BAB V

KESIMPULAN DAN SARAN

5.1. Kesimpulan

Setelah melakukan analisis dan perancangan pada struktur Gedung Pasca Sarjana Universitas Diponegoro Semarang, dapat diambil beberapa kesimpulan seperti yang tercantum di bawah ini.

1. Dalam perencanaan atap, digunakan kuda-kuda *monoframe* yang menggunakan profil WF. Untuk profil kuda-kuda digunakan profil WF dengan ukuran 400x200, sedangkan untuk gording digunakan profil C 150x50x20x3,2.
2. Pelat tangga digunakan tebal 120 mm dengan tulangan D13-150 pada tumpuan, tulangan D13-100 pada lapangan dan tulangan susut P10-300. Balok bordes digunakan dimensi 250 mm x 400 mm dengan 3D16 untuk tulangan tarik dan 2D16 untuk tulangan tekan.
3. Pelat lantai digunakan tebal 120 mm. Pelat lantai dua arah dengan tulangan P10-100 untuk arah X dan Y dan tulangan susut P8-150.
4. Dalam perencanaan balok , digunakan 3 macam dimensi yaitu sebesar 400 mm x 700 mm, 300 mm x 600 mm, dan 250 mm x 600 mm. Balok – balok tersebut direncanakan dengan tulangan lentur dan geser yang berbeda-beda.
5. Dalam perencanaan kolom, dimensi yang digunakan untuk kolom 1 – lantai 2 sebesar 700 mm x 700 mm, dimensi yang digunakan untuk kolom lantai 3 - lantai 4 sebesar 600 mm x 600 mm, sedangkan dimensi yang digunakan untuk

kolom lantai 5 - lantai 6 sebesar 500 mm x 500 mm Kolom – kolom tersebut direncanakan dengan jumlah tulangan longitudinal dan transversal yang berbeda –beda pula.

6. Dalam perencanaan pondasi, dimensi poer yang digunakan adalah 4,5 m x 4,5 m, dengan tebal poer 0,8 m. Tulangan yang digunakan untuk bagian poer adalah D22-150 untuk arah memanjang dan arah lebar dan pada bagian atas dipasang tulangan D16-200. Jumlah tiang yang digunakan 5 buah dengan tulangan 15D16.

6.2 Saran

Saran-saran yang dapat diberikan penulis dari hasil Tugas Akhir yang disusun tercantum seperti di bawah ini.

1. Sebelum perencanaan struktur sebaiknya dilakukan estimasi awal pada ukuran elemen struktur, sehingga tidak terjadi penentuan elemen struktur berulang-ulang.
2. Untuk kemudahan dalam melaksanakan analisis struktur terutama dalam pembuatan model struktur gedung akan lebih mudah jika memakai program analisis struktur *ETABS* dan *SAP2000* beserta program-program bantu lainnya.
3. Dalam pemodelan struktur gedung pada program *ETABS* hendaknya diperhatikan bukan hanya dalam memasukkan beban, tapi juga dalam penggambaran elemen sangat penting. Karena sering analisis tidak berhasil karena salah dalam penggambaran elemen struktur.

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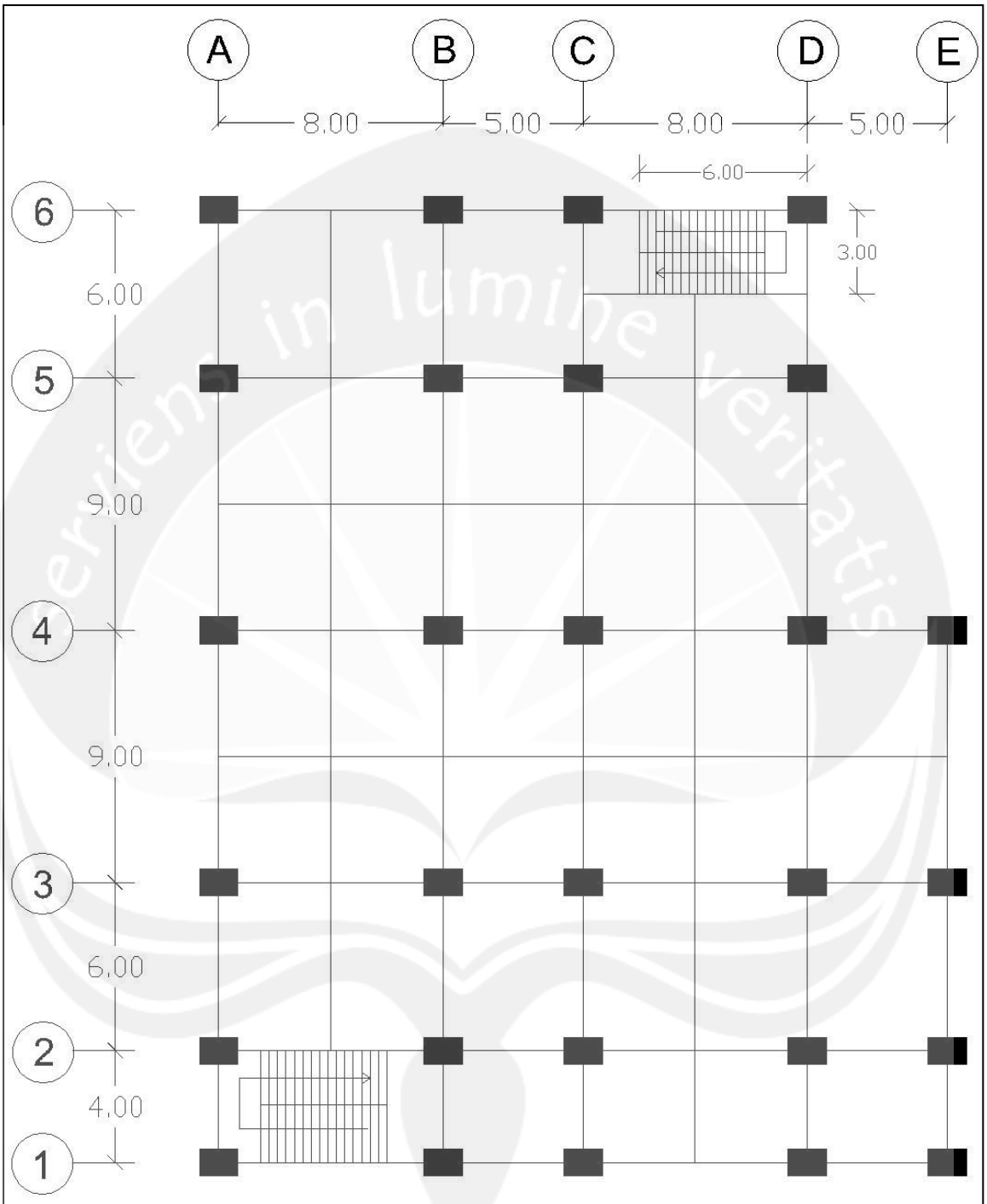
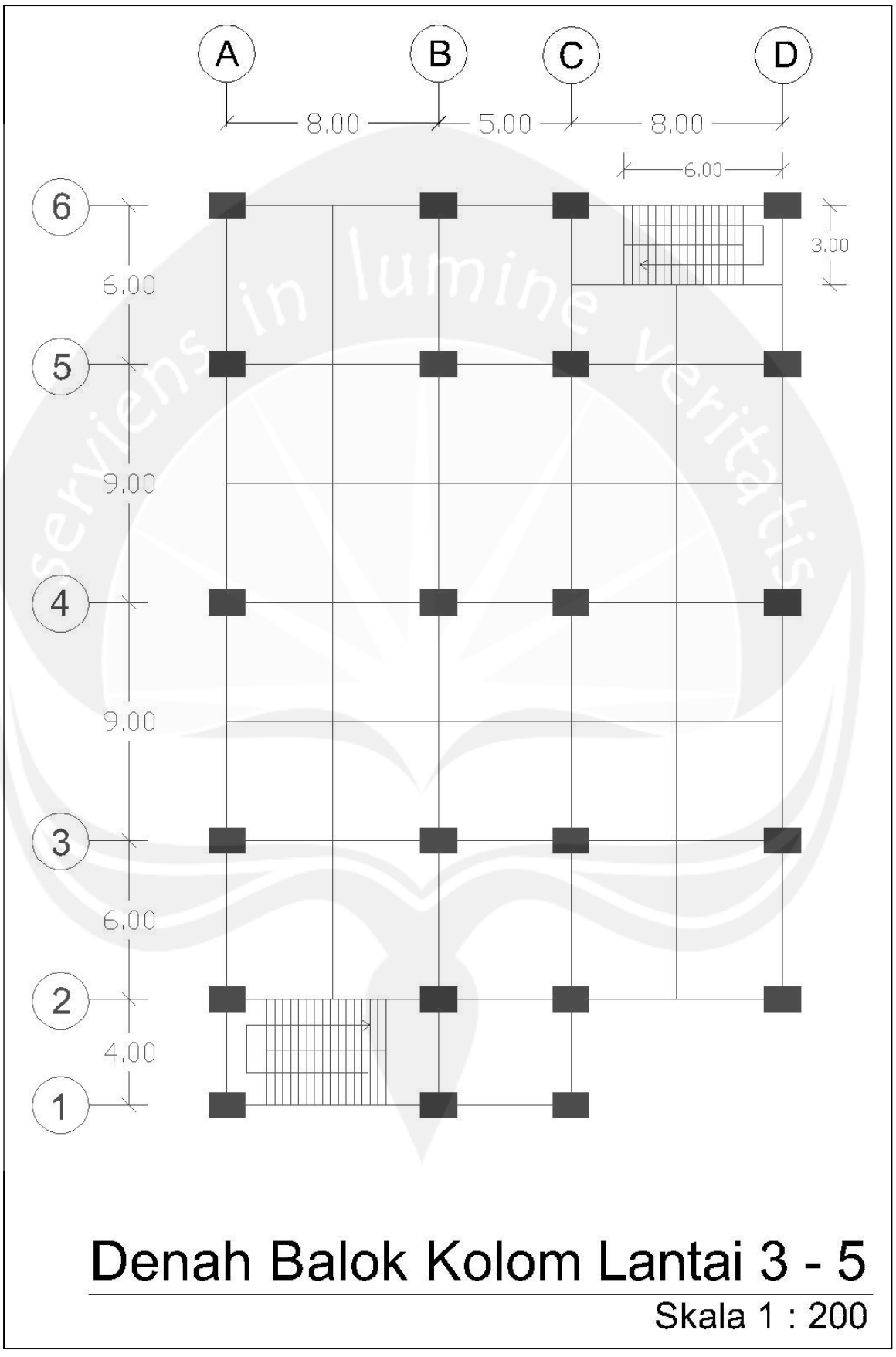
LAMPIRAN



Denah Balok Kolom Lantai 1 dan 2

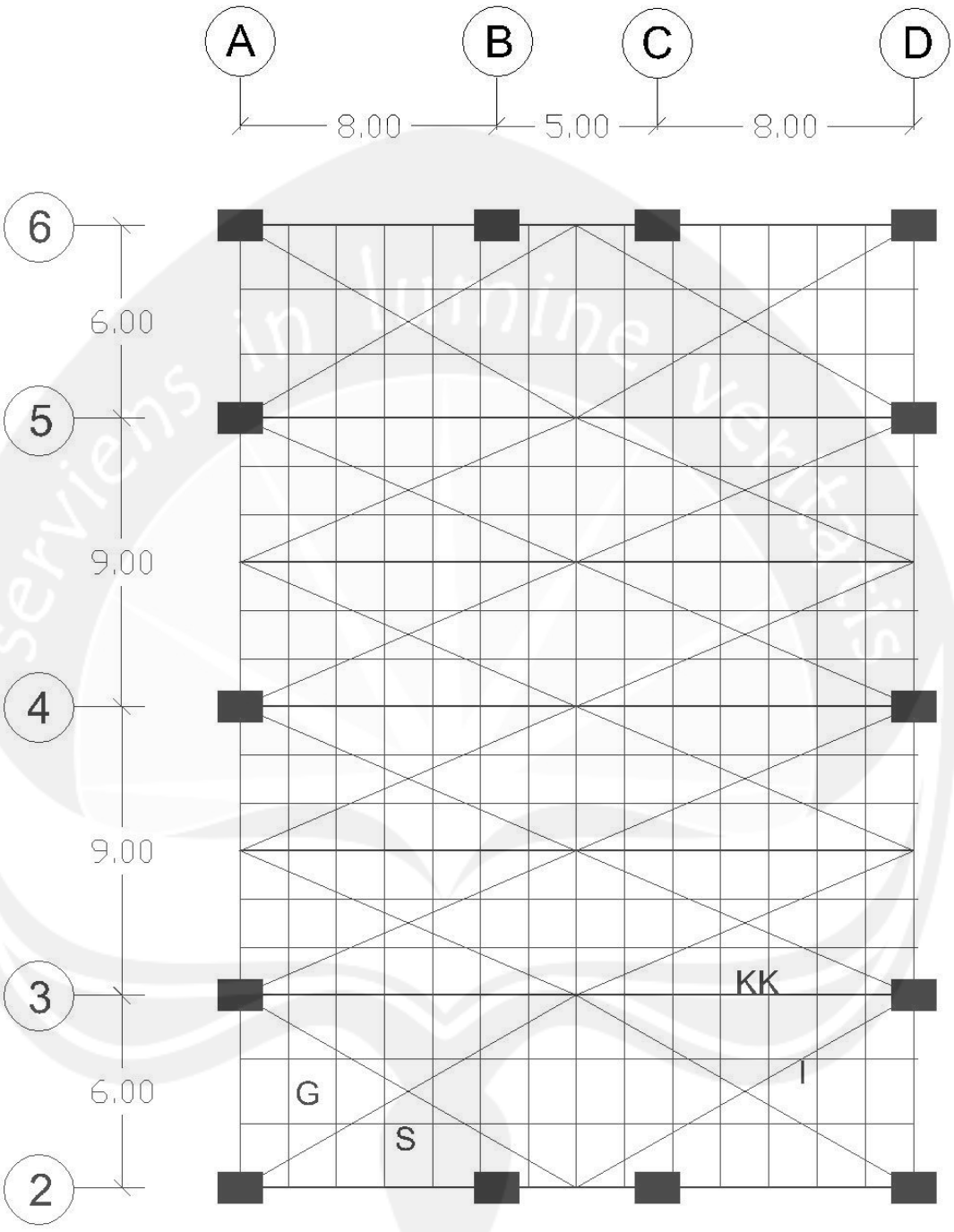
Skala 1 : 200

satuan dalam m



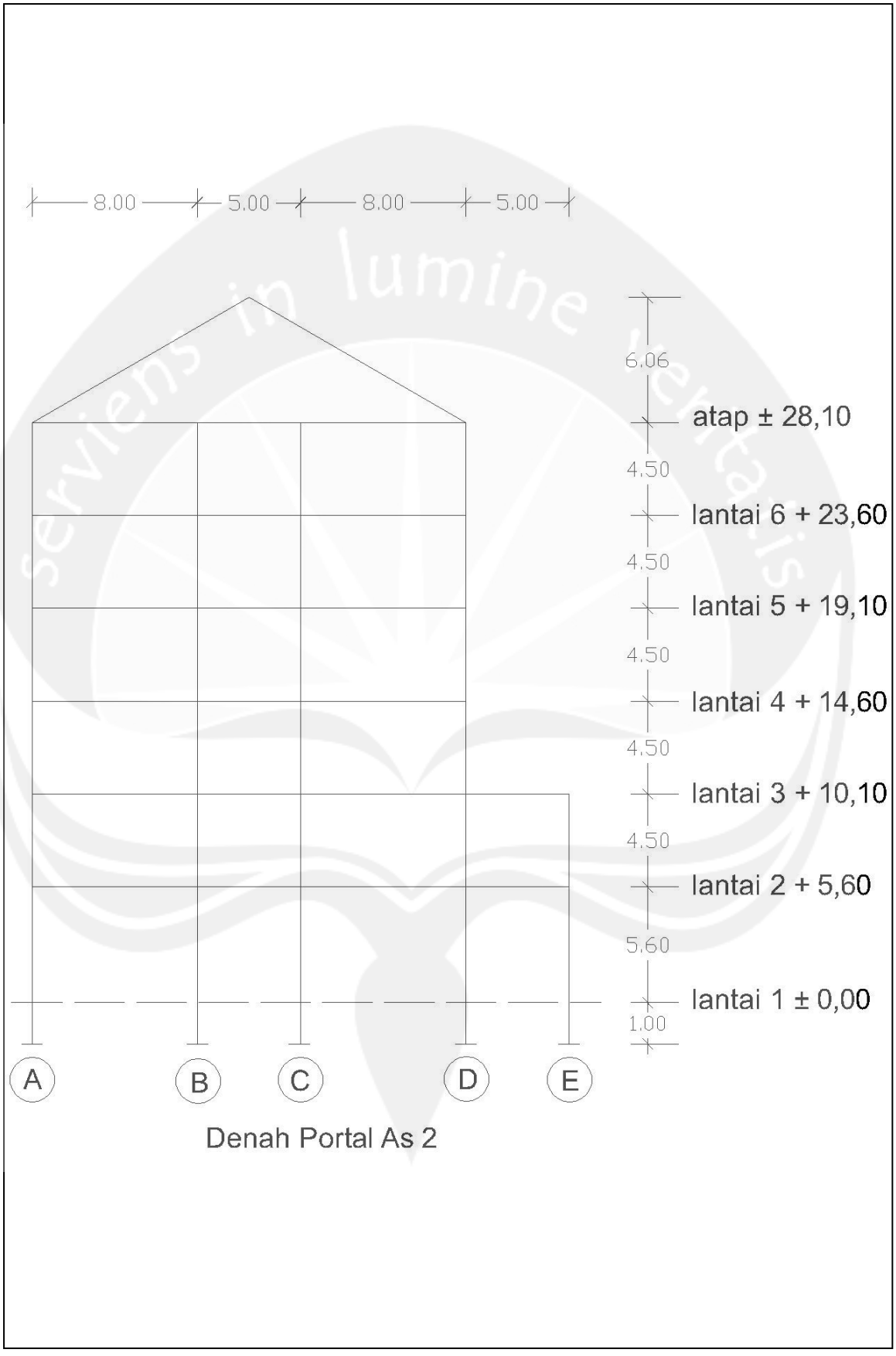
Denah Balok Kolom Lantai 3 - 5

Skala 1 : 200

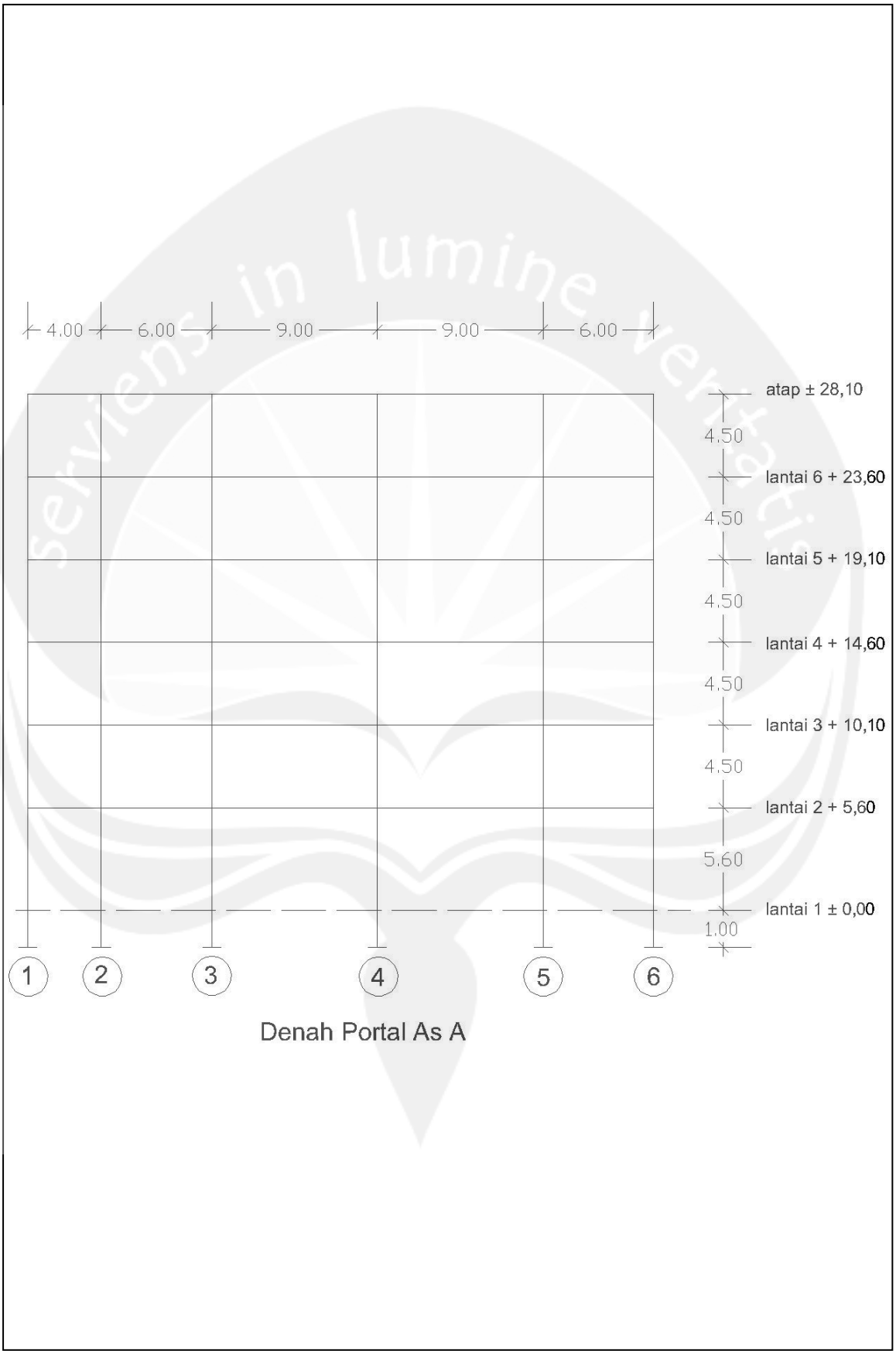


Keterangan:
S : Sagrod
KK : Kuda-kuda
G : Gording
I : Ikatan angin

Denah Atap
Skala 1 : 200



Denah Portal As 2

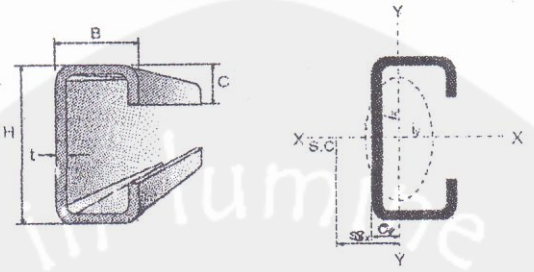


Denah Portal As A

PT. GUNUNG RAJA PAKSI
Steel Is Our Business

Lipped Channel (Baja Kanal C Ringan)

