MEMÓRIA DE CÁLCULO
CASTELO POTÁVEL
CEPI PARANOÁ PARQUE

Autor do Projeto: Eng. Civil Dalmo Blanco Cinnanti

CREA: 7962/D-DF

R00	30/10/2022	VERSÃO INICIAL	DALMO B.CINNANTI
REVISÃO	DATA	DESCRIÇÃO	RESPONSÁVEL
Nome do projeto		MEMÓRIA DE CÁLCULO – CASTELO POTÁVEL - FUNDAÇÃO – CEPI PARANOÁ PARQUE	
Número do projeto		**314-SEEDF-CEPI PARANOÁ PARQUE-MEM-EST-CASTELO POTÁVEL-FUNDAÇÃO-R00**	
Local		***QUADRA 01 CONJUNTO 01 AE 02 – PARANOÁ PARQUE / PARANOÁ-DF***	

SUMÁRIO

Resumo de resultados

Cargas verticais:

Peso próprio = 53.53 tf

Adicional = 10.45 tf

Acidental = 4.06 tf

Água = 37.99 tf

Total = 106.02 tf

Área aproximada = 27.05 m²

Relação = 3918.84 kgf/m²

AVISO: Relação de carga por área não usual para edifícios

Deslocamento horizontal:

X+ = 0.03 cm (limite 0.61)

X- = 0.03 cm (limite 0.61)

Y+ = 0.04 cm (limite 0.61)

Y- = 0.04 cm (limite 0.61)

Verificação de estabilidade (Gama-Z):

X+ = 1.01 (limite 1.10)

X- = 1.03 (limite 1.10)

Y+ = 1.01 (limite 1.10)

Y- = 1.01 (limite 1.10)

Análise de 2ª ordem:

Processo P-Delta

Deslocamentos no topo da edificação:

Água: 0.05 »» 0.05 (+0.99%)

Vento X+: 0.14 »» 0.14 (+0.93%)

Vento X-: 0.14 »» 0.14 (+0.93%)

Vento Y+: 0.18 »» 0.19 (+1.04%)

Vento Y-: 0.18 »» 0.19 (+1.04%)

Desaprumo X+: 0.02 »» 0.02 (+0.93%)

Desaprumo X-: 0.02 »» 0.02 (+0.93%)

Desaprumo Y+: 0.02 »» 0.02 (+1.11%)

Desaprumo Y-: 0.02 »» 0.02 (+1.10%)

Verificação da Estabilidade Global da Estrutura

Maior coeficiente Gama-Z

Combinação: 1.3G1+1.4G2+1.4S+1.2R+1.4Q+1.2A+1.1AS+0.72T1+0.84V2+0.79D2							
Pavimento	**Altura relativa (cm)**	**Carga vertical (tf)**	**Carga horizontal (tf)**	**Deslocamento horizontal (cm)**	**Momento 2a. ordem (kgf.m)**	**Momento tombamento (kgf.m)**	**Gama-Z**
NV 1020 CELULA SUP	1030.00	34.32	0.45	0.28	95.92	4614.12	1.03 (lim=1.10)
NV 745	755.00	29.31	0.77	0.38	112.67	5848.50	
NV 525 CELULA INF	535.00	33.47	0.71	0.38	128.51	3791.19	
NV 260	270.00	31.64	0.67	0.18	57.12	1813.13	
NV 000	10.00	6.75	0.08	0.00	0.02	7.66	
TOTAL					**394.24**	**16074.61**	

Limitações

Em estruturas com Gama-Z maior que 1.10 é necessário fazer a verificação dos efeitos de 2ª ordem com a análise P-Delta.

O Gama-Z é um parâmetro de estabilidade para avaliação de estruturas simétricas (tanto geometria quanto carregamento) e edificações com mais de 4 pavimentos. Nos demais casos, recomenda-se a verificação dos efeitos de 2ª ordem com a análise P-Delta.

Coeficiente Gama-Z por combinação

Combinação	Momento 2a. ordem (kgf.m)	Momento tombamento (kgf.m)	Gama-Z
1.3G1+1.4G2+1.4S+0.98Q+1.2A+1.1AS+0.72T1+0.84V1+0.79D1	107.34	16074.61	1.01
1.3G1+1.4G2+1.4S+0.98Q+1.2A+1.1AS+0.72T1+0.84V1+1.31D1	107.34	16074.61	1.01
1.3G1+1.4G2+1.4S+0.98Q+1.2A+1.1AS+0.72T1+0.84V2+0.79D2	385.77	16074.61	1.02
1.3G1+1.4G2+1.4S+0.98Q+1.2A+1.1AS+0.72T1+0.84V2+1.31D2	385.77	16074.61	1.02
1.3G1+1.4G2+1.4S+0.98Q+1.2A+1.1AS+0.72T1+0.84V3+0.79D3	288.88	20194.92	1.01
1.3G1+1.4G2+1.4S+0.98Q+1.2A+1.1AS+0.72T1+0.84V3+1.31D3	288.88	20194.92	1.01
1.3G1+1.4G2+1.4S+0.98Q+1.2A+1.1AS+0.72T1+0.84V4+0.79D4	288.88	20194.92	1.01
1.3G1+1.4G2+1.4S+0.98Q+1.2A+1.1AS+0.72T1+0.84V4+1.31D4	288.88	20194.92	1.01
1.3G1+1.4G2+1.4S+0.98Q+1.2A+1.1AS+0.72T1+1.4V1+0.79D1	62.39	26791.01	1.00

1.3G1+1.4G2+1.4S+0.98Q+1.2A+1.1AS+0.72T1+1.4V2+0.79D2	480.66	26791.01	1.02
1.3G1+1.4G2+1.4S+0.98Q+1.2A+1.1AS+0.72T1+1.4V3+0.79D3	350.21	33658.20	1.01
1.3G1+1.4G2+1.4S+0.98Q+1.2A+1.1AS+0.72T1+1.4V4+0.79D4	350.21	33658.20	1.01
1.3G1+1.4G2+1.4S+0.98Q+1.2A+1.1AS+0.72T2+0.84V1+0.79D1	107.34	16074.61	1.01
1.3G1+1.4G2+1.4S+0.98Q+1.2A+1.1AS+0.72T2+0.84V1+1.31D1	107.34	16074.61	1.01
1.3G1+1.4G2+1.4S+0.98Q+1.2A+1.1AS+0.72T2+0.84V2+0.79D2	385.77	16074.61	1.02
1.3G1+1.4G2+1.4S+0.98Q+1.2A+1.1AS+0.72T2+0.84V2+1.31D2	385.77	16074.61	1.02
1.3G1+1.4G2+1.4S+0.98Q+1.2A+1.1AS+0.72T2+0.84V3+0.79D3	288.88	20194.92	1.01
1.3G1+1.4G2+1.4S+0.98Q+1.2A+1.1AS+0.72T2+0.84V3+1.31D3	288.88	20194.92	1.01
1.3G1+1.4G2+1.4S+0.98Q+1.2A+1.1AS+0.72T2+0.84V4+0.79D4	288.88	20194.92	1.01
1.3G1+1.4G2+1.4S+0.98Q+1.2A+1.1AS+0.72T2+0.84V4+1.31D4	288.88	20194.92	1.01
1.3G1+1.4G2+1.4S+0.98Q+1.2A+1.1AS+0.72T2+1.4V1+0.79D1	62.39	26791.01	1.00
1.3G1+1.4G2+1.4S+0.98Q+1.2A+1.1AS+0.72T2+1.4V2+0.79D2	480.66	26791.01	1.02
1.3G1+1.4G2+1.4S+0.98Q+1.2A+1.1AS+0.72T2+1.4V3+0.79D3	350.21	33658.20	1.01
1.3G1+1.4G2+1.4S+0.98Q+1.2A+1.1AS+0.72T2+1.4V4+0.79D4	350.21	33658.20	1.01
1.3G1+1.4G2+1.4S+1.2R+0.98Q+1.2A+1.1AS+0.72T1+0.84V1+0.79D1	107.34	16074.61	1.01
1.3G1+1.4G2+1.4S+1.2R+0.98Q+1.2A+1.1AS+0.72T1+0.84V1+1.31D1	107.34	16074.61	1.01
1.3G1+1.4G2+1.4S+1.2R+0.98Q+1.2A+1.1AS+0.72T1+0.84V2+0.79D2	385.77	16074.61	1.02
1.3G1+1.4G2+1.4S+1.2R+0.98Q+1.2A+1.1AS+0.72T1+0.84V2+1.31D2	385.77	16074.61	1.02
1.3G1+1.4G2+1.4S+1.2R+0.98Q+1.2A+1.1AS+0.72T1+0.84V3+0.79D3	288.88	20194.92	1.01
1.3G1+1.4G2+1.4S+1.2R+0.98Q+1.2A+1.1AS+0.72T1+0.84V3+1.31D3	288.88	20194.92	1.01
1.3G1+1.4G2+1.4S+1.2R+0.98Q+1.2A+1.1AS+0.72T1+0.84V4+0.79D4	288.88	20194.92	1.01
1.3G1+1.4G2+1.4S+1.2R+0.98Q+1.2A+1.1AS+0.72T1+0.84V4+1.31D4	288.88	20194.92	1.01
1.3G1+1.4G2+1.4S+1.2R+0.98Q+1.2A+1.1AS+0.72T1+1.4V1+0.79D1	62.39	26791.01	1.00
1.3G1+1.4G2+1.4S+1.2R+0.98Q+1.2A+1.1AS+0.72T1+1.4V2+0.79D2	480.66	26791.01	1.02
1.3G1+1.4G2+1.4S+1.2R+0.98Q+1.2A+1.1AS+0.72T1+1.4V3+0.79D3	350.21	33658.20	1.01
1.3G1+1.4G2+1.4S+1.2R+0.98Q+1.2A+1.1AS+0.72T1+1.4V4+0.79D4	350.21	33658.20	1.01
1.3G1+1.4G2+1.4S+1.2R+0.98Q+1.2A+1.1AS+0.72T2+0.84V1+0.79D1	107.34	16074.61	1.01
1.3G1+1.4G2+1.4S+1.2R+0.98Q+1.2A+1.1AS+0.72T2+0.84V1+1.31D1	107.34	16074.61	1.01
1.3G1+1.4G2+1.4S+1.2R+0.98Q+1.2A+1.1AS+0.72T2+0.84V2+0.79D2	385.77	16074.61	1.02
1.3G1+1.4G2+1.4S+1.2R+0.98Q+1.2A+1.1AS+0.72T2+0.84V2+1.31D2	385.77	16074.61	1.02
1.3G1+1.4G2+1.4S+1.2R+0.98Q+1.2A+1.1AS+0.72T2+0.84V3+0.79D3	288.88	20194.92	1.01
1.3G1+1.4G2+1.4S+1.2R+0.98Q+1.2A+1.1AS+0.72T2+0.84V3+1.31D3	288.88	20194.92	1.01
1.3G1+1.4G2+1.4S+1.2R+0.98Q+1.2A+1.1AS+0.72T2+0.84V4+0.79D4	288.88	20194.92	1.01
1.3G1+1.4G2+1.4S+1.2R+0.98Q+1.2A+1.1AS+0.72T2+0.84V4+1.31D4	288.88	20194.92	1.01
1.3G1+1.4G2+1.4S+1.2R+0.98Q+1.2A+1.1AS+0.72T2+1.4V1+0.79D1	62.39	26791.01	1.00
1.3G1+1.4G2+1.4S+1.2R+0.98Q+1.2A+1.1AS+0.72T2+1.4V2+0.79D2	480.66	26791.01	1.02
1.3G1+1.4G2+1.4S+1.2R+0.98Q+1.2A+1.1AS+0.72T2+1.4V3+0.79D3	350.21	33658.20	1.01
1.3G1+1.4G2+1.4S+1.2R+0.98Q+1.2A+1.1AS+0.72T2+1.4V4+0.79D4	350.21	33658.20	1.01
1.3G1+1.4G2+1.4S+1.2R+1.4Q+1.2A+1.1AS+0.72T1+0.84V1+0.79D1	111.99	16074.61	1.01
1.3G1+1.4G2+1.4S+1.2R+1.4Q+1.2A+1.1AS+0.72T1+0.84V2+0.79D2	**394.24**	**16074.61**	**1.03**
1.3G1+1.4G2+1.4S+1.2R+1.4Q+1.2A+1.1AS+0.72T1+0.84V3+0.79D3	295.63	20194.92	1.01
1.3G1+1.4G2+1.4S+1.2R+1.4Q+1.2A+1.1AS+0.72T1+0.84V4+0.79D4	295.63	20194.92	1.01
1.3G1+1.4G2+1.4S+1.2R+1.4Q+1.2A+1.1AS+0.72T2+0.84V1+0.79D1	111.99	16074.61	1.01
1.3G1+1.4G2+1.4S+1.2R+1.4Q+1.2A+1.1AS+0.72T2+0.84V2+0.79D2	394.24	16074.61	1.03
1.3G1+1.4G2+1.4S+1.2R+1.4Q+1.2A+1.1AS+0.72T2+0.84V3+0.79D3	295.63	20194.92	1.01
1.3G1+1.4G2+1.4S+1.2R+1.4Q+1.2A+1.1AS+0.72T2+0.84V4+0.79D4	295.63	20194.92	1.01
1.3G1+1.4G2+1.4S+1.4Q+1.2A+1.1AS+0.72T1+0.84V1+0.79D1	111.99	16074.61	1.01
1.3G1+1.4G2+1.4S+1.4Q+1.2A+1.1AS+0.72T1+0.84V2+0.79D2	394.24	16074.61	1.03
1.3G1+1.4G2+1.4S+1.4Q+1.2A+1.1AS+0.72T1+0.84V3+0.79D3	295.63	20194.92	1.01
1.3G1+1.4G2+1.4S+1.4Q+1.2A+1.1AS+0.72T1+0.84V4+0.79D4	295.63	20194.92	1.01
1.3G1+1.4G2+1.4S+1.4Q+1.2A+1.1AS+0.72T2+0.84V1+0.79D1	111.99	16074.61	1.01
1.3G1+1.4G2+1.4S+1.4Q+1.2A+1.1AS+0.72T2+0.84V2+0.79D2	394.24	16074.61	1.03
1.3G1+1.4G2+1.4S+1.4Q+1.2A+1.1AS+0.72T2+0.84V3+0.79D3	295.63	20194.92	1.01
1.3G1+1.4G2+1.4S+1.4Q+1.2A+1.1AS+0.72T2+0.84V4+0.79D4	295.63	20194.92	1.01
G1+G2+S+1.2R+0.98Q+1.2A+1.1AS+0.72T1+0.84V1+0.79D1	62.80	16074.61	1.00
G1+G2+S+1.2R+0.98Q+1.2A+1.1AS+0.72T1+0.84V1+1.31D1	62.80	16074.61	1.00
G1+G2+S+1.2R+0.98Q+1.2A+1.1AS+0.72T1+0.84V2+0.79D2	301.01	16074.61	1.02

