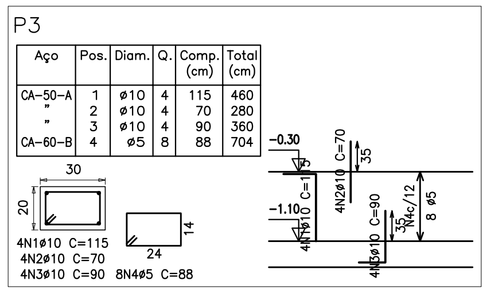
Pilares que terminam em
Nível -> -0.30 m (310,700)
Concreto: C25, usina.rigor
Aço: CA-50-A e CA-60-B
Escala horizontal: 1:20
Escala vertical: 1:50

P3

Aço	Pos.	Diam.	Q.	Comp. (cm)	Total (cm)
CA-50-A	1	ø10	4	115	460
"	2	ø10	4	70	280
"	3	ø10	4	90	360
CA-60-B	4	ø5	8	88	704

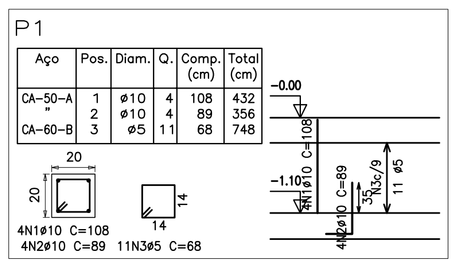


Elemento	Pos.	Diam.	Q.	Dob. (cm)	Reta (cm)	Dob. (cm)	Comp. (cm)	Total (cm)	CA-50-A (kg)	CA-60-B (kg)
P3	1	ø10	4	38	77		115	460	2.9	
	2	ø10	4		70		70	280	1.8	
	3	ø10	4	31	59		90	360	2.3	
	4	ø5	8		88		88	704		1.1
							Total+10%:		7.7	1.2
								ø5:	0.0	1.2
								ø10:	7.7	0.0
								Total:	7.7	1.2

Pilares que terminam em
Nível Terreno -> 0,00 m (311,000)
Concreto: C25, usina.rigor
Aço: CA-50-A e CA-60-B
Escala horizontal: 1:20
Escala vertical: 1:50

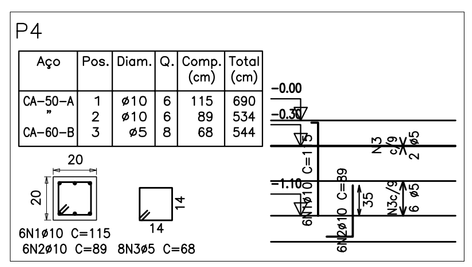
P1

Aço	Pos.	Diam.	Q.	Comp. (cm)	Total (cm)
CA-50-A	1	ø10	4	108	432
"	2	ø10	4	89	356
CA-60-B	3	ø5	11	68	748



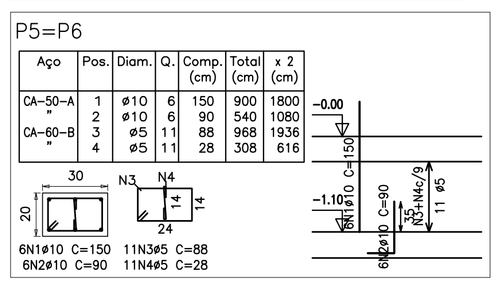
P4

Aço	Pos.	Diam.	Q.	Comp. (cm)	Total (cm)
CA-50-A	1	ø10	6	115	690
"	2	ø10	6	89	534
CA-60-B	3	ø5	8	68	544



P5=P6

Aço	Pos.	Diam.	Q.	Comp. (cm)	Total (cm)	x 2 (cm)
CA-50-A	1	ø10	6	150	900	1800
"	2	ø10	6	90	540	1080
CA-60-B	3	ø5	11	88	968	1936
"	4	ø5	11	28	308	616

