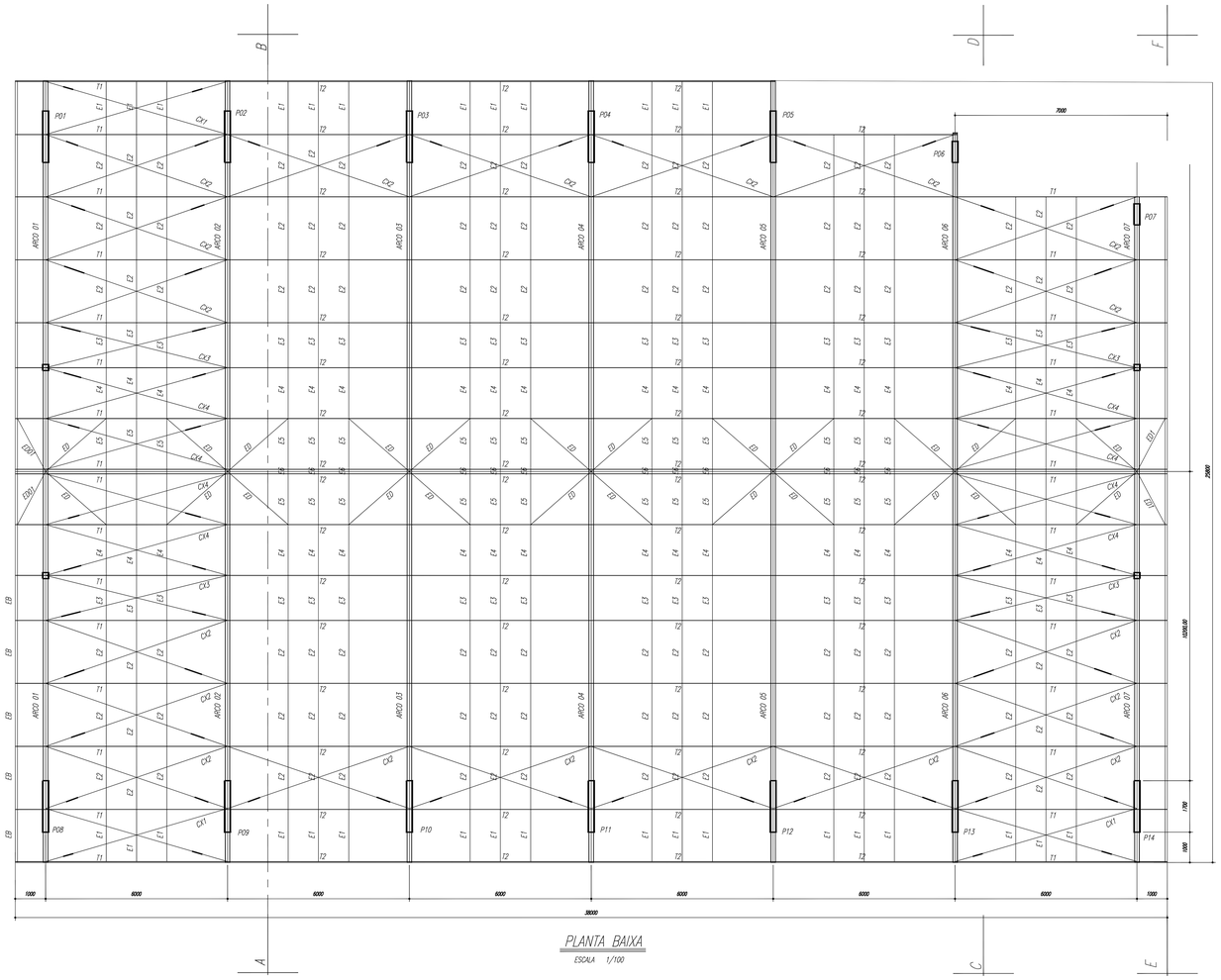
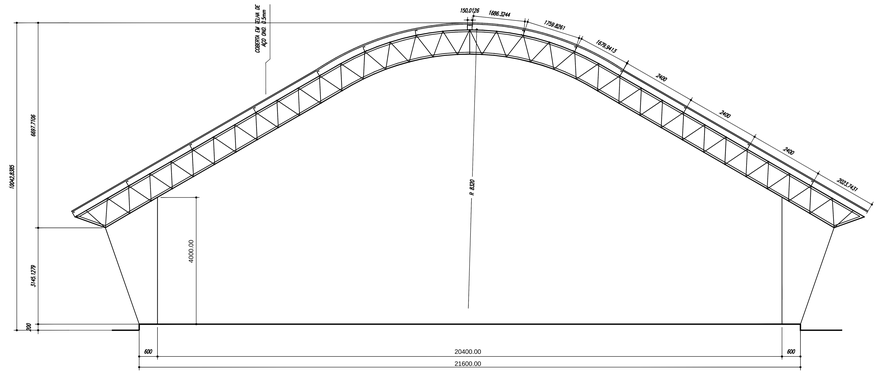