G1+G2+S+1.2R+0.98Q+1.2A+1.1AS+0.72T1+0.84V2+1.31D2	301.01	16074.61	1.02
G1+G2+S+1.2R+0.98Q+1.2A+1.1AS+0.72T1+0.84V3+0.79D3	222.58	20194.92	1.01
G1+G2+S+1.2R+0.98Q+1.2A+1.1AS+0.72T1+0.84V3+1.31D3	222.58	20194.92	1.01
G1+G2+S+1.2R+0.98Q+1.2A+1.1AS+0.72T1+0.84V4+0.79D4	222.58	20194.92	1.01
G1+G2+S+1.2R+0.98Q+1.2A+1.1AS+0.72T1+0.84V4+1.31D4	222.58	20194.92	1.01
G1+G2+S+1.2R+0.98Q+1.2A+1.1AS+0.72T1+1.4V1+0.79D1	50.32	26791.01	1.00
G1+G2+S+1.2R+0.98Q+1.2A+1.1AS+0.72T1+1.4V2+0.79D2	382.50	26791.01	1.01
G1+G2+S+1.2R+0.98Q+1.2A+1.1AS+0.72T1+1.4V3+0.79D3	279.17	33658.20	1.01
G1+G2+S+1.2R+0.98Q+1.2A+1.1AS+0.72T1+1.4V4+0.79D4	279.17	33658.20	1.01
G1+G2+S+1.2R+0.98Q+1.2A+1.1AS+0.72T2+0.84V1+0.79D1	62.80	16074.61	1.00
G1+G2+S+1.2R+0.98Q+1.2A+1.1AS+0.72T2+0.84V1+1.31D1	62.80	16074.61	1.00
G1+G2+S+1.2R+0.98Q+1.2A+1.1AS+0.72T2+0.84V2+0.79D2	301.01	16074.61	1.02
G1+G2+S+1.2R+0.98Q+1.2A+1.1AS+0.72T2+0.84V2+1.31D2	301.01	16074.61	1.02
G1+G2+S+1.2R+0.98Q+1.2A+1.1AS+0.72T2+0.84V3+0.79D3	222.58	20194.92	1.01
G1+G2+S+1.2R+0.98Q+1.2A+1.1AS+0.72T2+0.84V3+1.31D3	222.58	20194.92	1.01
G1+G2+S+1.2R+0.98Q+1.2A+1.1AS+0.72T2+0.84V4+0.79D4	222.58	20194.92	1.01
G1+G2+S+1.2R+0.98Q+1.2A+1.1AS+0.72T2+0.84V4+1.31D4	222.58	20194.92	1.01
G1+G2+S+1.2R+0.98Q+1.2A+1.1AS+0.72T2+1.4V1+0.79D1	50.32	26791.01	1.00
G1+G2+S+1.2R+0.98Q+1.2A+1.1AS+0.72T2+1.4V2+0.79D2	382.50	26791.01	1.01
G1+G2+S+1.2R+0.98Q+1.2A+1.1AS+0.72T2+1.4V3+0.79D3	279.17	33658.20	1.01
G1+G2+S+1.2R+0.98Q+1.2A+1.1AS+0.72T2+1.4V4+0.79D4	279.17	33658.20	1.01
G1+G2+S+1.2R+1.4Q+1.2A+1.1AS+0.72T1+0.84V1+0.79D1	66.52	16074.61	1.00
G1+G2+S+1.2R+1.4Q+1.2A+1.1AS+0.72T1+0.84V2+0.79D2	308.55	16074.61	1.02
G1+G2+S+1.2R+1.4Q+1.2A+1.1AS+0.72T1+0.84V3+0.79D3	228.45	20194.92	1.01
G1+G2+S+1.2R+1.4Q+1.2A+1.1AS+0.72T1+0.84V4+0.79D4	228.45	20194.92	1.01
G1+G2+S+1.2R+1.4Q+1.2A+1.1AS+0.72T2+0.84V1+0.79D1	66.52	16074.61	1.00
G1+G2+S+1.2R+1.4Q+1.2A+1.1AS+0.72T2+0.84V2+0.79D2	308.55	16074.61	1.02
G1+G2+S+1.2R+1.4Q+1.2A+1.1AS+0.72T2+0.84V3+0.79D3	228.45	20194.92	1.01
G1+G2+S+1.2R+1.4Q+1.2A+1.1AS+0.72T2+0.84V4+0.79D4	228.45	20194.92	1.01

Pavimento NV 000

Resultado dos Blocos

NV 000	fck = 300.00 kgf/cm²	E = 268384 kgf/cm²	Peso Espec = 2500.00 kgf/m³
Lance 1		cobr = 4.50 cm	

Blocos	ne Estaca	LB LH (cm)	hb (cm)	Principal (cm²)		Estribo (cm²)		Superior (cm²)		As dist. (cm²)
				X	Y	Hor.	Vert.	X	Y	
BC1	2 E40-12m	190.00 70.00	55.00	10.05 (5 ø 16.0)	-	1.56 (5 ø 6.3)	8.04 2x(8 ø 8.0)	2.01 (4 ø 8.0)	-	1.01 (ø 8.0 c/10)
BC3	2 E40-12m	190.00 70.00	55.00	10.05 (5 ø 16.0)	-	1.56 (5 ø 6.3)	8.04 2x(8 ø 8.0)	2.01 (4 ø 8.0)	-	1.01 (ø 8.0 c/10)
BC4	2 E40-12m	190.00 70.00	55.00	10.05 (5 ø 16.0)	-	1.56 (5 ø 6.3)	8.04 2x(8 ø 8.0)	2.01 (4 ø 8.0)	-	1.01 (ø 8.0 c/10)
BC6	2 E40-12m	190.00 70.00	55.00	10.05 (5 ø 16.0)	-	1.56 (5 ø 6.3)	8.04 2x(8 ø 8.0)	2.01 (4 ø 8.0)	-	1.01 (ø 8.0 c/10)

Resultados dos Pilares

NV 000	fck = 300.00 kgf/cm²	E = 268384 kgf/cm²	Peso Espec = 2500.00 kgf/m³
Lance 1		cobr = 3.00 cm	

Dados				Resultados					
Pilar	**Seção (cm)**	**Nível Altura (cm)**	**lib vínc lih vínc (cm)**	**Nd máx Nd mín (tf)**	**MBd topo MBd base (kgf.m)**	**MHd topo MHd base (kgf.m)**	**As b Armaduras As h % armad total**	**Estribo Topo Base cota**	**Esb b Esb h**
PC1 1:20	20.00 X 50.00	-20.00 40.00	15.00 RR 15.00 RR	38.11 15.94	2897 2281	3081 3123	1.57 2 ø 10.0 2.36 3 ø 10.0 0.5 6 ø 10.0	ø 5.0 c/12	2.59 1.04
PC3 1:20	20.00 X 50.00	-20.00 40.00	15.00 RR 15.00 RR	38.30 15.17	2459 2068	2747 2913	1.57 2 ø 10.0 2.36 3 ø 10.0 0.5 6 ø 10.0	ø 5.0 c/12	2.59 1.04
PC4 1:20	20.00 X 50.00	-20.00 40.00	15.00 RR 15.00 RR	38.11 15.94	2897 2281	3081 3123	1.57 2 ø 10.0 2.36 3 ø 10.0 0.5 6 ø 10.0	ø 5.0 c/12	2.59 1.04
PC6 1:20	20.00 X 50.00	-20.00 40.00	15.00 RR 15.00 RR	38.29 15.17	2459 2068	2747 2913	1.57 2 ø 10.0 2.36 3 ø 10.0 0.5 6 ø 10.0	ø 5.0 c/12	2.59 1.04

Cálculo dos Pilares

NV 000	fck = 300.00 kgf/cm²	E = 268384 kgf/cm²	Peso Espec = 2500.00 kgf/m³
Lance 1		cobr = 3.00 cm	

Pilar	Seção (cm)	vínc esb B vínc esb H	Nd máx Nd mín (tf)	Msd(x) Msd(y) (kgf.m)	Mrd(x) Mrd(y) (kgf.m)	Mrd/Msd	As b As h (cm²)
PC1	20.00 X 50.00	RR 2.59 RR 1.04	38.11 15.94	2620 3081	2710 3186	1.03	1.57 (2 ø 10.0) 2.36 (3 ø 10.0)
PC3	20.00 X 50.00	RR 2.59 RR 1.04	38.30 15.17	2081 2747	2520 3327	1.21	1.57 (2 ø 10.0) 2.36 (3 ø 10.0)
PC4	20.00 X 50.00	RR 2.59 RR 1.04	38.11 15.94	2620 3081	2710 3186	1.03	1.57 (2 ø 10.0) 2.36 (3 ø 10.0)
PC6	20.00 X 50.00	RR 2.59 RR 1.04	38.29 15.17	2081 2747	2520 3327	1.21	1.57 (2 ø 10.0) 2.36 (3 ø 10.0)

Vigas do pavimento NV 000

Viga	Vãos			Nós			Avisos
	Md (kgf.m)	As	Als	Md (kgf.m)	As	Als	
VB101	5668.81	2 ø 12.5		-4351.42 -2678.87	2 ø 12.5 2 ø 10.0		Avisos 26, 04
VB104	5668.75	2 ø 12.5		-4351.37 -2678.83	2 ø 12.5 2 ø 10.0		Avisos 26, 04
VB106	278.74	2 ø 8.0		-317.70 -317.70	2 ø 8.0 2 ø 8.0		Aviso 26
VB107	264.06	2 ø 8.0		-348.09 -348.09	2 ø 8.0 2 ø 8.0		Aviso 26

Pavimento NV 260

Resultados dos Pilares

NV 260	fck = 300.00 kgf/cm²	E = 268384 kgf/cm²	Peso Espec = 2500.00 kgf/m³
Lance 2		cobr = 3.00 cm	

Dados				Resultados					
Pilar	**Seção (cm)**	**Nível Altura (cm)**	**lib vínc lih vínc (cm)**	**Nd máx Nd mín (tf)**	**MBd topo MBd base (kgf.m)**	**MHd topo MHd base (kgf.m)**	**As b Armaduras As h % armad total**	**Estribo Topo Base cota**	**Esb b Esb h**
PC2 1:20	15.00 X 50.00	260.00 280.00	280.00 RR 280.00 RR	9.38 2.73	246 60	3359 3346	1.57 2 ø 10.0 2.36 3 ø 10.0 0.6 6 ø 10.0	ø 5.0 c/12	64.59 19.38
PC3 1:20	20.00 X 50.00	260.00 280.00	280.00 RR 280.00 RR	33.70 12.35	1381 1137	3397 3135	1.57 2 ø 10.0 2.36 3 ø 10.0 0.5 6 ø 10.0	ø 5.0 c/12	48.44 19.38
PC5 1:20	15.00 X 50.00	260.00 280.00	280.00 RR 280.00 RR	9.38 2.73	246 60	3359 3346	1.57 2 ø 10.0 2.36 3 ø 10.0 0.6 6 ø 10.0	ø 5.0 c/12	64.59 19.38
PC6 1:20	20.00 X 50.00	260.00 280.00	280.00 RR 280.00 RR	33.70 12.35	1381 1137	3397 3135	1.57 2 ø 10.0 2.36 3 ø 10.0 0.5 6 ø 10.0	ø 5.0 c/12	48.44 19.38

Cálculo dos Pilares

NV 260	fck = 300.00 kgf/cm²	E = 268384 kgf/cm²	Peso Espec = 2500.00 kgf/m³
Lance 2		cobr = 3.00 cm	