Product Specifications



Metric Size

Dimension		Section Area	Unit Weight	Informative Reference									
				Geometrical Moment of Inertia		Modulus of Section		Radius of Gyration		Center of Gravity	Shear Center	Torsion Constant	Warping Constant
H x B x C mm	t mm	A cm^2	Kg/m	I_x cm^4	I_y cm^4	Z_x cm^3	Z_y cm^3	r_x cm	r_y cm	C_y cm	X_o cm	J cm^4	C_w cm^6
C 100 x 50 x 20	2	4.54	3.56	71	17	14.3	5.4	3.97	1.93	1.87	4.48	605	444
	2.3	5.17	4.06	81	19	16.1	6	3.95	1.92	1.86	4.46	912	496
	2.5	5.59	4.39	87	20	17.3	6.5	3.94	1.9	1.86	4.45	1164	528
	2.8	6.2	4.87	95	22	19.1	7.1	3.92	1.89	1.86	4.42	1621	574
	3	6.61	5.19	101	23	20.2	7.4	3.91	1.88	1.86	4.41	1982	603
	3.2	7.01	5.5	106	24	21.3	7.8	3.9	1.87	1.86	4.4	2392	630
C 125 x 50 x 20	2	5.04	3.95	120	18	19.3	5.5	4.89	1.91	1.69	4.15	672	675
	2.3	5.75	4.51	136	21	21.8	6.2	4.87	1.89	1.69	4.12	1013	755
	2.5	6.21	4.88	147	22	23.5	6.6	4.86	1.88	1.69	4.11	1295	805
	2.8	6.9	5.42	162	24	25.9	7.2	4.84	1.86	1.69	4.08	1804	877
	3	7.36	5.78	172	25	27.5	7.6	4.83	1.85	1.69	4.07	2207	922
	3.2	7.81	6.13	181	27	29	8	4.82	1.84	1.68	4.05	2665	965
C 150 x 50 x 20	2	5.54	4.35	185	19	24.7	5.6	5.79	1.87	1.55	3.86	738	971
	2.3	6.32	4.96	210	22	28	6.3	5.77	1.86	1.55	3.84	1115	1088
	2.5	6.84	5.37	226	23	30.2	6.8	5.75	1.85	1.55	3.82	1425	1162
	2.8	7.6	5.97	250	26	3.33	7.4	5.73	1.83	1.54	3.8	1987	1267
	3	8.11	6.37	265	27	35.4	7.8	5.72	1.82	1.54	3.78	2432	1334
	3.2	8.61	6.76	280	28	37.4	8.2	5.71	1.81	1.54	3.77	2938	1398
C 150 x 65 x 20	2	6.14	4.82	218	36	29.1	8.3	5.96	2.43	2.12	5.19	818	1784
	2.3	7.01	5.5	248	41	33	9.4	5.94	2.42	2.12	5.16	1236	2006
	2.5	7.59	5.96	267	44	35.6	10	5.93	2.41	2.12	5.15	1581	2148
	2.8	8.44	6.63	295	48	39.4	11	5.91	2.39	2.12	5.13	2207	2352
	3	9.01	7.07	314	51	41.8	11.6	5.9	2.38	2.11	5.11	2702	2482
	3.2	9.57	7.51	332	54	44.2	12.2	5.89	2.37	2.11	5.09	3265	2608
C 200 x 75 x 20	2	7.54	5.92	467	56	46.7	10.6	7.87	2.73	2.2	5.49	1005	4571
	2.3	8.62	6.77	531	64	53.1	12	7.85	2.72	2.2	5.47	1520	5159
	2.5	9.34	7.33	573	68	57.3	12.9	7.84	2.71	2.2	5.45	1946	5537
	2.8	10.4	8.17	636	75	63.6	14.2	7.82	2.69	2.2	5.42	2719	6085
	3	11.11	8.72	676	80	67.6	15	7.8	2.68	2.19	5.41	3332	6437
	3.2	11.81	9.27	716	84	71.6	15.8	7.79	2.67	2.19	5.39	4030	6779

Technical Specification

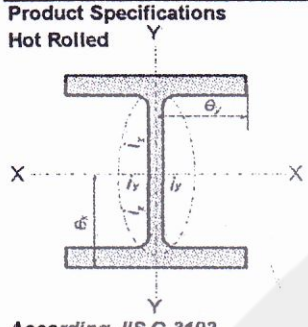
Material : JIS G 3131 / ASTM 830
Symbol : SPHC/ SAE 1006/ SAE 1008
Standard length : 6 Meters
Dimention Tolerance : JIS G 3350

-Non standard length is available on request subject to minimum quantity. We provide additional services for standard drilling and punching. Shotblasting, painting and galvanizing are available on request.

LINTECH

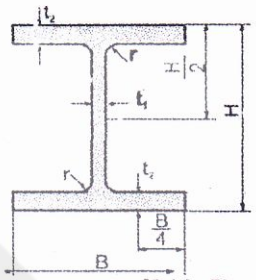
Wide Flange Shape

Product Specifications
Hot Rolled



Geometrical moment of inertia $I = Ai^2$
Radius of gyration of area $I = \sqrt{I/A}$
Modulus of section $z = I/e$

(A = sectional area)



According JIS G 3192

Metric Size

Standard Sectional Dimension					Section Area	Unit Weight	Informative Reference					
							Geometrical Moment Of Inertia		Radius Of Gyration Of Area		Modulus Of Section	
Nominal Dimensional	H x B	t1	t2	r	A	Weight	Ix	Iy	ix	iy	Zx	Zy
mm	mm	mm	mm	mm	cm^2	kg/m	cm^4	cm^4	cm	cm	cm^3	cm^3
100 x 100	100 x100	6	8	10	21.90	17.20	383	134	4.18	2.47	76.50	26.7
125 x125	125 x125	6.5	9	10	30.31	23.80	847	293	5.29	3.11	136.00	47.00
150 x 75	150 x75	5	7	8	17.85	14.00	666	50	6.11	1.66	8.88	13.20
150 x 100	150 x100	6	9	11	26.84	21.10	1,020	151	6.17	2.37	138.00	30.10
150 x 150	150 x150	7	10	11	40.14	31.50	1,640	563	6.39	3.75	219.00	75.10
175 x 175	175 x175	7.5	11	12	51.21	40.20	2,880	984	7.50	4.38	330.00	112.00
200 x 100	198 x 99	4.5	7	11	23.18	18.20	1,580	114	8.26	2.21	160.00	23.00
	200 x 100	5.5	8	11	27.16	21.30	1,840	134	8.24	2.22	184.00	26.80
200 x 150	194 x 150	6	9	12	38.80	30.60	2,675	507	8.30	3.60	275.80	67.60
200 x 200	200 x 200	8	12	13	63.53	49.90	4,720	1,600	8.62	5.02	472.00	160.00
250 x 125	248 x 124	5	8	12	32.68	25.70	3,540	255	10.40	2.79	285.00	41.10
	250 x 125	6	9	12	37.66	29.60	4,050	294	10.40	2.79	324.00	47.00
250 x 250	250 x 250	9	14	16	92.18	72.40	10,800	3,650	10.80	6.29	867.00	292.00
300 x 150	298 x 149	5.5	8	13	40.80	32.00	6,320	442	12.40	3.29	424.00	59.30
	300 x 150	6.5	9	13	46.78	36.70	7,210	508	12.40	3.29	481.00	67.70
300 x 300	300 x 300	10	15	18	119.80	94.00	20,400	6,750	13.10	7.51	1,360.00	450.00
350 x 175	346 x 174	6	9	14	52.68	41.40	11,100	792	14.50	3.88	641.00	91.00
	350 x 175	7	11	14	63.14	49.60	13,600	984	14.70	3.95	775.00	112.00
350 x 350	350 x 350	12	19	20	173.9	137.00	40,300	13,600	15.20	8.84	2,300.00	776.00
400 x 200	396 x 199	7	11	16	72.16	56.60	20,000	1,450	16.70	4.48	1,010.00	145.00
	400 x 200	8	13	16	84.1	66.00	23,700	1,740	16.80	4.54	1,190.00	174.00
400 x 400	400 x 400	13	21	22	218.7	172.00	66,600	22,400	17.50	10.10	3,330.00	1120.00
450 x 200	450 x 200	9	14	18	96.8	76.00	33,500	1,870	18.60	4.40	1,490.00	187.00
500 x 200	500 x 200	10	16	20	114.2	89.60	47,800	2,140	20.50	4.33	1,910.00	214.00
600 x 200	600 x 200	11	17	22	134.4	106.00	77,600	2,280	24.00	4.12	2,590.00	228.00
600 x 200	588 x 300	12	20	28	192.5	151.00	118,000	9,020	24.80	6.85	4,020.00	601.00
700 x 300	700 x 300	13	24	28	235.5	185.00	201,000	10,800	29.30	6.78	5,760.00	722.00
800 x 300	800 x 300	14	26	28	267.4	210.00	292,000	11,700	33.00	6.62	7,290.00	782.00
900 x 300	900 x 300	16	28	28	309.8	243.00	411,000	12,600	36.40	6.39	9,140.00	843.00

SAP2000 v7.40 File: WF 400X200 KN-m Units PAGE 1
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S T A T I C L O A D C A S E S

STATIC CASE	CASE TYPE	SELF WT FACTOR
DL	DEAD	1.0000
LL	LIVE	0.0000
WKI	WIND	0.0000
WKA	WIND	0.0000

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J O I N T D A T A

JOINT	GLOBAL-X	GLOBAL-Y	GLOBAL-Z	RESTRAINTS	ANGLE-A	ANGLE-B	ANGLE-C
1	0.00000	0.00000	0.00000	1 1 1 0 0 0	0.000	0.000	0.000
2	10.50000	0.00000	6.06220	0 0 0 0 0 0	0.000	0.000	0.000
3	21.00000	0.00000	0.00000	1 1 1 0 0 0	0.000	0.000	0.000

SAP2000 v7.40 File: WF 400X200 KN-m Units PAGE 3
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F R A M E E L E M E N T D A T A

FRAME	JNT-1	JNT-2	SECTION	ANGLE	RELEASES	SEGMENTS	R1	R2	FACTOR	LENGTH
1	1	2	W400X200	0.000	000000	2	0.000	0.000	1.000	12.124
2	2	3	W400X200	0.000	000000	2	0.000	0.000	1.000	12.124

SAP2000 v7.40 File: WF 400X200 KN-m Units PAGE 4
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J O I N T F O R C E S Load Case DL

JOINT	GLOBAL-X	GLOBAL-Y	GLOBAL-Z	GLOBAL-XX	GLOBAL-YY	GLOBAL-ZZ
1	0.000	0.000	-3.968	0.000	0.000	0.000
2	0.000	0.000	-3.968	0.000	0.000	0.000
3	0.000	0.000	-3.968	0.000	0.000	0.000

SAP2000 v7.40 File: WF 400X200 KN-m Units PAGE 5
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J O I N T F O R C E S Load Case LL

JOINT	GLOBAL-X	GLOBAL-Y	GLOBAL-Z	GLOBAL-XX	GLOBAL-YY	GLOBAL-ZZ
1	0.000	0.000	-1.000	0.000	0.000	0.000
2	0.000	0.000	-1.000	0.000	0.000	0.000
3	0.000	0.000	-1.000	0.000	0.000	0.000

SAP2000 v7.40 File: WF 400X200 KN-m Units PAGE 6
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F R A M E S P A N P O I N T L O A D S Load Case DL

FRAME	TYPE	DIRECTION	DISTANCE	VALUE
1	FORCE	GLOBAL-Z	0.1429	-3.9679
1	FORCE	GLOBAL-Z	0.2857	-3.9679
1	FORCE	GLOBAL-Z	0.4286	-3.9679
2	FORCE	GLOBAL-Z	0.1429	-3.9679
2	FORCE	GLOBAL-Z	0.2857	-3.9679
2	FORCE	GLOBAL-Z	0.4286	-3.9679
1	FORCE	GLOBAL-Z	0.5714	-3.9679
1	FORCE	GLOBAL-Z	0.7143	-3.9679
1	FORCE	GLOBAL-Z	0.8572	-3.9679
2	FORCE	GLOBAL-Z	0.5714	-3.9679
2	FORCE	GLOBAL-Z	0.7143	-3.9679
2	FORCE	GLOBAL-Z	0.8572	-3.9679
2	FORCE	GLOBAL-Z	1.0000	0.0000

SAP2000 v7.40 File: WF 400X200 KN-m Units PAGE 7

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F R A M E S P A N P O I N T L O A D S Load Case LL

FRAME	TYPE	DIRECTION	DISTANCE	VALUE
1	FORCE	GLOBAL-Z	0.5714	-1.0000
1	FORCE	GLOBAL-Z	0.7143	-1.0000
1	FORCE	GLOBAL-Z	0.8572	-1.0000
2	FORCE	GLOBAL-Z	0.5714	-1.0000
2	FORCE	GLOBAL-Z	0.7143	-1.0000
2	FORCE	GLOBAL-Z	0.8572	-1.0000
1	FORCE	GLOBAL-Z	0.1429	-1.0000
1	FORCE	GLOBAL-Z	0.2857	-1.0000
1	FORCE	GLOBAL-Z	0.4286	-1.0000
2	FORCE	GLOBAL-Z	0.1429	-1.0000
2	FORCE	GLOBAL-Z	0.2857	-1.0000
2	FORCE	GLOBAL-Z	0.4286	-1.0000
2	FORCE	GLOBAL-Z	1.0000	0.0000
1	FORCE	GLOBAL-Z	0.0000	0.0000
1	FORCE	GLOBAL-Z	1.0000	0.0000

SAP2000 v7.40 File: WF 400X200 KN-m Units PAGE 8
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F R A M E S P A N P O I N T L O A D S Load Case WKI

FRAME	TYPE	DIRECTION	DISTANCE	VALUE
1	FORCE	LOCAL-2	0.1429	-0.4547
1	FORCE	LOCAL-2	0.2857	-0.4547
1	FORCE	LOCAL-2	0.4286	-0.4547
1	FORCE	LOCAL-2	0.5714	-0.4547
1	FORCE	LOCAL-2	0.0000	-0.4547
1	FORCE	LOCAL-2	0.7143	-0.4547
1	FORCE	LOCAL-2	0.8572	-0.4547
1	FORCE	LOCAL-2	1.0000	-0.4547
2	FORCE	LOCAL-2	0.0000	0.9094
2	FORCE	LOCAL-2	1.0000	0.9094
2	FORCE	LOCAL-2	0.1429	0.9094
2	FORCE	LOCAL-2	0.2857	0.9094
2	FORCE	LOCAL-2	0.4286	0.9094
2	FORCE	LOCAL-2	0.5714	0.9094
2	FORCE	LOCAL-2	0.7143	0.9094
2	FORCE	LOCAL-2	0.8572	0.9094

SAP2000 v7.40 File: WF 400X200 KN-m Units PAGE 9
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F R A M E S P A N P O I N T L O A D S Load Case WKA

FRAME	TYPE	DIRECTION	DISTANCE	VALUE
2	FORCE	LOCAL-2	0.7143	-0.4547
2	FORCE	LOCAL-2	0.8572	-0.4547
2	FORCE	LOCAL-2	0.1429	-0.4547
2	FORCE	LOCAL-2	0.2857	-0.4547
2	FORCE	LOCAL-2	0.4286	-0.4547
2	FORCE	LOCAL-2	0.5714	-0.4547
1	FORCE	LOCAL-2	0.1429	0.9094
1	FORCE	LOCAL-2	0.2857	0.9094
1	FORCE	LOCAL-2	0.4286	0.9094
1	FORCE	LOCAL-2	0.5714	0.9094
1	FORCE	LOCAL-2	0.0000	0.9094
1	FORCE	LOCAL-2	0.7143	0.9094
1	FORCE	LOCAL-2	0.8572	0.9094
1	FORCE	LOCAL-2	1.0000	0.9094
2	FORCE	LOCAL-2	0.0000	-0.4547
2	FORCE	LOCAL-2	1.0000	-0.4547

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L O A D C O M B I N A T I O N M U L T I P L I E R S

COMBO	TYPE	CASE	FACTOR	TYPE	TITLE
COMB1	ADD				COMB1
		DL	1.4000	STATIC(DEAD)	
COMB2	ADD				COMB2
		DL	1.2000	STATIC(DEAD)	
		LL	0.5000	STATIC(LIVE)	
		WKI	1.3000	STATIC(WIND)	
COMB3	ADD				COMB3
		DL	1.2000	STATIC(DEAD)	
		LL	0.5000	STATIC(LIVE)	
		WKA	1.3000	STATIC(WIND)	
COMB4	ADD				COMB4
		DL	1.2000	STATIC(DEAD)	
		WKI	0.8000	STATIC(WIND)	
		LL	1.6000	STATIC(LIVE)	
COMB5	ADD				COMB5
		DL	1.2000	STATIC(DEAD)	
		WKA	0.8000	STATIC(WIND)	
		LL	1.6000	STATIC(LIVE)	