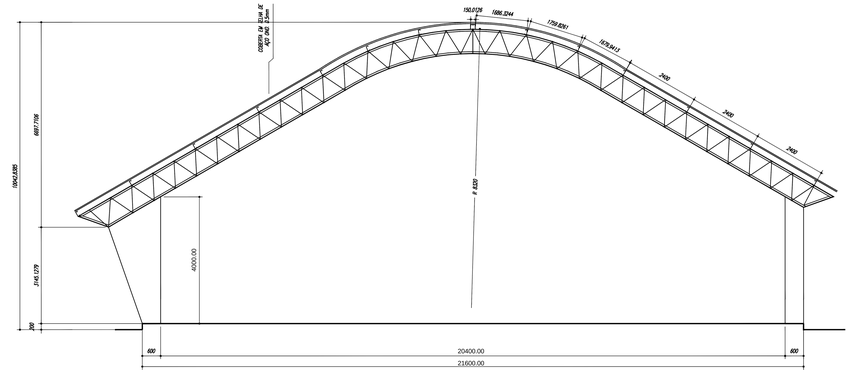
PLANTA BAIXA

ESCALA 1/100



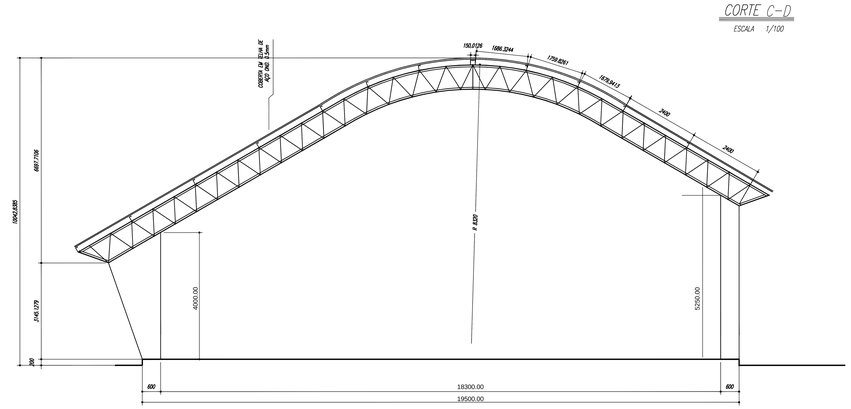
CORTE A-B

ESCALA 1/100



CORTE C-D

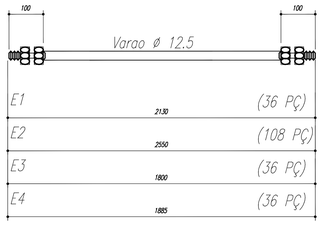
ESCALA 1/100



CORTE E-F

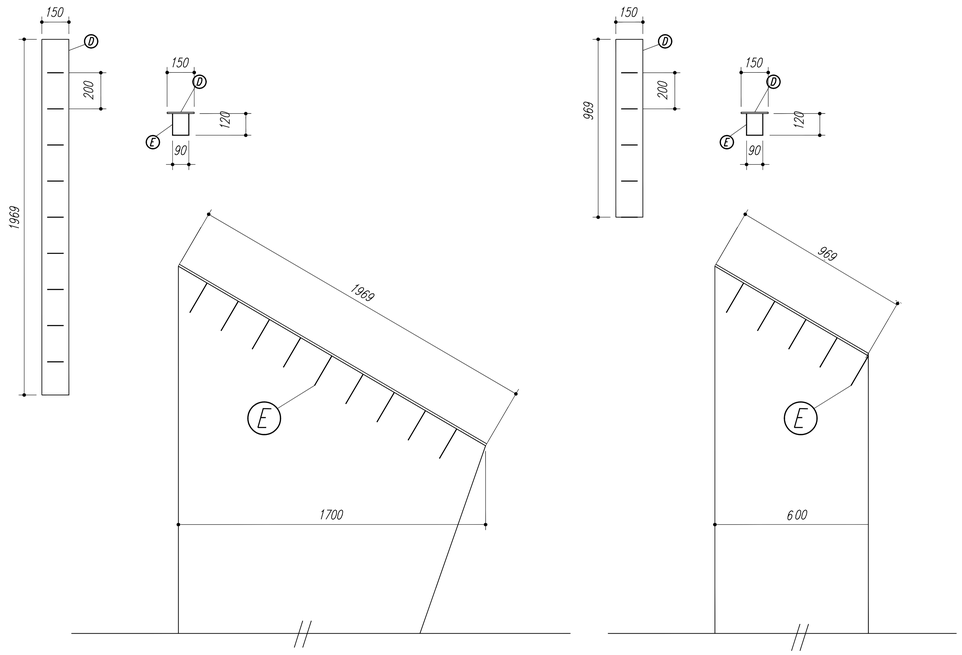
ESCALA 1/100

ESPAÇADORES E1 A E4



CHAPA DE BASE DO TOPO

sem escala



NOTAS:

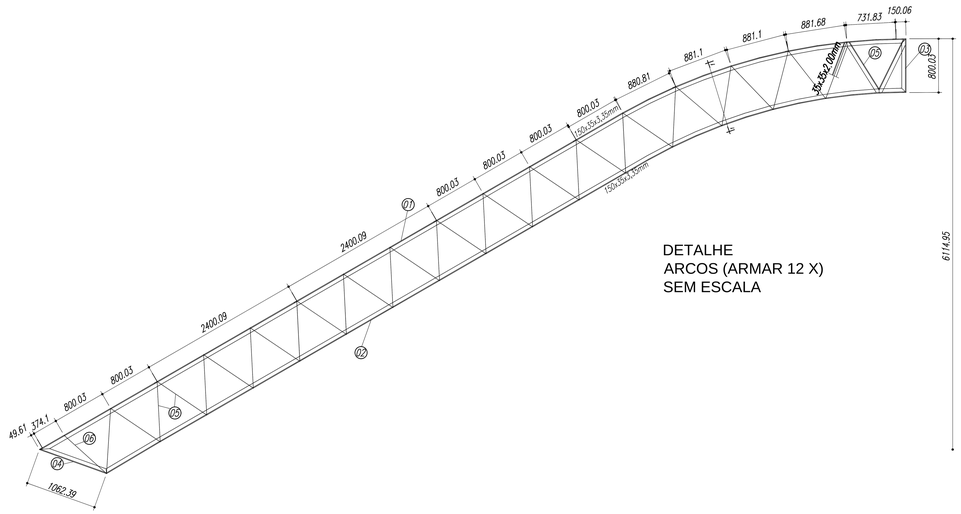
1- MEDIDAS EM MILÍMETROS,
2- CONFERIR COTAS NO LOCAL DA EXECUÇÃO ANTES DA FABRICAÇÃO E MONTAGEM DAS PEÇAS METÁLICAS.
3- PARA SOLDAR USAR ELÉTRODO REVESTIDO E 7018 / MIG-MAG ER 7056
4- PARAFUSOS E PORCAS ASTM A 325 - TIPO 1
5- AS COTAS FORAM TIRADAS EM CAMPO DEVENDO SER CONFERIDADA ANTES DA FABRICAÇÃO E MONTAGEM.
6- TRELIÇAMENTO DOS PILARES, DIAGONAIS E MONTANTES POR DENTRO.
7- TRELIÇAMENTO DOS ARCOS, DIAGONAIS E MONTANTES POR FORA.
8- UTILIZAR O CONTRAVENTAMENTO DOS PILARES VX SO NAS EXTREMIDADES.
9- CASO DE DUVIDA CONSULTAR O ENGENHEIRO CALCULISTA.

PREPARO DA SUPERFÍCIE METÁLICA

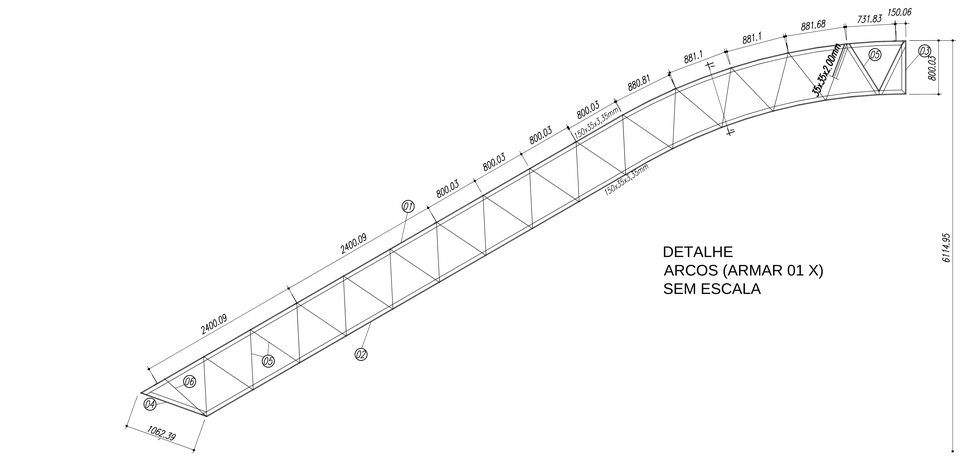
1- LIMPEZA MECANICA NORMA SIS - St3

2- APLICAR DUAS DEMÃOS DE TINTA EPOXI MASTIC CURADO COM POLIAMIDA SENDO A 1° DEMÃO PIGMENTADA COM ALUMÍNIO E A 2° DEMÃO NA COR DO ACABAMENTO FINAL (TIPO OXIBAR E/OU SUMASTIC), COM ESPESSURA DA PELÍCULA SECA TOTAL APLICADA DE 240MC.