Pilar	Seção (cm)	vínc esb B vínc esb H	Nd máx Nd mín (tf)	Msd(x) Msd(y) (kgf.m)	Mrd(x) Mrd(y) (kgf.m)	Mrd/Msd	As b As h (cm²)
PC2	15.00 X 50.00	RR 64.59 RR 19.38	11.25 3.27	44 4147	65 6091	1.47	1.57 (2 ø 10.0) 2.36 (3 ø 10.0)
PC3	20.00 X 50.00	RR 48.44 RR 19.38	33.70 12.35	1561 3397	2717 5915	1.74	1.57 (2 ø 10.0) 2.36 (3 ø 10.0)
PC5	15.00 X 50.00	RR 64.59 RR 19.38	11.25 3.27	44 4147	65 6091	1.47	1.57 (2 ø 10.0) 2.36 (3 ø 10.0)
PC6	20.00 X 50.00	RR 48.44 RR 19.38	33.70 12.35	1561 3397	2717 5915	1.74	1.57 (2 ø 10.0) 2.36 (3 ø 10.0)

Vigas do pavimento NV 260

Viga	Vãos			Nós			Avisos
	Md (kgf.m)	As	Als	Md (kgf.m)	As	Als	
V203	577.63	2 ø 8.0		-1492.20 -1492.18	2 ø 8.0 2 ø 8.0		Aviso 26

Pavimento NV 525 CELULA INF

Resultados dos Pilares

NV 525 CELULA INF	fck = 300.00 kgf/cm²	E = 268384 kgf/cm²	Peso Espec = 2500.00 kgf/m³
Lance 3		cobr = 3.00 cm	

Dados				Resultados					
Pilar	**Seção (cm)**	**Nível Altura (cm)**	**lib vínc lih vínc (cm)**	**Nd máx Nd mín (tf)**	**MBd topo MBd base (kgf.m)**	**MHd topo MHd base (kgf.m)**	**As b Armaduras As h % armad total**	**Estribo Topo Base cota**	**Esb b Esb h**
PC1 1:20	20.00 X 50.00	525.00 545.00	545.00 RR 275.10 RR	29.43 10.43	1390 1473	1680 2242	1.57 2 ø 10.0 2.36 3 ø 10.0 0.5 6 ø 10.0	ø 5.0 c/12 ø 5.0 c/12 40	94.28 19.04
PC2 1:20	15.00 X 50.00	525.00 265.00	265.00 RR 265.00 RR	5.89 -1.94	109 130	3371 1581	1.57 2 ø 10.0 2.36 3 ø 10.0 0.6 6 ø 10.0	ø 5.0 c/12 ø 5.0 c/12 40	61.13 18.34
PC3 1:20	20.00 X 50.00	525.00 265.00	265.00 RR 265.00 RR	21.03 3.55	203 176	454 1648	1.57 2 ø 10.0 2.36 3 ø 10.0 0.5 6 ø 10.0	ø 5.0 c/12	45.84 18.34
PC4 1:20	20.00 X 50.00	525.00 545.00	545.00 RR 275.10 RR	29.43 10.43	1390 1473	1680 2242	1.57 2 ø 10.0 2.36 3 ø 10.0 0.5 6 ø 10.0	ø 5.0 c/12 ø 5.0 c/12 40	94.28 19.04
PC5 1:20	15.00 X 50.00	525.00 265.00	265.00 RR 265.00 RR	5.89 -1.94	109 130	3371 1581	1.57 2 ø 10.0 2.36 3 ø 10.0 0.6 6 ø 10.0	ø 5.0 c/12 ø 5.0 c/12 40	61.13 18.34
PC6 1:20	20.00 X 50.00	525.00 265.00	265.00 RR 265.00 RR	21.03 3.55	203 176	454 1648	1.57 2 ø 10.0 2.36 3 ø 10.0 0.5 6 ø 10.0	ø 5.0 c/12	45.84 18.34
PC7 1:20	15.00 X 50.00	525.00 265.00	265.00 RR 265.00 RR	6.41 -1.19	261 212	1700 134	1.57 2 ø 10.0 2.36 3 ø 10.0 0.6 6 ø 10.0	ø 5.0 c/12	61.13 18.34

PC8 1:20	15.00 X 50.00	525.00 265.00	265.00 RR 265.00 RR	6.41 -1.19	261 212	1700 134	1.57 2 ø 10.0 2.36 3 ø 10.0 0.6 6 ø 10.0	ø 5.0 c/12	61.13 18.34

Cálculo dos Pilares

NV 525 CELULA INF	fck = 300.00 kgf/cm²	E = 268384 kgf/cm²	Peso Espec = 2500.00 kgf/m³
Lance 3		cobr = 3.00 cm	

Pilar	Seção (cm)	vínc esb B vínc esb H	Nd máx Nd mín (tf)	Msd(x) Msd(y) (kgf.m)	Mrd(x) Mrd(y) (kgf.m)	Mrd/Msd	As b As h (cm²)
PC1	20.00 X 50.00	RR 94.28 RR 19.04	29.43 10.43	3074 1137	3445 1274	1.12	1.57 (2 ø 10.0) 2.36 (3 ø 10.0)
PC2	15.00 X 50.00	RR 61.13 RR 18.34	7.07 -2.32	113 3672	158 5149	1.40	1.57 (2 ø 10.0) 2.36 (3 ø 10.0)
PC3	20.00 X 50.00	RR 45.84 RR 18.34	21.03 3.55	605 1546	2137 5463	3.53	1.57 (2 ø 10.0) 2.36 (3 ø 10.0)
PC4	20.00 X 50.00	RR 94.28 RR 19.04	29.43 10.43	3074 1137	3445 1274	1.12	1.57 (2 ø 10.0) 2.36 (3 ø 10.0)
PC5	15.00 X 50.00	RR 61.13 RR 18.34	7.07 -2.32	113 3673	158 5149	1.40	1.57 (2 ø 10.0) 2.36 (3 ø 10.0)
PC6	20.00 X 50.00	RR 45.84 RR 18.34	21.03 3.55	605 1546	2137 5463	3.53	1.57 (2 ø 10.0) 2.36 (3 ø 10.0)
PC7	15.00 X 50.00	RR 61.13 RR 18.34	7.69 -1.43	401 1633	973 3959	2.43	1.57 (2 ø 10.0) 2.36 (3 ø 10.0)
PC8	15.00 X 50.00	RR 61.13 RR 18.34	7.69 -1.43	401 1633	973 3959	2.42	1.57 (2 ø 10.0) 2.36 (3 ø 10.0)

Vigas do pavimento NV 525 CELULA INF

Viga	Vãos			Nós			Avisos
	Md (kgf.m)	As	Als	Md (kgf.m)	As	Als	
V301	5765.82	3 ø 16.0	2 ø 8.0	-3493.69	2 ø 12.5	2 ø 8.0	Aviso 26
V302	5765.76	3 ø 16.0	2 ø 8.0	-3493.69	2 ø 12.5	2 ø 8.0	Aviso 26
V303	516.13	2 ø 8.0	2 ø 8.0	-1278.04 -1278.00	2 ø 8.0 2 ø 8.0	2 ø 8.0 2 ø 8.0	Aviso 26

Cálculos do Reservatório

NV 525 CELULA INF	fck = 300.00 kgf/cm²	E = 268384 kgf/cm²	Peso Espec = 2500.00 kgf/m³
Lance 3		cobr = 3.00 cm	

Reservatório RES1

ARMADURAS POSITIVAS (LAJE)											
Trecho	**Direção**	**Momento positivo**			**Momento negativo**			**Armadura inferior**	**Armadura superior**	**Cisalhamento**
		Flexão	**Verificação axial (compressão)**	**Verificação axial (tração)**	**Flexão**	**Verificação axial (compressão)**	**Verificação axial (tração)**			
L201	X	Md = 757 kgf.m/m As = 1.51 cm²/m A's = 0.00 cm²/m		Fd = 6.82 tf Situação: GE As = 1.64 cm²/m A's = 0.00 cm²/m	Md = 681 kgf.m/m As = 1.37 cm²/m A's = 0.00 cm²/m		Fd = 6.82 tf Situação: GE As = 2.37 cm²/m A's = 0.00 cm²/m	As = 1.64 cm²/m ø6.3 c/19 (1.64 cm²/m) M = 251.31 kgf.m/m F = 4.30 tf fiss = 0.08 mm		vsd = 3.07 tf/m vrd1 = 7.88 tf/m Modelo I vrd2 = 56.95 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m
	Y	Md = 757 kgf.m/m As = 1.60 cm²/m A's = 0.00 cm²/m		Fd = 6.68 tf Situação: PE As = 0.96 cm²/m A's = 0.57 cm²/m	Md = 443 kgf.m/m As = 0.94 cm²/m A's = 0.00 cm²/m	Fd = 1.88 tf Situação: GE As = 0.65 cm²/m A's = 0.00 cm²/m	Fd = 6.68 tf Situação: GE As = 1.98 cm²/m A's = 0.00 cm²/m	As = 1.60 cm²/m ø6.3 c/19 (1.64 cm²/m) M = 42.04 kgf.m/m F = 2.95 tf fiss = 0.01 mm		vsd = 2.31 tf/m vrd1 = 7.51 tf/m vrd2 = 53.74 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m
L202	X	Md = 757 kgf.m/m		Fd = 6.82 tf Situação: GE	Md = 681 kgf.m/m		Fd = 6.82 tf Situação: GE	As = 1.64 cm²/m ø6.3 c/19		vsd = 3.07 tf/m vrd1 = 7.88 tf/m Modelo I

		As = 1.51 cm²/m A's = 0.00 cm²/m		As = 1.64 cm²/m A's = 0.00 cm²/m	As = 1.37 cm²/m A's = 0.00 cm²/m		As = 2.37 cm²/m A's = 0.00 cm²/m	(1.64 cm²/m) M = 251.36 kgf.m/m F = 4.30 tf fiss = 0.08 mm		vrd2 = 56.95 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m
	Y	Md = 757 kgf.m/m As = 1.60 cm²/m A's = 0.00 cm²/m		Fd = 6.68 tf Situação: PE As = 0.96 cm²/m A's = 0.57 cm²/m	Md = 443 kgf.m/m As = 0.94 cm²/m A's = 0.00 cm²/m	Fd = 1.88 tf Situação: GE As = 0.65 cm²/m A's = 0.00 cm²/m	Fd = 6.68 tf Situação: GE As = 1.98 cm²/m A's = 0.00 cm²/m	As = 1.60 cm²/m ø6.3 c/19 (1.64 cm²/m) M = 42.06 kgf.m/m F = 2.95 tf fiss = 0.01 mm		vsd = 2.31 tf/m vrd1 = 7.51 tf/m vrd2 = 53.74 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m
L301	X	Md = 336 kgf.m/m As = 0.98 cm²/m A's = 0.00 cm²/m		Fd = 2.10 tf Situação: GE As = 0.51 cm²/m A's = 0.00 cm²/m				As = 1.01 cm²/m ø5.0 c/19 (1.03 cm²/m) M = 46.67 kgf.m/m F = 0.80 tf fiss = 0.02 mm		vsd = 0.49 tf/m vrd1 = 4.72 tf/m Modelo I vrd2 = 31.82 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m
	Y	Md = 336 kgf.m/m As = 1.28 cm²/m A's = 0.00 cm²/m		Fd = 0.46 tf Situação: GE As = 0.30 cm²/m A's = 0.00 cm²/m				As = 1.28 cm²/m ø6.3 c/20 (1.56 cm²/m) M = 34.53 kgf.m/m F = 0.26 tf fiss = 0.00 mm		vsd = 0.46 tf/m vrd1 = 4.48 tf/m vrd2 = 28.94 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m
L302	X	Md = 336 kgf.m/m		Fd = 2.10 tf Situação: GE				As = 1.01 cm²/m ø5.0 c/19		vsd = 0.49 tf/m vrd1 = 4.72 tf/m Modelo I

		As = 0.98 cm²/m A's = 0.00 cm²/m		As = 0.51 cm²/m A's = 0.00 cm²/m				(1.03 cm²/m) M = 46.64 kgf.m/m F = 0.80 tf fiss = 0.02 mm		vrd2 = 31.82 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m
	Y	Md = 336 kgf.m/m As = 1.28 cm²/m A's = 0.00 cm²/m		Fd = 0.46 tf Situação : GE As = 0.30 cm²/m A's = 0.00 cm²/m				As = 1.28 cm²/m ø6.3 c/20 (1.56 cm²/m) M = 34.36 kgf.m/m F = 0.26 tf fiss = 0.00 mm		vsd = 0.46 tf/m vrd1 = 4.48 tf/m vrd2 = 28.94 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m
PAR 1-A	X	Md = 757 kgf.m/m As = 1.52 cm²/m A's = 0.00 cm²/m		Fd = 7.24 tf Situação : GE As = 1.67 cm²/m A's = 0.00 cm²/m	Md = 757 kgf.m/m As = 1.51 cm²/m A's = 0.00 cm²/m		Fd = 7.24 tf Situação : PE As = 1.38 cm²/m A's = 0.43 cm²/m	As = 1.67 cm²/m ø8.0 c/20 (2.51 cm²/m) M = 217.91 kgf.m/m F = 4.16 tf fiss = 0.04 mm	A's = 1.51 cm²/m ø6.3 c/20 (1.56 cm²/m) M = 154.71 kgf.m/m F = 4.16 tf fiss = 0.05 mm	vsd = 1.63 tf/m vrd1 = 7.86 tf/m Modelo I vrd2 = 56.51 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m
	Y	Md = 757 kgf.m/m As = 1.66 cm²/m A's = 0.00 cm²/m		Fd = 22.73 tf Situação : PE As = 3.09 cm²/m A's = 2.14 cm²/m	Md = 757 kgf.m/m As = 1.66 cm²/m A's = 0.00 cm²/m		Fd = 22.73 tf Situação : PE As = 3.74 cm²/m A's = 1.49 cm²/m	As = 3.09 cm²/m ø10.0 c/20 (3.93 cm²/m) M = 43.68 kgf.m/m F = 13.38 tf fiss = 0.06 mm	A's = 3.74 cm²/m ø10.0 c/20 (3.93 cm²/m) M = 218.34 kgf.m/m F = 13.38 tf fiss = 0.09 mm	vsd = 2.27 tf/m vrd1 = 7.89 tf/m vrd2 = 51.93 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m
PAR 1-B	X	Md = 757 kgf.m/m		Fd = 4.52 tf Situação : GE	Md = 757 kgf.m/m		Fd = 4.52 tf Situação : GE	As = 1.51 cm²/m ø6.3 c/20	A's = 1.51 cm²/m ø6.3 c/20	vsd = 1.72 tf/m vrd1 = 7.86 tf/m Modelo I