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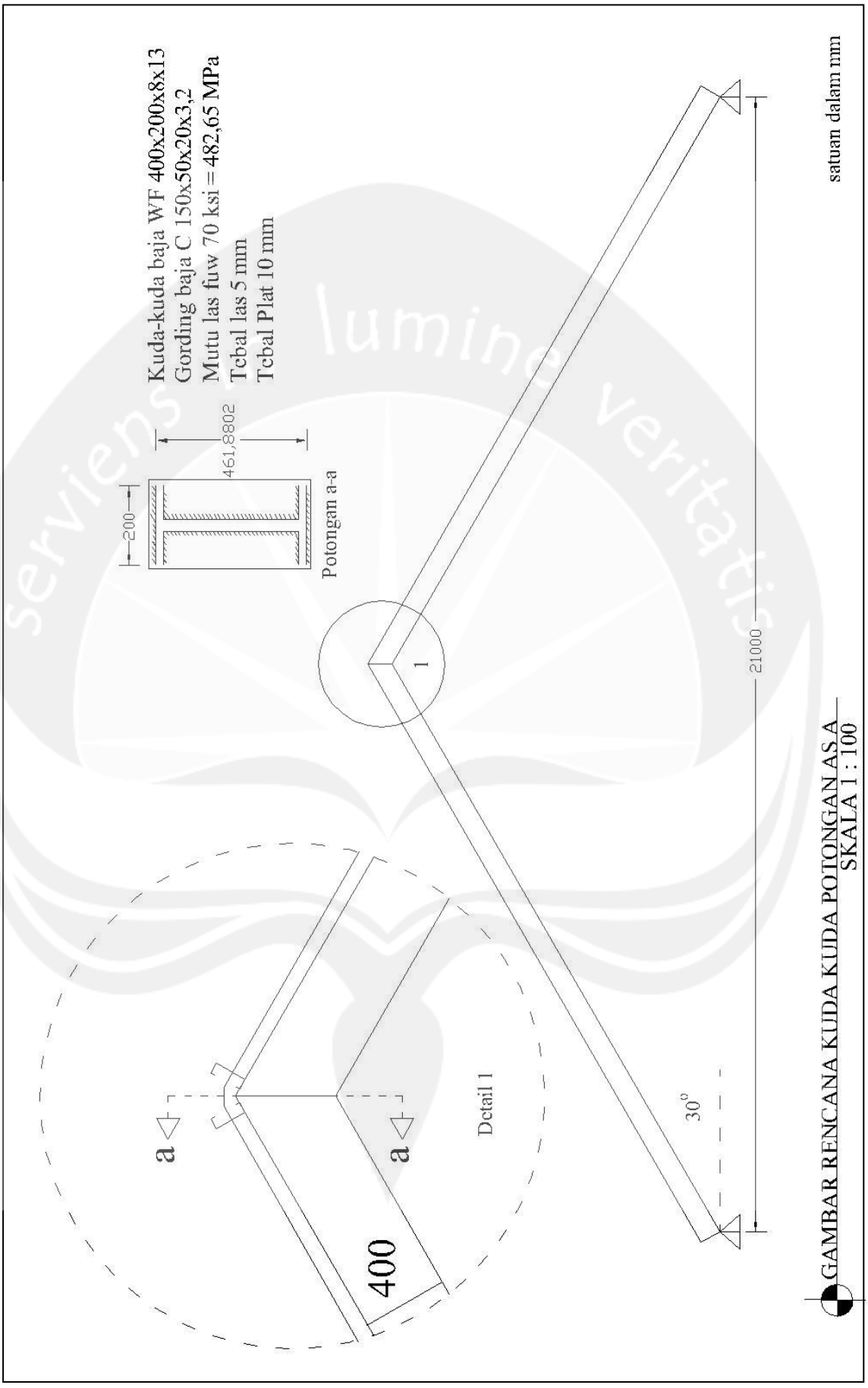
5/18/11 0:53:52

F R A M E E L E M E N T F O R C E S

FRAME	LOAD	LOC	P	V2	V3	T	M2	M3
1	Minima		-75.00	-16.47	0.00	0.00	0.00	-66.38
			COMB5	COMB4	COMB5	COMB5	COMB4	COMB4
1	Maxima		-39.63	27.42	0.00	0.00	0.00	39.86
			COMB2	COMB4	COMB4	COMB5	COMB5	COMB4
2	Minima		-75.00	-27.42	0.00	0.00	0.00	-66.38
			COMB4	COMB5	COMB4	COMB5	COMB5	COMB4
2	Maxima		-39.63	16.47	0.00	0.00	0.00	39.86
			COMB3	COMB5	COMB5	COMB5	COMB4	COMB5


Kuda-kuda baja WF 400x200x8x13
Gording baja C 150x50x20x3,2
Mutu las fuw 70 ksi = 482,65 MPa
Tebal las 5 mm
Tebal Plat 10 mm
461,8802
200
Potongan a-a
1
21000
30°
400
a
a
Detail 1
GAMBAR RENCANA KUDA KUDA POTONGAN AS A
SKALA 1 : 100
satuan dalam mm

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S T A T I C L O A D C A S E S

STATIC CASE	TYPE	SELF WT FACTOR
LOAD1	DEAD	0.0000

J O I N T D A T A

JOINT	GLOBAL-X	GLOBAL-Y	GLOBAL-Z	RESTRAINTS	ANGLE-A	ANGLE-B	ANGLE-C
1	0.00000	0.00000	0.00000	1 1 1 0 0 0	0.000	0.000	0.000
2	4.50000	0.00000	2.80000	0 0 0 0 0 0	0.000	0.000	0.000
3	6.00000	0.00000	2.80000	1 1 1 0 0 0	0.000	0.000	0.000

F R A M E E L E M E N T D A T A

FRAME	JNT-1	JNT-2	SECTION	ANGLE	RELEASES	SEGMENTS	R1	R2	FACTOR	LENGTH
1	1	2	FSEC1	0.000	000000	2	0.000	0.000	1.000	5.300
2	2	3	FSEC1	0.000	000000	4	0.000	0.000	1.000	1.500

F R A M E S P A N D I S T R I B U T E D L O A D S Load Case LOAD1

FRAME	TYPE	DIRECTION	DISTANCE-A	VALUE-A	DISTANCE-B	VALUE-B
1	FORCE	GLOBAL-Z	0.0000	-13.2720	1.0000	-13.2720
2	FORCE	GLOBAL-Z	0.0000	-10.2480	1.0000	-10.2480

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J O I N T D I S P L A C E M E N T S

JOINT	LOAD	U1	U2	U3	R1	R2	R3
1	LOAD1	0.0000	0.0000	0.0000	0.0000	9.119E-05	0.0000
2	LOAD1	4.902E-06	0.0000	-4.569E-05	0.0000	-4.591E-05	0.0000
3	LOAD1	0.0000	0.0000	0.0000	0.0000	-2.602E-05	0.0000

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J O I N T R E A C T I O N S

JOINT	LOAD	F1	F2	F3	M1	M2	M3
1	LOAD1	98.0499	0.0000	91.6416	0.0000	0.0000	0.0000
3	LOAD1	-98.0499	0.0000	-5.9280	0.0000	0.0000	0.0000

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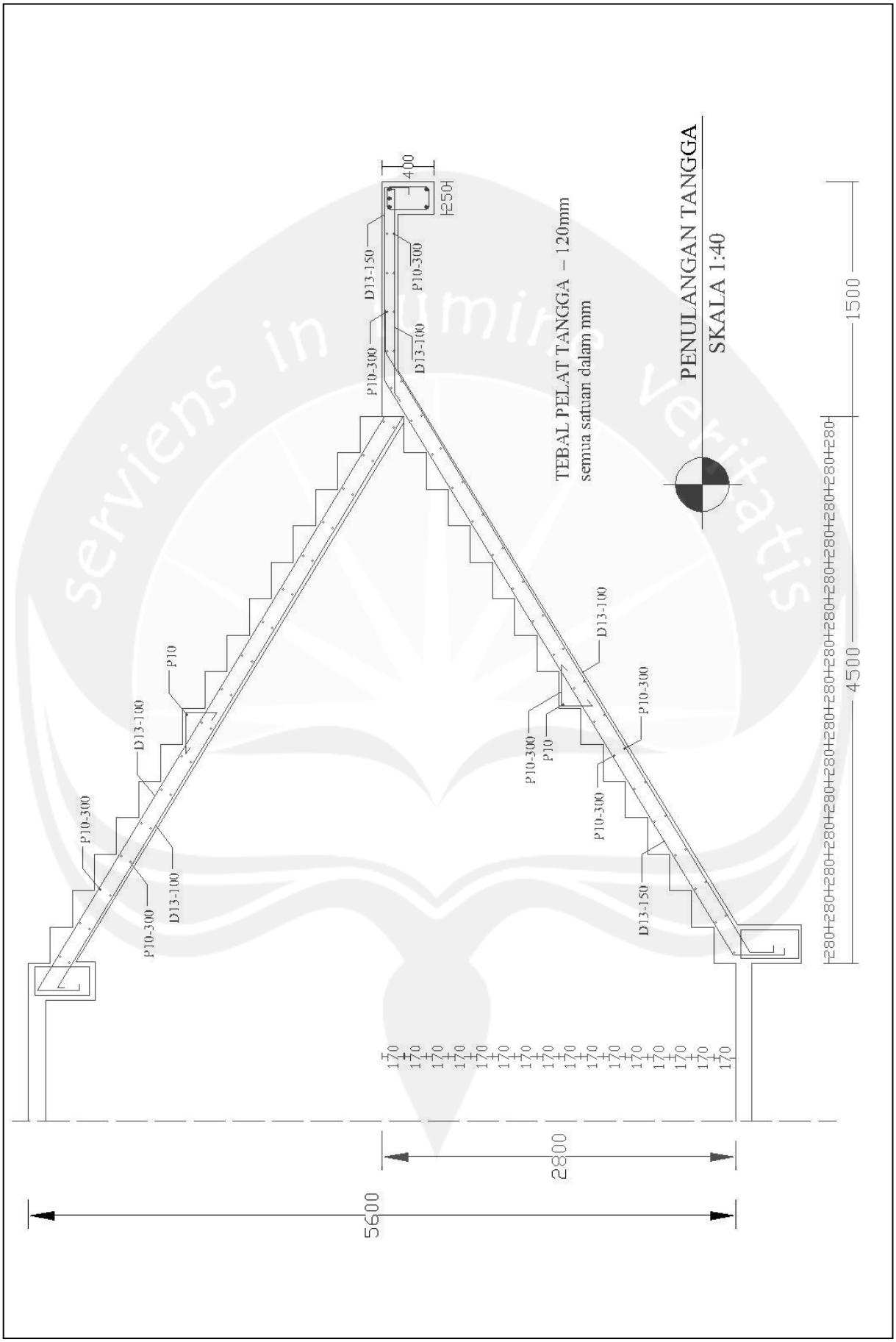
F R A M E E L E M E N T F O R C E S

FRAME	LOAD	LOC	P	V2	V3	T	M2	M3
1	LOAD1							
		0.00	-131.66	-26.01	0.00	0.00	0.00	0.00
		2.65	-113.08	3.85	0.00	0.00	0.00	29.36
		5.30	-94.50	33.72	0.00	0.00	0.00	-20.42
2	LOAD1							
		0.00	-98.05	-21.30	0.00	0.00	0.00	-20.42
		3.8E-01	-98.05	-17.46	0.00	0.00	0.00	-13.15
		7.5E-01	-98.05	-13.61	0.00	0.00	0.00	-7.33
		1.13	-98.05	-9.77	0.00	0.00	0.00	-2.94
		1.50	-98.05	-5.93	0.00	0.00	0.00	0.00


PENULANGAN TANGGA
SKALA 1:40
TEBAL PELAT TANGGA = 120mm
semua satuan dalam mm
D13-150
P10-300
D13-100
P10
400
250
1500
4500
280+280+280+280+280+280+280+280+280+280+280+280+280+280+280+280+280
170
2800
5600

Tabel 13.3.1

Momen di dalam pelat persegi yang menumpu pada keempat tepinya akibat beban terbagi rata

		ly/lx	1,0	1,1	1,2	1,3	1,4	1,5	1,6	1,7	1,8	1,9	2,0	2,1	2,2	2,3	2,4	2,5	>2,5
I	Mlx = +0,001 qlx^2 X		44	52	59	66	73	78	84	88	93	97	100	103	106	108	110	112	125
	Mly = +0,001 qlx^2 X		44	45	45	44	44	43	41	40	39	38	37	36	35	34	33	32	25
II	Mlx = +0,001 qlx^2 X		21	25	28	31	34	36	37	38	40	40	41	41	41	42	42	42	42
	Mly = +0,001 qlx^2 X		21	21	20	19	18	17	16	14	13	12	12	11	11	11	10	10	8
	Mtx = − 0,001 qlx^2 X		52	57	59	64	69	73	76	79	81	82	83	83	83	83	83	83	83
	Mty = − 0,001 qlx^2 X		52	55	54	56	57	57	57	57	57	57	57	57	57	57	57	57	57
III	Mlx = +0,001 qlx^2 X		28	33	38	42	45	48	51	53	55	57	58	59	59	60	61	61	63
	Mly = +0,001 qlx^2 X		28	28	28	27	26	25	23	23	22	21	19	18	17	17	16	16	13
	Mtx = − 0,001 qlx^2 X		68	77	85	92	98	103	107	111	113	116	118	119	120	121	122	122	125
	Mty = − 0,001 qlx^2 X		68	72	74	76	77	77	78	78	78	78	79	79	79	79	79	79	79
IVA	Mlx = +0,001 qlx^2 X		22	28	34	42	49	55	62	68	74	80	85	89	93	97	100	103	125
	Mly = +0,001 qlx^2 X		32	35	37	39	40	41	41	41	41	40	39	38	37	36	35	35	25
	Mty = − 0,001 qlx^2 X		70	79	87	94	100	105	109	112	115	117	119	120	121	122	123	123	125
IVB	Mlx = +0,001 qlx^2 X		32	34	36	38	39	40	41	41	42	42	42	42	42	42	42	42	42
	Mly = +0,001 qlx^2 X		22	20	18	17	15	14	13	12	11	10	10	10	9	9	9	9	8
	Mtx = − 0,001 qlx^2 X		70	74	77	79	81	82	83	84	84	84	84	84	83	83	83	83	83
VA	Mtx = +0,001 qlx^2 X		31	38	45	53	60	66	72	78	83	88	92	96	99	102	105	108	125
	Mly = +0,001 qlx^2 X		37	39	41	41	42	42	41	41	40	39	38	37	36	35	34	33	25
	mty = − 0,001 qlx^2 X		84	92	99	104	109	112	115	117	119	121	122	122	123	123	124	124	125
VB	Mlx = +0,001 qlx^2 X		37	41	45	48	51	53	55	56	58	59	60	60	60	61	61	62	63
	Mly = +0,001 qlx^2 X		31	30	28	27	25	24	22	21	20	19	18	17	17	16	16	15	13
	Mtx = − 0,001 qlx^2 X		84	92	98	103	108	111	114	117	119	120	121	122	122	123	123	124	125
VIA	Mlx = +0,001 qlx^2 X		21	26	31	36	40	43	46	49	51	53	55	56	57	58	59	60	63
	Mly = +0,001 qlx^2 X		26	27	28	28	27	26	25	23	22	21	21	20	20	19	19	18	13
	Mtx = − 0,001 qlx^2 X		55	65	74	82	89	94	99	103	106	110	114	116	117	118	119	120	125
	Mty = − 0,001 qlx^2 X		60	65	69	72	74	76	77	78	78	78	78	78	78	78	78	79	79
VIB	Mlx = +0,001 qlx^2 X		26	29	32	35	36	38	39	40	40	41	41	42	42	42	42	42	42
	Mly = +0,001 qlx^2 X		21	20	19	18	17	15	14	13	12	12	11	11	10	10	10	10	8
	Mtx = − 0,001 qlx^2 X		60	66	71	74	77	79	80	82	83	83	83	83	83	83	83	83	83
	Mty = − 0,001 qlx^2 X		55	57	57	57	58	57	57	57	57	57	57	57	57	57	57	57	57

——— = Terletak bebas

▪▪▪▪▪▪▪ = Terjepit penuh

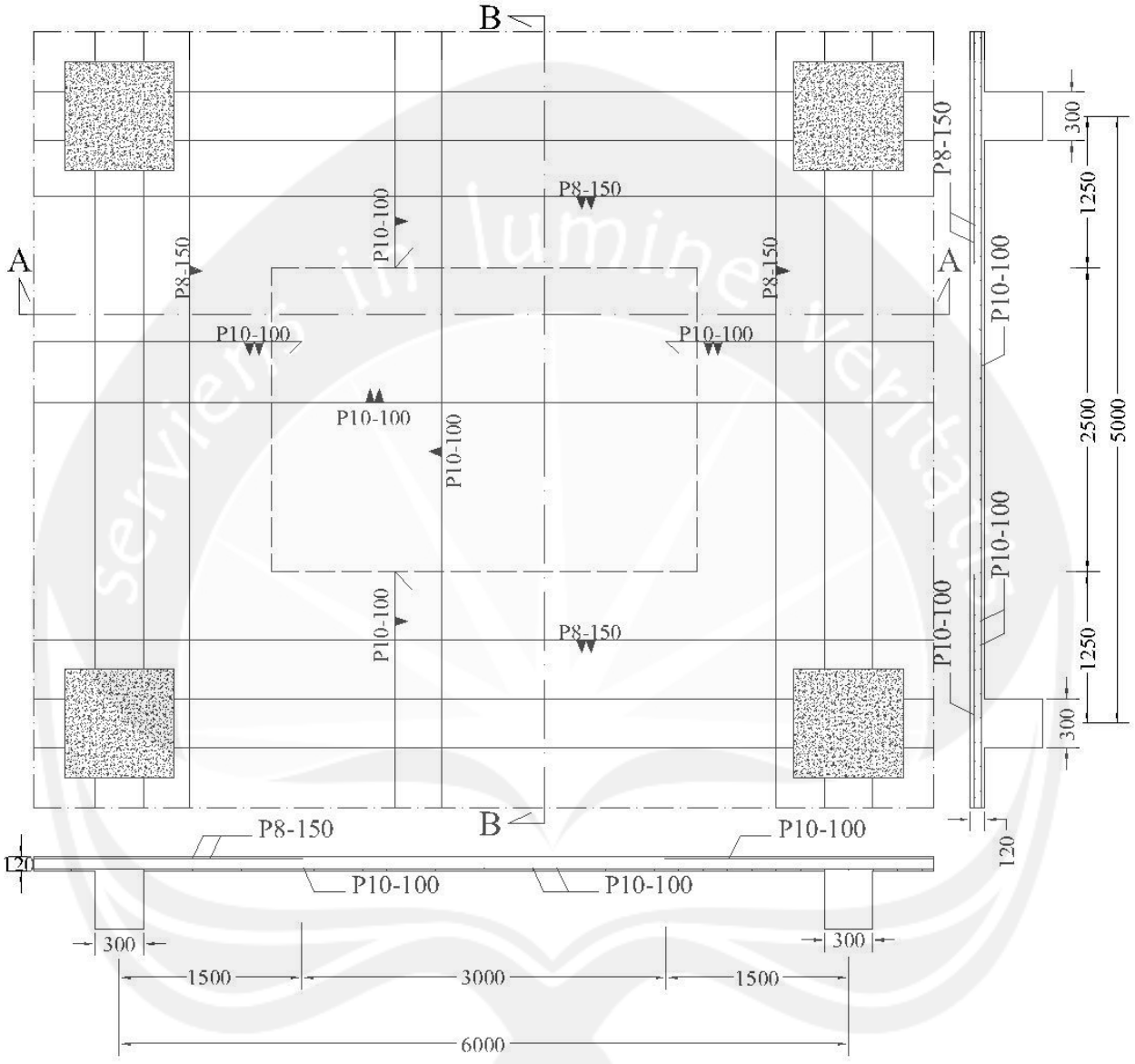
Tabel 13.3.2

Momen di dalam pelat persegi yang menumpu pada keempat tepinya akibat beban terbagi rata

		ly/lx	1,0	1,1	1,2	1,3	1,4	1,5	1,6	1,7	1,8	1,9	2,0	2,1	2,2	2,3	2,4	2,5	>2,5
I	(Mlx) = 0,001 qlx^2 X		44	52	59	66	73	78	84	88	93	97	100	103	106	108	110	112	125
	(Mly) = 0,001 qlx^2 X		44	45	45	44	44	43	41	40	39	38	37	36	35	34	32	32	25
II	(Mlx) = − (Mtx) = 0,001 qlx^2 X		36	42	46	50	53	56	58	59	60	61	62	62	62	63	63	63	63
	(Mly) = 0,001 qlx^2 X		36	37	38	38	38	37	36	36	35	35	35	34	34	34	34	34	13
	− (Mty) = 0,001 qlx^2 X		36	37	38	38	38	37	36	36	35	35	35	34	34	34	34	34	38
III	(Mlx) = − (Mtx) = 0,001 qlx^2 X		48	55	61	67	71	76	79	82	84	86	88	89	90	91	92	92	94
	(Mly) = 0,001 qlx^2 X		48	50	51	51	51	51	51	50	50	49	49	49	48	48	47	47	19
	− (Mty) = 0,001 qlx^2 X		48	50	51	51	51	51	51	50	50	49	49	49	48	48	47	47	56
IVA	(Mlx) = 0,001 qlx^2 X		22	28	34	41	48	55	62	68	74	80	85	89	93	97	100	103	125
	(Mly) = 0,001 qlx^2 X		51	57	62	67	70	73	75	77	78	79	79	79	79	79	79	79	25
	− (Mty) = 0,001 qlx^2 X		51	57	62	67	70	73	75	77	78	79	79	79	79	79	79	79	75
IVB	(Mlx) = − (Mtx) = 0,001 qlx^2 X		51	54	57	59	60	61	62	62	63	63	63	63	63	63	63	63	63
	(Mly) = 0,001 qlx^2 X		22	20	18	17	15	14	13	12	11	10	10	10	9	9	9	9	13
VA	(Mlx) = 0,001 qlx^2 X		31	38	45	53	59	66	72	78	83	88	92	96	99	102	105	108	125
	(Mly) = 0,001 qlx^2 X		60	65	69	73	75	77	78	79	79	80	80	80	79	79	79	79	25
	− (Mty) = 0,001 qlx^2 X		60	65	69	73	75	77	78	79	79	80	80	80	79	79	79	79	75
VB	(Mlx) = − (Mlx) = 0,001 qlx^2 X		60	66	71	76	79	82	85	87	88	89	90	91	91	92	92	93	94
	(Mly) = 0,001 qlx^2 X		31	30	28	27	25	24	22	21	20	19	18	17	17	16	16	15	12
VIA	(Mlx) = − (Mtx) = 0,001 qlx^2 X		38	46	53	59	65	69	73	77	80	83	85	86	87	88	89	90	54
	(Mly) = 0,001 qlx^2 X		43	46	48	50	51	51	51	51	50	50	50	49	49	48	48	48	19
	− (Mty) = 0,001 qlx^2 X		43	46	48	50	51	51	51	51	50	50	50	49	49	48	48	48	56
VIB	(Mlx) = − (Mtx) = 0,001 qlx^2 X		13	48	51	55	57	58	60	61	62	62	62	63	63	63	63	63	63
	(Mly) = 0,001 qlx^2 X		38	39	38	38	37	36	36	35	35	34	34	34	33	33	33	33	13
	− (Mty) = 0,001 qlx^2 X		38	39	38	38	37	36	36	35	35	34	34	34	33	33	33	33	38