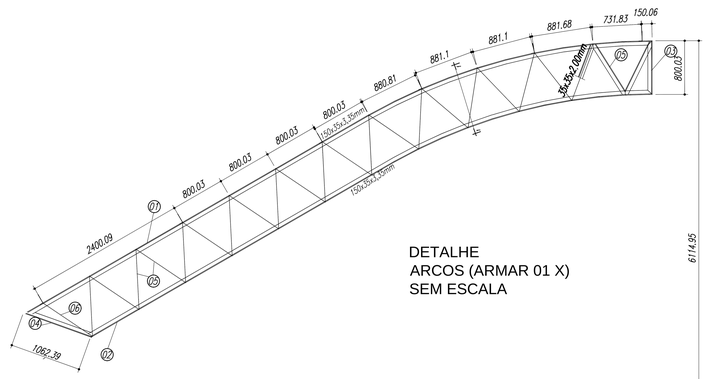
QUADRA ESCOLAR			
PROJETO ESTRUTURAL			
DATA: OUTUBRO DE 2015	COBERTURA		EST
A.R.T.: 9222122015351786			
ESCALA: INDICADA	BÉTON ENGENHARIA EIRELI - EPP CREA-SP: 1.077.875	RESPONSAVEL TECNICO: LUIZ ROBERTO MOYSÉS FILHO. ENGEMHEIRO CIVIL / SEG. DO TRABALHO CREA-SP: 5060736862	PRANCHA 01
FORMATO A1(841X594)			



DETALHE
ARCOS (ARMAR 12 X)
SEM ESCALA



DETALHE
ARCOS (ARMAR 01 X)
SEM ESCALA

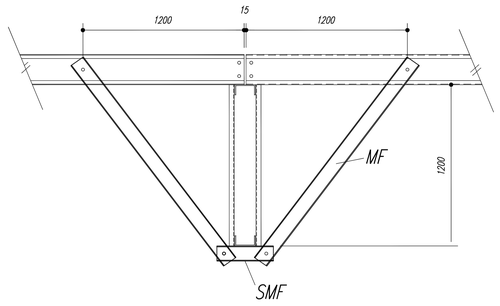


DETALHE
ARCOS (ARMAR 01 X)
SEM ESCALA

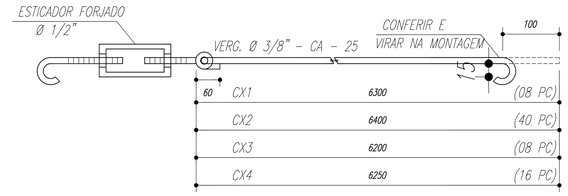
PESO TOTAL			
Pos	Qtd	Descrição	Aço
6	14	PEL 35x35x2,00mm	ASTM A36
5	224	PEL 35x35x2,00mm	ASTM A36
4	14	PEL 35x35x2,00mm	ASTM A36
3	14	PEL 35x35x2,00mm	ASTM A36
2	14	PEL 150x35x3,35mm	ASTM A36
1	14	PEL 150x35x3,35mm	ASTM A36
E	126	Varao 12,5	ASTM A36
D	14	CH#1/8"x250x1970	ASTM A36
Gr	144	Varao 10,0	ASTM A36
E4	36	Varao 12,5	ASTM A36
E3	36	Varao 12,5	ASTM A36
E2	108	Varao 12,5	ASTM A36
E1	36	Varao 12,5	ASTM A36
MF	224	PEL U 76	ASTM A36
SMF	112	PEL U76	ASTM A36
B	112	Ch#1/8"x95x195	ASTM A36
A	112	L 200x100#1/8"	ASTM A36
ED	24	Varao 12,5	ASTM A36
ED1	4	Varao 12,5	ASTM A36
CX4	16	Varao 10,0	ASTM A36
CX3	8	Varao 10,0	ASTM A36
CX2	40	Varao 10,0	ASTM A36
CX1	8	Varao 10,0	ASTM A36
T2	64	UL200x75x25#2,66	ASTM A36
T1	32	UL200x75x25#2,66	ASTM A36

MAO FRANCESA
sem escala

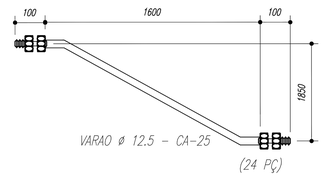
CORTE 1-1



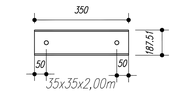
CONTRAVENTAMENTOS CX1 a CX4
sem escala



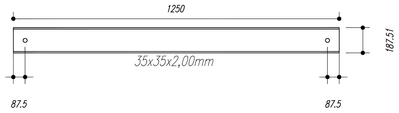
ESPAÇADOR DIAGONAL (ED) (24X)
sem escala



SUPORTE MF (SMF)
sem escala



MAO FRANCESA (MF)



NOTAS:

1- MEDIDAS EM MILÍMETROS,
2- CONFERIR COTAS NO LOCAL DA EXECUÇÃO ANTES DA FABRICAÇÃO E MONTAGEM DAS PEÇAS METÁLICAS.
3- PARA SOLDAR USAR ELÉTRODO REVESTIDO E 7018 / MIG-MAG ER 7056
4- PARAFUSOS E PORCAS ASTM A 325 - TIPO 1
5- AS COTAS FORAM TIRADAS EM CAMPO DEVENDO SER CONFERIDADA ANTES DA FABRICAÇÃO E MONTAGEM.
6- TRELIÇAMENTO DOS PILARES, DIAGONAIS E MONTANTES POR DENTRO.
7- TRELIÇAMENTO DOS ARCOS, DIAGONAIS E MONTANTES POR FORA.
8- UTILIZAR O CONTRAVENTAMENTO DOS PILARES VX SO NAS EXTREMIDADES.
9- CASO DE DUVIDA CONSULTAR O ENGENHEIRO CALCULISTA.

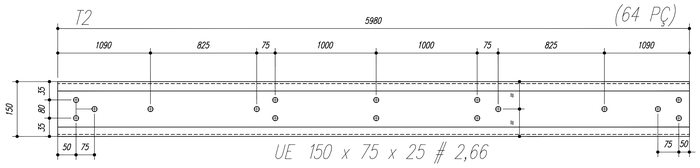
PREPARO DA SUPERFÍCIE METÁLICA

1- LIMPEZA MECANICA NORMA SIS - St3

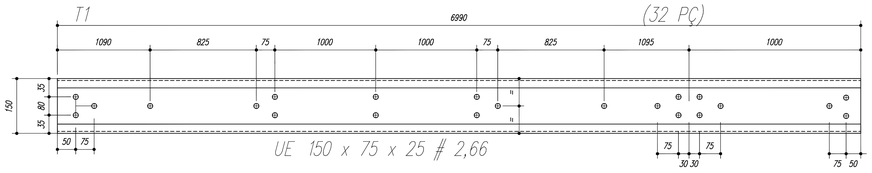
2- APLICAR DUAS DEMÃOS DE TINTA EPOXI MASTIC CURADO COM POLIAMIDA SENDO A 1ª DEMÃO PIGMENTADA COM ALUMÍNIO E A 2ª DEMÃO NA COR DO ACABAMENTO FINAL (TIPO OXIBAR E/OU SUMASTIC), COM ESPESSURA DA PELÍCULA SECA TOTAL APLICADA DE 240MC.