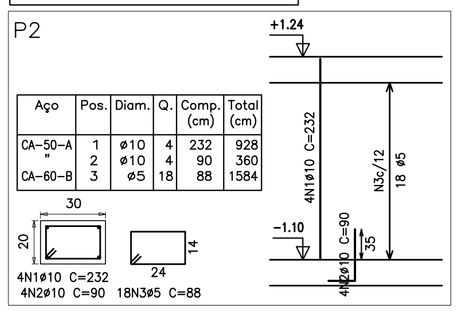


Elemento	Pos.	Diam.	Q.	Dob. (cm)	Reta (cm)	Dob. (cm)	Comp. (cm)	Total (cm)	CA-50-A (kg)	CA-60-B (kg)
P1	1	ø10	4		108		108	432	2.7	
	2	ø10	4	30	59		89	356	2.2	
	3	ø5	11		68		68	748		1.2
								Total+10%:	5.4	1.3
P4	1	ø10	6	7	108		115	690	4.3	
	2	ø10	6	30	59		89	534	3.4	
	3	ø5	8		68		68	544		0.9
								Total+10%:	8.5	1.0
P5=P6	1	ø10	6		150		150	900	5.7	
	2	ø10	6	31	59		90	540	3.4	
	3	ø5	11		88		88	968		1.5
	4	ø5	11		28		28	308		0.5
								Total+10%:	10.0	2.2
								(x2):	20.0	4.4
								ø5:	0.0	6.7
								ø10:	33.9	0.0
								Total:	33.9	6.7

Pilares que terminam em
Nível -> 1.99 m (312,990)
Concreto: C25, usina.rigor
Aço: CA-50-A e CA-60-B
Escala horizontal: 1:20
Escala vertical: 1:50

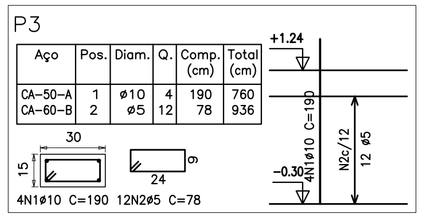
P2

Aço	Pos.	Diam.	Q.	Comp. (cm)	Total (cm)
CA-50-A	1	ø10	4	232	928
"	2	ø10	4	90	360
CA-60-B	3	ø5	18	88	1584



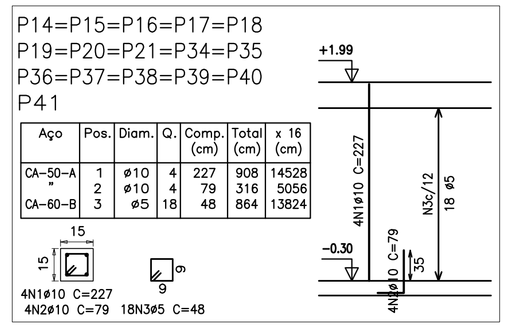
P3

Aço	Pos.	Diam.	Q.	Comp. (cm)	Total (cm)
CA-50-A	1	ø10	4	190	760
CA-60-B	2	ø5	12	78	936



P14=P15=P16=P17=P18
P19=P20=P21=P34=P35
P36=P37=P38=P39=P40
P41

Aço	Pos.	Diam.	Q.	Comp. (cm)	Total (cm)	x 16 (cm)
CA-50-A	1	ø10	4	227	908	14528
"	2	ø10	4	79	316	5056
CA-60-B	3	ø5	18	48	864	13824

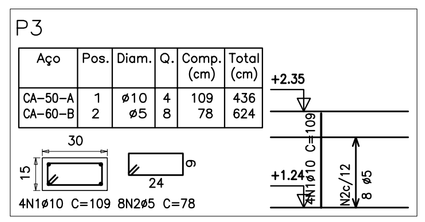


Elemento	Pos.	Diam.	Q.	Dob. (cm)	Reta (cm)	Dob. (cm)	Comp. (cm)	Total (cm)	CA-50-A (kg)	CA-60-B (kg)
P2	1	ø10	4		232		232	928	5.8	
	2	ø10	4	31	59		90	360	2.3	
	3	ø5	18		88		88	1584		2.5
								Total+10%:	8.9	2.8
P3	1	ø10	4		190		190	760	4.8	
	2	ø5	12		78		78	936		1.5
								Total+10%:	5.3	1.7
P14=P15=P16=P17	1	ø10	4		227		227	908	5.7	
P18=P19=P20=P21	2	ø10	4	30	49		79	316	2.0	
P34=P35=P36=P37	3	ø5	18		48		48	864		1.4
P38=P39=P40=P41								Total+10%: (x16):	8.5 136.0	1.5 24.0
								ø5:	0.0	28.5
								ø10:	150.2	0.0
								Total:	150.2	28.5

Pilares que terminam em
Nível -> 4,10 m (315,100)
Concreto: C25, usina.rigor
Aço: CA-50-A e CA-60-B
Escala horizontal: 1:20
Escala vertical: 1:50