——— = Terletak bebas

═══ = Menerus atau terjepit elastis



KETERANGAN

▼ = Lapis terluar dari sisi atas

▲ = Lapis terluar dari sisi bawah

▼▼ = Lapis terdalam dari sisi atas

▲▲ = Lapis terdalam dari sisi bawah

Keterangan:
1. Semua satuan dalam mm

Gambar Penulangan Pelat Lantai Dua Arah
Skala 1:500

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M A S S S O U R C E D A T A

MASS FROM	LATERAL MASS ONLY	LUMP MASS AT STORIES
Loads	Yes	Yes

M A S S S O U R C E L O A D S

LOAD	MULTIPLIER
DEAD	1.0000
LIVE	0.5000

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D I A P H R A G M M A S S D A T A

STORY	DIAPHRAGM	MASS-X	MASS-Y	MMI	X-M	Y-M
ATAP	D6	101.0480	101.0480	22240.9531	10.500	19.000
STORY5	D5	704.2641	704.2641	110999.5054	10.141	17.664
STORY4	D4	890.2409	890.2409	135256.2727	10.266	17.716
STORY3	D3	903.9169	903.9169	138054.5703	10.263	17.698
STORY2	D2	1030.0507	1030.0507	172472.2579	11.557	16.586
STORY1	D1	1136.0918	1136.0918	200298.5645	12.311	15.942

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M A T E R I A L P R O P E R T Y D A T A

MATERIAL NAME	MATERIAL TYPE	DESIGN TYPE	MATERIAL DIR/PLANE	MODULUS OF ELASTICITY	POISSON'S RATIO	THERMAL COEFF	SHEAR MODULUS
CONC	Iso	Concrete	All	23500000	0.2000	9.9000E-06	9791666.667

M A T E R I A L P R O P E R T Y M A S S A N D W E I G H T

MATERIAL NAME	MASS PER UNIT VOL	WEIGHT PER UNIT VOL
CONC	2.4010E+00	2.3560E+01

M A T E R I A L D E S I G N D A T A F O R C O N C R E T E M A T E R I A L S

MATERIAL NAME	LIGHTWEIGHT CONCRETE	CONCRETE FC	REBAR FY	REBAR FYS	LIGHTWT REDUC FACT
CONC	No	25000.000	400000.000	240000.000	N/A

ETABS v7.10 File: GEDUNG PASCA SARJANA UNDIP T RAYLEIGH TABEL KN-m Units PAGE 5
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F R A M E S E C T I O N P R O P E R T Y D A T A

FRAME SECTION NAME	MATERIAL NAME	SECTION SHAPE NAME OR NAME IN SECTION DATABASE FILE	CONC COL	CONC BEAM
K700	CONC	Rectangular	Yes	
K600	CONC	Rectangular	Yes	
K500	CONC	Rectangular	Yes	
B400X700	CONC	Rectangular		Yes
B250X400	CONC	Rectangular		Yes
B300X500	CONC	Rectangular		Yes

F R A M E S E C T I O N P R O P E R T Y D A T A

FRAME SECTION NAME	SECTION DEPTH	FLANGE WIDTH TOP	FLANGE THICK TOP	WEB THICK	FLANGE WIDTH BOT	FLANGE THICK BOT
K700	0.7000	0.7000	0.0000	0.0000	0.0000	0.0000
K600	0.6000	0.6000	0.0000	0.0000	0.0000	0.0000
K500	0.5000	0.5000	0.0000	0.0000	0.0000	0.0000
B400X700	0.7000	0.4000	0.0000	0.0000	0.0000	0.0000
B250X400	0.4000	0.2500	0.0000	0.0000	0.0000	0.0000
B300X500	0.5000	0.3000	0.0000	0.0000	0.0000	0.0000

C O N C R E T E C O L U M N D A T A

FRAME SECTION NAME	REINF CONFIGURATION LONGIT	LATERAL	REINF SIZE/TYPE	NUM BARS 3DIR/2DIR	NUM BARS CIRCULAR	BAR COVER
K700	Rectangular	Ties	#9/Design	3/3	N/A	45.7200
K600	Rectangular	Ties	#9/Design	3/3	N/A	45.7200
K500	Rectangular	Ties	#9/Design	3/3	N/A	45.7200

C O N C R E T E B E A M D A T A

FRAME SECTION NAME	TOP COVER	BOT COVER	TOP LEFT AREA	TOP RIGHT AREA	BOT LEFT AREA	BOT RIGHT AREA
B400X700	0.0400	0.0400	0.000	0.000	0.000	0.000
B250X400	0.0400	0.0400	0.000	0.000	0.000	0.000
B300X500	0.0400	0.0400	0.000	0.000	0.000	0.000

S H E L L S E C T I O N P R O P E R T Y D A T A

SHELL SECTION	MATERIAL NAME	SHELL TYPE	MEMBRANE THICK	BENDING THICK	TOTAL WEIGHT	TOTAL MASS
LANTAI	CONC	Membrane	0.1200	0.1200	9657.7152	984.2179
ATAP	CONC	Membrane	0.1200	0.1200	0.0000	0.0000

S T A T I C L O A D C A S E S

STATIC CASE	CASE TYPE	AUTO LAT LOAD	SELF WT MULTIPLIER
DEAD	DEAD	N/A	1.0000
LIVE	LIVE	N/A	0.0000
EX	QUAKE	None	0.0000
EY	QUAKE	None	0.0000

CASE	TYPE	LOAD	MULTIPLIER
COMB1	ADD	DEAD Static	1.4000
COMB2	ADD	DEAD Static	1.2000
		LIVE Static	1.6000
COMB3	ADD	DEAD Static	1.2000
		LIVE Static	1.0000
		EX Static	1.0000
		EY Static	0.3000
COMB4	ADD	DEAD Static	1.2000
		LIVE Static	1.0000
		EX Static	-1.0000
		EY Static	0.3000
COMB5	ADD	DEAD Static	1.2000
		LIVE Static	1.0000
		EX Static	1.0000
		EY Static	-0.3000

COMB6	ADD	DEAD	Static	1.2000
		LIVE	Static	1.0000
		EX	Static	-1.0000
		EY	Static	-0.3000
COMB7	ADD	DEAD	Static	1.2000
		LIVE	Static	1.0000
		EX	Static	0.3000
		EY	Static	1.0000
COMB8	ADD	DEAD	Static	1.2000
		LIVE	Static	1.0000
		EX	Static	-0.3000
		EY	Static	1.0000
COMB9	ADD	DEAD	Static	1.2000
		LIVE	Static	1.0000
		EX	Static	0.3000
		EY	Static	-1.0000
COMB10	ADD	DEAD	Static	1.2000
		LIVE	Static	1.0000
		EX	Static	-0.3000
		EY	Static	-1.0000
COMB11	ADD	DEAD	Static	0.9000
		EX	Static	1.0000
		EY	Static	0.3000
COMB12	ADD	DEAD	Static	0.9000
		EX	Static	-1.0000
		EY	Static	0.3000
COMB13	ADD	DEAD	Static	0.9000
		EX	Static	1.0000
		EY	Static	-0.3000
COMB14	ADD	DEAD	Static	0.9000
		EX	Static	-1.0000
		EY	Static	-0.3000
COMB15	ADD	DEAD	Static	0.9000
		EX	Static	0.3000
		EY	Static	1.0000
COMB16	ADD	DEAD	Static	0.9000
		EX	Static	-0.3000
		EY	Static	1.0000
COMB17	ADD	DEAD	Static	0.9000
		EX	Static	0.3000
		EY	Static	-1.0000
COMB18	ADD	DEAD	Static	0.9000
		EX	Static	-0.3000
		EY	Static	-1.0000
ENVE	ENVE	COMB1	Combo	1.0000
		COMB2	Combo	1.0000
		COMB3	Combo	1.0000
		COMB4	Combo	1.0000
		COMB5	Combo	1.0000
		COMB6	Combo	1.0000
		COMB7	Combo	1.0000
		COMB8	Combo	1.0000
		COMB9	Combo	1.0000
		COMB10	Combo	1.0000
		COMB11	Combo	1.0000
		COMB12	Combo	1.0000
		COMB13	Combo	1.0000
		COMB14	Combo	1.0000
		COMB15	Combo	1.0000
		COMB16	Combo	1.0000
		COMB17	Combo	1.0000
		COMB18	Combo	1.0000

Story	Beam	Load	Loc	P	V2	V3	T	M2	M3
STORY5	B50	ENVE MAX	0,25	0	-72,33	0	8,865	0	18,023
			4	0	-19,36	0	8,865	0	363,398
			7,75	0	204,61	0	5,209	0	-2,023
STORY5	B50	ENVE MIN	0,25	0	-206,07	0	-8,467	0	-293,101
			4	0	-115,61	0	-8,467	0	163,77
			7,75	0	71,31	0	-5,257	0	-265,036
STORY4	B50	ENVE MAX	0,3	0	-70,85	0	16,447	0	97,214
			4	0	19,17	0	16,447	0	351,329
			7,7	0	293,53	0	16,522	0	74,259
STORY4	B50	ENVE MIN	0,3	0	-289,31	0	-16,237	0	-501,43
			4	0	-149,51	0	-16,237	0	173,558
			7,7	0	72,54	0	-16,904	0	-500,431
STORY3	B50	ENVE MAX	0,3	0	-44,77	0	23,567	0	190,696
			4	0	45,25	0	23,567	0	342,92
			7,7	0	319,56	0	23,173	0	172,357
STORY3	B50	ENVE MIN	0,3	0	-317,91	0	-23,376	0	-616,937
			4	0	-178,11	0	-23,376	0	166,669
			7,7	0	44,01	0	-23,49	0	-602,013
STORY2	B50	ENVE MAX	0,35	0	-31	0	28,695	0	231,109
			4	0	58,1	0	28,695	0	329,586
			7,65	0	331,19	0	26,611	0	222,09
STORY2	B50	ENVE MIN	0,35	0	-331,03	0	-28,439	0	-663,626
			4	0	-192,55	0	-28,439	0	161,752
			7,65	0	28,63	0	-26,931	0	-646,659
STORY1	B50	ENVE MAX	0,35	0	-33,92	0	27,381	0	221,274
			4	0	55,18	0	27,381	0	331,751
			7,65	0	328,92	0	24,412	0	207,755
STORY1	B50	ENVE MIN	0,35	0	-326,24	0	-27,144	0	-643,904
			4	0	-187,75	0	-27,144	0	163,175
			7,65	0	32,97	0	-24,635	0	-636,795
STORY5	B51	ENVE MAX	0,25	0	-12,72	0	0,001	0	-1,784
			2,5	0	18,23	0	0,001	0	0,817
			4,75	0	74,67	0	0,001	0	-2,728
STORY5	B51	ENVE MIN	0,25	0	-74,16	0	-0,106	0	-117,487
			2,5	0	-17,82	0	-0,106	0	-1,42
			4,75	0	13,02	0	-0,106	0	-118,361
STORY4	B51	ENVE MAX	0,3	0	-7,14	0	0,19	0	55,566
			2,5	0	45,77	0	0,19	0	37,027
			4,7	0	131,49	0	0,19	0	55,177
STORY4	B51	ENVE MIN	0,3	0	-131,2	0	-0,1	0	-174,449
			2,5	0	-45,54	0	-0,1	0	19,731
			4,7	0	7,31	0	-0,1	0	-175,067
STORY3	B51	ENVE MAX	0,3	0	10,24	0	0,156	0	95,382
			2,5	0	63,2	0	0,156	0	39,183
			4,7	0	148,91	0	0,156	0	94,596
STORY3	B51	ENVE MIN	0,3	0	-148,51	0	-0,135	0	-210,65
			2,5	0	-62,9	0	-0,135	0	20,982
			4,7	0	-10,04	0	-0,135	0	-211,183
STORY2	B51	ENVE MAX	0,35	0	20,83	0	0,286	0	117,921
			2,5	0	72,89	0	0,286	0	43,861
			4,65	0	157,39	0	0,286	0	119,024

Story	Beam	Load	Loc	P	V2	V3	T	M2	M3
STORY2	B51	ENVE MIN	0,35	0	-157,85	0	-0,272	0	-221,242
			2,5	0	-73,27	0	-0,272	0	23,339
			4,65	0	-21,13	0	-0,272	0	-220,71
STORY1	B51	ENVE MAX	0,35	0	17,19	0	0,428	0	109,755
			2,5	0	69,26	0	0,428	0	42,906
			4,65	0	153,69	0	0,428	0	111,226
STORY1	B51	ENVE MIN	0,35	0	-154,54	0	-0,404	0	-215,026
			2,5	0	-69,96	0	-0,404	0	22,985
			4,65	0	-17,75	0	-0,404	0	-213,483
STORY5	B52	ENVE MAX	0,25	0	-71,09	0	5,256	0	-1,293
			4	0	115,91	0	8,749	0	363,654
			7,75	0	206,37	0	8,749	0	19,71
STORY5	B52	ENVE MIN	0,25	0	-205,32	0	-5,177	0	-267,228
			4	0	18,98	0	-9,047	0	163,776
			7,75	0	71,95	0	-9,047	0	-294,139
STORY4	B52	ENVE MAX	0,3	0	-72,3	0	17,429	0	75,21
			4	0	149,32	0	16,412	0	350,75
			7,7	0	289,13	0	16,412	0	98,919
STORY4	B52	ENVE MIN	0,3	0	-294,06	0	-16,143	0	-503,455
			4	0	-19,89	0	-17,288	0	173,582
			7,7	0	70,13	0	-17,288	0	-500,818
STORY3	B52	ENVE MAX	0,3	0	-42,83	0	23,823	0	174,887
			4	0	178,85	0	22,992	0	342,812
			7,7	0	318,66	0	22,992	0	198,859
STORY3	B52	ENVE MIN	0,3	0	-321,29	0	-22,967	0	-606,941
			4	0	-47,11	0	-24,634	0	164,856
			7,7	0	42,91	0	-24,634	0	-621,417
STORY2	B52	ENVE MAX	0,35	0	-33,48	0	28,712	0	211,671
			4	0	187,47	0	28,022	0	326,462
			7,65	0	325,95	0	28,022	0	210,169
STORY2	B52	ENVE MIN	0,35	0	-326,56	0	-26,841	0	-641,012
			4	0	-55,11	0	-24,944	0	167,078
			7,65	0	33,98	0	-24,944	0	-638,96
STORY1	B52	ENVE MAX	0,35	0	-36,4	0	26,279	0	199,569
			4	0	184,29	0	25,151	0	326,435
			7,65	0	322,77	0	25,151	0	198,789
STORY1	B52	ENVE MIN	0,35	0	-323,5	0	-25,012	0	-629,158
			4	0	-51,86	0	-22,065	0	167,519
			7,65	0	37,23	0	-22,065	0	-628,654
STORY2	B53	ENVE MAX	0,35	0	59,64	0	1,515	0	151,933
			2,5	0	80,22	0	1,515	0	17,944
			4,65	0	112,56	0	1,515	0	136,06
STORY2	B53	ENVE MIN	0,35	0	-99,58	0	-0,438	0	-168,265
			2,5	0	-69,25	0	-0,438	0	6,826
			4,65	0	-50,68	0	-0,438	0	-199,558
STORY1	B53	ENVE MAX	0,35	0	39,17	0	3,167	0	135,839
			2,5	0	79,79	0	3,167	0	36,46
			4,65	0	141,15	0	3,167	0	145,234
STORY1	B53	ENVE MIN	0,35	0	-137,91	0	-1,813	0	-200,198
			2,5	0	-76,83	0	-1,813	0	11,346
			4,65	0	-36,5	0	-1,813	0	-222,286

Story	Beam	Load	Loc	P	V2	V3	T	M2	M3
STORY5	B7	ENVE MAX	0,25	0	14,56	0	2,994	0	40,238
			2	0	25,89	0	2,994	0	10,032
			3,75	0	44,76	0	2,994	0	49,079
STORY5	B7	ENVE MIN	0,25	0	-54,34	0	-0,257	0	-74,922
			2	0	-34,32	0	-0,257	0	2,616
			3,75	0	-21,85	0	-0,257	0	-54,248
STORY4	B7	ENVE MAX	0,3	0	16,79	0	2,657	0	64,911
			2	0	45,17	0	2,657	0	19,713
			3,7	0	85,65	0	2,657	0	74,361
STORY4	B7	ENVE MIN	0,3	0	-98,63	0	-0,967	0	-119,759
			2	0	-55,91	0	-0,967	0	8,844
			3,7	0	-25,28	0	-0,967	0	-92,711
STORY3	B7	ENVE MAX	0,3	0	35,09	0	3,175	0	96,402
			2	0	63,47	0	3,175	0	20,181
			3,7	0	104,27	0	3,175	0	103,251
STORY3	B7	ENVE MIN	0,3	0	-115,41	0	-1,791	0	-148,358
			2	0	-72,68	0	-1,791	0	8,677
			3,7	0	-42,37	0	-1,791	0	-123,89
STORY2	B7	ENVE MAX	0,35	0	31,51	0	0,813	0	95,666
			2	0	66,71	0	0,813	0	28,99
			3,65	0	121,99	0	0,813	0	100,229
STORY2	B7	ENVE MIN	0,35	0	-129,55	0	-0,024	0	-148,477
			2	0	-72,92	0	-0,024	0	14,069
			3,65	0	-36,37	0	-0,024	0	-132,56
STORY1	B7	ENVE MAX	0,35	0	27,44	0	0,548	0	88,83
			2	0	62,64	0	0,548	0	28,833
			3,65	0	118,76	0	0,548	0	88,795
STORY1	B7	ENVE MIN	0,35	0	-121,8	0	-0,189	0	-135,78
			2	0	-65,17	0	-0,189	0	14,04
			3,65	0	-29,46	0	-0,189	0	-127,391
STORY5	B20	ENVE MAX	0,25	0	-23,91	0	1,8	0	2,441
			3	0	16,27	0	1,8	0	55,862
			5,75	0	89,92	0	1,8	0	-19,056
STORY5	B20	ENVE MIN	0,25	0	-77,86	0	0,247	0	-89,968
			3	0	-7,82	0	0,247	0	22,411
			5,75	0	30,16	0	0,247	0	-114,952
STORY4	B20	ENVE MAX	0,3	0	-19,06	0	1,402	0	76,169
			3	0	50,32	0	1,402	0	78,784
			5,7	0	161,65	0	1,402	0	51,088
STORY4	B20	ENVE MIN	0,3	0	-152,83	0	0,434	0	-216,85
			3	0	-42,91	0	0,434	0	37,061
			5,7	0	25,06	0	0,434	0	-231,774
STORY3	B20	ENVE MAX	0,3	0	-2,86	0	1,483	0	121,029
			3	0	66,28	0	1,483	0	78,944
			5,7	0	177,61	0	1,483	0	97,756
STORY3	B20	ENVE MIN	0,3	0	-170,69	0	0,217	0	-265,941
			3	0	-60,53	0	0,217	0	36,166
			5,7	0	7,43	0	0,217	0	-273,696
STORY2	B20	ENVE MAX	0,35	0	1,96	0	0,461	0	130,391
			3	0	69,74	0	0,461	0	79,112
			5,65	0	179,94	0	0,461	0	115,564

