	2156.418	1.0	3600	1800	4.735	5	1900.7
	Atas	2	391.890	391.890	822.558	899.604	853.538	822.558	653.150	1370.931	1.0	3600	1800	4.735	5	1900.7
	Bawah		327.810	327.810	859.962	1014.221	890.941	859.962	546.350	1433.270	1.0	3600	1800	4.735	5	1900.7
	Atas	3	141.597	154.380	287.449	343.970	230.315	230.315	257.300	383.858	1.0	3600	1800	4.735	5	1900.7
	Bawah		353.545	353.545	324.853	401.899	267.719	267.719	589.242	446.198	1.0	3600	1800	4.735	5	1900.7
K4A=K7A	Atas	1	470.660	470.660	1101.360	1230.116	1212.033	1101.360	784.433	1835.600	1.3	4680	2340	6.156	7	2660.9
	Bawah		127.997	168.058	1100.602	1074.449	1249.437	1074.449	280.097	1790.748	1.2	4320	2160	5.682	6	2280.8
	Atas	2	431.039	431.039	688.998	754.660	719.200	688.998	718.398	1148.330	1.2	4320	2160	5.682	6	2280.8
	Bawah		329.543	329.543	740.521	869.278	756.604	740.521	549.238	1234.202	1.0	3600	1800	4.735	5	1900.7
	Atas	3	116.677	134.917	252.290	297.427	183.806	183.806	224.862	306.343	1.0	3600	1800	4.735	5	1900.7
	Bawah		365.400	365.400	289.694	355.356	221.210	221.210	609.000	368.683	1.0	3600	1800	4.735	5	1900.7
K4C=K7C	Atas	1	442.670	442.670	1321.515	1312.875	1254.109	1254.109	737.783	2090.182	1.0	3600	1800	4.735	5	1900.7
	Bawah		218.311	218.311	1307.961	1294.567	1291.513	1291.513	363.852	2152.522	1.0	3600	1800	4.735	5	1900.7
	Atas	2	491.605	491.605	682.288	673.648	620.654	620.654	819.342	1034.423	1.2	4320	2160	5.682	6	2280.8
	Bawah		544.354	544.354	719.692	711.052	658.058	658.058	907.257	1096.763	1.3	4680	2340	6.156	7	2660.9
K4E=K7E	Atas	1	446.794	446.794	1185.708	403.497	191.977	191.977	744.657	319.962	1.3	4680	2340	6.156	7	2660.9
	Bawah		138.461	178.365	1184.951	247.830	229.381	229.381	297.275	382.302	1.2	4320	2160	5.682	6	2280.8
	Atas	2	381.531	381.531	747.710	813.372	777.940	747.710	635.885	1246.183	1.0	3600	1800	4.735	5	1900.7
	Bawah		337.366	337.366	799.233	927.990	815.344	799.233	562.277	1332.055	1.0	3600	1800	4.735	5	1900.7
	Atas	3	126.302	149.774	260.621	305.758	191.977	191.977	249.623	319.962	1.0	3600	1800	4.735	5	1900.7
	Bawah		403.450	403.450	298.025	363.688	229.381	229.381	672.417	382.302	1.0	3600	1800	4.735	5	1900.7

K5A=K6A	Atas	1	81.920	96.707	819.596	793.926	931.285	793.926	161.178	1323.210	1.0	3600	1800	4.735	5	1900.7
	Bawah		15.607	375.527	789.631	0.000	949.987	789.631	625.878	1316.052	1.0	3600	1800	4.735	5	1900.7
	Atas	2	115.886	115.886	546.527	520.857	564.370	520.857	193.143	868.095	1.0	3600	1800	4.735	5	1900.7
	Bawah		14.441	233.340	516.562	0.000	583.072	516.562	388.900	866.937	1.0	3600	1800	4.735	5	1900.7
K5A'=K6A'	Atas	1	19.045	183.117	795.568	0.000	955.924	795.568	305.195	1325.947	1.0	3600	1800	4.735	5	1900.7
	Bawah		81.920	81.920	824.776	798.623	974.626	798.623	136.533	1331.038	1.0	3600	1800	4.735	5	1900.7
	Atas	2	17.018	207.971	522.499	0.000	589.009	522.499	346.618	870.832	1.0	3600	1800	4.735	5	1900.7
	Bawah		115.886	115.886	589.868	564.198	607.711	564.198	193.143	940.330	1.0	3600	1800	4.735	5	1900.7
K5A"=K6A"	Atas	3	64.639	139.938	264.665	0.000	197.570	197.570	233.230	329.283	1.0	3600	1800	4.735	5	1900.7
	Bawah		262.231	319.189	316.188	347.205	234.974	234.974	531.982	391.623	1.0	3600	1800	4.735	5	1900.7
K5C=K6C	Atas	1	451.445	451.445	1264.893	1256.253	1203.172	1203.172	752.408	2005.287	1.2	4320	2160	5.682	6	2280.8
	Bawah		201.702	201.702	1251.339	1237.945	1240.576	1237.945	336.170	2063.242	1.2	4320	2160	5.682	6	2280.8
	Atas	2	512.738	512.738	656.378	647.738	597.867	597.867	854.563	996.445	1.4	5040	2520	6.629	7	2660.9
	Bawah		552.029	552.029	693.782	685.142	635.271	635.271	920.048	1058.785	1.3	4680	2340	6.156	7	2660.9
K5E=K6E	Atas	1	309.531	309.531	1364.002	1338.332	1480.228	1338.332	515.885	2230.553	1.0	3600	1800	4.735	5	1900.7
	Bawah		173.089	180.436	1363.245	1337.092	1517.632	1337.092	300.727	2228.487	1.0	3600	1800	4.735	5	1900.7
	Atas	2	277.756	277.756	829.290	821.401	866.482	821.401	462.927	1369.002	1.0	3600	1800	4.735	5	1900.7
	Bawah		251.978	251.978	866.694	858.805	903.886	858.805	419.963	1431.342	1.0	3600	1800	4.735	5	1900.7
	Atas	3	197.480	239.042	291.376	340.175	226.607	226.607	398.403	377.678	1.0	3600	1800	4.735	5	1900.7
	Bawah		265.299	332.835	328.780	320.891	264.011	264.011	554.725	440.018	1.0	3600	1800	4.735	5	1900.7

4. Perhitungan keruntuhan kolom

Btg	Ujung Kolom	Lt	Pakai Tul.	Jbd (mm)	Xb (mm)	fs' (Mpa)	fs' pakai (Mpa)	Cc (KN)	Cs (KN)	Ts (KN)	Pnb (KN)	Mnb (KNm)	eb (m)	e (m)	Keruntuhan Kolom	Patah Desak Pn (KN)	Patah Tarik Pn (KN)	Kontrol Pn>Nu / Ø
K1A=K10A	Atas	1	5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.328	Patah Tarik	-	7273.287	AMAN
	Bawah		5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.161	Patah Desak	9974.470	-	AMAN
	Atas	2	5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.615	Patah Tarik	-	5942.979	AMAN
	Bawah		5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.415	Patah Tarik	-	6766.405	AMAN
	Atas	3	5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.594	Patah Tarik	-	6011.769	AMAN
	Bawah		5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.153	Patah Desak	10428.791	-	AMAN
K1B=K10B	Atas	1	6	73.60	324	488.889	400	3511.350	863.852	912.319	3462.883	996.173	0.288	0.428	Patah Tarik	-	6797.343	AMAN
	Bawah		6	73.60	324	488.889	400	3511.350	863.852	912.319	3462.883	996.173	0.288	0.155	Patah Desak	10511.963	-	AMAN
	Atas	2	7	57.67	324	488.889	400	3511.350	1007.828	1064.372	3454.805	1067.220	0.309	0.735	Patah Tarik	-	5740.302	AMAN
	Bawah		6	73.60	324	488.889	400	3511.350	863.852	912.319	3462.883	996.173	0.288	0.602	Patah Tarik	-	6066.077	AMAN
	Atas	3	5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	1.131	Patah Tarik	-	4901.894	AMAN
	Bawah		5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	1.096	Patah Tarik	-	4945.926	AMAN
K1D=K10D	Atas	1	6	73.60	324	488.889	400	3511.350	863.852	912.319	3462.883	996.173	0.288	0.429	Patah Tarik	-	6792.850	AMAN
	Bawah		6	73.60	324	488.889	400	3511.350	863.852	912.319	3462.883	996.173	0.288	0.161	Patah Desak	10157.379	-	AMAN
	Atas	2	6	73.60	324	488.889	400	3511.350	863.852	912.319	3462.883	996.173	0.288	0.744	Patah Tarik	-	5648.359	AMAN
	Bawah		6	73.60	324	488.889	400	3511.350	863.852	912.319	3462.883	996.173	0.288	0.609	Patah Tarik	-	6043.644	AMAN
	Atas	3	5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	1.139	Patah Tarik	-	4892.027	AMAN
	Bawah		5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	1.105	Patah Tarik	-	4934.961	AMAN
K1E=K10E	Atas	1	5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.324	Patah Tarik	-	7293.904	AMAN
	Bawah		5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.167	Patah Desak	9600.062	-	AMAN
	Atas	2	5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.613	Patah Tarik	-	5949.952	AMAN
	Bawah		5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.412	Patah Tarik	-	6781.680	AMAN
	Atas	3	5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.594	Patah Tarik	-	6013.634	AMAN
	Bawah		5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.154	Patah Desak	10398.043	-	AMAN
K2A=K9A	Atas	1	5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.358	Patah Tarik	-	7086.094	AMAN
	Bawah		5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.140	Patah Desak	11399.034	-	AMAN
	Atas	2	5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.545	Patah Tarik	-	6187.065	AMAN
	Bawah		5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.386	Patah Tarik	-	6925.901	AMAN
	Atas	3	5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.686	Patah Tarik	-	5730.361	AMAN
	Bawah		5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	1.206	Patah Tarik	-	4814.383	AMAN
K2C=K9C	Atas	1	5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.274	Patah Tarik	-	7645.644	AMAN
	Bawah		5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.140	Patah Desak	11390.187	-	AMAN
	Atas	2	5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.747	Patah Tarik	-	5571.891	AMAN
	Bawah		5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.505	Patah Tarik	-	6349.622	AMAN

K2E=K9E	Atas	1	7	57.67	324	488.889	400	3511.350	1007.828	1064.372	3454.805	1067.220	0.309	1.857	Patah Tarik	-	4392.323	AMAN
	Bawah		6	73.60	324	488.889	400	3511.350	863.852	912.319	3462.883	996.173	0.288	0.617	Patah Tarik	-	6016.159	AMAN
	Atas	2	5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.542	Patah Tarik	-	6201.739	AMAN
	Bawah		5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.389	Patah Tarik	-	6907.159	AMAN
	Atas	3	5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.695	Patah Tarik	-	5706.511	AMAN
	Bawah		5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	1.281	Patah Tarik	-	4737.410	AMAN
K3A=K8A	Atas	1	5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.325	Patah Tarik	-	7288.946	AMAN
	Bawah		5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.135	Patah Desak	11789.190	-	AMAN
	Atas	2	5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.486	Patah Tarik	-	6431.348	AMAN
	Bawah		5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.359	Patah Tarik	-	7079.847	AMAN
	Atas	3	5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.646	Patah Tarik	-	5847.080	AMAN
	Bawah		5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	1.146	Patah Tarik	-	4884.442	AMAN
K3C=K8C	Atas	1	5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.299	Patah Tarik	-	7466.775	AMAN
	Bawah		5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.147	Patah Desak	10874.623	-	AMAN
	Atas	2	6	73.60	324	488.889	400	3511.350	863.852	912.319	3462.883	996.173	0.288	0.624	Patah Tarik	-	5992.529	AMAN
	Bawah		6	73.60	324	488.889	400	3511.350	863.852	912.319	3462.883	996.173	0.288	0.794	Patah Tarik	-	5529.009	AMAN
K3E=K8E	Atas	1	5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.317	Patah Tarik	-	7340.611	AMAN
	Bawah		5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.148	Patah Desak	10809.893	-	AMAN
	Atas	2	5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.476	Patah Tarik	-	6471.550	AMAN
	Bawah		5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.381	Patah Tarik	-	6950.219	AMAN
	Atas	3	5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.670	Patah Tarik	-	5774.499	AMAN
	Bawah		5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	1.321	Patah Tarik	-	4699.038	AMAN
K4A=K7A	Atas	1	7	57.67	324	488.889	400	3511.350	1007.828	1064.372	3454.805	1067.220	0.309	0.427	Patah Tarik	-	6896.178	AMAN
	Bawah		6	73.60	324	488.889	400	3511.350	863.852	912.319	3462.883	996.173	0.288	0.156	Patah Desak	10426.114	-	AMAN
	Atas	2	6	73.60	324	488.889	400	3511.350	863.852	912.319	3462.883	996.173	0.288	0.626	Patah Tarik	-	5988.023	AMAN
	Bawah		5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.445	Patah Tarik	-	6617.318	AMAN
	Atas	3	5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.734	Patah Tarik	-	5603.376	AMAN
	Bawah		5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	1.652	Patah Tarik	-	4448.357	AMAN
K4C=K7C	Atas	1	5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.353	Patah Tarik	-	7114.952	AMAN
	Bawah		5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.169	Patah Desak	9517.562	-	AMAN
	Atas	2	6	73.60	324	488.889	400	3511.350	863.852	912.319	3462.883	996.173	0.288	0.792	Patah Tarik	-	5532.342	AMAN
	Bawah		7	57.67	324	488.889	400	3511.350	1007.828	1064.372	3454.805	1067.220	0.309	0.827	Patah Tarik	-	5518.018	AMAN
K4E=K7E	Atas	1	7	57.67	324	488.889	400	3511.350	1007.828	1064.372	3454.805	1067.220	0.309	2.327	Patah Tarik	-	4192.313	AMAN
	Bawah		6	73.60	324	488.889	400	3511.350	863.852	912.319	3462.883	996.173	0.288	0.778	Patah Tarik	-	5566.128	AMAN
	Atas	2	5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.510	Patah Tarik	-	6326.351	AMAN
	Bawah		5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.422	Patah Tarik	-	6730.827	AMAN
	Atas	3	5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.780	Patah Tarik	-	5492.776	AMAN
	Bawah		5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	1.759	Patah Tarik	-	4386.432	AMAN

K5A=K6A	Atas	1	5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.122	Patah Desak	12978.156	-	AMAN
	Bawah		5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.476	Patah Tarik	-	6475.376	AMAN
	Atas	2	5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.222	Patah Desak	7342.103	-	AMAN
	Bawah		5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.452	Patah Tarik	-	6585.282	AMAN
K5A'=K6A'	Atas	1	5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.230	Patah Desak	7110.553	-	AMAN
	Bawah		5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.103	Patah Desak	15278.927	-	AMAN
	Atas	2	5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.398	Patah Tarik	-	6857.248	AMAN
	Bawah		5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.205	Patah Desak	7917.665	-	AMAN
K5A"=K6A"	Atas	3	5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.708	Patah Tarik	-	5669.714	AMAN
	Bawah		5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	1.358	Patah Tarik	-	4664.709	AMAN
K5C=K6C	Atas	1	6	73.60	324	488.889	400	3511.350	863.852	912.319	3462.883	996.173	0.288	0.375	Patah Tarik	-	7085.708	AMAN
	Bawah		6	73.60	324	488.889	400	3511.350	863.852	912.319	3462.883	996.173	0.288	0.163	Patah Desak	10035.246	-	AMAN
	Atas	2	7	57.67	324	488.889	400	3511.350	1007.828	1064.372	3454.805	1067.220	0.309	0.858	Patah Tarik	-	5452.699	AMAN
	Bawah		7	57.67	324	488.889	400	3511.350	1007.828	1064.372	3454.805	1067.220	0.309	0.869	Patah Tarik	-	5429.237	AMAN
K5E=K6E	Atas	1	5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.231	Patah Desak	7078.328	-	AMAN
	Bawah		5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.135	Patah Desak	11777.501	-	AMAN
	Atas	2	5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.338	Patah Tarik	-	7206.254	AMAN
	Bawah		5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	0.293	Patah Tarik	-	7503.095	AMAN
	Atas	3	5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	1.055	Patah Tarik	-	5001.730	AMAN
	Bawah		5	97.50	324	488.889	400	3511.350	719.877	760.266	3470.961	925.126	0.267	1.261	Patah Tarik	-	4757.240	AMAN

5. Perencanaan gaya geser kolom

Btg	Ujung Kolom	Lt	VD (KN)	VL (KN)	VE (KN)	Muk terpakai (KNm)	Vuk1 (KN)	Vuk2 (KN)	Vuk pakai (KN)
K1A=K10A	Atas	1	12.234	1.683	37.562	193.412	81.106	172.372	81.106
	Bawah		12.234	1.683	37.562	98.568	81.106	172.372	81.106
	Atas	2	18.363	3.792	25.684	269.174	129.557	131.138	129.557
	Bawah		18.363	3.792	25.684	197.231	129.557	131.138	129.557
	Atas	3	9.100	2.617	10.942	195.618	68.244	58.259	58.259
	Bawah		9.100	2.617	10.942	50.062	68.244	58.259	58.259
K1B=K10B	Atas	1	27.377	4.697	48.459	476.791	180.769	237.205	180.769
	Bawah		27.377	4.697	48.459	173.976	180.769	237.205	180.769
	Atas	2	47.186	10.142	40.541	524.017	268.877	230.466	230.466
	Bawah		47.186	10.142	40.541	443.941	268.877	230.466	230.466
	Atas	3	42.682	10.098	21.674	234.464	139.935	146.451	139.935
	Bawah		42.682	10.098	21.674	269.303	139.935	146.451	139.935
K1D=K10D	Atas	1	29.502	4.597	48.422	476.058	182.192	239.174	182.192
	Bawah		29.502	4.597	48.422	179.832	182.192	239.174	182.192
	Atas	2	48.969	10.360	40.490	528.473	271.079	232.354	232.354
	Bawah		48.969	10.360	40.490	447.413	271.079	232.354	232.354
	Atas	3	43.518	10.201	21.623	235.245	140.446	147.222	140.446
	Bawah		43.518	10.201	21.623	270.360	140.446	147.222	140.446
K1E=K10E	Atas	1	12.263	1.682	37.534	193.116	82.382	172.284	82.382
	Bawah		12.263	1.682	37.534	103.459	82.382	172.284	82.382
	Atas	2	18.476	3.792	25.642	269.611	129.548	131.076	129.548
	Bawah		18.476	3.792	25.642	196.762	129.548	131.076	129.548
	Atas	3	9.248	2.645	11.002	196.572	68.586	58.695	58.695
	Bawah		9.248	2.645	11.002	50.337	68.586	58.695	58.695
K2A=K9A	Atas	1	33.494	8.037	34.513	419.476	161.958	188.560	161.958
	Bawah		33.494	8.037	34.513	163.574	161.958	188.560	161.958
	Atas	2	45.618	19.992	23.683	405.846	196.418	168.358	168.358
	Bawah		45.618	19.992	23.683	301.258	196.418	168.358	168.358
	Atas	3	14.828	3.368	25.826	154.603	131.018	127.575	127.575
	Bawah		14.828	3.368	25.826	317.062	131.018	127.575	127.575
K2C=K9C	Atas	1	9.879	0.716	43.360	385.624	163.310	193.236	163.310
	Bawah		9.879	0.716	43.360	202.291	163.310	193.236	163.310
	Atas	2	12.210	2.785	48.956	511.968	243.569	221.359	221.359
	Bawah		12.210	2.785	48.956	364.879	243.569	221.359	221.359

K2E=K9E	Atas	1	35.742	8.306	34.486	418.514	161.300	191.092	161.300
	Bawah		35.742	8.306	34.486	162.165	161.300	191.092	161.300
	Atas	2	45.851	19.998	23.743	404.342	197.004	168.860	168.860
	Bawah		45.851	19.998	23.743	304.872	197.004	168.860	168.860
	Atas	3	14.194	3.268	25.721	156.575	136.979	126.362	126.362
	Bawah		14.194	3.268	25.721	336.550	136.979	126.362	126.362
K3A=K8A	Atas	1	32.514	8.691	37.920	419.053	164.607	202.530	164.607
	Bawah		32.514	8.691	37.920	173.533	164.607	202.530	164.607
	Atas	2	29.876	19.453	28.215	397.829	195.906	170.301	170.301
	Bawah		29.876	19.453	28.215	307.434	195.906	170.301	170.301
	Atas	3	5.711	0.476	34.137	149.158	126.842	149.871	126.842
	Bawah		5.711	0.476	34.137	307.474	126.842	149.871	126.842
K3C=K8C	Atas	1	2.200	0.220	45.110	416.127	173.944	192.004	173.944
	Bawah		2.200	0.220	45.110	210.070	173.944	192.004	173.944
	Atas	2	6.657	0.896	56.781	430.470	279.828	246.413	246.413
	Bawah		6.657	0.896	56.781	576.910	279.828	246.413	246.413
K3E=K8E	Atas	1	36.653	9.146	37.901	410.958	167.253	207.271	167.253
	Bawah		36.653	9.146	37.901	191.152	167.253	207.271	167.253
	Atas	2	30.497	19.425	28.319	391.890	199.917	171.357	171.357
	Bawah		30.497	19.425	28.319	327.810	199.917	171.357	171.357
	Atas	3	2.578	0.280	33.937	154.380	141.090	145.534	141.090
	Bawah		2.578	0.280	33.937	353.545	141.090	145.534	141.090
K4A=K7A	Atas	1	33.290	7.866	40.237	470.660	177.422	212.208	177.422
	Bawah		33.290	7.866	40.237	168.058	177.422	212.208	177.422
	Atas	2	34.016	17.240	30.303	431.039	211.273	181.091	181.091
	Bawah		34.016	17.240	30.303	329.543	211.273	181.091	181.091
	Atas	3	12.632	3.676	37.175	134.917	138.977	173.259	138.977
	Bawah		12.632	3.676	37.175	365.400	138.977	173.259	138.977
K4C=K7C	Atas	1	7.298	1.948	47.487	442.670	183.606	209.155	183.606
	Bawah		7.298	1.948	47.487	218.311	183.606	209.155	183.606
	Atas	2	17.027	6.238	61.860	491.605	287.766	284.241	284.241
	Bawah		17.027	6.238	61.860	544.354	287.766	284.241	284.241
K4E=K7E	Atas	1	34.580	8.032	40.278	446.794	173.655	213.912	173.655
	Bawah		34.580	8.032	40.278	178.365	173.655	213.912	173.655
	Atas	2	25.154	15.978	30.471	381.531	199.694	171.166	171.166
	Bawah		25.154	15.978	30.471	337.366	199.694	171.166	171.166
	Atas	3	7.985	1.967	36.818	149.774	153.673	165.086	153.673
	Bawah		7.985	1.967	36.818	403.450	153.673	165.086	153.673

K5A=K6A	Atas	1	31.095	4.685	40.529	96.707	131.176	207.793	131.176
	Bawah		31.095	4.685	40.529	375.527	131.176	207.793	131.176
	Atas	2	29.745	8.493	30.132	115.886	97.007	166.705	97.007
	Bawah		29.745	8.493	30.132	233.340	97.007	166.705	97.007
K5A'=K6A'	Atas	1	31.095	4.685	40.529	183.117	73.621	207.793	73.621
	Bawah		31.095	4.685	40.529	81.920	73.621	207.793	73.621
	Atas	2	29.745	8.493	30.132	207.971	89.960	166.705	89.960
	Bawah		29.745	8.493	30.132	115.886	89.960	166.705	89.960
K5A"=K6A"	Atas	3	4.629	0.523	37.545	139.938	127.535	163.100	127.535
	Bawah		4.629	0.523	37.545	319.189	127.535	163.100	127.535
K5C=K6C	Atas	1	6.018	2.247	48.177	451.445	181.430	211.021	181.430
	Bawah		6.018	2.247	48.177	201.702	181.430	211.021	181.430
	Atas	2	17.978	3.984	63.480	512.738	295.769	289.677	289.677
	Bawah		17.978	3.984	63.480	552.029	295.769	289.677	289.677
K5E=K6E	Atas	1	15.638	5.202	41.032	309.531	136.102	194.218	136.102
	Bawah		15.638	5.202	41.032	180.436	136.102	194.218	136.102
	Atas	2	14.227	10.232	31.059	277.756	147.148	156.129	147.148
	Bawah		14.227	10.232	31.059	251.978	147.148	156.129	147.148
	Atas	3	15.562	4.451	38.559	239.042	158.855	182.962	158.855
	Bawah		15.562	4.451	38.559	332.835	158.855	182.962	158.855

6. Perencanaan tulangan geser kolom

Btg	Ujung Kolom	Lt	Pu (KN)	Vuk pakai (KN)	Daerah sendi plastis										Daerah luar sendi plastis									
					Vc (KN)	Vs min (KN)	Vs (KN)	kaki	S (mm)	600/4 (mm)	8.Ø (mm)	100 (mm)	S pakai (mm)	Pakai Tul	Vc (KN)	Vs min (KN)	Vs (KN)	kaki	S (mm)	600/4 (mm)	8.Ø (mm)	100 (mm)	S pakai (mm)	Pakai Tul
K1A=K10A	Atas	1	664.293	81.106	0	108	135.176	2	150.601	150	176	100	100	P10-100	305.587	108	-170.411	2	188.496	150	176	100	100	P10-100
	Bawah		707.040	81.106	0	108	135.176	2	150.601	150	176	100	100	P10-100	307.877	108	-172.701	2	188.496	150	176	100	100	P10-100
	Atas	2	484.187	129.557	0	108	215.928	2	94.279	150	176	100	90	P10-90	295.939	108	-80.010	2	188.496	150	176	100	100	P10-100
	Bawah		526.935	129.557	0	108	215.928	2	94.279	150	176	100	90	P10-90	298.229	108	-82.300	2	188.496	150	176	100	100	P10-100
	Atas	3	308.958	58.259	0	108	97.098	2	209.659	150	176	100	100	P10-100	286.551	108	-189.453	2	188.496	150	176	100	100	P10-100
	Bawah		351.705	58.259	0	108	97.098	2	209.659	150	176	100	100	P10-100	288.841	108	-191.743	2	188.496	150	176	100	100	P10-100
K1B=K10B	Atas	1	1261.831	180.769	0	108	301.281	2	67.570	150	176	100	65	P10-65	337.598	108	-36.317	2	188.496	150	176	100	100	P10-100
	Bawah		1304.578	180.769	0	108	301.281	2	67.570	150	176	100	65	P10-65	339.888	108	-38.607	2	188.496	150	176	100	100	P10-100
	Atas	2	763.422	230.466	0	108	384.110	3	79.499	150	176	100	75	P10-75	310.898	108	73.212	2	278.062	150	176	100	100	P10-100
	Bawah		806.169	230.466	0	108	384.110	3	79.499	150	176	100	75	P10-75	313.188	108	70.922	2	287.040	150	176	100	100	P10-100
	Atas	3	186.443	139.935	0	108	233.225	2	87.287	150	176	100	85	P10-85	279.988	108	-46.763	2	188.496	150	176	100	100	P10-100
	Bawah		229.190	139.935	0	108	233.225	2	87.287	150	176	100	85	P10-85	282.278	108	-49.053	2	188.496	150	176	100	100	P10-100
K1D=K10D	Atas	1	1257.115	182.192	0	108	303.653	2	67.042	150	176	100	65	P10-65	337.345	108	-33.693	2	188.496	150	176	100	100	P10-100
	Bawah		1299.862	182.192	0	108	303.653	2	67.042	150	176	100	65	P10-65	339.635	108	-35.983	2	188.496	150	176	100	100	P10-100
	Atas	2	760.698	232.354	0	108	387.257	3	78.853	150	176	100	75	P10-75	310.752	108	76.505	2	266.095	150	176	100	100	P10-100
	Bawah		803.445	232.354	0	108	387.257	3	78.853	150	176	100	75	P10-75	313.042	108	74.215	2	274.305	150	176	100	100	P10-100
	Atas	3	185.516	140.446	0	108	234.076	2	86.970	150	176	100	85	P10-85	279.938	108	-45.862	2	188.496	150	176	100	100	P10-100
	Bawah		228.263	140.446	0	108	234.076	2	86.970	150	176	100	85	P10-85	282.228	108	-48.152	2	188.496	150	176	100	100	P10-100
K1E=K10E	Atas	1	670.079	82.382	0	108	137.303	2	148.267	150	176	100	100	P10-100	305.897	108	-168.594	2	188.496	150	176	100	100	P10-100
	Bawah		712.827	82.382	0	108	137.303	2	148.267	150	176	100	100	P10-100	308.187	108	-170.884	2	188.496	150	176	100	100	P10-100
	Atas	2	486.842	129.548	0	108	215.913	2	94.286	150	176	100	90	P10-90	296.081	108	-80.167	2	188.496	150	176	100	100	P10-100
	Bawah		529.589	129.548	0	108	215.913	2	94.286	150	176	100	90	P10-90	298.371	108	-82.457	2	188.496	150	176	100	100	P10-100
	Atas	3	309.866	58.695	0	108	97.825	2	208.102	150	176	100	100	P10-100	286.600	108	-188.775	2	188.496	150	176	100	100	P10-100
	Bawah		352.613	58.695	0	108	97.825	2	208.102	150	176	100	100	P10-100	288.890	108	-191.065	2	188.496	150	176	100	100	P10-100
K2A=K9A	Atas	1	1342.066	161.958	0	108	269.931	2	75.418	150	176	100	75	P10-75	341.896	108	-71.966	2	188.496	150	176	100	100	P10-100
	Bawah		1384.813	161.958	0	108	269.931	2	75.418	150	176	100	75	P10-75	344.186	108	-74.256	2	188.496	150	176	100	100	P10-100
	Atas	2	825.387	168.358	0	108	280.597	2	72.551	150	176	100	70	P10-70	314.217	108	-33.620	2	188.496	150	176	100	100	P10-100
	Bawah		868.134	168.358	0	108	280.597	2	72.551	150	176	100	70	P10- 70	316.507	108	-35.911	2	188.496	150	176	100	100	P10-100
	Atas	3	267.111	127.575	0	108	212.625	2	95.744	150	176	100	95	P10-95	284.310	108	-71.685	2	188.496	150	176	100	100	P10-100
	Bawah		309.859	127.575	0	108	212.625	2	95.744	150	176	100	95	P10-95	286.600	108	-73.975	2	188.496	150	176	100	100	P10-100
K2C=K9C	Atas	1	1705.262	163.310	0	108	272.183	2	74.794	150	176	100	70	P10-70	361.353	108	-89.170	2	188.496	150	176	100	100	P10-100
	Bawah		1748.009	163.310	0	108	272.183	2	74.794	150	176	100	70	P10- 70	363.643	108	-91.460	2	188.496	150	176	100	100	P10-100
	Atas	2	818.630	221.359	0	108	368.932	3	82.770	150	176	100	80	P10-80	313.855	108	55.076	2	369.624	150	176	100	100	P10-100
	Bawah		861.377	221.359	0	108	368.932	3	82.770	150	176	100	80	P10-80	316.145	108	52.786	2	385.659	150	176	100	100	P10-100

K2E=K9E	Atas	1	267.091	161.300	0	108	268.833	2	75.726	150	176	100	75	P10-75	284.308	108	-15.476	2	188.496	150	176	100	100	P10-100
	Bawah		309.839	161.300	0	108	268.833	2	75.726	150	176	100	75	P10-75	286.598	108	-17.766	2	188.496	150	176	100	100	P10-100
	Atas	2	828.365	168.860	0	108	281.433	2	72.335	150	176	100	70	P10-70	314.377	108	-32.943	2	188.496	150	176	100	100	P10-100
	Bawah		871.112	168.860	0	108	281.433	2	72.335	150	176	100	70	P10- 70	316.667	108	-35.233	2	188.496	150	176	100	100	P10-100
	Atas	3	267.091	126.362	0	108	210.603	2	96.663	150	176	100	95	P10-95	284.308	108	-73.705	2	188.496	150	176	100	100	P10-100
	Bawah		309.839	126.362	0	108	210.603	2	96.663	150	176	100	95	P10-95	286.598	108	-75.995	2	188.496	150	176	100	100	P10-100
K3A=K8A	Atas	1	1487.154	164.607	0	108	274.345	2	74.204	150	176	100	70	P10-70	349.669	108	-75.324	2	188.496	150	176	100	100	P10-100
	Bawah		1529.902	164.607	0	108	274.345	2	74.204	150	176	100	70	P10- 70	351.959	108	-77.614	2	188.496	150	176	100	100	P10-100
	Atas	2	919.579	170.301	0	108	283.835	2	71.723	150	176	100	70	P10-70	319.263	108	-35.428	2	188.496	150	176	100	100	P10-100
	Bawah		962.327	170.301	0	108	283.835	2	71.723	150	176	100	70	P10- 70	321.553	108	-37.718	2	188.496	150	176	100	100	P10-100
	Atas	3	275.186	126.842	0	108	211.404	2	96.297	150	176	100	95	P10-95	284.742	108	-73.338	2	188.496	150	176	100	100	P10-100
	Bawah		317.933	126.842	0	108	211.404	2	96.297	150	176	100	95	P10-95	287.032	108	-75.628	2	188.496	150	176	100	100	P10-100
K3C=K8C	Atas	1	1673.581	173.944	0	108	289.906	2	70.221	150	176	100	70	P10-70	359.656	108	-69.750	2	188.496	150	176	100	100	P10-100
	Bawah		1716.328	173.944	0	108	289.906	2	70.221	150	176	100	70	P10- 70	361.946	108	-72.040	2	188.496	150	176	100	100	P10-100
	Atas	2	807.556	246.413	0	108	410.688	3	74.354	150	176	100	70	P10-70	313.262	108	97.426	2	208.953	150	176	100	100	P10-100
	Bawah		850.303	246.413	0	108	410.688	3	74.354	150	176	100	70	P10- 70	315.552	108	95.136	2	213.983	150	176	100	100	P10-100
K3E=K8E	Atas	1	1494.865	167.253	0	108	278.755	2	73.030	150	176	100	70	P10-70	350.082	108	-71.327	2	188.496	150	176	100	100	P10-100
	Bawah		1537.612	167.253	0	108	278.755	2	73.030	150	176	100	70	P10- 70	352.372	108	-73.617	2	188.496	150	176	100	100	P10-100
	Atas	2	923.285	171.357	0	108	285.595	2	71.281	150	176	100	70	P10-70	319.462	108	-33.867	2	188.496	150	176	100	100	P10-100
	Bawah		966.033	171.357	0	108	285.595	2	71.281	150	176	100	70	P10- 70	321.752	108	-36.157	2	188.496	150	176	100	100	P10-100
	Atas	3	274.653	141.090	0	108	235.150	2	86.573	150	176	100	85	P10-85	284.714	108	-49.563	2	188.496	150	176	100	100	P10-100
	Bawah		317.400	141.090	0	108	235.150	2	86.573	150	176	100	85	P10-85	287.004	108	-51.853	2	188.496	150	176	100	100	P10-100
K4A=K7A	Atas	1	1226.081	177.422	0	108	295.703	2	68.845	150	176	100	65	P10-65	335.683	108	-39.980	2	188.496	150	176	100	100	P10-100
	Bawah		1268.828	177.422	0	108	295.703	2	68.845	150	176	100	65	P10-65	337.973	108	-42.270	2	188.496	150	176	100	100	P10-100
	Atas	2	746.079	181.091	0	108	301.818	2	67.450	150	176	100	65	P10-65	309.969	108	-8.150	2	188.496	150	176	100	100	P10-100
	Bawah		788.827	181.091	0	108	301.818	2	67.450	150	176	100	65	P10-65	312.259	108	-10.440	2	188.496	150	176	100	100	P10-100
	Atas	3	219.317	138.977	0	108	231.628	2	87.889	150	176	100	85	P10-85	281.749	108	-50.121	2	188.496	150	176	100	100	P10-100
	Bawah		262.064	138.977	0	108	231.628	2	87.889	150	176	100	85	P10-85	284.039	108	-52.411	2	188.496	150	176	100	100	P10-100
K4C=K7C	Atas	1	1495.849	183.606	0	108	306.010	2	66.526	150	176	100	65	P10-65	350.135	108	-44.125	2	188.496	150	176	100	100	P10-100
	Bawah		1538.597	183.606	0	108	306.010	2	66.526	150	176	100	65	P10-65	352.425	108	-46.415	2	188.496	150	176	100	100	P10-100
	Atas	2	717.506	284.241	0	108	473.735	3	64.459	150	176	100	60	P10-60	308.438	108	165.297	2	123.157	150	176	100	100	P10-100
	Bawah		760.254	284.241	0	108	473.735	3	64.459	150	176	100	60	P10-60	310.728	108	163.007	2	124.888	150	176	100	100	P10-100
K4E=K7E	Atas	1	229.622	173.655	0	108	289.425	2	70.338	150	176	100	70	P10-70	282.301	108	7.124	2	2857.479	150	176	100	100	P10-100
	Bawah		272.369	173.655	0	108	289.425	2	70.338	150	176	100	70	P10- 70	284.591	108	4.834	2	4211.088	150	176	100	100	P10-100
	Atas	2	818.440	171.166	0	108	285.277	2	71.361	150	176	100	70	P10-70	313.845	108	-28.568	2	188.496	150	176	100	100	P10-100
	Bawah		861.187	171.166	0	108	285.277	2	71.361	150	176	100	70	P10- 70	316.135	108	-30.858	2	188.496	150	176	100	100	P10-100
	Atas	3	229.622	153.673	0	108	256.122	2	79.484	150	176	100	75	P10-75	282.301	108	-26.179	2	188.496	150	176	100	100	P10-100
	Bawah		272.369	153.673	0	108	256.122	2	79.484	150	176	100	75	P10-75	284.591	108	-28.469	2	188.496	150	176	100	100	P10-100

K5A=K6A	Atas	1	872.996	131.176	0	108	218.627	2	93.116	150	176	100	90	P10-90	316.768	108	-98.141	2	188.496	150	176	100	100	P10-100
	Bawah		894.370	131.176	0	108	218.627	2	93.116	150	176	100	90	P10-90	317.913	108	-99.286	2	188.496	150	176	100	100	P10-100
	Atas	2	550.760	97.007	0	108	161.679	2	125.914	150	176	100	100	P10-100	299.505	108	-137.826	2	188.496	150	176	100	100	P10-100
	Bawah		572.134	97.007	0	108	161.679	2	125.914	150	176	100	100	P10-100	300.650	108	-138.971	2	188.496	150	176	100	100	P10-100
K5A'=K6A'	Atas	1	901.155	73.621	0	108	122.702	2	165.910	150	176	100	100	P10-100	318.276	108	-195.574	2	188.496	150	176	100	100	P10-100
	Bawah		922.528	73.621	0	108	122.702	2	165.910	150	176	100	100	P10-100	319.421	108	-196.719	2	188.496	150	176	100	100	P10-100
	Atas	2	578.919	89.960	0	108	149.934	2	135.777	150	176	100	100	P10-100	301.014	108	-151.080	2	188.496	150	176	100	100	P10-100
	Bawah		600.292	89.960	0	108	149.934	2	135.777	150	176	100	100	P10-100	302.159	108	-152.225	2	188.496	150	176	100	100	P10-100
K5A"=K6A"	Atas	3	234.656	127.535	0	108	212.559	2	95.774	150	176	100	95	P10-95	282.571	108	-70.012	2	188.496	150	176	100	100	P10-100
	Bawah		277.403	127.535	0	108	212.559	2	95.774	150	176	100	95	P10-95	284.861	108	-72.302	2	188.496	150	176	100	100	P10-100
K5C=K6C	Atas	1	1421.428	181.430	0	108	302.383	2	67.324	150	176	100	65	P10-65	346.148	108	-43.765	2	188.496	150	176	100	100	P10-100
	Bawah		1464.175	181.430	0	108	302.383	2	67.324	150	176	100	65	P10-65	348.438	108	-46.055	2	188.496	150	176	100	100	P10-100
	Atas	2	683.115	289.677	0	108	482.795	3	63.249	150	176	100	60	P10-60	306.595	108	176.200	2	115.537	150	176	100	100	P10-100
	Bawah		725.862	289.677	0	108	482.795	3	63.249	150	176	100	60	P10-60	308.885	108	173.910	2	117.058	150	176	100	100	P10-100
K5E=K6E	Atas	1	1547.855	136.102	0	108	226.837	2	89.746	150	176	100	85	P10-85	352.921	108	-126.084	2	188.496	150	176	100	100	P10-100
	Bawah		1590.603	136.102	0	108	226.837	2	89.746	150	176	100	85	P10-85	355.211	108	-128.374	2	188.496	150	176	100	100	P10-100
	Atas	2	923.099	147.148	0	108	245.247	2	83.008	150	176	100	80	P10-80	319.452	108	-74.205	2	188.496	150	176	100	100	P10-100
	Bawah		965.846	147.148	0	108	245.247	2	83.008	150	176	100	80	P10-80	321.742	108	-76.495	2	188.496	150	176	100	100	P10-100
	Atas	3	272.180	158.855	0	108	264.758	2	76.891	150	176	100	75	P10-75	284.581	108	-19.823	2	188.496	150	176	100	100	P10-100
	Bawah		314.927	158.855	0	108	264.758	2	76.891	150	176	100	75	P10-75	286.871	108	-22.113	2	188.496	150	176	100	100	P10-100

7. Perhitungan gaya-gaya dalam

Lt	h (m)		Arah x										Arah y									
			Lx (m)		Lnx (m)		$M_{nak,bx}$(KNm)		Vkol,x	Cki=Tki	Cka=Tka	Vjh,x	Ly (m)		Lny (m)		$M_{nak,by}$(KNm)		Vkol,y	Cki=Tki	Cka=Tka	Vjh,y
	A	B	Ki	Ka	Ki	Ka	Ki	Ka	(KN)	(KN)	(KN)	(KN)	Ki	Ka	Ki	Ka	Ki	Ka	(KN)	(KN)	(KN)	(KN)
K1A=K10A																						
2 (J1A=J10A)	4.2	4.2	0	6	0	5.4	0	234.175	76.331	0	421.611	345.280	0	4.5	0	3.9	0	306.789	90.010	0	552.346	462.337
3 (J1A=J10A)	4.2	4.2	0	6	0	5.4	0	234.175	71.095	0	421.611	350.517	0	4.5	0	3.9	0	234.175	72.554	0	421.611	349.057
ATAP (J1A=J10A)	0	4.2	1.8	6	1.4	5.4	158.839	234.172	254.050	285.976	421.606	453.532	1.8	4.5	1.4	3.9	234.172	158.839	259.866	421.606	285.976	447.716
K1B=K10B																						
2 (J1B=J10B)	4.2	4.2	0.9	6	0.5	5.4	158.839	443.851	198.987	285.976	799.114	886.103	4.5	9	3.9	8.4	158.839	376.681	170.955	285.976	678.181	793.201
3 (J1B=J10B)	4.2	4.2	1.8	6	1.2	5.4	158.839	443.851	197.873	285.976	799.114	887.217	4.5	9	3.9	8.4	158.839	508.298	197.356	285.976	915.146	1003.765
ATAP (J1B=J10B)	0	4.2	1.8	6	1.2	5.4	234.175	0	200.632	421.611	0	220.980	4.5	9	3.9	8.4	158.839	234.175	224.815	285.976	421.611	482.772
K1D=K10D																						
2 (J1D=J10D)	4.2	4.2	0.9	6	0.5	5.4	158.839	443.851	198.987	285.976	799.114	886.103	9	4.5	8.4	3.9	376.681	158.839	170.955	678.181	285.976	793.201
3 (J1D=J10D)	4.2	4.2	1.8	6	1.2	5.4	158.839	443.851	197.873	285.976	799.114	887.217	9	4.5	8.4	3.9	508.298	158.839	197.356	915.146	285.976	1003.765
ATAP (J1D=J10D)	0	4.2	1.8	6	1.2	5.4	234.175	0	200.632	421.611	0	220.980	9	4.5	8.4	3.9	234.175	158.839	224.815	421.611	285.976	482.772
K1E=K10E																						
2 (J1E=J10E)	4.2	4.2	0	6	0	5.4	0	234.175	76.331	0	421.611	345.280	4.5	0	3.9	0	306.789	0	90.010	552.346	0	462.337
3 (J1E=J10E)	4.2	4.2	0	6	0	5.4	0	234.175	71.095	0	421.611	350.517	4.5	0	3.9	0	234.175	0	72.554	421.611	0	349.057
ATAP (J1E=J10E)	0	4.2	1.8	6	1.4	5.4	158.839	234.172	254.050	285.976	421.606	453.532	4.5	1.8	3.9	1.4	158.839	234.175	259.867	285.976	421.611	447.720
K2A=K9A																						
2 (J2A=J9A)	4.2	4.2	6	6	5.4	5.4	158.839	234.175	148.206	285.976	421.611	559.381	0.9	9	0.5	8.4	158.839	587.798	218.062	285.976	1058.278	1126.192
3 (J2A=J9A)	4.2	4.2	6	6	5.4	5.4	158.839	234.175	143.101	285.976	421.611	564.486	1.8	9	1.4	8.4	158.839	587.798	201.044	285.976	1058.278	1143.210
ATAP (J2A=J9A)	0	4.2	6	6	5.4	5.4	158.839	234.175	219.586	285.976	421.611	488.001	1.8	0	1.4	0	234.175	0	180.036	421.611	0	241.575
K2C=K9C																						
2 (J2C=J9C)	4.2	4.2	6	6	5.4	5.4	234.175	443.851	216.856	421.611	799.114	1003.870	9	9	8.4	8.4	306.789	587.798	246.770	552.346	1058.278	1363.855
3 (J2C=J9C)	0	4.2	6	6	5.4	5.4	234.175	443.851	433.712	421.611	799.114	787.014	9	9	8.4	8.4	306.789	587.798	493.539	552.346	1058.278	1117.085
K2E=K9E																						
2 (J2E=J9E)	4.2	4.2	6	6	5.4	5.4	158.839	234.175	148.206	285.976	421.611	559.381	9	0.9	8.4	0.5	587.798	158.839	218.062	1058.278	285.976	1126.192
3 (J2E=J9E)	4.2	4.2	6	6	5.4	5.4	158.839	234.175	143.101	285.976	421.611	564.486	9	1.8	8.4	1.4	587.798	158.839	201.044	1058.278	285.976	1143.210
ATAP (J2E=J9E)	0	4.2	6	6	5.4	5.4	158.839	234.175	219.586	285.976	421.611	488.001	0	1.8	0	1.4	0	234.175	180.036	0	421.611	241.575
K3A=K8A																						0.000
2 (J3A=J8A)	4.2	4.2	6	6	5.4	5.4	158.839	234.175	148.206	285.976	421.611	559.381	0.9	9	0.5	8.4	158.839	587.798	218.062	285.976	1058.278	1126.192
3 (J3A=J8A)	4.2	4.2	6	6	5.4	5.4	158.839	234.175	143.101	285.976	421.611	564.486	1.8	9	1.4	8.4	158.839	587.798	201.044	285.976	1058.278	1143.210
ATAP (J3A=J8A)	0	4.2	6	6	5.4	5.4	158.839	234.175	219.586	285.976	421.611	488.001	1.8	0	1.4	0	234.175	0	180.036	421.611	0	241.575
K3C=K8C																						
2 (J3C=J8C)	4.2	4.2	6	6	5.4	5.4	234.175	443.851	216.856	421.611	799.114	1003.870	9	9	8.4	8.4	306.789	587.798	246.770	552.346	1058.278	1363.855
3 (J3C=J8C)	0	4.2	6	6	5.4	5.4	234.175	443.851	433.712	421.611	799.114	787.014	9	9	8.4	8.4	306.789	587.798	493.539	552.346	1058.278	1117.085

K3E=K8E																						
2 (J3E=J8E)	4.2	4.2	6	6	5.4	5.4	158.839	234.175	148.206	285.976	421.611	559.381	9	0.9	8.4	0.5	587.798	158.839	218.062	1058.278	285.976	1126.192
3 (J3E=J8E)	4.2	4.2	6	6	5.4	5.4	158.839	234.175	143.101	285.976	421.611	564.486	9	1.8	8.4	1.4	587.798	158.839	201.044	1058.278	285.976	1143.210
ATAP (J3E=J8E)	0	4.2	6	6	5.4	5.4	158.839	234.175	219.586	285.976	421.611	488.001	0	1.8	0	1.4	0	234.175	180.036	0	421.611	241.575
K4A=K7A																						
2 (J4A=J7A)	4.2	4.2	6	4.5	5.4	3.9	158.839	306.789	167.747	285.976	552.346	670.576	0.9	9	0.5	8.4	158.839	587.798	223.924	285.976	1058.278	1120.330
3 (J4A=J7A)	4.2	4.2	6	4.5	5.4	3.9	158.839	234.175	145.186	285.976	421.611	562.401	1.8	9	1.4	8.4	158.839	587.798	201.669	285.976	1058.278	1142.585
ATAP (J4A=J7A)	0	4.2	6	4.5	5.4	3.9	158.839	234.175	223.756	285.976	421.611	483.831	1.8	0	1.4	0	234.175	0	181.287	421.611	0	240.324
K4C=K7C																						
2 (J4C=J7C)	4.2	4.2	6	4.5	5.4	3.9	443.851	158.839	200.831	799.114	285.976	884.259	9	9	8.4	8.4	306.789	587.798	241.962	552.346	1058.278	1368.662
3 (J4C=J7C)	0	4.2	6	4.5	5.4	3.9	443.851	158.839	401.662	799.114	285.976	683.428	9	9	8.4	8.4	306.789	587.798	483.925	552.346	1058.278	1126.700
K4E=K7E																						
2 (J4E=J7E)	4.2	4.2	6	4.5	5.4	3.9	158.839	306.789	167.747	285.976	552.346	670.576	9	0.9	8.4	0.5	587.798	158.839	223.924	1058.278	285.976	1120.330
3 (J4E=J7E)	4.2	4.2	6	4.5	5.4	3.9	158.839	234.175	145.186	285.976	421.611	562.401	9	1.8	8.4	1.4	587.798	158.839	201.669	1058.278	285.976	1142.585
ATAP (J4E=J7E)	0	4.2	6	4.5	5.4	3.9	158.839	234.175	223.756	285.976	421.611	483.831	0	1.8	0	1.4	0	234.175	181.287	0	421.611	240.324
K5A=K6A																						
2 (J5A=J6A)	2.1	2.1	4.5	6	3.9	5.4	306.789	158.839	299.754	552.346	285.976	538.568	0	9	0	8.4	234.175	587.798	328.719	421.611	1058.278	1151.170
3 (J5A=J6A)	4.2	2.1	4.5	6	3.9	5.4	306.789	158.839	199.836	552.346	285.976	638.486	0	9	0	8.4	234.175	587.798	219.146	421.611	1058.278	1260.744
K5A'=K6A'																						
2 (J5A'=J6A')	2.1	2.1	0	6	0	5.4	0	234.175	108.414	0	421.611	313.197	0	0	0	0	0	0	32.524	0	0	-32.524
3 (J5A'=J6A')	2.1	2.1	0	6	0	5.4	0	234.175	108.414	0	421.611	313.197	0	0	0	0	0	0	32.524	0	0	-32.524
K5A"=K6A"																						
ATAP (J5A"=J6A")	0	4.2	4.5	6	3.9	5.4	234.175	158.839	230.029	421.611	285.976	477.558	1.8	0	1.2	0	234.175	0	202.196	421.611	0	219.416
K5C=K6C																						
2 (J5C=J6C)	4.2	4.2	4.5	6	3.9	5.4	158.839	443.851	200.831	285.976	799.114	884.259	9	9	8.4	8.4	306.789	587.798	241.962	552.346	1058.278	1368.662
3 (J5C=J6C)	0	4.2	4.5	6	3.9	5.4	158.839	443.851	401.662	285.976	799.114	683.428	9	9	8.4	8.4	306.789	587.798	483.925	552.346	1058.278	1126.700
K5E=K6E																						
2 (J5E=J6E)	4.2	4.2	4.5	6	3.9	5.4	306.789	158.839	149.877	552.346	285.976	688.445	9	3	8.4	2.6	587.798	0	164.360	1058.278	0	893.919
3 (J5E=J6E)	4.2	4.2	4.5	6	3.9	5.4	158.839	234.175	131.751	285.976	421.611	575.836	9	3	8.4	2.6	587.798	0	158.922	1058.278	0	899.356
ATAP (J5E=J6E)	0	4.2	4.5	6	3.9	5.4	158.839	234.175	218.554	285.976	421.611	489.032	0	3	0	2.6	0	234.175	168.018	0	421.611	253.593