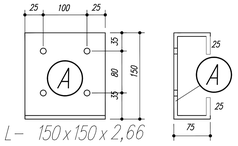
Terças T1 e T2

T2 (64 PÇ)

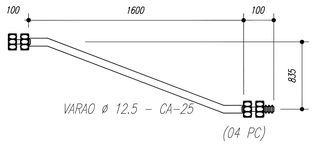


T1 (32 PÇ)

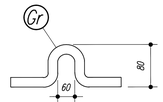




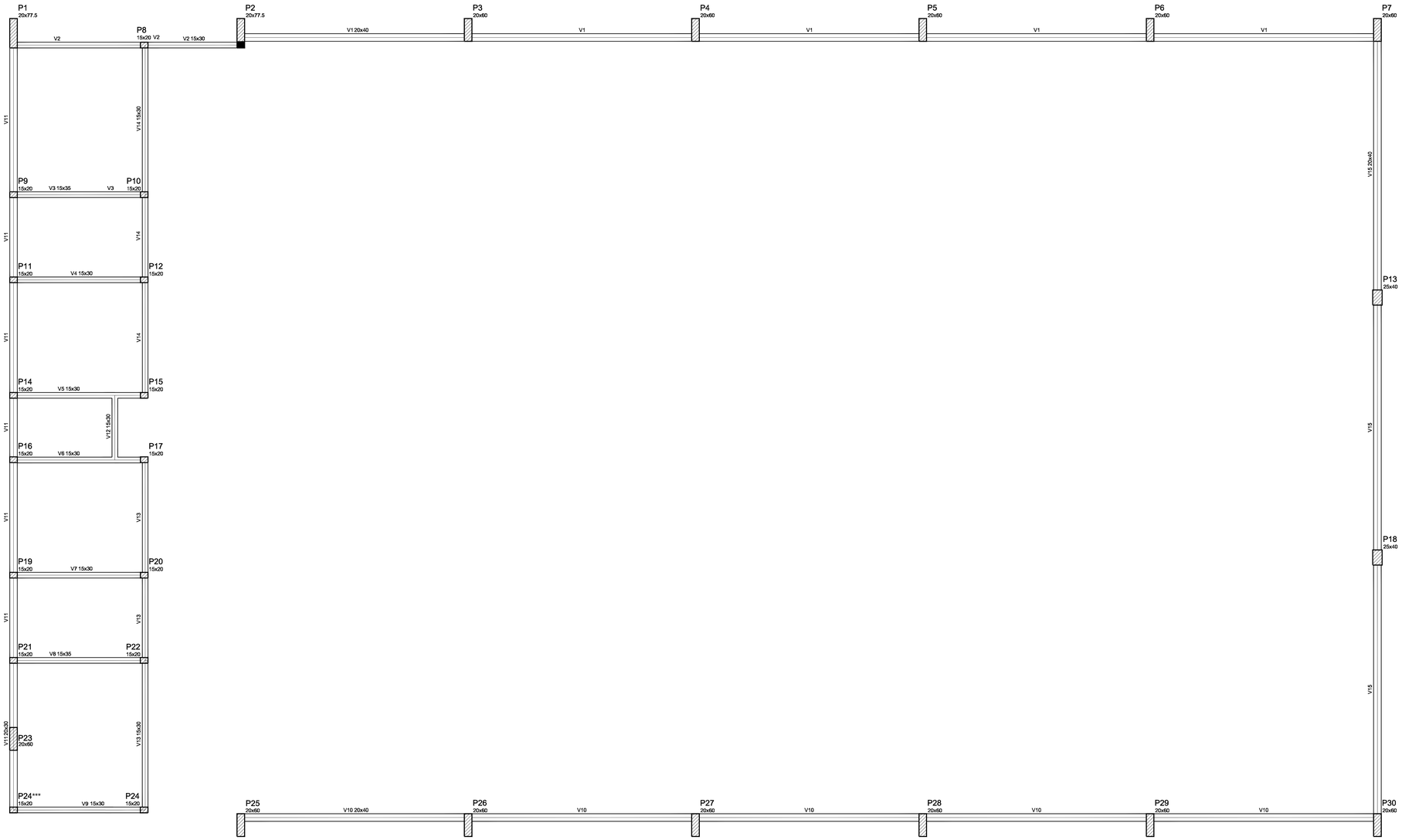
ESPAÇADOR DIAGONAL (ED1) (04X)
sem escala



GARRA
sem escala



QUADRA ESCOLAR			
PROJETO ESTRUTURAL			
DATA: OUTUBRO DE 2015	COBERTURA		EST
A.R.T.: 92221220151351786			
ESCALA: INDICADA	BÉTON ENGENHARIA EIRELI - EPP CREA-SP: 1.077.875	RESPONSÁVEL TÉCNICO: LUIZ ROBERTO MOYSÉS FILHO, ENGENHEIRO CIVIL / SEG. DO TRABALHO CREA-SP: 5060736862	PRANCHA 02
FORMATO: A1(841X594)			



Forma do pavimento Nivel 000

Vigas			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
V1	20x40	0	0
V2	15x30	0	0
V3	15x35	0	0
V4	15x30	0	0
V5	15x30	0	0
V6	15x30	0	0
V7	15x30	0	0
V8	15x35	0	0
V9	15x30	0	0
V10	20x40	0	0
V11	20x30	0	0
V12	15x30	0	0
V13	15x30	0	0
V14	15x30	0	0
V15	20x40	0	0

Características dos materiais

fck (kgf/cm²)	Ecs (kgf/cm²)
250	238000

QUADRA ESCOLAR

PROJETO ESTRUTURAL

DATA: OUTUBRO DE 2015

A.R.T.: 92221220151351786

ESTRUTURA DE CONCRETO

FORMA DE PAVIMENTO - NÍVEL 000

EST

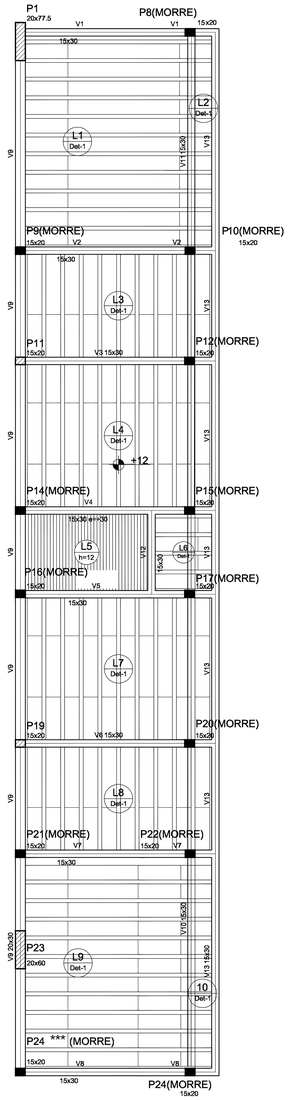
ESCALA: INDICADA

FORMATO: A1(841X594)

BETON ENGENHARIA EIRELI - EPP
CREA-SP: 1.077.875

RESPONSÁVEL TÉCNICO:
LUIZ ROBERTO MOYSÉS FILHO,
ENGENHEIRO CIVIL / SEG. DO TRABALHO
CREA-SP: 506073686?