Story	Beam	Load	Loc	P	V2	V3	T	M2	M3
STORY2	B20	ENVE MIN	0,35	0	-176,03	0	-0,062	0	-272,738
			3	0	-66,43	0	-0,062	0	37,958
			5,65	0	0,75	0	-0,062	0	-275,476
STORY1	B20	ENVE MAX	0,35	0	-3,37	0	0,751	0	115,946
			3	0	64,96	0	0,751	0	79,029
			5,65	0	175,16	0	0,751	0	98,522
STORY1	B20	ENVE MIN	0,35	0	-168,99	0	-0,204	0	-253,946
			3	0	-59,94	0	-0,204	0	38,204
			5,65	0	7,24	0	-0,204	0	-263,112
STORY5	B39	ENVE MAX	0,25	0	-65,45	0	21,197	0	14,112
			4,5	0	108,4	0	-0,197	0	298,044
			8,75	0	221,37	0	-0,197	0	-77,906
STORY5	B39	ENVE MIN	0,25	0	-188,31	0	0,528	0	-307,282
			4,5	0	-78,1	0	0,528	0	134,962
			8,75	0	82,98	0	-18,469	0	-418,468
STORY4	B39	ENVE MAX	0,3	0	-76,22	0	34,858	0	81,771
			4,5	0	29,81	0	34,858	0	325,338
			8,7	0	301,63	0	7,133	0	39,435
STORY4	B39	ENVE MIN	0,3	0	-290,04	0	-8,286	0	-574,858
			4,5	0	-123,74	0	-8,286	0	162,43
			8,7	0	83,24	0	-32,489	0	-611,009
STORY3	B39	ENVE MAX	0,3	0	-51,44	0	41,69	0	185,29
			4,5	0	54,59	0	41,69	0	322,73
			8,7	0	325,98	0	13,39	0	143,467
STORY3	B39	ENVE MIN	0,3	0	-315,88	0	-14,766	0	-686,79
			4,5	0	-149,58	0	-14,766	0	159,032
			8,7	0	57,57	0	-39,327	0	-713,455
STORY2	B39	ENVE MAX	0,35	0	-38,31	0	43,25	0	233,257
			4,5	0	66,79	0	43,25	0	316,343
			8,65	0	334,82	0	16,401	0	200,08
STORY2	B39	ENVE MIN	0,35	0	-327,7	0	-15,765	0	-729,115
			4,5	0	-162,72	0	-15,765	0	154,144
			8,65	0	43,03	0	-43,049	0	-745,368
STORY1	B39	ENVE MAX	0,35	0	-46,11	0	41,304	0	200,399
			4,5	0	58,99	0	41,304	0	316,195
			8,65	0	327,02	0	15,694	0	163,977
STORY1	B39	ENVE MIN	0,35	0	-318,38	0	-14,021	0	-690,207
			4,5	0	-153,4	0	-14,021	0	155,042
			8,65	0	51,95	0	-41,953	0	-714,139
STORY5	B64	ENVE MAX	0,25	0	-84,34	0	18,268	0	-81,206
			4,5	0	-20,43	0	18,268	0	297,298
			8,75	0	187,69	0	-1,962	0	-3,804
STORY5	B64	ENVE MIN	0,25	0	-219,94	0	0,041	0	-407,433
			4,5	0	4,71	0	-22,313	0	137,286
			8,75	0	68,62	0	-22,313	0	-300,439
STORY4	B64	ENVE MAX	0,3	0	-80,79	0	32,187	0	45,532
			4,5	0	25,24	0	32,187	0	321,313
			8,7	0	292,46	0	8,11	0	76,84
STORY4	B64	ENVE MIN	0,3	0	-298,69	0	-8,075	0	-601,961
			4,5	0	-29,3	0	-31,214	0	157,886
			8,7	0	76,73	0	-31,214	0	-590,34

Story	Beam	Load	Loc	P	V2	V3	T	M2	M3
STORY3	B64	ENVE MAX	0,3	0	-55,73	0	38,81	0	147,931
			4,5	0	50,3	0	38,81	0	319,388
			8,7	0	317,46	0	14,028	0	181,284
STORY3	B64	ENVE MIN	0,3	0	-323,07	0	-14,332	0	-704,088
			4,5	0	-54,24	0	-38,531	0	155,376
			8,7	0	51,79	0	-38,531	0	-697,708
STORY2	B64	ENVE MAX	0,35	0	-41,54	0	43,006	0	204,766
			4,5	0	63,56	0	43,006	0	315,085
			8,65	0	329,4	0	18,346	0	227,671
STORY2	B64	ENVE MIN	0,35	0	-332,72	0	-16,945	0	-738,334
			4,5	0	-65,81	0	-44,16	0	153,178
			8,65	0	39,29	0	-44,16	0	-738,426
STORY1	B64	ENVE MAX	0,35	0	-50,6	0	41,602	0	168,306
			4,5	0	54,5	0	41,602	0	315,18
			8,65	0	319,8	0	18,309	0	194,333
STORY1	B64	ENVE MIN	0,35	0	-325,43	0	-15,534	0	-709,156
			4,5	0	-57,93	0	-43,93	0	154,023
			8,65	0	47,18	0	-43,93	0	-697,837
STORY5	B81	ENVE MAX	0,25	0	-22,36	0	12,34	0	0,862
			3	0	39,65	0	-5,724	0	62,861
			5,75	0	84,57	0	-5,724	0	37,661
STORY5	B81	ENVE MIN	0,25	0	-103,49	0	3,61	0	-152,812
			3	0	-15,59	0	-21,208	0	24,249
			5,75	0	9,96	0	-21,208	0	-133,868
STORY4	B81	ENVE MAX	0,3	0	-36,69	0	36,073	0	40,55
			3	0	94,26	0	-15,333	0	127,6
			5,7	0	175,31	0	-15,333	0	59,074
STORY4	B81	ENVE MIN	0,3	0	-176,82	0	13,012	0	-242,695
			3	0	-20,42	0	-39,492	0	72,834
			5,7	0	32,25	0	-39,492	0	-260,056
STORY3	B81	ENVE MAX	0,3	0	-19,19	0	39,267	0	85,929
			3	0	112,57	0	-12,182	0	126,757
			5,7	0	193,62	0	-12,182	0	104,24
STORY3	B81	ENVE MIN	0,3	0	-192,77	0	10,441	0	-285,638
			3	0	-37,5	0	-42,266	0	71,832
			5,7	0	15,17	0	-42,266	0	-310,091
STORY2	B81	ENVE MAX	0,35	0	-12,97	0	41,622	0	102,898
			3	0	118,02	0	-10,047	0	127,272
			5,65	0	198,07	0	-10,047	0	116,236
STORY2	B81	ENVE MIN	0,35	0	-196,38	0	9,13	0	-289,943
			3	0	-42,56	0	-43,955	0	72,376
			5,65	0	9,38	0	-43,955	0	-312,155
STORY1	B81	ENVE MAX	0,35	0	-19,91	0	41,196	0	84,817
			3	0	109,59	0	-10,148	0	127,14
			5,65	0	189,63	0	-10,148	0	103,573
STORY1	B81	ENVE MIN	0,35	0	-192,97	0	9,388	0	-281,142
			3	0	-37,8	0	-43,878	0	72,355
			5,65	0	14,14	0	-43,878	0	-289,903

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COMB1	ADD	DEAD	Static	1.4000
COMB2	ADD	DEAD	Static	1.2000
		LIVE	Static	1.6000
COMB3	ADD	DEAD	Static	1.2000
		LIVE	Static	1.0000
		EX	Static	1.0000
		EY	Static	0.3000
COMB4	ADD	DEAD	Static	1.2000
		LIVE	Static	1.0000
		EX	Static	-1.0000
		EY	Static	0.3000
COMB5	ADD	DEAD	Static	1.2000
		LIVE	Static	1.0000
		EX	Static	1.0000
		EY	Static	-0.3000
COMB6	ADD	DEAD	Static	1.2000
		LIVE	Static	1.0000
		EX	Static	-1.0000
		EY	Static	-0.3000
COMB7	ADD	DEAD	Static	1.2000
		LIVE	Static	1.0000
		EX	Static	0.3000
		EY	Static	1.0000
COMB8	ADD	DEAD	Static	1.2000
		LIVE	Static	1.0000
		EX	Static	-0.3000
		EY	Static	1.0000
COMB9	ADD	DEAD	Static	1.2000
		LIVE	Static	1.0000
		EX	Static	0.3000
		EY	Static	-1.0000
COMB10	ADD	DEAD	Static	1.2000
		LIVE	Static	1.0000
		EX	Static	-0.3000
		EY	Static	-1.0000
COMB11	ADD	DEAD	Static	0.9000
		EX	Static	1.0000
		EY	Static	0.3000
COMB12	ADD	DEAD	Static	0.9000
		EX	Static	-1.0000
		EY	Static	0.3000
COMB13	ADD	DEAD	Static	0.9000
		EX	Static	1.0000
		EY	Static	-0.3000
COMB14	ADD	DEAD	Static	0.9000
		EX	Static	-1.0000
		EY	Static	-0.3000
COMB15	ADD	DEAD	Static	0.9000
		EX	Static	0.3000
		EY	Static	1.0000
COMB16	ADD	DEAD	Static	0.9000
		EX	Static	-0.3000
		EY	Static	1.0000
COMB17	ADD	DEAD	Static	0.9000
		EX	Static	0.3000
		EY	Static	-1.0000
COMB18	ADD	DEAD	Static	0.9000
		EX	Static	-0.3000
		EY	Static	-1.0000

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C O L U M N F O R C E E N V E L O P E S

STORY	COLUMN	ITEM	P	V2	V3	T	M2	M3
STORY5	C18	Min Value	-748.38	-119.18	-79.76	-0.530	-153.637	-228.446
		Min Case	COMB2	COMB4	COMB18	COMB14	COMB18	COMB4
		Max Value	-346.86	28.19	81.66	0.592	158.963	224.451
		Max Case	COMB11	COMB13	COMB7	COMB3	COMB7	COMB4
STORY4	C18	Min Value	-1700.46	-181.89	-161.66	-1.720	-329.299	-376.832
		Min Case	COMB2	COMB4	COMB18	COMB14	COMB18	COMB4
		Max Value	-857.16	74.28	166.25	1.857	338.765	314.337
		Max Case	COMB11	COMB13	COMB7	COMB3	COMB7	COMB4
STORY3	C18	Min Value	-2649.54	-194.66	-192.49	-0.840	-414.785	-412.665
		Min Case	COMB2	COMB4	COMB18	COMB12	COMB18	COMB4
		Max Value	-1364.52	112.65	195.54	1.042	421.530	327.988
		Max Case	COMB11	COMB13	COMB7	COMB5	COMB7	COMB6
STORY2	C18	Min Value	-3608.98	-236.68	-223.62	-6.526	-523.804	-544.672
		Min Case	COMB2	COMB6	COMB17	COMB15	COMB17	COMB6
		Max Value	-1874.95	106.99	227.70	6.518	533.860	354.724
		Max Case	COMB11	COMB11	COMB8	COMB10	COMB8	COMB6
STORY1	C18	Min Value	-4585.94	-180.51	-172.10	-4.539	-666.870	-648.703
		Min Case	COMB2	COMB6	COMB17	COMB15	COMB17	COMB6
		Max Value	-2395.58	136.94	173.22	4.545	671.445	567.785
		Max Case	COMB11	COMB11	COMB8	COMB10	COMB8	COMB11

Tabel Penulangan Lentur Balok Arah X

Lantai	Balok	b (mm)	d (mm)	Mu (kNm)	Rn	ρ	ρmin	ρmax	As (mm^2)	As digunakan	As' digunakan	Tulangan terpasang			
												As		As'	
STORY5	B50	400	639	97,700	0,7477	0,0019	0,0035	0,0203	894,6000	1140,8571	1140,8571	3	D22	3	D22
		400	639	363,398	2,7812	0,0075	0,0035	0,0203	1911,7600	2281,7143	1140,8571	6	D22	3	D22
		400	639	293,101	2,2432	0,0059	0,0035	0,0203	1518,2784	1521,1429	1140,8571	4	D22	3	D22
STORY4	B50	400	639	167,143	1,2792	0,0033	0,0035	0,0203	894,6000	1140,8571	1140,8571	3	D22	3	D22
		400	639	351,329	2,6888	0,0072	0,0035	0,0203	1843,2667	1901,4286	1140,8571	5	D22	3	D22
		400	614	501,430	4,1565	0,0117	0,0035	0,0203	2867,0735	3042,2857	1140,8571	8	D22	3	D22
STORY3	B50	400	639	205,646	1,5739	0,0041	0,0035	0,0203	1045,9875	1140,8571	1140,8571	3	D22	3	D22
		400	639	342,920	2,6245	0,0070	0,0035	0,0203	1795,7797	1901,4286	1140,8571	5	D22	3	D22
		400	614	616,937	5,1139	0,0149	0,0035	0,0203	3650,6755	3802,8571	1140,8571	10	D22	3	D22
STORY2	B50	400	639	231,109	1,7687	0,0046	0,0035	0,0203	1181,6420	1521,1429	1521,1429	4	D22	4	D22
		400	639	329,586	2,5224	0,0067	0,0035	0,0203	1720,8703	1901,4286	1521,1429	5	D22	4	D22
		400	614	663,626	5,5009	0.0162	0,0035	0,0203	3986,6265	4183,1429	1521,1429	11	D22	4	D22
STORY1	B50	400	639	221,274	1,6935	0,0044	0,0035	0,0203	1129,0714	1140,8571	1140,8571	3	D22	3	D22
		400	639	331,751	2,5390	0,0068	0,0035	0,0203	1733,0009	1901,4286	1140,8571	5	D22	3	D22
		400	614	643,904	5,3375	0,0156	0,0035	0,0203	3843,2208	4183,1429	1140,8571	11	D22	3	D22
STORY5	B51	300	439	39,454	0,8530	0,0022	0,0035	0,0203	460,9500	760,5714	760,5714	2	D22	2	D22
		300	439	0,817	0,0177	0,0000	0,0035	0,0203	460,9500	760,5714	760,5714	2	D22	2	D22
		300	439	118,361	2,5590	0,0068	0,0035	0,0203	900,4964	1140,8571	760,5714	3	D22	2	D22
STORY4	B51	300	439	58,356	1,2617	0,0033	0,0035	0,0203	460,9500	760,5714	760,5714	2	D22	2	D22
		300	439	37,027	0,8005	0,0020	0,0035	0,0203	460,9500	760,5714	760,5714	2	D22	2	D22
		300	439	175,067	3,7850	0,0105	0,0035	0,0203	1382,8674	1521,1429	760,5714	4	D22	2	D22
STORY3	B51	300	439	95,382	2,0622	0,0054	0,0035	0,0203	715,5637	760,5714	760,5714	2	D22	2	D22
		300	439	39,183	0,8471	0,0022	0,0035	0,0203	460,9500	760,5714	760,5714	2	D22	2	D22
		300	439	211,183	4,5658	0,0130	0,0035	0,0203	1712,9955	1901,4286	760,5714	5	D22	2	D22
STORY2	B51	300	439	119,024	2,5733	0,0069	0,0035	0,0203	905,9155	1140,8571	1140,8571	3	D22	3	D22
		300	439	43,861	0,9483	0,0024	0,0035	0,0203	460,9500	760,5714	1140,8571	2	D22	3	D22
		300	439	221,242	4,7833	0,0137	0,0035	0,0203	1808,6815	1901,4286	1140,8571	5	D22	3	D22
STORY1	B51	300	439	111,226	2,4047	0,0064	0,0035	0,0203	842,4798	1140,8571	1140,8571	3	D22	3	D22
		300	439	42,906	0,9276	0,0024	0,0035	0,0203	460,9500	760,5714	1140,8571	2	D22	3	D22
		300	439	215,026	4,6489	0,0133	0,0035	0,0203	1749,3460	1901,4286	1140,8571	5	D22	3	D22
STORY5	B52	400	639	98,046	0,7504	0,0019	0,0035	0,0203	894,6000	1140,8571	1140,8571	3	D22	3	D22
		400	639	363,654	2,7832	0,0075	0,0035	0,0203	1913,2172	2281,7143	1140,8571	6	D22	3	D22
		400	639	294,139	2,2511	0,0060	0,0035	0,0203	1523,9951	1901,4286	1140,8571	5	D22	3	D22

Tabel Penulangan Lentur Balok Arah X (Lanjutan)

Lantai	Balok	b (mm)	d (mm)	Mu (kNm)	Rn	ρ	ρmin	ρmax	As (mm^2)	As digunakan	As' digunakan	Tulangan terpasang			
												As		As'	
STORY4	B52	400	639	167,818	1,2844	0,0033	0,0035	0,0203	894,6000	1140,8571	1140,8571	3	D22	3	D22
		400	639	350,750	2,6844	0,0072	0,0035	0,0203	1839,9908	1901,4286	1140,8571	5	D22	3	D22
		400	614	503,455	4,1732	0,0117	0,0035	0,0203	2880,2910	3042,2857	1140,8571	8	D22	3	D22
STORY3	B52	400	639	207,139	1,5853	0,0041	0,0035	0,0203	1053,9026	1140,8571	1140,8571	3	D22	3	D22
		400	639	342,812	2,6236	0,0070	0,0035	0,0203	1795,1711	1901,4286	1140,8571	5	D22	3	D22
		400	614	621,417	5,1511	0,0150	0,0035	0,0203	3682,3886	3802,8571	1140,8571	10	D22	3	D22
STORY2	B52	400	639	213,671	1,6353	0,0043	0,0035	0,0203	1088,5812	1140,8571	1140,8571	3	D22	3	D22
		400	639	326,462	2,4985	0,0067	0,0035	0,0203	1703,3882	1901,4286	1140,8571	5	D22	3	D22
		400	614	641,012	5,3135	0,0156	0,0035	0,0203	3822,3794	4183,1429	1140,8571	11	D22	3	D22
STORY1	B52	400	639	209,719	1,6050	0,0042	0,0035	0,0203	1067,5909	1140,8571	1140,8571	3	D22	3	D22
		400	639	326,435	2,4983	0,0067	0,0035	0,0203	1703,2372	1901,4286	1140,8571	5	D22	3	D22
		400	614	629,158	5,2152	0,0152	0,0035	0,0203	3737,4404	3802,8571	1140,8571	10	D22	3	D22
STORY2	B53	300	439	151,933	3,2848	0,0090	0,0035	0,0203	1181,2435	1521,1429	1521,1429	4	D22	4	D22
		300	439	17,944	0,3880	0,0010	0,0035	0,0203	460,9500	760,5714	1521,1429	2	D22	4	D22
		300	439	199,558	4,3145	0,0122	0,0035	0,0203	1604,5277	1901,4286	1521,1429	5	D22	4	D22
STORY1	B53	300	439	145,234	3,1400	0,0085	0,0035	0,0203	1124,1508	1140,8571	1140,8571	3	D22	3	D22
		300	439	36,460	0,7883	0,0020	0,0035	0,0203	460,9500	760,5714	1140,8571	2	D22	3	D22
		300	439	222,286	4,8059	0,0138	0,0035	0,0203	1818,7138	1901,4286	1140,8571	5	D22	3	D22