		As = 1.51 cm²/m A's = 0.00 cm²/m		As = 1.27 cm²/m A's = 0.00 cm²/m	As = 1.51 cm²/m A's = 0.00 cm²/m		As = 1.32 cm²/m A's = 0.00 cm²/m	(1.56 cm²/m) M = 186.02 kgf.m/m F = 2.61 tf fiss = 0.04 mm	(1.56 cm²/m) M = 163.19 kgf.m/m F = 2.61 tf fiss = 0.03 mm	vrd2 = 56.95 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m
	Y	Md = 757 kgf.m/m As = 1.60 cm²/m A's = 0.00 cm²/m		Fd = 3.16 tf Situação : GE As = 0.73 cm²/m A's = 0.00 cm²/m	Md = 757 kgf.m/m As = 1.60 cm²/m A's = 0.00 cm²/m		Fd = 3.16 tf Situação : GE As = 0.79 cm²/m A's = 0.00 cm²/m	As = 1.60 cm²/m ø6.3 c/19 (1.64 cm²/m) M = 74.68 kgf.m/m F = 1.99 tf fiss = 0.01 mm	A's = 1.60 cm²/m ø6.3 c/19 (1.64 cm²/m) M = 117.60 kgf.m/m F = 1.99 tf fiss = 0.02 mm	vsd = 3.65 tf/m vrd1 = 7.51 tf/m vrd2 = 53.74 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m
PAR 2	X	Md = 757 kgf.m/m As = 1.51 cm²/m A's = 0.00 cm²/m		Fd = 3.02 tf Situação : PE As = 0.42 cm²/m A's = 0.28 cm²/m	Md = 757 kgf.m/m As = 1.51 cm²/m A's = 0.00 cm²/m		Fd = 3.02 tf Situação : PE As = 0.42 cm²/m A's = 0.28 cm²/m	As = 1.51 cm²/m ø6.3 c/20 (1.56 cm²/m) M = 0.85 kgf.m/m F = 2.05 tf fiss = 0.00 mm	A's = 1.51 cm²/m ø6.3 c/20 (1.56 cm²/m) M = 5.15 kgf.m/m F = 2.05 tf fiss = 0.01 mm	vsd = 0.04 tf/m vrd1 = 7.86 tf/m Modelo I vrd2 = 56.95 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m
	Y	Md = 757 kgf.m/m As = 1.60 cm²/m A's = 0.00 cm²/m		Fd = 6.38 tf Situação : PE As = 0.88 cm²/m A's = 0.59 cm²/m	Md = 757 kgf.m/m As = 1.60 cm²/m A's = 0.00 cm²/m		Fd = 6.38 tf Situação : PE As = 0.88 cm²/m A's = 0.59 cm²/m	As = 1.60 cm²/m ø6.3 c/19 (1.64 cm²/m) M = 2.87 kgf.m/m F = 4.23 tf fiss = 0.02 mm	A's = 1.60 cm²/m ø6.3 c/19 (1.64 cm²/m) M = 9.07 kgf.m/m F = 4.23 tf fiss = 0.02 mm	vsd = 0.05 tf/m vrd1 = 7.51 tf/m vrd2 = 53.74 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m
PAR 3-A	X	Md = 757 kgf.m/m		Fd = 4.52 tf Situação : GE	Md = 757 kgf.m/m		Fd = 4.52 tf Situação : GE	As = 1.51 cm²/m ø6.3 c/20	A's = 1.51 cm²/m ø6.3 c/20	vsd = 1.72 tf/m vrd1 = 7.86 tf/m Modelo I

		As = 1.51 cm²/m A's = 0.00 cm²/m		As = 1.27 cm²/m A's = 0.00 cm²/m	As = 1.51 cm²/m A's = 0.00 cm²/m		As = 1.32 cm²/m A's = 0.00 cm²/m	(1.56 cm²/m) M = 186.02 kgf.m/m F = 2.61 tf fiss = 0.04 mm	(1.56 cm²/m) M = 163.18 kgf.m/m F = 2.61 tf fiss = 0.03 mm	vrd2 = 56.95 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m
	Y	Md = 757 kgf.m/m As = 1.60 cm²/m A's = 0.00 cm²/m		Fd = 3.16 tf Situação : GE As = 0.73 cm²/m A's = 0.00 cm²/m	Md = 757 kgf.m/m As = 1.60 cm²/m A's = 0.00 cm²/m		Fd = 3.16 tf Situação : GE As = 0.79 cm²/m A's = 0.00 cm²/m	As = 1.60 cm²/m ø6.3 c/19 (1.64 cm²/m) M = 74.68 kgf.m/m F = 1.99 tf fiss = 0.01 mm	A's = 1.60 cm²/m ø6.3 c/19 (1.64 cm²/m) M = 117.60 kgf.m/m F = 1.99 tf fiss = 0.02 mm	vsd = 3.65 tf/m vrd1 = 7.51 tf/m vrd2 = 53.74 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m
PAR 3-B	X	Md = 757 kgf.m/m As = 1.52 cm²/m A's = 0.00 cm²/m		Fd = 7.24 tf Situação : GE As = 1.67 cm²/m A's = 0.00 cm²/m	Md = 757 kgf.m/m As = 1.51 cm²/m A's = 0.00 cm²/m		Fd = 7.24 tf Situação : PE As = 1.38 cm²/m A's = 0.43 cm²/m	As = 1.67 cm²/m ø8.0 c/20 (2.51 cm²/m) M = 217.91 kgf.m/m F = 4.16 tf fiss = 0.04 mm	A's = 1.51 cm²/m ø6.3 c/20 (1.56 cm²/m) M = 154.71 kgf.m/m F = 4.16 tf fiss = 0.05 mm	vsd = 1.63 tf/m vrd1 = 7.86 tf/m Modelo I vrd2 = 56.51 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m
	Y	Md = 757 kgf.m/m As = 1.66 cm²/m A's = 0.00 cm²/m		Fd = 22.73 tf Situação : PE As = 3.09 cm²/m A's = 2.14 cm²/m	Md = 757 kgf.m/m As = 1.66 cm²/m A's = 0.00 cm²/m		Fd = 22.73 tf Situação : PE As = 3.74 cm²/m A's = 1.49 cm²/m	As = 3.09 cm²/m ø10.0 c/20 (3.93 cm²/m) M = 43.70 kgf.m/m F = 13.38 tf fiss = 0.06 mm	A's = 3.74 cm²/m ø10.0 c/20 (3.93 cm²/m) M = 218.38 kgf.m/m F = 13.38 tf fiss = 0.09 mm	vsd = 2.27 tf/m vrd1 = 7.89 tf/m vrd2 = 51.93 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m
PAR 4-A	X	Md = 757 kgf.m/m	Fd = 1.50 tf Situação: GE As = 0.34 cm²/m	Fd = 2.39 tf Situação : GE	Md = 757 kgf.m/m	Fd = 1.50 tf Situação: GE As = 0.39 cm²/m	Fd = 2.39 tf Situação : GE	As = 1.51 cm²/m ø6.3 c/20	A's = 1.51 cm²/m ø6.3 c/20	vsd = 1.48 tf/m vrd1 = 7.86 tf/m Modelo I

		As = 1.51 cm²/m A's = 0.00 cm²/m	A's = 0.00 cm²/m	As = 0.91 cm²/m A's = 0.00 cm²/m	As = 1.51 cm²/m A's = 0.00 cm²/m	A's = 0.00 cm²/m	As = 0.96 cm²/m A's = 0.00 cm²/m	(1.56 cm²/m) M = 90.00 kgf.m/m F = 1.54 tf fiss = 0.01 mm	(1.56 cm²/m) M = 224.06 kgf.m/m F = 1.54 tf fiss = 0.04 mm	vrd2 = 56.95 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m
	Y	Md = 757 kgf.m/m As = 1.63 cm²/m A's = 0.00 cm²/m		Fd = 22.73 tf Situação: PE As = 2.80 cm²/m A's = 2.42 cm²/m	Md = 757 kgf.m/m As = 1.63 cm²/m A's = 0.00 cm²/m		Fd = 22.73 tf Situação: PE As = 3.68 cm²/m A's = 1.55 cm²/m	As = 2.80 cm²/m ø10.0 c/20 (3.93 cm²/m) M = 18.67 kgf.m/m F = 13.38 tf fiss = 0.05 mm	A's = 3.68 cm²/m ø10.0 c/20 (3.93 cm²/m) M = 218.38 kgf.m/m F = 13.38 tf fiss = 0.09 mm	vsd = 1.70 tf/m vrd1 = 7.89 tf/m vrd2 = 52.80 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m
PAR 4-B	X	Md = 757 kgf.m/m As = 1.51 cm²/m A's = 0.00 cm²/m	Fd = 1.50 tf Situação: GE As = 0.34 cm²/m A's = 0.00 cm²/m	Fd = 2.39 tf Situação: GE As = 0.91 cm²/m A's = 0.00 cm²/m	Md = 757 kgf.m/m As = 1.51 cm²/m A's = 0.00 cm²/m	Fd = 1.50 tf Situação: GE As = 0.39 cm²/m A's = 0.00 cm²/m	Fd = 2.39 tf Situação: GE As = 0.96 cm²/m A's = 0.00 cm²/m	As = 1.51 cm²/m ø6.3 c/20 (1.56 cm²/m) M = 90.08 kgf.m/m F = 1.54 tf fiss = 0.01 mm	A's = 1.51 cm²/m ø6.3 c/20 (1.56 cm²/m) M = 224.08 kgf.m/m F = 1.54 tf fiss = 0.04 mm	vsd = 1.48 tf/m vrd1 = 7.86 tf/m Modelo I vrd2 = 56.95 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m
	Y	Md = 757 kgf.m/m As = 1.63 cm²/m A's = 0.00 cm²/m		Fd = 22.73 tf Situação: PE As = 2.80 cm²/m A's = 2.42 cm²/m	Md = 757 kgf.m/m As = 1.63 cm²/m A's = 0.00 cm²/m		Fd = 22.73 tf Situação: PE As = 3.68 cm²/m A's = 1.55 cm²/m	As = 2.80 cm²/m ø10.0 c/20 (3.93 cm²/m) M = 18.67 kgf.m/m F = 13.38 tf fiss = 0.05 mm	A's = 3.68 cm²/m ø10.0 c/20 (3.93 cm²/m) M = 218.34 kgf.m/m F = 13.38 tf fiss = 0.09 mm	vsd = 1.70 tf/m vrd1 = 7.89 tf/m vrd2 = 52.80 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m
PAR 5-A	X	Md = 757 kgf.m/m		Fd = 6.53 tf Situação: PE	Md = 757 kgf.m/m		Fd = 6.53 tf Situação: PE	As = 1.51 cm²/m ø6.3 c/20	A's = 1.51 cm²/m ø6.3 c/20	vsd = 1.54 tf/m vrd1 = 7.86 tf/m Modelo I

		As = 1.51 cm²/m A's = 0.00 cm²/m		As = 1.15 cm²/m A's = 0.39 cm²/m	As = 1.51 cm²/m A's = 0.00 cm²/m		As = 1.13 cm²/m A's = 0.39 cm²/m	(1.56 cm²/m) M = 114.60 kgf.m/m F = 2.32 tf fiss = 0.02 mm	(1.56 cm²/m) M = 114.75 kgf.m/m F = 2.32 tf fiss = 0.02 mm	vrd2 = 56.95 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m
	Y	Md = 757 kgf.m/m As = 1.60 cm²/m A's = 0.00 cm²/m		Fd = 3.47 tf Situação : PE As = 0.70 cm²/m A's = 0.09 cm²/m	Md = 757 kgf.m/m As = 1.60 cm²/m A's = 0.00 cm²/m		Fd = 3.47 tf Situação : PE As = 0.61 cm²/m A's = 0.19 cm²/m	As = 1.60 cm²/m ø6.3 c/19 (1.64 cm²/m) M = 20.77 kgf.m/m F = 1.67 tf fiss = 0.00 mm	A's = 1.60 cm²/m ø6.3 c/19 (1.64 cm²/m) M = 52.31 kgf.m/m F = 1.67 tf fiss = 0.01 mm	vsd = 1.71 tf/m vrd1 = 7.51 tf/m vrd2 = 53.74 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m
PAR 5-B	X	Md = 757 kgf.m/m As = 1.51 cm²/m A's = 0.00 cm²/m		Fd = 6.53 tf Situação : PE As = 1.15 cm²/m A's = 0.39 cm²/m	Md = 757 kgf.m/m As = 1.51 cm²/m A's = 0.00 cm²/m		Fd = 6.53 tf Situação : PE As = 1.13 cm²/m A's = 0.39 cm²/m	As = 1.51 cm²/m ø6.3 c/20 (1.56 cm²/m) M = 114.52 kgf.m/m F = 2.32 tf fiss = 0.02 mm	A's = 1.51 cm²/m ø6.3 c/20 (1.56 cm²/m) M = 114.74 kgf.m/m F = 2.32 tf fiss = 0.02 mm	vsd = 1.54 tf/m vrd1 = 7.86 tf/m Modelo I vrd2 = 56.95 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m
	Y	Md = 757 kgf.m/m As = 1.60 cm²/m A's = 0.00 cm²/m		Fd = 3.47 tf Situação : PE As = 0.70 cm²/m A's = 0.09 cm²/m	Md = 757 kgf.m/m As = 1.60 cm²/m A's = 0.00 cm²/m		Fd = 3.47 tf Situação : PE As = 0.61 cm²/m A's = 0.19 cm²/m	As = 1.60 cm²/m ø6.3 c/19 (1.64 cm²/m) M = 20.77 kgf.m/m F = 1.67 tf fiss = 0.00 mm	A's = 1.60 cm²/m ø6.3 c/19 (1.64 cm²/m) M = 52.30 kgf.m/m F = 1.67 tf fiss = 0.01 mm	vsd = 1.71 tf/m vrd1 = 7.51 tf/m vrd2 = 53.74 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m