PRANCHA: 01



P2
20x60

P3
20x60

P4
20x60

P5
20x60

P6
20x60

P25
20x60

P26
20x60

P27
20x60

P28
20x60

P29
20x60

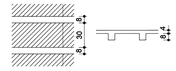
Vigas

Nome	Seção (cm)	Elevação (cm)	Nível (cm)
V1	15x30	30	350
V2	15x30	30	350
V3	15x30	28	348
V4	15x30	30	350
V5	15x30	30	350
V6	15x30	30	350
V7	15x30	30	350
V8	15x30	30	350
V9	20x30	30	350
V10	15x30	30	350
V11	15x30	30	350
V12	15x30	30	350
V13	15x30	30	350
V14	20x40	0	320

Características dos materiais

fck (kgf/cm²)	Ecs (kgf/cm²)
250	238000

Detalhe 1 (esc. 1:30)



Blocos de enchimento

Detalhe	Tipo	Nome	Dimensões(cm)			Quantidade
			hb	bx	by	
1	Unidirecional	B8/30/125	8	30	125	196

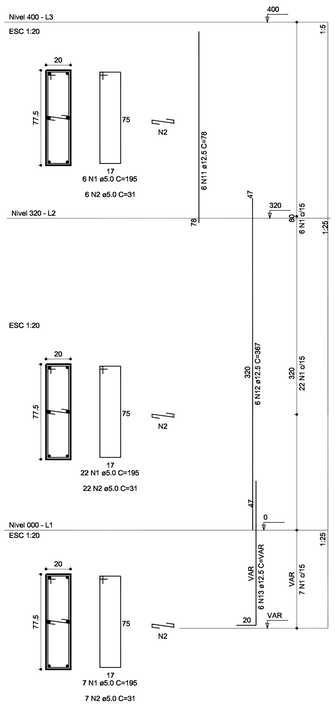
Forma do pavimento Nivel 320

QUADRA ESCOLAR

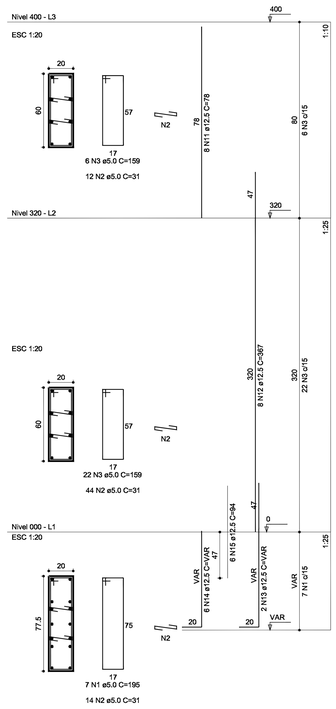
PROJETO ESTRUTURAL

DATA: OUTUBRO DE 2015	QUADRA COBERTA FORMA DE PAVIMENTO - NÍVEL 320	EST
A.R.T.: 92221220151351786		
ESCALA: INDICADA	BÉTON ENGENHARIA EIRELI - EPP CREA-SP: 1.077.875	RESPONSÁVEL TÉCNICO: LUIZ ROBERTO MOYSÉS FILHO, ENGENHEIRO CIVIL / SEG. DO TRABALHO CREA-SP: 5060736862
FORMATO: A1(841X594)		PRANCHA: 02

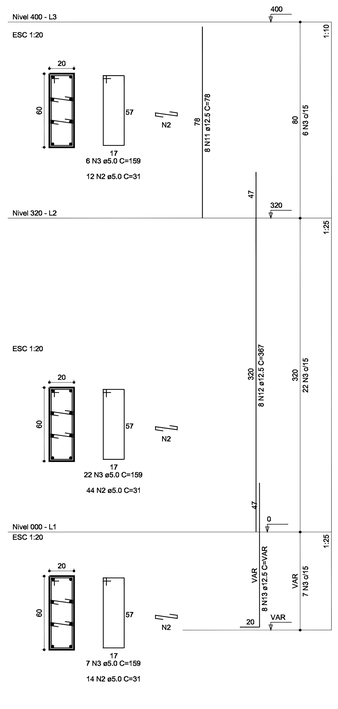
P1



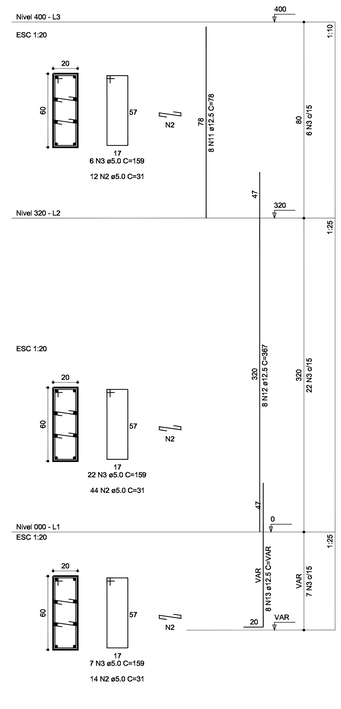
P2



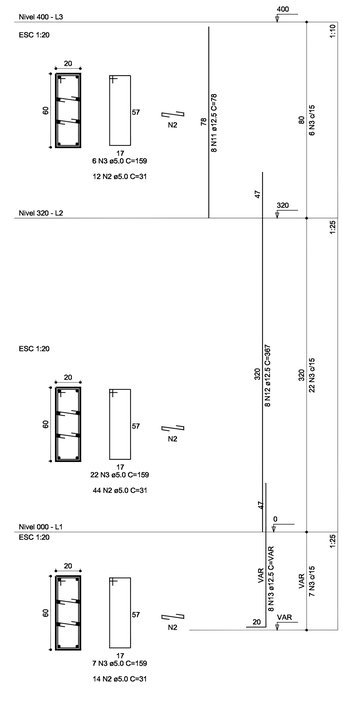
P3



P4



P5



RELAÇÃO DO AÇO

P1-L3	P2-L3	P3-L3
P4-L3	P5-L3	P6-L3
P7-L3	P11-L3	P13-L3
P1-L2	P2-L2	P3-L2
P4-L2	P5-L2	P6-L2
P7-L2	P8-L2	P9-L2
P10-L2	P11-L2	P12-L2
P13-L2	P14-L2	P15-L2
P1-L1	P2-L1	P3-L1
P4-L1	P5-L1	P6-L1
P7-L1	P8-L1	P9-L1
P10-L1	P11-L1	P12-L1
P13-L1	P14-L1	P15-L1

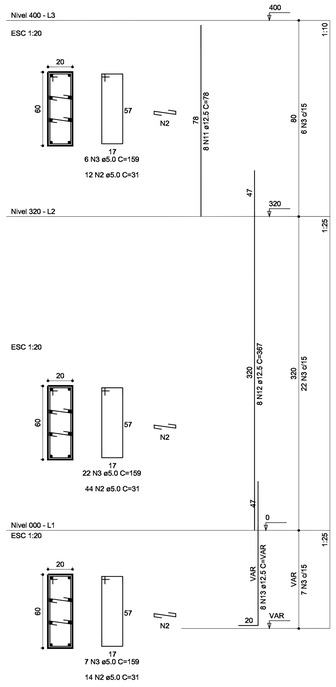
AÇO	N	DIAM	Q	UNIT (cm)	C.TOTAL (cm)
60	1	5.0	42	195	8190
	2	5.0	490	31	15190
	3	5.0	203	159	32277
	4	5.0	259	69	17871
	5	5.0	35	129	4515
	6	5.0	70	36	2520
50	7	10.0	4	78	312
	8	10.0	26	318	8268
	9	10.0	4	358	1432
	10	10.0	30	VAR	VAR
	11	12.5	64	78	4992
	12	12.5	64	367	23488
	13	12.5	58	VAR	VAR
	14	12.5	6	VAR	VAR
	15	12.5	6	94	564

