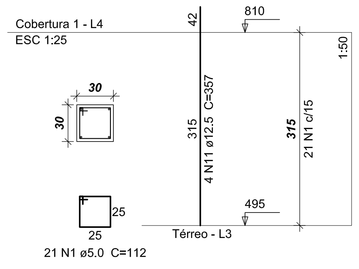
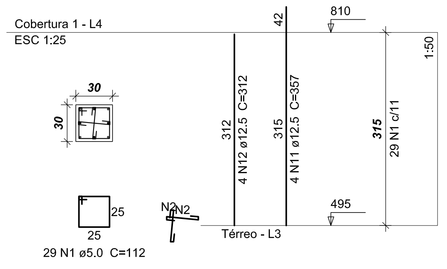
P117=P141



21 N1 ø5.0 C=112

P166

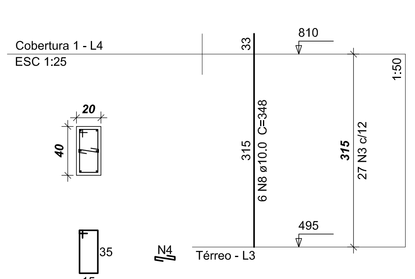


29 N1 ø5.0 C=112

29 N2 ø5.0 C=40

29 N2 ø5.0 C=40

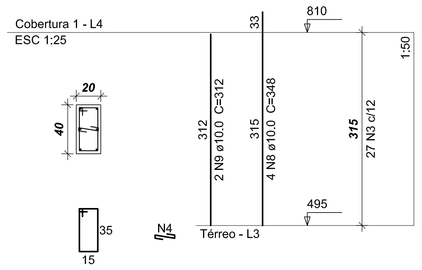
P4=PA6=PA10=PA12 =PA15=PA22=PA25=PA33 =PA37=PA40



27 N3 ø5.0 C=112

27 N4 ø5.0 C=30

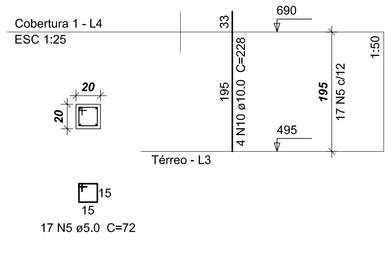
P44=PA1=PA18=PA29



27 N3 ø5.0 C=112

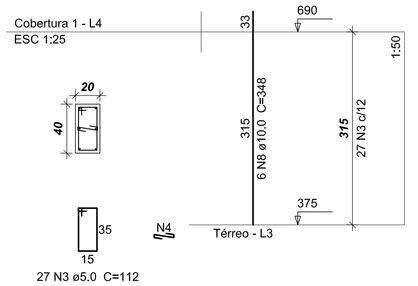
27 N4 ø5.0 C=30

P68=P69



17 N5 ø5.0 C=72

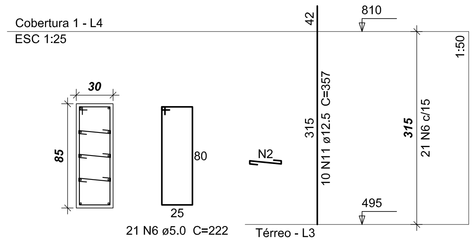
PA67



27 N3 ø5.0 C=112

27 N4 ø5.0 C=30

P71=P72=P73=P75=P78=P79=P82=P85=P88=P89 =P91=P93=P95=P97=P183=P184=P186=P187 =P189=P190=P191=P193=P194=P196=P197=P198 =P201=P203=P206



21 N6 ø5.0 C=222

63 N2 ø5.0 C=40

Relação do aço Pilares no Pav. Térreo

AÇO	N	DIAM	Q	UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	71	112	7952
	2	5.0	1972	40	78880
	3	5.0	405	112	45360
	4	5.0	405	30	12150
	5	5.0	34	72	2448
	6	5.0	672	222	149184
	7	5.0	34	40	1360
CA50	8	10.0	82	348	28536
	9	10.0	8	312	2496
	10	10.0	8	228	1824
	11	12.5	312	357	111384
	12	12.5	4	312	1248
	13	16.0	12	368	4416

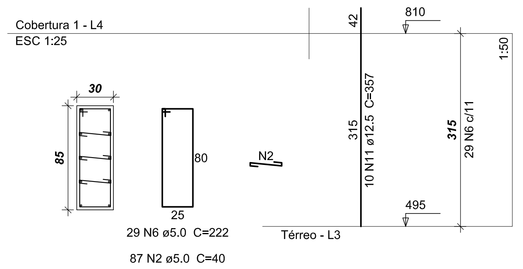
Resumo do aço

AÇO	DIAM	C.TOTAL (m)	PESO (kg)
CA50	10.0	328.6	202.6
	12.5	1126.4	1085
	16.0	44.2	69.7
CA60	5.0	2973.4	458.3
PESO TOTAL			
CA50	1357.3		
CA60	458.3		