ARMADURAS NEGATIVAS (NA CONTINUIDADE)								
Viga	Laje 1	Momento negativo			Momento positivo			Armaduras finais
Trecho	Laje 2	Flexão	Flexo compressão	Flexo tração	Flexão	Flexo compressão	Flexo tração	

Barra	PAR5-A L201	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m		Fd = 3.38 tf Situação: GE As = 1.36 cm²/m A's = 0.00 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.03 mm
Barra	L201 PAR5-A	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m		Fd = 3.38 tf Situação: PE As = 0.60 cm²/m A's = 0.18 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.00 mm
Barra	PAR1-B L201	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m		Fd = 6.53 tf Situação: GE As = 2.24 cm²/m A's = 0.00 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.08 mm
Barra	L201 PAR1-B	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m		Fd = 6.53 tf Situação: GE As = 1.96 cm²/m A's = 0.00 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.06 mm
Barra	PAR1-A L201	Md = 1130 kgf.m/m As = 2.34 cm²/m A's = 0.00 cm²/m		Fd = 22.73 tf Situação: PE As = 4.47 cm²/m A's = 1.35 cm²/m				As = 4.47 cm²/m (ø12.5 c/20 - 6.14 cm²/m) fiss = 0.07 mm
Barra	L201 PAR1-A	Md = 1130 kgf.m/m As = 2.31 cm²/m A's = 0.00 cm²/m		Fd = 22.73 tf Situação: PE As = 3.51 cm²/m A's = 1.72 cm²/m				As = 3.51 cm²/m (ø10.0 c/20 - 3.93 cm²/m) fiss = 0.09 mm
Barra	PAR4-B L201	Md = 1130 kgf.m/m As = 2.34 cm²/m A's = 0.00 cm²/m		Fd = 22.73 tf Situação: PE As = 3.93 cm²/m A's = 1.35 cm²/m				As = 3.93 cm²/m (ø12.5 c/20 - 6.14 cm²/m) fiss = 0.06 mm
Barra	L201 PAR4-B	Md = 1130 kgf.m/m		Fd = 22.73 tf Situação: PE				As = 3.51 cm²/m (ø10.0 c/20 - 3.93 cm²/m)

		As = 2.31 cm²/m A's = 0.00 cm²/m		As = 3.51 cm²/m A's = 1.72 cm²/m				fiss = 0.09 mm
Barra	L201 PAR2	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m	Fd = 0.68 tf Situação: GE As = 1.27 cm²/m A's = 0.00 cm²/m	Fd = 6.82 tf Situação: GE As = 2.37 cm²/m A's = 0.00 cm²/m				As = 2.37 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.09 mm
Barra	PAR2 L202	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m	Fd = 0.68 tf Situação: GE As = 1.27 cm²/m A's = 0.00 cm²/m	Fd = 6.82 tf Situação: GE As = 2.37 cm²/m A's = 0.00 cm²/m				As = 2.37 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.09 mm
Barra	L202 L201	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m		Fd = 6.82 tf Situação: PE As = 0.78 cm²/m A's = 0.78 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.01 mm
Barra	PAR5-B L202	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m		Fd = 3.38 tf Situação: GE As = 1.36 cm²/m A's = 0.00 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.03 mm
Barra	L202 PAR5-B	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m		Fd = 3.38 tf Situação: PE As = 0.60 cm²/m A's = 0.18 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.00 mm
Barra	PAR4-A L202	Md = 1130 kgf.m/m As = 2.34 cm²/m A's = 0.00 cm²/m		Fd = 22.73 tf Situação: PE As = 3.93 cm²/m A's = 1.35 cm²/m				As = 3.93 cm²/m (ø12.5 c/20 - 6.14 cm²/m) fiss = 0.06 mm
Barra	L202 PAR4-A	Md = 1130 kgf.m/m As = 2.31 cm²/m A's = 0.00 cm²/m		Fd = 22.73 tf Situação: PE As = 3.51 cm²/m A's = 1.72 cm²/m				As = 3.51 cm²/m (ø10.0 c/20 - 3.93 cm²/m) fiss = 0.09 mm

Barra	PAR3-B L202	Md = 1130 kgf.m/m As = 2.34 cm²/m A's = 0.00 cm²/m		Fd = 22.73 tf Situação: PE As = 4.47 cm²/m A's = 1.35 cm²/m				As = 4.47 cm²/m (ø12.5 c/20 - 6.14 cm²/m) fiss = 0.07 mm
Barra	L202 PAR3-B	Md = 1130 kgf.m/m As = 2.31 cm²/m A's = 0.00 cm²/m		Fd = 22.73 tf Situação: PE As = 3.51 cm²/m A's = 1.72 cm²/m				As = 3.51 cm²/m (ø10.0 c/20 - 3.93 cm²/m) fiss = 0.09 mm
Barra	PAR3-A L202	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m		Fd = 6.53 tf Situação: GE As = 2.24 cm²/m A's = 0.00 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.08 mm
Barra	L202 PAR3-A	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m		Fd = 6.53 tf Situação: GE As = 1.96 cm²/m A's = 0.00 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.06 mm
Barra	L301 PAR5-A	Md = 502 kgf.m/m As = 1.81 cm²/m A's = 0.00 cm²/m		Fd = 6.63 tf Situação: GE As = 1.52 cm²/m A's = 0.00 cm²/m				As = 1.81 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.02 mm
Barra	PAR5-A L301	Md = 502 kgf.m/m As = 1.81 cm²/m A's = 0.00 cm²/m		Fd = 6.63 tf Situação: GE As = 1.54 cm²/m A's = 0.00 cm²/m				As = 1.81 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.02 mm
Barra	PAR1-B PAR5-A	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m	Fd = 2.84 tf Situação: GE As = 0.52 cm²/m A's = 0.00 cm²/m	Fd = 6.53 tf Situação: GE As = 1.90 cm²/m A's = 0.00 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.06 mm
Barra	PAR5-A PAR1-B	Md = 1130 kgf.m/m		Fd = 6.53 tf Situação: PE As = 0.84 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m)

		As = 2.29 cm²/m A's = 0.00 cm²/m		A's = 0.66 cm²/m				fiss = 0.01 mm
Barra	PAR5-A PAR2	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m	Fd = 1.98 tf Situação: GE As = 0.24 cm²/m A's = 0.00 cm²/m	Fd = 3.57 tf Situação: GE As = 1.06 cm²/m A's = 0.00 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.02 mm
Barra	PAR2 PAR5-B	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m	Fd = 1.98 tf Situação: GE As = 0.24 cm²/m A's = 0.00 cm²/m	Fd = 3.57 tf Situação: GE As = 1.06 cm²/m A's = 0.00 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.02 mm
Barra	PAR5-B PAR5-A	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m		Fd = 3.57 tf Situação: PE As = 0.47 cm²/m A's = 0.35 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.00 mm
Barra	L302 PAR5-B	Md = 502 kgf.m/m As = 1.81 cm²/m A's = 0.00 cm²/m		Fd = 6.63 tf Situação: GE As = 1.52 cm²/m A's = 0.00 cm²/m				As = 1.81 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.02 mm
Barra	PAR5-B L302	Md = 502 kgf.m/m As = 1.81 cm²/m A's = 0.00 cm²/m		Fd = 6.63 tf Situação: GE As = 1.54 cm²/m A's = 0.00 cm²/m				As = 1.81 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.02 mm
Barra	PAR5-B PAR3-A	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m	Fd = 2.84 tf Situação: GE As = 0.52 cm²/m A's = 0.00 cm²/m	Fd = 6.53 tf Situação: GE As = 1.90 cm²/m A's = 0.00 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.06 mm
Barra	PAR3-A PAR5-B	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m		Fd = 6.53 tf Situação: PE As = 0.84 cm²/m A's = 0.66 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.01 mm

Barra	L302 PAR3-A	Md = 502 kgf.m/m As = 1.81 cm²/m A's = 0.00 cm²/m		Fd = 6.05 tf Situação: GE As = 1.60 cm²/m A's = 0.00 cm²/m				As = 1.81 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.03 mm
Barra	PAR3-A L302	Md = 502 kgf.m/m As = 1.81 cm²/m A's = 0.00 cm²/m		Fd = 6.05 tf Situação: GE As = 1.42 cm²/m A's = 0.00 cm²/m				As = 1.81 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.02 mm
Barra	PAR3-A PAR3-B	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m		Fd = 5.72 tf Situação: PE As = 0.82 cm²/m A's = 0.49 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.01 mm
Barra	PAR3-B PAR3-A	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m		Fd = 5.72 tf Situação: GE As = 1.32 cm²/m A's = 0.00 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.02 mm
Barra	L302 PAR3-B	Md = 502 kgf.m/m As = 1.88 cm²/m A's = 0.00 cm²/m		Fd = 22.73 tf Situação: GE As = 5.23 cm²/m A's = 0.00 cm²/m				As = 5.23 cm²/m (ø12.5 c/20 - 6.14 cm²/m) fiss = 0.06 mm
Barra	PAR3-B L302	Md = 502 kgf.m/m As = 1.88 cm²/m A's = 0.00 cm²/m		Fd = 22.73 tf Situação: GE As = 5.23 cm²/m A's = 0.00 cm²/m				As = 5.23 cm²/m (ø12.5 c/20 - 6.14 cm²/m) fiss = 0.07 mm
Barra	PAR3-B PAR4-A	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m		Fd = 7.24 tf Situação: GE As = 1.95 cm²/m A's = 0.00 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.06 mm
Barra	PAR4-A PAR3-B	Md = 1130 kgf.m/m		Fd = 7.24 tf Situação: PE As = 1.02 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m)

		As = 2.29 cm²/m A's = 0.00 cm²/m		A's = 0.65 cm²/m				fiss = 0.01 mm
Barra	L301 PAR1-A	Md = 502 kgf.m/m As = 1.88 cm²/m A's = 0.00 cm²/m		Fd = 22.73 tf Situação: GE As = 5.23 cm²/m A's = 0.00 cm²/m				As = 5.23 cm²/m (ø12.5 c/20 - 6.14 cm²/m) fiss = 0.06 mm
Barra	PAR1-A L301	Md = 502 kgf.m/m As = 1.88 cm²/m A's = 0.00 cm²/m		Fd = 22.73 tf Situação: GE As = 5.23 cm²/m A's = 0.00 cm²/m				As = 5.23 cm²/m (ø12.5 c/20 - 6.14 cm²/m) fiss = 0.07 mm
Barra	PAR1-A PAR4-B	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m		Fd = 7.24 tf Situação: PE As = 1.02 cm²/m A's = 0.65 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.01 mm
Barra	PAR4-B PAR1-A	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m		Fd = 7.24 tf Situação: GE As = 1.95 cm²/m A's = 0.00 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.06 mm
Barra	PAR1-B PAR1-A	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m		Fd = 5.72 tf Situação: GE As = 1.32 cm²/m A's = 0.00 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.02 mm
Barra	PAR1-A PAR1-B	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m		Fd = 5.72 tf Situação: PE As = 0.82 cm²/m A's = 0.49 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.01 mm
Barra	L301 PAR1-B	Md = 502 kgf.m/m As = 1.81 cm²/m A's = 0.00 cm²/m		Fd = 6.05 tf Situação: GE As = 1.60 cm²/m A's = 0.00 cm²/m				As = 1.81 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.03 mm