RESUMO DO AÇO

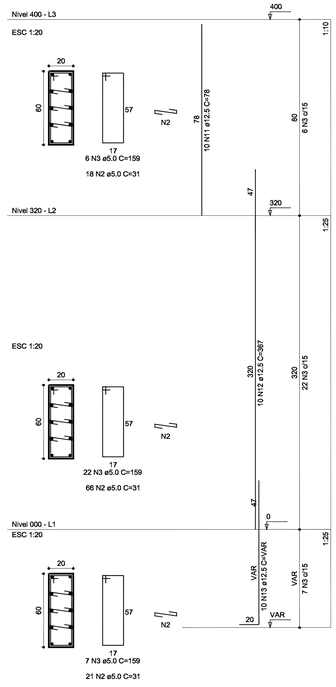
AÇO	DIAM	C.TOTAL (m)	PESO+10% (kg)
CA50	10.0	146.8	99.6
	12.5	392.5	416.2
CA60	5.0	807.4	136.8
PESO TOTAL			
CA50	515.8		
CA60	136.8		

Vol. de concreto total =5.82 m³
Área de forma total = 85.74 m²

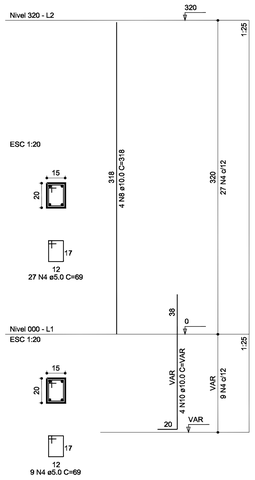
P6



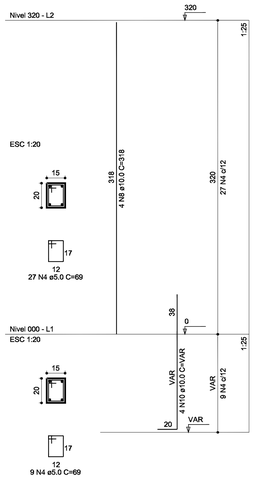
P7



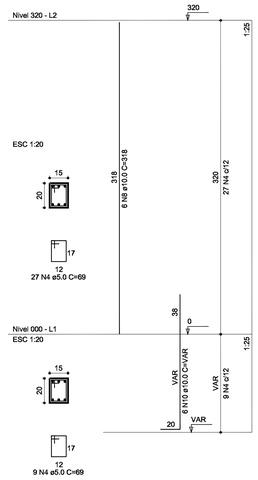
P8



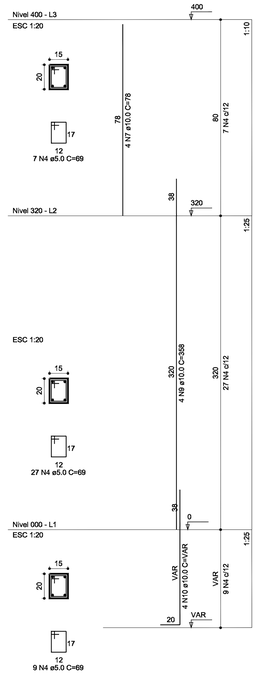
P9



P10

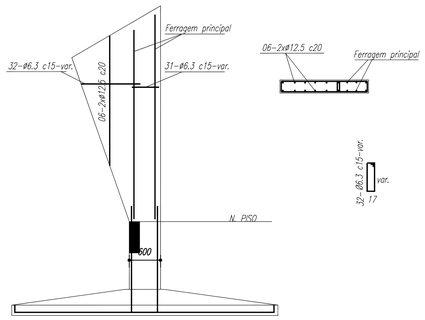


P11



Armacao Adicional P1 a P7 , Pu23 e P25 a P30
sem escala

OBS.: Ferragem principal: ver no detalhamento individual de cada pilar acima.

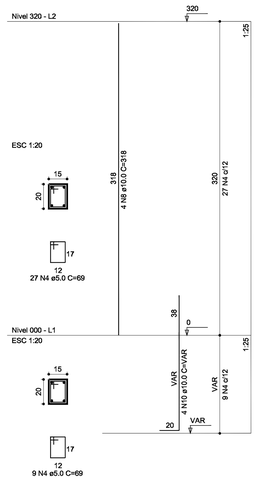


QUADRA ESCOLAR

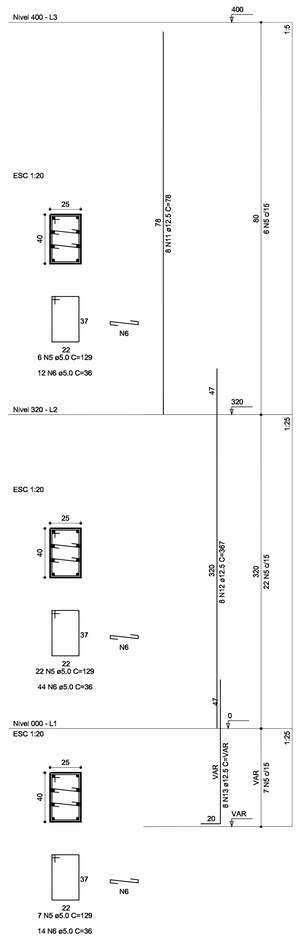
PROJETO ESTRUTURAL

DATA: OUTUBRO DE 2015	ESTRUTURA DE CONCRETO PILARES (P1 ao P11)		EST
A.R.T.: 92221220151351786			
ESCALA: INDICADA	BÉTON ENGENHARIA EIRELI - EPP CREA-SP: 1.077.875	RESPONSÁVEL TÉCNICO: LUIZ ROBERTO MOYSÉS FILHO, ENGENHEIRO CIVIL / SEG. DO TRABALHO CREA-SP: 5060736862	PRANCHA 01
FORMATO: A1(841X594)			