7. Perhitungan gaya-gaya dalam lanjutan

Lt	Nu,k	Arah x				Arah y			
		Vjh,x≤1,5.√f'c=7,5	Nu,k/Ag<0,1.f'c=2,5	Vch,x	Vsh,x	Vjh,y≤1,5.√f'c=7,5	Nu,k/Ag<0,1.f'c=2,5	Vch,y	Vsh,y
	(KN)	(N/mm^2)	(N/mm^2)	(KN)	(KN)	(N/mm^2)	(N/mm^2)	(KN)	(KN)
K1A=K10A									
2 (J1A=J10A)	664.293	0.959	1.845	0	345.280	1.284	1.845	0	462.337
3 (J1A=J10A)	484.187	0.974	1.345	0	350.517	0.970	1.345	0	349.057
ATAP (J1A=J10A)	308.958	1.260	0.858	0	453.532	1.244	0.858	0	447.716
K1B=K10B									
2 (J1B=J10B)	1261.831	2.461	3.505	240.610	645.494	2.203	3.505	240.610	552.591
3 (J1B=J10B)	763.422	2.464	2.121	0	887.217	2.788	2.121	0	1003.765
ATAP (J1B=J10B)	186.443	0.614	0.518	0	220.980	1.341	0.518	0	482.772
K1D=K10D									
2 (J1D=J10D)	1257.115	2.461	3.492	239.036	647.067	2.203	3.492	239.036	554.165
3 (J1D=J10D)	760.698	2.464	2.113	0	887.217	2.788	2.113	0	1003.765
ATAP (J1D=J10D)	185.516	0.614	0.515	0	220.980	1.341	0.515	0	482.772
K1E=K10E									
2 (J1E=J10E)	670.079	0.959	1.861	0	345.280	1.284	1.861	0	462.337
3 (J1E=J10E)	486.842	0.974	1.352	0	350.517	0.970	1.352	0	349.057
ATAP (J1E=J10E)	309.866	1.260	0.861	0	453.532	1.244	0.861	0	447.720
K2A=K9A									
2 (J2A=J9A)	1342.066	1.554	3.728	265.952	293.428	3.128	3.728	265.952	860.240
3 (J2A=J9A)	825.387	1.568	2.293	0	564.486	3.176	2.293	0	1143.210
ATAP (J2A=J9A)	267.111	1.356	0.742	0	488.001	0.671	0.742	0	241.575
K2C=K9C									
2 (J2C=J9C)	1705.262	2.789	4.737	358.946	644.924	3.788	4.737	358.946	1004.909
3 (J2C=J9C)	818.630	2.186	2.274	0	787.014	3.103	2.274	0	1117.085
K2E=K9E									
2 (J2E=J9E)	267.091	1.554	0.742	0	559.381	3.128	0.742	0	1126.192
3 (J2E=J9E)	828.365	1.568	2.301	0	564.486	3.176	2.301	0	1143.210
ATAP (J2E=J9E)	267.091	1.356	0.742	0	488.001	0.671	0.742	0	241.575
K3A=K8A									
2 (J3A=J8A)	1487.154	1.554	4.131	306.504	252.877	3.128	4.131	306.504	819.688
3 (J3A=J8A)	919.579	1.568	2.554	55.970	508.516	3.176	2.554	55.970	1087.240
ATAP (J3A=J8A)	275.186	1.356	0.764	0	488.001	0.671	0.764	0	241.575
K3C=K8C									
2 (J3C=J8C)	1673.581	2.789	4.649	351.814	652.056	3.788	4.649	351.814	1012.041
3 (J3C=J8C)	807.556	2.186	2.243	0	787.014	3.103	2.243	0	1117.085

K3E=K8E									
2 (J3E=J8E)	1494.865	1.554	4.152	308.510	250.871	3.128	4.152	308.510	817.682
3 (J3E=J8E)	923.285	1.568	2.565	61.038	503.448	3.176	2.565	61.038	1082.172
ATAP (J3E=J8E)	274.653	1.356	0.763	0	488.001	0.671	0.763	0	241.575
K4A=K7A									
2 (J4A=J7A)	1226.081	1.863	3.406	228.414	442.162	3.112	3.406	228.414	891.916
3 (J4A=J7A)	746.079	1.562	2.072	0	562.401	3.174	2.072	0	1142.585
ATAP (J4A=J7A)	219.317	1.344	0.609	0	483.831	0.668	0.609	0	240.324
K4C=K7C									
2 (J4C=J7C)	1495.849	2.456	4.155	308.765	575.494	3.802	4.155	308.765	1059.897
3 (J4C=J7C)	717.506	1.898	1.993	0	683.428	3.130	1.993	0	1126.700
K4E=K7E									
2 (J4E=J7E)	229.622	1.863	0.638	0	670.576	3.112	0.638	0	1120.330
3 (J4E=J7E)	818.440	1.562	2.273	0	562.401	3.174	2.273	0	1142.585
ATAP (J4E=J7E)	229.622	1.344	0.638	0	483.831	0.668	0.638	0	240.324
K5A=K6A									
2 (J5A=J6A)	872.996	1.496	2.425	0	538.568	3.198	2.425	0	1151.170
3 (J5A=J6A)	550.760	1.774	1.530	0	638.486	3.502	1.530	0	1260.744
K5A'=K6A'									
2 (J5A'=J6A')	901.155	0.870	2.503	13.593	299.604	-0.090	2.503	13.593	-46.117
3 (J5A'=J6A')	578.919	0.870	1.608	0	313.197	-0.090	1.608	0	-32.524
K5A"=K6A"									
ATAP (J5A"=J6A")	234.656	1.327	0.652	0	477.558	0.609	0.652	0	219.416
K5C=K6C									
2 (J5C=J6C)	1421.428	2.456	3.948	288.840	595.419	3.802	3.948	288.840	1079.823
3 (J5C=J6C)	683.115	1.898	1.898	0	683.428	3.130	1.898	0	1126.700
K5E=K6E									
2 (J5E=J6E)	1547.855	1.912	4.300	321.958	366.487	2.483	4.300	321.958	571.961
3 (J5E=J6E)	923.099	1.600	2.564	60.794	515.042	2.498	2.564	60.794	838.563
ATAP (J5E=J6E)	272.180	1.358	0.756	0	489.032	0.704	0.756	0	253.593

8. Penulangan geser horizontal dan vertikal

Lt	Vsh,x (KN)	Vsh,y (KN)	Vsh,maks (KN)	Penulangan geser horizontal				Penulangan geser horizontal						
				Ajh (mm^2)	Av Ø 10 mm (mm^2)	Jml lapis sengkang	Jml lapis sengkang	Vc,v (KN)	Vj,v (KN)	Vs,v (KN)	Ajv (mm^2)	Av Ø 10 mm (mm^2)	Jml lapis sengkang	Jml lapis sengkang
K1A=K10A														
2 (J1A=J10A)	345.280	462.337	462.337	1926.404	314.159	6.132	7P10	311.527	462.337	150.810	628.373	314.159	2.000	2P10
3 (J1A=J10A)	350.517	349.057	350.517	1460.488	314.159	4.649	5P10	229.167	350.517	121.349	505.622	314.159	1.609	2P10
ATAP (J1A=J10A)	453.532	447.716	453.532	1889.717	314.159	6.015	7P10	287.688	453.532	165.844	691.015	314.159	2.200	3P10
K1B=K10B														
2 (J1B=J10B)	645.494	552.591	645.494	2689.558	314.159	8.561	9P10	655.897	886.103	230.207	959.194	314.159	3.053	4P10
3 (J1B=J10B)	887.217	1003.765	1003.765	4182.355	314.159	13.313	14P10	687.403	1003.765	316.362	1318.175	314.159	4.196	5P10
ATAP (J1B=J10B)	220.980	482.772	482.772	2011.549	314.159	6.403	7P10	299.664	220.980	-78.684	-327.851	314.159	-1.044	2P10
K1D=K10D														
2 (J1D=J10D)	647.067	554.165	647.067	2696.113	314.159	8.582	9P10	655.432	886.103	230.671	961.129	314.159	3.059	4P10
3 (J1D=J10D)	887.217	1003.765	1003.765	4182.355	314.159	13.313	14P10	687.099	1003.765	316.666	1319.441	314.159	4.200	5P10
ATAP (J1D=J10D)	220.980	482.772	482.772	2011.549	314.159	6.403	7P10	299.614	220.980	-78.635	-327.644	314.159	-1.043	2P10
K1E=K10E														
2 (J1E=J10E)	345.280	462.337	462.337	1926.404	314.159	6.132	7P10	311.825	462.337	150.512	627.135	314.159	1.996	2P10
3 (J1E=J10E)	350.517	349.057	350.057	1458.571	314.159	4.643	5P10	229.271	350.517	121.246	505.191	314.159	1.608	2P10
ATAP (J1E=J10E)	453.532	447.720	453.532	1889.717	314.159	6.015	7P10	287.734	453.532	165.798	690.824	314.159	2.199	3P10
K2A=K9A														
2 (J2A=J9A)	293.428	860.240	860.240	3584.331	314.159	11.409	12P10	843.651	1126.192	282.541	1177.253	314.159	3.747	4P10
3 (J2A=J9A)	564.486	1143.210	1143.210	4763.376	314.159	15.162	16P10	790.769	1143.210	352.441	1468.503	314.159	4.674	5P10
ATAP (J2A=J9A)	488.001	241.575	488.001	2033.338	314.159	6.472	7P10	307.284	488.001	180.717	752.987	314.159	2.397	3P10
K2C=K9C														
2 (J2C=J9C)	644.924	1004.909	1004.909	4187.123	314.159	13.328	14P10	1076.727	1363.855	287.128	1196.365	314.159	3.808	4P10
3 (J2C=J9C)	787.014	1117.085	1117.085	4654.522	314.159	14.816	15P10	771.860	1117.085	345.225	1438.439	314.159	4.579	5P10
K2E=K9E														
2 (J2E=J9E)	559.381	1126.192	1126.192	4692.465	314.159	14.937	15P10	709.137	1126.192	417.055	1737.729	314.159	5.531	6P10
3 (J2E=J9E)	564.486	1143.210	1143.210	4763.376	314.159	15.162	16P10	791.148	1143.210	352.062	1466.926	314.159	4.669	5P10
ATAP (J2E=J9E)	488.001	241.575	488.001	2033.338	314.159	6.472	7P10	307.283	488.001	180.718	752.992	314.159	2.397	3P10
K3A=K8A														
2 (J3A=J8A)	252.877	819.688	819.688	3415.366	314.159	10.871	11P10	861.806	1126.192	264.386	1101.606	314.159	3.507	4P10
3 (J3A=J8A)	508.516	1087.240	1087.240	4530.166	314.159	14.420	15P10	802.734	1143.210	340.476	1418.650	314.159	4.516	5P10
ATAP (J3A=J8A)	488.001	241.575	48.575	202.396	314.159	0.644	1P10	307.722	488.001	180.279	751.163	314.159	2.391	3P10
K3C=K8C														
2 (J3C=J8C)	652.056	1012.041	1012.041	4216.838	314.159	13.423	14P10	1071.927	1363.855	291.928	1216.369	314.159	3.872	4P10
3 (J3C=J8C)	787.014	1117.085	1117.085	4654.522	314.159	14.816	15P10	770.485	1117.085	346.600	1444.166	314.159	4.597	5P10

K3E=K8E														
2 (J3E=J8E)	250.871	817.682	817.682	3407.007	314.159	10.845	11P10	862.771	1126.192	263.421	1097.586	314.159	3.494	4P10
3 (J3E=J8E)	503.448	1082.172	1082.172	4509.050	314.159	14.353	15P10	803.205	1143.210	340.005	1416.689	314.159	4.509	5P10
ATAP (J3E=J8E)	488.001	241.575	488.001	2033.338	314.159	6.472	7P10	307.693	488.001	180.308	751.283	314.159	2.391	3P10
K4A=K7A														
2 (J4A=J7A)	442.162	891.916	891.916	3716.315	314.159	11.829	12P10	824.822	1120.330	295.508	1231.283	314.159	3.919	4P10
3 (J4A=J7A)	562.401	1142.585	1142.585	4760.770	314.159	15.154	16P10	780.268	1142.585	362.316	1509.651	314.159	4.805	5P10
ATAP (J4A=J7A)	483.831	240.324	483.831	2015.963	314.159	6.417	7P10	302.089	483.831	181.742	757.259	314.159	2.410	3P10
K4C=K7C														
2 (J4C=J7C)	575.494	1059.897	1059.897	4416.239	314.159	14.057	15P10	1048.677	1368.662	319.986	1333.274	314.159	4.244	5P10
3 (J4C=J7C)	683.428	1126.700	1126.700	4694.584	314.159	14.943	15P10	765.844	1126.700	360.856	1503.568	314.159	4.786	5P10
K4E=K7E														
2 (J4E=J7E)	670.576	1120.330	1120.330	4668.040	314.159	14.859	15P10	700.781	1120.330	419.548	1748.118	314.159	5.564	6P10
3 (J4E=J7E)	562.401	1142.585	1142.585	4760.770	314.159	15.154	16P10	789.455	1142.585	353.130	1471.374	314.159	4.684	5P10
ATAP (J4E=J7E)	483.831	240.324	483.831	2015.963	314.159	6.417	7P10	302.643	483.831	181.188	754.951	314.159	2.403	3P10
K5A=K6A														
2 (J5A=J6A)	538.568	1151.170	1151.170	4796.544	314.159	15.268	16P10	802.365	1151.170	348.805	1453.355	314.159	4.626	5P10
3 (J5A=J6A)	638.486	1260.744	1260.744	5253.098	314.159	16.721	17P10	833.598	1260.744	427.146	1779.773	314.159	5.665	6P10
K5A'=K6A'														
2 (J5A'=J6A')	299.604	-46.117	299.604	1248.350	314.159	3.974	4P10	219.278	313.197	93.919	391.329	314.159	1.246	2P10
3 (J5A'=J6A')	313.197	-32.524	313.197	1304.988	314.159	4.154	5P10	208.064	313.197	105.133	438.053	314.159	1.394	2P10
K5A"=K6A"														
ATAP (J5A"=J6A")	477.558	219.416	477.558	1989.825	314.159	6.334	7P10	298.986	477.558	178.572	744.050	314.159	2.368	3P10
K5C=K6C														
2 (J5C=J6C)	595.419	1079.823	1079.823	4499.261	314.159	14.322	15P10	1037.359	1368.662	331.303	1380.430	314.159	4.394	5P10
3 (J5C=J6C)	683.428	1126.700	1126.700	4694.584	314.159	14.943	15P10	761.538	1126.700	365.162	1521.507	314.159	4.843	5P10
K5E=K6E														
2 (J5E=J6E)	366.487	571.961	571.961	2383.171	314.159	7.586	8P10	690.091	893.919	203.828	849.283	314.159	2.703	3P10
3 (J5E=J6E)	515.042	838.563	838.563	3494.012	314.159	11.122	12P10	631.858	899.356	267.499	1114.578	314.159	3.548	4P10
ATAP (J5E=J6E)	489.032	253.593	489.032	2037.633	314.159	6.486	7P10	308.209	489.032	180.824	753.431	314.159	2.398	3P10

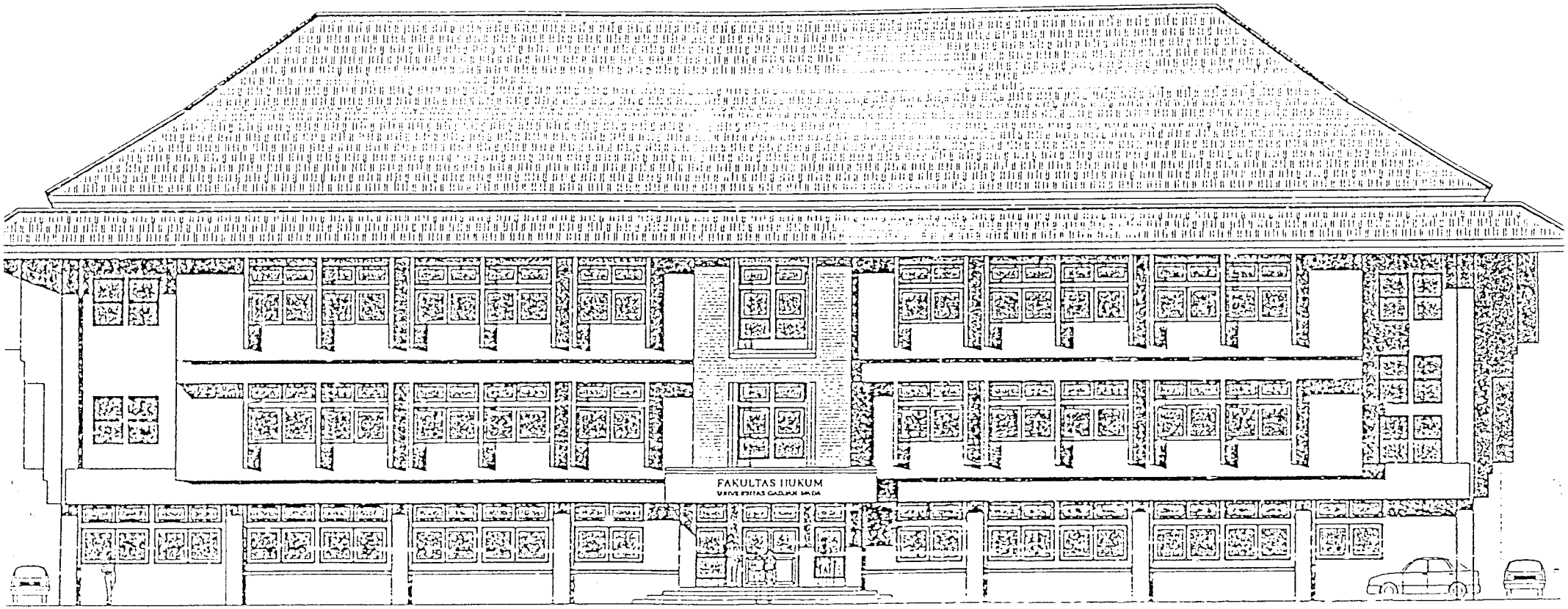
PERENCANAAN PONDASI TELAPAK

Tipe Pondasi	P1	P2	P3
σ_{tanah} (KN/m²)	150	150	150
f'c (Mpa)	25	25	25
fy (Mpa)	400	400	400
γb_{tanah} (KN/m³)	18	18	18
γ_{beton} (KN/m³)	24	24	24
h t.urug (m)	1	1	1
h pelat (m)	0.5	0.5	0.5
b kolom (mm)	600	600	600
h kolom (mm)	600	600	600
Pb (mm)	70	70	70
$Ø_{tul.pokok}$ (mm)	22	22	22
P (KN)	1571.922	1387.436	650.340
Mx (KNm)	4.748	8.974	9.022
My (KNm)	7.183	1.991	10.934
Pondasi Telapak :			
$\sigma_{netto\ tanah}$ (KN/m²)	120	120	120
Coba B (m)	3.7	3.5	2.5
A_{perlu} (m²)	13.255	11.712	5.789
B_{perlu} (mm)	3.641	3.422	2.406
B_{ada} (m)	3.7	3.5	2.5
A_{ada} (m²)	13.69	12.25	6.25
Kontrol : A_{ada} > Aperlu	**Ok!**	**Ok!**	**Ok!**
σ_{kontak} (KN/m²)	116.236	114.795	111.718
Kontrol :σ kontak < σ netto	**Aman !**	**Aman !**	**Aman !**
Tinjauan B. Sementara :			
ex (m)	0.003	0.006	0.014
ey (m)	0.005	0.001	0.017
σ (KN/m²)	57.529	56.758	52.674
1,5 . σ netto (KN/m²)	180	180	180
Kontrol : σ < 1,5 . σ netto	**Aman !**	**Aman !**	**Aman !**
Perhit. Geser 1 Arah :			
Pu (KN)	1996.976	1748.536	809.490
Mux (KNm)	157.143	167.123	130.133
Muy (KNm)	22.296	144.504	13.727
d (mm)	419	419	419
n1(m)	1.131	1.031	0.531
Arah x :			
qux_{max} (KN/m²)	164.485	166.125	179.489
qux_{min} (KN/m²)	127.257	119.350	79.547
qu_m (KN/m²)	153.105	152.347	158.262
$qux_{terjadi}$ (KN/m²)	158.795	159.236	168.876
Vu (KN)	664.511	574.602	224.182
Vu/Φ (KN)	1107.518	957.671	373.637
Vc (KN)	1291.917	1222.083	872.917
Kontrol : Vc ≥ Vu/Φ	**Aman !**	**Aman !**	**Aman !**

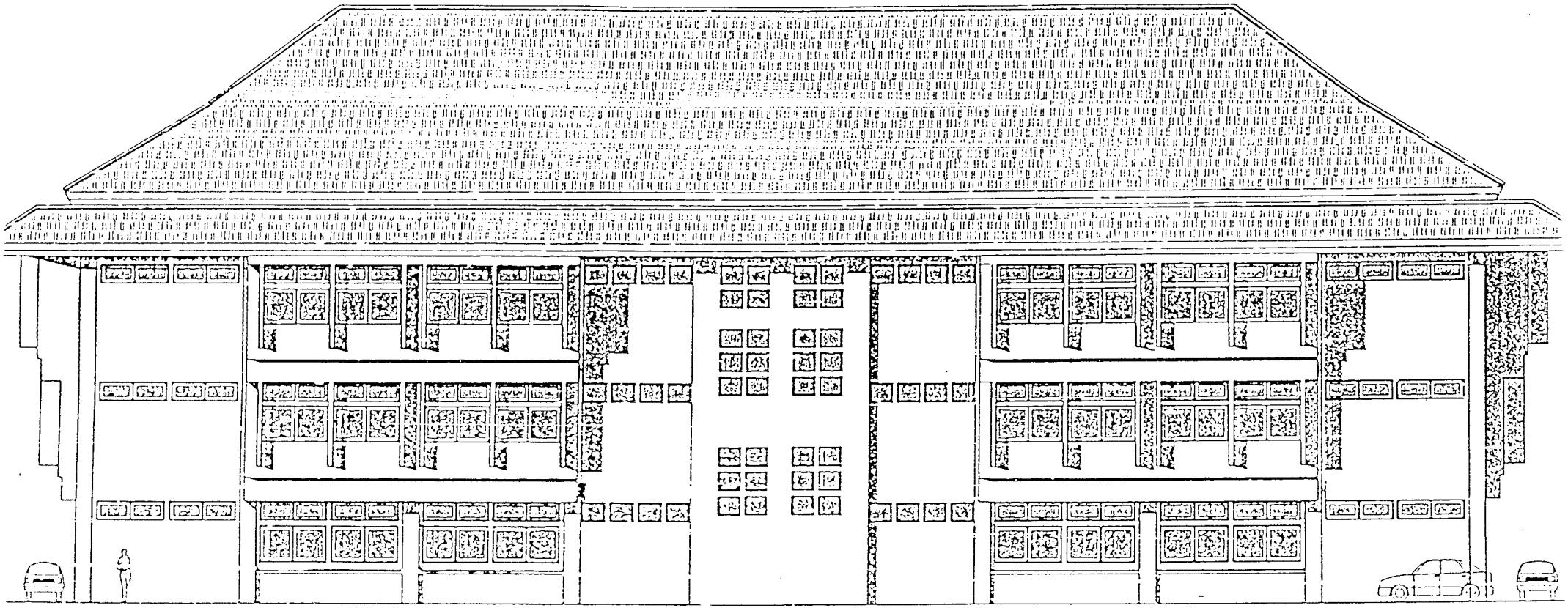
Arah y :			
quy_{max} (KN/m²)	148.512	162.960	134.790
quy_{min} (KN/m²)	143.230	122.515	124.247
qu_{m} (KN/m²)	146.898	151.046	132.550
$quy_{terjadi}$ (KN/m²)	147.705	157.003	133.670
Vu (KN)	618.101	566.545	177.447
Vu/Φ (KN)	1030.168	944.242	295.745
Vc (KN)	1291.917	1222.083	872.917
Kontrol : Vc ≥ Vu/Φ	**Aman !**	**Aman !**	**Aman !**
Perhit. Geser 2 Arah :			
x = y (mm)	1019	1019	1019
qu_{max} (KN/m²)	167.126	186.347	184.761
qu_{min} (KN/m²)	124.616	99.128	74.276
quT (KN/m²)	145.871	142.738	129.518
Vu (KN)	1845.509	1600.323	675.003
Vu/Φ (KN)	3075.848	2667.205	1125.005
βc	1	1	1
bo (mm)	4076	4076	4076
Vc1 (KN)	51235.320	51235.320	51235.320
Vc2 (KN)	34156.880	34156.880	34156.880
Vc_{pakai} (KN)	34156.880	34157.880	34158.880
Kontrol : Vcpakai ≥ Vu/Φ	**Aman !**	**Aman !**	**Aman !**
Kuat Tumpuan Pondasi :			
Kuat Tump. Pondasi :			
Φ. Pn	10710	10710	10710
Kuat Tump. Kolom :			
Φ. Pn	5355	5355	5355
Kontrol : Φ. $Pn_{pondasi}$ > Φ. Pn_{kolom}	**Aman !**	**Aman !**	**Aman !**
Perhit. Tul. Lentur Pondasi :			
l (m)	1.550	1.450	0.950
qu_{max} (KN/m²)	167.126	186.347	184.761
Mu (KNm)	200.760	195.898	83.373
Mu/Φ (KNm)	250.950	244.872	104.217
m	18.824	18.824	18.824
Rn (mm²)	1.429	1.395	0.594
ρmin	0.004	0.004	0.004
ρb	0.027	0.027	0.027
ρmax	0.020	0.020	0.020
ρperlu	0.004	0.004	0.002
ρpakai	0.004	0.004	0.003
As_{perlu} (mm²)	1676	1676	1257
Øtulangan pokok (mm)	22	22	22
A1.Ø (mm²)	380.286	380.286	380.286
s (mm)	226.901	226.901	302.534
s_{pakai} (mm)	220	220	250
Dipakai tulangan	**D22-220**	**D22-220**	**D22-250**
As_{ada} (mm²)	1728.571	1728.571	1521.143
a (mm)	32.538	32.538	28.633
Mn (KNm)	278.460	278.460	246.232
Kontrol : Mn > Mu/Φ	**Aman !**	**Aman !**	**Aman !**
Tulangan Susut :			
As_{susut} (mm²)	1000	1000	1000
Øtul. susut (mm)	12	12	12
s (mm)	113.143	113.143	113.143
Dipakai tulangan	**P12-110**	**P12-110**	**P12-110**