Barra	PAR1-B L301	Md = 502 kgf.m/m As = 1.81 cm²/m A's = 0.00 cm²/m		Fd = 6.05 tf Situação: GE As = 1.42 cm²/m A's = 0.00 cm²/m				As = 1.81 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.02 mm
Barra	L302 PAR4-A	Md = 502 kgf.m/m As = 1.88 cm²/m A's = 0.00 cm²/m		Fd = 22.73 tf Situação: PE As = 4.08 cm²/m A's = 1.35 cm²/m				As = 4.08 cm²/m (ø12.5 c/20 - 6.14 cm²/m) fiss = 0.05 mm
Barra	PAR4-A L302	Md = 502 kgf.m/m As = 1.88 cm²/m A's = 0.00 cm²/m		Fd = 22.73 tf Situação: GE As = 5.23 cm²/m A's = 0.00 cm²/m				As = 5.23 cm²/m (ø12.5 c/20 - 6.14 cm²/m) fiss = 0.07 mm
Barra	PAR2 PAR4-B	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m	Fd = 1.50 tf Situação: GE As = 0.41 cm²/m A's = 0.00 cm²/m	Fd = 3.02 tf Situação: GE As = 1.08 cm²/m A's = 0.00 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.02 mm
Barra	PAR4-B PAR4-A	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m		Fd = 2.23 tf Situação: PE As = 0.28 cm²/m A's = 0.23 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.00 mm
Barra	PAR4-A PAR2	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m	Fd = 1.50 tf Situação: GE As = 0.41 cm²/m A's = 0.00 cm²/m	Fd = 3.02 tf Situação: GE As = 1.08 cm²/m A's = 0.00 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.02 mm
Barra	L301 PAR4-B	Md = 502 kgf.m/m As = 1.88 cm²/m A's = 0.00 cm²/m		Fd = 22.73 tf Situação: PE As = 4.08 cm²/m A's = 1.35 cm²/m				As = 4.08 cm²/m (ø12.5 c/20 - 6.14 cm²/m) fiss = 0.05 mm
Barra	PAR4-B L301	Md = 502 kgf.m/m As = 1.88 cm²/m		Fd = 22.73 tf Situação: GE				As = 5.23 cm²/m (ø12.5 c/20 - 6.14 cm²/m)

		A's = 0.00 cm²/m		As = 5.23 cm²/m A's = 0.00 cm²/m				fiss = 0.07 mm
Barra	L301 L302	Md = 502 kgf.m/m As = 1.81 cm²/m A's = 0.00 cm²/m						As = 1.81 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.00 mm
Barra	L302 PAR2	Md = 502 kgf.m/m As = 1.81 cm²/m A's = 0.00 cm²/m		Fd = 1.75 tf Situação: GE As = 0.46 cm²/m A's = 0.00 cm²/m				As = 1.81 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.00 mm
Barra	PAR2 L301	Md = 502 kgf.m/m As = 1.81 cm²/m A's = 0.00 cm²/m		Fd = 1.75 tf Situação: GE As = 0.46 cm²/m A's = 0.00 cm²/m				As = 1.81 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.00 mm

Pavimento NV 745

Resultados dos Pilares

NV 745	fck = 300.00 kgf/cm²	E = 268384 kgf/cm²	Peso Espec = 2500.00 kgf/m³
Lance 4		cobr = 3.00 cm	

Dados				Resultados					
Pilar	**Seção (cm)**	**Nível Altura (cm)**	**lib vínc lih vínc (cm)**	**Nd máx Nd mín (tf)**	**MBd topo MBd base (kgf.m)**	**MHd topo MHd base (kgf.m)**	**As b Armaduras As h % armad total**	**Estribo Topo Base cota**	**Esb b Esb h**
PC1 1:20	20.00 X 50.00	745.00 220.00	220.00 RR 220.00 RR	17.21 6.03	1614 2131	2383 1267	1.57 2 ø 10.0 2.36 3 ø 10.0 0.5 6 ø 10.0	ø 5.0 c/12	38.06 15.22
PC4 1:20	20.00 X 50.00	745.00 220.00	220.00 RR 220.00 RR	17.21 6.03	1614 2131	2383 1267	1.57 2 ø 10.0 2.36 3 ø 10.0 0.5 6 ø 10.0	ø 5.0 c/12	38.06 15.22
PC7 1:20	15.00 X 50.00	745.00 220.00	220.00 RR 220.00 RR	10.40 2.96	370 366	1551 3323	1.57 2 ø 10.0 2.36 3 ø 10.0 0.6 6 ø 10.0	ø 5.0 c/12	50.75 15.22
PC8 1:20	15.00 X 50.00	745.00 220.00	220.00 RR 220.00 RR	10.40 2.96	370 366	1551 3322	1.57 2 ø 10.0 2.36 3 ø 10.0 0.6 6 ø 10.0	ø 5.0 c/12	50.75 15.22

Cálculo dos Pilares

NV 745	fck = 300.00 kgf/cm²	E = 268384 kgf/cm²	Peso Espec = 2500.00 kgf/m³
Lance 4		cobr = 3.00 cm	

Pilar	Seção (cm)	vínc esb B vínc esb H	Nd máx Nd mín (tf)	Msd(x) Msd(y) (kgf.m)	Mrd(x) Mrd(y) (kgf.m)	Mrd/Msd	As b As h (cm²)
PC1	20.00 X 50.00	RR 38.06 RR 15.22	17.21 6.03	2321 1267	2675 1460	1.15	1.57 (2 ø 10.0) 2.36 (3 ø 10.0)
PC4	20.00 X 50.00	RR 38.06 RR 15.22	17.21 6.03	2321 1267	2675 1460	1.15	1.57 (2 ø 10.0) 2.36 (3 ø 10.0)
PC7	15.00 X 50.00	RR 50.75 RR 15.22	12.48 3.56	555 3254	918 5381	1.65	1.57 (2 ø 10.0) 2.36 (3 ø 10.0)
PC8	15.00 X 50.00	RR 50.75 RR 15.22	12.48 3.56	555 3254	918 5381	1.65	1.57 (2 ø 10.0) 2.36 (3 ø 10.0)

Vigas do pavimento NV 745

Viga	Vãos			Nós			Avisos
	Md (kgf.m)	As	Als	Md (kgf.m)	As	Als	
V403	302.44	2 ø 8.0	2 ø 8.0	-873.73 -873.69	2 ø 8.0 2 ø 8.0	2 ø 8.0 2 ø 8.0	Aviso 26

Pavimento NV 1020 CELULA SUP

Resultados dos Pilares

NV 1020 CELULA SUP	fck = 300.00 kgf/cm²	E = 268384 kgf/cm²	Peso Espec = 2500.00 kgf/m³
Lance 5		cobr = 3.00 cm	

Dados				Resultados					
Pilar	**Seção (cm)**	**Nível Altura (cm)**	**lib vínc lih vínc (cm)**	**Nd máx Nd mín (tf)**	**MBd topo MBd base (kgf.m)**	**MHd topo MHd base (kgf.m)**	**As b Armaduras As h % armad total**	**Estribo Topo Base cota**	**Esb b Esb h**
PC1 1:20	20.00 X 50.00	1020.00 275.00	275.00 RR 275.00 RR	9.54 0.03	15 212	56 835	1.57 2 ø 10.0 2.36 3 ø 10.0 0.5 6 ø 10.0	ø 5.0 c/12	47.58 19.03
PC3 1:20	20.00 X 50.00	1020.00 495.00	495.00 RR 275.00 RR	7.37 2.00	1248 1090	1346 887	1.57 2 ø 10.0 2.36 3 ø 10.0 0.5 6 ø 10.0	ø 5.0 c/12 ø 5.0 c/12 40	85.64 19.03
PC4 1:20	20.00 X 50.00	1020.00 275.00	275.00 RR 275.00 RR	9.54 0.03	15 212	56 835	1.57 2 ø 10.0 2.36 3 ø 10.0 0.5 6 ø 10.0	ø 5.0 c/12	47.58 19.03
PC6 1:20	20.00 X 50.00	1020.00 495.00	495.00 RR 275.00 RR	7.37 2.00	1248 1090	1346 887	1.57 2 ø 10.0 2.36 3 ø 10.0 0.5 6 ø 10.0	ø 5.0 c/12 ø 5.0 c/12 40	85.64 19.03
PC7 1:20	15.00 X 50.00	1020.00 275.00	275.00 RR 275.00 RR	5.80 -0.93	80 135	1940 708	1.57 2 ø 10.0 2.36 3 ø 10.0 0.6 6 ø 10.0	ø 5.0 c/12 ø 5.0 c/12 40	63.43 19.03
PC8 1:20	15.00 X 50.00	1020.00 275.00	275.00 RR 275.00 RR	5.80 -0.93	80 135	1940 708	1.57 2 ø 10.0 2.36 3 ø 10.0 0.6 6 ø 10.0	ø 5.0 c/12 ø 5.0 c/12 40	63.43 19.03

Cálculo dos Pilares

NV 1020 CELULA SUP	fck = 300.00 kgf/cm²	E = 268384 kgf/cm²	Peso Espec = 2500.00 kgf/m³
Lance 5		cobr = 3.00 cm	

Pilar	Seção (cm)	vínc esb B vínc esb H	Nd máx Nd mín (tf)	Msd(x) Msd(y) (kgf.m)	Mrd(x) Mrd(y) (kgf.m)	Mrd/Msd	As b As h (cm²)
PC1	20.00 X 50.00	RR 47.58 RR 19.03	9.54 0.03	381 795	1847 3860	4.85	1.57 (2 ø 10.0) 2.36 (3 ø 10.0)
PC3	20.00 X 50.00	RR 85.64 RR 19.03	7.37 2.00	1371 1049	2009 1537	1.47	1.57 (2 ø 10.0) 2.36 (3 ø 10.0)
PC4	20.00 X 50.00	RR 47.58 RR 19.03	9.54 0.03	381 795	1847 3860	4.85	1.57 (2 ø 10.0) 2.36 (3 ø 10.0)
PC6	20.00 X 50.00	RR 85.64 RR 19.03	7.37 2.00	1371 1049	2009 1537	1.47	1.57 (2 ø 10.0) 2.36 (3 ø 10.0)
PC7	15.00 X 50.00	RR 63.43 RR 19.03	6.96 -1.12	96 2350	200 4912	2.09	1.57 (2 ø 10.0) 2.36 (3 ø 10.0)
PC8	15.00 X 50.00	RR 63.43 RR 19.03	6.96 -1.12	96 2350	200 4912	2.09	1.57 (2 ø 10.0) 2.36 (3 ø 10.0)

Vigas do pavimento NV 1020 CELULA SUP

Viga	Vãos			Nós			Avisos
	Md (kgf.m)	As	Als	Md (kgf.m)	As	Als	
V501	3282.97	2 ø 12.5		-1230.66	2 ø 8.0		
V502	3282.95	2 ø 12.5		-1230.70	2 ø 8.0		
V503	311.27	2 ø 8.0		-593.55 -593.84	2 ø 8.0 2 ø 8.0		

Resultados da Laje

NV 1020 CELULA SUP	fck = 300.00 kgf/cm²	E = 268384 kgf/cm²	Peso Espec = 2500.00 kgf/m³
Lance 5		cobr = 2.50 cm	

Nome	Espessura (cm)	Carga (kgf/m²)	Mdx (kgf.m/m)	Mdy (kgf.m/m)	Asx	Asy
L502	10	536.50	154	34	As = 1.10 cm²/m (ø6.3 c/20 - 1.56 cm²/m)	As = 1.21 cm²/m (ø6.3 c/20 - 1.56 cm²/m)

Cálculos do Reservatório

NV 1020 CELULA SUP	fck = 300.00 kgf/cm²	E = 268384 kgf/cm²	Peso Espec = 2500.00 kgf/m³
Lance 5		cobr = 3.00 cm	

Reservatório RES2

ARMADURAS POSITIVAS (LAJE)											
Trecho	**Direção**	**Momento positivo**			**Momento negativo**			**Armadura inferior**	**Armadura superior**	**Cisalhamento**
		Flexão	**Verificação axial (compressão)**	**Verificação axial (tração)**	**Flexão**	**Verificação axial (compressão)**	**Verificação axial (tração)**			
L401	X	Md = 757 kgf.m/m As = 1.51 cm²/m A's = 0.00 cm²/m	Fd = 0.19 tf Situação: GE As = 0.59 cm²/m A's = 0.00 cm²/m	Fd = 4.83 tf Situação: GE As = 1.33 cm²/m A's = 0.00 cm²/m	Md = 685 kgf.m/m As = 1.38 cm²/m A's = 0.00 cm²/m	Fd = 0.19 tf Situação: GE As = 1.35 cm²/m A's = 0.00 cm²/m	Fd = 4.83 tf Situação: GE As = 2.09 cm²/m A's = 0.00 cm²/m	As = 1.51 cm²/m ø6.3 c/20 (1.56 cm²/m) M = 250.67 kgf.m/m F = 3.18 tf fiss = 0.07 mm		vsd = 3.10 tf/m vrd1 = 7.86 tf/m Modelo I vrd2 = 56.95 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m
	Y	Md = 757 kgf.m/m As = 1.60 cm²/m A's = 0.00 cm²/m		Fd = 3.64 tf Situação: PE As = 0.56 cm²/m A's = 0.28 cm²/m				As = 1.60 cm²/m ø6.3 c/19 (1.64 cm²/m) M = 33.07 kgf.m/m F = 2.41 tf fiss = 0.01 mm		vsd = 2.27 tf/m vrd1 = 7.51 tf/m vrd2 = 53.74 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m
L402	X	Md = 757	Fd = 0.19 tf	Fd = 4.83 tf	Md = 685	Fd = 0.19 tf	Fd = 4.83 tf	As = 1.51 cm²/m		vsd = 3.10 tf/m

		kgf.m/m As = 1.51 cm²/m A's = 0.00 cm²/m	Situação: GE As = 0.59 cm²/m A's = 0.00 cm²/m	Situação: GE As = 1.33 cm²/m A's = 0.00 cm²/m	kgf.m/m As = 1.38 cm²/m A's = 0.00 cm²/m	Situação: GE As = 1.35 cm²/m A's = 0.00 cm²/m	Situação: GE As = 2.09 cm²/m A's = 0.00 cm²/m	ø6.3 c/20 (1.56 cm²/m) M = 250.63 kgf.m/m F = 3.18 tf fiss = 0.07 mm		vrd1 = 7.86 tf/m Modelo I vrd2 = 56.95 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m
	Y	Md = 757 kgf.m/m As = 1.60 cm²/m A's = 0.00 cm²/m		Fd = 3.64 tf Situação: PE As = 0.56 cm²/m A's = 0.28 cm²/m				As = 1.60 cm²/m ø6.3 c/19 (1.64 cm²/m) M = 33.05 kgf.m/m F = 2.41 tf fiss = 0.01 mm		vsd = 2.27 tf/m vrd1 = 7.51 tf/m vrd2 = 53.74 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m
L501	X	Md = 336 kgf.m/m As = 0.98 cm²/m A's = 0.00 cm²/m		Fd = 0.56 tf Situação: GE As = 0.25 cm²/m A's = 0.00 cm²/m				As = 1.01 cm²/m ø5.0 c/19 (1.03 cm²/m) M = 40.15 kgf.m/m F = 0.37 tf fiss = 0.01 mm		vsd = 0.52 tf/m vrd1 = 4.72 tf/m Modelo I vrd2 = 31.82 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m
	Y	Md = 336 kgf.m/m As = 1.28 cm²/m A's = 0.00 cm²/m						As = 1.28 cm²/m ø6.3 c/20 (1.56 cm²/m) M = 19.72 kgf.m/m F = 0.00 tf fiss = 0.00 mm		vsd = 0.43 tf/m vrd1 = 4.48 tf/m vrd2 = 28.94 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m

