Piso 1 (0.00 a +2.80)

P2=P9

Aço	Pos.	Diam.	Q.	Comp. (cm)	Total (cm)	x 2 (cm)
CA-50-A	1	ø10	4	325	1300	2600
"	2	ø10	4	114	456	912
CA-60-B	3	ø5	25	72	1800	3600

4N1ø10 C=325 — 4N2ø10 C=114 (44) — N3c/12, 25 ø5 — 0.00 / +2.80

P3

Aço	Pos.	Diam.	Q.	Comp. (cm)	Total (cm)
CA-50-A	7	ø10	6	325	1950
"	8	ø10	6	109	654
CA-60-B	9	ø5	25	102	2550
"	10	ø5	25	29	725

6N7ø10 C=325 — 6N8ø10 C=109 (44) — N9+N10c/12, 25 ø5 — 0.00 / +2.80

P4

Aço	Pos.	Diam.	Q.	Comp. (cm)	Total (cm)
CA-50-A	4	ø10	4	278	1112
"	5	ø10	4	99	396
CA-60-B	6	ø5	25	72	1800

4N4ø10 C=278 — 4N5ø10 C=99 (44) — N6c/12, 25 ø5 — 0.00 / +2.80

P6

Aço	Pos.	Diam.	Q.	Comp. (cm)	Total (cm)
CA-50-A	11	ø12.5	6	335	2010
"	12	ø12.5	6	124	744
CA-60-B	13	ø5	20	103	2060
"	14	ø5	20	30	600

6N11ø12.5 C=335 — 6N12ø12.5 C=124 (55) — N13+N14c/15, 20 ø5 — 0.00 / +2.80

P7

Aço	Pos.	Diam.	Q.	Comp. (cm)	Total (cm)
CA-50-A	15	ø10	4	278	1112
"	16	ø10	4	104	416
CA-60-B	17	ø5	25	102	2550

4N15ø10 C=278 — 4N16ø10 C=104 (44) — N17c/12, 25 ø5 — 0.00 / +2.80

P10

Aço	Pos.	Diam.	Q.	Comp. (cm)	Total (cm)
CA-50-A	18	ø16	4	350	1400
"	19	ø16	4	129	516
"	20	ø6.3	15	103	1545

4N18ø16 C=350 — 4N19ø16 C=129 (70) — N20c/20, 15 ø6.3 — 0.00 / +2.80

P11

Aço	Pos.	Diam.	Q.	Comp. (cm)	Total (cm)
CA-50-A	21	ø10	4	325	1300
"	22	ø10	4	99	396
CA-60-B	23	ø5	25	72	1800

4N21ø10 C=325 — 4N22ø10 C=99 (44) — N23c/12, 25 ø5 — 0.00 / +2.80

Resumo Aço Piso 1 Pilares		Comp. total (m)	Peso+10% (kg)	Total
CA-50-A	ø6.3	15.5	4	
	ø10	108.5	75	
	ø12.5	27.5	30	
	ø16	19.2	33	142
CA-60-B	ø5	156.7	27	27
Total				169

Piso 2 (+2.80 a +5.60)

P1=P5=P8

Aço	Pos.	Diam.	Q.	Comp. (cm)	Total (cm)	x 3 (cm)
CA-50-A	8	ø10	4	278	1112	3336
"	9	ø10	4	111	444	1332
CA-60-B	10	ø5	25	52	1300	3900

4N8ø10 C=278 — 4N9ø10 C=111 (44) — N10c/12, 25 ø5 — +2.80 / +5.60

P2=P9=P11

Aço	Pos.	Diam.	Q.	Comp. (cm)	Total (cm)	x 3 (cm)
CA-50-A	1	ø10	4	278	1112	3336
CA-60-B	2	ø5	25	72	1800	5400

4N1ø10 C=278 — N2c/12, 25 ø5 — +2.80 / +5.60

P3

Aço	Pos.	Diam.	Q.	Comp. (cm)	Total (cm)
CA-50-A	11	ø10	6	285	1710
CA-60-B	12	ø5	25	102	2550
"	13	ø5	25	29	725