LAMPIRAN

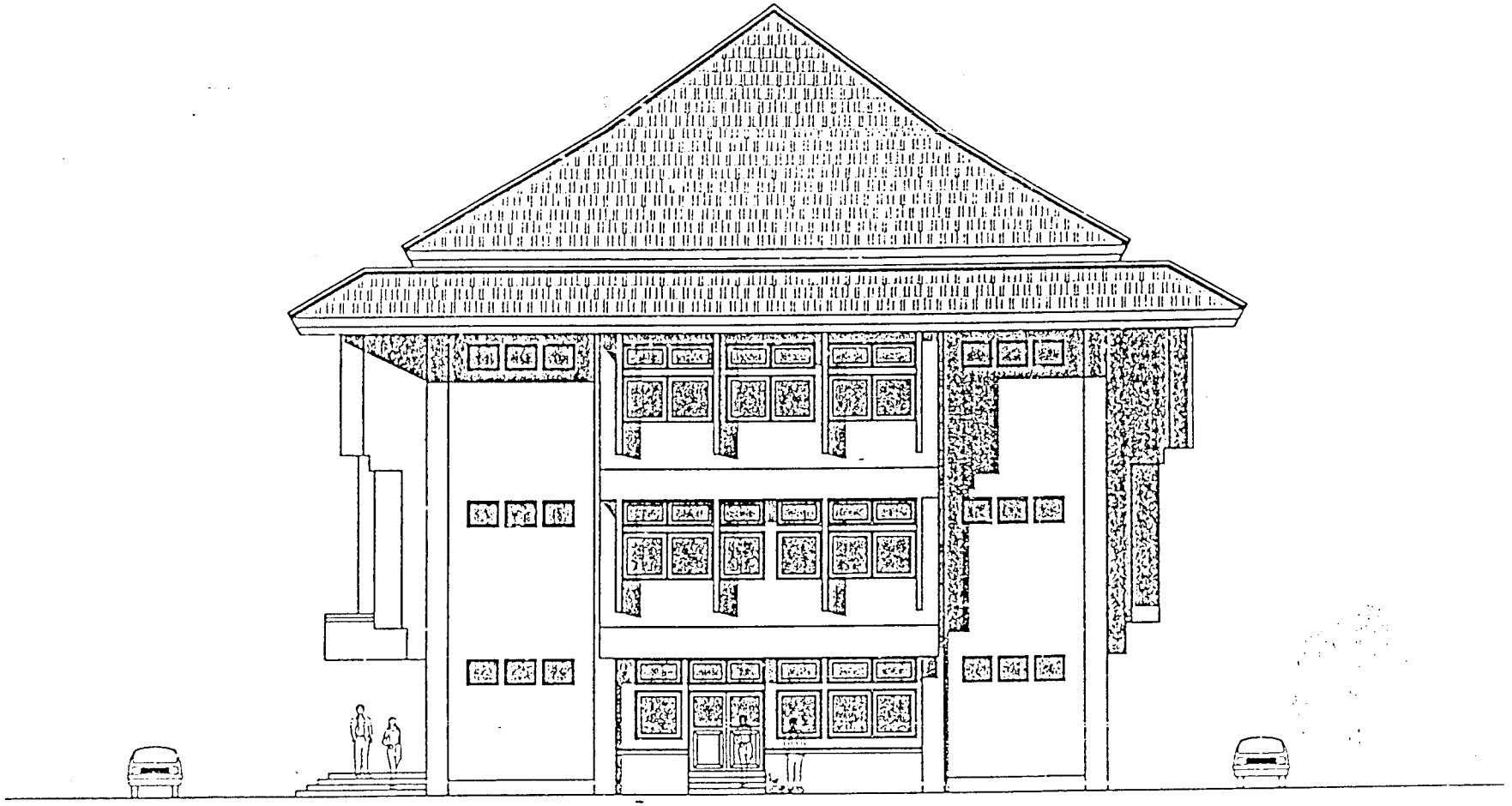
IV



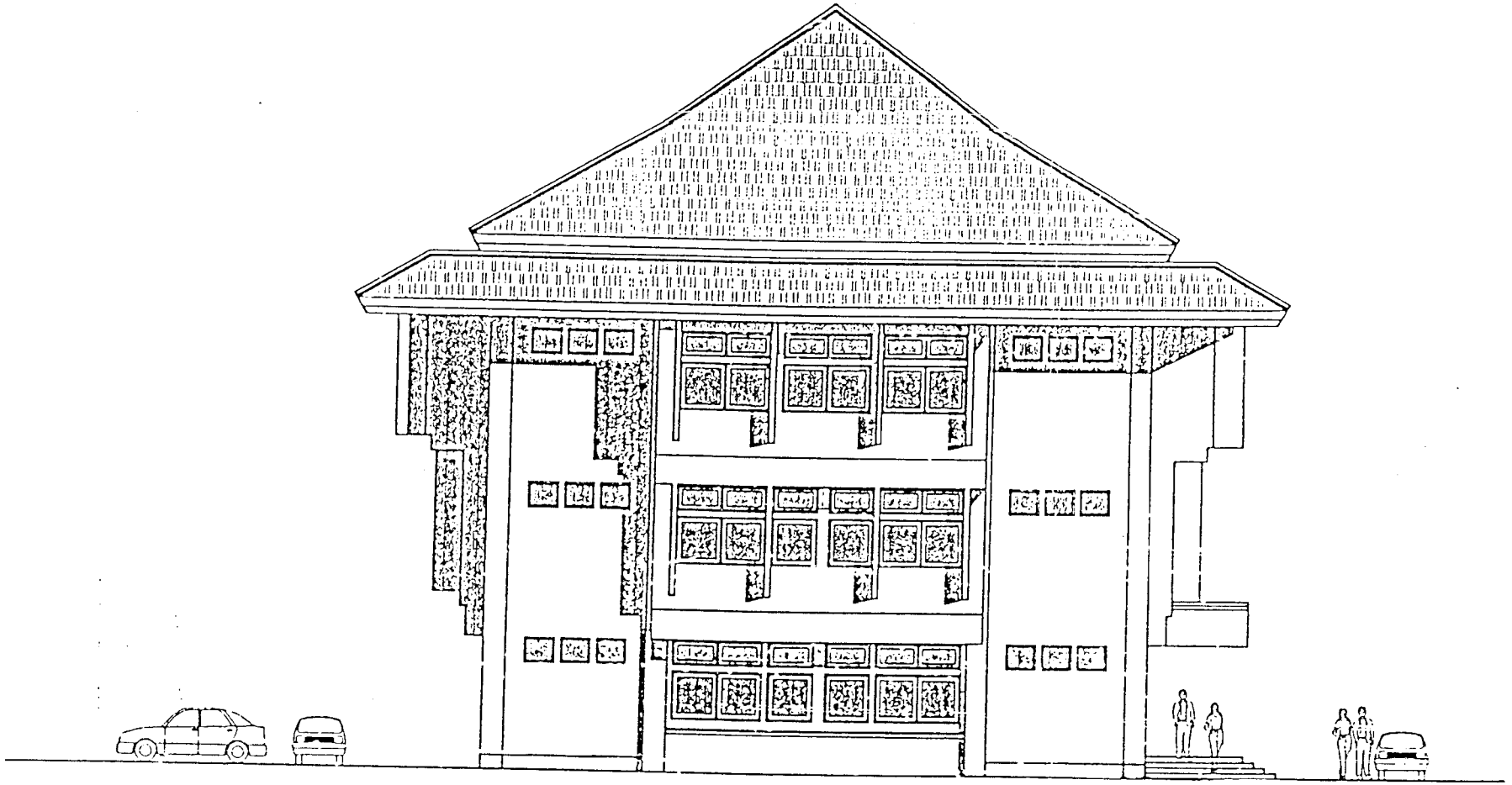
TAMPAK DEPAN



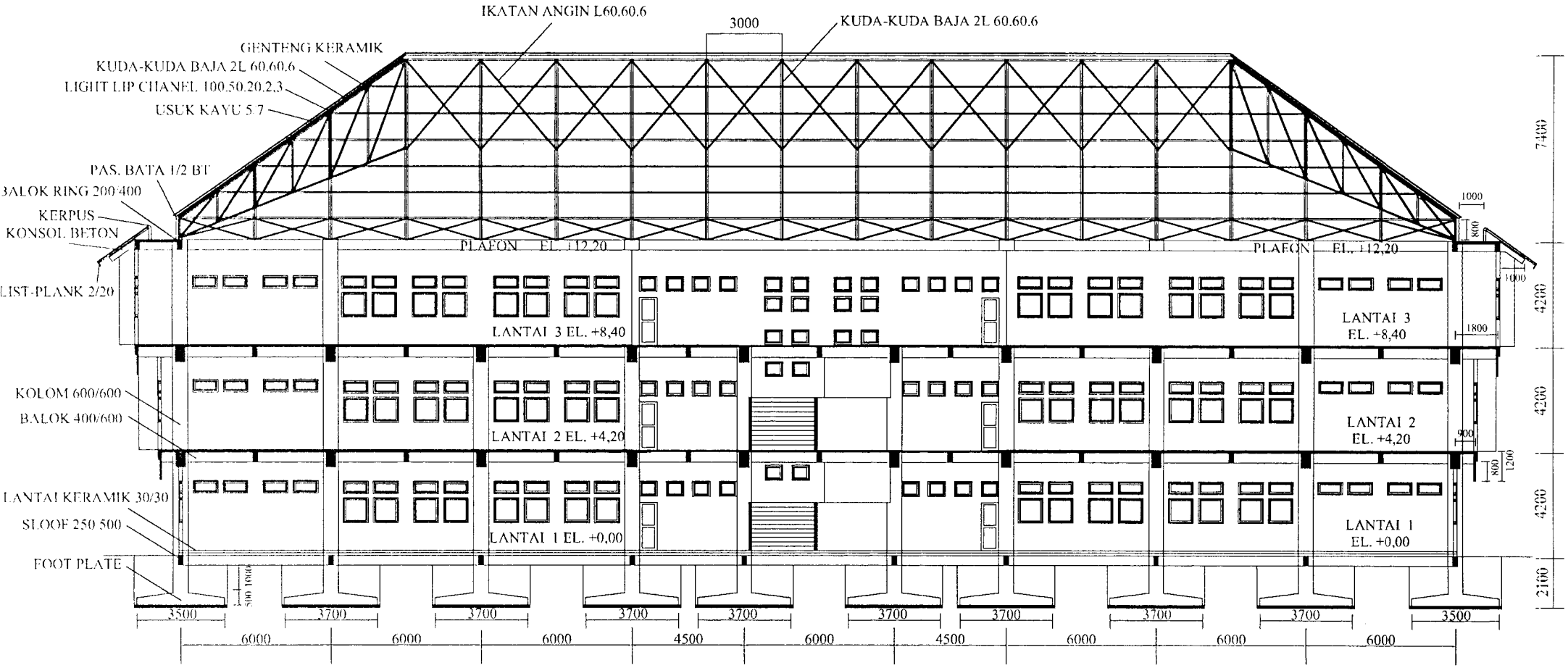
TAMPAK BELAKANG



TAMPAK SAMPING KIRI



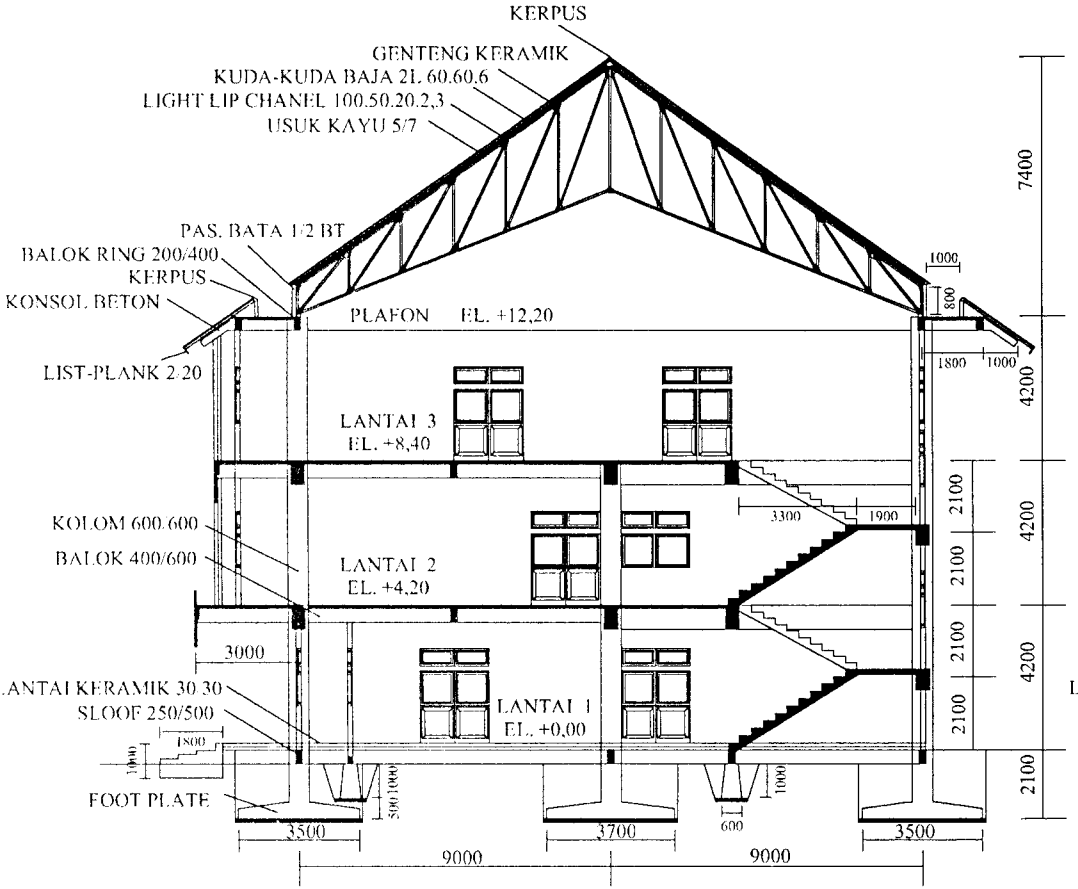
TAMPAK SAMPING KANAN



POTONGAN MEMANJANG

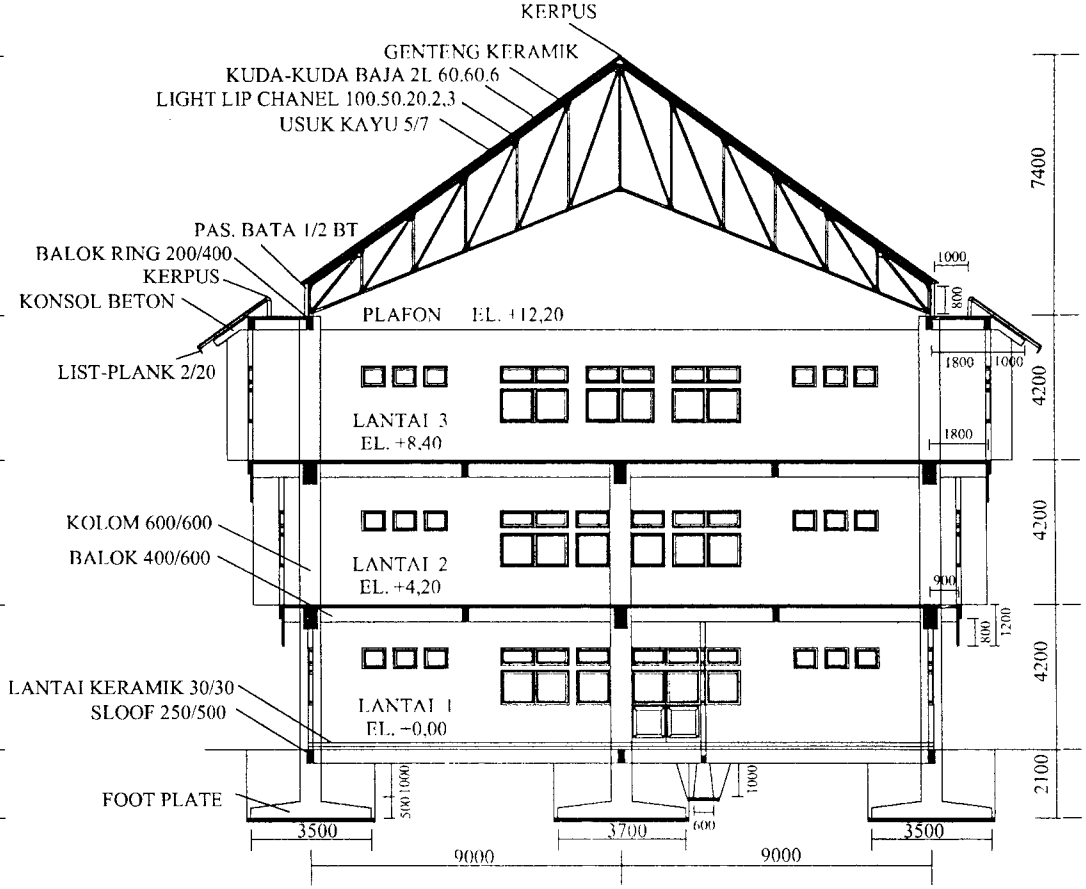
Skala 1:200

S



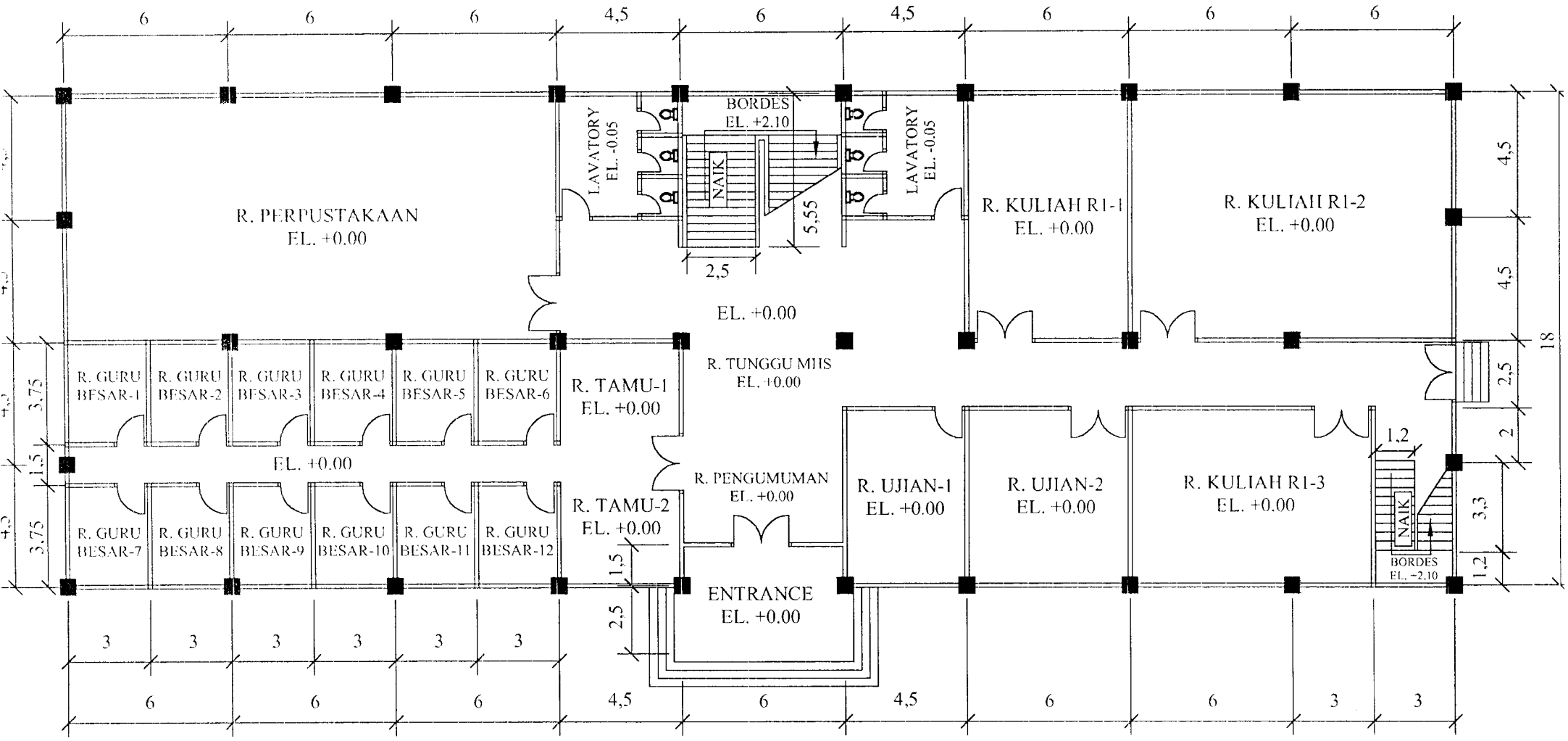
POTONGAN MELINTANG 1

Skala 1:200



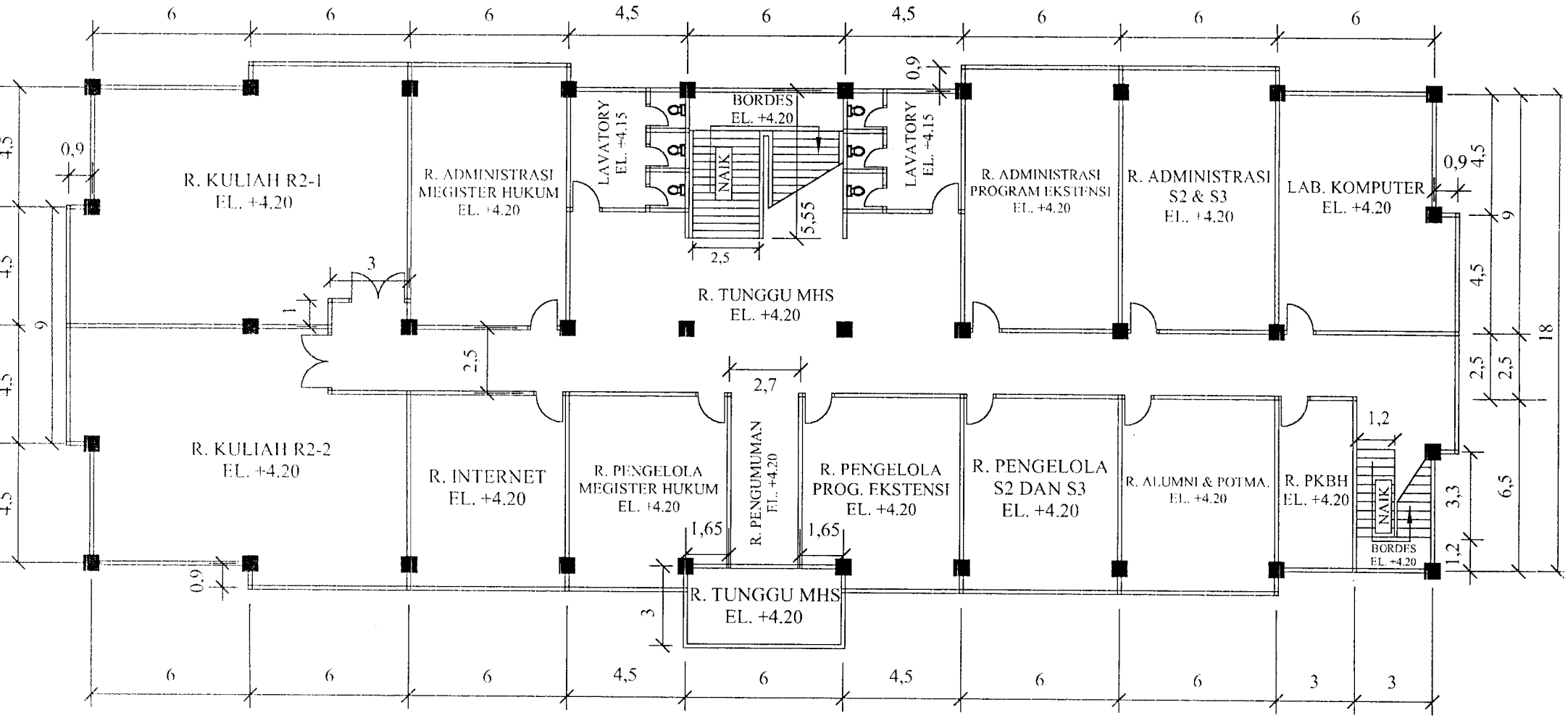
POTONGAN MELINTANG 2

Skala 1:200



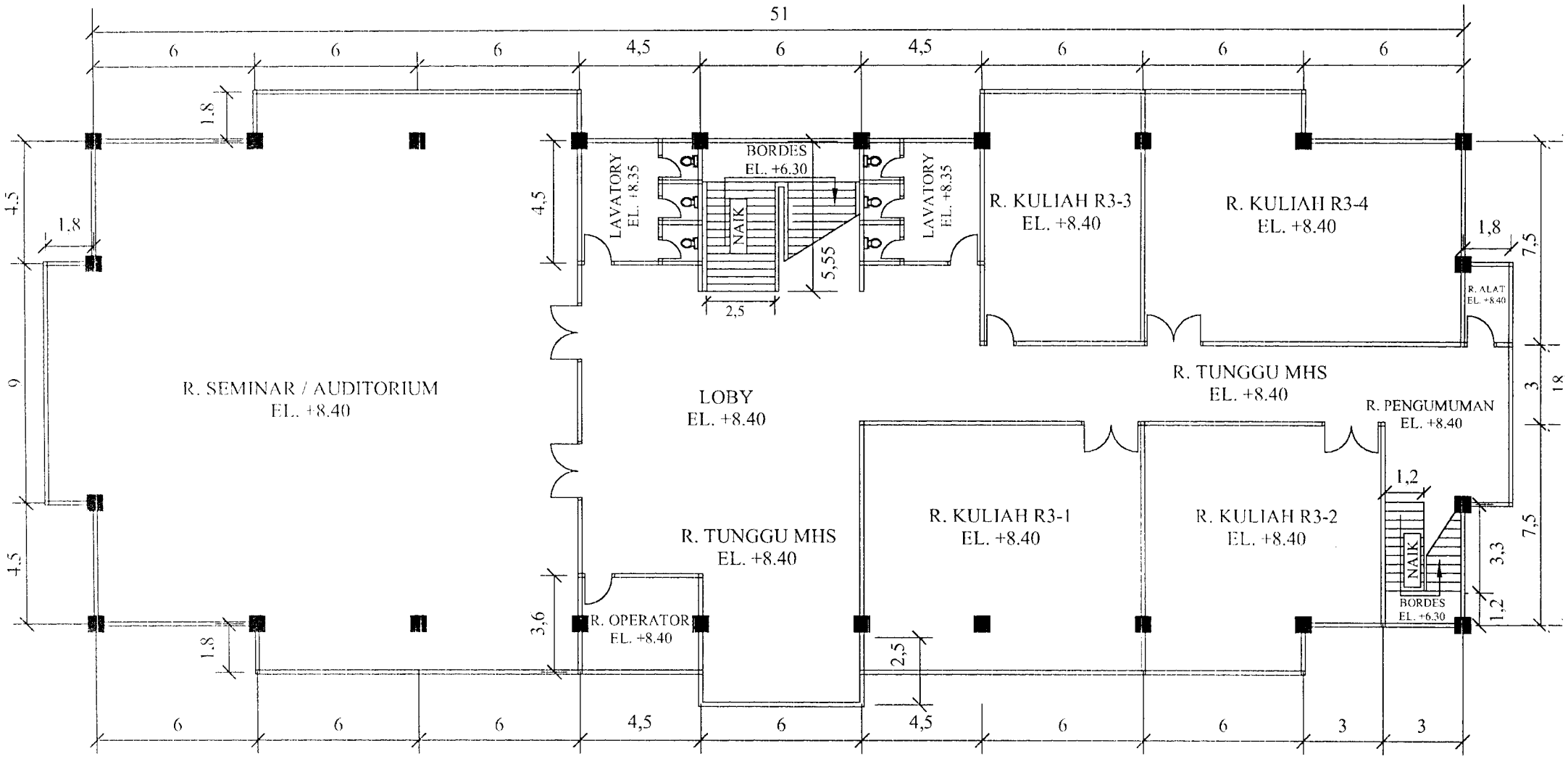
DENAH LANTAI 1

Skala 1:200



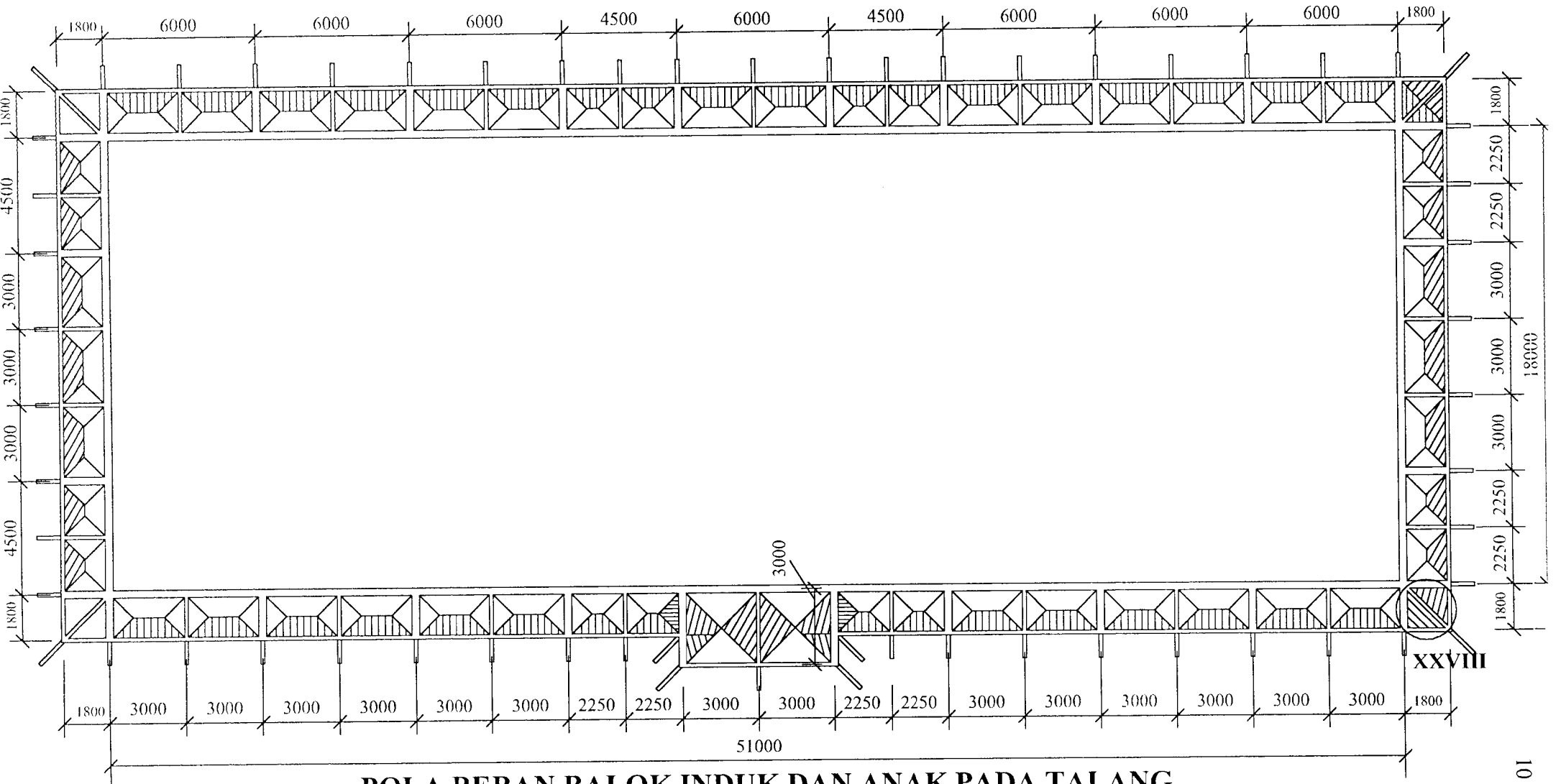
DENAH LANTAI 2

Skala 1:200



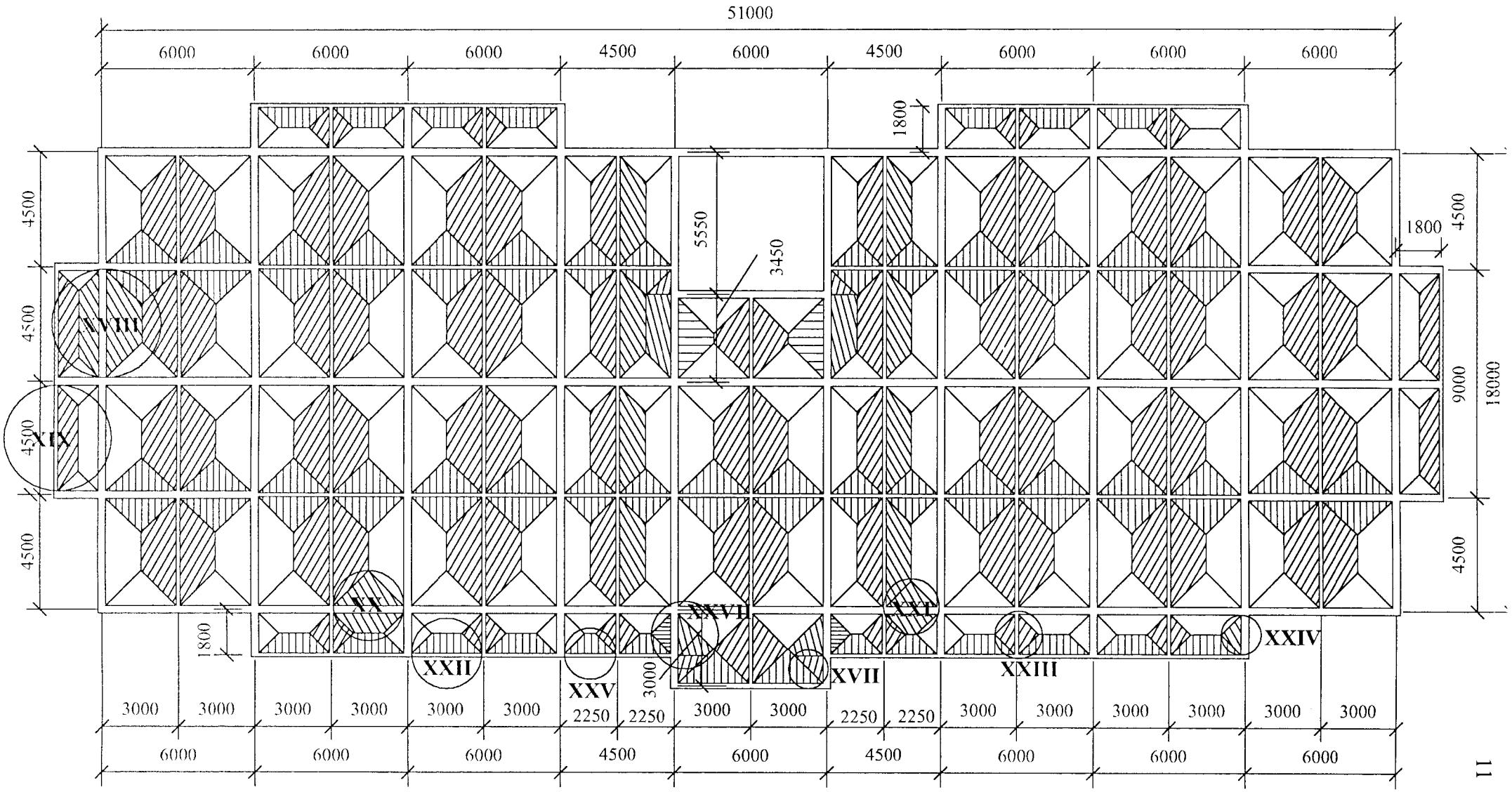
DENAH LANTAI 3

Skala 1:200



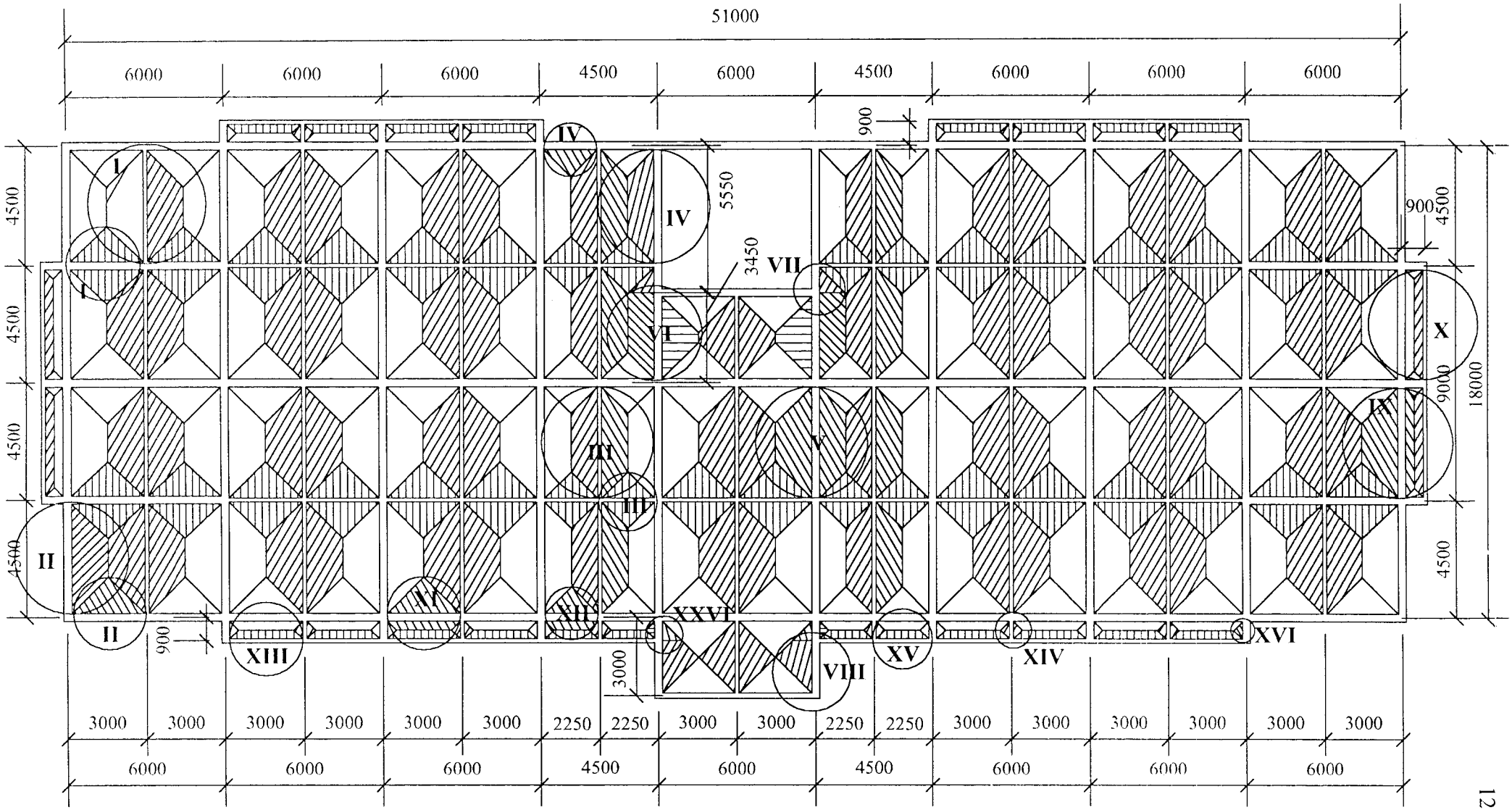
POLA BEBAN BALOK INDUK DAN ANAK PADA TALANG

Skala 1:200



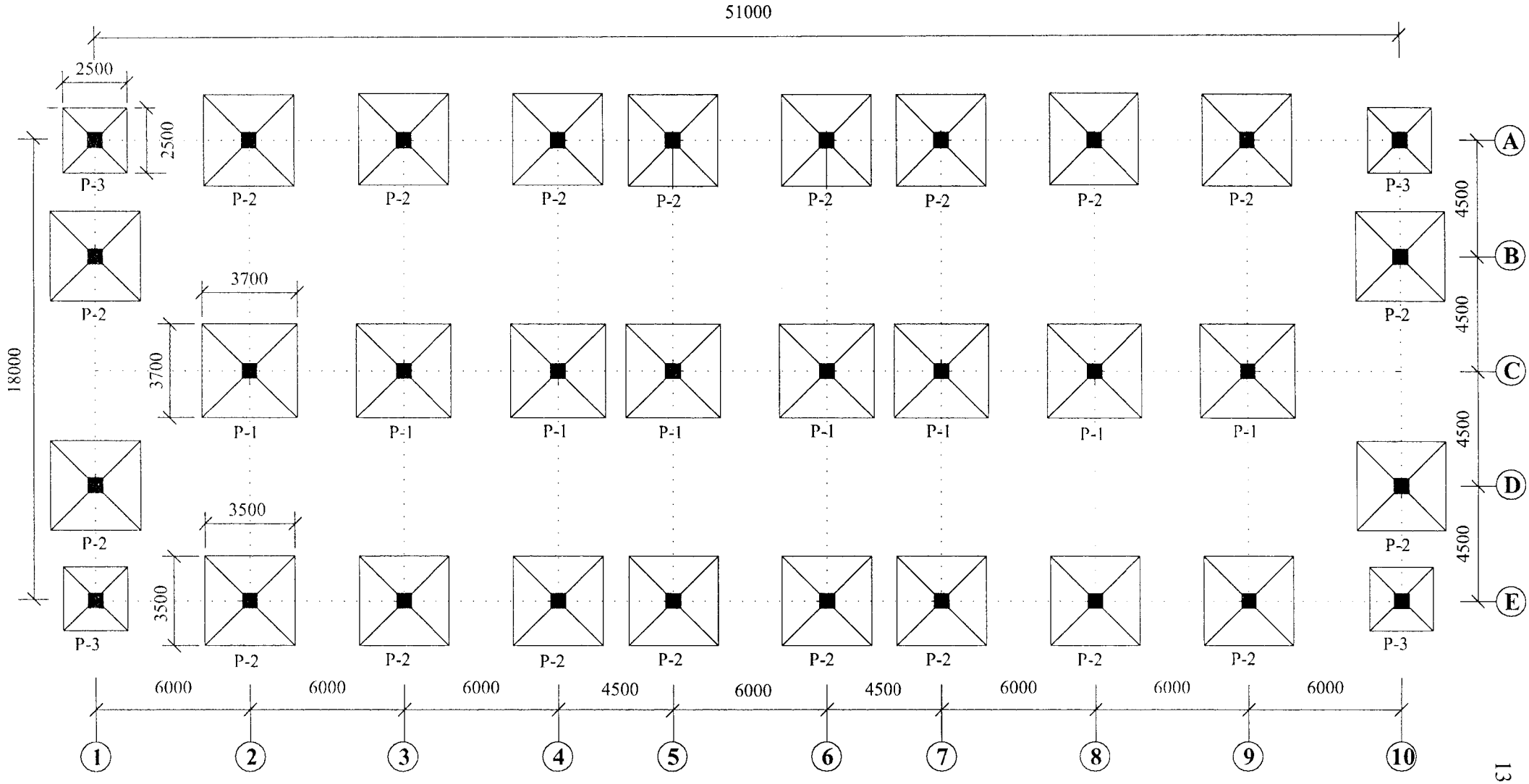
POLA BEBAN BALOK INDUK DAN ANAK LANTAI-3

Skala 1:200



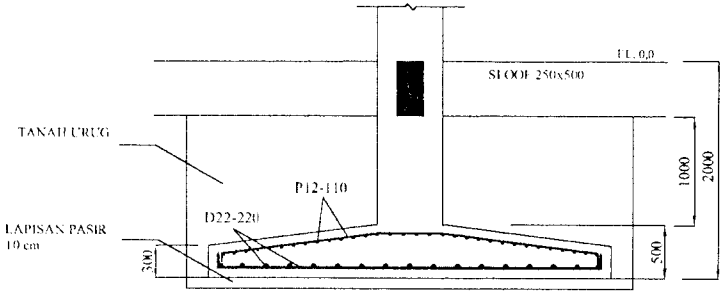
POLA BEBAN BALOK INDUK DAN ANAK LANTAI-2