L503	X	Md = 336 kgf.m/m As = 0.98 cm²/m A's = 0.00 cm²/m		Fd = 0.56 tf Situação : GE As = 0.25 cm²/m A's = 0.00 cm²/m				As = 1.01 cm²/m ø5.0 c/19 (1.03 cm²/m) M = 40.14 kgf.m/m F = 0.37 tf fiss = 0.01 mm		vsd = 0.52 tf/m vrd1 = 4.72 tf/m Modelo I vrd2 = 31.82 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m
	Y	Md = 336 kgf.m/m As = 1.28 cm²/m A's = 0.00 cm²/m						As = 1.28 cm²/m ø6.3 c/20 (1.56 cm²/m) M = 19.72 kgf.m/m F = 0.00 tf fiss = 0.00 mm		vsd = 0.43 tf/m vrd1 = 4.48 tf/m vrd2 = 28.94 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m
PAR6-A	X	Md = 757 kgf.m/m As = 1.51 cm²/m A's = 0.00 cm²/m		Fd = 3.90 tf Situação : PE As = 0.60 cm²/m A's = 0.29 cm²/m	Md = 757 kgf.m/m As = 1.51 cm²/m A's = 0.00 cm²/m		Fd = 3.90 tf Situação : GE As = 0.90 cm²/m A's = 0.00 cm²/m	As = 1.51 cm²/m ø6.3 c/20 (1.56 cm²/m) M = 45.70 kgf.m/m F = 2.53 tf fiss = 0.01 mm	A's = 1.51 cm²/m ø6.3 c/20 (1.56 cm²/m) M = 123.49 kgf.m/m F = 2.53 tf fiss = 0.03 mm	vsd = 1.63 tf/m vrd1 = 7.86 tf/m Modelo I vrd2 = 56.95 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m
	Y	Md = 757 kgf.m/m As = 1.60 cm²/m A's = 0.00 cm²/m		Fd = 2.74 tf Situação : PE As = 0.41 cm²/m A's = 0.22 cm²/m	Md = 757 kgf.m/m As = 1.60 cm²/m A's = 0.00 cm²/m		Fd = 2.74 tf Situação : GE As = 0.77 cm²/m A's = 0.00 cm²/m	As = 1.60 cm²/m ø6.3 c/19 (1.64 cm²/m) M = 20.28 kgf.m/m F = 1.71 tf	A's = 1.60 cm²/m ø6.3 c/19 (1.64 cm²/m) M = 105.57 kgf.m/m F = 1.71 tf	vsd = 1.80 tf/m vrd1 = 7.51 tf/m vrd2 = 53.74 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m

								fiss = 0.00 mm	fiss = 0.01 mm	
PAR6-B	X	Md = 757 kgf.m/m As = 1.51 cm²/m A's = 0.00 cm²/m		Fd = 3.90 tf Situação : PE As = 0.60 cm²/m A's = 0.29 cm²/m	Md = 757 kgf.m/m As = 1.51 cm²/m A's = 0.00 cm²/m		Fd = 3.90 tf Situação : GE As = 0.90 cm²/m A's = 0.00 cm²/m	As = 1.51 cm²/m ø6.3 c/20 (1.56 cm²/m) M = 45.62 kgf.m/m F = 2.53 tf fiss = 0.01 mm	A's = 1.51 cm²/m ø6.3 c/20 (1.56 cm²/m) M = 123.51 kgf.m/m F = 2.53 tf fiss = 0.03 mm	vsd = 1.63 tf/m vrd1 = 7.86 tf/m Modelo I vrd2 = 56.95 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m
	Y	Md = 757 kgf.m/m As = 1.60 cm²/m A's = 0.00 cm²/m		Fd = 2.74 tf Situação : PE As = 0.41 cm²/m A's = 0.22 cm²/m	Md = 757 kgf.m/m As = 1.60 cm²/m A's = 0.00 cm²/m		Fd = 2.74 tf Situação : GE As = 0.77 cm²/m A's = 0.00 cm²/m	As = 1.60 cm²/m ø6.3 c/19 (1.64 cm²/m) M = 20.28 kgf.m/m F = 1.71 tf fiss = 0.00 mm	A's = 1.60 cm²/m ø6.3 c/19 (1.64 cm²/m) M = 105.56 kgf.m/m F = 1.71 tf fiss = 0.01 mm	vsd = 1.80 tf/m vrd1 = 7.51 tf/m vrd2 = 53.74 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m
PAR7	X	Md = 757 kgf.m/m As = 1.51 cm²/m A's = 0.00 cm²/m		Fd = 5.80 tf Situação : PE As = 0.99 cm²/m A's = 0.35 cm²/m	Md = 757 kgf.m/m As = 1.51 cm²/m A's = 0.00 cm²/m		Fd = 5.80 tf Situação : GE As = 1.36 cm²/m A's = 0.00 cm²/m	As = 1.51 cm²/m ø6.3 c/20 (1.56 cm²/m) M = 80.96 kgf.m/m F = 3.63 tf fiss = 0.03 mm	A's = 1.51 cm²/m ø6.3 c/20 (1.56 cm²/m) M = 211.91 kgf.m/m F = 3.63 tf fiss = 0.06 mm	vsd = 1.86 tf/m vrd1 = 7.86 tf/m Modelo I vrd2 = 56.95 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m
	Y	Md = 757 kgf.m/m As = 1.60 cm²/m		Fd = 7.91 tf Situação : PE As = 1.50 cm²/m A's = 0.47 cm²/m	Md = 757 kgf.m/m As = 1.60 cm²/m		Fd = 7.91 tf Situação : PE As = 1.44 cm²/m A's = 0.47 cm²/m	As = 1.60 cm²/m ø6.3 c/19 (1.64 cm²/m) M = 144.42	A's = 1.60 cm²/m ø6.3 c/19 (1.64 cm²/m) M = 125.18	vsd = 2.37 tf/m vrd1 = 7.51 tf/m vrd2 = 53.74 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m

		A's = 0.00 cm²/m			A's = 0.00 cm²/m			kgf.m/m F = 4.82 tf fiss = 0.06 mm	kgf.m/m F = 4.82 tf fiss = 0.05 mm	
PAR8	X	Md = 757 kgf.m/m As = 1.51 cm²/m A's = 0.00 cm²/m		Fd = 3.24 tf Situação: PE As = 0.40 cm²/m A's = 0.35 cm²/m	Md = 757 kgf.m/m As = 1.51 cm²/m A's = 0.00 cm²/m		Fd = 3.24 tf Situação: PE As = 0.40 cm²/m A's = 0.35 cm²/m	As = 1.51 cm²/m ø6.3 c/20 (1.56 cm²/m) M = 0.43 kgf.m/m F = 2.25 tf fiss = 0.01 mm	A's = 1.51 cm²/m ø6.3 c/20 (1.56 cm²/m) M = 1.85 kgf.m/m F = 2.25 tf fiss = 0.01 mm	vsd = 0.01 tf/m vrd1 = 7.86 tf/m Modelo I vrd2 = 56.95 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m
	Y	Md = 757 kgf.m/m As = 1.60 cm²/m A's = 0.00 cm²/m	Fd = 0.83 tf Situação: GE As = 0.06 cm²/m A's = 0.00 cm²/m	Fd = 6.38 tf Situação: PE As = 1.02 cm²/m A's = 0.45 cm²/m	Md = 757 kgf.m/m As = 1.60 cm²/m A's = 0.00 cm²/m	Fd = 0.83 tf Situação: GE As = 0.05 cm²/m A's = 0.00 cm²/m	Fd = 6.38 tf Situação: PE As = 1.01 cm²/m A's = 0.46 cm²/m	As = 1.60 cm²/m ø6.3 c/19 (1.64 cm²/m) M = 68.46 kgf.m/m F = 4.25 tf fiss = 0.03 mm	A's = 1.60 cm²/m ø6.3 c/19 (1.64 cm²/m) M = 65.28 kgf.m/m F = 4.25 tf fiss = 0.03 mm	vsd = 0.02 tf/m vrd1 = 7.51 tf/m vrd2 = 53.74 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m
PAR9	X	Md = 757 kgf.m/m As = 1.51 cm²/m A's = 0.00 cm²/m		Fd = 5.80 tf Situação: PE As = 0.99 cm²/m A's = 0.35 cm²/m	Md = 757 kgf.m/m As = 1.51 cm²/m A's = 0.00 cm²/m		Fd = 5.80 tf Situação: GE As = 1.36 cm²/m A's = 0.00 cm²/m	As = 1.51 cm²/m ø6.3 c/20 (1.56 cm²/m) M = 80.97 kgf.m/m F = 3.63 tf fiss = 0.03 mm	A's = 1.51 cm²/m ø6.3 c/20 (1.56 cm²/m) M = 211.91 kgf.m/m F = 3.63 tf fiss = 0.06 mm	vsd = 1.86 tf/m vrd1 = 7.86 tf/m Modelo I vrd2 = 56.95 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m
	Y	Md = 757 kgf.m/m		Fd = 7.91 tf Situação: PE	Md = 757 kgf.m/m		Fd = 7.91 tf Situação: PE	As = 1.60 cm²/m ø6.3 c/19	A's = 1.60 cm²/m ø6.3 c/19	vsd = 2.37 tf/m vrd1 = 7.51 tf/m vrd2 = 53.74 tf/m

		As = 1.60 cm²/m A's = 0.00 cm²/m		As = 1.50 cm²/m A's = 0.47 cm²/m	As = 1.60 cm²/m A's = 0.00 cm²/m		As = 1.44 cm²/m A's = 0.47 cm²/m	(1.64 cm²/m) M = 144.43 kgf.m/m F = 4.82 tf fiss = 0.06 mm	(1.64 cm²/m) M = 125.17 kgf.m/m F = 4.82 tf fiss = 0.05 mm	vsw = 0.00 tf/m asw = 0.00 cm²/m
PAR10-A	X	Md = 757 kgf.m/m As = 1.51 cm²/m A's = 0.00 cm²/m	Fd = 0.57 tf Situação: GE As = 0.05 cm²/m A's = 0.00 cm²/m	Fd = 3.13 tf Situação: PE As = 0.55 cm²/m A's = 0.17 cm²/m	Md = 757 kgf.m/m As = 1.51 cm²/m A's = 0.00 cm²/m	Fd = 0.57 tf Situação: GE As = 0.20 cm²/m A's = 0.00 cm²/m	Fd = 3.13 tf Situação: GE As = 0.74 cm²/m A's = 0.00 cm²/m	As = 1.51 cm²/m ø6.3 c/20 (1.56 cm²/m) M = 56.60 kgf.m/m F = 1.95 tf fiss = 0.01 mm	A's = 1.51 cm²/m ø6.3 c/20 (1.56 cm²/m) M = 116.95 kgf.m/m F = 1.95 tf fiss = 0.02 mm	vsd = 1.55 tf/m vrd1 = 7.86 tf/m Modelo I vrd2 = 56.95 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m
	Y	Md = 757 kgf.m/m As = 1.60 cm²/m A's = 0.00 cm²/m		Fd = 7.91 tf Situação: PE As = 1.02 cm²/m A's = 0.80 cm²/m	Md = 757 kgf.m/m As = 1.60 cm²/m A's = 0.00 cm²/m		Fd = 7.91 tf Situação: PE As = 1.37 cm²/m A's = 0.47 cm²/m	As = 1.60 cm²/m ø6.3 c/19 (1.64 cm²/m) M = 20.47 kgf.m/m F = 4.82 tf fiss = 0.03 mm	A's = 1.60 cm²/m ø6.3 c/19 (1.64 cm²/m) M = 106.55 kgf.m/m F = 4.82 tf fiss = 0.05 mm	vsd = 1.78 tf/m vrd1 = 7.51 tf/m vrd2 = 53.74 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m
PAR10-B	X	Md = 757 kgf.m/m As = 1.51 cm²/m A's = 0.00 cm²/m	Fd = 0.57 tf Situação: GE As = 0.05 cm²/m A's = 0.00 cm²/m	Fd = 3.13 tf Situação: PE As = 0.55 cm²/m A's = 0.17 cm²/m	Md = 757 kgf.m/m As = 1.51 cm²/m A's = 0.00 cm²/m	Fd = 0.57 tf Situação: GE As = 0.20 cm²/m A's = 0.00 cm²/m	Fd = 3.13 tf Situação: GE As = 0.74 cm²/m A's = 0.00 cm²/m	As = 1.51 cm²/m ø6.3 c/20 (1.56 cm²/m) M = 56.68 kgf.m/m F = 1.95 tf fiss = 0.01 mm	A's = 1.51 cm²/m ø6.3 c/20 (1.56 cm²/m) M = 116.92 kgf.m/m F = 1.95 tf fiss = 0.02 mm	vsd = 1.55 tf/m vrd1 = 7.86 tf/m Modelo I vrd2 = 56.95 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m