6N11ø10 C=285 — N12+N13c/12, 25 ø5 — +2.80 / +5.60

P6

Aço	Pos.	Diam.	Q.	Comp. (cm)	Total (cm)
CA-50-A	3	ø12.5	6	295	1770
CA-60-B	4	ø5	20	103	2060
"	5	ø5	20	30	600

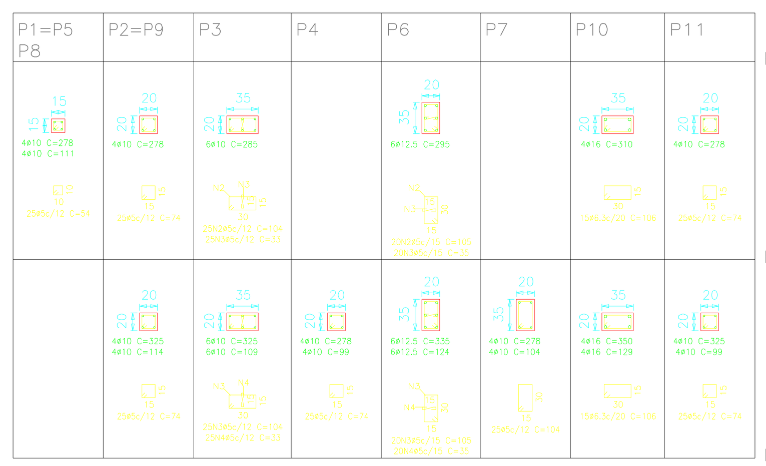
6N3ø12.5 C=295 — N4+N5c/15, 20 ø5 — +2.80 / +5.60

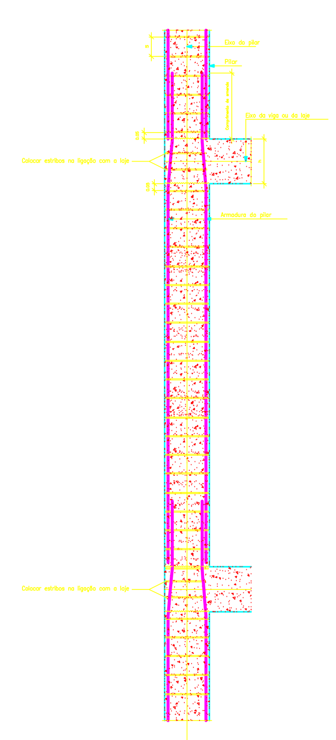
P10

Aço	Pos.	Diam.	Q.	Comp. (cm)	Total (cm)
CA-50-A	6	ø16	4	310	1240
"	7	ø6.3	15	103	1545

4N6ø16 C=310 — N7c/20, 15 ø6.3 — +2.80 / +5.60

Resumo Aço Piso 2 Pilares		Comp. total (m)	Peso+10% (kg)	Total
CA-50-A	ø6.3	15.5	4	
	ø10	97.1	67	
	ø12.5	17.7	19	
	ø16	12.4	21	111
CA-60-B	ø5	152.2	26	26
Total				137





Resumo Aço Pisos 1 e 2 Pilares		Comp. total (m)	Peso+10% (kg)	Total
CA-50-A	ø6.3	31.8	9	
	ø10	205.6	142	
	ø12.5	45.2	49	
	ø16	31.6	55	255
CA-60-B	ø5	320.5	55	55
Total				310