Skala 1:200

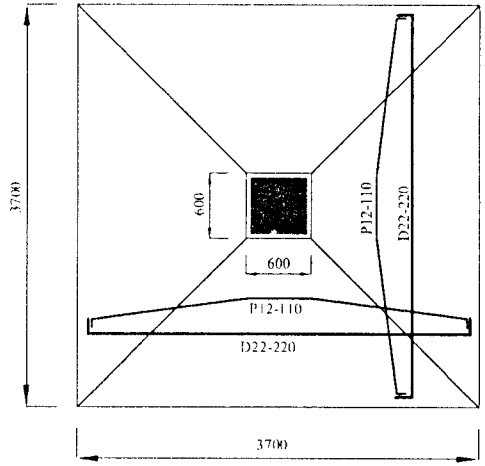


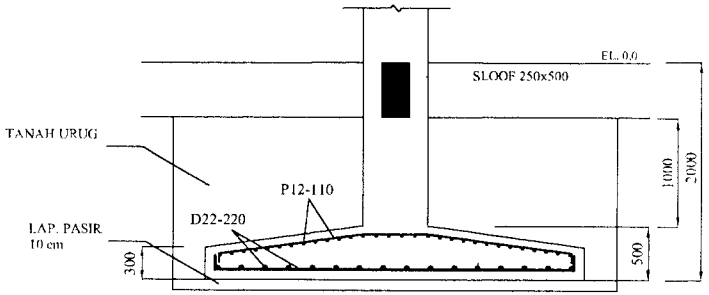
DENAH PONDASI

Skala 1 : 200

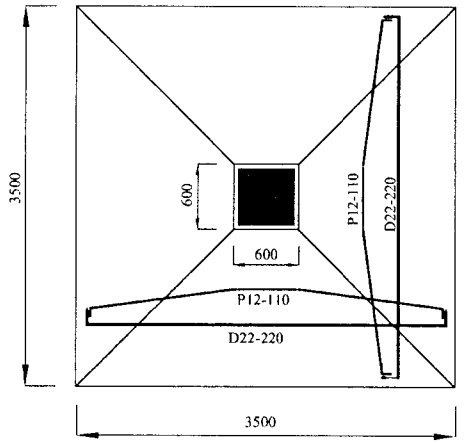


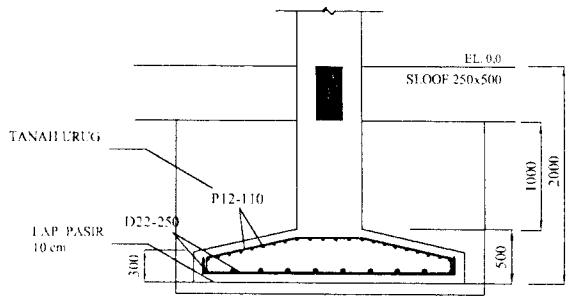
DENAH PONDASI P1 3700x3700



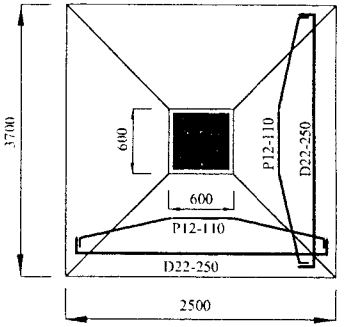


DENAH PONDASI P2 3500x3500



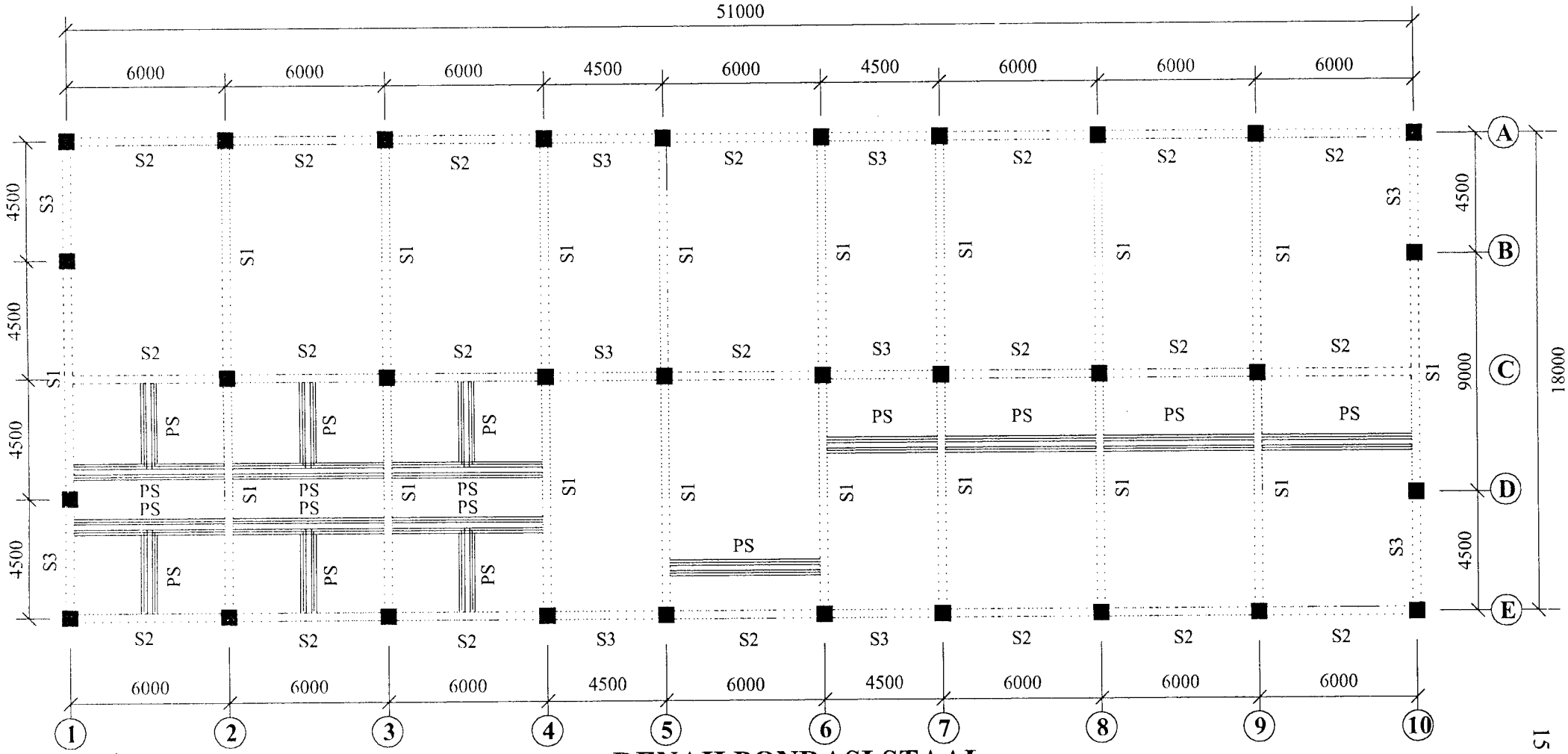


DENAH PONDASI P3 2500x2500



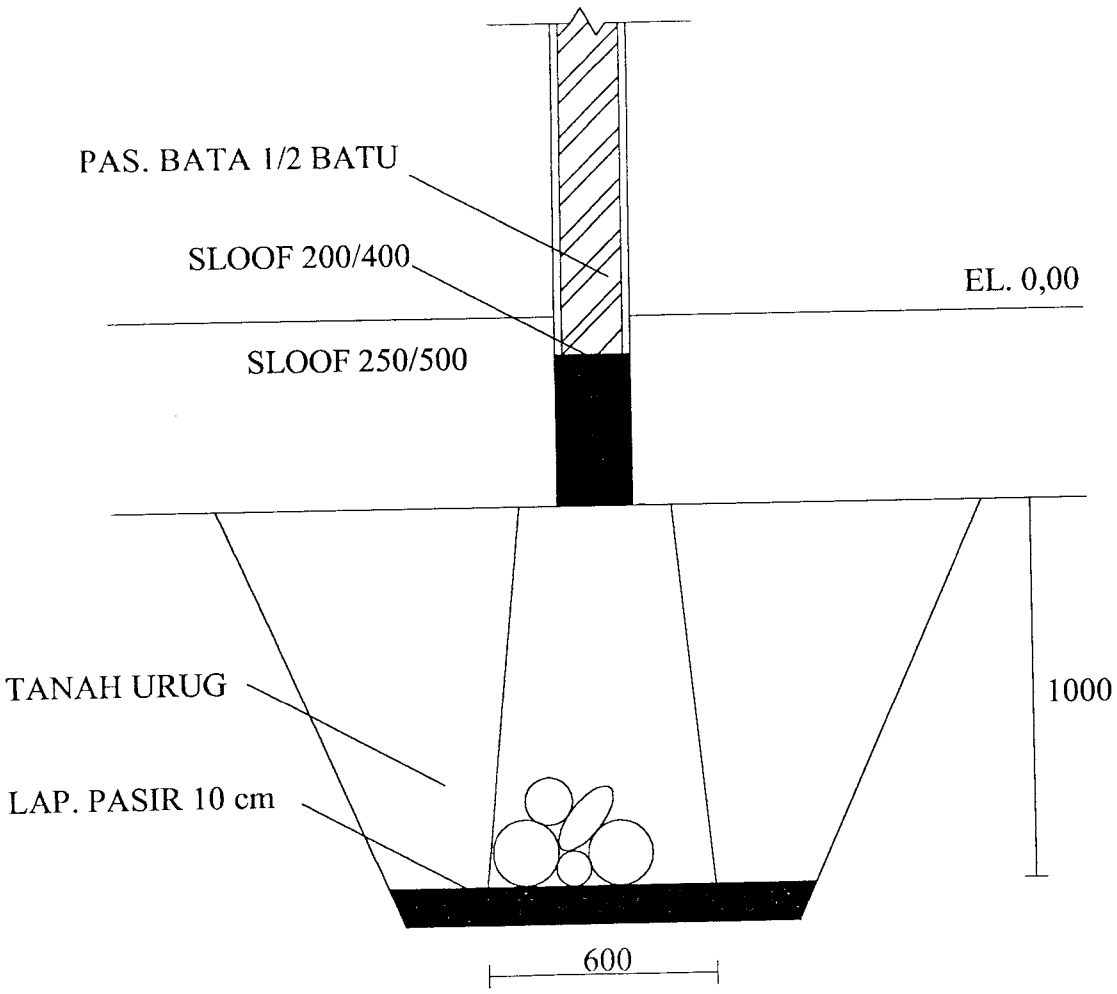
PENULANGAN PONDASI

Skala 1:70



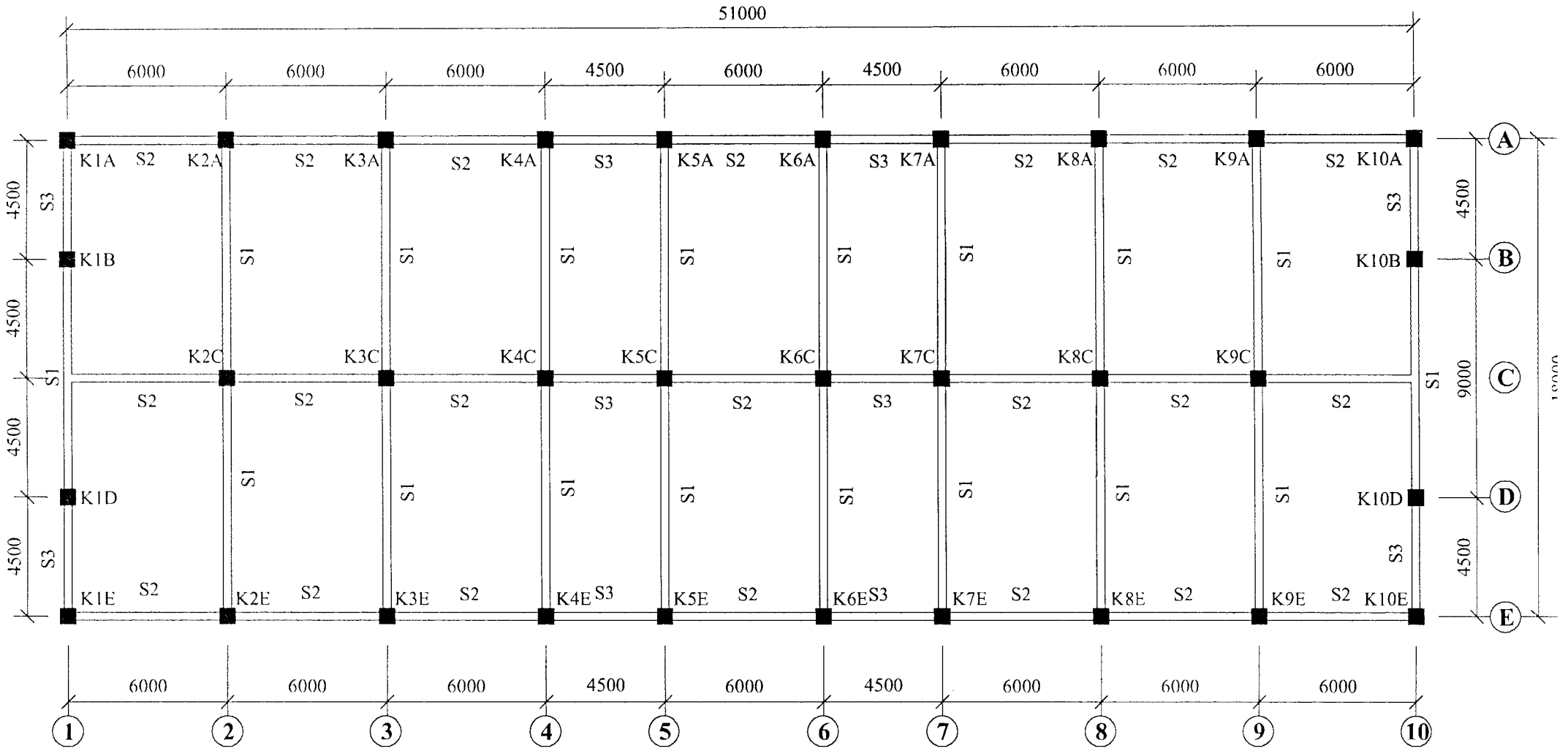
DENAH PONDASI STAAL

Skala 1:200



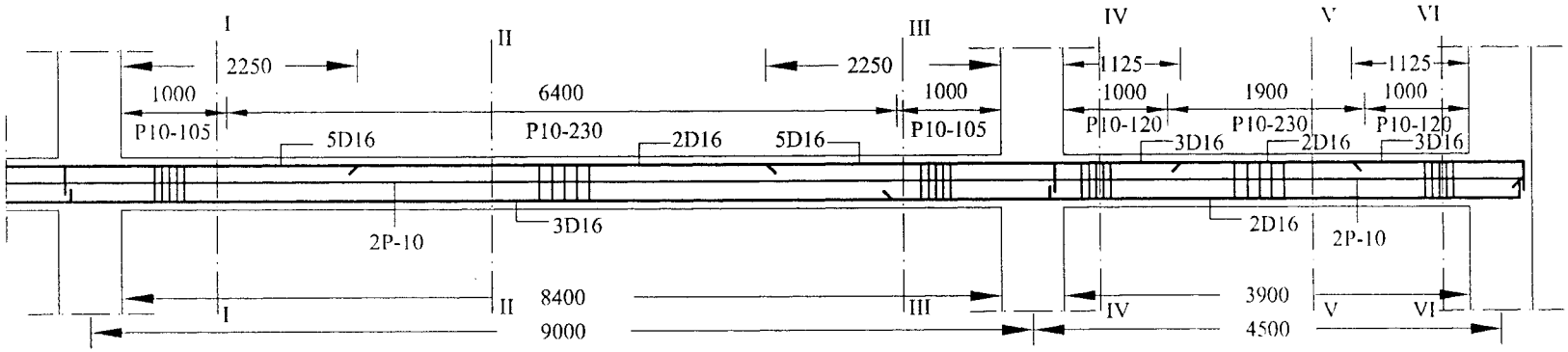
DETAIL PONDASI STAAL

Skala 1 : 20



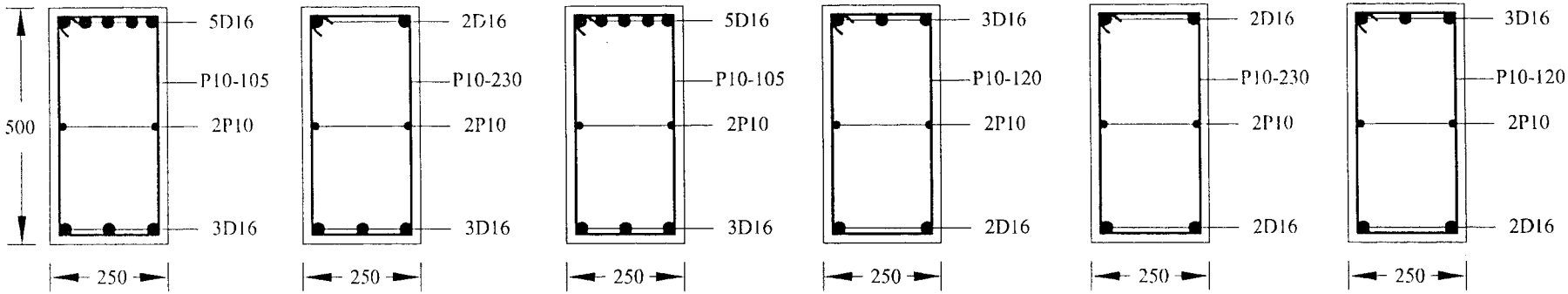
DENAH BALOK SLOOF DAN KOLOM LANTAI-1

Skala 1:200



PENULANGAN BALOK SLOOF S1 & S3

Skala 1:75



POT. I-I
Skala 1:15

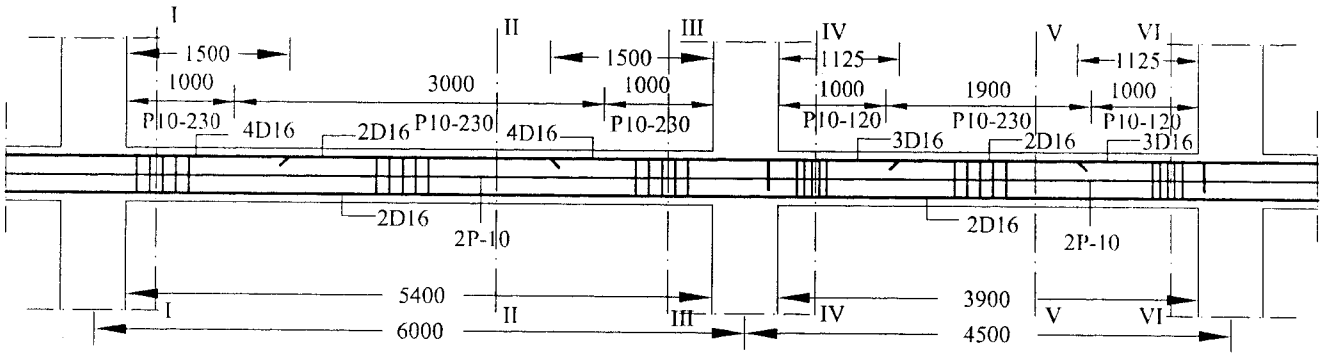
POT. II-II
Skala 1:15

POT. III-III
Skala 1:15

POT. IV-IV
Skala 1:15

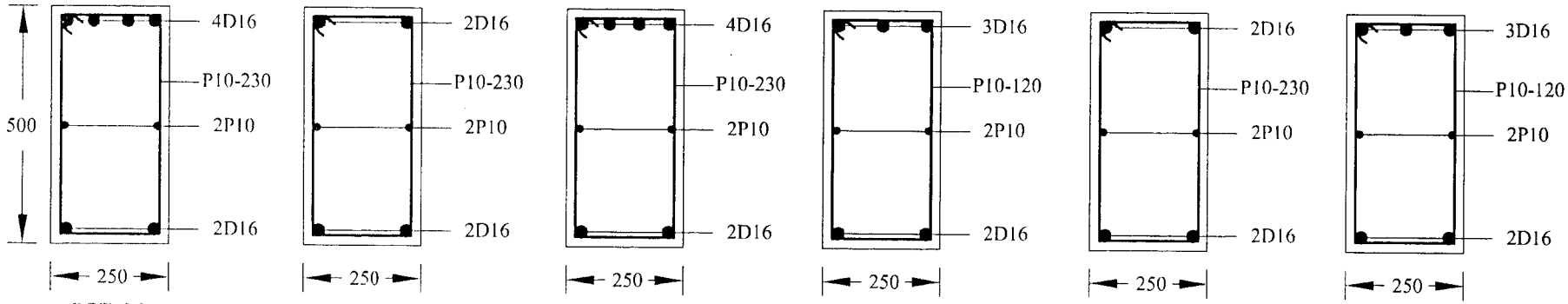
POT. V-V
Skala 1:15

POT. VI-VI
Skala 1:15



PENULANGAN BALOK SLOOF S2 & S3

Skala 1:75



POT. I-I
Skala 1:15

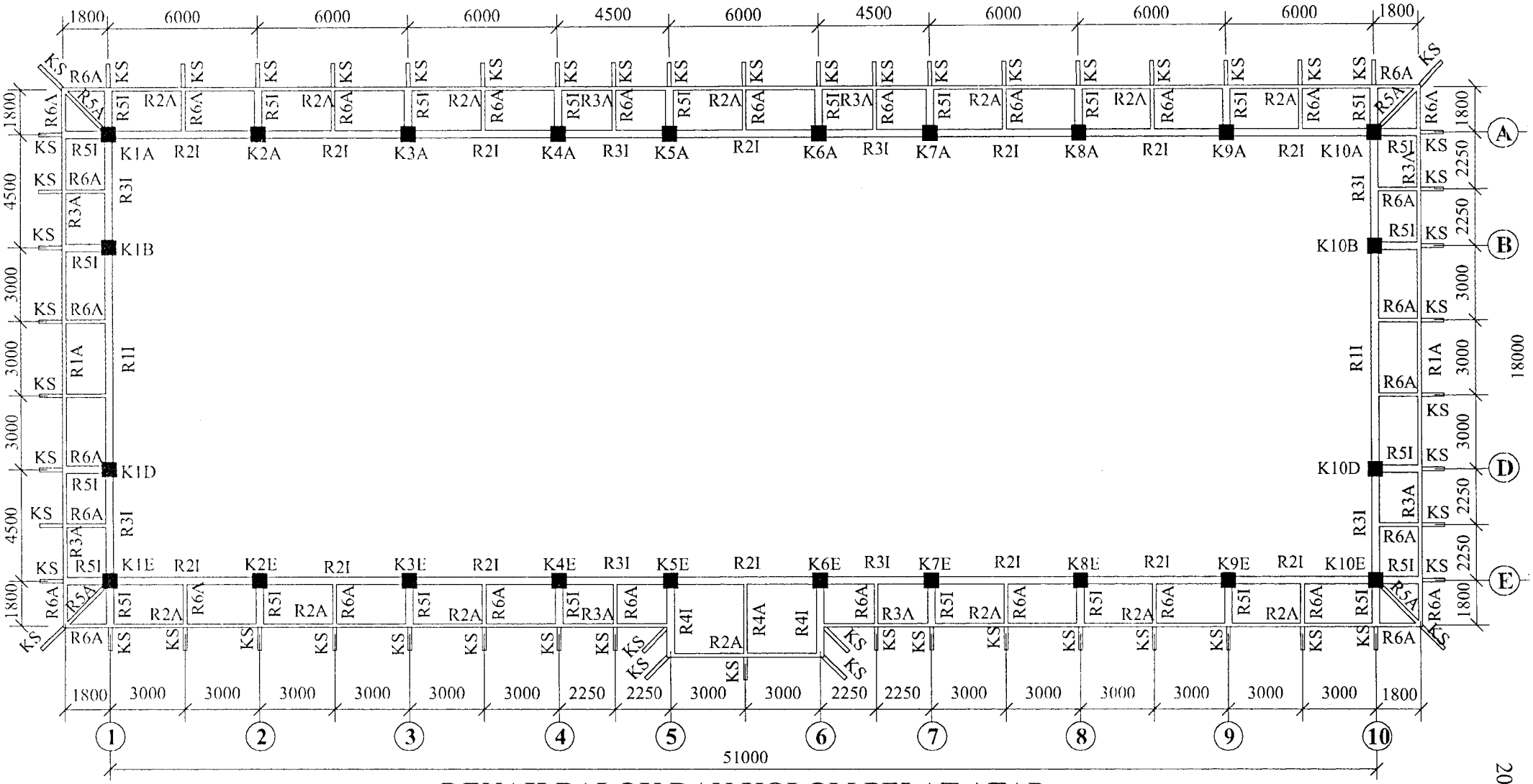
POT. II-II
Skala 1:15

POT. III-III
Skala 1:15

POT. IV-IV
Skala 1:15

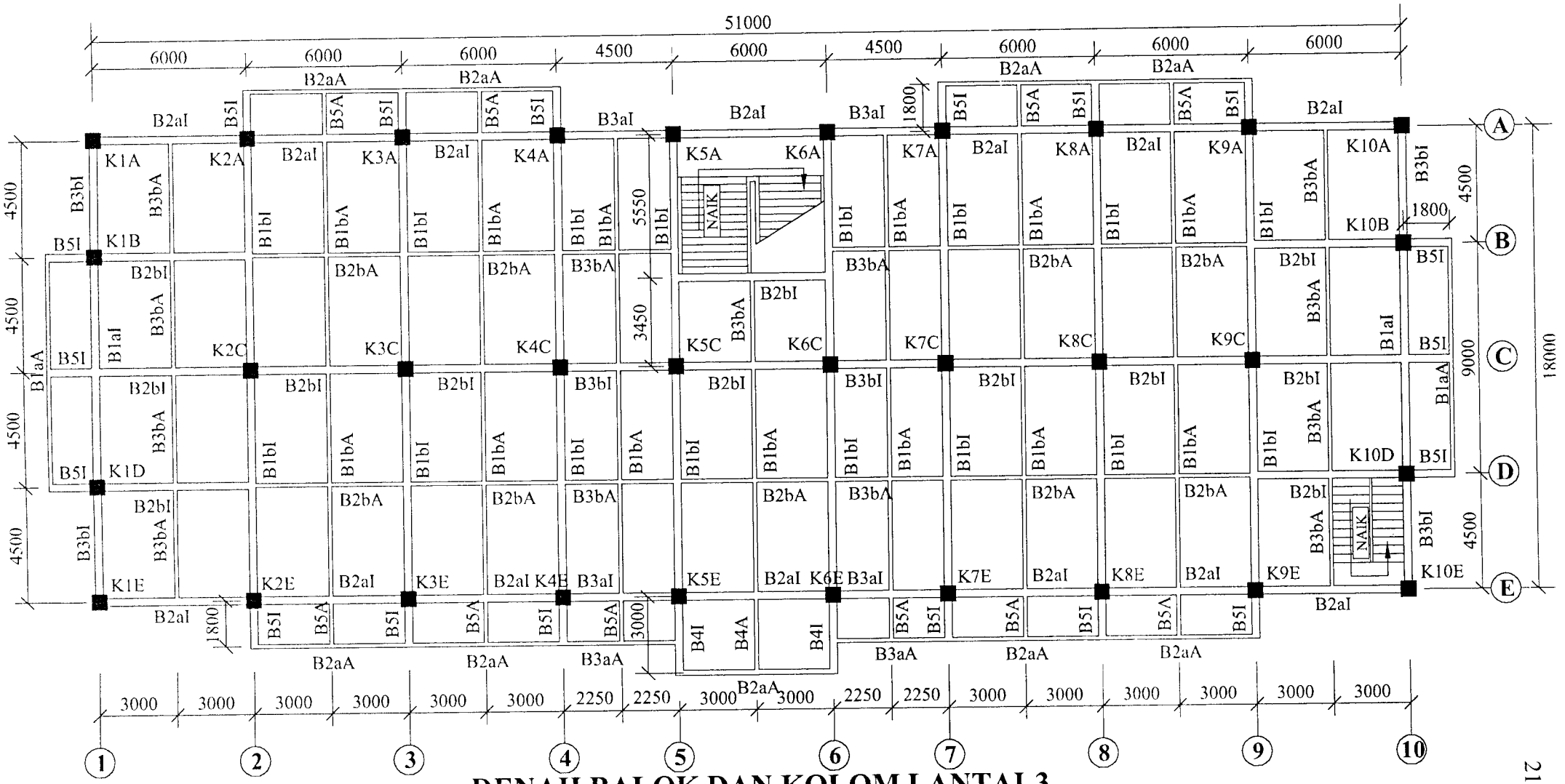
POT. V-V
Skala 1:15

POT. VI-VI
Skala 1:15



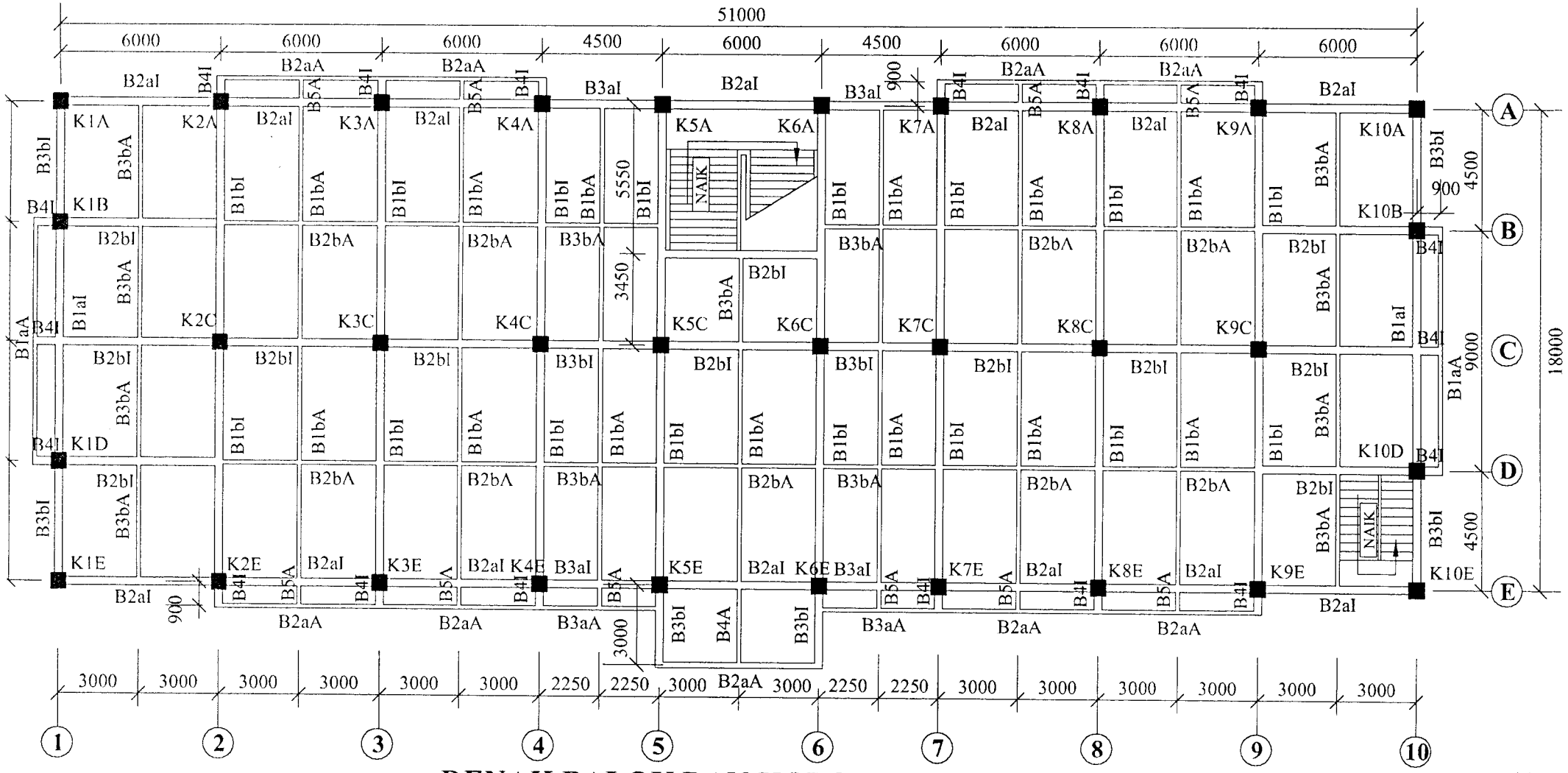
DENAH BALOK DAN KOLOM PELAT ATAP

Skala 1:200



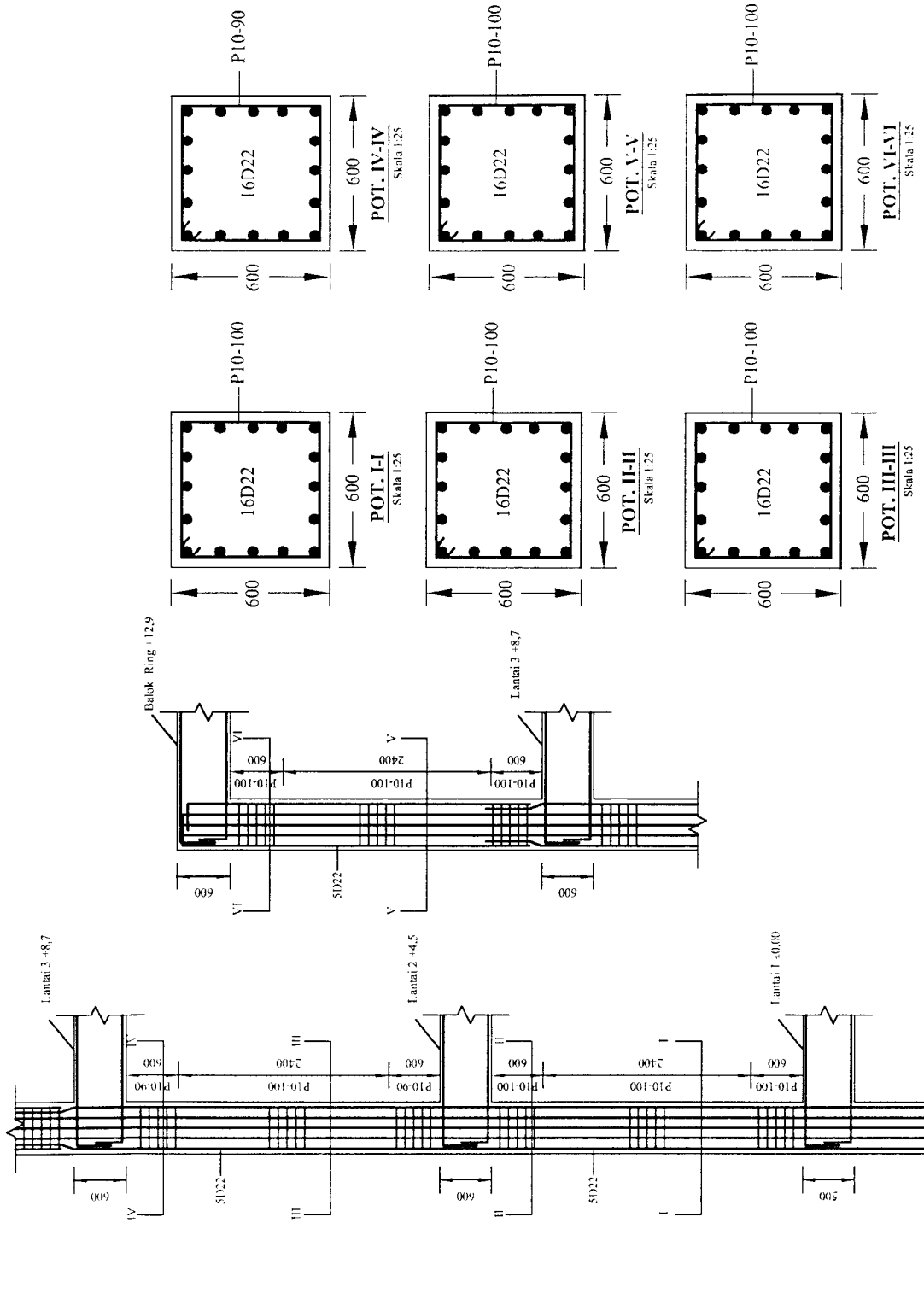
DENAH BALOK DAN KOLOM LANTAI-3

Skala 1:200



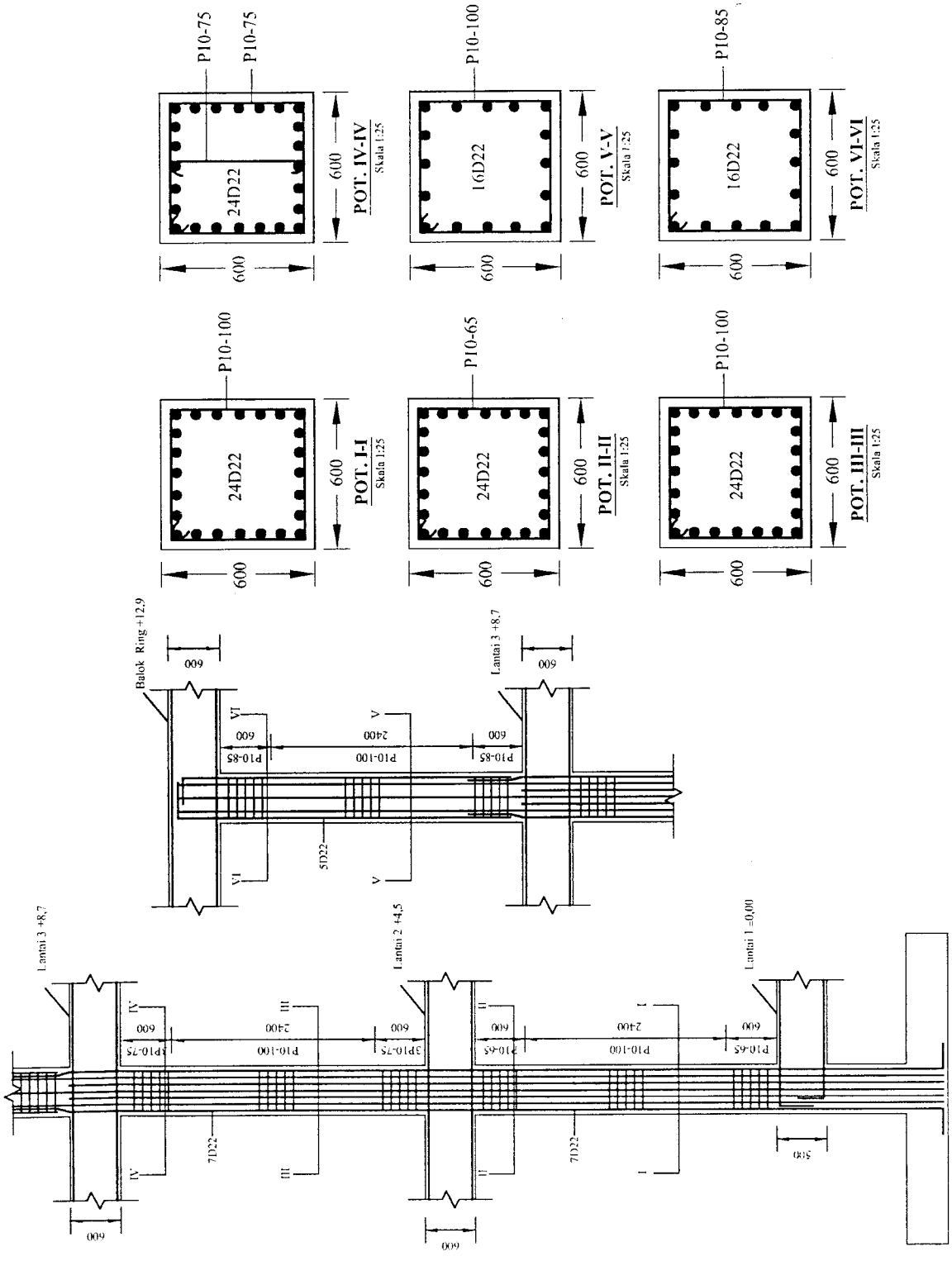
DENAH BALOK DAN KOLOM LANTAI-2

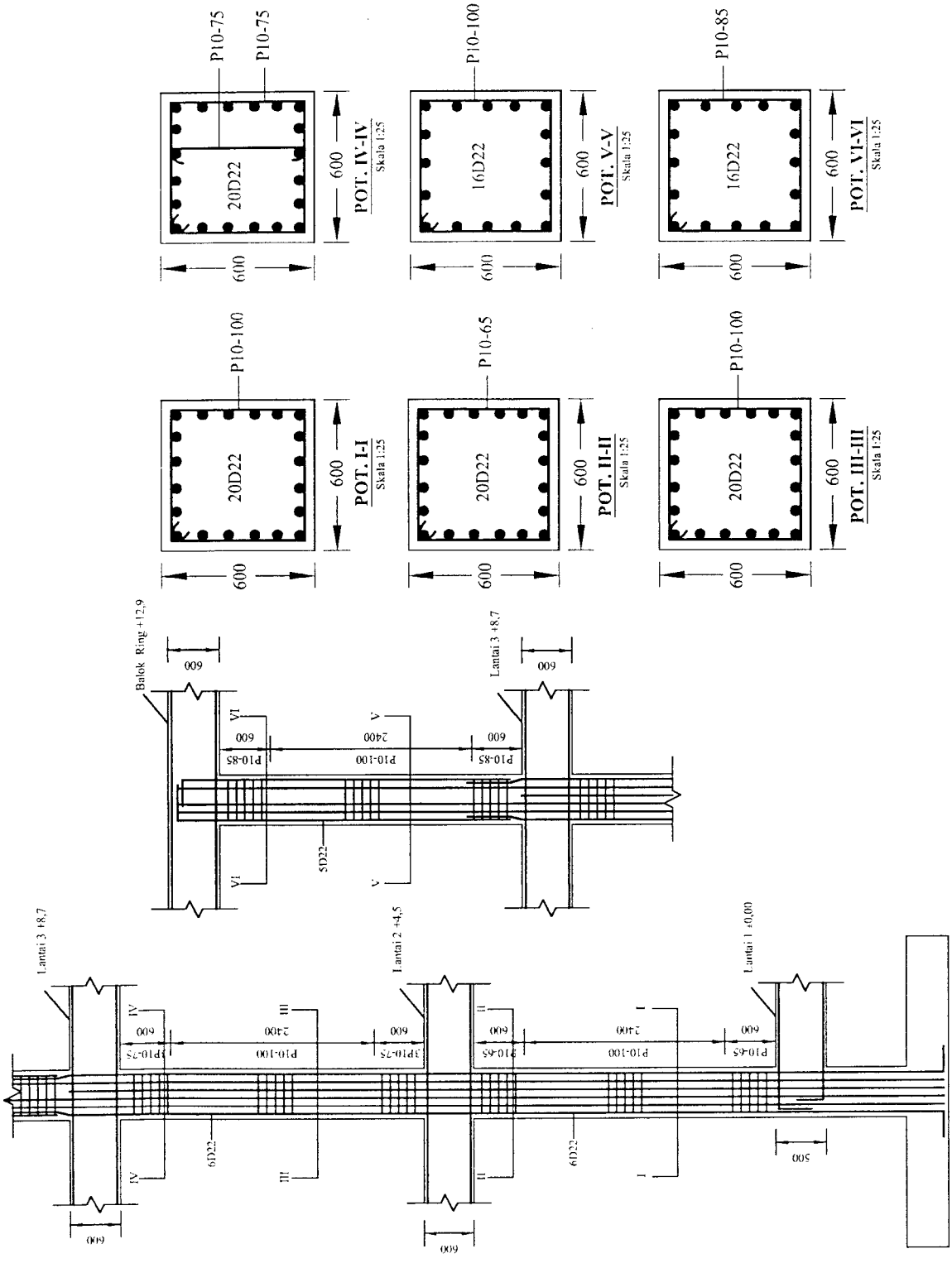
Skala 1:200



PENULANGAN KOLOM K1A=K10A

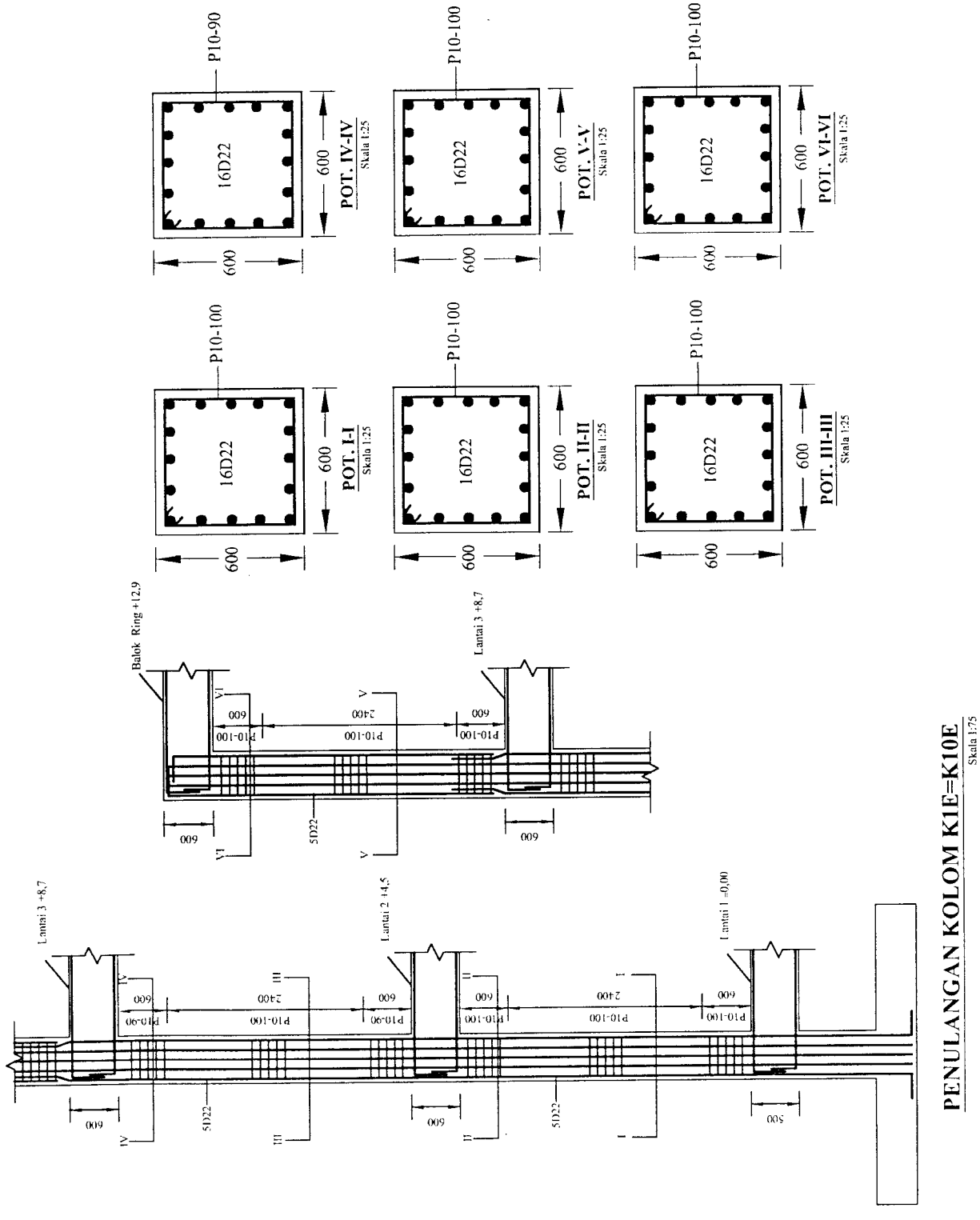
Skala 1:75


P10-75
P10-75
24D22
600
600
POT. IV-IV
Skala 1:25
P10-100
16D22
600
600
POT. V-V
Skala 1:25
P10-85
16D22
600
600
POT. VI-VI
Skala 1:25
P10-100
24D22
600
600
POT. I-I
Skala 1:25
P10-65
24D22
600
600
POT. II-II
Skala 1:25
P10-100
24D22
600
600
POT. III-III
Skala 1:25
Balok Ring +12,9
Lantai 3 +8,7
Lantai 2 +4,5
Lantai 1 ±0,00
P10-85
P10-100
P10-85
5D22
7D22
600
2400
600
PENULANGAN KOLOM K1B=K10B
Skala 1:75



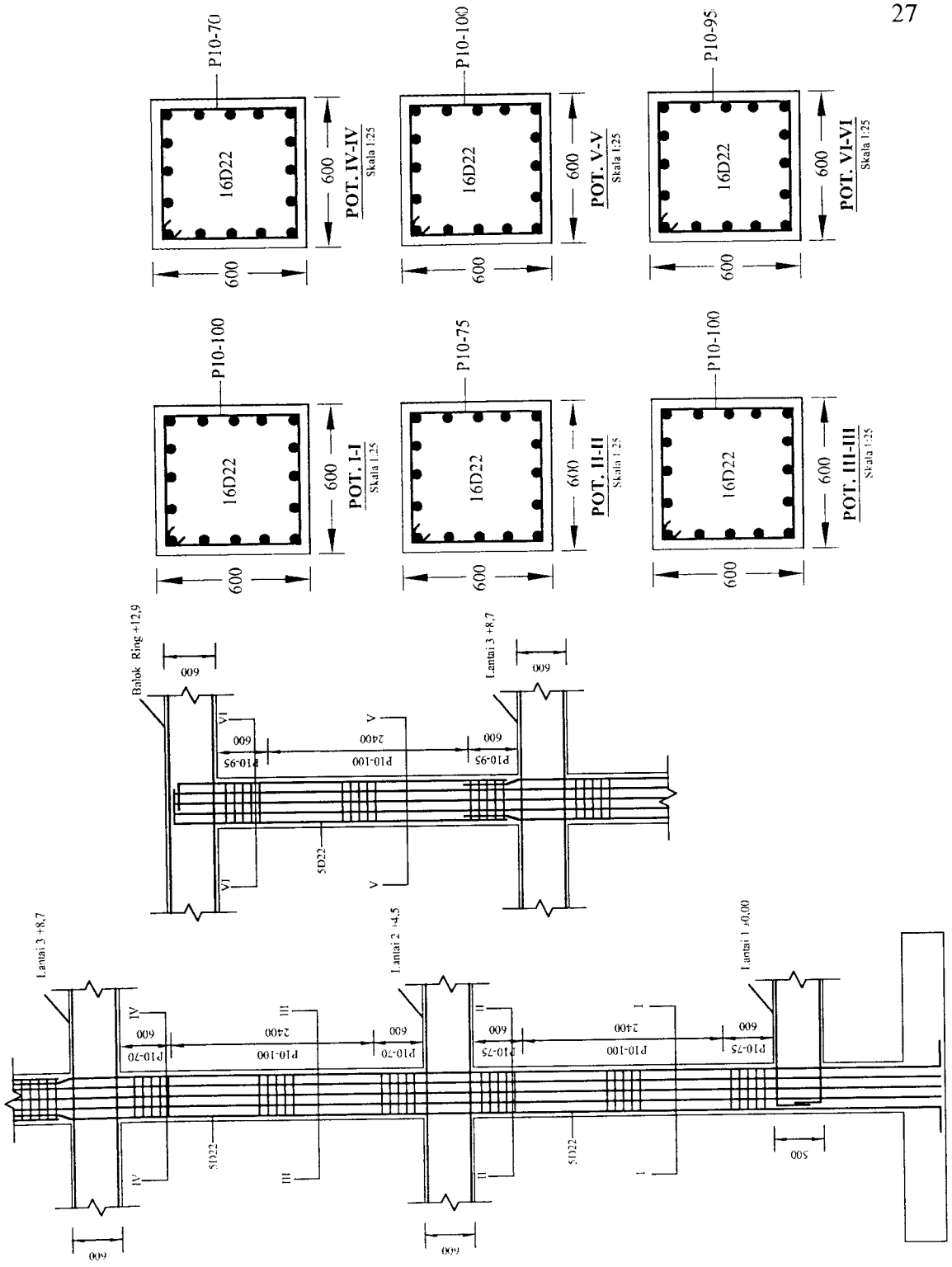
PENULANGAN KOLOM K1D=K10D

Skala 1:75



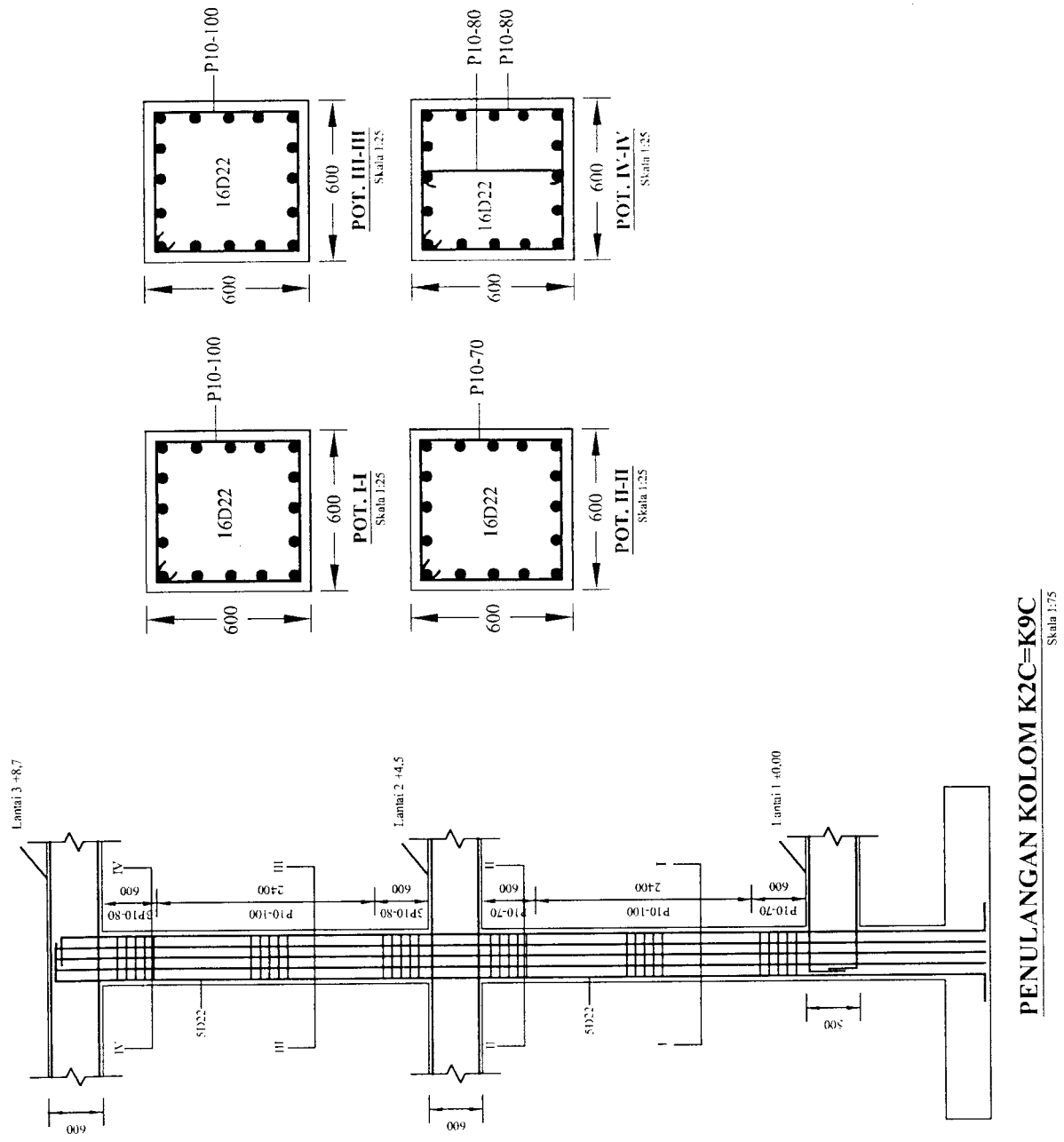
PENULANGAN KOLOM K1E=K10E

Skala 1:75



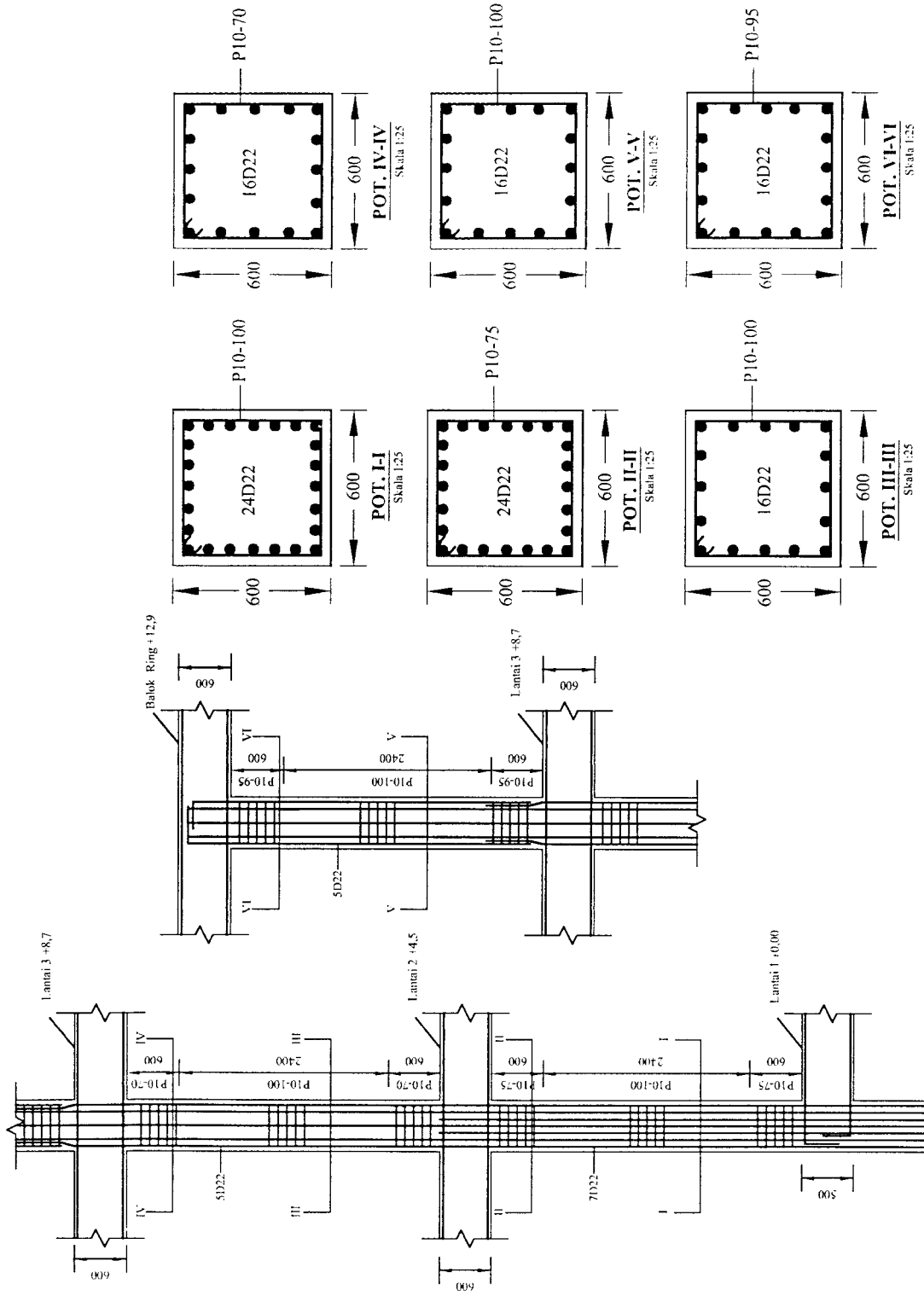
PENULANGAN KOLOM K2A=K9A

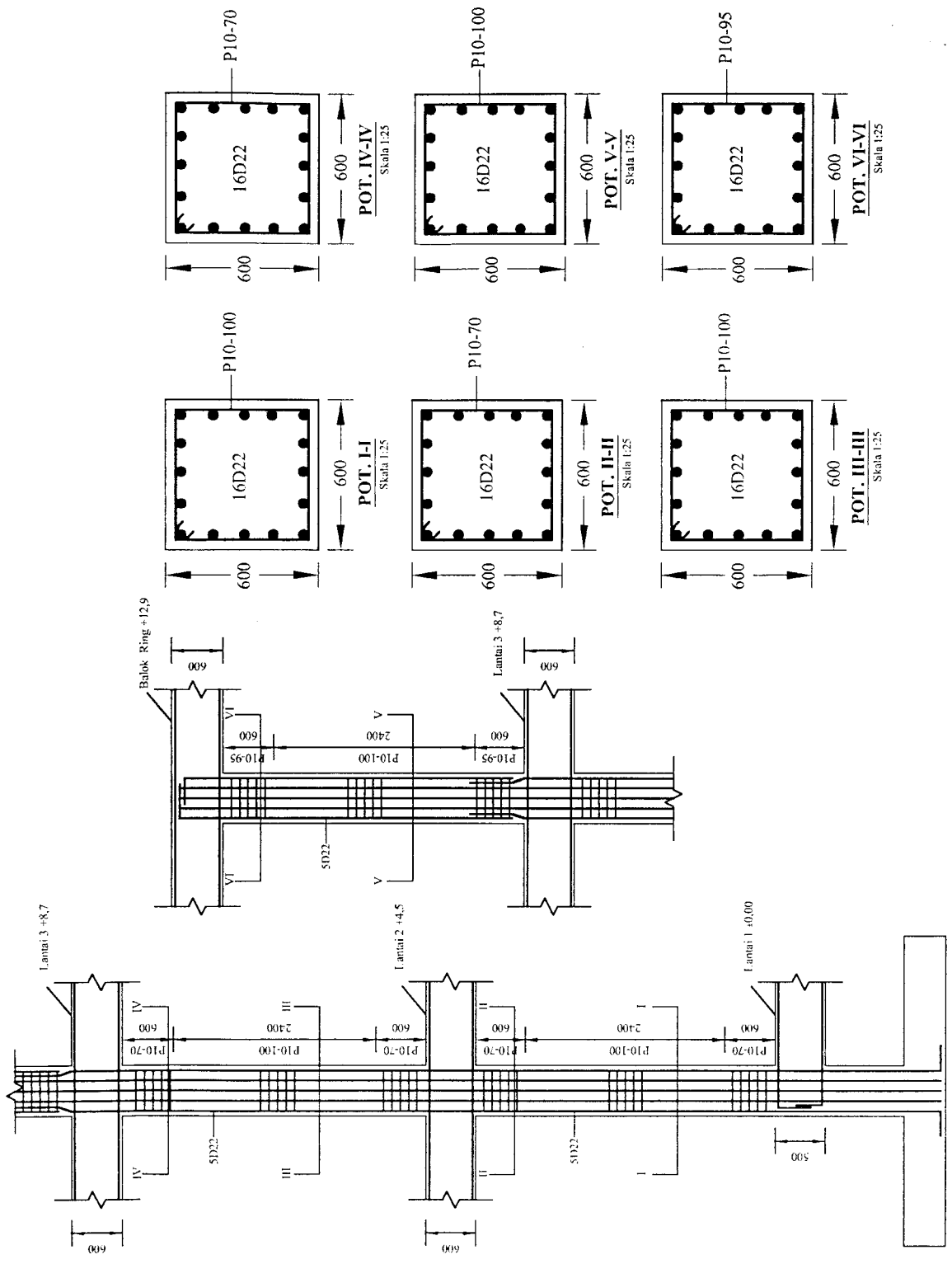
Skala 1:75



PENULANGAN KOLOM K2C=K9C

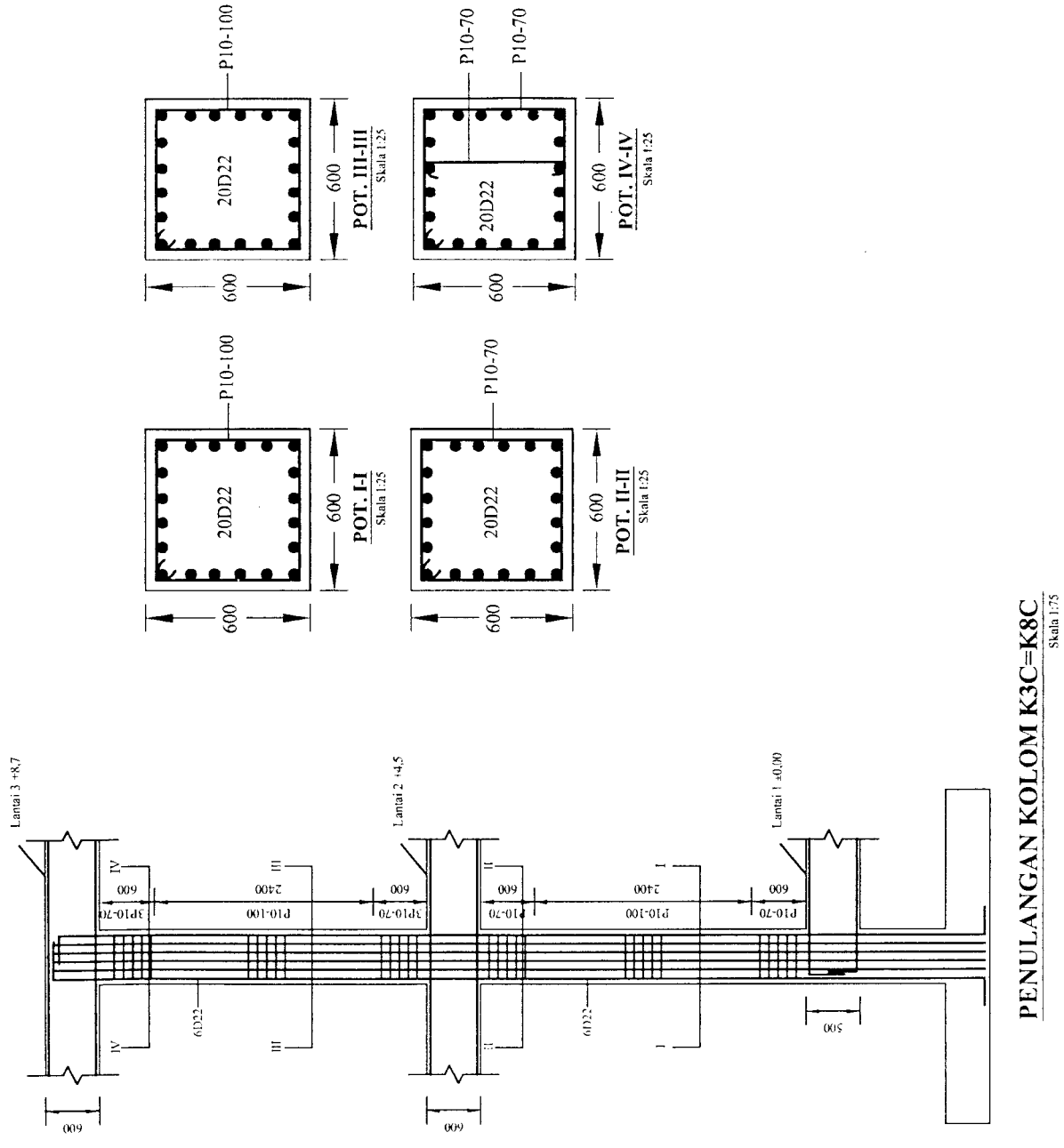
Skala 1:75


P10-70
16D22
600
600
POT. IV-IV
Skala 1:25
P10-100
16D22
600
600
POT. V-V
Skala 1:25
P10-95
16D22
600
600
POT. VI-VI
Skala 1:25
P10-100
24D22
600
600
POT. I-I
Skala 1:25
P10-75
24D22
600
600
POT. II-II
Skala 1:25
P10-100
16D22
600
600
POT. III-III
Skala 1:25
Balok Ring +12,9
Lantai 3 +8,7
Lantai 2 +4,5
Lantai 1 +0,00
5D22
7D22
500
PENULANGAN KOLOM K2E=K9E
Skala 1:75



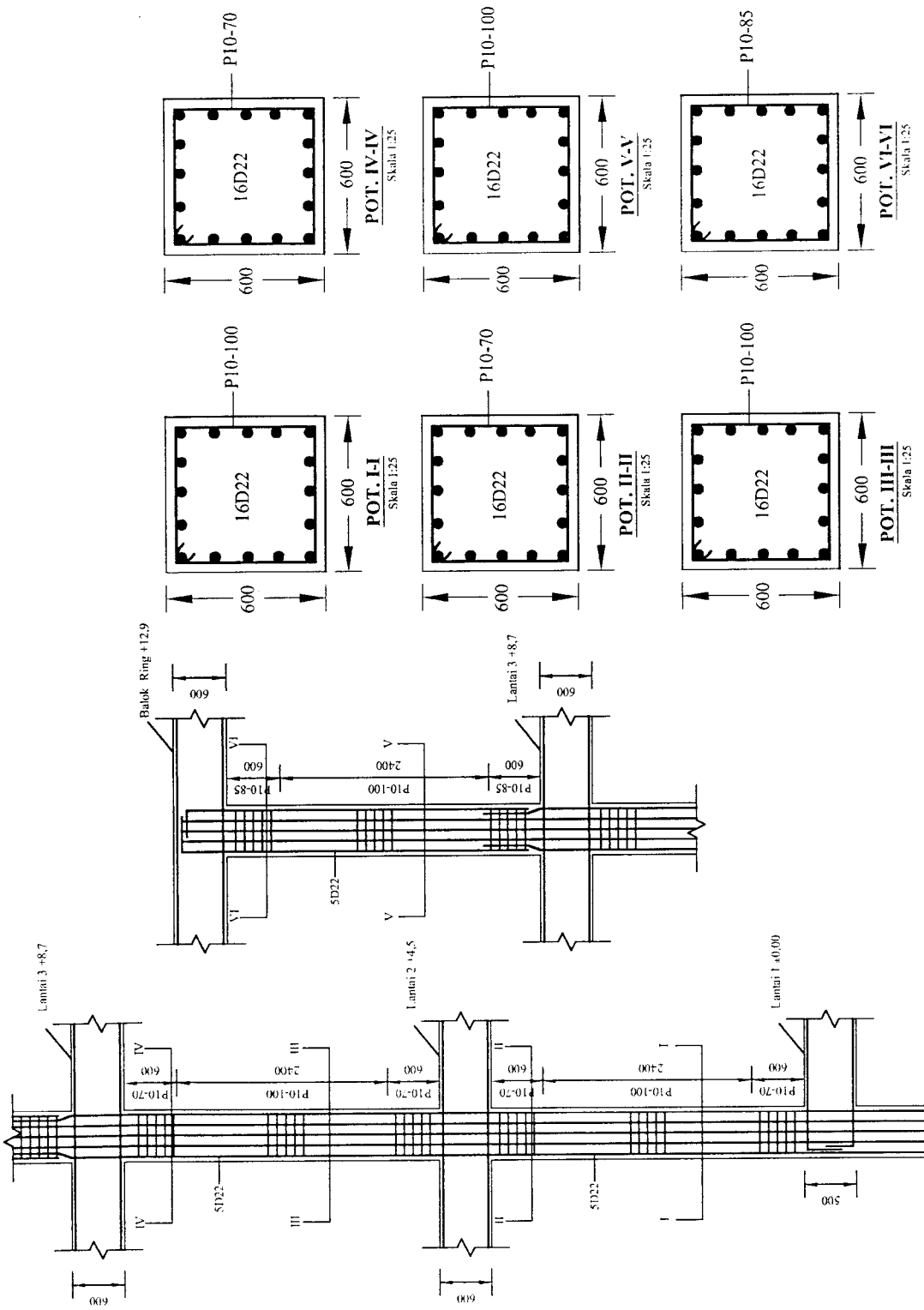
PENULANGAN KOLOM K3A=K8A

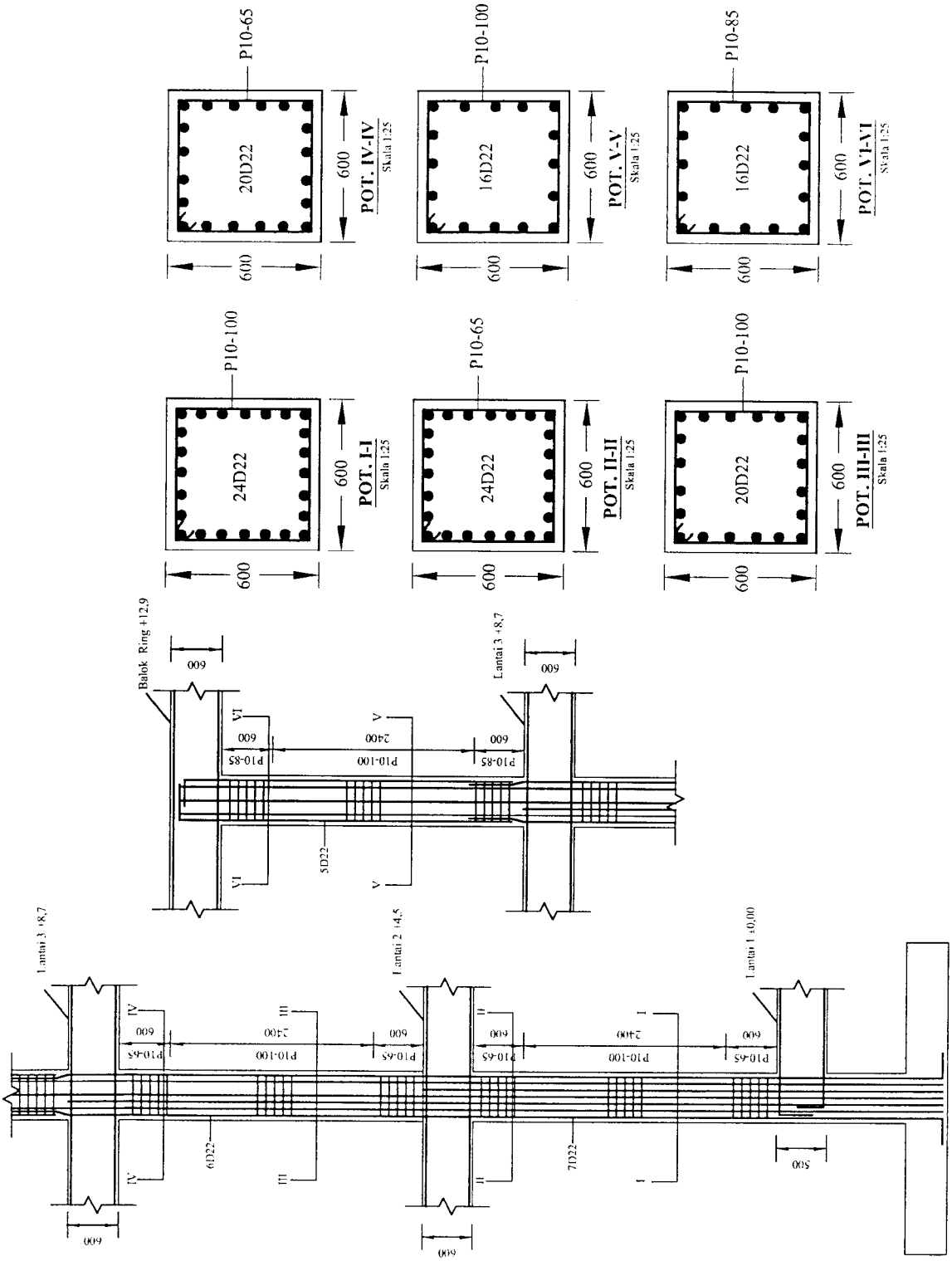
Skala 1:75



PENULANGAN KOLOM K3C=K8C

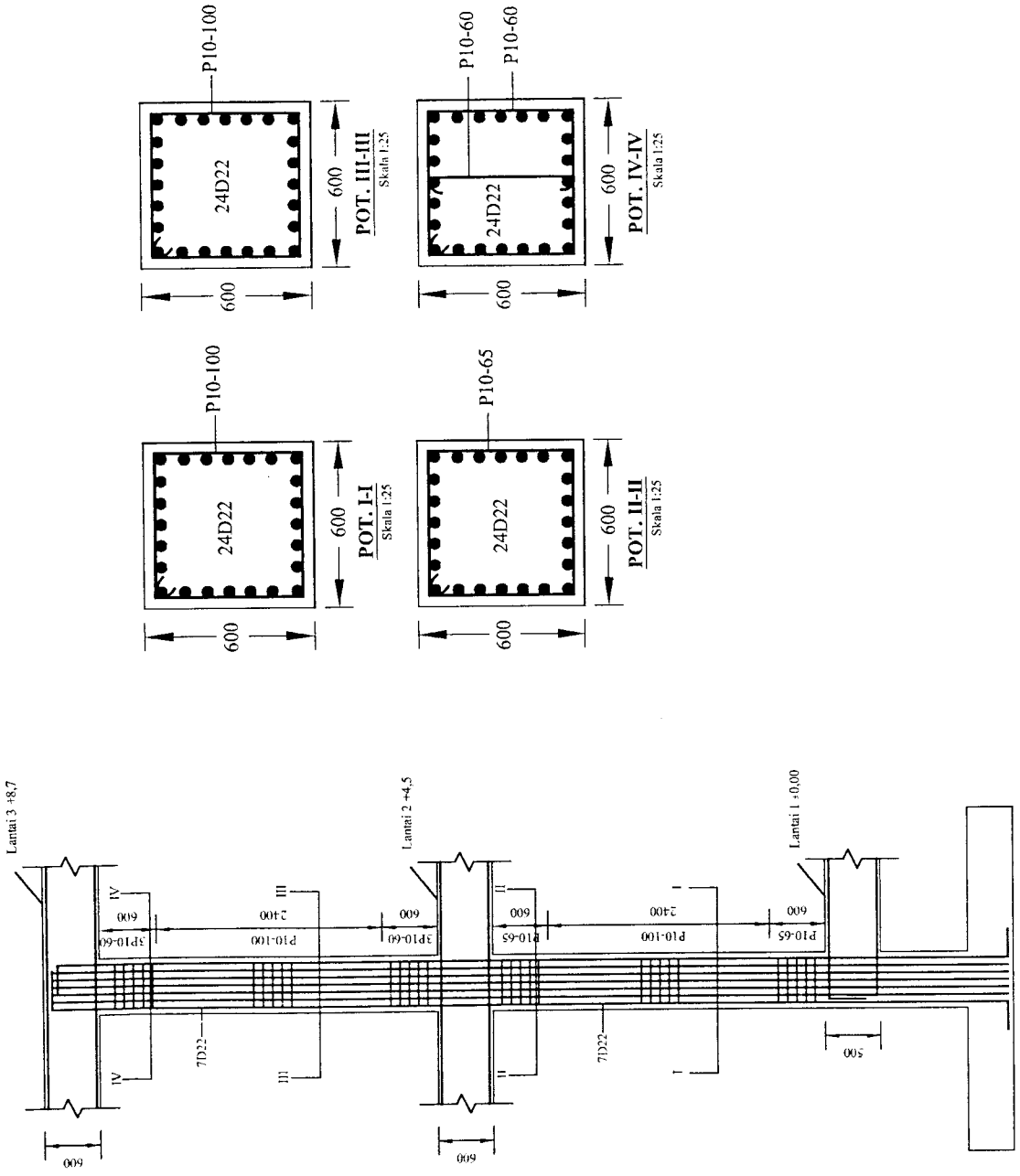
Skala 1:75


P10-70
16D22
600
600
POT. IV-IV
Skala 1:25
P10-100
16D22
600
600
POT. V-V
Skala 1:25
P10-85
16D22
600
600
POT. VI-VI
Skala 1:25
P10-100
16D22
600
600
POT. I-I
Skala 1:25
P10-70
16D22
600
600
POT. II-II
Skala 1:25
P10-100
16D22
600
600
POT. III-III
Skala 1:25
Balok Ring +12.9
Lantai 3 +8.7
Lantai 2 +4.5
Lantai 1 ±0.00
P10-85
P10-100
P10-85
5D22
P10-70
P10-100
P10-70
P10-70
P10-100
P10-70
500
600
2400
PENULANGAN KOLOM K3E=K8E
Skala 1:75