Tabel Penulangan Lentur Balok Arah Y

Lantai	Balok	b (mm)	d (mm)	Mu (kNm)	Rn	ρ	ρmin	ρmax	As (mm^2)	As digunakan	As' digunakan	Tulangan terpasang			
												As		As'	
STORY5	B7	250	339	49,079	2,1353	0,0056	0,0035	0,0203	477,7744	760,5714	760,5714	2	D22	2	D22
		250	339	10,032	0,4365	0,0011	0,0035	0,0203	296,6250	760,5714	760,5714	2	D22	2	D22
		250	339	74,922	3,2597	0,0089	0,0035	0,0203	753,7456	760,5714	760,5714	2	D22	2	D22
STORY4	B7	250	339	74,361	3,2353	0,0088	0,0035	0,0203	747,5395	760,5714	760,5714	2	D22	2	D22
		250	339	19,713	0,8577	0,0022	0,0035	0,0203	296,6250	760,5714	760,5714	2	D22	2	D22
		250	339	119,759	5,2105	0,0152	0,0035	0,0203	1288,2861	1521,1429	760,5714	4	D22	2	D22
STORY3	B7	250	339	103,251	4,4923	0,0128	0,0035	0,0203	1081,7503	1140,8571	1140,8571	3	D22	3	D22
		250	339	20,181	0,8780	0,0022	0,0035	0,0203	296,6250	760,5714	1140,8571	2	D22	3	D22
		250	339	148,358	6,4548	0,0198	0,0035	0,0203	1681,6654	1901,4286	1140,8571	5	D22	3	D22
STORY2	B7	250	339	100,229	4,3608	0,0123	0,0035	0,0203	1045,2772	1140,8571	1140,8571	3	D22	3	D22
		250	339	28,990	1,2613	0,0033	0,0035	0,0203	296,6250	760,5714	1140,8571	2	D22	3	D22
		250	339	148,477	6,4600	0,0199	0,0035	0,0203	1683,4170	1901,4286	1140,8571	5	D22	3	D22
STORY1	B7	250	339	88,830	3,8648	0,0107	0,0035	0,0203	911,0327	1140,8571	1140,8571	3	D22	3	D22
		250	339	28,833	1,2545	0,0032	0,0035	0,0203	296,6250	760,5714	1140,8571	2	D22	3	D22
		250	339	135,780	5,9075	0,0177	0,0035	0,0203	1502,2940	1521,1429	1140,8571	4	D22	3	D22
STORY5	B20	300	439	38,317	0,8284	0,0021	0,0035	0,0203	460,9500	760,5714	760,5714	2	D22	2	D22
		300	439	55,862	1,2077	0,0031	0,0035	0,0203	460,9500	760,5714	760,5714	2	D22	2	D22
		300	439	114,952	2,4853	0,0066	0,0035	0,0203	872,7083	1140,8571	760,5714	3	D22	2	D22
STORY4	B20	300	439	77,258	1,6703	0,0044	0,0035	0,0203	573,4584	760,5714	760,5714	2	D22	2	D22
		300	439	78,784	1,7033	0,0044	0,0035	0,0203	585,3020	760,5714	760,5714	2	D22	2	D22
		300	439	231,774	5,0110	0,0145	0,0035	0,0203	1910,7957	2281,7143	760,5714	6	D22	2	D22
STORY3	B20	300	439	121,029	2,6167	0,0070	0,0035	0,0203	922,3330	1140,8571	1140,8571	3	D22	3	D22
		300	439	78,944	1,7068	0,0045	0,0035	0,0203	586,5450	760,5714	1140,8571	2	D22	3	D22
		300	414	273,696	6,6536	0,0206	0,0035	0,0203	2564,1981	2662,0000	1140,8571	7	D22	3	D22
STORY2	B20	300	439	130,391	2,8191	0,0076	0,0035	0,0203	999,5865	1140,8571	1140,8571	3	D22	3	D22
		300	439	79,112	1,7104	0,0045	0,0035	0,0203	587,8505	760,5714	1140,8571	2	D22	3	D22
		300	414	275,476	6,6969	0,0208	0,0035	0,0203	2586,2350	2662,0000	1140,8571	7	D22	3	D22
STORY1	B20	300	439	115,946	2,5068	0,0067	0,0035	0,0203	880,7978	1140,8571	1140,8571	3	D22	3	D22
		300	439	79,029	1,7086	0,0045	0,0035	0,0203	587,2055	760,5714	1140,8571	2	D22	3	D22
		300	439	263,112	5,6885	0,0169	0,0035	0,0203	2227,5516	2281,7143	1140,8571	6	D22	3	D22
STORY5	B39	400	639	139,489	1,0676	0,0027	0,0035	0,0203	894,6000	1140,8571	1140,8571	3	D22	3	D22
		400	639	298,044	2,2810	0,0060	0,0035	0,0203	1545,5259	1901,4286	1140,8571	5	D22	3	D22
		400	639	418,468	3,2027	0,0087	0,0035	0,0203	2229,5355	2281,7143	1140,8571	6	D22	3	D22

Tabel Penulangan Lentur Balok Arah Y (Lanjutan)

Lantai	Balok	b (mm)	d (mm)	Mu (kNm)	Rn	ρ	ρmin	ρmax	As (mm^2)	As digunakan	As' digunakan	Tulangan terpasang			
												As		As'	
STORY4	B39	400	639	203,670	1,5587	0,0041	0,0035	0,0203	1035,5218	1140,8571	1140,8571	3	D22	3	D22
		400	639	325,338	2,4899	0,0066	0,0035	0,0203	1697,1046	1901,4286	1140,8571	5	D22	3	D22
		400	614	611,009	5,0648	0,0147	0,0035	0,0203	3608,8760	3802,8571	1140,8571	10	D22	3	D22
STORY3	B39	400	639	237,818	1,8201	0,0048	0,0035	0,0203	1217,6334	1521,1429	1521,1429	4	D22	4	D22
		400	639	322,730	2,4699	0,0066	0,0035	0,0203	1682,5374	1901,4286	1521,1429	5	D22	4	D22
		400	614	713,455	5,9140	0,0178	0,0035	0,0203	4359,4902	4563,4286	1521,1429	12	D22	4	D22
STORY2	B39	400	639	248,456	1,9015	0,0050	0,0035	0,0203	1274,9136	1521,1429	1521,1429	4	D22	4	D22
		400	639	316,343	2,4211	0,0064	0,0035	0,0203	1646,9376	1901,4286	1521,1429	5	D22	4	D22
		400	614	745,368	6,1785	0,0188	0,0035	0,0203	4606,9391	4563,4286	1521,1429	12	D22	4	D22
STORY1	B39	400	639	238,046	1,8218	0,0048	0,0035	0,0203	1218,8583	1521,1429	1521,1429	4	D22	4	D22
		400	639	316,195	2,4199	0,0064	0,0035	0,0203	1646,1139	1901,4286	1521,1429	5	D22	4	D22
		400	614	714,139	5,9197	0,0178	0,0035	0,0203	4364,7199	4563,4286	1521,1429	12	D22	4	D22
STORY5	B64	400	639	135,811	1,0394	0,0027	0,0035	0,0203	894,6000	1140,8571	1140,8571	3	D22	3	D22
		400	639	297,298	2,2753	0,0060	0,0035	0,0203	1541,4097	1901,4286	1140,8571	5	D22	3	D22
		400	639	407,433	3,1182	0,0085	0,0035	0,0203	2165,1504	2281,7143	1140,8571	6	D22	3	D22
STORY4	B64	400	639	200,654	1,5357	0,0040	0,0035	0,0203	1019,5647	1140,8571	1140,8571	3	D22	3	D22
		400	639	321,313	2,4591	0,0066	0,0035	0,0203	1674,6302	1901,4286	1140,8571	5	D22	3	D22
		400	614	601,961	4,9898	0,0144	0,0035	0,0203	3545,4312	3802,8571	1140,8571	10	D22	3	D22
STORY3	B64	400	639	234,696	1,7962	0,0047	0,0035	0,0203	1200,8710	1521,1429	1521,1429	4	D22	4	D22
		400	639	319,388	2,4444	0,0065	0,0035	0,0203	1663,8965	1901,4286	1521,1429	5	D22	4	D22
		400	614	704,088	5,8363	0,0175	0,0035	0,0203	4288,1867	4563,4286	1521,1429	12	D22	4	D22
STORY2	B64	400	639	246,142	1,8838	0,0049	0,0035	0,0203	1262,4309	1521,1429	1521,1429	4	D22	4	D22
		400	639	315,085	2,4114	0,0064	0,0035	0,0203	1639,9383	1901,4286	1521,1429	5	D22	4	D22
		400	614	738,426	6,1210	0,0185	0,0035	0,0203	4552,4983	4563,4286	1521,1429	12	D22	4	D22
STORY1	B64	400	639	236,385	1,8091	0,0047	0,0035	0,0203	1209,9374	1521,1429	1521,1429	4	D22	4	D22
		400	639	315,180	2,4122	0,0064	0,0035	0,0203	1640,4667	1901,4286	1521,1429	5	D22	4	D22
		400	614	709,156	5,8783	0,0176	0,0035	0,0203	4326,6930	4563,4286	1521,1429	12	D22	4	D22
STORY5	B81	300	439	50,937	1,1013	0,0028	0,0035	0,0203	460,9500	760,5714	760,5714	2	D22	2	D22
		300	439	62,861	1,3591	0,0035	0,0035	0,0203	462,7778	760,5714	760,5714	2	D22	2	D22
		300	439	152,812	3,3038	0,0090	0,0035	0,0203	1188,7764	1521,1429	760,5714	4	D22	2	D22
STORY4	B81	300	439	86,685	1,8742	0,0049	0,0035	0,0203	646,9787	760,5714	760,5714	2	D22	2	D22
		300	439	127,600	2,7587	0,0074	0,0035	0,0203	976,4520	1140,8571	760,5714	3	D22	2	D22
		300	439	260,056	5,6225	0,0167	0,0035	0,0203	2195,7427	2281,7143	760,5714	6	D22	2	D22

Tabel Penulangan Lentur Balok Arah Y (Lanjutan)

Lantai	Balok	b (mm)	d (mm)	Mu (kNm)	Rn	ρ	ρmin	ρmax	As (mm^2)	As digunakan	As' digunakan	Tulangan terpasang			
												As		As'	
STORY3	B81	300	439	104,240	2,2537	0,0060	0,0035	0,0203	786,1997	1140,8571	1140,8571	3	D22	3	D22
		300	439	126,757	2,7405	0,0074	0,0035	0,0203	969,4818	1140,8571	1140,8571	3	D22	3	D22
		300	414	310,091	7,5384	0,0245	0,0035	0,0203	3041,8232	3042,2857	1140,8571	8	D22	3	D22
STORY2	B81	300	439	116,236	2,51304563	0,0067058	0,0035	0,0203203	883,1598874	1140,85714	1140,85714	3	D22	3	D22
		300	439	127,272	2,75164616	0,0073936	0,0035	0,0203203	973,7390391	1140,85714	1140,85714	3	D22	3	D22
		300	414	312,155	7,58854252	0,024725	0,0035	0,0203203	3070,847146	3422,57143	1140,85714	9	D22	3	D22
STORY1	B81	300	439	103,573	2,23926903	0,005929	0,0035	0,0203203	780,8529653	1140,85714	1140,85714	3	D22	3	D22
		300	439	127,14	2,7487923	0,0073853	0,0035	0,0203203	972,647587	1140,85714	1140,85714	3	D22	3	D22
		300	414	289,903	7,04759251	0,0222989	0,0035	0,0203203	2769,52253	3042,28571	1140,85714	8	D22	3	D22

Tabel Momen Nominal Positif Balok Arah X

Lantai	No. Elemen	b (mm)	be (mm)	As' (mm2)	As (mm2)	d (mm)	d' (mm)	A	B	C1	c (mm)	a (mm)	fs' (MPa)	Mn+ (kNm)
STORY5	B50	400	2000	1521,14	1140,86	639	61	36125	456342,86	57042857,14	33,92	28,83	-400,00	413,6482
STORY4	B50	400	2000	3042,29	1140,86	614	61	36125	1369028,57	114085714,29	40,36	34,30	-329,21	316,2837
STORY3	B50	400	2000	3802,86	1140,86	614	61	36125	1825371,43	142607142,86	42,45	36,09	-283,30	318,2393
STORY2	B50	400	2000	4183,14	1521,14	614	61	36125	1901428,57	156867857,14	44,64	37,94	-240,05	404,2521
STORY1	B50	400	2000	4183,14	1140,86	614	61	36125	2053542,86	156867857,14	43,34	36,84	-265,21	319,0261
STORY5	B51	300	1250	1140,86	760,57	439	61	22578,125	380285,71	42782142,86	35,92	30,53	-400,00	171,1116
STORY4	B51	300	1250	1521,14	760,57	439	61	22578,125	608457,14	57042857,14	38,56	32,78	-372,40	153,8409
STORY3	B51	300	1250	1901,43	760,57	439	61	22578,125	836628,57	71303571,43	40,64	34,55	-322,63	155,1250
STORY2	B51	300	1250	1901,43	1140,86	439	61	22578,125	684514,29	71303571,43	43,05	36,59	-271,15	214,0033
STORY1	B51	300	1250	1901,43	1140,86	439	61	22578,125	684514,29	71303571,43	43,05	36,59	-271,15	214,0033
STORY5	B52	400	2000	1901,43	1140,86	639	61	36125	684514,29	71303571,43	35,95	30,56	-400,00	370,4611
STORY4	B52	400	2000	3042,29	1140,86	614	61	36125	1369028,57	114085714,29	40,36	34,30	-329,21	316,2837
STORY3	B52	400	2000	3802,86	1140,86	614	61	36125	1825371,43	142607142,86	42,45	36,09	-283,30	318,2393
STORY2	B52	400	2000	4183,14	1140,86	614	61	36125	2053542,86	156867857,14	43,34	36,84	-265,21	319,0261
STORY1	B52	400	2000	3802,86	1140,86	614	61	36125	1825371,43	142607142,86	42,45	36,09	-283,30	318,2393
STORY2	B53	300	1250	1901,43	1521,14	439	61	22578,125	532400,00	71303571,43	45,63	38,79	-221,83	272,8623
STORY1	B53	300	1250	1901,43	1140,86	439	61	22578,125	684514,29	71303571,43	43,05	36,59	-271,15	214,0033

Tabel Momen Nominal Negatif Balok Arah X

Lantai	No. Elemen	b (mm)	be (mm)	As' (mm2)	As (mm2)	d (mm)	d' (mm)	A	B	C1	c (mm)	a (mm)	fs' (MPa)	Mn- (kNm)
STORY5	B50	400	400	1140,86	1521,14	639	61	7225,000	76057,14	42782142,86	71,87	61,09	78,20	367,5024
STORY4	B50	400	400	1140,86	3042,29	614	61	7225,000	-532400,00	42782142,86	122,16	103,84	293,03	680,9692
STORY3	B50	400	400	1140,86	3802,86	614	61	7225,000	-836628,57	42782142,86	154,20	131,07	356,81	836,1407
STORY2	B50	400	400	1521,14	4183,14	614	61	7225,000	-760571,43	57042857,14	155,91	132,52	359,48	919,3845
STORY1	B50	400	400	1140,86	4183,14	614	61	7225,000	-988742,86	42782142,86	171,40	145,69	381,21	910,6440
STORY5	B51	300	300	760,57	1140,86	439	61	5418,750	0,00	28521428,57	72,55	61,67	83,11	184,3569
STORY4	B51	300	300	760,57	1521,14	439	61	5418,750	-152114,29	28521428,57	87,93	74,74	173,53	241,2556
STORY3	B51	300	300	760,57	1901,43	439	61	5418,750	-304228,57	28521428,57	105,86	89,98	245,77	296,6790
STORY2	B51	300	300	1140,86	1901,43	439	61	5418,750	-76057,14	42782142,86	96,15	81,73	209,98	297,9873
STORY1	B51	300	300	1140,86	1901,43	439	61	5418,750	-76057,14	42782142,86	96,15	81,73	209,98	297,9873
STORY5	B52	400	400	1140,86	1901,43	639	61	7225,000	-76057,14	42782142,86	82,39	70,03	144,87	455,0776
STORY4	B52	400	400	1140,86	3042,29	614	61	7225,000	-532400,00	42782142,86	122,16	103,84	293,03	680,9692
STORY3	B52	400	400	1140,86	3802,86	614	61	7225,000	-836628,57	42782142,86	154,20	131,07	356,81	793,7495
STORY2	B52	400	400	1140,86	4183,14	614	61	7225,000	-988742,86	42782142,86	171,40	145,69	381,21	910,6440
STORY1	B52	400	400	1140,86	3802,86	614	61	7225,000	-836628,57	42782142,86	154,20	131,07	356,81	793,7495
STORY2	B53	300	300	1521,14	1901,43	439	61	5418,750	152114,29	57042857,14	89,52	76,09	181,10	298,6306
STORY1	B53	300	300	1140,86	1901,43	439	61	5418,750	-76057,14	42782142,86	96,15	81,73	209,98	297,9873

Tabel Momen Nominal Positif Balok Arah Y

Lantai	No. Elemen	b (mm)	be (mm)	As' (mm2)	As (mm2)	d (mm)	d' (mm)	A	B	C1	c (mm)	a (mm)	fs' (MPa)	Mn+ (kNm)
STORY5	B7	250	1000	760,5714	760,5714	339	61	18062,500	-2,00	28521428,57	39,74	33,78	-343,70	158,5252
STORY4	B7	250	1000	1521,1429	760,5714	339	61	18062,500	608457,14	57042857,14	41,82	35,55	-296,62	117,2293
STORY3	B7	250	1000	1901,4286	1140,8571	339	61	18062,500	684514,29	71303571,43	46,68	39,68	-203,40	161,5672
STORY2	B7	250	1000	1901,4286	1140,8571	339	61	18062,500	684514,29	71303571,43	46,68	39,68	-203,40	161,5672
STORY1	B7	250	1000	1521,1429	1140,8571	339	61	18062,500	456342,86	57042857,14	44,97	38,22	-233,95	160,8862
STORY5	B20	300	1500	1140,8571	760,5714	439	61	27093,750	380285,71	42782142,86	33,33	28,33	-400,00	211,1891
STORY4	B20	300	1500	2281,7143	760,5714	439	61	27093,750	1064800,00	85564285,71	39,88	33,90	-340,25	162,5977
STORY3	B20	300	1500	2662,0000	1140,8571	414	61	27093,750	1140857,14	99825000,00	43,19	36,71	-268,19	210,9926
STORY2	B20	300	1500	2662,0000	1140,8571	414	61	27093,750	1140857,14	99825000,00	43,19	36,71	-268,19	210,9926
STORY1	B20	300	1500	2281,7143	1140,8571	439	61	27093,750	912685,71	85564285,71	41,82	35,55	-296,62	221,4783
STORY5	B39	400	2250	2281,7143	1140,8571	639	61	40640,625	912685,71	85564285,71	36,01	30,61	-400,00	385,2203
STORY4	B39	400	2250	3802,8571	1140,8571	614	61	40640,625	1825371,43	142607142,86	40,89	34,76	-317,02	335,1651
STORY3	B39	400	2250	4563,4286	1521,1429	614	61	40640,625	2129600,00	171128571,43	43,78	37,21	-256,56	426,3452
STORY2	B39	400	2250	4563,4286	1521,1429	614	61	40640,625	2129600,00	171128571,43	43,78	37,21	-256,56	426,3452
STORY1	B39	400	2250	4563,4286	1521,1429	614	61	40640,625	2129600,00	171128571,43	43,78	37,21	-256,56	426,3452
STORY5	B64	400	2250	2281,7143	1140,8571	639	61	40640,625	912685,71	85564285,71	36,01	30,61	-400,00	385,2203
STORY4	B64	400	2250	3802,8571	1140,8571	614	61	40640,625	1825371,43	142607142,86	40,89	34,76	-317,02	335,1651
STORY3	B64	400	2250	4563,4286	1521,1429	614	61	40640,625	2129600,00	171128571,43	43,78	37,21	-256,56	426,3452
STORY2	B64	400	2250	4563,4286	1521,1429	614	61	40640,625	2129600,00	171128571,43	43,78	37,21	-256,56	426,3452
STORY1	B64	400	2250	4563,4286	1521,1429	614	61	40640,625	2129600,00	171128571,43	43,78	37,21	-256,56	426,3452
STORY5	B81	300	1500	1521,1429	760,5714	439	61	27093,750	608457,14	57042857,14	36,01	30,61	-400,00	183,3772
STORY4	B81	300	1500	2281,7143	760,5714	439	61	27093,750	1064800,00	85564285,71	39,88	33,90	-340,25	162,5977
STORY3	B81	300	1500	3042,2857	1140,8571	414	61	27093,750	1369028,57	114085714,29	44,37	37,72	-245,15	211,7513
STORY2	B81	300	1500	3422,5714	1140,8571	414	61	27093,750	1597200,00	128346428,57	45,40	38,59	-226,04	212,3869
STORY1	B81	300	1500	3042,2857	1140,8571	414	61	27093,750	1369028,57	114085714,29	44,37	37,72	-245,15	211,7513