Vol. de concreto total (C-30) = 30.49 m³

Área de forma total = 303 m²

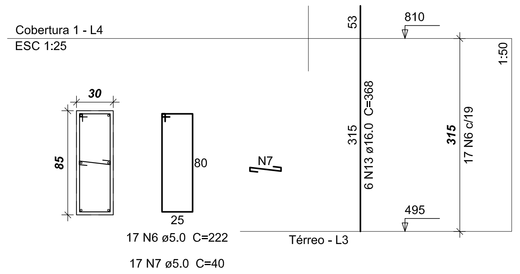
P90



29 N6 ø5.0 C=222

87 N2 ø5.0 C=40

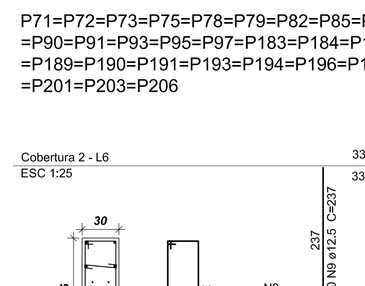
P99=P209



17 N6 ø5.0 C=222

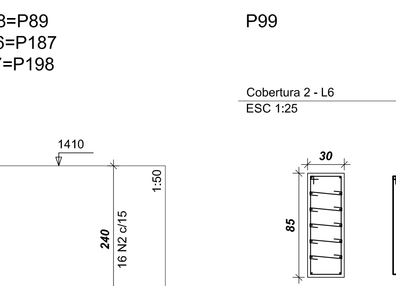
17 N7 ø5.0 C=40

P117=P141=P166



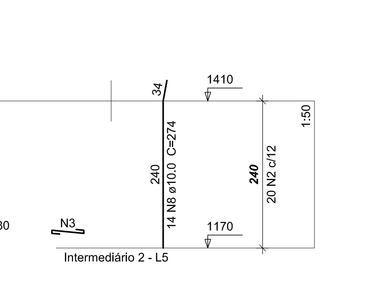
24 N1 ø5.0 C=112

P210



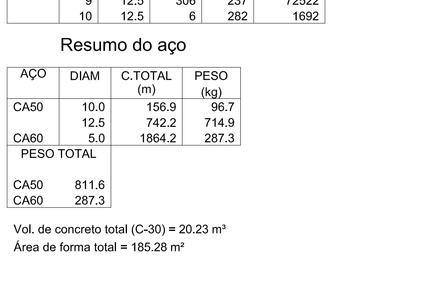
15 N2 ø5.0 C=52

P4=P44=PA1=PA6=PA10 =PA12=PA15=PA22=PA25 =PA33=PA37=PA40



15 N3 ø5.0 C=72

P68=P69



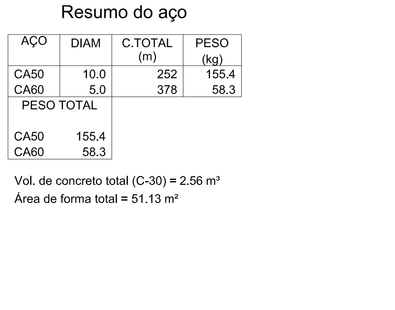
25 N3 ø5.0 C=72

P99=P209

19 N4 ø5.0 C=222

19 N6 ø5.0 C=40

PA18=PA29



20 N3 ø5.0 C=72

PA67

25 N7 ø5.0 C=82

Relação do aço Pilares na Cobertura 1

AÇO	N	DIAM	Q	UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	72	112	8064
	2	5.0	15	52	780
	3	5.0	270	72	19440
	4	5.0	767	222	170274
	5	5.0	2187	40	87480
	6	5.0	38	40	1520
	7	5.0	25	82	2050
CA50	8	10.0	52	177	9204
	9	10.0	12	297	3564
	10	10.0	8	237	1896
	11	12.5	312	402	125424
	12	12.5	160	377	60320
	13	16.0	12	413	4956

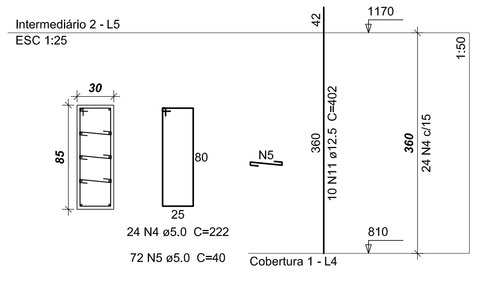
Resumo do aço

AÇO	DIAM	C.TOTAL (m)	PESO (kg)
CA50	10.0	146.7	90.4
	12.5	1857.5	1789.3
	16.0	49.6	78.2
CA60	5.0	2896.1	446.4
PESO TOTAL			
CA50	1958		
CA60	446.4		