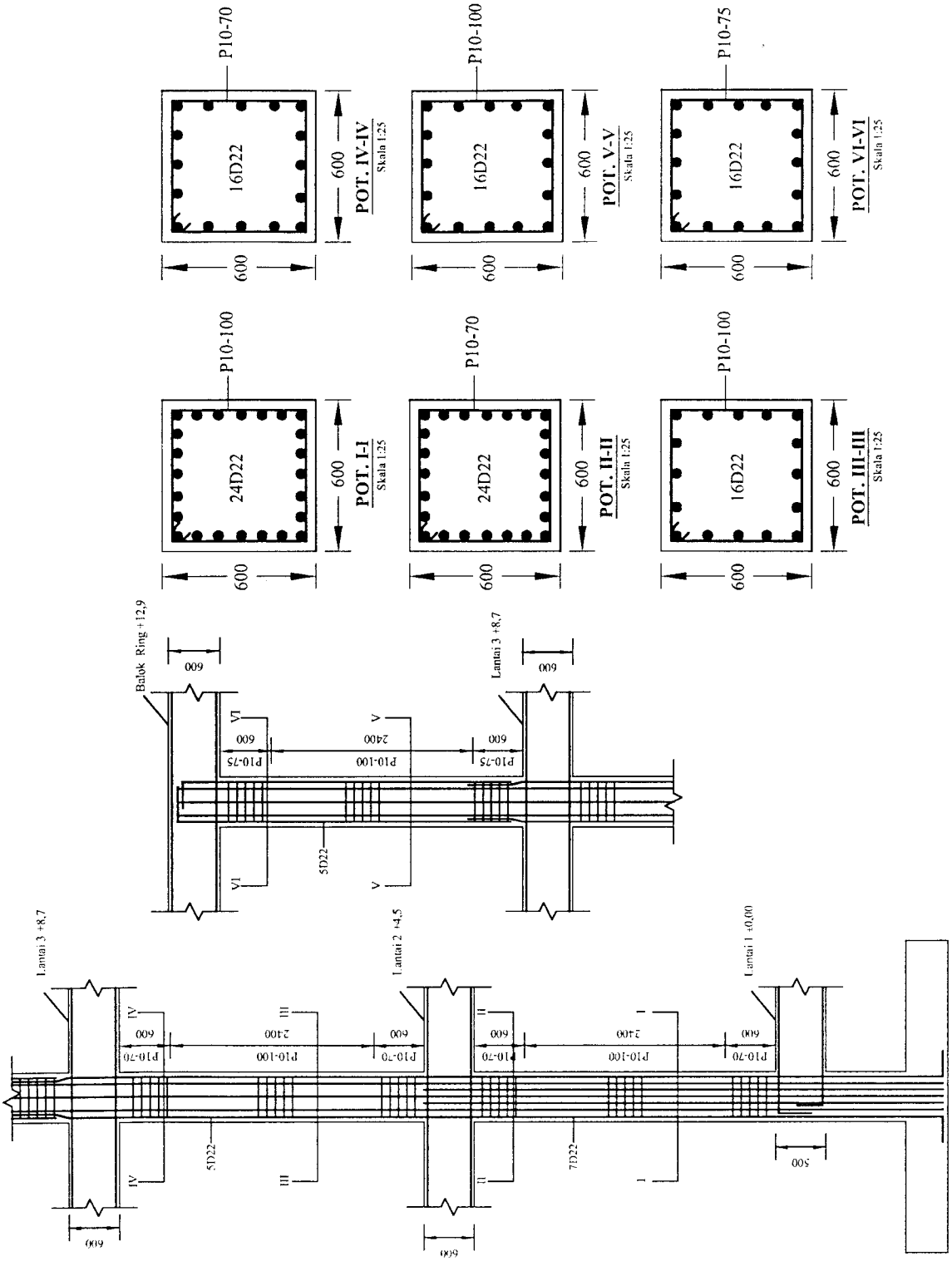
PENULANGAN KOLOM K4A=K7A

Skala 1:75

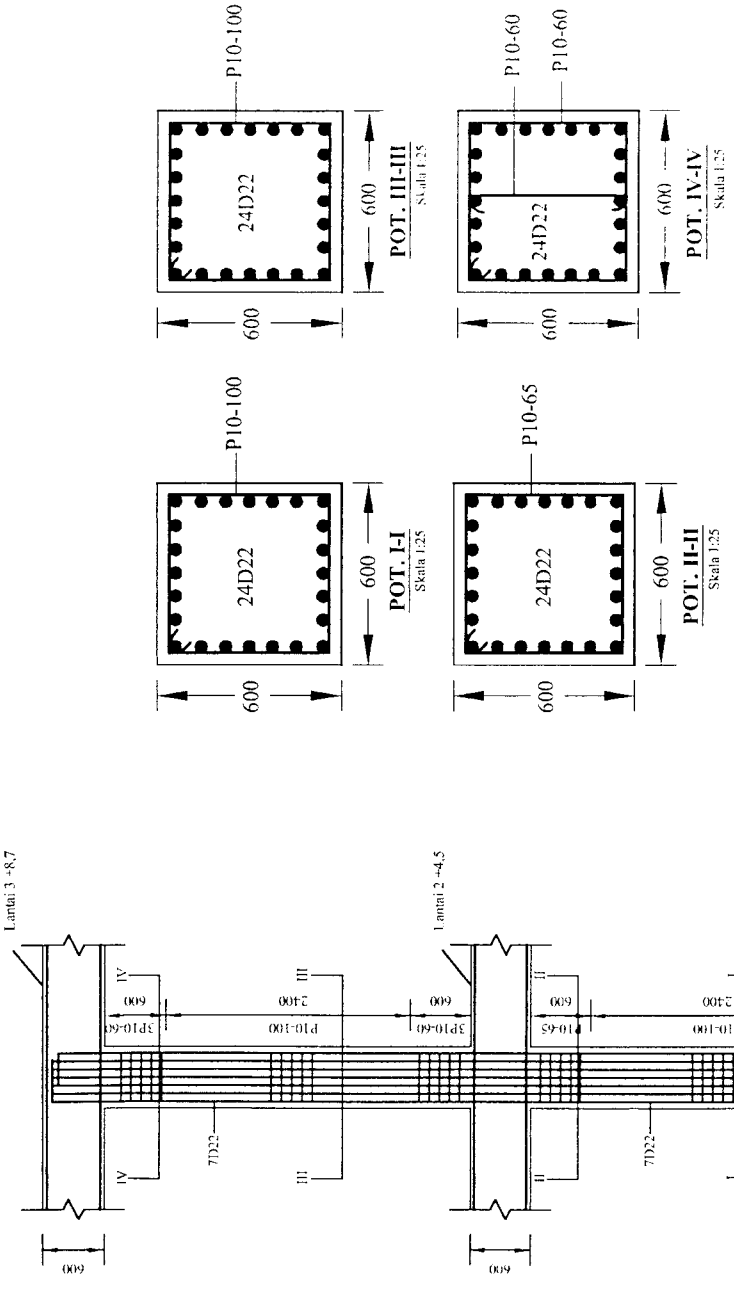


PENULANGAN KOLOM K4C=K7C

Skala 1:75

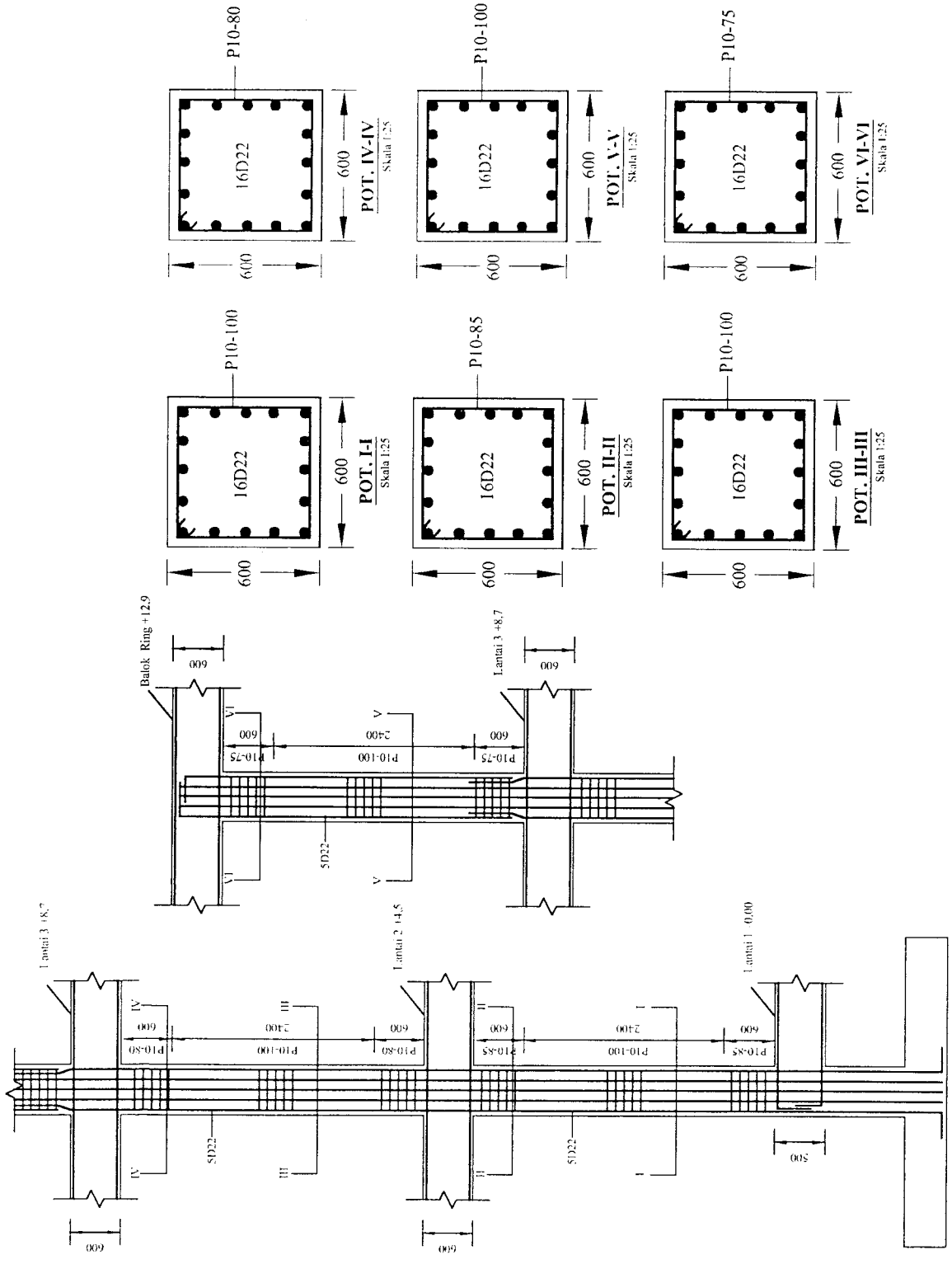


PENULANGAN KOLOM K4E=K7E
Skala 1:75



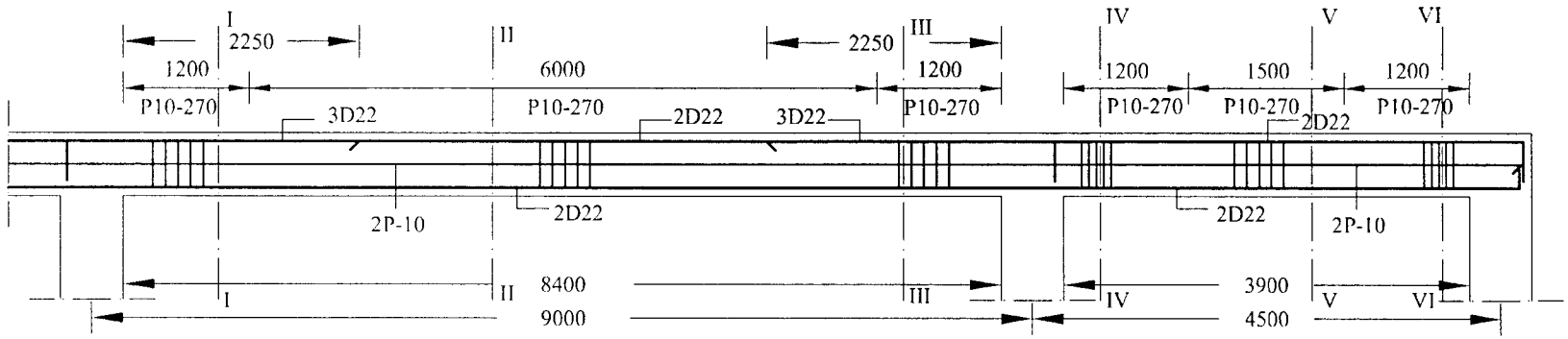
PENULANGAN KOLOM K5C=K6C

Skala 1:75



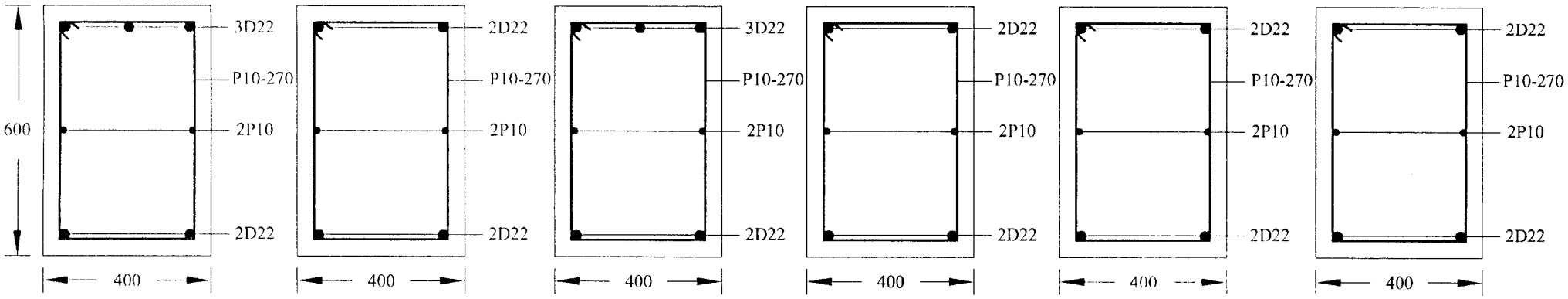
PENULANGAN KOLOM K5E=K6E

Skala 1:75



PENULANGAN BALOK INDUK RING R1I & R3I

Skala 1:75



POT. I-I Skala 1:15

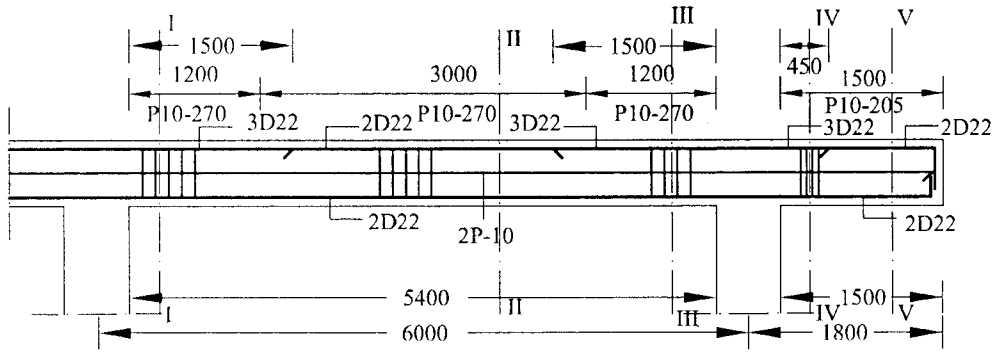
POT. II-II Skala 1:15

POT. III-III Skala 1:15

POT. IV-IV Skala 1:15

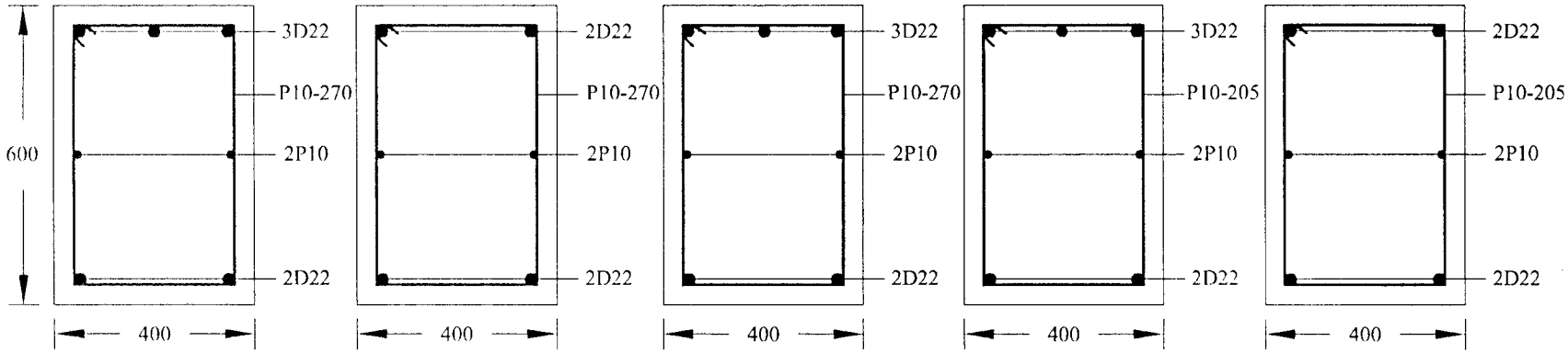
POT. V-V Skala 1:15

POT. VI-VI Skala 1:15



PENULANGAN BALOK INDUK RING R2I & R5I

Skala 1:75



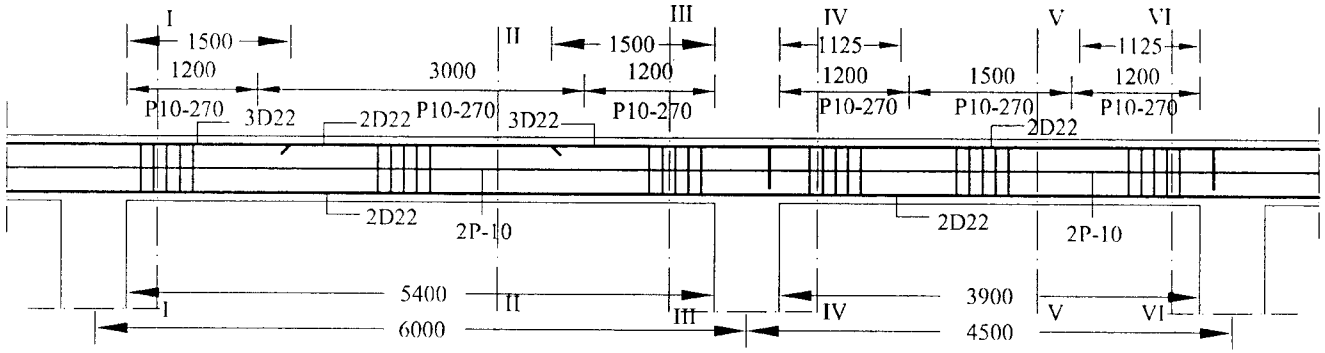
POT. I-I
Skala 1:15

POT. II-II
Skala 1:15

POT. III-III
Skala 1:15

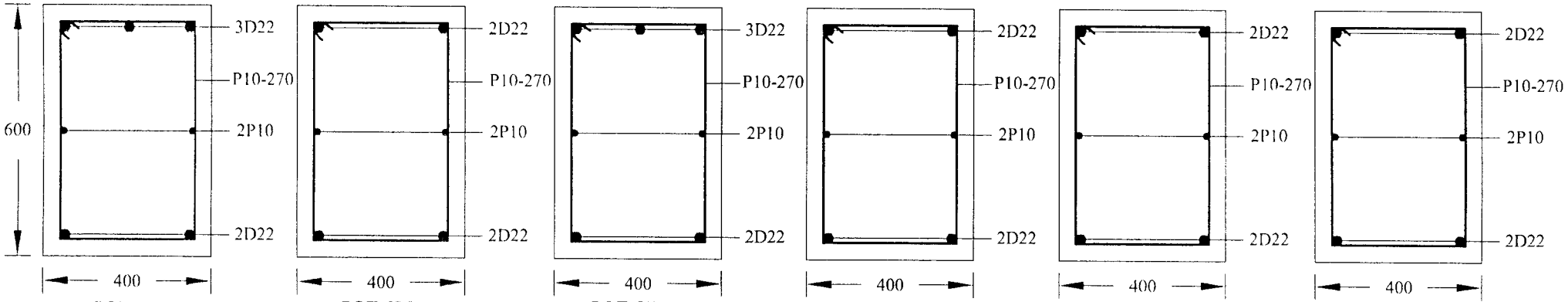
POT. IV-IV
Skala 1:15

POT. V-V
Skala 1:15



PENULANGAN BALOK INDUK RING R2I & R3I

Skala 1:75



POT. I-I
Skala 1:15

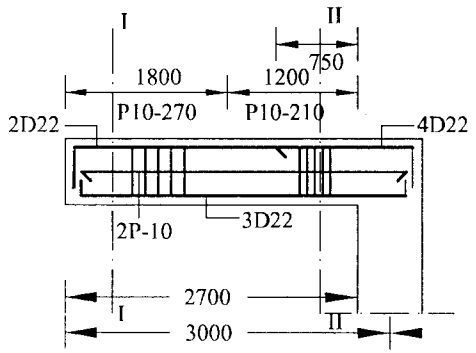
POT. II-II
Skala 1:15

POT. III-III
Skala 1:15

POT. IV-IV
Skala 1:15

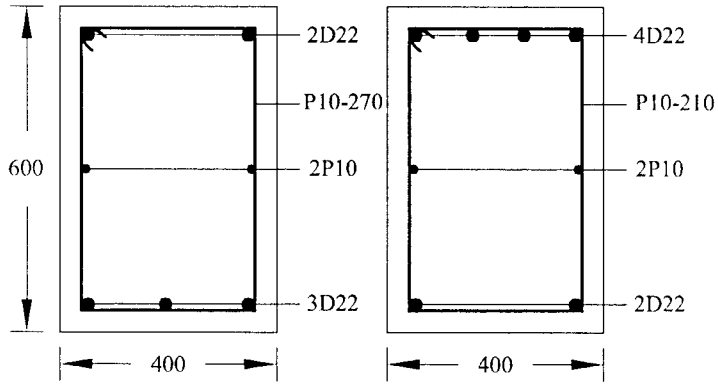
POT. V-V
Skala 1:15

POT. VI-VI
Skala 1:15



PENULANGAN BALOK INDUK RING R4I

Skala 1:75

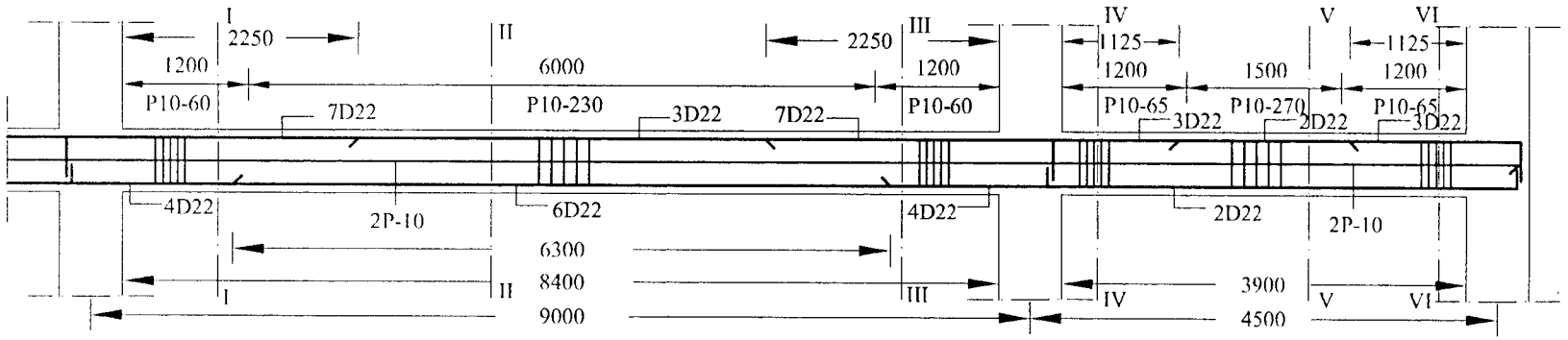


POT. I-I

Skala 1:15

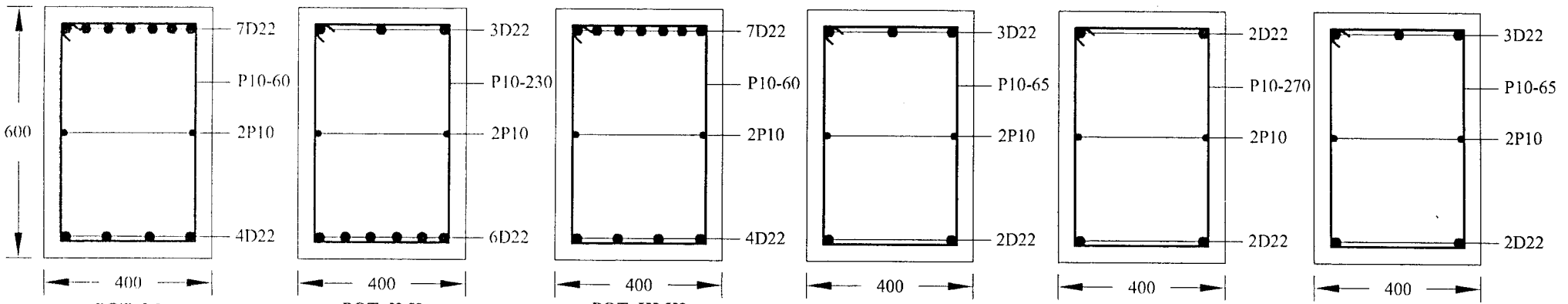
POT. II-II

Skala 1:15



PENULANGAN BALOK INDUK B1aI & B3bI LANTAI-3

Skala 1:75



POT. I-I Skala 1:15

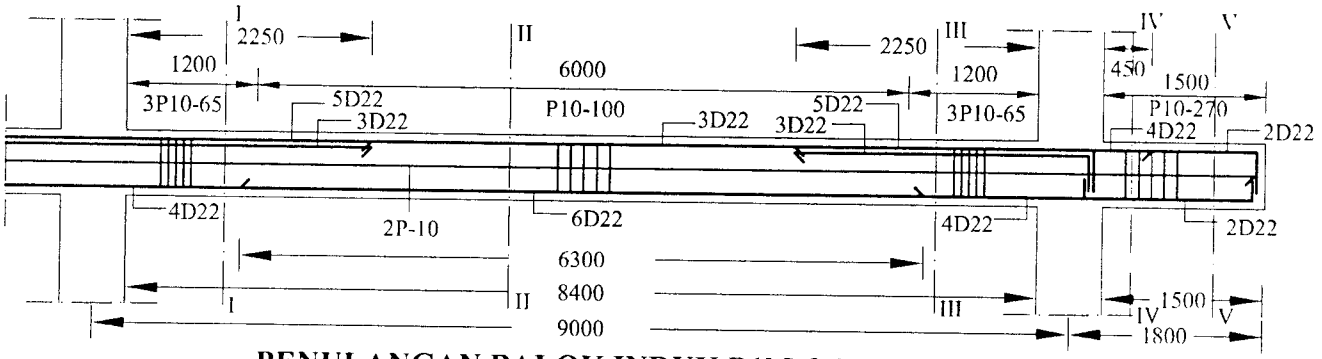
POT. II-II Skala 1:15

POT. III-III Skala 1:15

POT. IV-IV Skala 1:15

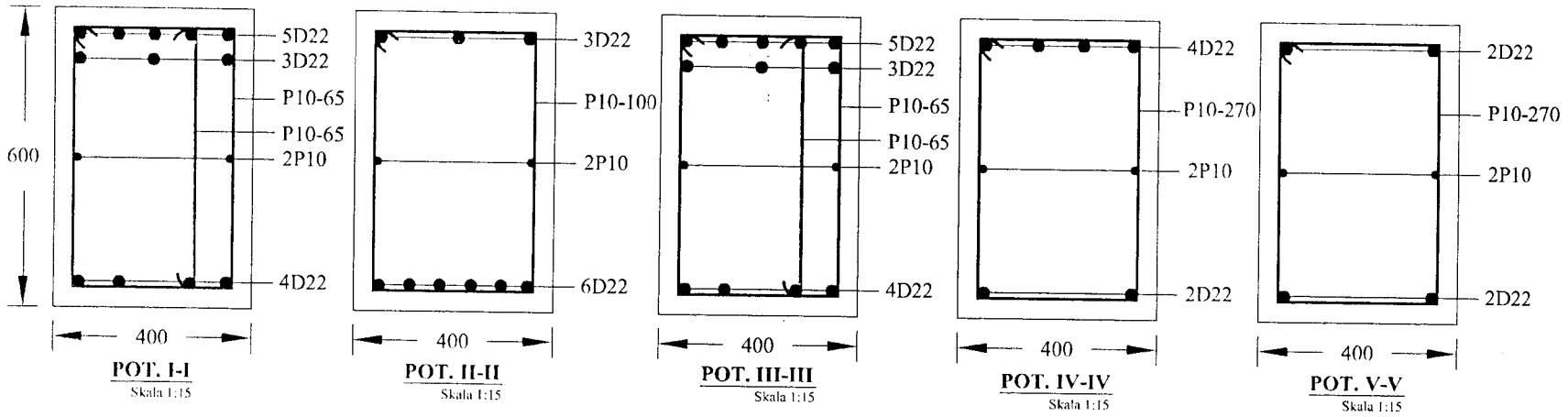
POT. V-V Skala 1:15

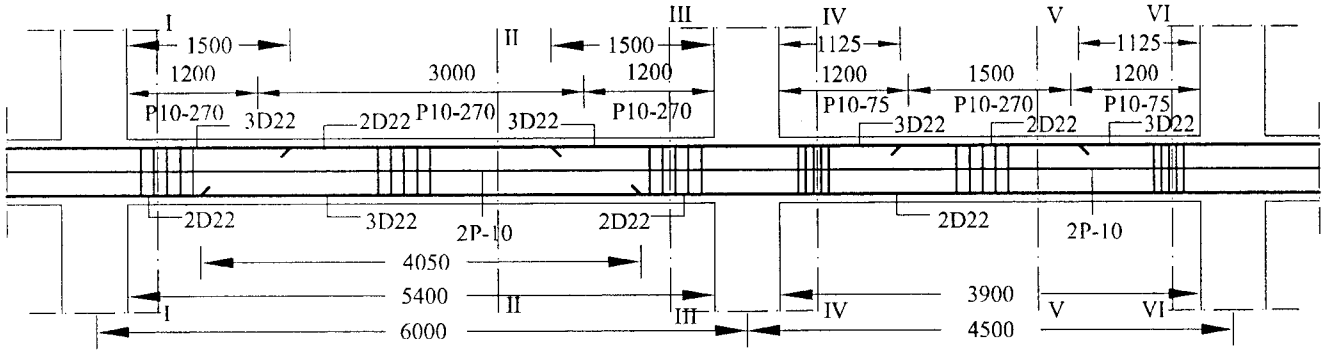
POT. VI-VI Skala 1:15



PENULANGAN BALOK INDUK B1bI & B5I LANTAI-3

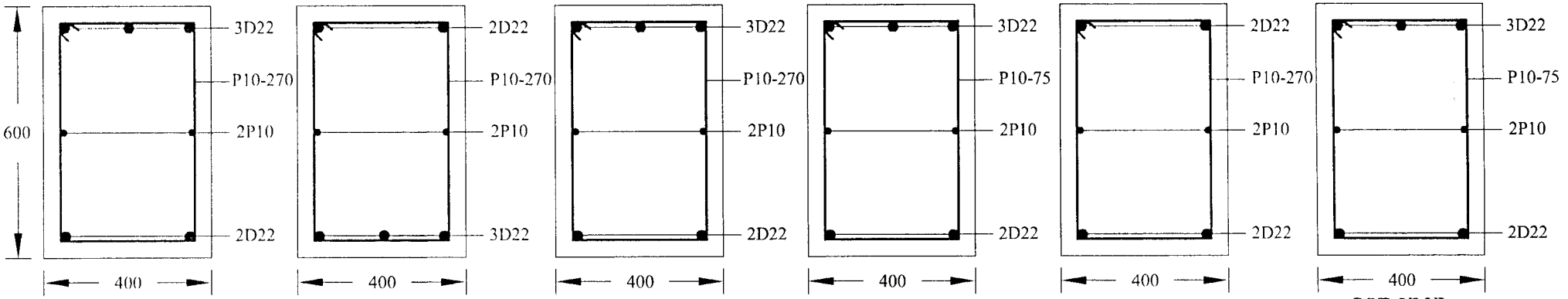
Skala 1:75





PENULANGAN BALOK INDUK B2aI & B3aI LANTAI-3

Skala 1:75



POT. I-I
Skala 1:15

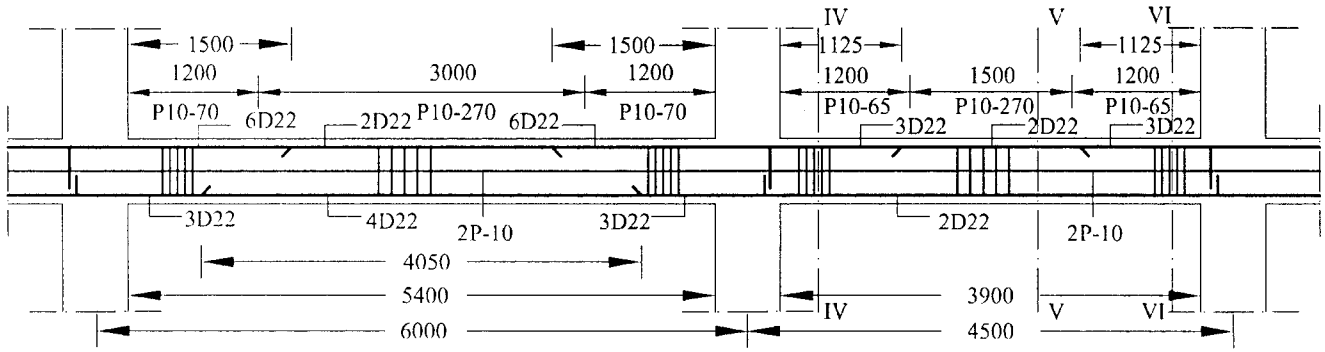
POT. II-II
Skala 1:15

POT. III-III
Skala 1:15

POT. IV-IV
Skala 1:15

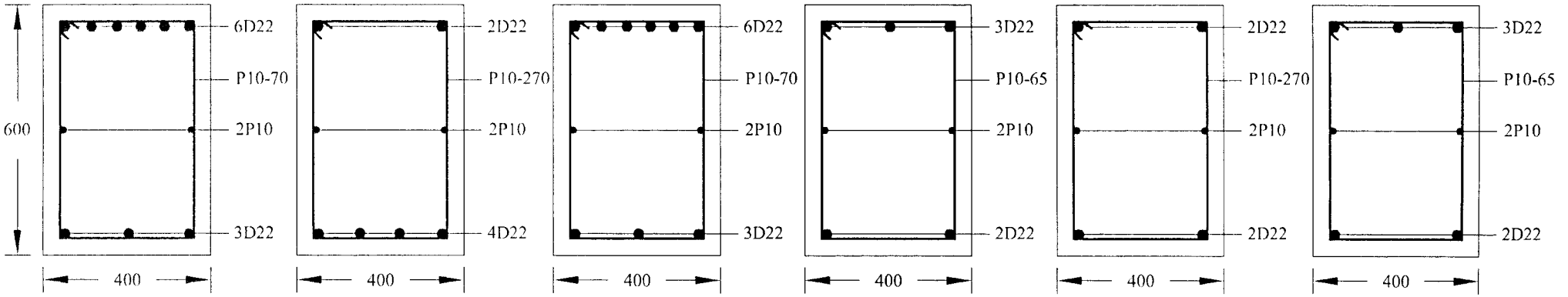
POT. V-V
Skala 1:15

POT. VI-VI
Skala 1:15



PENULANGAN BALOK INDUK B2bI & B3bI LANTAI-3

Skala 1:75



POT. I-I
Skala 1:15

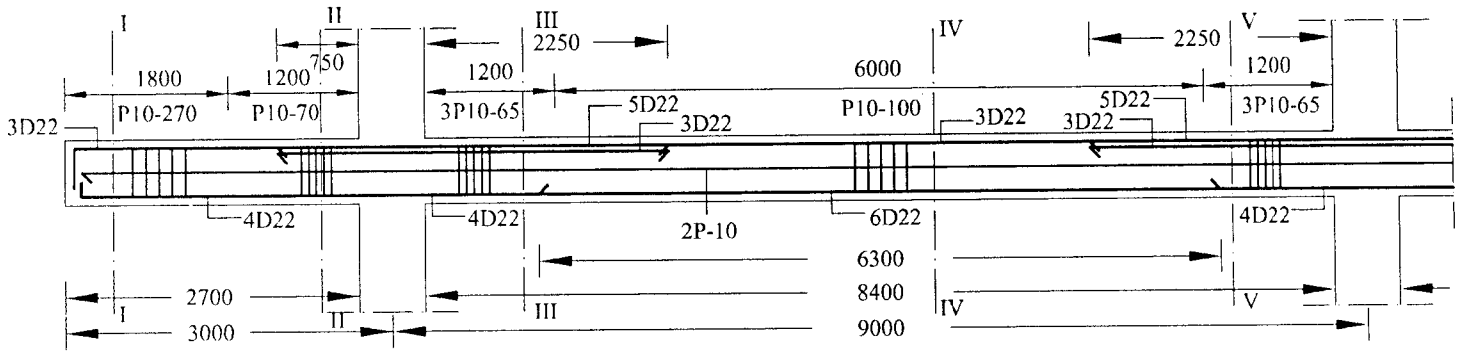
POT. II-II
Skala 1:15

POT. III-III
Skala 1:15

POT. IV-IV
Skala 1:15

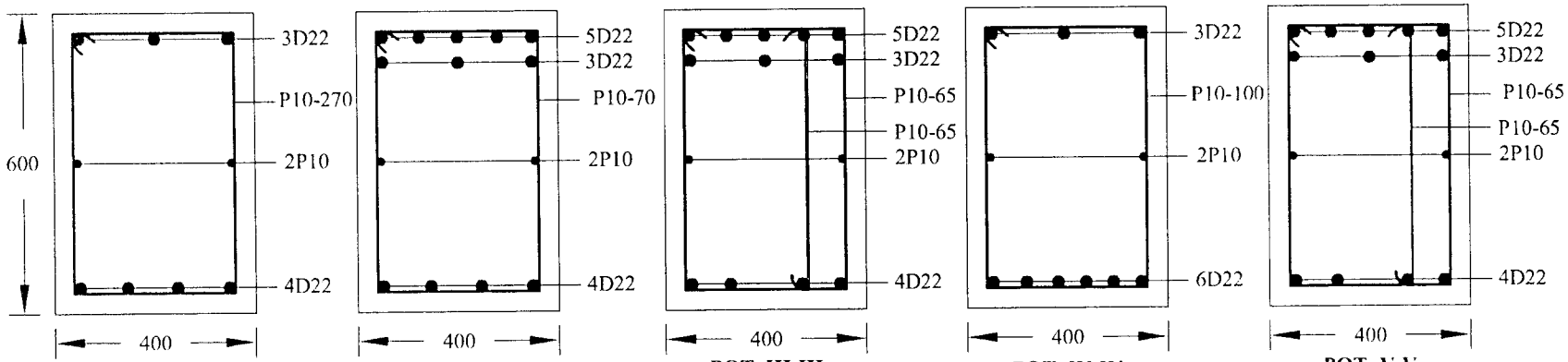
POT. V-V
Skala 1:15

POT. VI-VI
Skala 1:15



PENULANGAN BALOK INDUK B4I & B1bI LANTAI-3

Skala 1:75



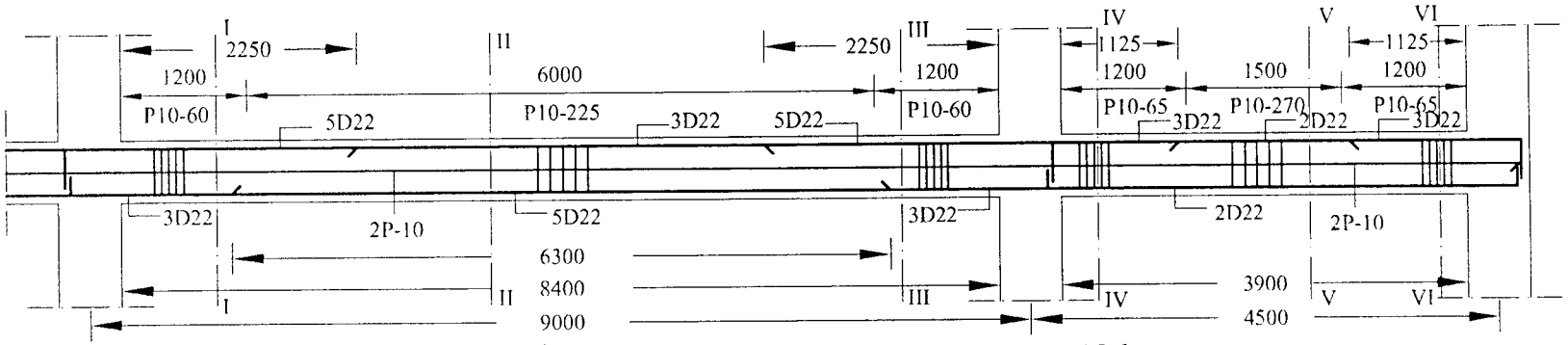
POT. I-I
Skala 1:15

POT. II-II
Skala 1:15

POT. III-III
Skala 1:15

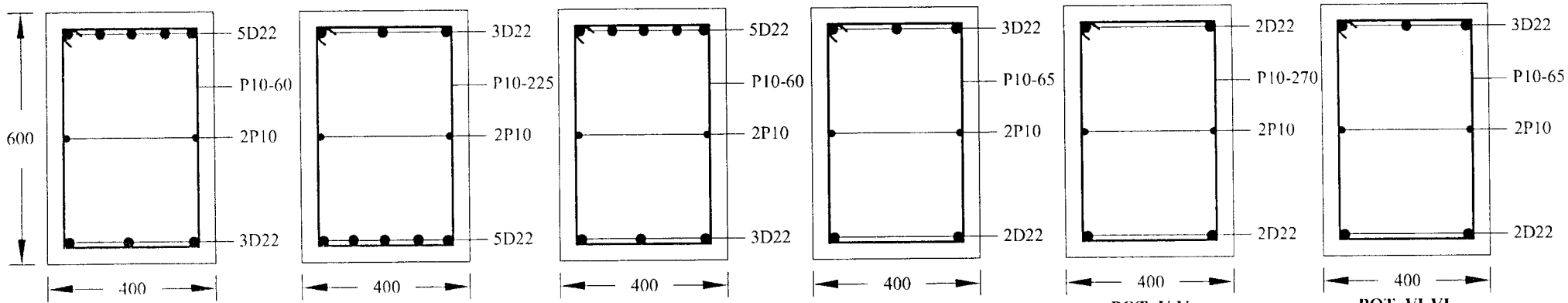
POT. IV-IV
Skala 1:15

POT. V-V
Skala 1:15



PENULANGAN BALOK INDUK B1aI & B3bI LANTAI-2

Skala 1:75



POT. I-I Skala 1:15

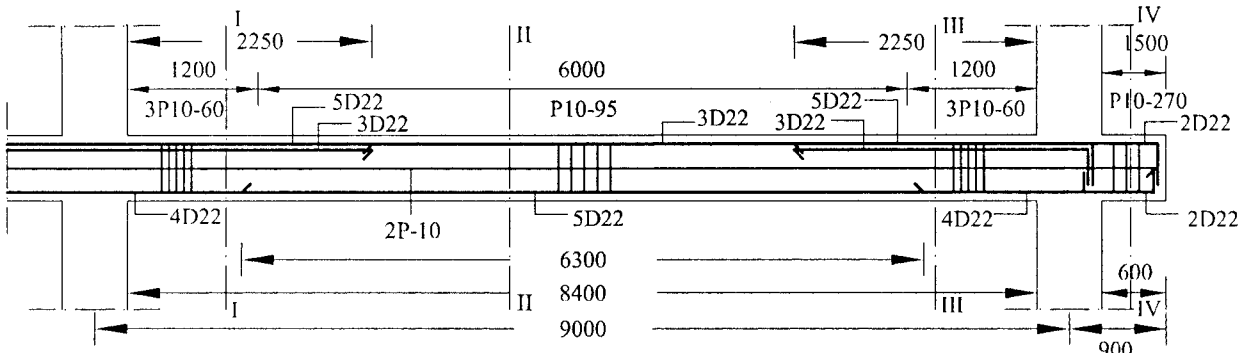
POT. II-II Skala 1:15

POT. III-III Skala 1:15

POT. IV-IV Skala 1:15

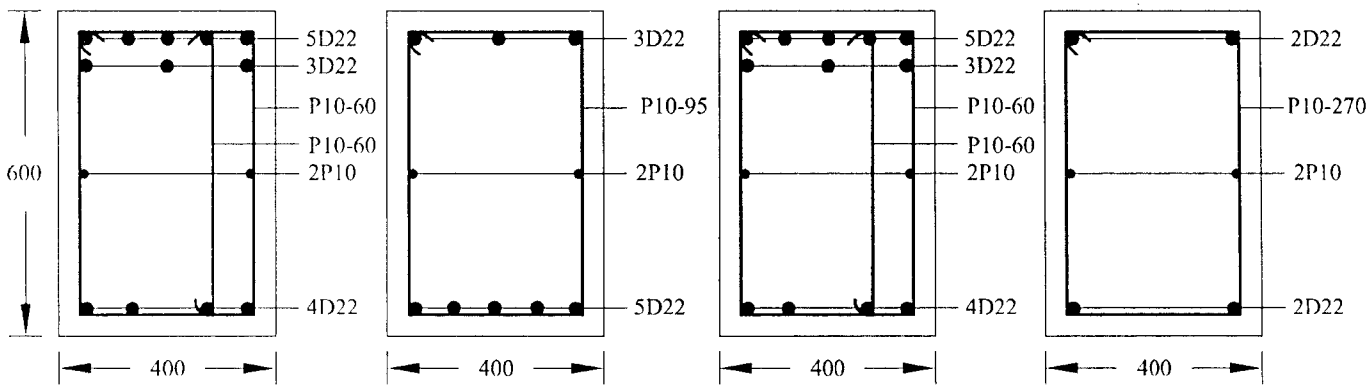
POT. V-V Skala 1:15

POT. VI-VI Skala 1:15



PENULANGAN BALOK INDUK B1bI & B4I LANTAI-2

Skala 1:75



POT. I-I

Skala 1:15

POT. II-II

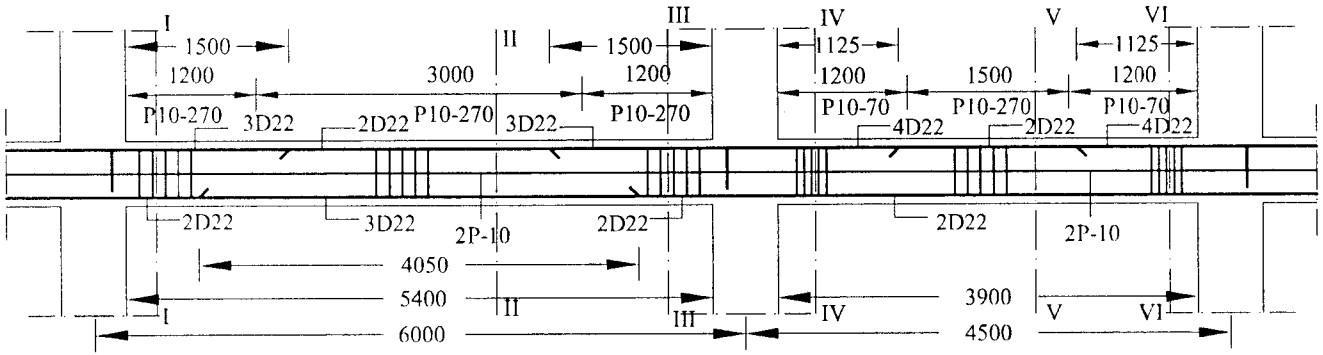
Skala 1:15

POT. III-III

Skala 1:15

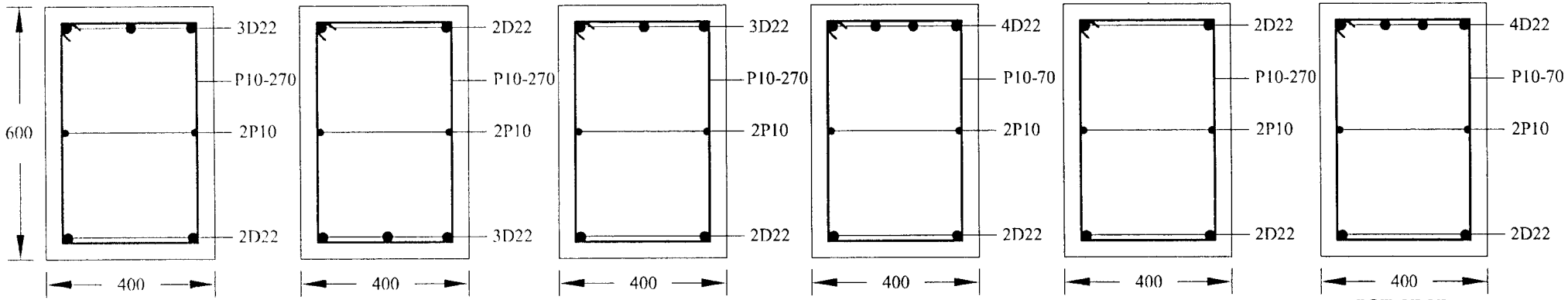