	Y	Md = 757 kgf.m /m As = 1.60 cm²/ m A's = 0.00 cm²/ m		Fd = 7.91 tf Situação : PE As = 1.02 cm²/m A's = 0.80 cm²/m	Md = 757 kgf.m /m As = 1.60 cm²/ m A's = 0.00 cm²/ m		Fd = 7.91 tf Situação : PE As = 1.37 cm²/m A's = 0.47 cm²/m	As = 1.60 cm²/m ø6.3 c/19 (1.64 cm²/m) M = 20.48 kgf.m/ m F = 4.82 tf fiss = 0.03 mm	A's = 1.60 cm²/m ø6.3 c/19 (1.64 cm²/m) M = 106.56 kgf.m/ m F = 4.82 tf fiss = 0.05 mm	vsd = 1.77 tf/m vrd1 = 7.51 tf/m vrd2 = 53.74 tf/m vsw = 0.00 tf/m asw = 0.00 cm²/m

ARMADURAS NEGATIVAS (NA CONTINUIDADE)								
Viga **Trecho**	**Laje 1** **Laje 2**	**Momento negativo**			**Momento positivo**			**Armaduras finais**
		Flexão	**Flexo compressão**	**Flexo tração**	**Flexão**	**Flexo compressão**	**Flexo tração**	
Barra	PAR6-B L401	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m	Fd = 5.18 tf Situação: GE As = 0.09 cm²/m A's = 0.00 cm²/m	Fd = 2.65 tf Situação: GE As = 1.25 cm²/m A's = 0.00 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.03 mm
Barra	L401 PAR6-B	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m		Fd = 2.65 tf Situação: GE As = 0.72 cm²/m A's = 0.00 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.01 mm
Barra	L401 PAR8	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m	Fd = 0.54 tf Situação: GE As = 1.25 cm²/m A's = 0.00 cm²/m	Fd = 6.33 tf Situação: GE As = 2.26 cm²/m A's = 0.00 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.09 mm
Barra	PAR8 L402	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m	Fd = 0.54 tf Situação: GE As = 1.25 cm²/m A's = 0.00 cm²/m	Fd = 6.33 tf Situação: GE As = 2.26 cm²/m A's = 0.00 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.09 mm
Barra	L402 L401	Md = 1130 kgf.m/m As = 2.29 cm²/m		Fd = 4.83 tf Situação: PE As = 0.56 cm²/m A's = 0.56 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.00 mm

		A's = 0.00 cm²/m						
Barra	PAR10-A L401	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m	Fd = 3.63 tf Situação: GE As = 0.31 cm²/m A's = 0.00 cm²/m	Fd = 7.91 tf Situação: GE As = 2.02 cm²/m A's = 0.00 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.06 mm
Barra	L401 PAR10-A	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m		Fd = 7.91 tf Situação: PE As = 1.31 cm²/m A's = 0.51 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.02 mm
Barra	PAR7 L401	Md = 1130 kgf.m/m As = 2.31 cm²/m A's = 0.00 cm²/m	Fd = 5.33 tf Situação: GE As = 0.61 cm²/m A's = 0.00 cm²/m	Fd = 7.91 tf Situação: GE As = 2.56 cm²/m A's = 0.00 cm²/m				As = 2.56 cm²/m (ø10.0 c/20 - 3.93 cm²/m) fiss = 0.05 mm
Barra	L401 PAR7	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m		Fd = 7.91 tf Situação: PE As = 1.37 cm²/m A's = 0.47 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.03 mm
Barra	PAR10-B L402	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m	Fd = 3.63 tf Situação: GE As = 0.31 cm²/m A's = 0.00 cm²/m	Fd = 7.91 tf Situação: GE As = 2.02 cm²/m A's = 0.00 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.06 mm
Barra	L402 PAR10-B	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m		Fd = 7.91 tf Situação: PE As = 1.31 cm²/m A's = 0.51 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.02 mm
Barra	PAR6-A L402	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m	Fd = 5.18 tf Situação: GE As = 0.09 cm²/m A's = 0.00 cm²/m	Fd = 2.65 tf Situação: GE As = 1.25 cm²/m A's = 0.00 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.03 mm
Barra	L402 PAR6-A	Md = 1130 kgf.m/m		Fd = 2.65 tf Situação: GE				As = 2.29 cm²/m

		As = 2.29 cm²/m A's = 0.00 cm²/m		As = 0.72 cm²/m A's = 0.00 cm²/m				(ø8.0 c/20 - 2.51 cm²/m) fiss = 0.01 mm
Barra	PAR9 L402	Md = 1130 kgf.m/m As = 2.31 cm²/m A's = 0.00 cm²/m	Fd = 5.33 tf Situação: GE As = 0.61 cm²/m A's = 0.00 cm²/m	Fd = 7.91 tf Situação: GE As = 2.56 cm²/m A's = 0.00 cm²/m				As = 2.56 cm²/m (ø10.0 c/20 - 3.93 cm²/m) fiss = 0.05 mm
Barra	L402 PAR9	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m		Fd = 7.91 tf Situação: PE As = 1.37 cm²/m A's = 0.47 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.03 mm
Barra	L503 PAR6-A	Md = 502 kgf.m/m As = 1.81 cm²/m A's = 0.00 cm²/m		Fd = 3.27 tf Situação: GE As = 0.88 cm²/m A's = 0.00 cm²/m				As = 1.81 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.01 mm
Barra	PAR6-A L503	Md = 502 kgf.m/m As = 1.81 cm²/m A's = 0.00 cm²/m		Fd = 3.27 tf Situação: GE As = 1.15 cm²/m A's = 0.00 cm²/m				As = 1.81 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.02 mm
Barra	PAR9 PAR6-A	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m	Fd = 3.65 tf Situação: GE As = 0.58 cm²/m A's = 0.00 cm²/m	Fd = 3.03 tf Situação: GE As = 1.56 cm²/m A's = 0.00 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.05 mm
Barra	PAR6-A PAR9	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m		Fd = 3.03 tf Situação: PE As = 0.51 cm²/m A's = 0.18 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.00 mm
Barra	PAR8 PAR6-B	Md = 1130 kgf.m/m As = 2.29 cm²/m	Fd = 1.00 tf Situação: GE As = 0.42 cm²/m A's = 0.00 cm²/m	Fd = 3.90 tf Situação: GE As = 1.14 cm²/m A's = 0.00 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.02 mm

		A's = 0.00 cm²/m						
Barra	PAR6-B PAR6-A	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m		Fd = 3.90 tf Situação: PE As = 0.48 cm²/m A's = 0.42 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.00 mm
Barra	PAR6-A PAR8	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m	Fd = 1.00 tf Situação: GE As = 0.42 cm²/m A's = 0.00 cm²/m	Fd = 3.90 tf Situação: GE As = 1.14 cm²/m A's = 0.00 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.02 mm
Barra	L501 PAR6-B	Md = 502 kgf.m/m As = 1.81 cm²/m A's = 0.00 cm²/m		Fd = 3.27 tf Situação: GE As = 0.88 cm²/m A's = 0.00 cm²/m				As = 1.81 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.01 mm
Barra	PAR6-B L501	Md = 502 kgf.m/m As = 1.81 cm²/m A's = 0.00 cm²/m		Fd = 3.27 tf Situação: GE As = 1.15 cm²/m A's = 0.00 cm²/m				As = 1.81 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.02 mm
Barra	PAR7 PAR6-B	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m		Fd = 3.03 tf Situação: PE As = 0.51 cm²/m A's = 0.18 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.00 mm
Barra	PAR6-B PAR7	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m	Fd = 3.65 tf Situação: GE As = 0.58 cm²/m A's = 0.00 cm²/m	Fd = 3.03 tf Situação: GE As = 1.56 cm²/m A's = 0.00 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.05 mm
Barra	L501 PAR7	Md = 502 kgf.m/m As = 1.81 cm²/m A's = 0.00 cm²/m		Fd = 7.91 tf Situação: PE As = 1.41 cm²/m A's = 0.47 cm²/m				As = 1.81 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.02 mm
Barra	PAR7 L501	Md = 502 kgf.m/m		Fd = 7.91 tf Situação: GE				As = 1.95 cm²/m

		As = 1.81 cm²/m A's = 0.00 cm²/m		As = 1.95 cm²/m A's = 0.00 cm²/m				(ø8.0 c/20 - 2.51 cm²/m) fiss = 0.04 mm
Barra	PAR7 PAR10-A	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m	Fd = 5.02 tf Situação: GE As = 0.30 cm²/m A's = 0.00 cm²/m	Fd = 5.80 tf Situação: GE As = 1.89 cm²/m A's = 0.00 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.06 mm
Barra	PAR10-A PAR7	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m		Fd = 5.80 tf Situação: PE As = 0.76 cm²/m A's = 0.57 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.01 mm
Barra	L503 PAR9	Md = 502 kgf.m/m As = 1.81 cm²/m A's = 0.00 cm²/m		Fd = 7.91 tf Situação: PE As = 1.41 cm²/m A's = 0.47 cm²/m				As = 1.81 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.02 mm
Barra	PAR9 L503	Md = 502 kgf.m/m As = 1.81 cm²/m A's = 0.00 cm²/m		Fd = 7.91 tf Situação: GE As = 1.96 cm²/m A's = 0.00 cm²/m				As = 1.96 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.04 mm
Barra	PAR10-B PAR9	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m	Fd = 5.02 tf Situação: GE As = 0.30 cm²/m A's = 0.00 cm²/m	Fd = 5.80 tf Situação: GE As = 1.89 cm²/m A's = 0.00 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.06 mm
Barra	PAR9 PAR10-B	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m		Fd = 5.80 tf Situação: PE As = 0.76 cm²/m A's = 0.57 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.01 mm
Barra	L501 PAR10-A	Md = 502 kgf.m/m As = 1.81 cm²/m A's = 0.00 cm²/m		Fd = 7.91 tf Situação: PE As = 1.41 cm²/m A's = 0.47 cm²/m				As = 1.81 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.02 mm

Barra	PAR10-A L501	Md = 502 kgf.m/m As = 1.81 cm²/m A's = 0.00 cm²/m		Fd = 7.91 tf Situação: GE As = 1.87 cm²/m A's = 0.00 cm²/m				As = 1.87 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.04 mm
Barra	PAR10-A PAR8	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m	Fd = 1.21 tf Situação: GE As = 0.42 cm²/m A's = 0.00 cm²/m	Fd = 3.13 tf Situação: GE As = 1.06 cm²/m A's = 0.00 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.02 mm
Barra	PAR8 PAR10-B	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m	Fd = 1.21 tf Situação: GE As = 0.42 cm²/m A's = 0.00 cm²/m	Fd = 3.13 tf Situação: GE As = 1.06 cm²/m A's = 0.00 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.02 mm
Barra	PAR10-B PAR10-A	Md = 1130 kgf.m/m As = 2.29 cm²/m A's = 0.00 cm²/m		Fd = 3.13 tf Situação: PE As = 0.39 cm²/m A's = 0.33 cm²/m				As = 2.29 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.00 mm
Barra	L503 PAR10-B	Md = 502 kgf.m/m As = 1.81 cm²/m A's = 0.00 cm²/m		Fd = 7.91 tf Situação: PE As = 1.41 cm²/m A's = 0.47 cm²/m				As = 1.81 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.02 mm
Barra	PAR10-B L503	Md = 502 kgf.m/m As = 1.81 cm²/m A's = 0.00 cm²/m		Fd = 7.91 tf Situação: GE As = 1.87 cm²/m A's = 0.00 cm²/m				As = 1.87 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.04 mm
Barra	L501 L503	Md = 502 kgf.m/m As = 1.81 cm²/m A's = 0.00 cm²/m		Fd = 0.02 tf Situação: GE As = 0.42 cm²/m A's = 0.00 cm²/m				As = 1.81 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.00 mm
Barra	L503 PAR8	Md = 502 kgf.m/m		Fd = 1.53 tf Situação: GE				As = 1.81 cm²/m (ø8.0 c/20 - 2.51 cm²/m)

		As = 1.81 cm²/m A's = 0.00 cm²/m		As = 0.58 cm²/m A's = 0.00 cm²/m				fiss = 0.00 mm
Barra	PAR8 L501	Md = 502 kgf.m/m As = 1.81 cm²/m A's = 0.00 cm²/m		Fd = 1.53 tf Situação: PE As = 0.21 cm²/m A's = 0.14 cm²/m				As = 1.81 cm²/m (ø8.0 c/20 - 2.51 cm²/m) fiss = 0.00 mm