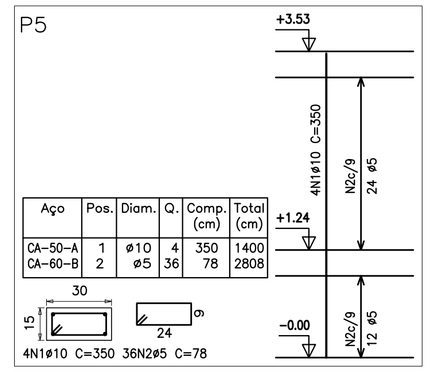
P3

Aço	Pos.	Diam.	Q.	Comp. (cm)	Total (cm)
CA-50-A	1	ø10	4	109	436
CA-60-B	2	ø5	8	78	624



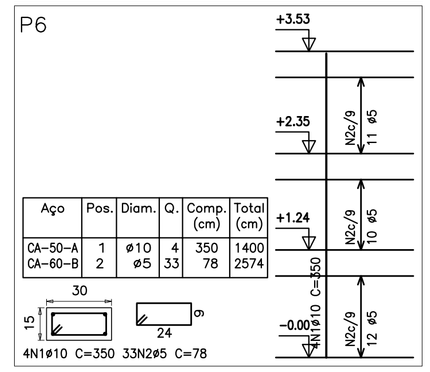
P5

Aço	Pos.	Diam.	Q.	Comp. (cm)	Total (cm)
CA-50-A	1	ø10	4	350	1400
CA-60-B	2	ø5	36	78	2808



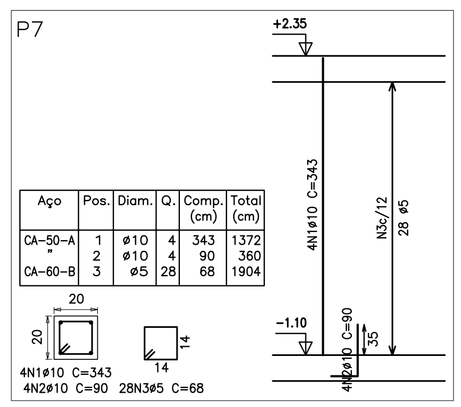
P6

Aço	Pos.	Diam.	Q.	Comp. (cm)	Total (cm)
CA-50-A	1	ø10	4	350	1400
CA-60-B	2	ø5	33	78	2574



P7

Aço	Pos.	Diam.	Q.	Comp. (cm)	Total (cm)
CA-50-A	1	ø10	4	343	1372
"	2	ø10	4	90	360
CA-60-B	3	ø5	28	68	1904

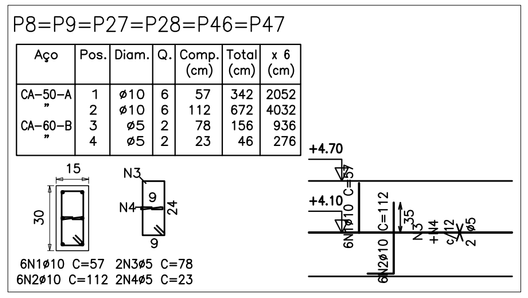


Elemento	Pos.	Diam.	Q.	Dob. (cm)	Reta (cm)	Dob. (cm)	Comp. (cm)	Total (cm)	CA-50-A (kg)	CA-60-B (kg)
P3	1	ø10	4		109		109	436	2.7	
	2	ø5	8		78		78	624		1.0
								Total+10%:	3.0	1.1
P5	1	ø10	4		350		350	1400	8.8	
	2	ø5	36		78		78	2808		4.4
								Total+10%:	9.7	4.8
P6	1	ø10	4		350		350	1400	8.8	
	2	ø5	33		78		78	2574		4.0
								Total+10%:	9.7	4.4
P7	1	ø10	4		343		343	1372	8.6	
	2	ø10	4	31	59		90	360	2.3	
	3	ø5	28		68		68	1904		3.0
								Total+10%:	12.0	3.3
								ø5:	0.0	13.6
								ø10:	34.4	0.0
								Total:	34.4	13.6

Pilares que terminam em
Nível -> 4.70 m (315,700)
Concreto: C25, usina.rigor
Aço: CA-50-A e CA-60-B
Escala horizontal: 1:20
Escala vertical: 1:50