POT. IV-IV

Skala 1:15



PENULANGAN BALOK INDUK B2aI & B3aI LANTAI-2

Skala 1:75



POT. I-I
Skala 1:15

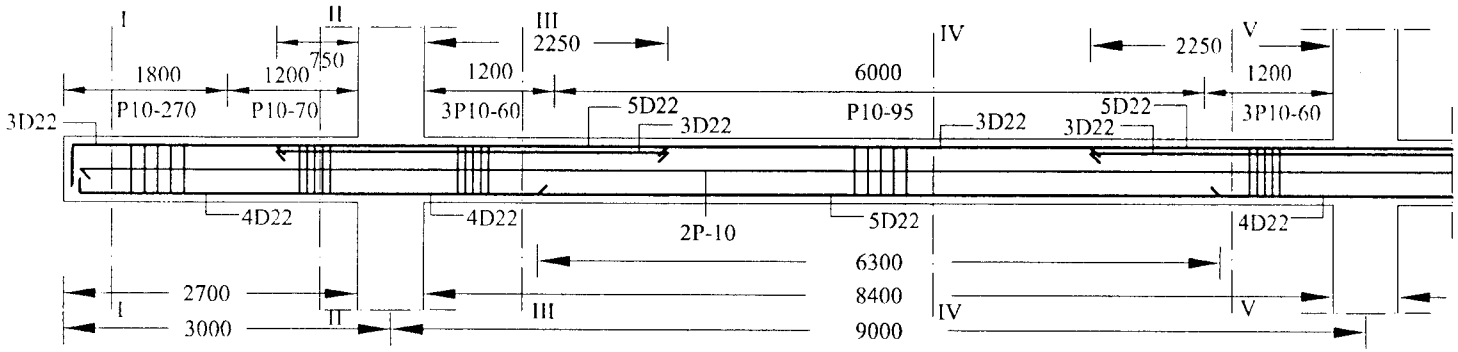
POT. II-II
Skala 1:15

POT. III-III
Skala 1:15

POT. IV-IV
Skala 1:15

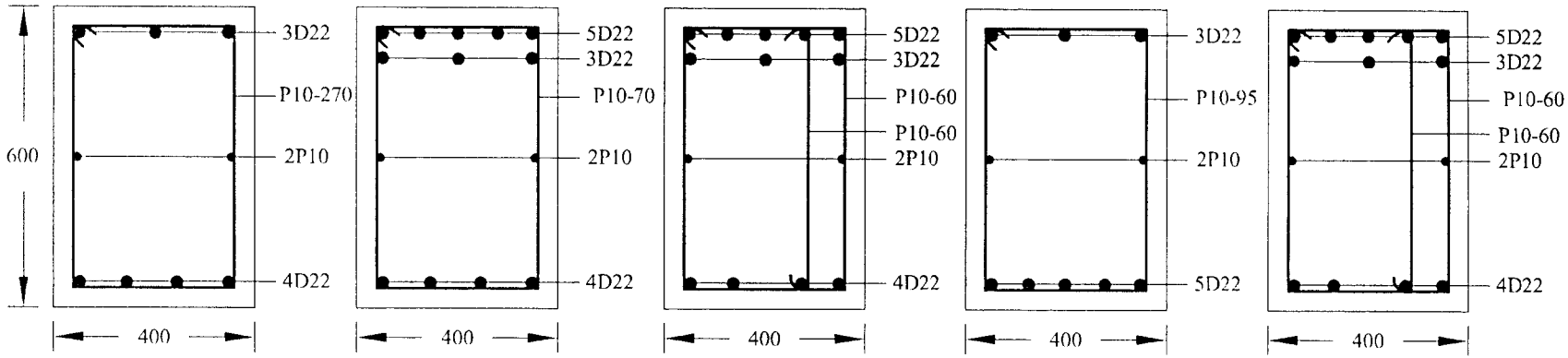
POT. V-V
Skala 1:15

POT. VI-VI
Skala 1:15



PENULANGAN BALOK INDUK B5I & B1bI LANTAI-2

Skala 1:75



POT. I-I

Skala 1:15

POT. II-II

Skala 1:15

POT. III-III

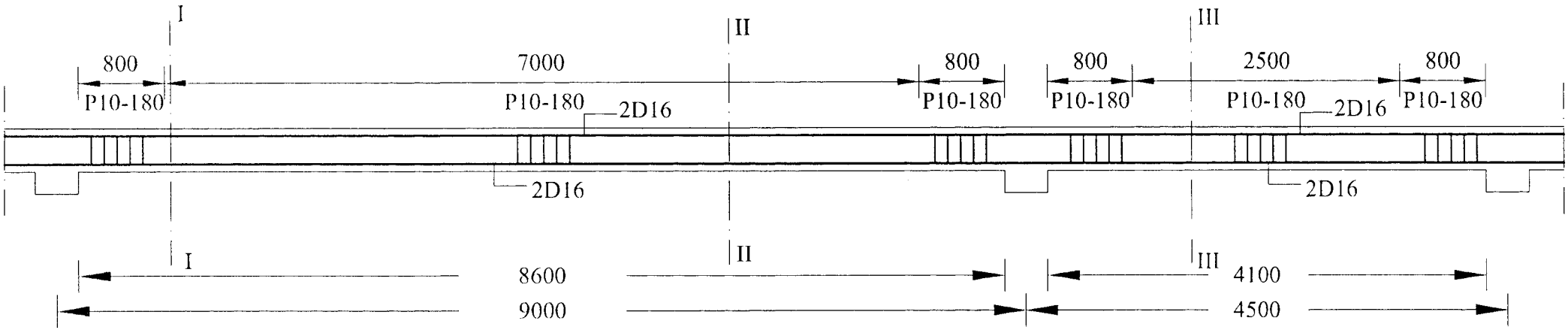
Skala 1:15

POT. IV-IV

Skala 1:15

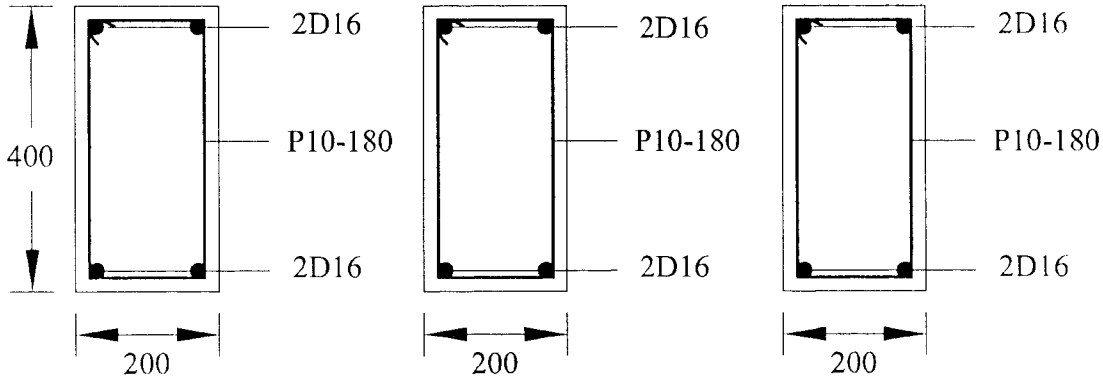
POT. V-V

Skala 1:15



PENULANGAN BALOK ANAK RING R1A & R3A

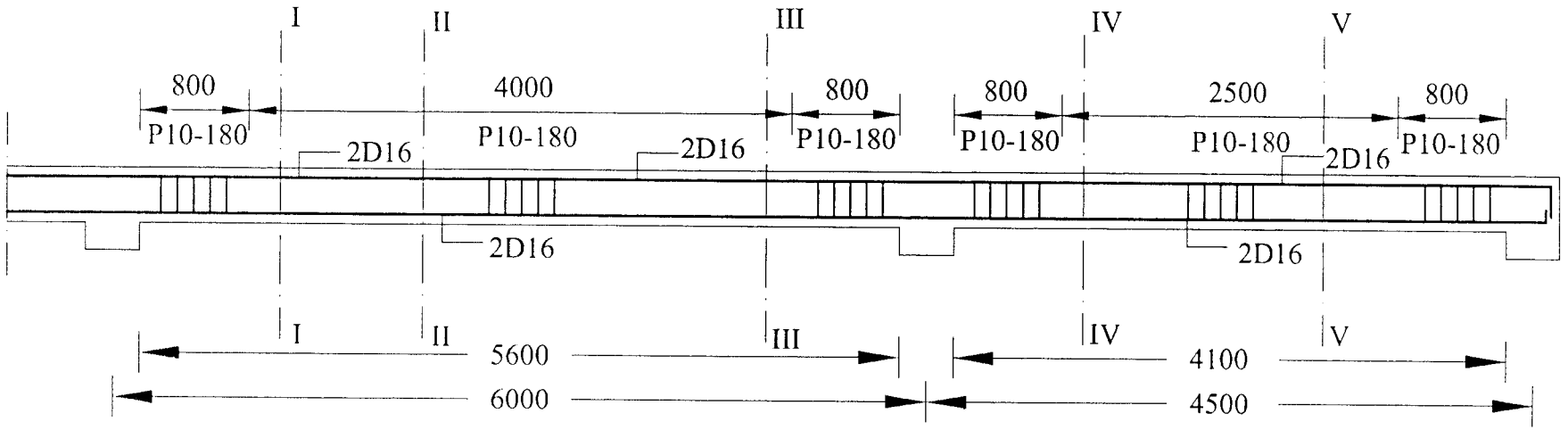
Skala 1:50



POT. I-I
Skala 1:10

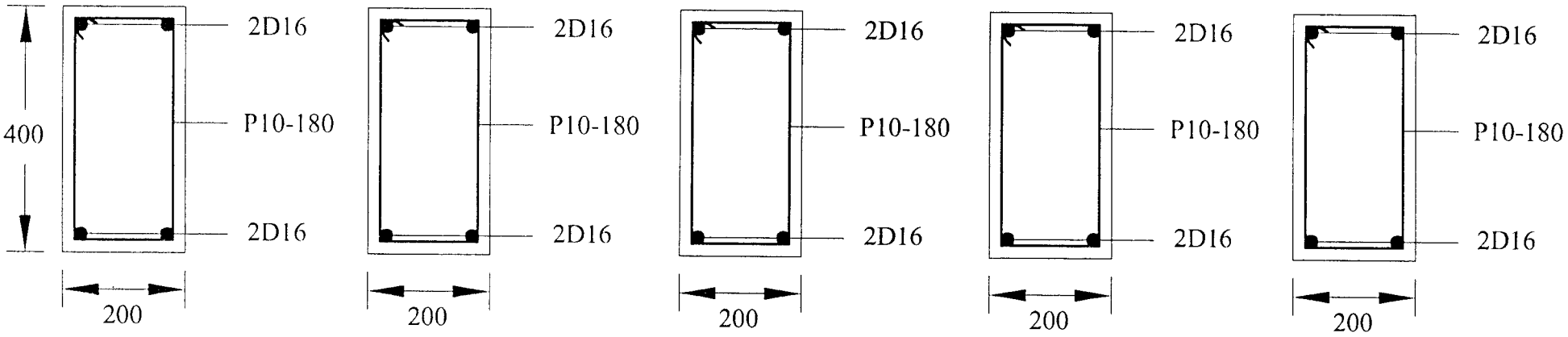
POT. II-II
Skala 1:10

POT. III-III
Skala 1:10



PENULANGAN BALOK ANAK RING R2A & R3A

Skala 1:50



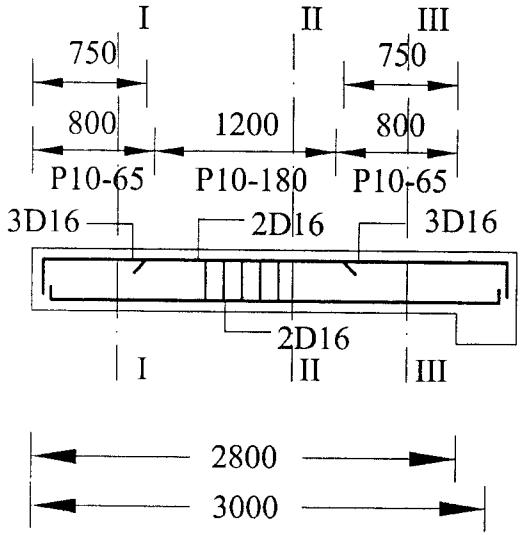
POT. I-I
Skala 1:10

POT. II-II
Skala 1:10

POT. III-III
Skala 1:10

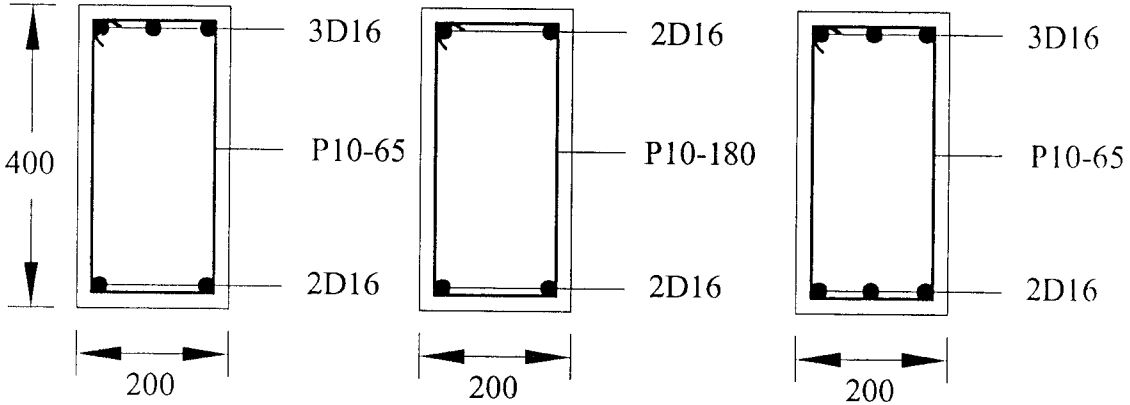
POT. IV-IV
Skala 1:10

POT. V-V
Skala 1:10



PENULANGAN BALOK ANAK RING B4A

Skala 1:50



POT. I-I

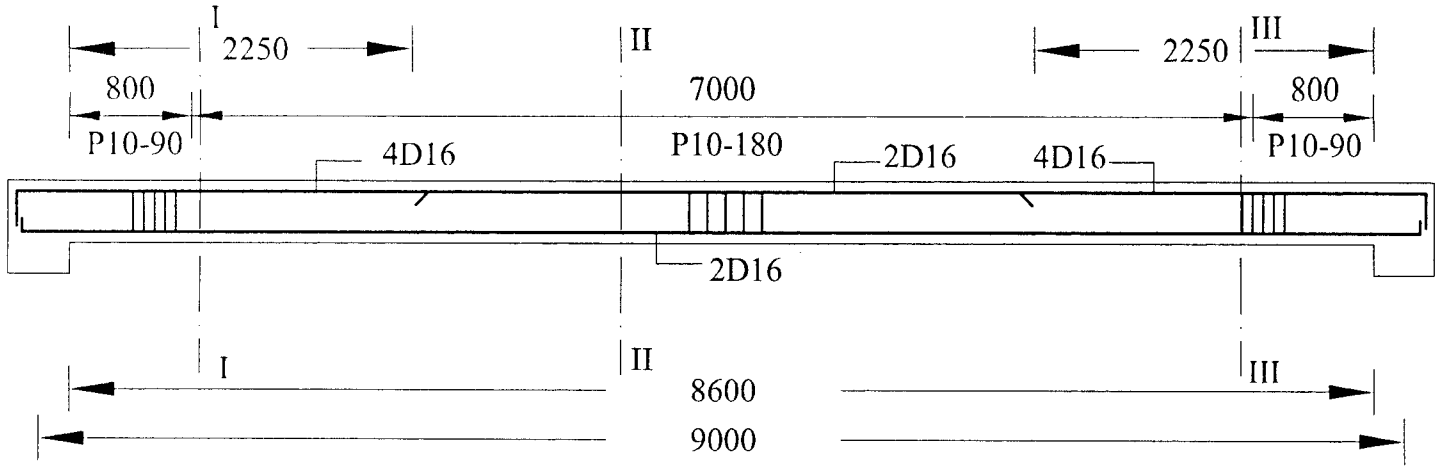
Skala 1:10

POT. II-II

Skala 1:10

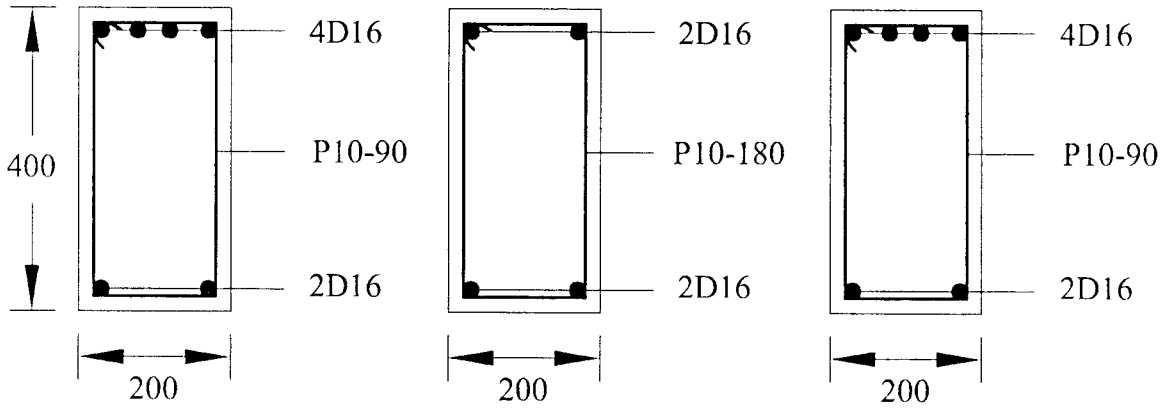
POT. III-III

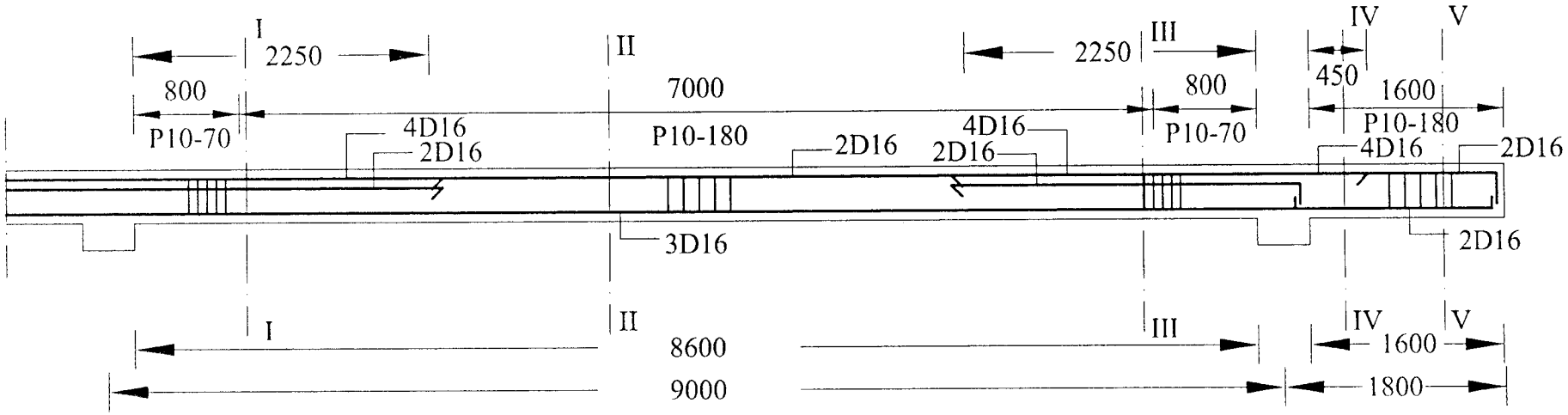
Skala 1:10



PENULANGAN BALOK ANAK B1aA LANTAI-3

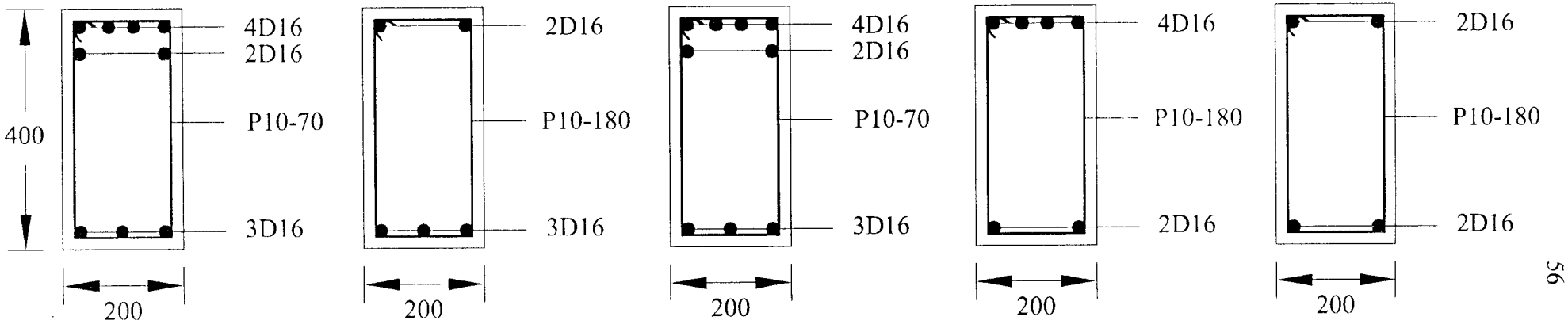
Skala 1:50





PENULANGAN BALOK ANAK B1bA & B5A LANTAI-3

Skala 1:50



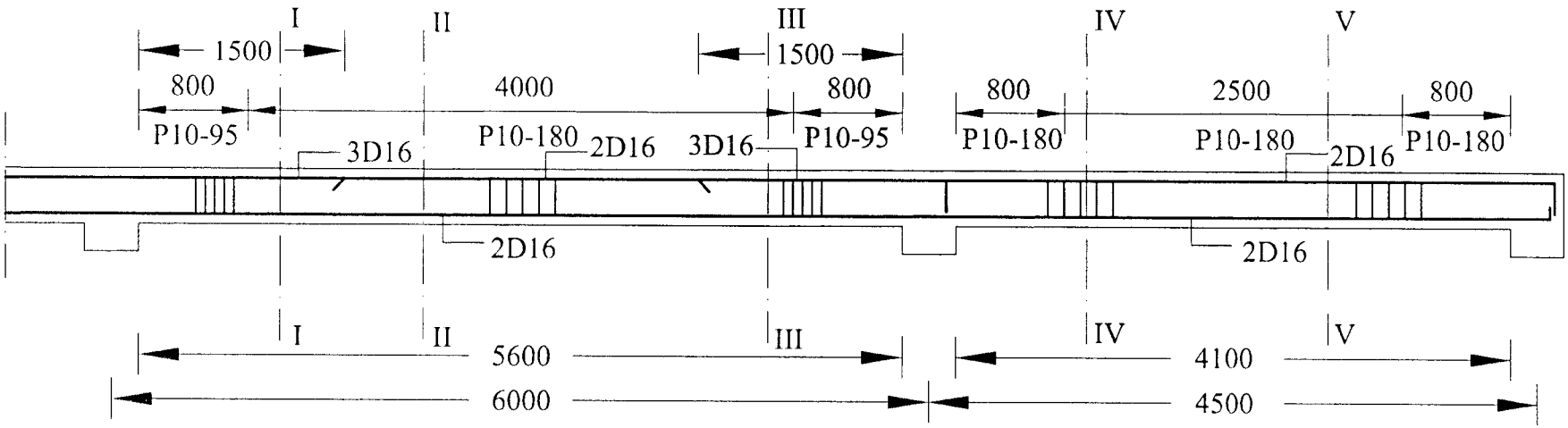
POT. I-I
Skala 1:10

POT. II-II
Skala 1:10

POT. III-III
Skala 1:10

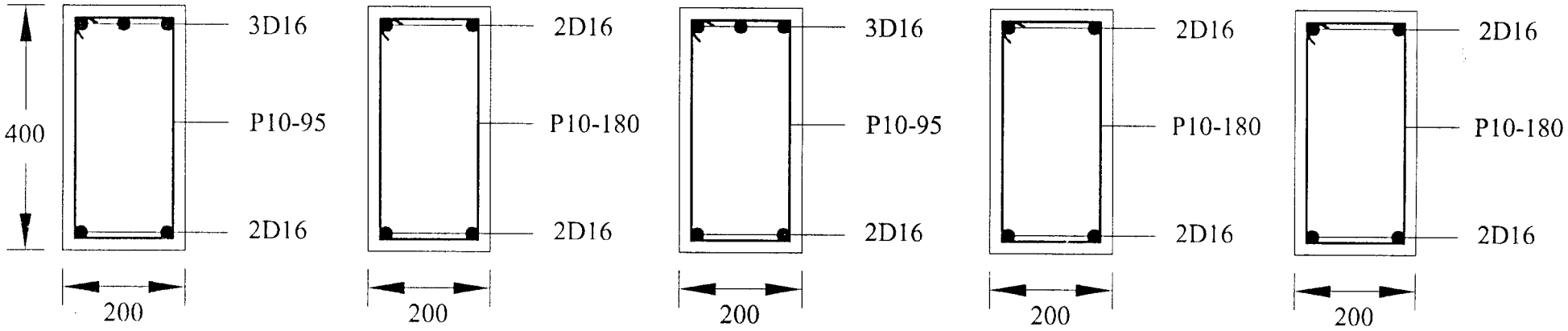
POT. IV-IV
Skala 1:10

POT. V-V
Skala 1:10



PENULANGAN BALOK ANAK B2aA & B3aA LANTAI-3

Skala 1:50



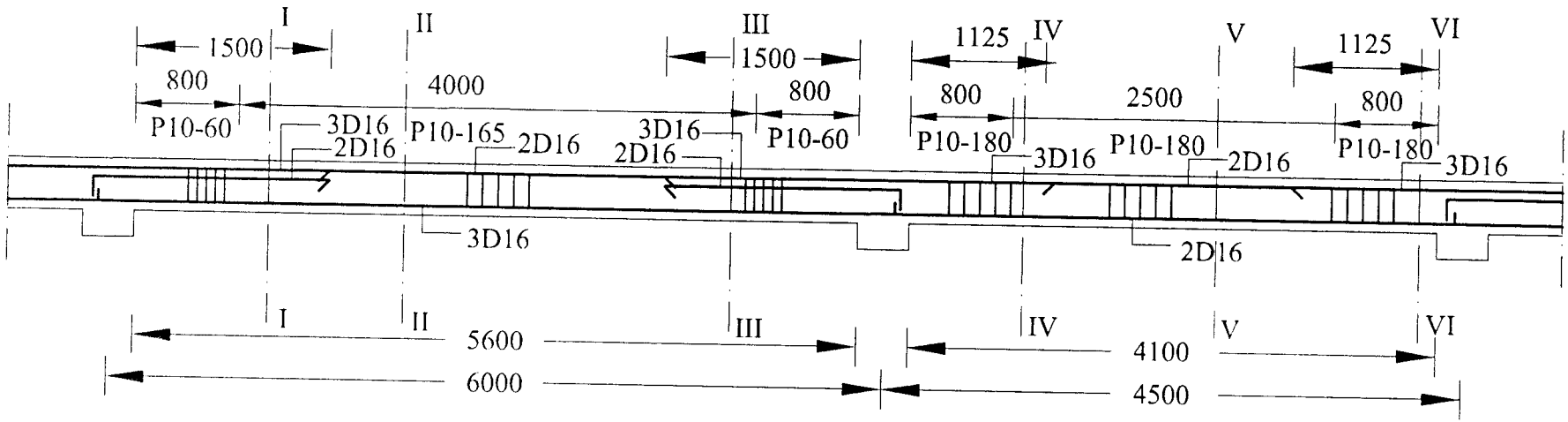
POT. I-I
Skala 1:10

POT. II-II
Skala 1:10

POT. III-III
Skala 1:10

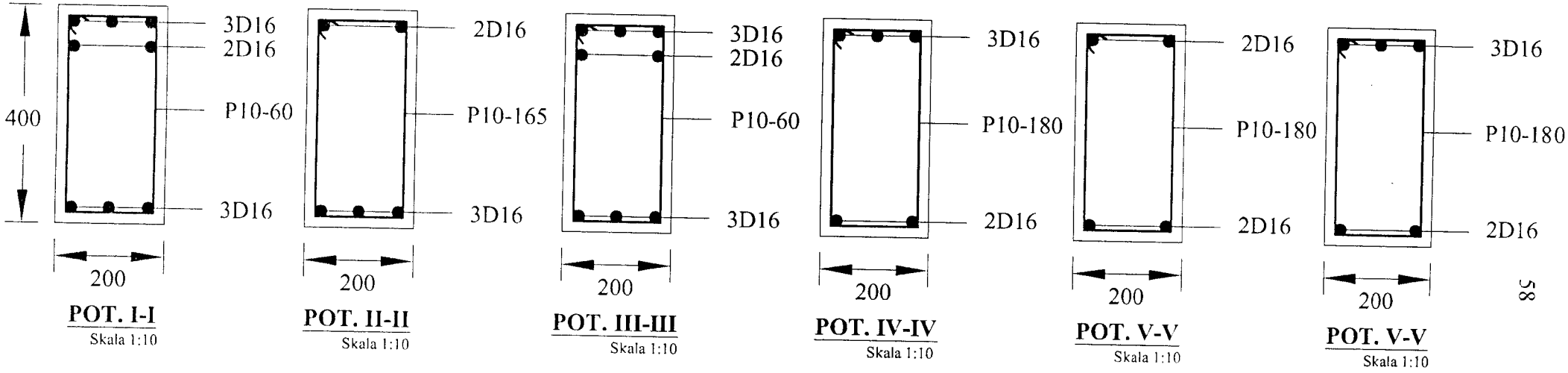
POT. IV-IV
Skala 1:10

POT. V-V
Skala 1:10



PENULANGAN BALOK ANAK B2bA & B3bA LANTAI-3

Skala 1:50



POT. I-I
Skala 1:10

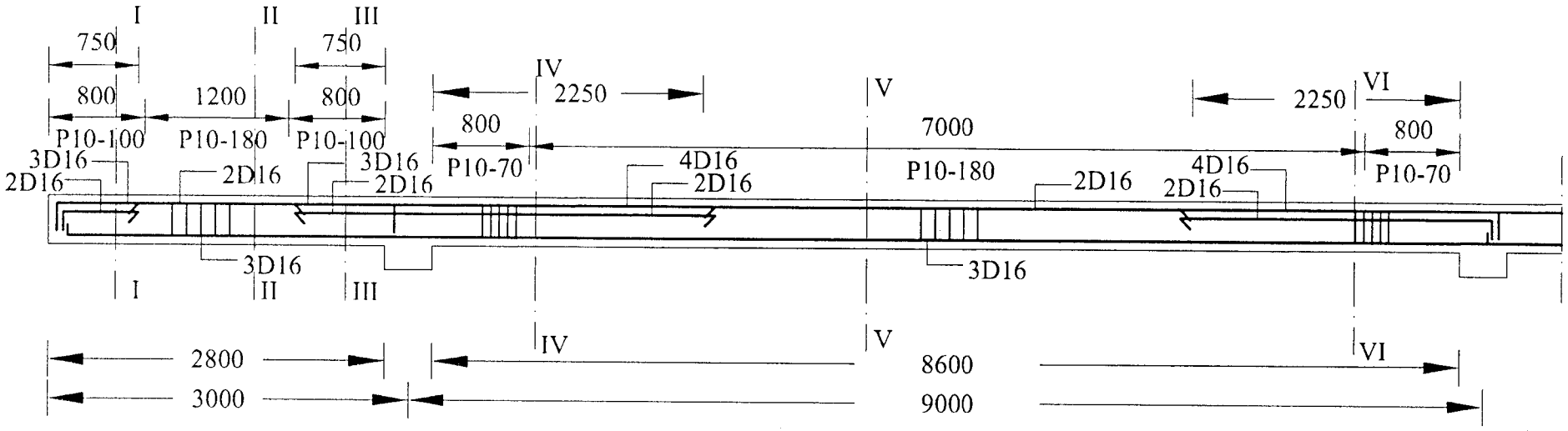
POT. II-II
Skala 1:10

POT. III-III
Skala 1:10

POT. IV-IV
Skala 1:10

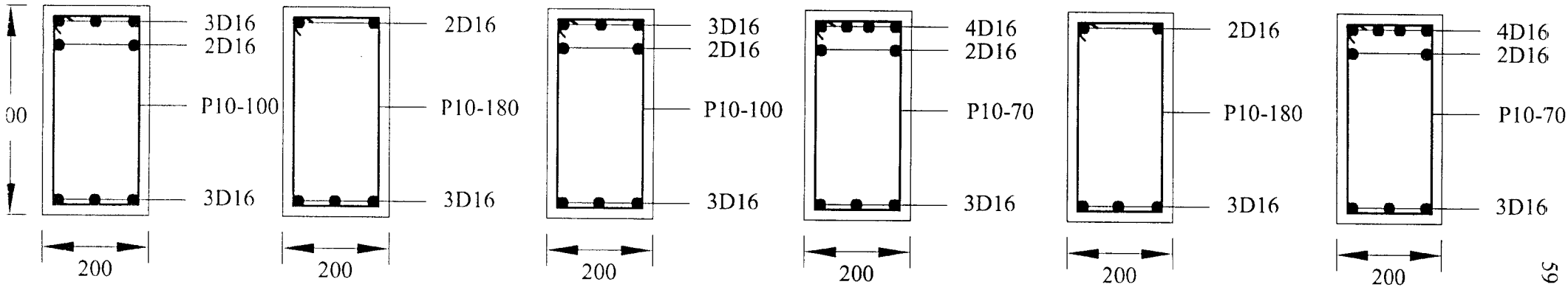
POT. V-V
Skala 1:10

POT. V-V
Skala 1:10



PENULANGAN BALOK ANAK B4A & B1bA LANTAI-3

Skala 1:50



POT. I-I
Skala 1:10

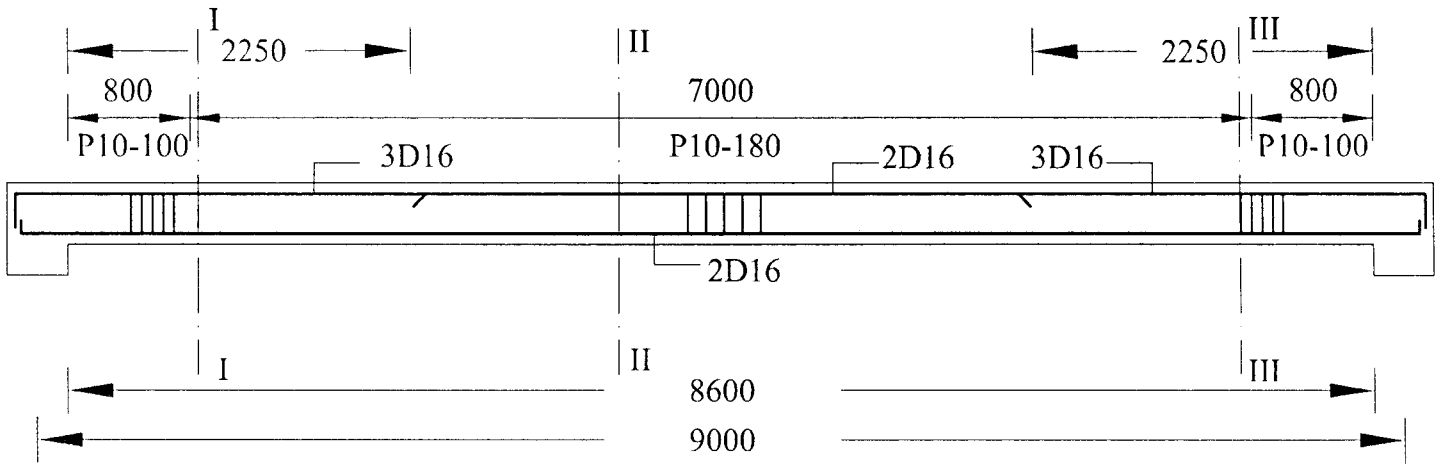
POT. II-II
Skala 1:10

POT. III-III
Skala 1:10

POT. IV-IV
Skala 1:10

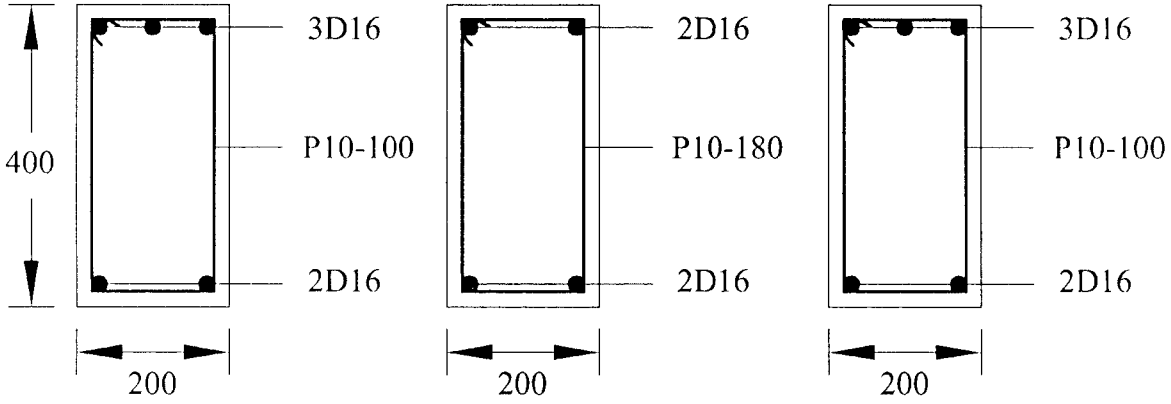
POT. V-V
Skala 1:10

POT. VI-VI
Skala 1:10



PENULANGAN BALOK ANAK B1aA LANTAI-2

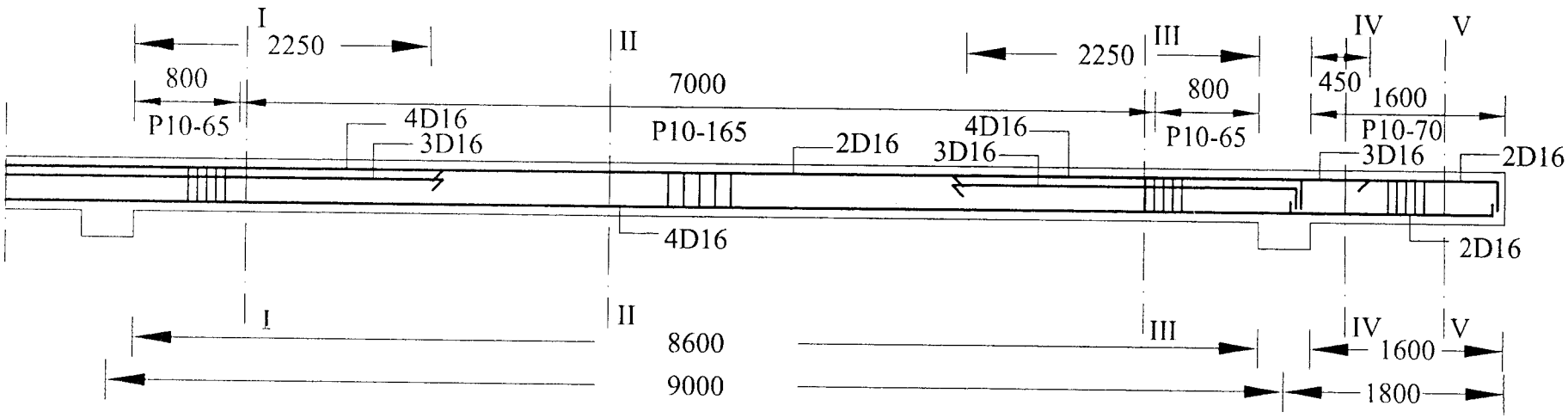
Skala 1:50



POT. I-I
Skala 1:10

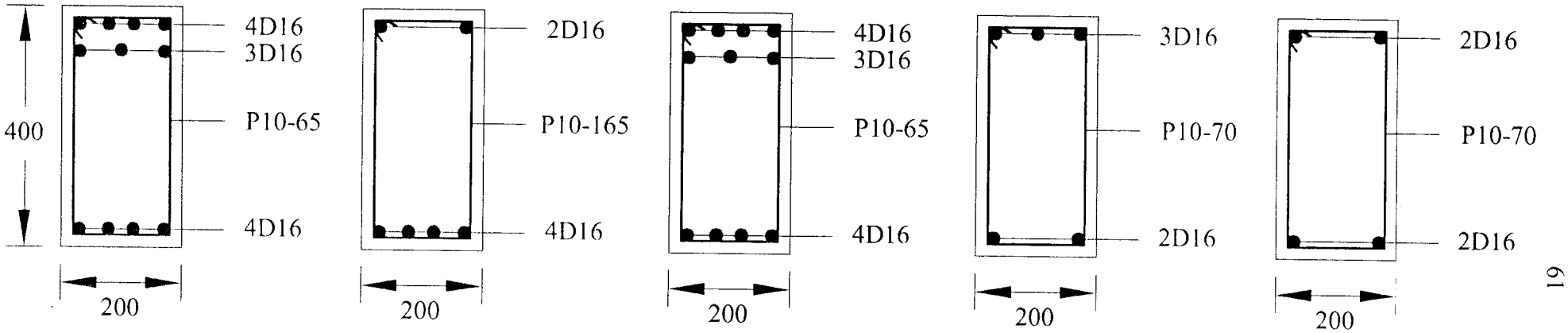
POT. II-II
Skala 1:10

POT. III-III
Skala 1:10



PENULANGAN BALOK ANAK B1bA & B5A LANTAI-2

Skala 1:50



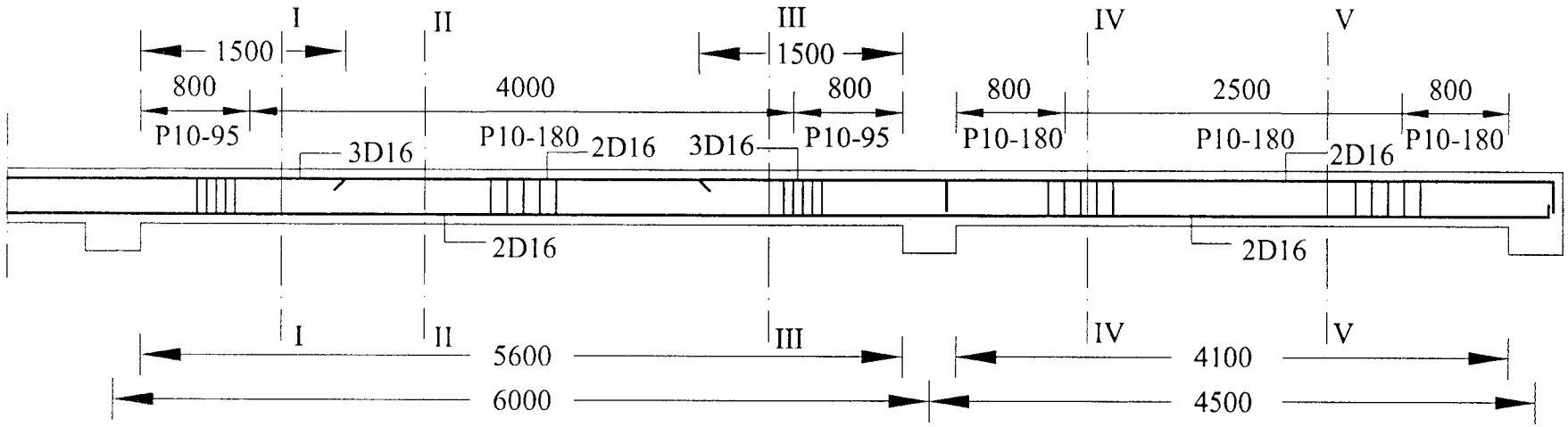
POT. I-I
Skala 1:10

POT. II-II
Skala 1:10

POT. III-III
Skala 1:10

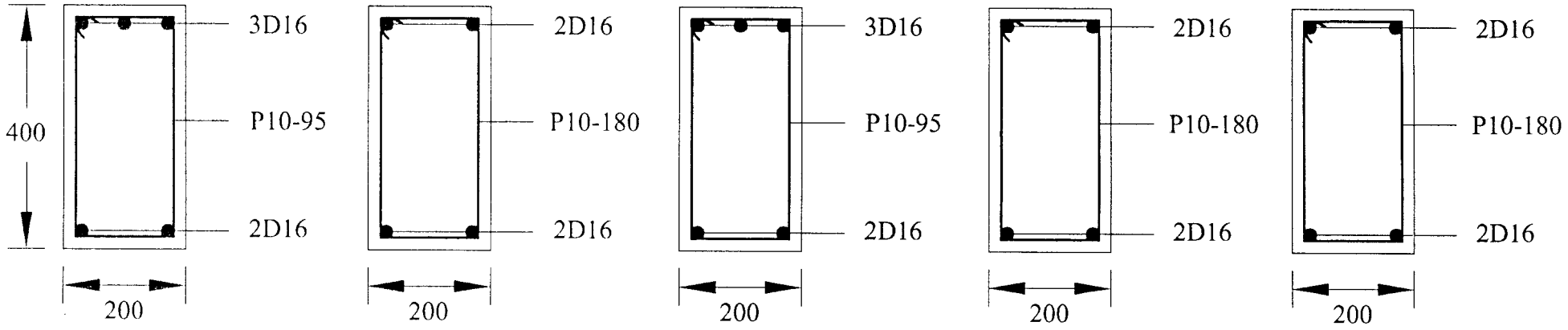
POT. IV-IV
Skala 1:10

POT. V-V
Skala 1:10



PENULANGAN BALOK ANAK B2aA & B3aA LANTAI-2

Skala 1:50



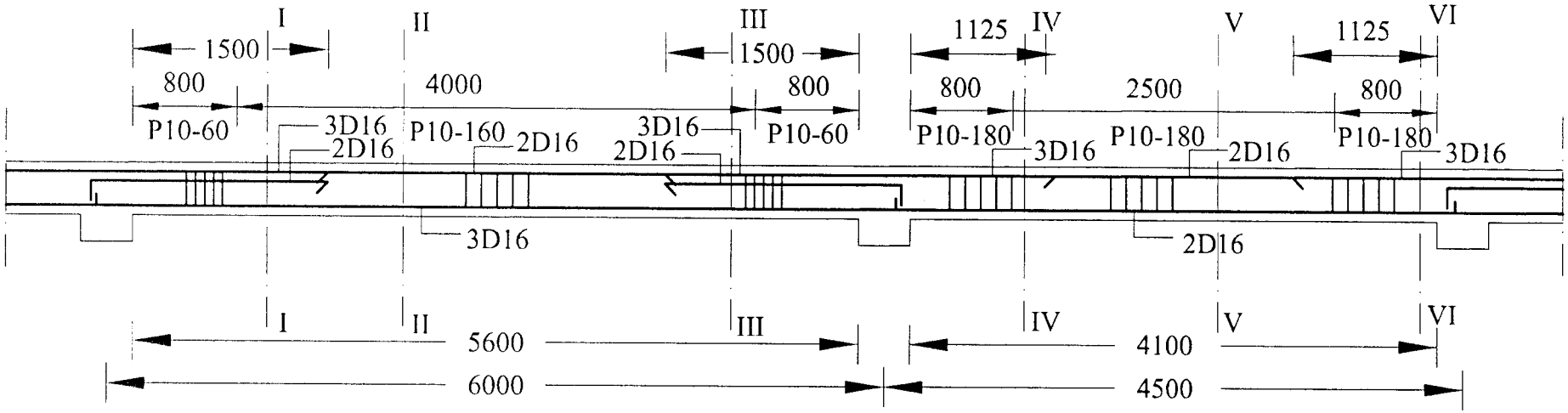
POT. I-I
Skala 1:10

POT. II-II
Skala 1:10

POT. III-III
Skala 1:10

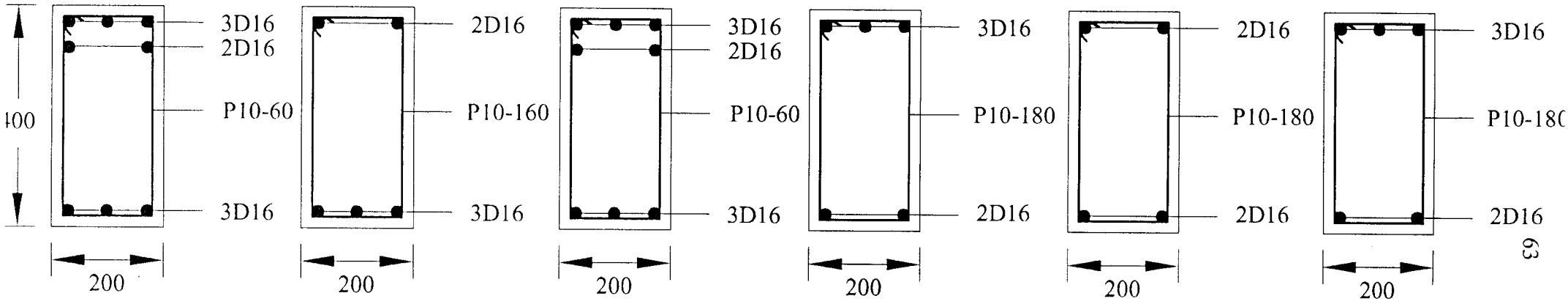
POT. IV-IV