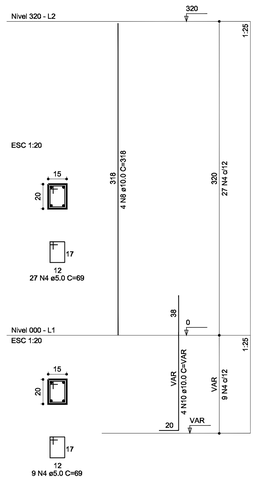
P12



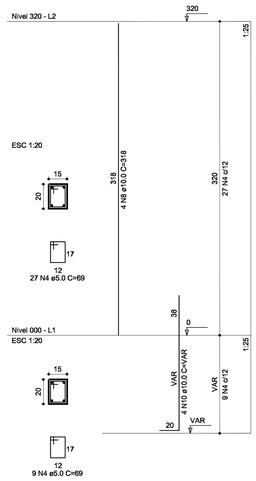
P13



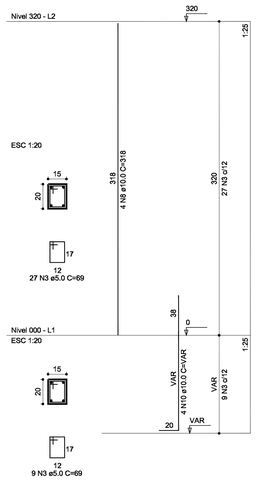
P14



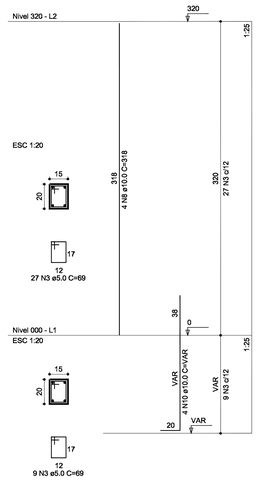
P15



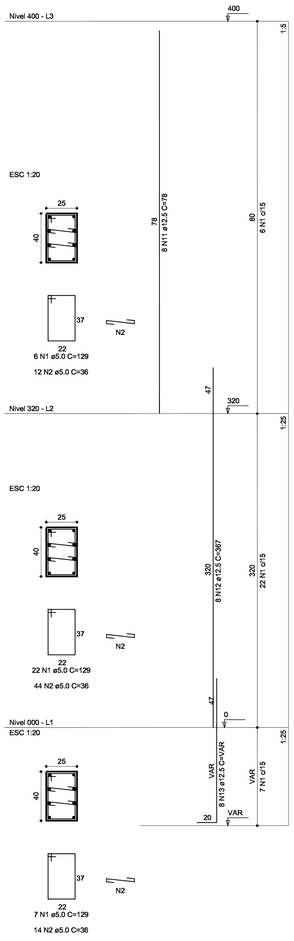
P16



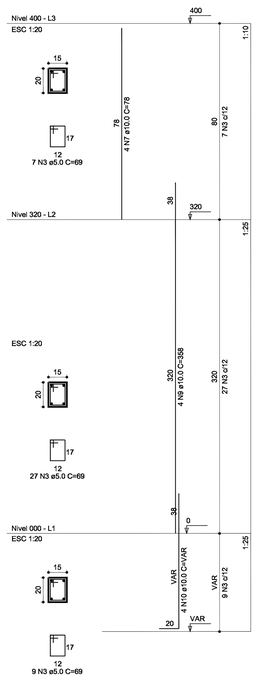
P17



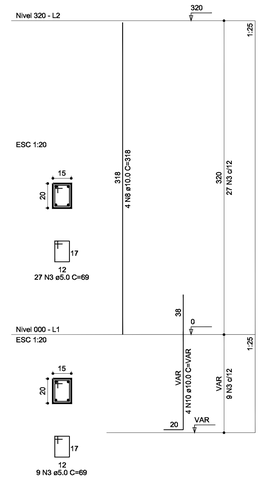
P18



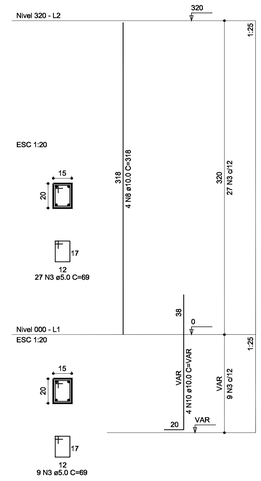
P19



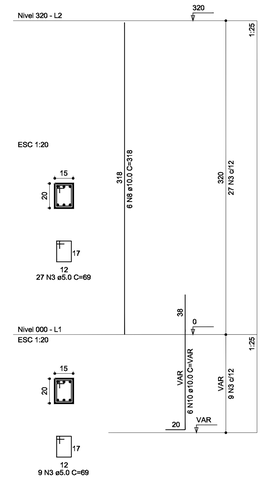
P20



P21



P22

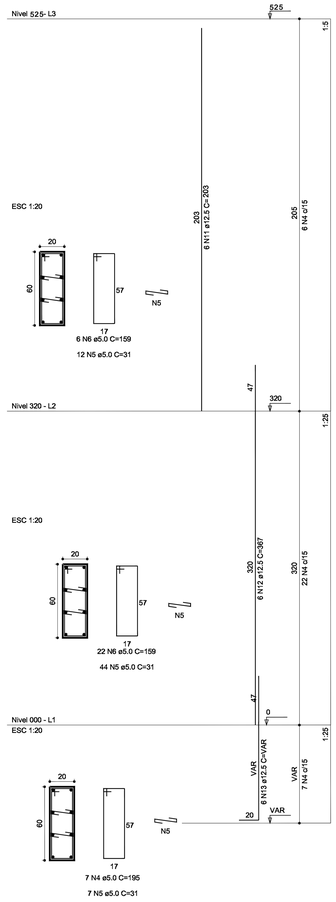


QUADRA ESCOLAR

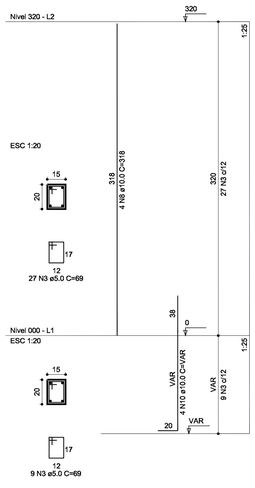
PROJETO ESTRUTURAL

DATA: OUTUBRO DE 2015	ESTRUTURA DE CONCRETO PILARES (P12 ao P22)	EST
A.R.T.: 92221220151351786		
ESCALA: INDICADA	BÉTON ENGENHARIA EIRELI - EPP CREA-SP: 1.077.875	RESPONSÁVEL TÉCNICO: LUIZ ROBERTO MOYSÉS FILHO. ENGENHEIRO CIVIL / SEG. DO TRABALHO CREA-SP: 5060736862
FORMATO: A1(841X594)		PRANCHA: 02