Tabel Momen Nominal Negatif Balok Arah Y

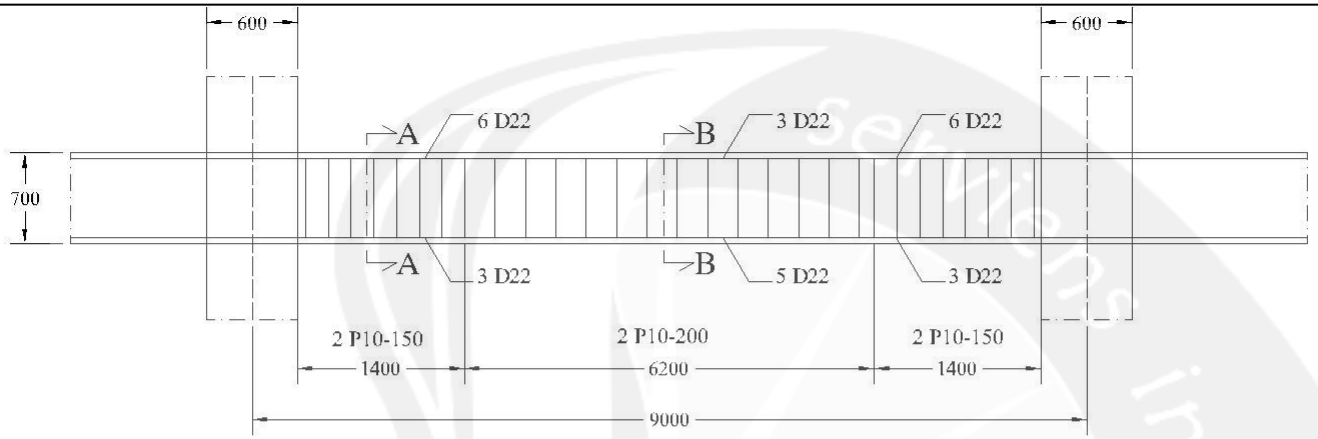
Lantai	No. Elemen	b (mm)	be (mm)	As' (mm2)	As (mm2)	d (mm)	d' (mm)	A	B	C1	c (mm)	a (mm)	fs' (MPa)	Mn- (kNm)
STORY5	B7	250	250	760,5714	760,5714	339	61	4515,625	152114,29	28521428,57	64,40	54,74	17,67	94,3553
STORY4	B7	250	250	760,5714	1521,1429	339	61	4515,625	-152114,29	28521428,57	98,08	83,37	217,67	177,7057
STORY3	B7	250	250	1140,8571	1901,4286	339	61	4515,625	-76057,14	42782142,86	106,12	90,20	246,63	219,0575
STORY2	B7	250	250	1140,8571	1901,4286	339	61	4515,625	-76057,14	42782142,86	106.12	90,20	246,63	219,0575
STORY1	B7	250	250	1140,8571	1521,1429	339	61	4515,625	76057,14	42782142,86	89,28	75,89	179,96	178,4464
STORY5	B20	300	300	760,5714	1140,8571	439	61	5418,750	0,00	28521428,57	72,55	61,67	83,11	184,3569
STORY4	B20	300	300	760,5714	2281,7143	439	61	5418,750	-456342,86	28521428,57	125,99	107,09	302,36	350,0838
STORY3	B20	300	300	1140,8571	2662,0000	414	61	5418,750	-380285,71	42782142,86	130,62	111,03	312,91	379,7570
STORY2	B20	300	300	1140,8571	2662,0000	414	61	5418,750	-380285,71	42782142,86	130,62	111,03	312,91	379,7570
STORY1	B20	300	300	1140,8571	2281,7143	439	61	5418,750	-228171,43	42782142,86	112,37	95,51	266,28	353,0589
STORY5	B39	400	400	1140,8571	2281,7143	639	61	7225,000	-228171,43	42782142,86	94,34	80,19	202,52	541,7810
STORY4	B39	400	400	1140,8571	3802,8571	614	61	7225,000	-836628,57	42782142,86	154,20	131,07	356,81	793,7495
STORY3	B39	400	400	1521,1429	4563,4286	614	61	7225,000	-912685,71	57042857,14	172,18	146,35	382,20	961,2160
STORY2	B39	400	400	1521,1429	4563,4286	614	61	7225,000	-912685,71	57042857,14	172,18	146,35	382,20	961,2160
STORY1	B39	400	400	1521,1429	4563,4286	614	61	7225,000	-912685,71	57042857,14	172,18	146,35	382,20	961,2160
STORY5	B64	400	400	1140,8571	2281,7143	639	61	7225,000	-228171,43	42782142,86	94,34	80,19	202,52	541,7810
STORY4	B64	400	400	1140,8571	3802,8571	614	61	7225,000	-836628,57	42782142,86	154,20	131,07	356,81	793,7495
STORY3	B64	400	400	1521,1429	4563,4286	614	61	7225,000	-912685,71	57042857,14	172,18	146,35	382,20	961,2160
STORY2	B64	400	400	1521,1429	4563,4286	614	61	7225,000	-912685,71	57042857,14	172,18	146,35	382,20	961,2160
STORY1	B64	400	400	1521,1429	4563,4286	614	61	7225,000	-912685,71	57042857,14	172,18	146,35	382,20	961,2160
STORY5	B81	300	300	760,5714	1521,1429	439	61	5418,750	-152114,29	28521428,57	87,93	74,74	173,53	241,2556
STORY4	B81	300	300	760,5714	2281,7143	439	61	5418,750	-456342,86	28521428,57	125,99	107,09	302,36	350,0838
STORY3	B81	300	300	1140,8571	3042,2857	414	61	5418,750	-532400,00	42782142,86	150,66	128,06	351,09	427,0979
STORY2	B81	300	300	1140,8571	3422,5714	414	61	5418,750	-684514,29	42782142,86	172,18	146,35	382,20	471,9073
STORY1	B81	300	300	1140,8571	3042,2857	414	61	5418,750	-532400,00	42782142,86	150,66	128,06	351,09	427,0979

Tabel Gaya Geser Rencana Balok Arah X

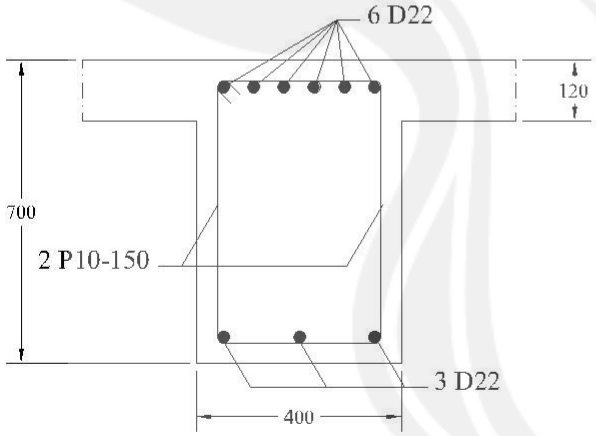
Lantai	No. Elemen	Dimensi		Ln	Mn1+	Mn2-	Vg	Ve (kN)		Vc (N)		Vs (N)		s (jarak)		Penulangan Geser	
		b	h	(mm)	(kNm)	(kNm)	(kN)	pada s.p	diluar s.p	pada s.p	diluar s.p	pada s.p	diluar s.p	pada s.p	diluar s.p	pada s.p	diluar s.p
STORY5	B50	400	700	7500	413,6482	367,5024	177,908	247,13	213,28	213000	213000	329508,04	71378,71	73,14	337,63	2P10-50	2P10-300
STORY4	B50	400	700	7400	316,2837	680,9692	228,386	317,99	273,11	204667	204666,7	423980,49	159476,69	54,62	145,20	2P10-50	2P10-100
STORY3	B50	400	700	7400	318,2393	836,1407	227,158	336,59	291,95	204667	204666,7	448782,34	184600,27	51,60	125,44	2P10-50	2P10-100
STORY2	B50	400	700	7300	404,2521	919,3845	225,728	356,53	312,18	204667	204666,7	475377,78	211570,37	48,71	109,45	2P10-50	2P10-100
STORY1	B50	400	700	7300	319,0261	910,6440	225,524	344,61	300,30	204667	204666,7	459486,44	195732,48	50,40	118,31	2P10-50	2P10-100
STORY5	B51	300	500	4500	171,1116	184,3569	56,688	117,83	105,11	109750	109750	157103,03	30391,98	105,39	544,77	2P10-100	2P10-300
STORY4	B51	300	500	4400	153,8409	241,2556	85,864	149,81	130,54	109750	109750	199740,77	64300,26	82,89	257,49	2P10-50	2P10-250
STORY3	B51	300	500	4400	155,1250	296,6790	85,918	161,19	141,91	109750	109750	214922,13	79465,46	77,04	208,35	2P10-50	2P10-200
STORY2	B51	300	500	4300	214,0033	297,9873	84,802	172,31	153,28	109750	109750	229745,18	94622,42	72,06	174,98	2P10-50	2P10-150
STORY1	B51	300	500	4300	214,0033	297,9873	85,012	172,48	153,41	109750	109750	229976,01	94790,42	71,99	174,67	2P10-50	2P10-150
STORY5	B52	400	700	7500	370,4611	455,0776	177,792	252,58	218,76	213000	213000	336776,09	78676,19	71,56	306,31	2P10-50	2P10-300
STORY4	B52	400	700	7400	316,2837	680,9692	228,422	318,02	273,13	204667	204666,7	424021,12	159507,89	54,61	145,18	2P10-50	2P10-100
STORY3	B52	400	700	7400	318,2393	793,7495	227,288	336,70	292,03	204667	204666,7	448929,06	184712,94	51,58	125,37	2P10-50	2P10-100
STORY2	B52	400	700	7300	319,0261	910,6440	225,294	344,42	300,15	204667	204666,7	459226,84	195533,15	50,43	118,43	2P10-50	2P10-100
STORY1	B52	400	700	7300	318,2393	836,1407	224,518	334,35	290,23	204667	204666,7	445802,66	182312,27	51,94	127,02	2P10-50	2P10-100
STORY2	B53	300	500	4300	272,8623	298,6306	38,820	146,30	137,59	109750	109750	195069,06	73704,12	84,88	224,64	2P10-50	2P10-200
STORY1	B53	300	500	4300	214,0033	297,9873	63,310	154,59	140,38	109750	109750	206121,17	77428,82	80,32	213,83	2P10-50	2P10-200

Tabel Gaya Geser Rencana Balok Arah Y

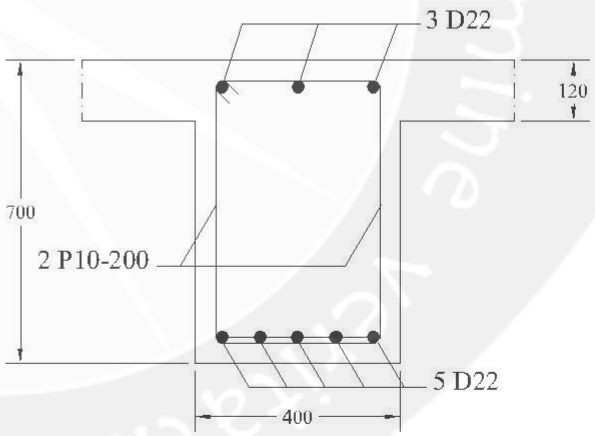
Lantai	No. Elemen	Dimensi		Ln	Mn1+	Mn2-	Vg	Ve (kN)		Vc (N)		Vs (N)		s (jarak)		Penulangan Geser	
		b	h	(mm)	(kNm)	(kNm)	(kN)	pada s.p	diluar s.p	pada s.p	diluar s.p	pada s.p	diluar s.p	pada s.p	diluar s.p	pada s.p	diluar s.p
STORY5	B7	250	400	3500	158,5252	94,3553	25,590	92,88	86,14	70625	70625	53220,87	44232,69	240,23	289,04	2P10-150	2P10-250
STORY4	B7	250	400	3400	117,2293	177,7057	49,236	126,16	112,81	70625	70625	97592,82	79790,63	131,00	160,23	2P10-100	2P10-150
STORY3	B7	250	400	3400	161,5672	219,0575	48,286	150,61	137,51	70625	70625	130182,53	112723,82	98,21	113,42	2P10-50	2P10-100
STORY2	B7	250	400	3300	161,5672	219,0575	60,402	163,33	146,46	70625	70625	147152,27	124651,00	86,88	102,57	2P10-50	2P10-100
STORY1	B7	250	400	3300	160.8862	178,4464	58,148	149,03	132,78	70625	70625	128080,70	106419,10	99,82	120,14	2P10-50	2P10-100
STORY5	B20	300	500	5500	211,1891	184,3569	85,220	143,53	126,15	109750	109750	81627,65	58447,81	202,83	283,27	2P10-200	2P10-250
STORY4	B20	300	500	5400	162,5977	350,0838	115,762	191,88	167,83	109750	109750	146091,30	114020,94	113,33	145,21	2P10-100	2P10-100
STORY3	B20	300	500	5400	210,9926	379,7570	114,664	205,42	181,59	109750	109750	164141,42	132375,24	100,87	125,07	2P10-100	2P10-100
STORY2	B20	300	500	5300	210,9926	379,7570	112,102	204,99	181,26	109750	109750	163574,45	131932,07	101,22	125,49	2P10-100	2P10-100
STORY1	B20	300	500	5300	221,4783	353,0589	113,254	202,90	178,92	109750	109750	160777,40	128809,85	102,98	128,53	2P10-100	2P10-100
STORY5	B39	400	700	8500	385,2203	541,7810	190,722	271,11	236,95	213000	213000	148473,82	102939,88	162,31	234,11	2P10-150	2P10-200
STORY4	B39	400	700	8400	335,1651	793,7495	239,322	341,12	297,76	213000	213000	241832,31	184015,15	99,65	130,96	2P10-50	2P10-100
STORY3	B39	400	700	8400	426,3452	961,2160	238,420	369,55	326,35	213000	213000	279732,76	222133,51	86,15	108,49	2P10-50	2P10-100
STORY2	B39	400	700	8300	426,3452	961,2160	234,896	368,15	325,07	213000	213000	277864,07	220432,47	86,73	109,33	2P10-50	2P10-100
STORY1	B39	400	700	8300	426,3452	961,2160	235,592	368,74	325,54	213000	213000	278649,18	221047,41	86,49	109,02	2P10-50	2P10-100
STORY5	B64	400	700	8500	385,2203	541,7810	191,268	271,57	237,32	213000	213000	149092,36	103428,07	161,64	233,01	2P10-150	2P10-200
STORY4	B64	400	700	8400	335,1651	793,7495	236,220	338,49	295,69	213000	213000	238325,57	181257,82	101,12	132,96	2P10-100	2P10-100
STORY3	B64	400	700	8400	426,3452	961,2160	235,598	367,16	324,47	213000	213000	276542,55	219625,07	87,15	109,73	2P10-50	2P10-100
STORY2	B64	400	700	8300	426,3452	961,2160	232,808	366,38	323,69	213000	213000	275508,74	218587,65	87,47	110,25	2P10-50	2P10-100
STORY1	B64	400	700	8300	426,3452	961,2160	233,940	367,34	324,44	213000	213000	276785,67	219587,81	87,07	109,75	2P10-50	2P10-100
STORY5	B81	300	500	5500	183,3772	241,2556	80,904	145,19	128,69	109750	109750	83843,00	61837,11	197,47	267,74	2P10-150	2P10-250
STORY4	B81	300	500	5400	162,5977	350,0838	129,932	203,75	176,75	109750	109750	161912,72	125916,74	102,26	131,49	2P10-100	2P10-100
STORY3	B81	300	500	5400	211,7513	427,0979	129,016	226,34	199,54	109750	109750	192042,49	156300,28	86,21	105,93	2P10-50	2P10-100
STORY2	B81	300	500	5300	212,3869	471,9073	127,510	235,50	208,51	109750	109750	204248,33	168256,83	81,06	98,40	2P10-50	2P10-50
STORY1	B81	300	500	5300	211,7513	427,0979	129,770	228,81	201,34	109750	109750	195329,79	158700,37	84,76	104,33	2P10-50	2P10-100