Skala 1:10

POT. V-V
Skala 1:10



PENULANGAN BALOK ANAK B2bA & B3bA LANTAI-2

Skala 1:50



POT. I-I
Skala 1:10

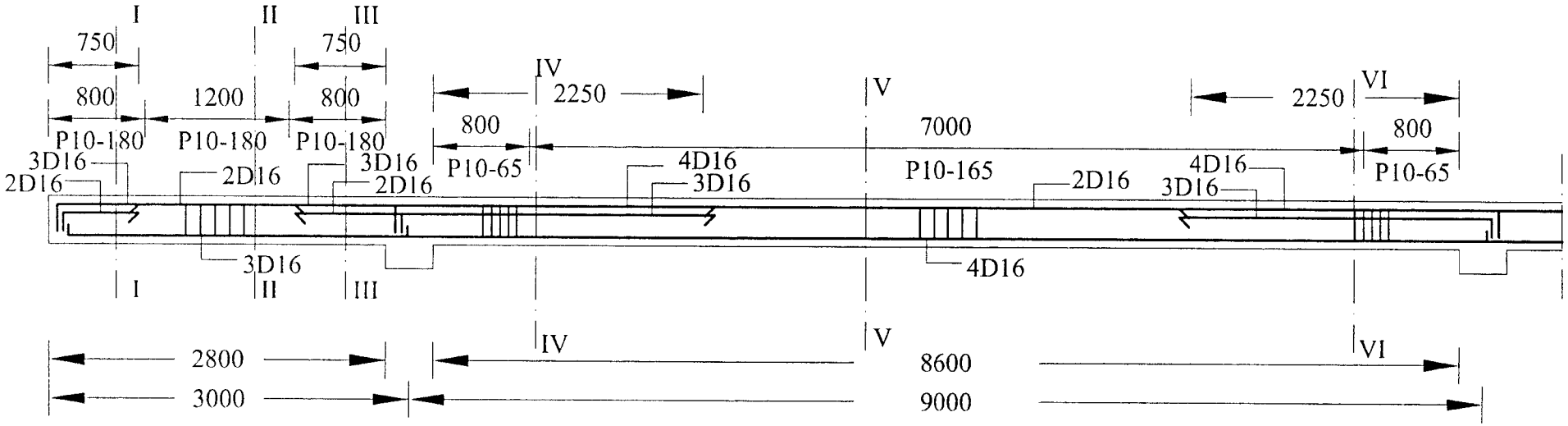
POT. II-II
Skala 1:10

POT. III-III
Skala 1:10

POT. IV-IV
Skala 1:10

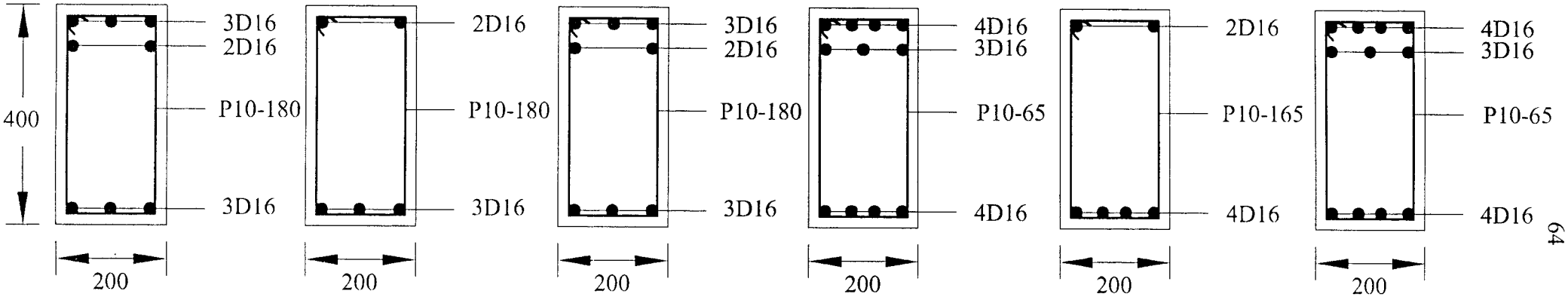
POT. V-V
Skala 1:10

POT. V-V
Skala 1:10



PENULANGAN BALOK ANAK B4A & B1bA LANTAI-2

Skala 1:50



POT. I-I Skala 1:10

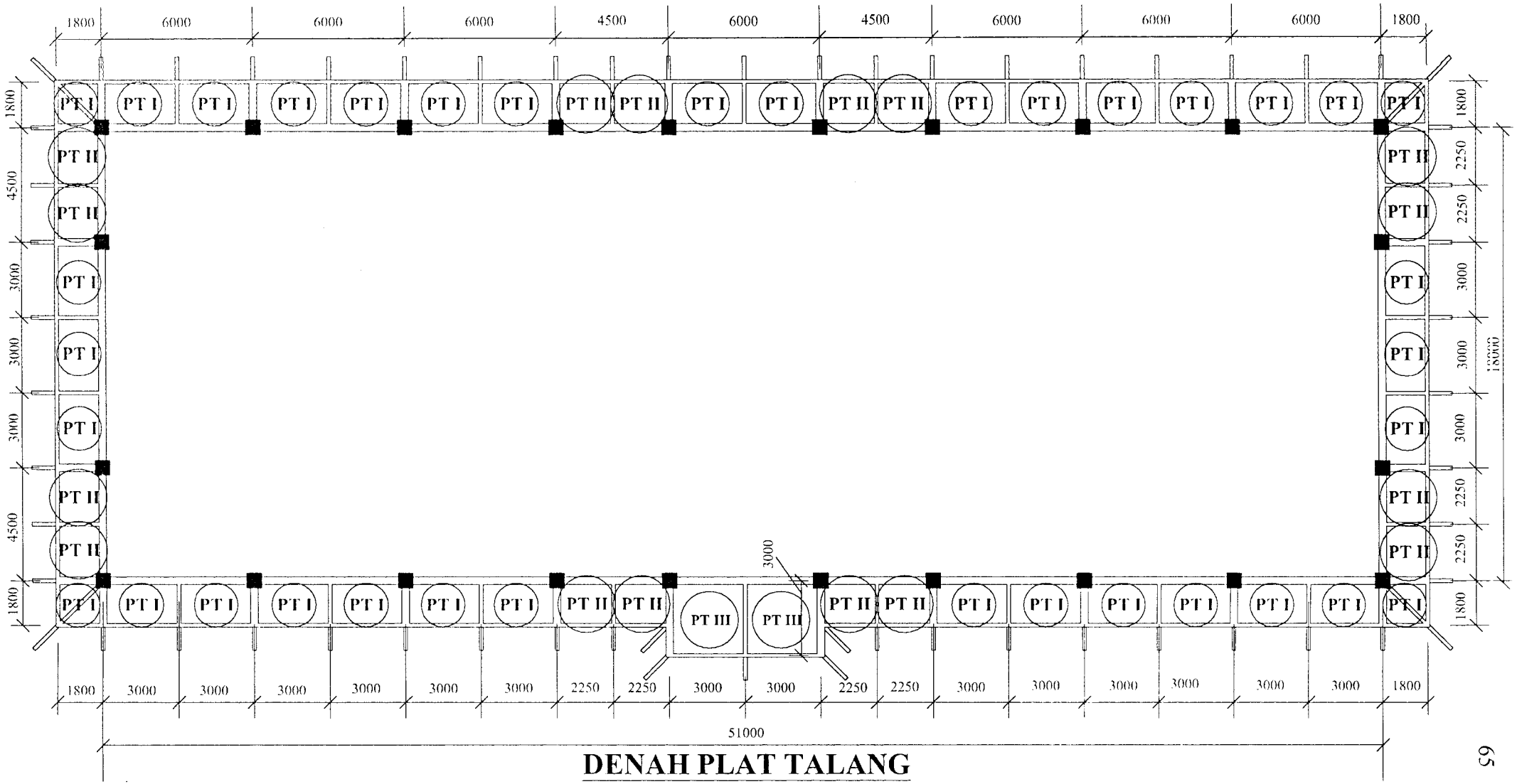
POT. II-II Skala 1:10

POT. III-III Skala 1:10

POT. IV-IV Skala 1:10

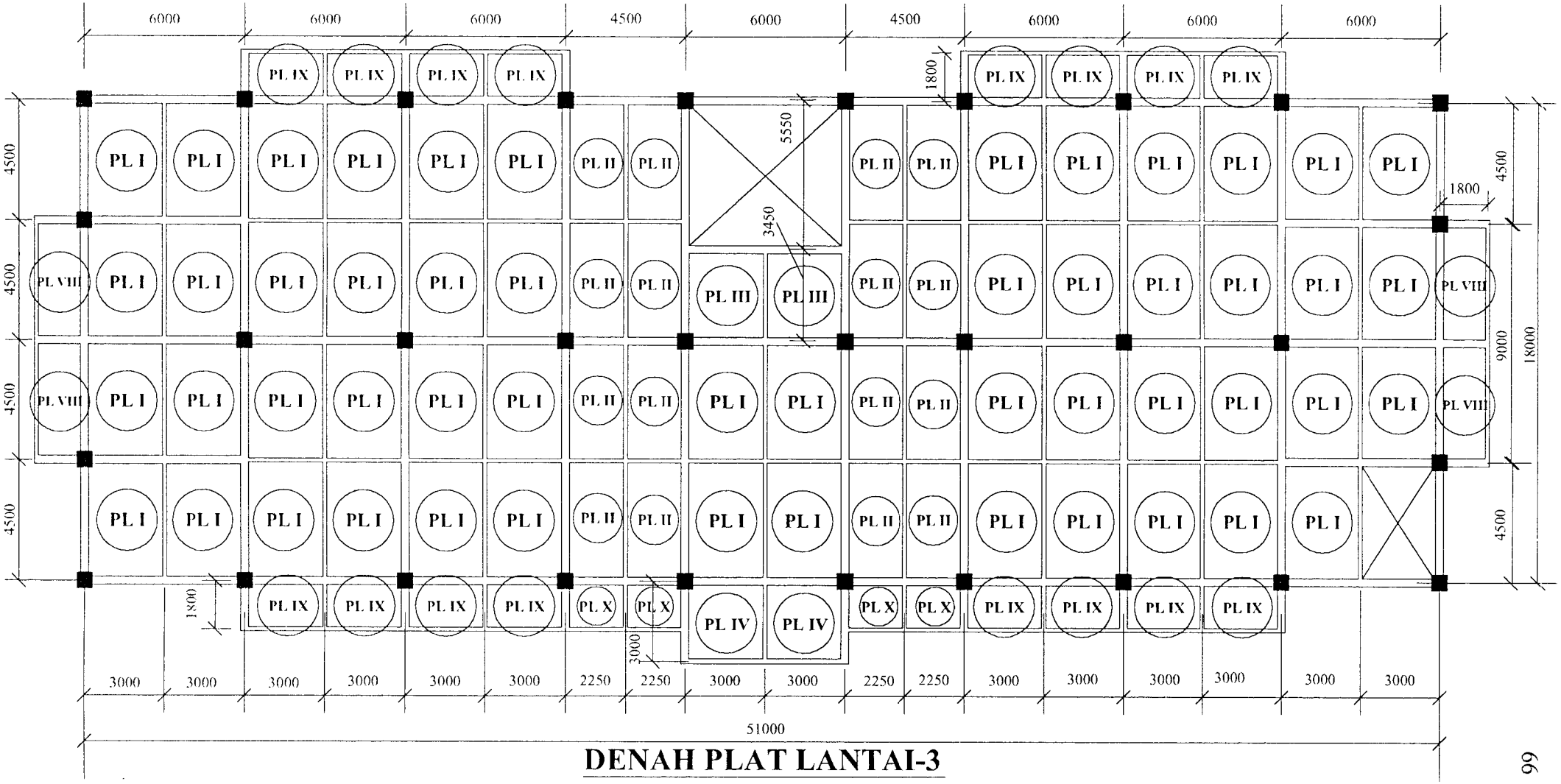
POT. V-V Skala 1:10

POT. VI-VI Skala 1:10



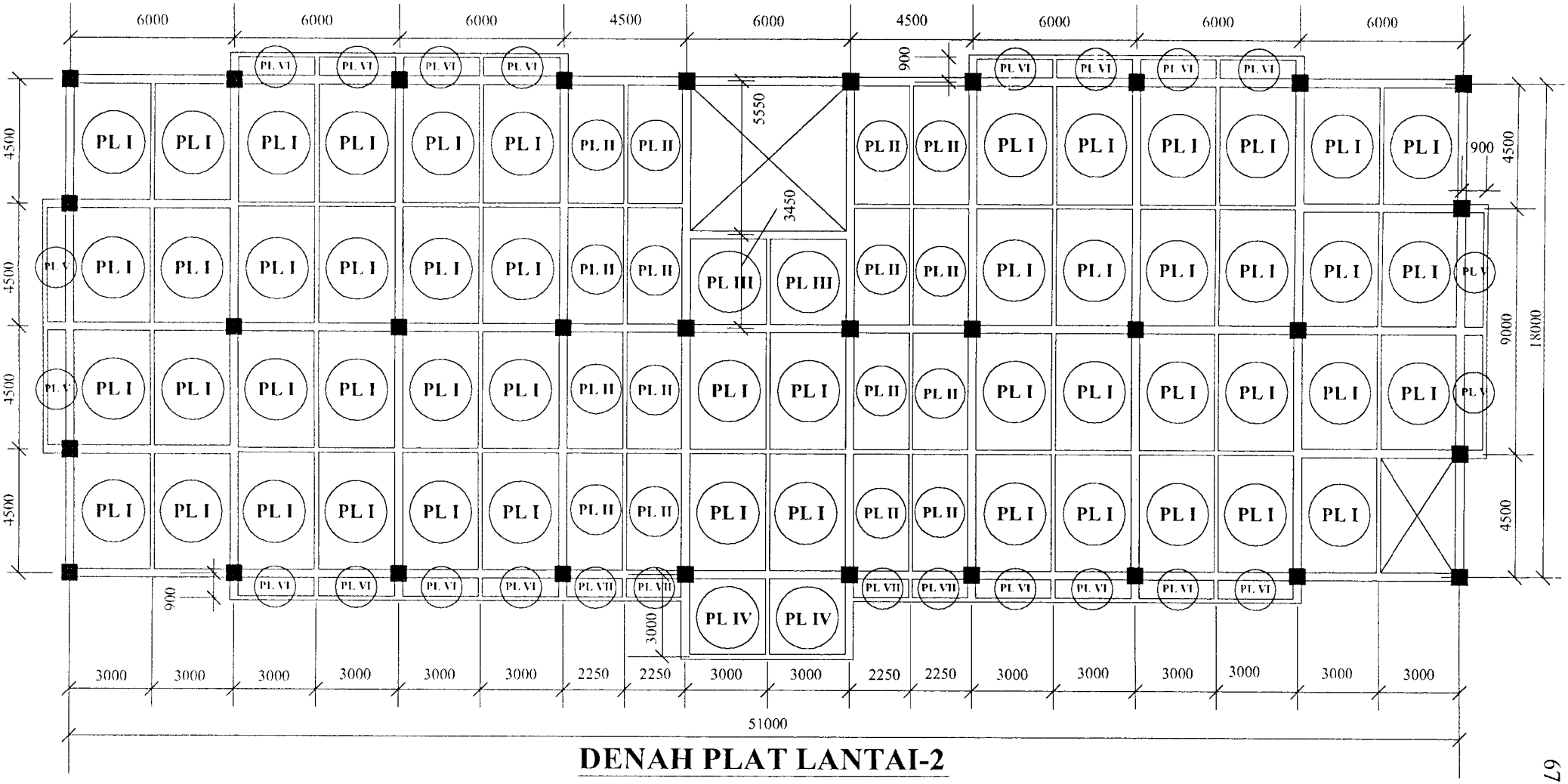
DENAH PLAT TALANG

Skala 1:200



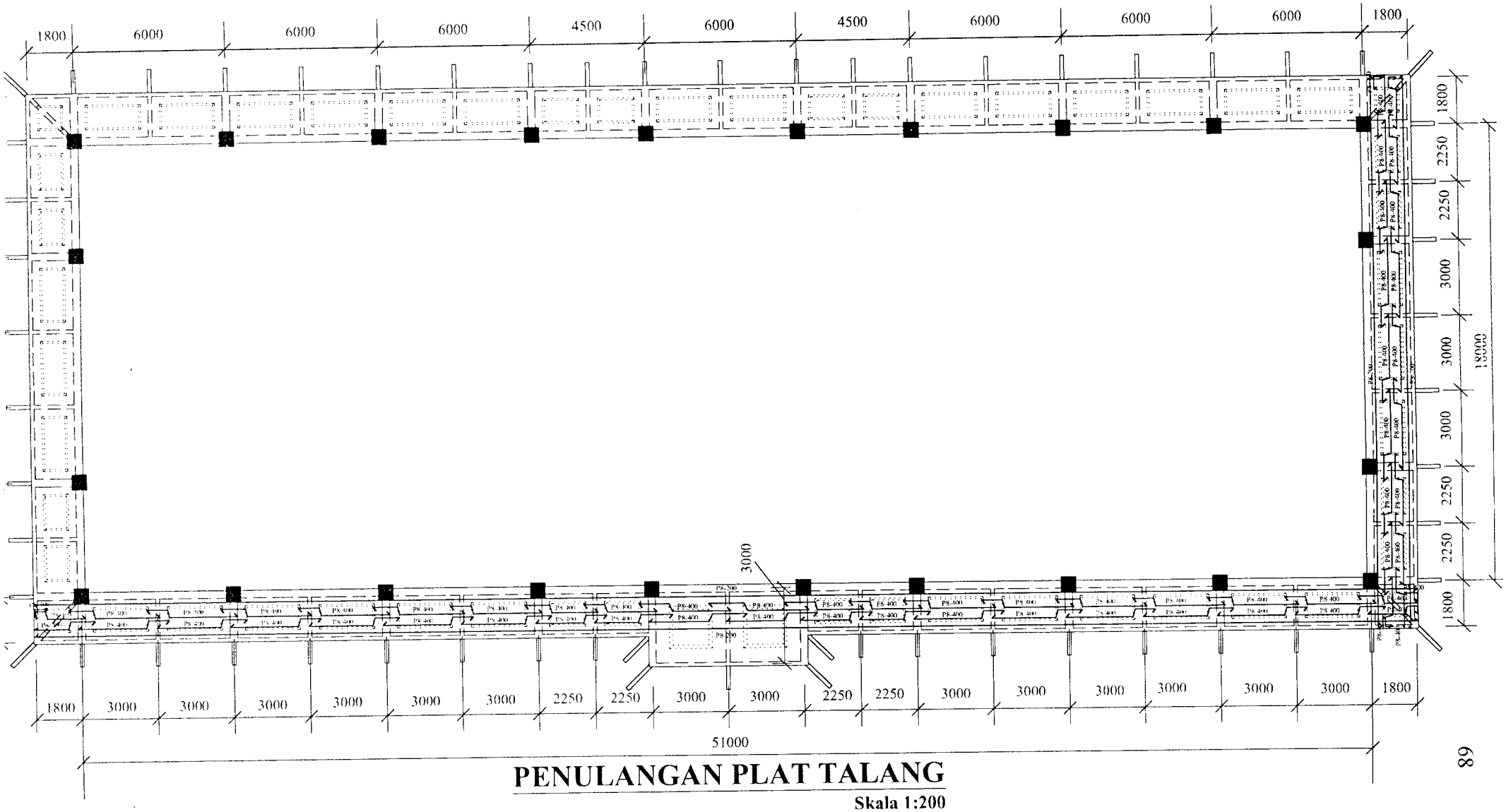
DENAH PLAT LANTAI-3

Skala 1:200



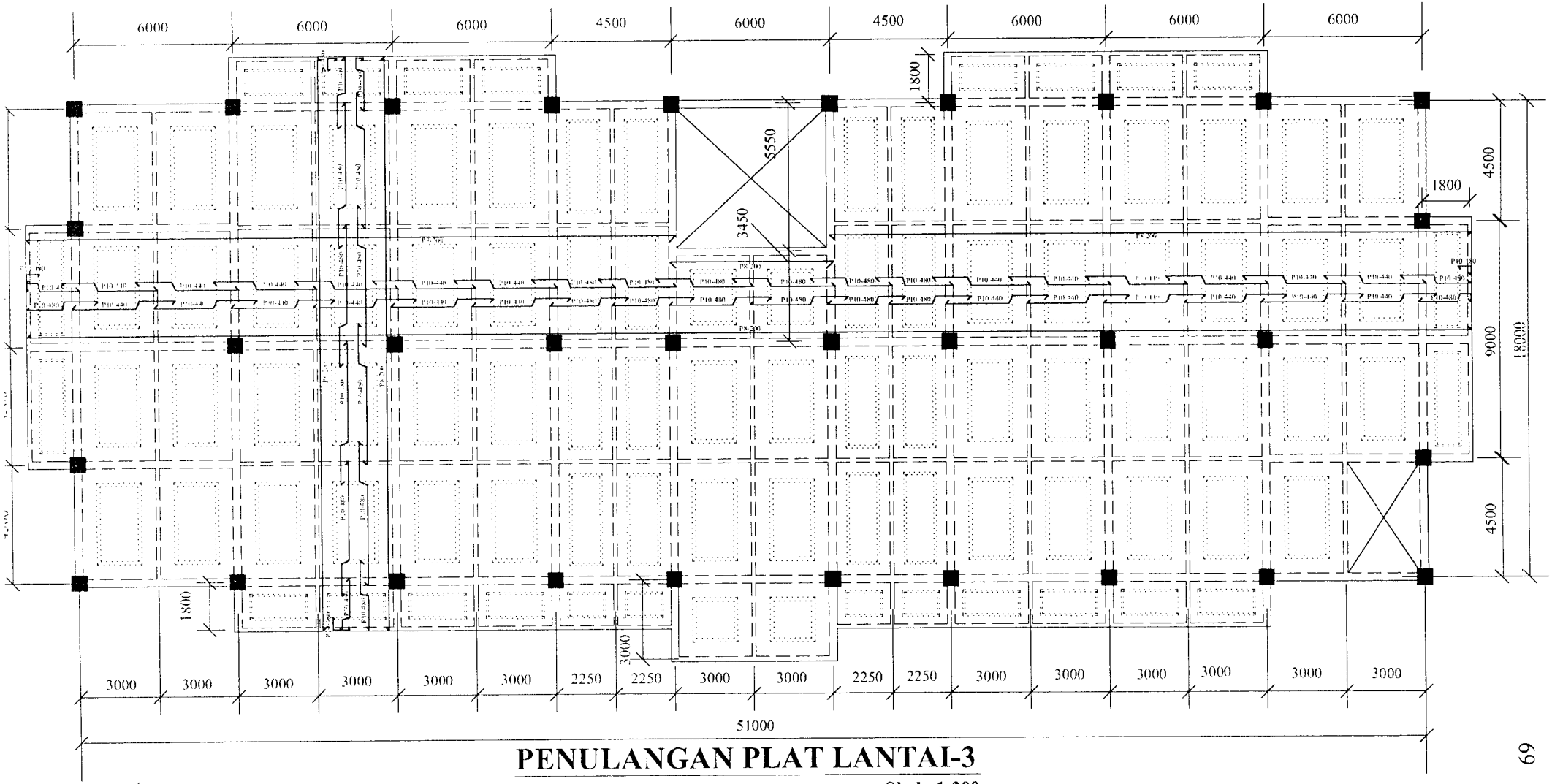
DENAH PLAT LANTAI-2

Skala 1:200



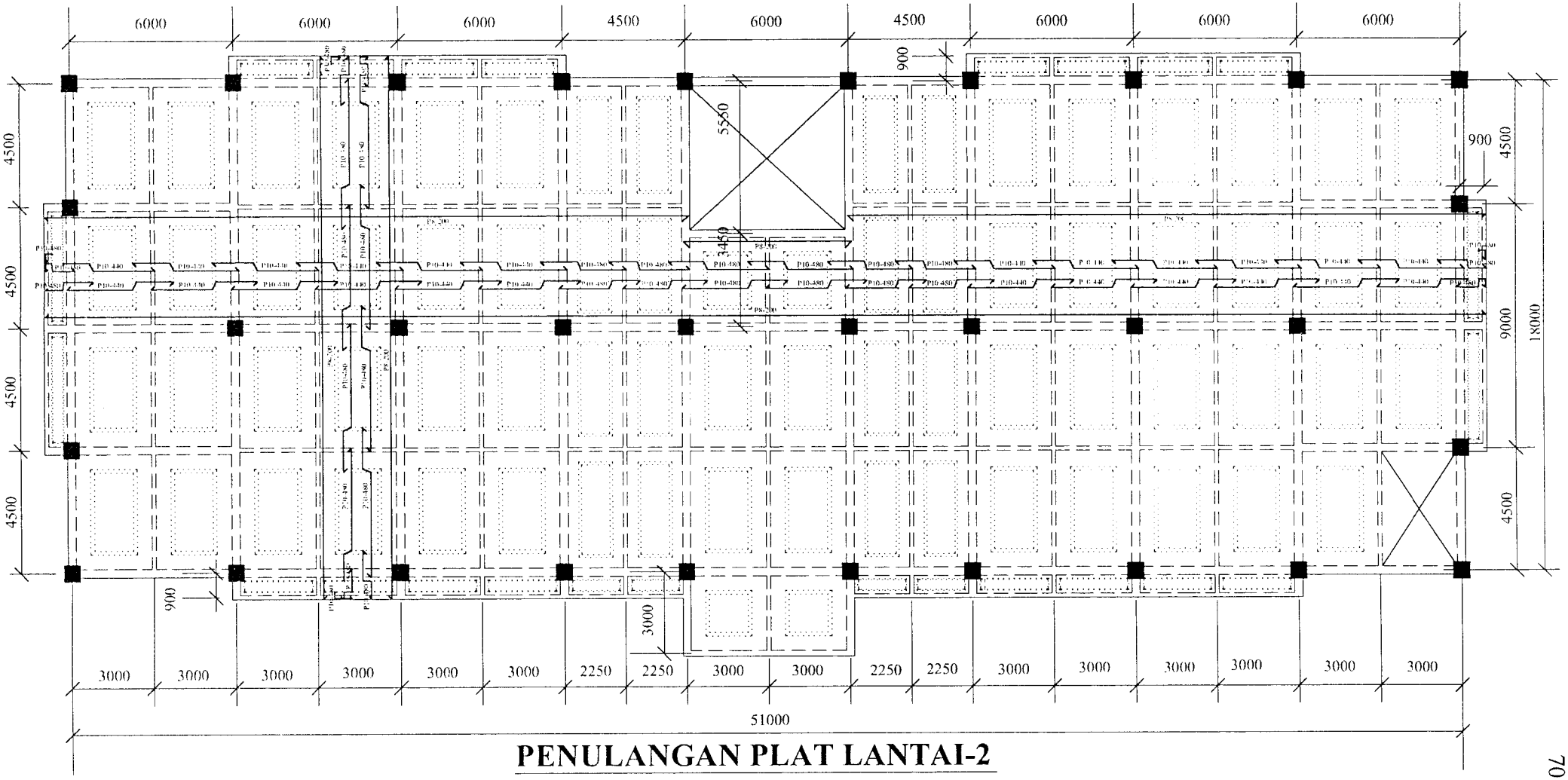
PENULANGAN PLAT TALANG

Skala 1:200



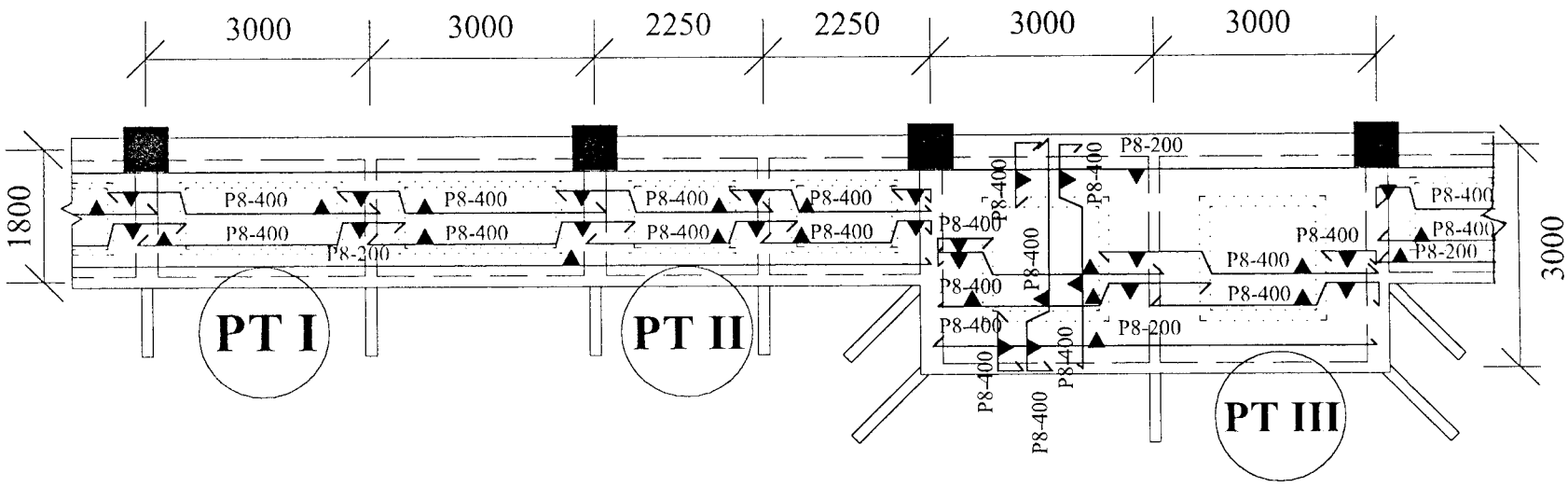
PENULANGAN PLAT LANTAI-3

Skala 1:200



PENULANGAN PLAT LANTAI-2

Skala 1:200



DETAIL PENULANGAN PLAT TALANG TIPE I, II & III

Skala 1:100

TIPE I

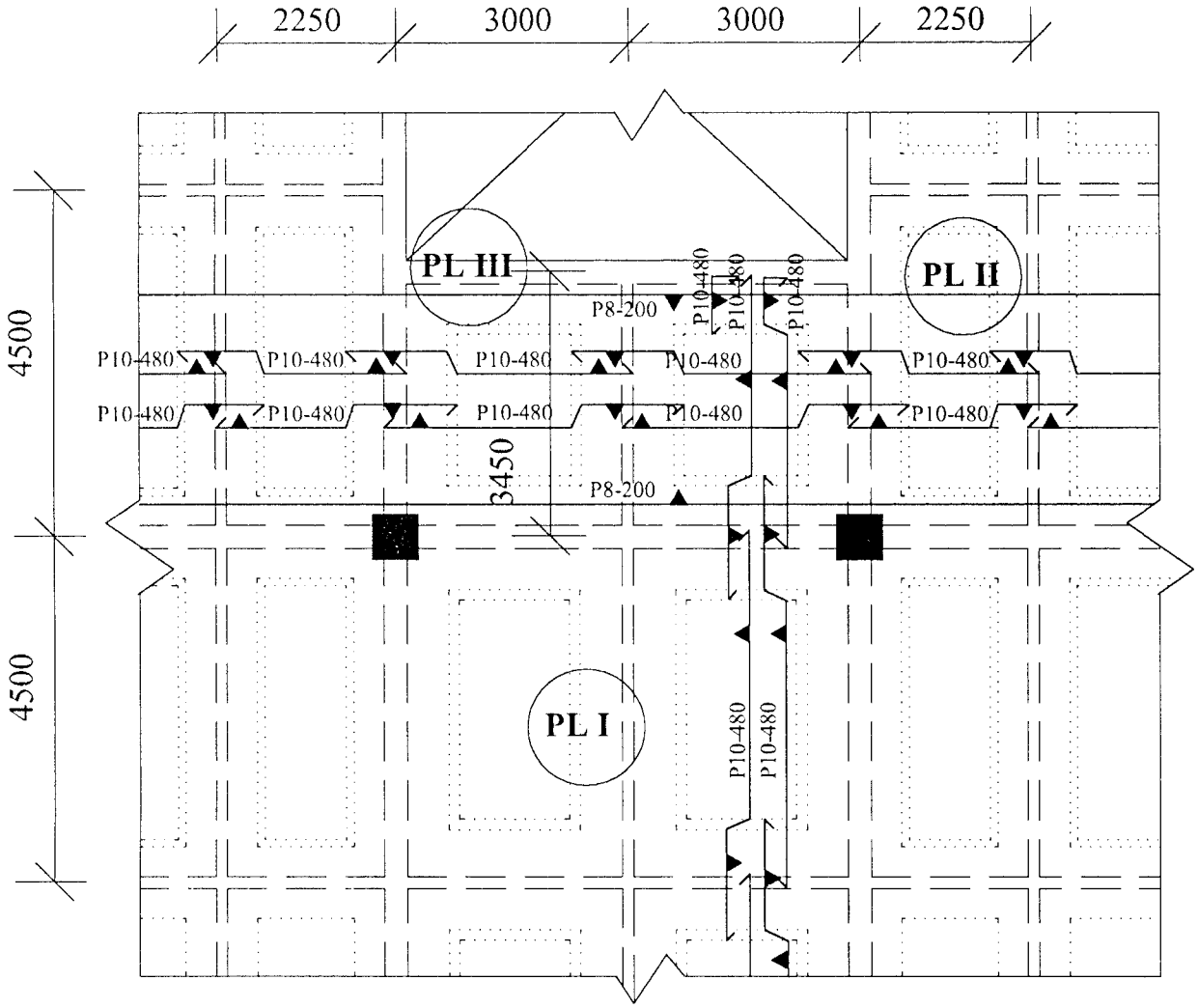
lx = 1800 mm
ly = 3000 mm
tul. lx = tx = P8-200
tul. ly = P8-200
tul. ty = P8-200
tul. bagi tx = P8-200
tul. bagi ty = P8-200

TIPE II

lx = 1800 mm
ly = 2250 mm
tul. lx = tx = P8-200
tul. ly = P8-200
tul. ty = P8-200
tul. bagi tx = P8-200
tul. bagi ty = P8-200

TIPE III

lx = 3000 mm
ly = 3000 mm
tul. lx = tx = P8-200
tul. ly = P8-200
tul. ty = P8-200
tul. bagi tx = P8-200
tul. bagi ty = P8-200



DETAIL PENULANGAN PLAT TIPE I, II & III LANTAI 3

Skala 1:100

TIPE I

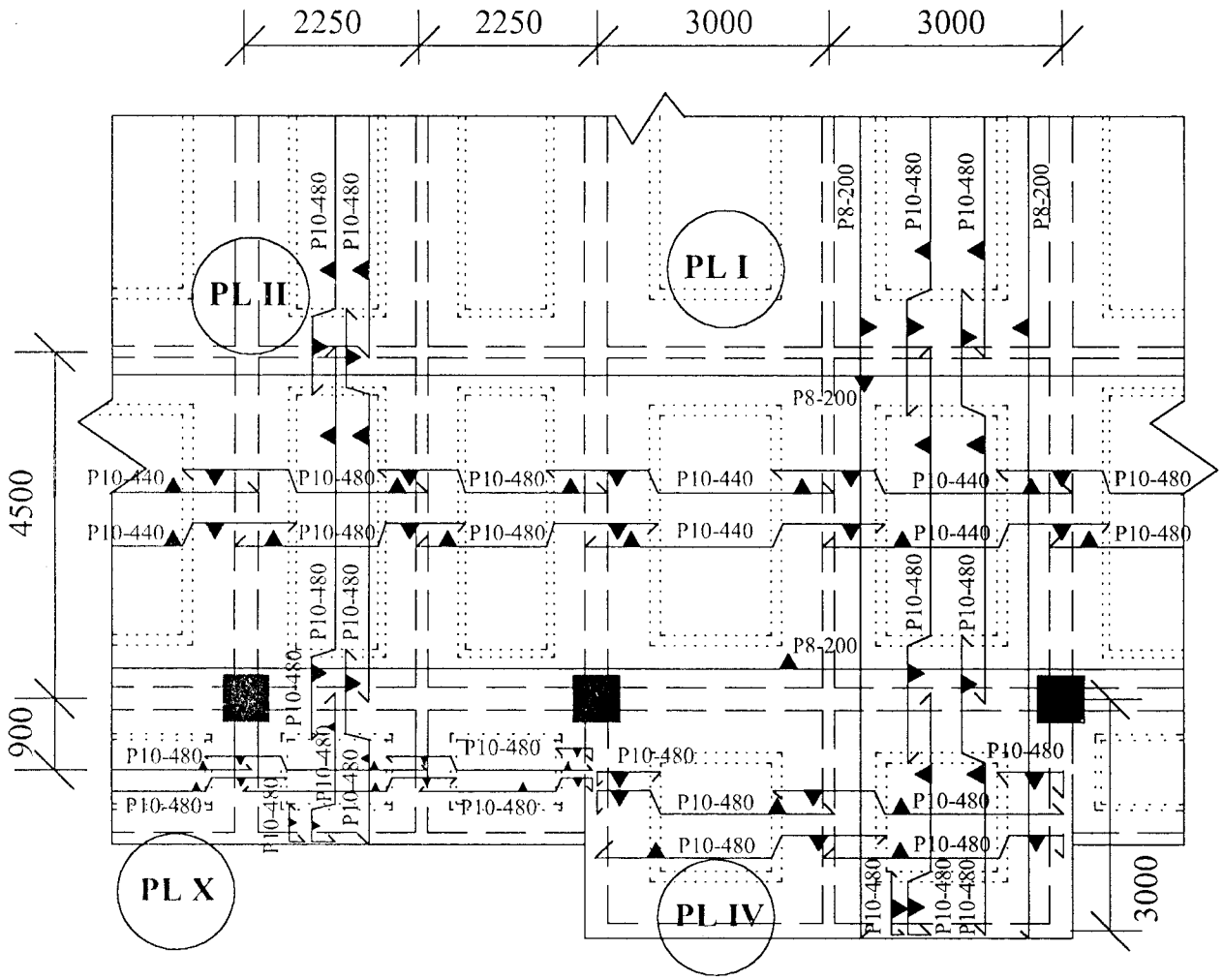
lx = 3000 mm
ly = 4500 mm
tul. lx = tx = P10-220
tul. ly = P10-240
tul. ty = P10-240
tul. bagi tx = P8-200
tul. bagi ty = P8-200

TIPE II

lx = 2250 mm
ly = 4500 mm
tul. lx = tx = P10-240
tul. ly = P10-240
tul. ty = P10-240
tul. bagi tx = P8-200
tul. bagi ty = P8-200

TIPE III

lx = 3000 mm
ly = 3450 mm
tul. lx = tx = P10-240
tul. ly = P10-240
tul. ty = P10-240
tul. bagi tx = P8-200
tul. bagi ty = P8-200



DETAIL PENULANGAN PLAT TIPE I, II, IV & X LANTAI 3

Skala 1:100

TIPE I

lx = 3000 mm
ly = 4500 mm
tul. lx = tx = P10-220
tul. ly = P10-240
tul. ty = P10-240
tul. bagi tx = P8-200
tul. bagi ty = P8-200

TIPE II

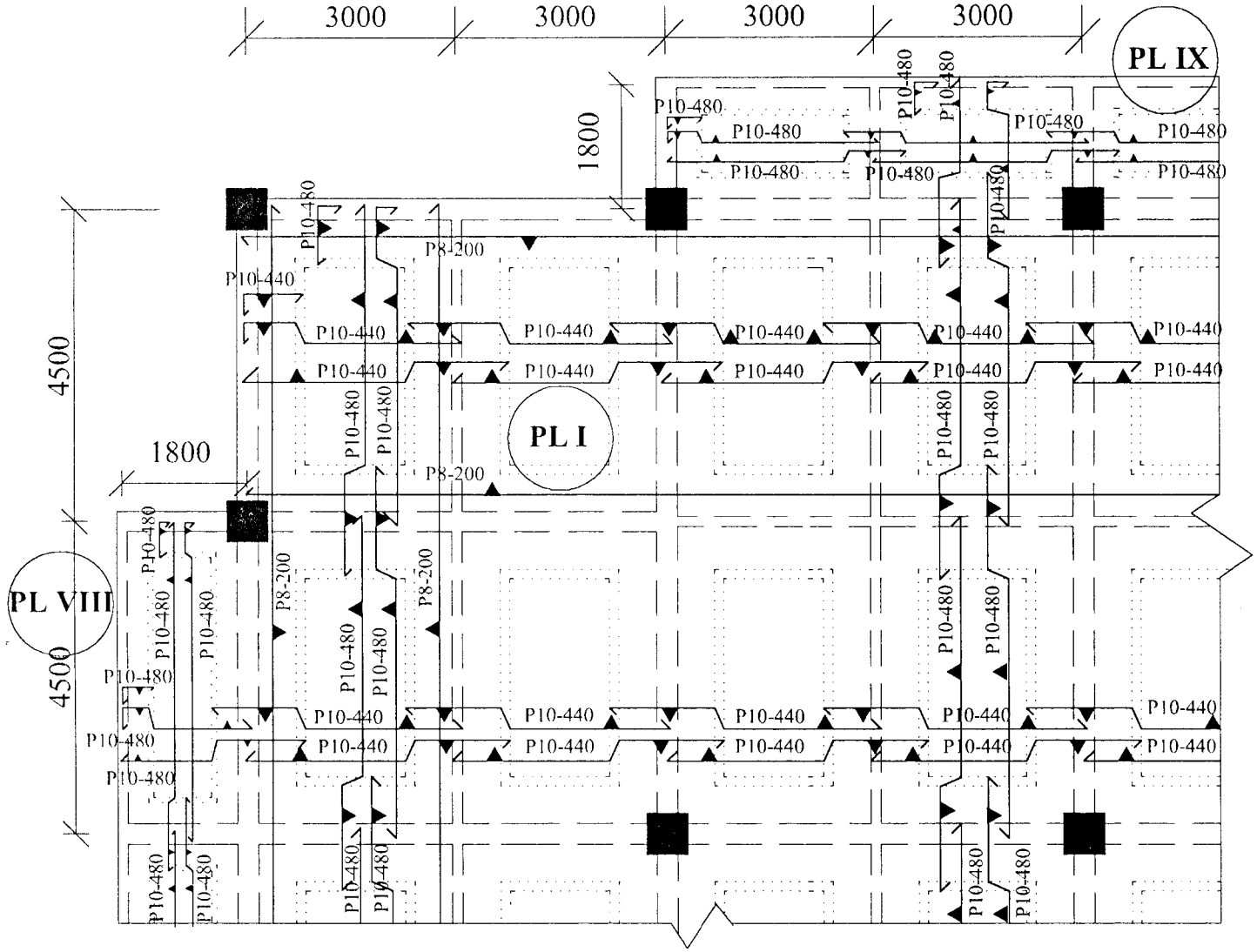
lx = 2250 mm
ly = 4500 mm
tul. lx = tx = P10-240
tul. ly = P10-240
tul. ty = P10-240
tul. bagi tx = P8-200
tul. bagi ty = P8-200

TIPE IV

lx = 3000 mm
ly = 3000 mm
tul. lx = tx = P10-240
tul. ly = P10-240
tul. ty = P10-240
tul. bagi tx = P8-200
tul. bagi ty = P8-200

TIPE X

lx = 1800 mm
lx = 2250 mm
tul. lx = tx = P10-240
tul. ly = P10-240
tul. ty = P10-240
tul. bagi tx = P8-200
tul. bagi ty = P8-200



DETAIL PENULANGAN PLAT TIPE I, VIII & IX LANTAI 3

Skala 1:100

TIPE I

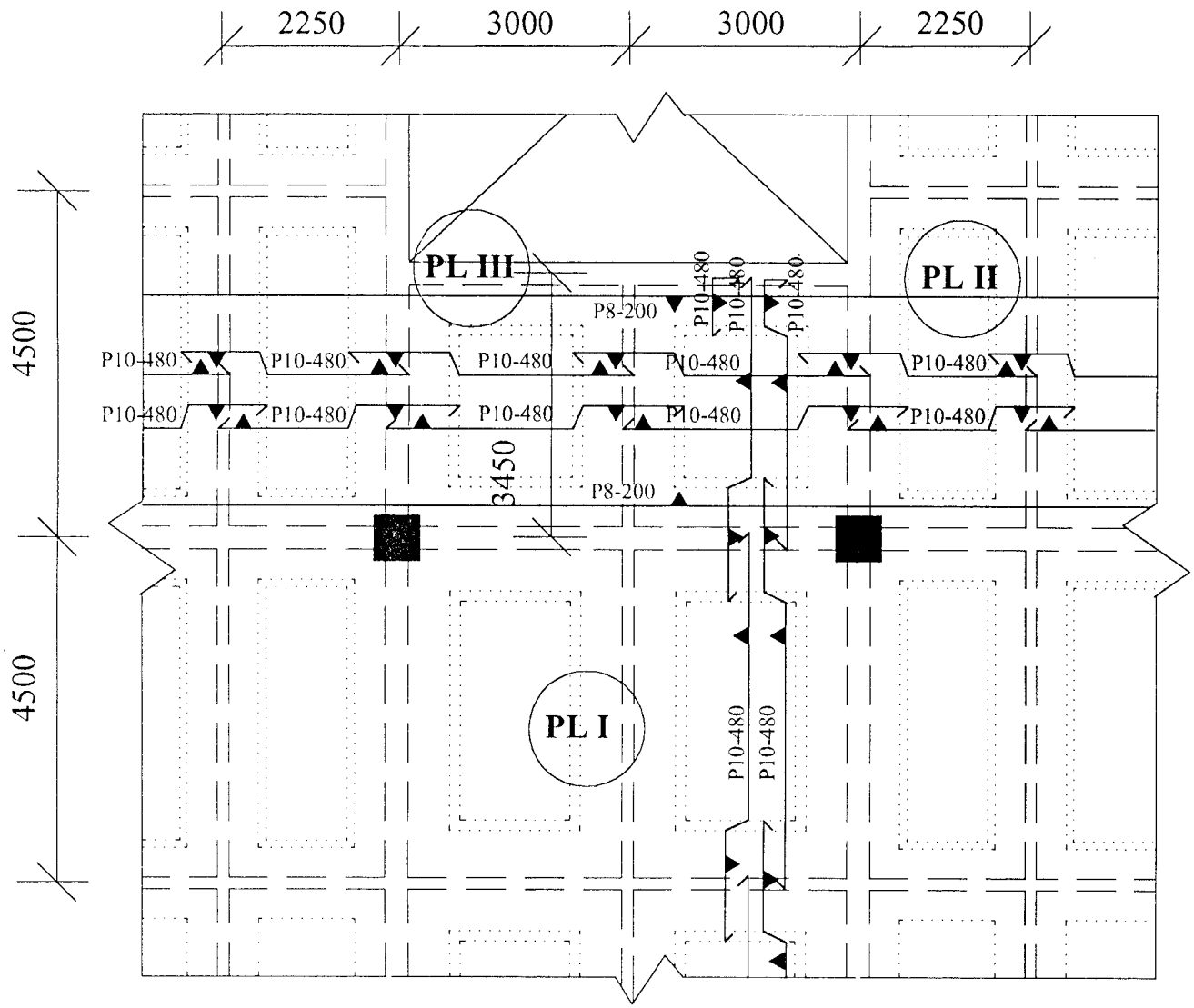
lx = 3000 mm
ly = 4500 mm
tul. lx = tx = P10-220
tul. ly = P10-240
tul. ty = P10-240
tul. bagi tx = P8-200
tul. bagi ty = P8-200

TIPE VIII

lx = 1800 mm
ly = 4500 mm
tul. lx = tx = P10-240
tul. ly = P10-240
tul. ty = P10-240
tul. bagi tx = P8-200
tul. bagi ty = P8-200