Elemento	Pos.	Diam.	Q.	Dob. (cm)	Reta (cm)	Dob. (cm)	Comp. (cm)	Total (cm)	CA-50-A (kg)	CA-60-B (kg)
P2=P9=P11	1	ø10	4		278		278	1112	7.0	
	2	ø5	25		72		72	1800		2.8
								Total+10%:	7.7	3.1
								(x3):	23.1	9.3
P6	3	ø12.5	6	18	277		295	1770	17.4	
	4	ø5	20		102		102	2040		3.2
	5	ø5	20		30		30	600		0.9
								Total+10%:	19.1	4.5
P10	6	ø16	4	33	277		310	1240	19.5	
	7	ø6.3	15		103		103	1545	3.8	
								Total+10%:	25.6	
P1=P5=P8	8	ø10	4		278		278	1112	7.0	
	9	ø10	4	30	81		111	444	2.8	
	10	ø5	25		52		52	1300		2.0
								Total+10%:	10.8	2.2
								(x3):	32.4	6.6
P3	11	ø10	6	8	277		285	1710	10.7	
	12	ø5	25		102		102	2550		4.0
	13	ø5	25		29		29	725		1.1
								Total+10%:	11.8	5.6
								ø5:	0.0	26.0
								ø10:	67.3	0.0
								Total:	112.0	26.0

Elemento	Pos.	Diam.	Q.	Dob. (cm)	Reta (cm)	Dob. (cm)	Comp. (cm)	Total (cm)	CA-50-A (kg)	CA-60-B (kg)
P2=P9	1	ø10	4		325		325	1300	8.2	
	2	ø10	4	30	84		114	456	2.9	
	3	ø5	25		72		72	1800		2.8
								Total+10%:	12.2	3.1
								(x2):	24.4	6.2
P4	4	ø10	4		278		278	1112	7.0	
	5	ø10	4	31	68		99	396	2.5	
	6	ø5	25		72		72	1800		2.8
								Total+10%:	10.5	3.1
P3	7	ø10	6		325		325	1950	12.2	
	8	ø10	6	31	78		109	654	4.1	
	9	ø5	25		102		102	2550		4.0
	10	ø5	25		29		29	725		1.1
								Total+10%:	17.9	5.6
P6	11	ø12.5	6		335		335	2010	19.7	
	12	ø12.5	6	30	94		124	744	7.3	
	13	ø5	20		102		102	2040		3.2
	14	ø5	20		30		30	600		0.9
								Total+10%:	29.7	4.5
P7	15	ø10	4		278		278	1112	7.0	
	16	ø10	4	31	73		104	416	2.6	
	17	ø5	25		102		102	2550		4.0
								Total+10%:	10.6	4.4
P10	18	ø16	4		350		350	1400	22.0	
	19	ø16	4	30	99		129	516	8.1	
	20	ø6.3	15		103		103	1545	3.8	
								Total+10%:	37.3	
P11	21	ø10	4		325		325	1300	8.2	
	22	ø10	4	31	68		99	396	2.5	
	23	ø5	25		72		72	1800		2.8
								Total+10%:	11.8	3.1
								ø5:	0.0	26.9
								ø6.3:	4.2	0.0
								ø10:	75.2	0.0
								ø12.5:	29.7	0.0
								ø16:	33.1	0.0
								Total:	142.2	26.9

PROJETO ESTRUTURAL
escala:1/50

CLP ENGENHARIA E PROJETOS LTDA
ENGENHARIA E PROJETOS LTDA
CNPJ: 166.504/0001-28
RUA ESPIRITO SANTO, 70 - CHARQUEADAS-RS
RESP. TEC.
ENGENHEIRO JOÃO BATISTA DURGANTE COLPO - CREA 42.629-RS
clpengenharia@gmail.com

MODIFICAÇÃO DE PROJETO:
PROJETO DE AMPLIAÇÃO - EMEF BARÃO DE RIO BRANCO

ENDEREÇO:
AVENIDA DOS BANDEIRANTES, Nº 78 - VILA BRÁS

PREFEITO MUNICIPAL: FABIO DE OLIVEIRA BRANCO

RESP. TÉCNICO: ENGENHEIRO JOÃO BATISTA DURGANTE COLPO-CREA 42.629-RS

DATA: 20/12/2011
ESCALA: 1/50
DESENHO: JOÃO

PROJETO ESTRUTURAL

PLANTA DE PILARES

PRANCHA: 03/05