Vol. de concreto total (C-30) = 31.83 m³

Área de forma total = 307.62 m²

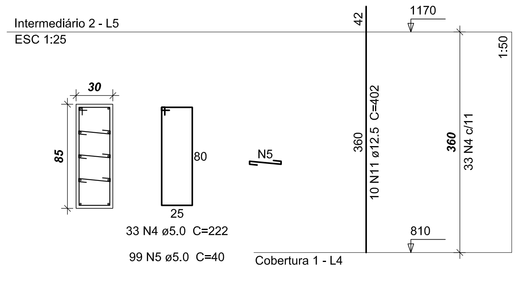
P71=P72=P73=P75=P78=P79=P82=P85=P88=P89 =P91=P93=P95=P97=P183=P184=P186=P187 =P189=P190=P191=P193=P194=P196=P197=P198 =P201=P203=P206



24 N4 ø5.0 C=222

72 N5 ø5.0 C=40

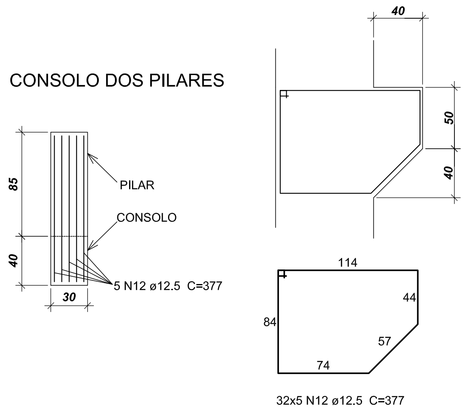
P90



33 N4 ø5.0 C=222

99 N5 ø5.0 C=40

CONSOLO DOS PILARES



32x5 N12 ø12,5 C=377

P117=P141=P166

16 N1 ø5.0 C=112

P209

20 N2 ø5.0 C=222

100 N3 ø5.0 C=40

Relação do aço Pilares no Intermediário 2

AÇO	N	DIAM	Q	UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	48	112	5376
	2	5.0	520	222	115440
	3	5.0	1640	40	65600
CA50	4	10.0	8	67	536
	5	10.0	12	237	2844
	6	10.0	2	273	546
	7	10.0	120	66	7920
	8	10.0	14	274	3836
	9	12.5	306	237	72522
	10	12.5	6	282	1692

Resumo do aço

AÇO	DIAM	C.TOTAL (m)	PESO (kg)
CA50	10.0	156.9	96.7
	12.5	742.2	714.9
CA60	5.0	1864.2	287.3
PESO TOTAL			
CA50	811.6		
CA60	287.3		

Vol. de concreto total (C-30) = 20.23 m³

Área de forma total = 185.28 m²

P71=P72=P73=P75=P78=P79=P82=P85=P88=P89 =P90=P91=P93=P95=P97=P183=P184=P186=P187 =P189=P190=P191=P193=P194=P196=P197=P198 =P201=P203=P206

16 N2 ø5.0 C=222

48 N3 ø5.0 C=40

P99

20 N2 ø5.0 C=222

100 N3 ø5.0 C=40

P117=P141=P166=P209 P183=P197=P198 P184=P186=P187=P189 =P190=P191=P193=P194 =P196=P201=P203=P206 P71= P90=P91=P99

15 N1 ø5.0 C=72

Relação do aço Pilares na Cobertura

AÇO	N	DIAM	Q	UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	525	72	37800
CA50	2	10.0	140	180	25200

Resumo do aço

AÇO	DIAM	C.TOTAL (m)	PESO (kg)
CA50	10.0	252	155.4
CA60	5.0	378	58.3
PESO TOTAL			
CA50	155.4		
CA60	58.3		

Vol. de concreto total (C-30) = 2.56 m³

Área de forma total = 51.13 m²

AS BUILT PROJETOS
Rua Jovino do Rosário, 1564 – Boa Vista
CEP 82560-435 – Curitiba – Paraná

OBRA: GALPÃO DE ENGENHARIA – TEÓFILO OTONI

PROPRIETÁRIO: UNIVERSIDADE DOS VALES DO JEQUITINHONHA E MUCURI – UFVJM

ENDEREÇO: AVENIDA DR. LUIS BOALI PORTO SALMAN, S/Nº – BAIRRO IPIRANGA – TEÓFILO OTONI/MG

PROJETO ESTRUTURAL

REFERÊNCIA: FERRAGEM DOS PILARES: NO PAVIMENTO TÉRREO; NA COBERTURA 1; NO INTERMEDIÁRIO 2; NA COBERTURA 2

PRANCHA: EST 25 /26

ARQUIVO:

DESENHO: CARLOS

DATA: 27/09/2012

ESCALA: INDICADA

AUTOR DO PROJETO: ENG. CIVIL CARLOS HENRIQUE DE S. GONÇALVES CREA: 7.982-D/PR