TIPE IX

lx = 1800 mm
ly = 3000 mm
tul. lx = tx = P10-240
tul. ly = P10-240
tul. ty = P10-240
tul. bagi tx = P8-200
tul. bagi ty = P8-200



DETAIL PENULANGAN PLAT TIPE I, II & III LANTAI 2

Skala 1:100

TIPE I

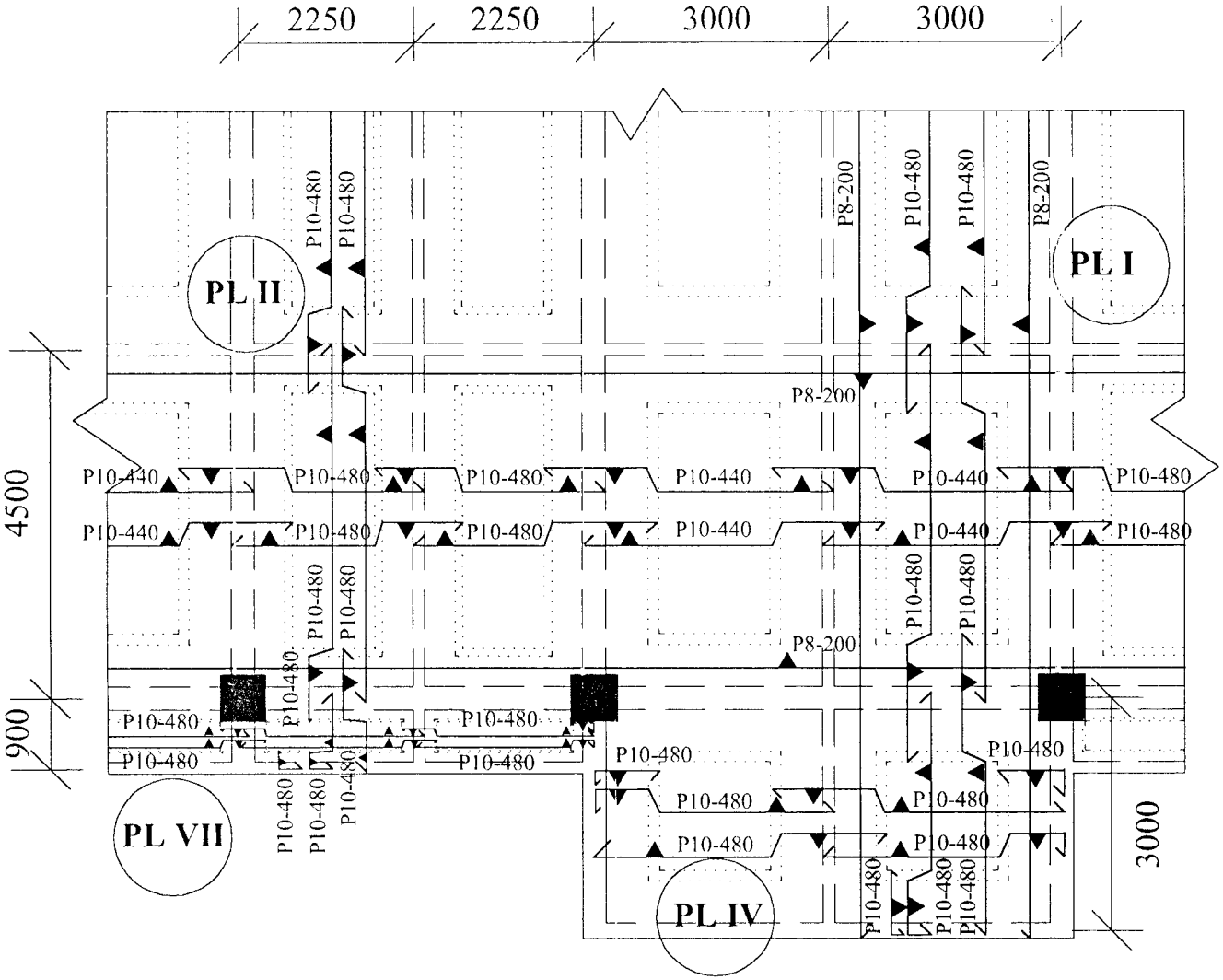
lx = 3000 mm
ly = 4500 mm
tul. lx = tx = P10-220
tul. ly = P10-240
tul. ty = P10-240
tul. bagi tx = P8-200
tul. bagi ty = P8-200

TIPE II

lx = 2250 mm
ly = 4500 mm
tul. lx = tx = P10-240
tul. ly = P10-240
tul. ty = P10-240
tul. bagi tx = P8-200
tul. bagi ty = P8-200

TIPE III

lx = 3000 mm
ly = 3450 mm
tul. lx = tx = P10-240
tul. ly = P10-240
tul. ty = P10-240
tul. bagi tx = P8-200
tul. bagi ty = P8-200



TIPE I

lx = 3000 mm
ly = 4500 mm
tul. lx = tx = P10-220
tul. ly = P10-240
tul. ty = P10-240
tul. bagi tx = P8-200
tul. bagi ty = P8-200

TIPE II

lx = 2250 mm
ly = 4500 mm
tul. lx = tx = P10-240
tul. ly = P10-240
tul. ty = P10-240
tul. bagi tx = P8-200
tul. bagi ty = P8-200

TIPE IV

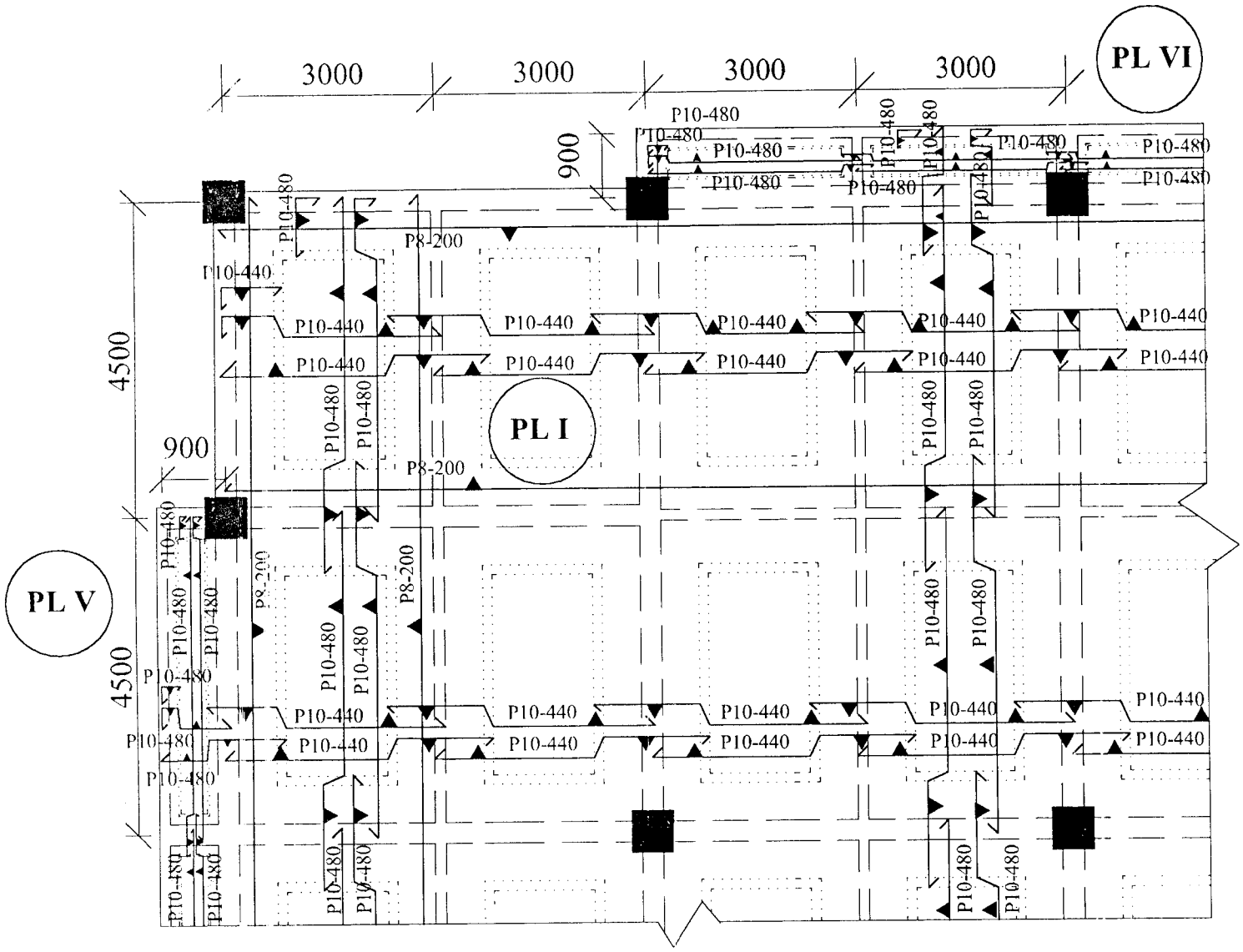
lx = 3000 mm
ly = 3000 mm
tul. lx = tx = P10-240
tul. ly = P10-240
tul. ty = P10-240
tul. bagi tx = P8-200
tul. bagi ty = P8-200

TIPE VII

lx = 900 mm
lx = 2250 mm
tul. lx = tx = P10-240
tul. ly = P10-240
tul. ty = P10-240
tul. bagi tx = P8-200
tul. bagi ty = P8-200

DETAIL PENULANGAN PLAT TIPE I, II, IV & VII LANTAI 2

Skala 1:100



DETAIL PENULANGAN PLAT TIPE I, V & VI LANTAI 2

Skala 1:100

TIPE I

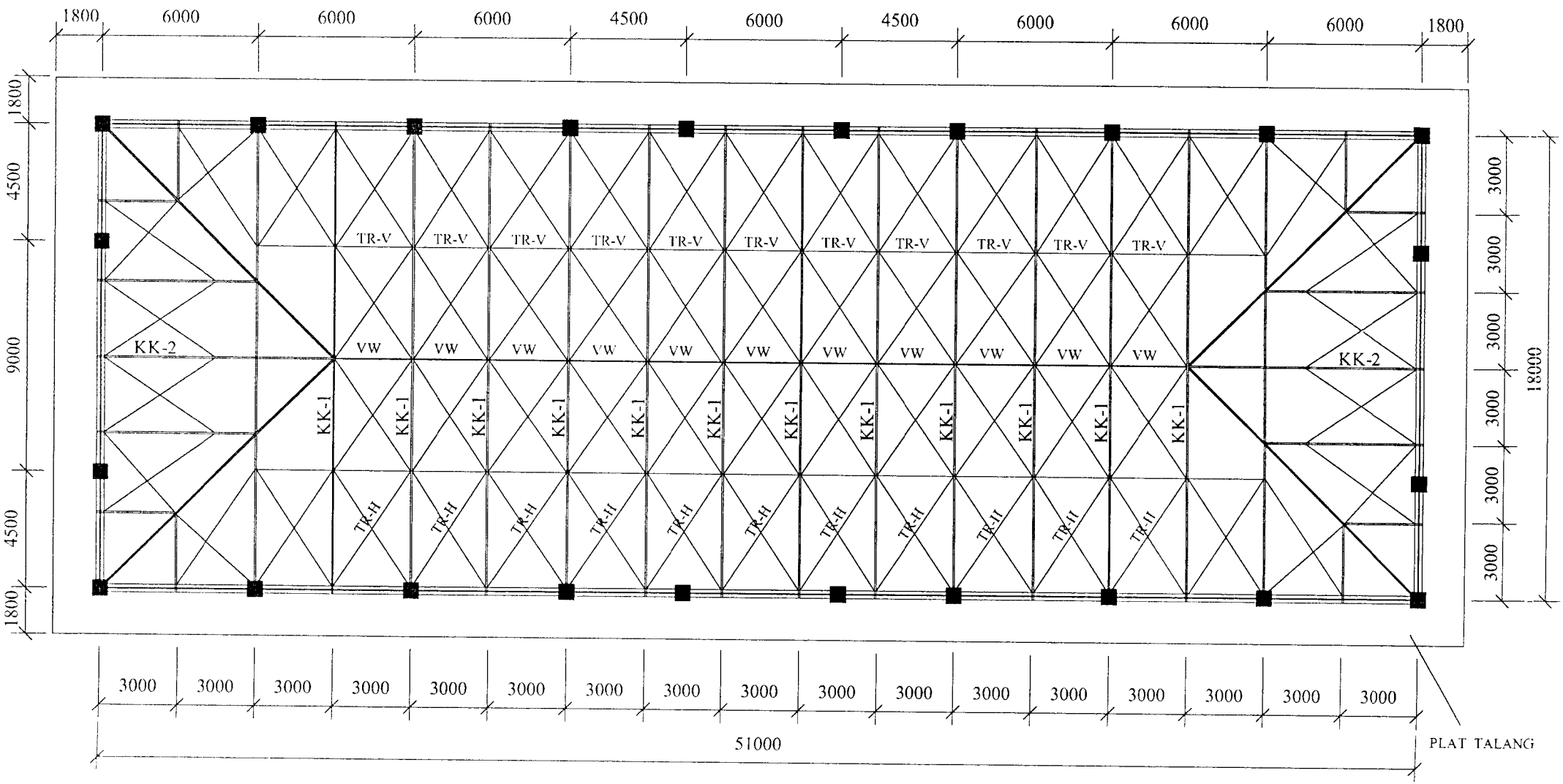
lx = 3000 mm
ly = 4500 mm
tul. lx = tx = P10-220
tul. ly = P10-240
tul. ty = P10-240
tul. bagi tx = P8-200
tul. bagi ty = P8-200

TIPE V

lx = 900 mm
ly = 4500 mm
tul. lx = tx = P10-240
tul. ly = P10-240
tul. ty = P10-240
tul. bagi tx = P8-200
tul. bagi ty = P8-200

TIPE VI

lx = 900 mm
ly = 3000 mm
tul. lx = tx = P10-240
tul. ly = P10-240
tul. ty = P10-240
tul. bagi tx = P8-200
tul. bagi ty = P8-200



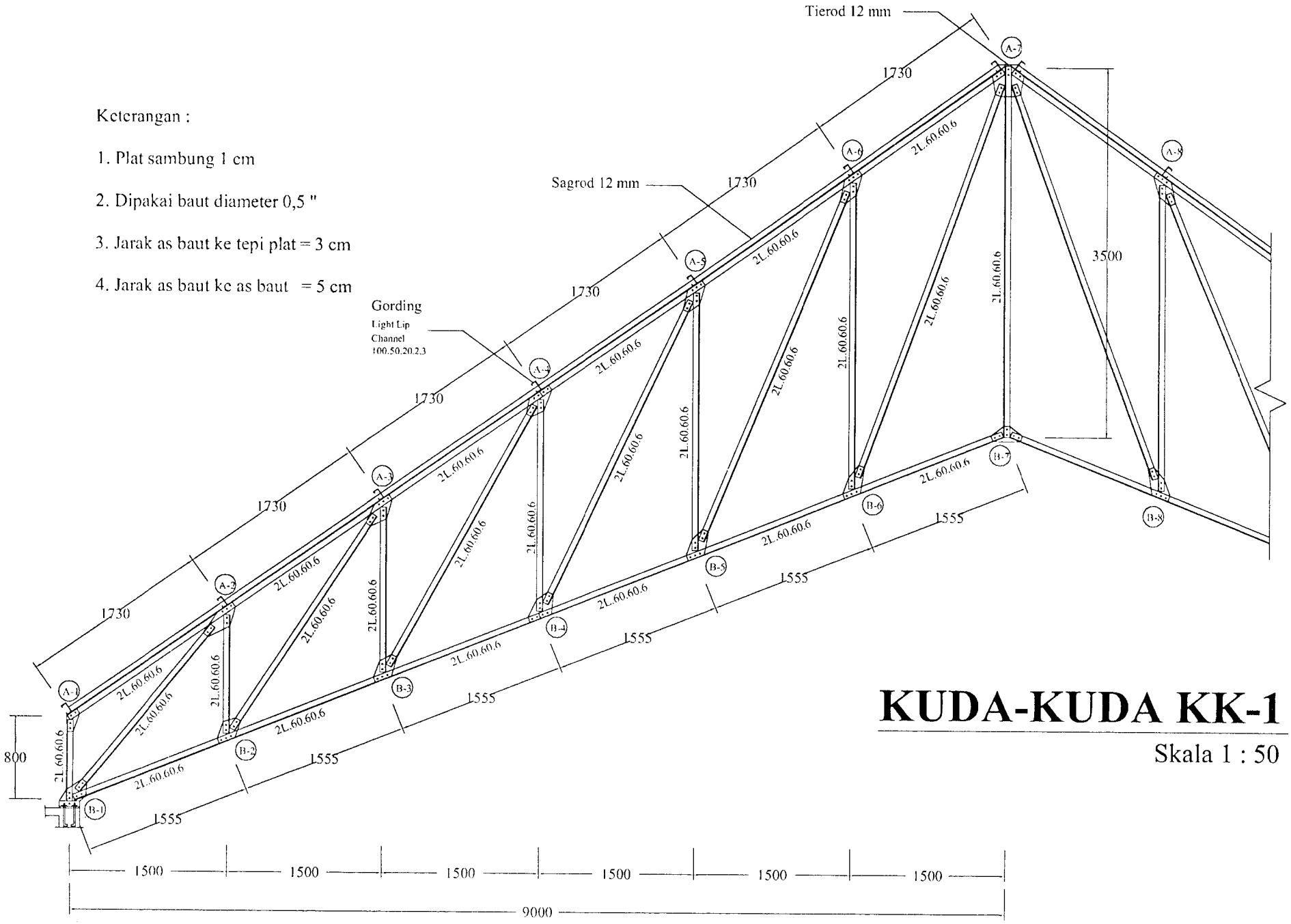
DENAH KUDA-KUDA

Skala 1:200

Keterangan :
KK = Kuda - kuda
VW = Vark - werk
TR - H = Track stank horisontal
TR - V = Track stank vertikal

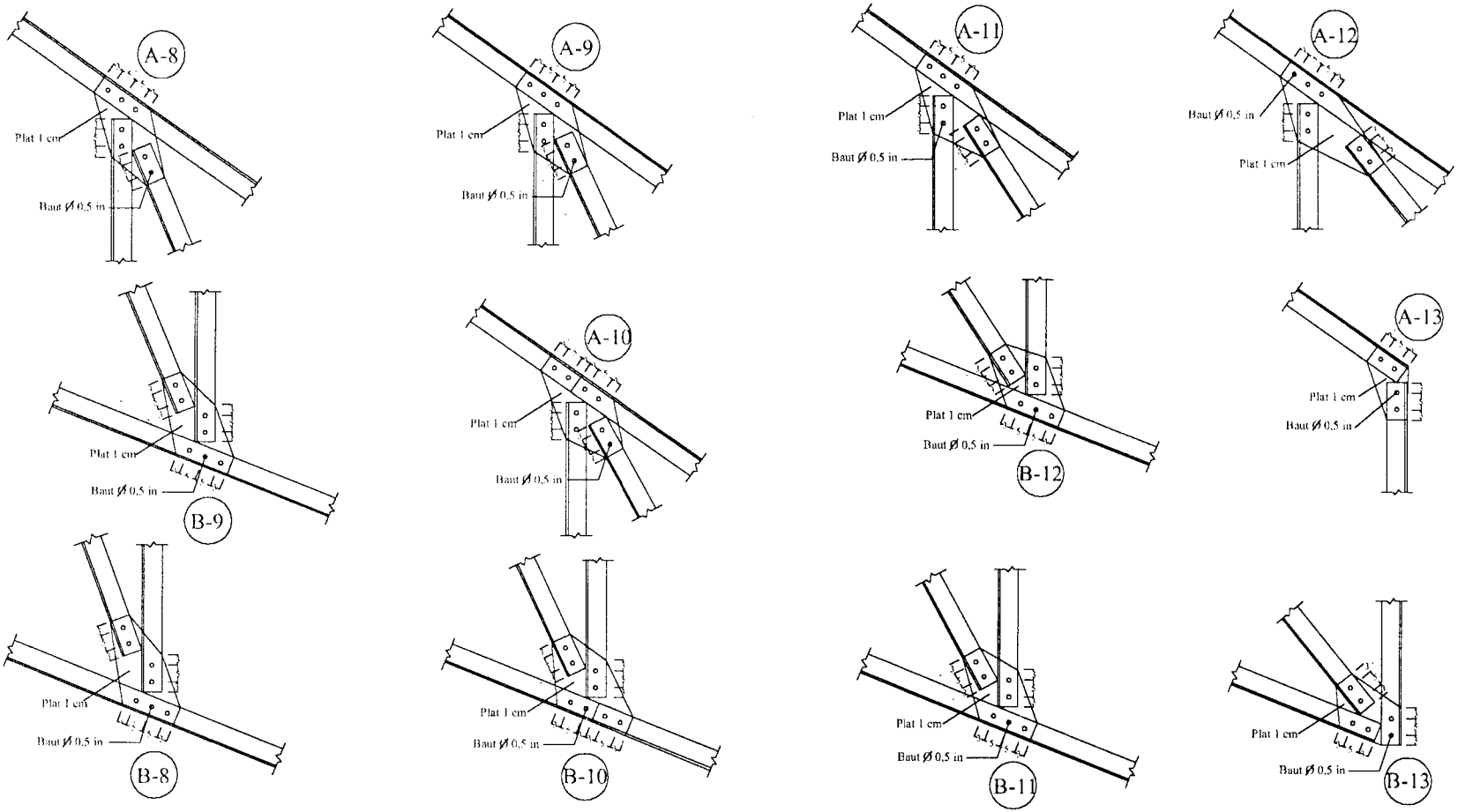
Keterangan :

1. Plat sambung 1 cm
2. Dipakai baut diameter 0,5 "
3. Jarak as baut ke tepi plat = 3 cm
4. Jarak as baut ke as baut = 5 cm



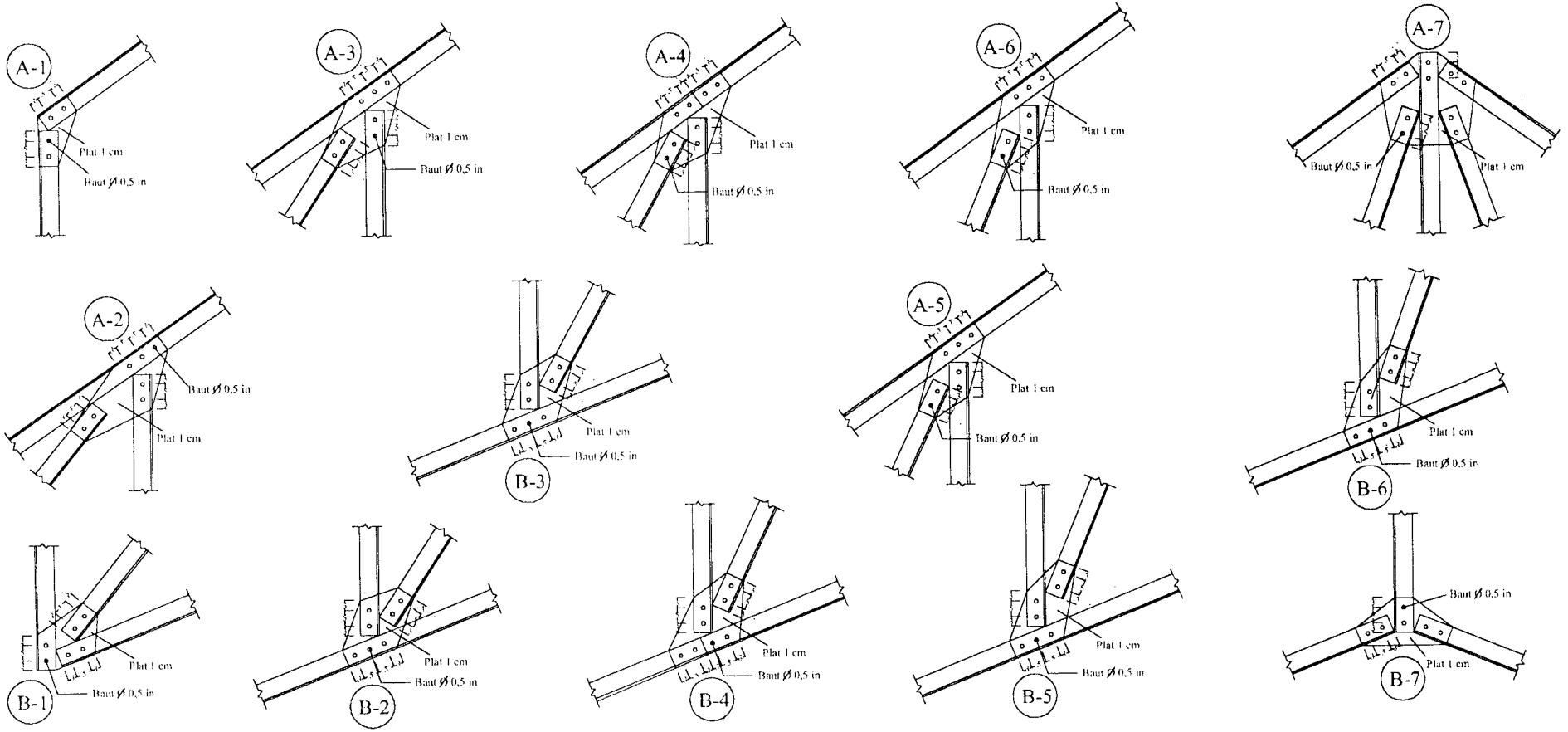
KUDA-KUDA KK-1

Skala 1 : 50



DETAIL KUDA-KUDA KK-1

Skala 1 : 20

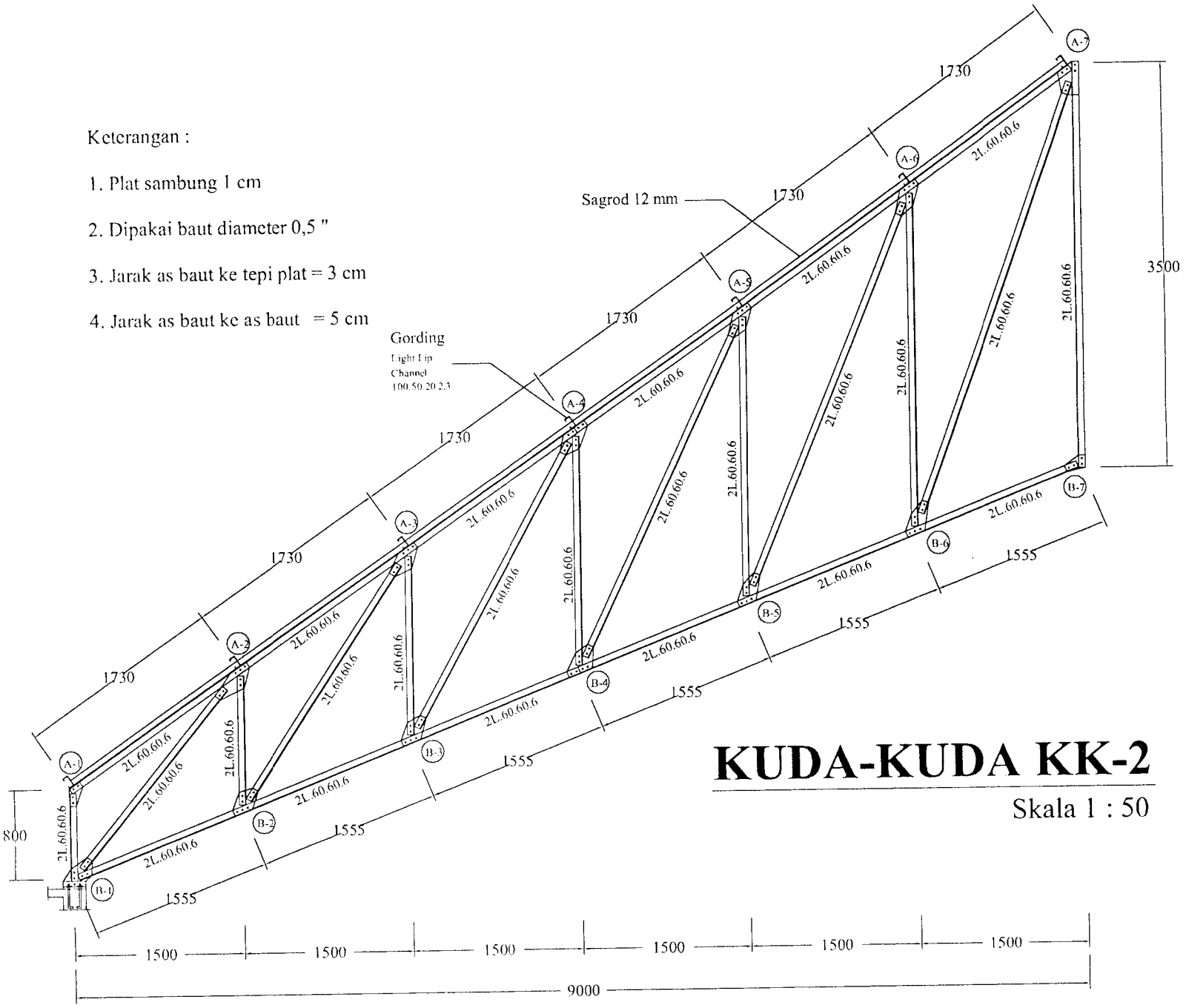


DETAIL KUDA-KUDA KK-1

Skala 1 : 20

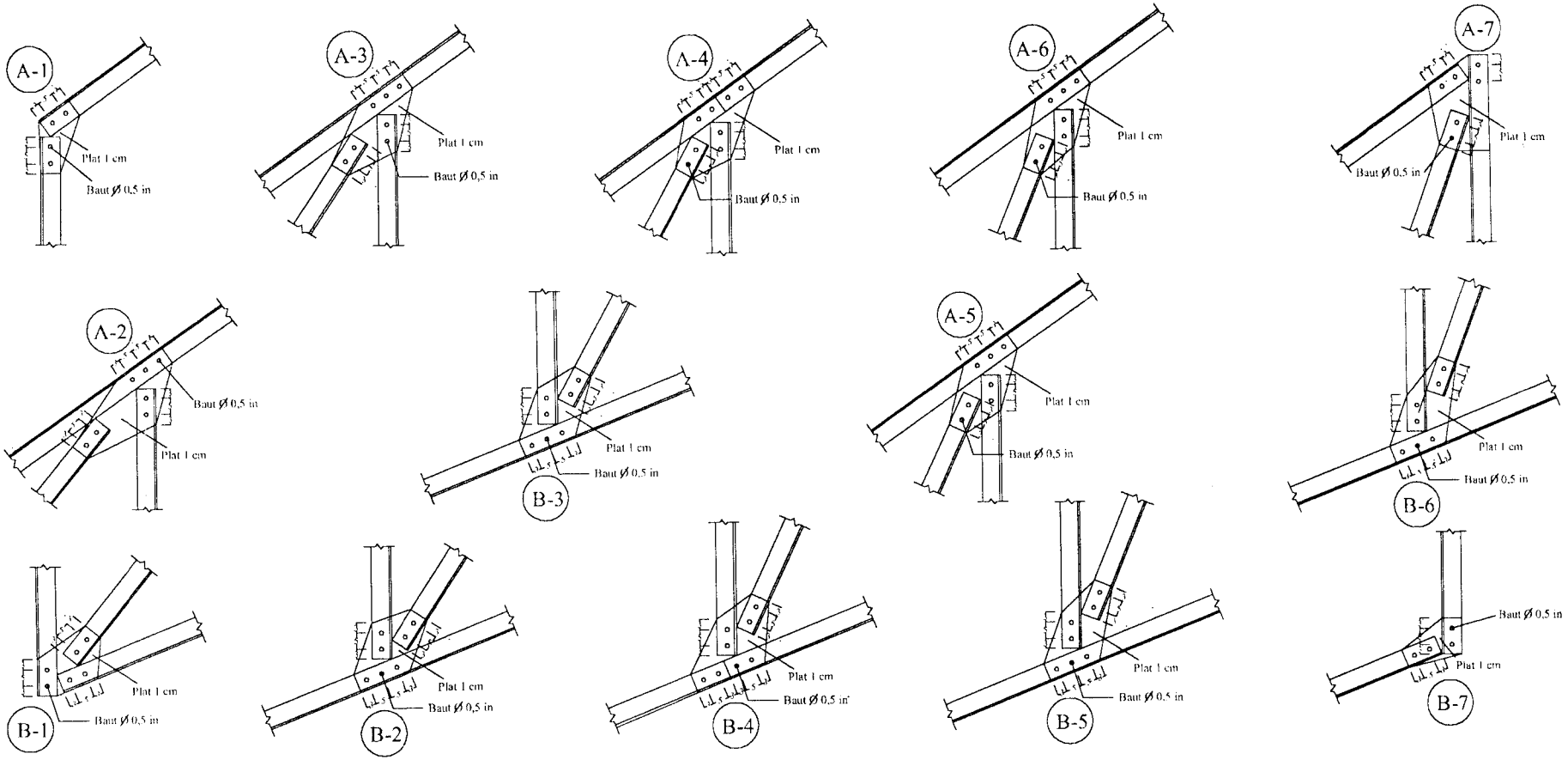
Keterangan :

1. Plat sambung 1 cm
2. Dipakai baut diameter 0,5 "
3. Jarak as baut ke tepi plat = 3 cm
4. Jarak as baut ke as baut = 5 cm



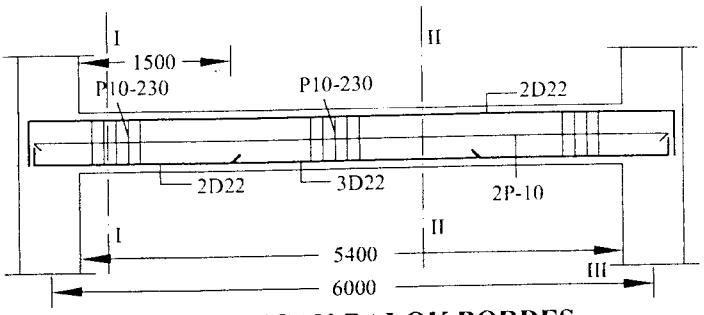
KUDA-KUDA KK-2

Skala 1 : 50

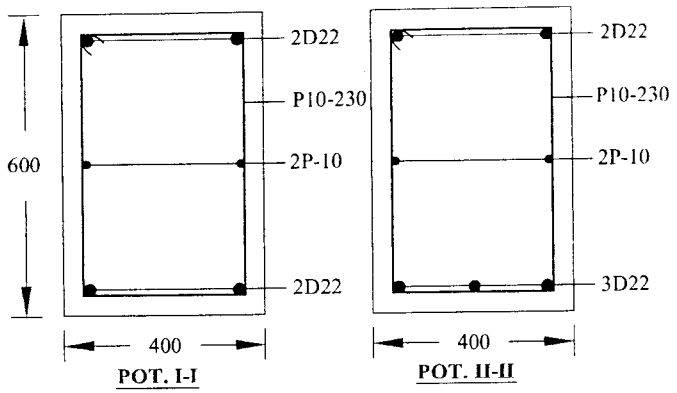


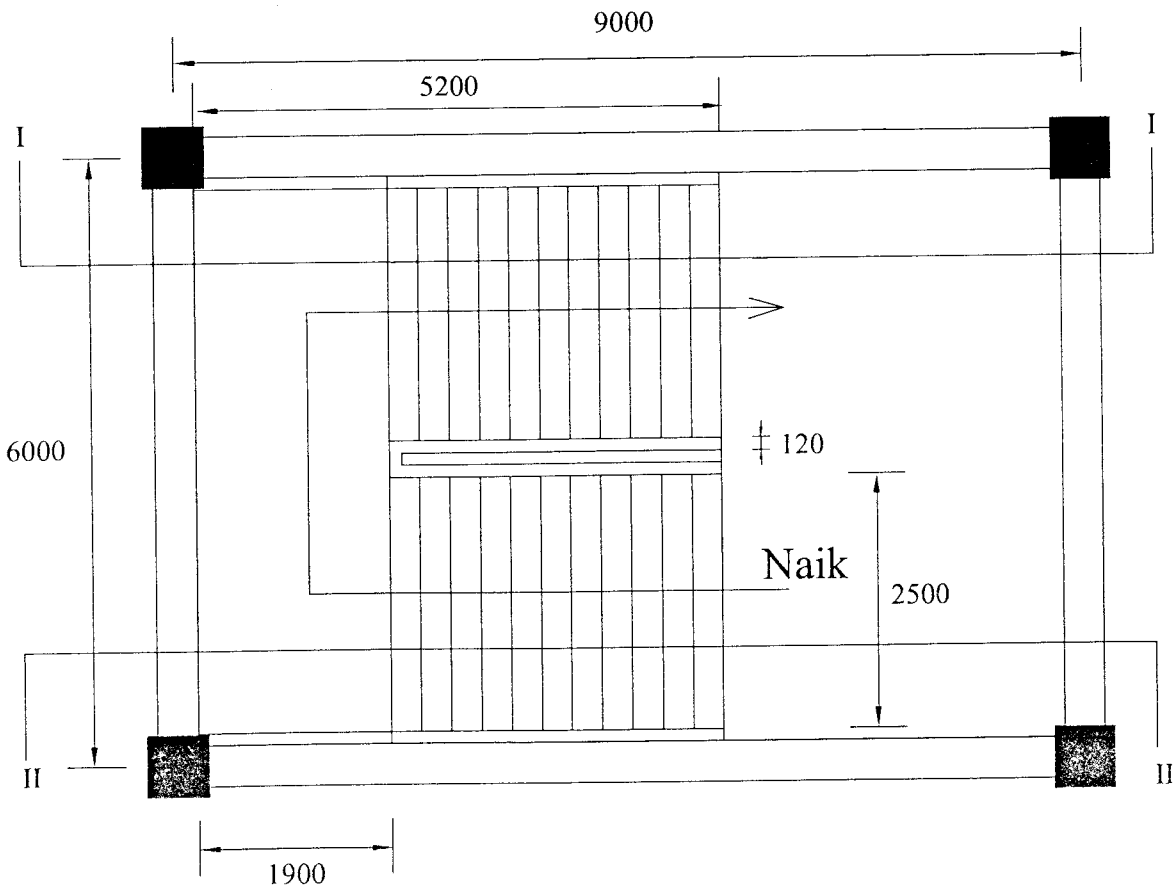
DETAIL KUDA-KUDA KK-2

Skala 1 : 20



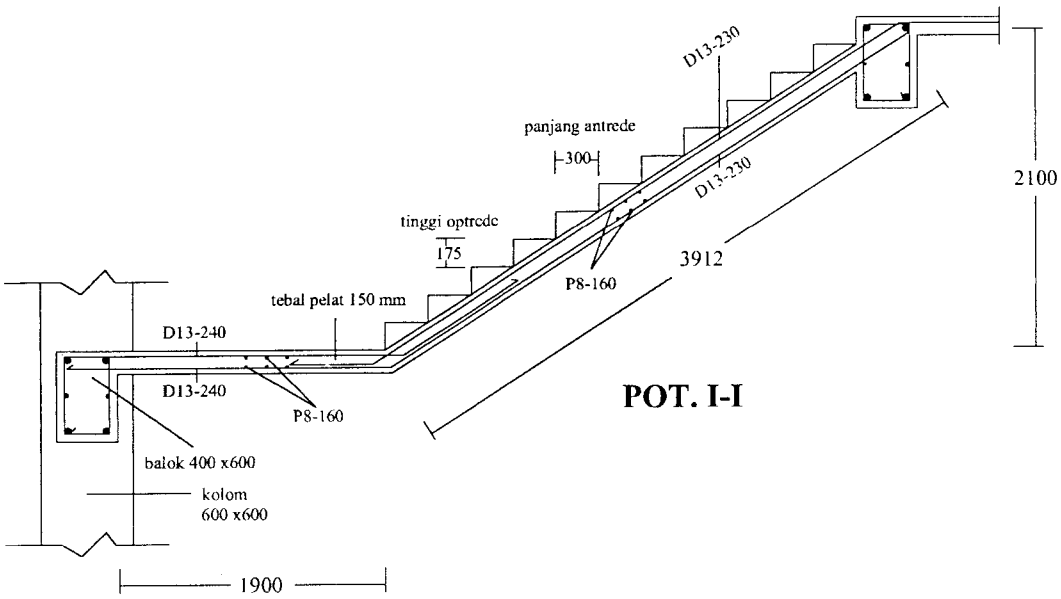
PENULANGAN BALOK BORDES





DENAH TANGGA I

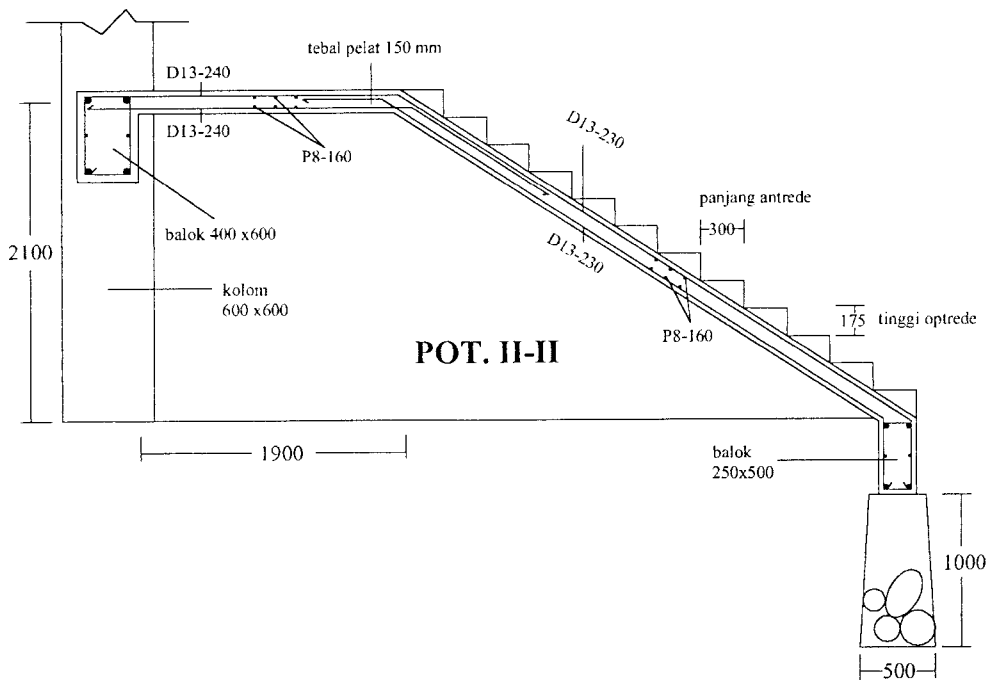
Skala 1:75



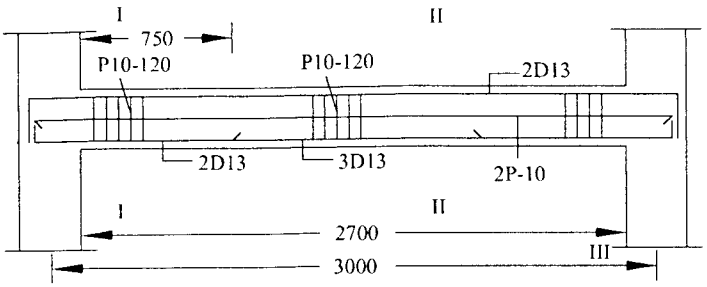
POT. I-I

DETAIL PENULANGAN TANGGA I

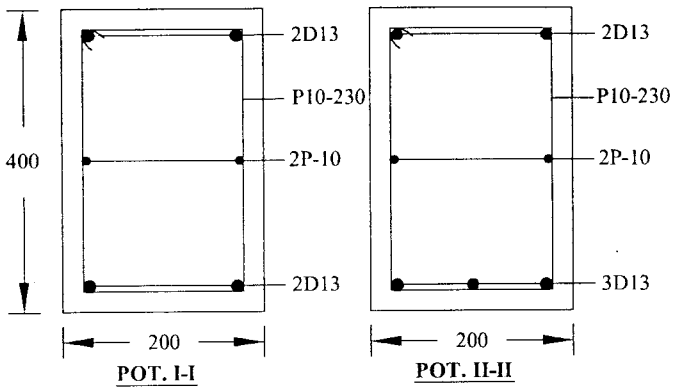
Skala 1:50

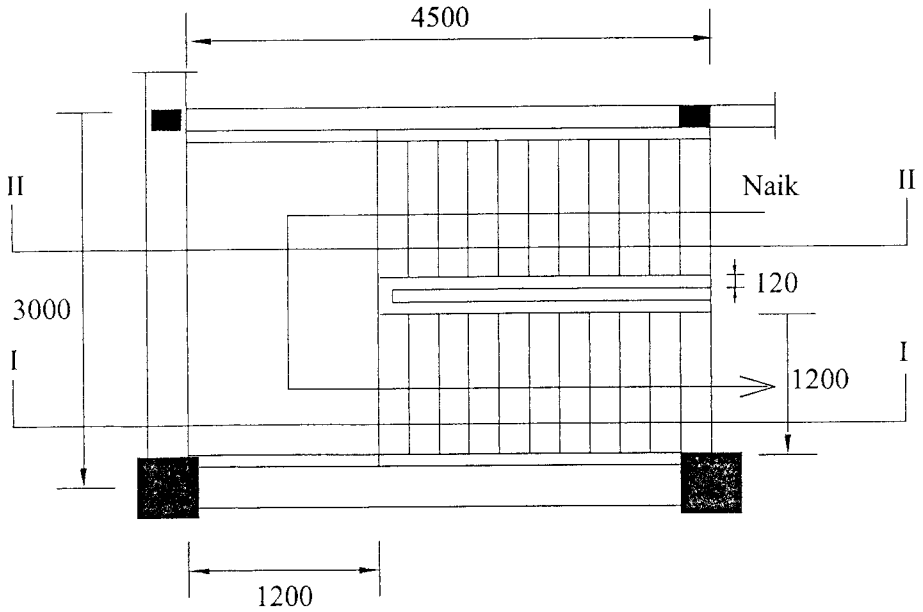


POT. II-II



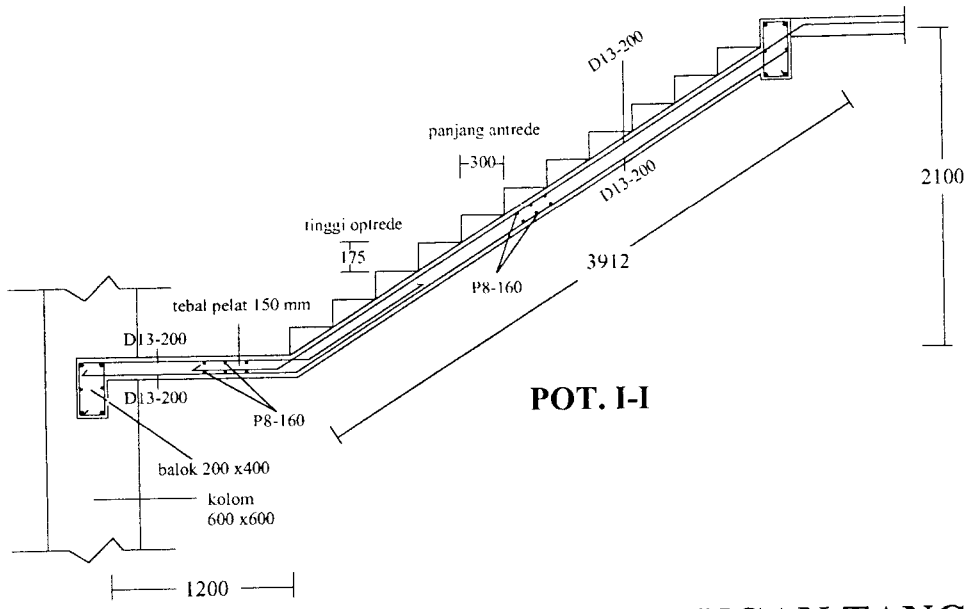
PENULANGAN BALOK BORDES





DENAH TANGGA II

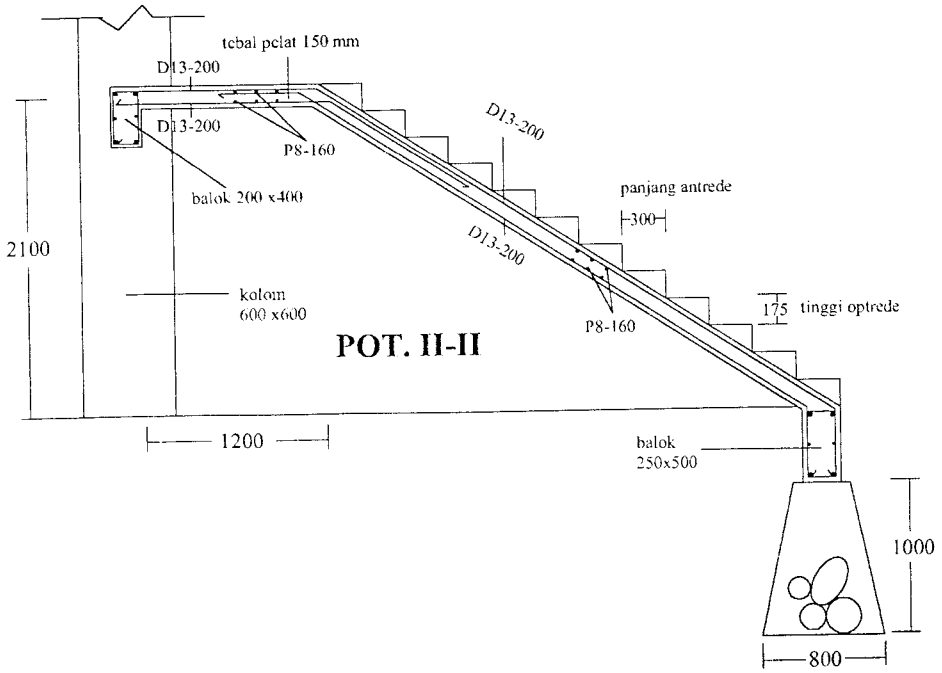
Skala 1:75



POT. I-I

DETAIL PENULANGAN TANGGA II

Skala 1:50



POT. II-II