Gambar Penulangan Balok
Skala 1:500

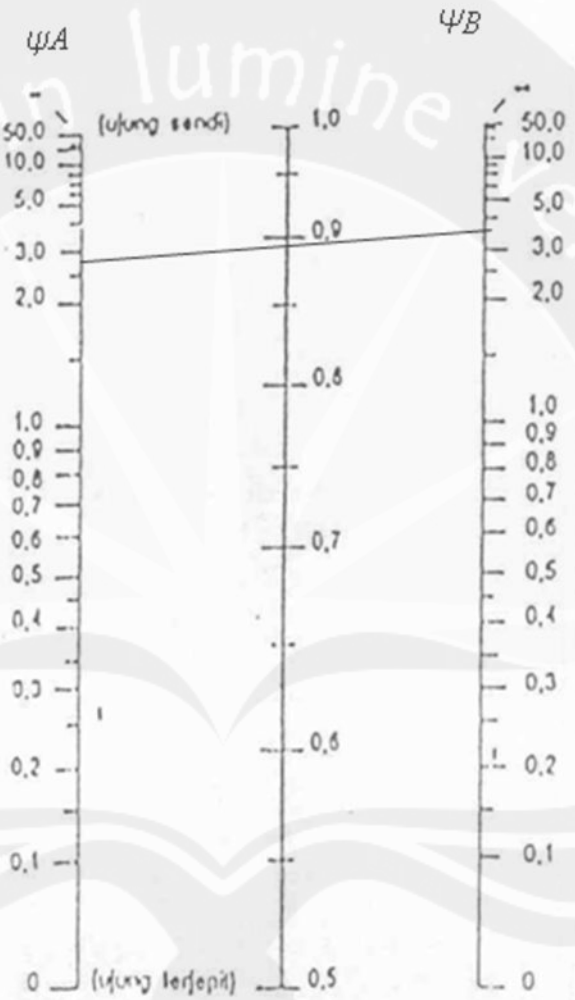


Potongan A-A
Skala 1:150

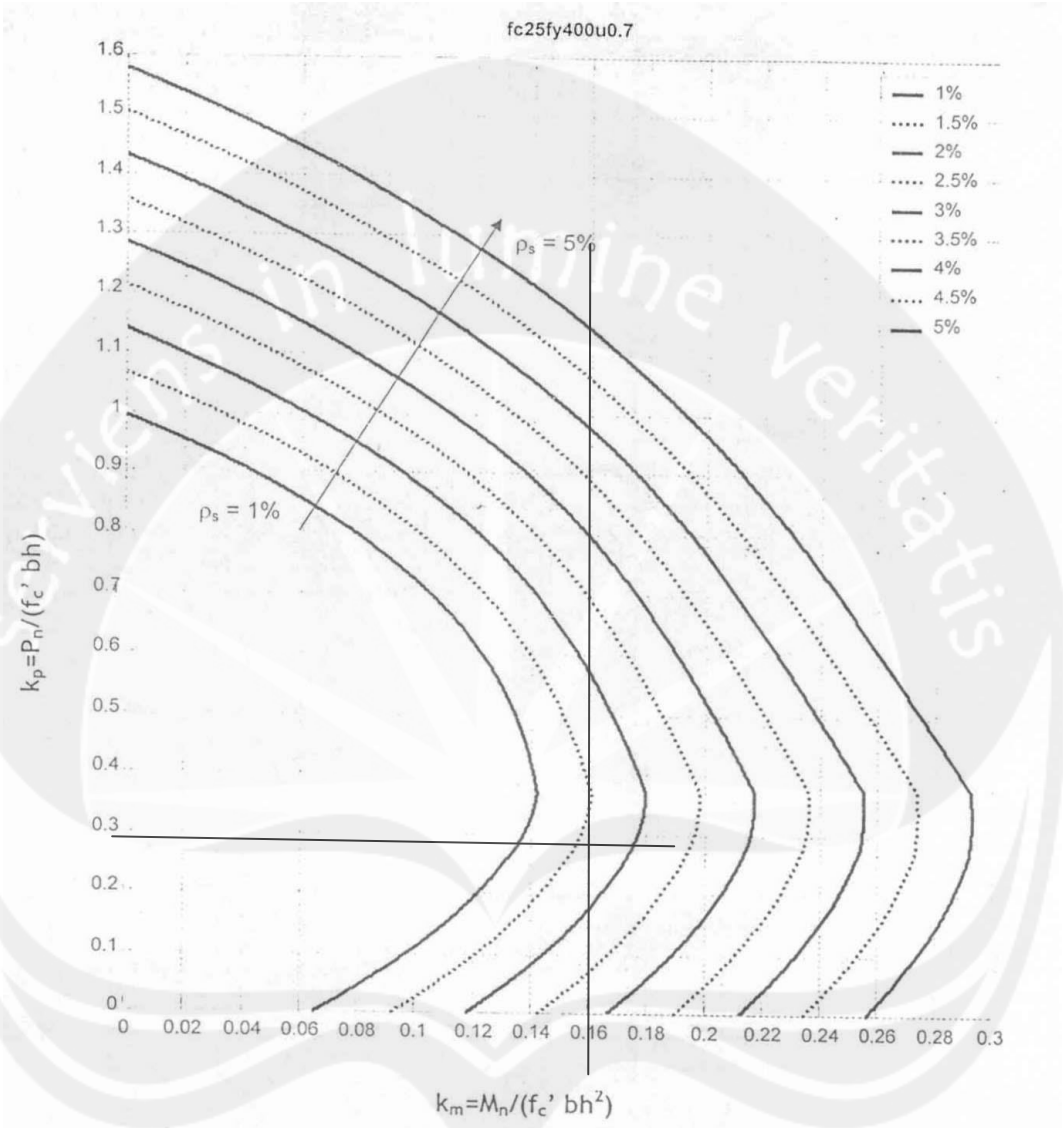


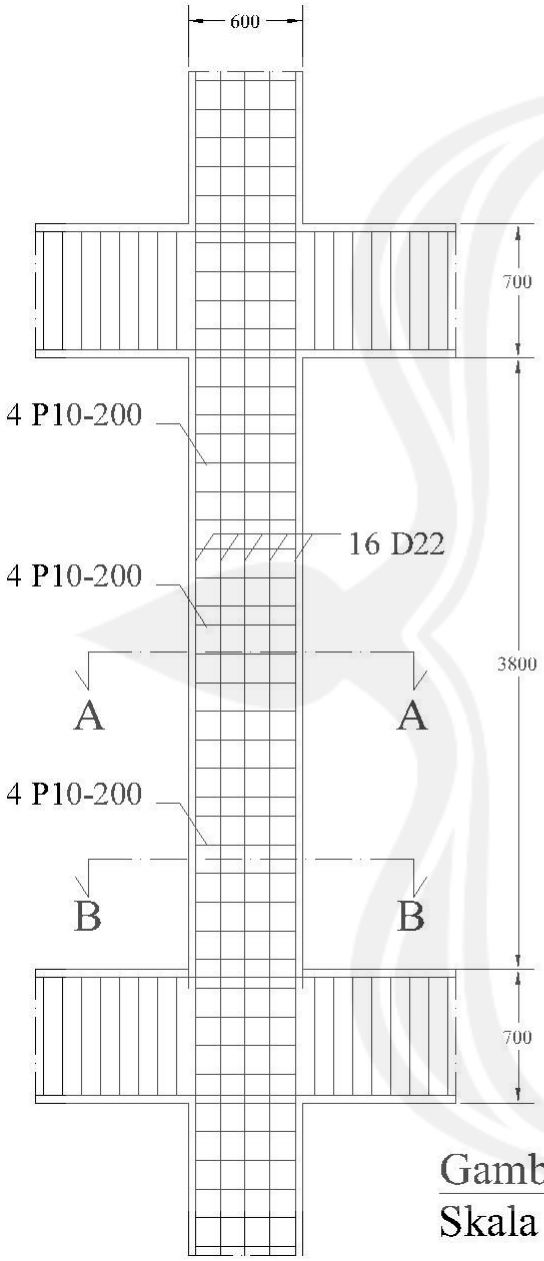
Potongan B-B
Skala 1:150

Keterangan:
1. Semua satuan dalam mm

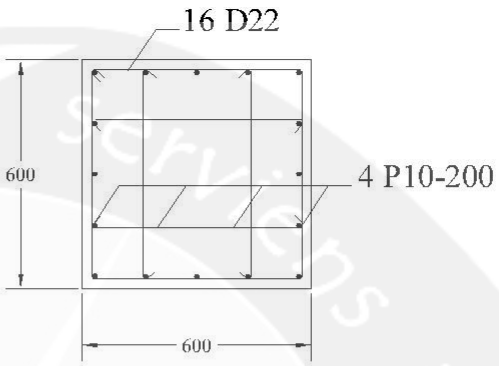


a) portal tidak bergoyang

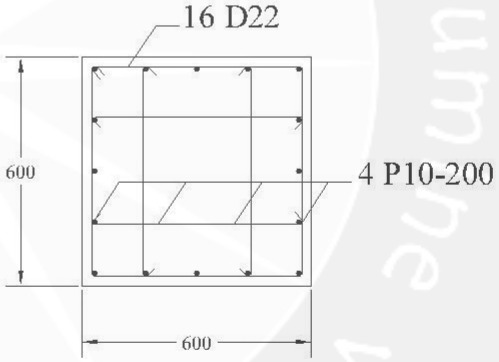

fc25fy400u0.7
1%
1.5%
2%
2.5%
3%
3.5%
4%
4.5%
5%
ρs = 5%
ρs = 1%
kp=Pn/(fc' bh)
km=Mn/(fc' bh2)
1.6
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0 0.02 0.04 0.06 0.08 0.1 0.12 0.14 0.16 0.18 0.2 0.22 0.24 0.26 0.28 0.3



Gambar Penulangan Kolom
Skala 1:400

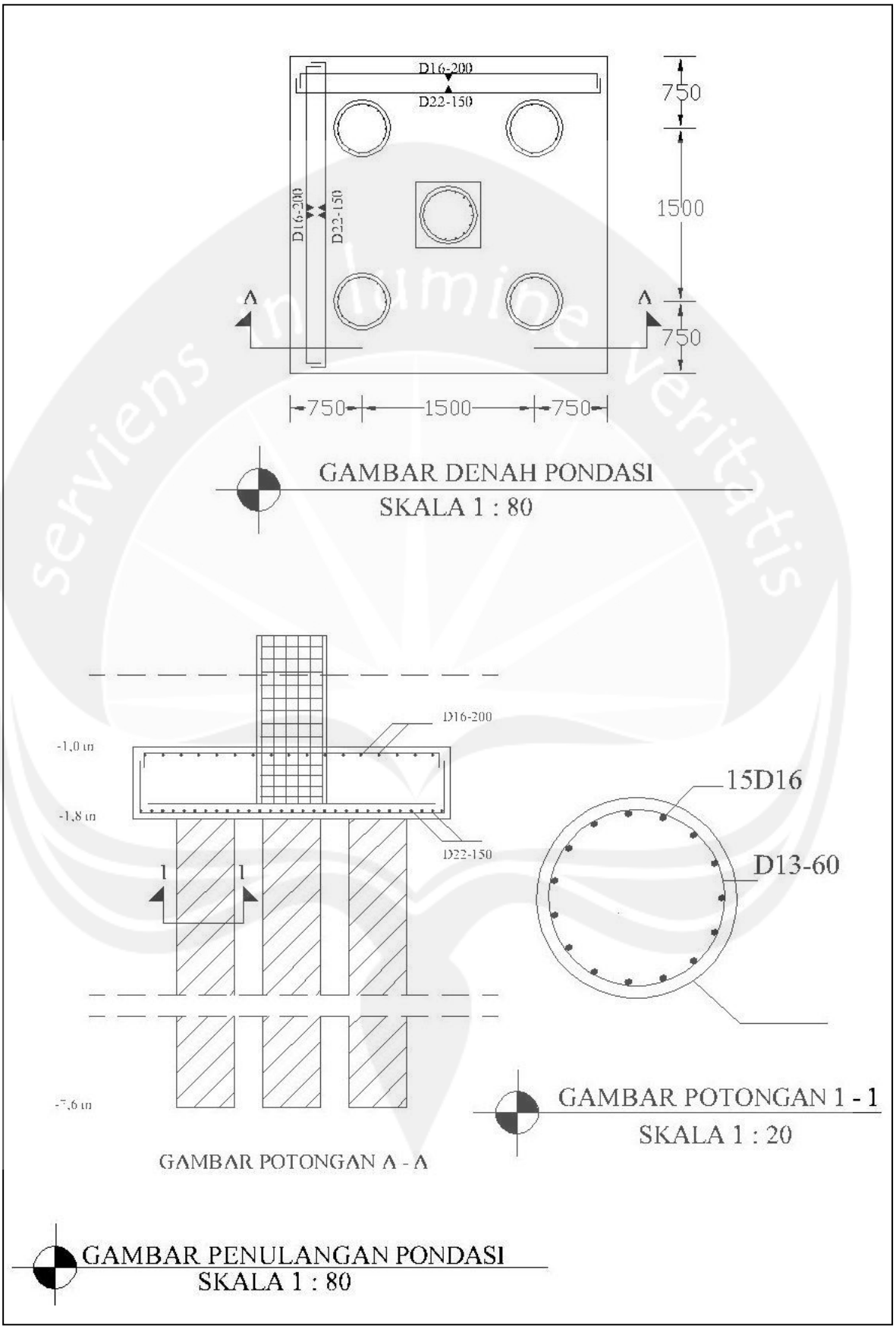


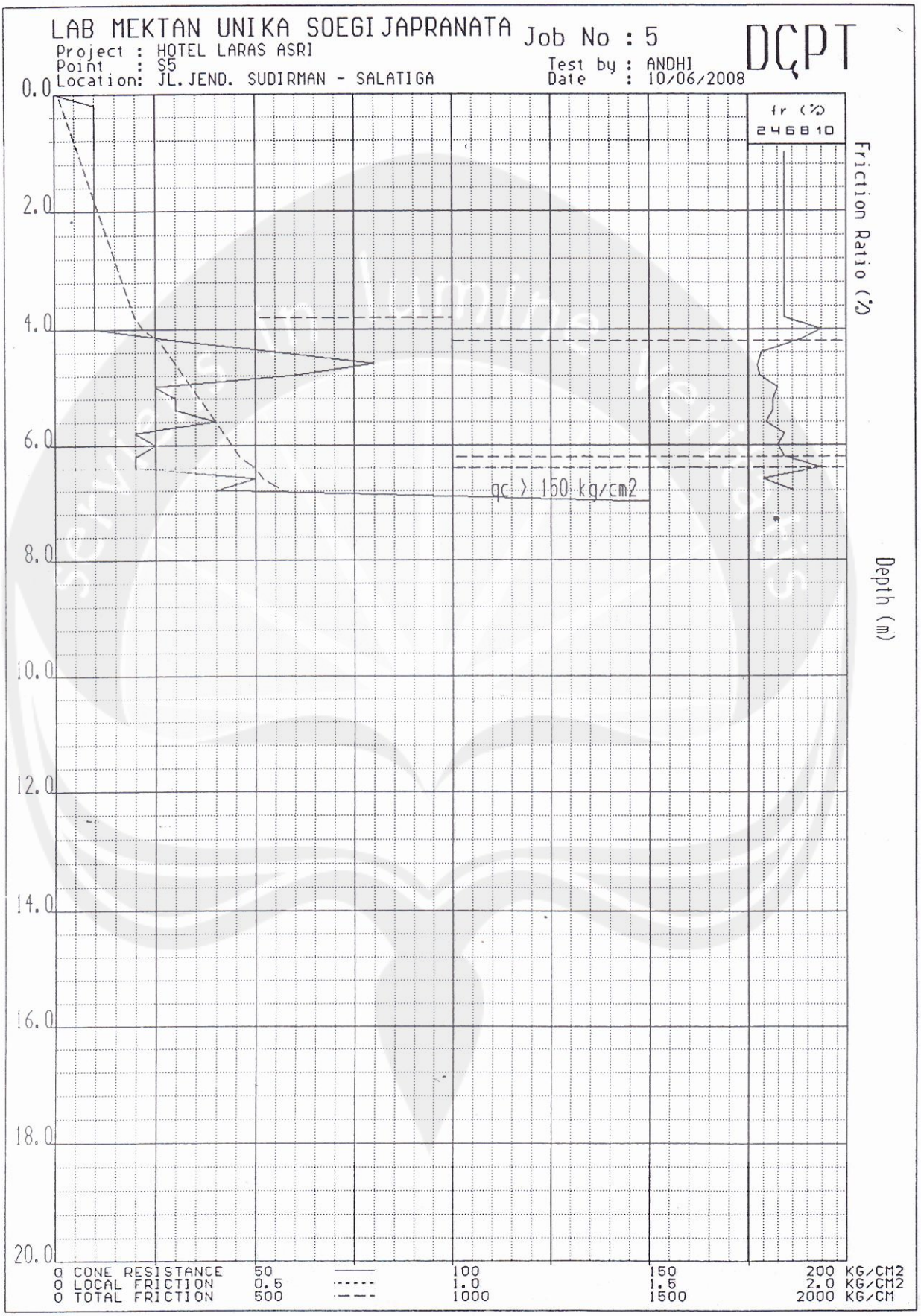
Potongan A-A
Skala 1:300



Potongan B-B
Skala 1:300

Keterangan:
1. Semua satuan dalam mm


D16-200
D22-150
D16-200
D22-150
750
1500
750
A
A
750
1500
750
GAMBAR DENAH PONDASI
SKALA 1 : 80
D16-200
-1,0 m
-1,8 m
D22-150
1
1
-7,6 m
GAMBAR POTONGAN A - A
15D16
D13-60
GAMBAR POTONGAN 1 - 1
SKALA 1 : 20
GAMBAR PENULANGAN PONDASI
SKALA 1 : 80


LAB MEKTAN UNIKA SOEGIJAPRANATA
Job No : 5
DCPT
Project : HOTEL LARAS ASRI
Point : S5
Location: JL. JEND. SUDIRMAN - SALATIGA
Test by : ANDHI
Date : 10/06/2008
fr (%)
2 4 6 8 10
Friction Ratio (%)
Depth (m)
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0
16.0
18.0
20.0
qc > 150 kg/cm2
O CONE RESISTANCE 50 100 150 200 KG/CM2
O LOCAL FRICTION 0.5 1.0 1.5 2.0 KG/CM2
O TOTAL FRICTION 500 1000 1500 2000 KG/CM

PROJECT : HOTEL LARAS ASRI
POINT : S5
LOCATION : JL.JEND. SUDIRMAN - SALATIGA
GRD LEVEL: 0.00 M

Job No. : 5
Tested by : ANDHI
Date : 10/06/2008
Max Depth : 7.00 M

Depth	C	C+F	Depth	C	C+F	Depth	C	C+F	Depth	C	C+F	Depth	C	C+F
0.2	10	15	10.2			20.2			30.2			40.2		
0.4	10	15	10.4			20.4			30.4			40.4		
0.6	10	15	10.6			20.6			30.6			40.6		
0.8	10	15	10.8			20.8			30.8			40.8		
1.0	10	15	11.0			21.0			31.0			41.0		
1.2	10	15	11.2			21.2			31.2			41.2		
1.4	10	15	11.4			21.4			31.4			41.4		
1.6	10	15	11.6			21.6			31.6			41.6		
1.8	10	15	11.8			21.8			31.8			41.8		
2.0	10	15	12.0			22.0			32.0			42.0		
2.2	10	15	12.2			22.2			32.2			42.2		
2.4	10	15	12.4			22.4			32.4			42.4		
2.6	10	15	12.6			22.6			32.6			42.6		
2.8	10	15	12.8			22.8			32.8			42.8		
3.0	10	15	13.0			23.0			33.0			43.0		
3.2	10	15	13.2			23.2			33.2			43.2		
3.4	10	15	13.4			23.4			33.4			43.4		
3.6	10	15	13.6			23.6			33.6			43.6		
3.8	10	15	13.8			23.8			33.8			43.8		
4.0	10	15	14.0			24.0			34.0			44.0		
4.2	30	40	14.2			24.2			34.2			44.2		
4.4	55	75	14.4			24.4			34.4			44.4		
4.6	80	90	14.6			24.6			34.6			44.6		
4.8	60	70	14.8			24.8			34.8			44.8		
5.0	25	35	15.0			25.0			35.0			45.0		
5.2	30	40	15.2			25.2			35.2			45.2		
5.4	30	40	15.4			25.4			35.4			45.4		
5.6	40	50	15.6			25.6			35.6			45.6		
5.8	20	30	15.8			25.8			35.8			45.8		
6.0	25	35	16.0			26.0			36.0			46.0		
6.2	20	30	16.2			26.2			36.2			46.2		
6.4	20	30	16.4			26.4			36.4			46.4		
6.6	50	70	16.6			26.6			36.6			46.6		
6.8	40	50	16.8			26.8			36.8			46.8		
7.0	150	175	17.0			27.0			37.0			47.0		
7.2			17.2			27.2			37.2			47.2		
7.4			17.4			27.4			37.4			47.4		
7.6			17.6			27.6			37.6			47.6		
7.8			17.8			27.8			37.8			47.8		
8.0			18.0			28.0			38.0			48.0		
8.2			18.2			28.2			38.2			48.2		
8.4			18.4			28.4			38.4			48.4		
8.6			18.6			28.6			38.6			48.6		
8.8			18.8			28.8			38.8			48.8		
9.0			19.0			29.0			39.0			49.0		
9.2			19.2			29.2			39.2			49.2		
9.4			19.4			29.4			39.4			49.4		
9.6			19.6			29.6			39.6			49.6		
9.8			19.8			29.8			39.8			49.8		
10.0			20.0			30.0			40.0			50.0		

LAB MEKTAN UNIKA SOEGIJAPRANATA - DUTCH CONE PENETRATION TEST

PROJECT : HOTEL LARAS ASRI
POINT : S5
LOCATION : JL.JEND. SUDIRMAN - SALATIGA
GRD LEVEL: 0.00 M

Job No. : 5
Tested by : ANDHI
Date : 10/06/2008
Max Depth : 7.00 M

DEPTH [m]	R1 [kg/cm2]	R2 [kg/cm2]	LF [kg/cm2]	TF [kg/cm]	%fr
0.00	0.00	0.00	0.50	10.00	0.00
0.20	10.00	15.00	0.50	20.00	5.00
0.40	10.00	15.00	0.50	30.00	5.00
0.60	10.00	15.00	0.50	40.00	5.00
0.80	10.00	15.00	0.50	50.00	5.00
1.00	10.00	15.00	0.50	60.00	5.00
1.20	10.00	15.00	0.50	70.00	5.00
1.40	10.00	15.00	0.50	80.00	5.00
1.60	10.00	15.00	0.50	90.00	5.00
1.80	10.00	15.00	0.50	100.00	5.00
2.00	10.00	15.00	0.50	110.00	5.00
2.20	10.00	15.00	0.50	120.00	5.00
2.40	10.00	15.00	0.50	130.00	5.00
2.60	10.00	15.00	0.50	140.00	5.00
2.80	10.00	15.00	0.50	150.00	5.00
3.00	10.00	15.00	0.50	160.00	5.00
3.20	10.00	15.00	0.50	170.00	5.00
3.40	10.00	15.00	0.50	180.00	5.00
3.60	10.00	15.00	0.50	190.00	5.00
3.80	10.00	15.00	0.50	200.00	5.00
4.00	10.00	15.00	1.00	220.00	10.00
4.20	30.00	40.00	2.00	260.00	6.67
4.40	55.00	75.00	1.00	280.00	1.82
4.60	80.00	90.00	1.00	300.00	1.25
4.80	60.00	70.00	1.00	320.00	1.67
5.00	25.00	35.00	1.00	340.00	4.00
5.20	30.00	40.00	1.00	360.00	3.33
5.40	30.00	40.00	1.00	380.00	3.33
5.60	40.00	50.00	1.00	400.00	2.50
5.80	20.00	30.00	1.00	420.00	5.00
6.00	25.00	35.00	1.00	440.00	4.00
6.20	20.00	30.00	1.00	460.00	5.00
6.40	20.00	30.00	2.00	500.00	10.00
6.60	50.00	70.00	1.00	520.00	2.00
6.80	40.00	50.00	2.50	570.00	6.25
7.00	150.00	175.00	0.00	0.00	0.00