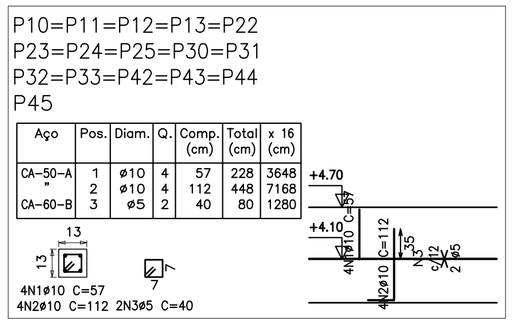
P8=P9=P27=P28=P46=P47

Aço	Pos.	Diam.	Q.	Comp. (cm)	Total (cm)	x 6 (cm)
CA-50-A	1	ø10	6	57	342	2052
"	2	ø10	6	112	672	4032
CA-60-B	3	ø5	2	78	156	936
"	4	ø5	2	23	46	276



P10=P11=P12=P13=P22
P23=P24=P25=P30=P31
P32=P33=P42=P43=P44
P45

Aço	Pos.	Diam.	Q.	Comp. (cm)	Total (cm)	x 16 (cm)
CA-50-A	1	ø10	4	57	228	3648
"	2	ø10	4	112	448	7168
CA-60-B	3	ø5	2	40	80	1280

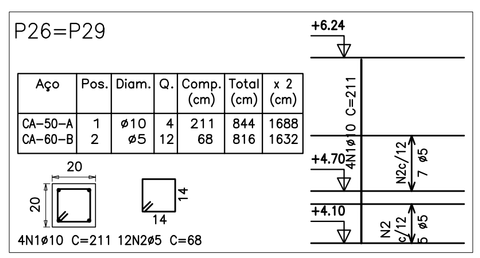


Elemento	Pos.	Diam.	Q.	Dob. (cm)	Reta (cm)	Dob. (cm)	Comp. (cm)	Total (cm)	CA-50-A (kg)	CA-60-B (kg)
P8=P9=P27=P28	1	ø10	6		57		57	342	2.1	
P46=P47	2	ø10	6	30	82		112	672	4.2	
	3	ø5	2		78		78	156		0.2
	4	ø5	2		23		23	46		0.1
								Total+10%:	6.9	0.3
								(x6):	41.4	1.8
P10=P11=P12=P13	1	ø10	4		57		57	228	1.4	
P22=P23=P24=P25	2	ø10	4	30	82		112	448	2.8	
P30=P31=P32=P33	3	ø5	2		40		40	80		0.1
P42=P43=P44=P45								Total+10%:	4.6	0.1
								(x16):	73.6	1.6
								ø5:	0.0	3.4
								ø10:	115.0	0.0
								Total:	115.0	3.4

Pilares que terminam em
Nível -> 5.45 m
Concreto: C25, usina.rigor
Aço: CA-50-A e CA-60-B
Escala horizontal: 1:20
Escala vertical: 1:50

P26=P29

Aço	Pos.	Diam.	Q.	Comp. (cm)	Total (cm)	x 2 (cm)
CA-50-A	1	ø10	4	211	844	1688
CA-60-B	2	ø5	12	68	816	1632



Elemento	Pos.	Diam.	Q.	Dob. (cm)	Reta (cm)	Dob. (cm)	Comp. (cm)	Total (cm)	CA-50-A (kg)	CA-60-B (kg)
P26=P29	1	ø10	4		211		211	844	5.3	
	2	ø5	12		68		68	816		1.3
								Total+10%:	5.8	1.4
								(x2):	11.6	2.8
								ø5:	0.0	2.8
								ø10:	11.6	0.0
								Total:	11.6	2.8

LEGENDA:

NOTAS

ARTICULAÇÃO:

REVISÕES

Nº	NATUREZA DA REVISÃO	DATA	APROVO
00			
01			
02			
03			
04			
05			

CODEVASF

ELABORADO POR:
KL ENGENHARIA

MINISTÉRIO DA INTEGRAÇÃO NACIONAL - MI
COMPANHIA DE DESENVOLVIMENTO DOS VALES DO SÃO FRANCISCO E DO PARNAÍBA - CODEVASF

OBRA:
PROJETO BÁSICO DO SISTEMA DE ESGOTAMENTO SANITÁRIO DE OUROLANDIA - BA

ASSUNTO:
PROJETO ESTRUTURAL - DAFA
PILARES - FORMAS

ENG. JOSÉ MENESCAL NETO	CREA 2066/D - CE	DATA: MARÇO/2009
ENG.	CREA	ESCALA: INDICADA
ENG.	CREA	ARQUIVO: 05-OUR-PB-EST-DAFA-R0