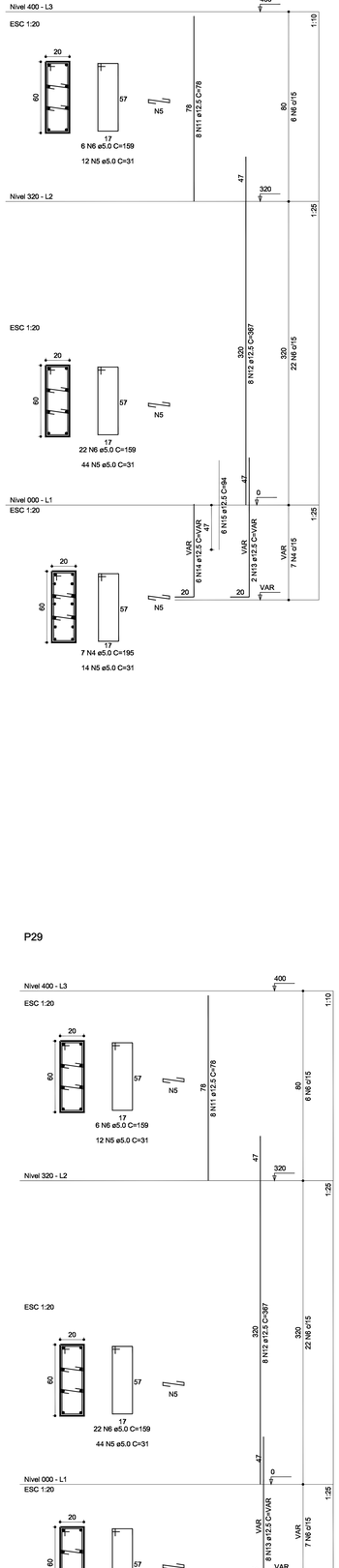
P23



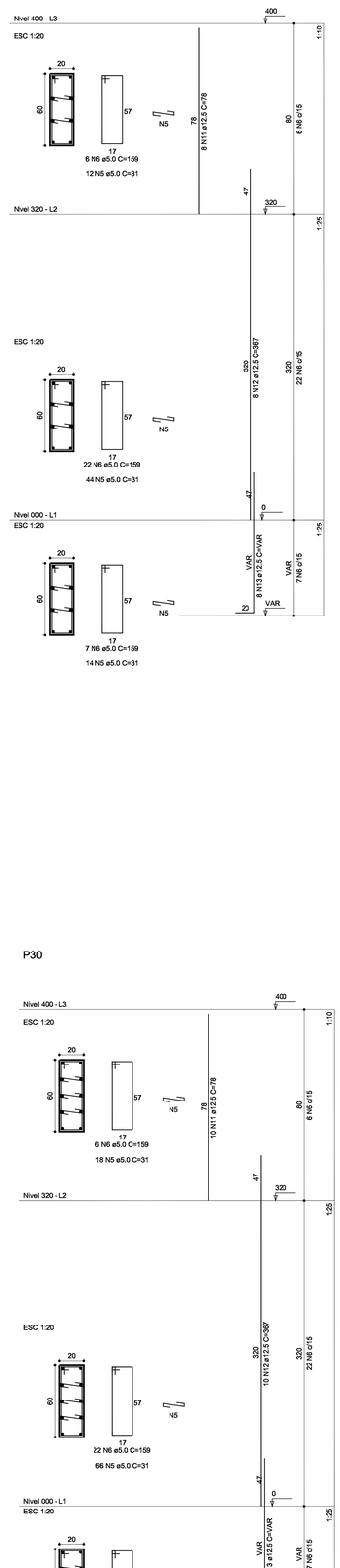
P24 + P24***

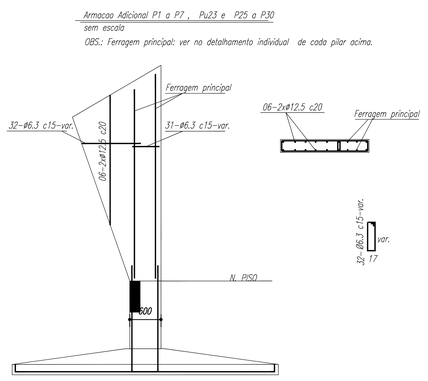


P25



P26





RELAÇÃO DO AÇO

P18-L3	P19-L3	P23-L3
P25-L3	P26-L3	P27-L3
P28-L3	P29-L3	P30-L3
P16-L2	P17-L2	P18-L2
P19-L2	P20-L2	P21-L2
P22-L2	P23-L2	P24-L2
P25-L2	P26-L2	P27-L2
P28-L2	P29-L2	P30-L2
P16-L1	P17-L1	P18-L1
P19-L1	P20-L1	P21-L1
P22-L1	P23-L1	P24-L1
P25-L1	P26-L1	P27-L1
P28-L1	P29-L1	P30-L1

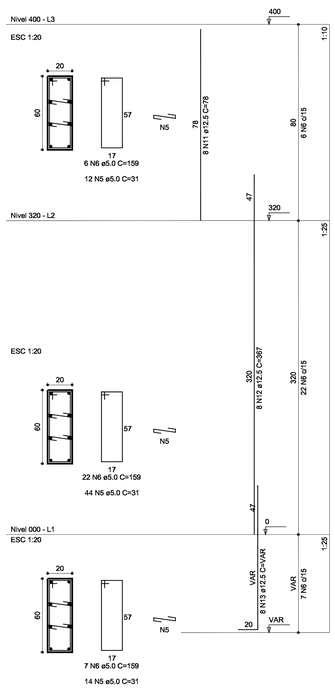
AÇO	N	DIAM	Q	UNIT (cm)	C.TOTAL (cm)
60	1	5.0	35	129	4515
	2	5.0	70	36	2520
	3	5.0	259	69	17871
	4	5.0	42	195	8190
	5	5.0	490	31	15190
	6	5.0	203	159	32277
50	7	10.0	4	78	312
	8	10.0	26	318	8268
	9	10.0	4	358	1432
	10	10.0	30	VAR	VAR
	11	12.5	64	78	4992
	12	12.5	64	367	23488
	13	12.5	58	VAR	VAR
	14	12.5	6	VAR	VAR
	15	12.5	6	94	564

RESUMO DO AÇO

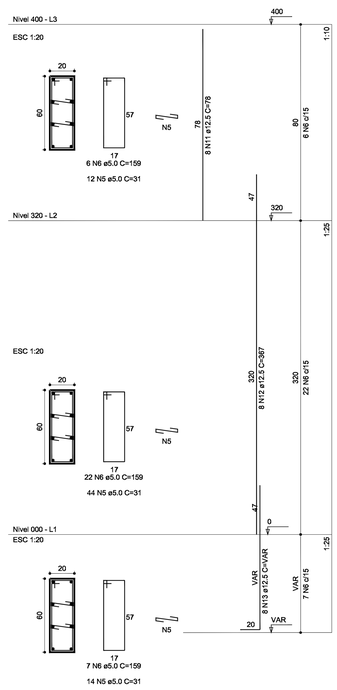
AÇO	DIAM	C.TOTAL (m)	PESO+10% (kg)
CA50	10.0	146.8	99.6
	12.5	392.5	416.2
CA60	5.0	807.4	136.8
PESO TOTAL			
CA50	515.8		
CA60	136.8		

Vol. de concreto total =5.82 m³
Área de forma total = 85.74 m²

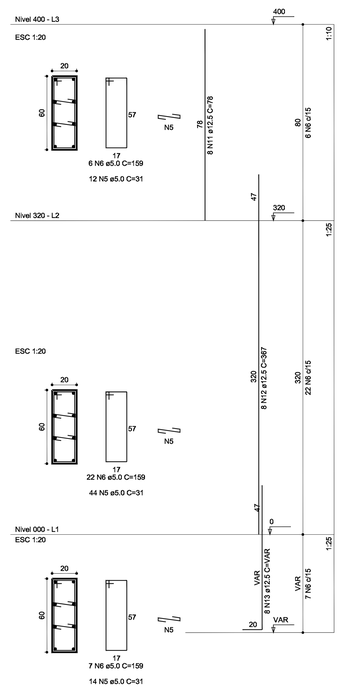
P27



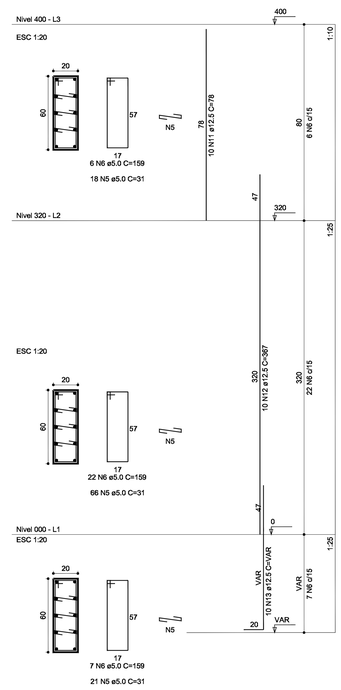
P28



P29



P30

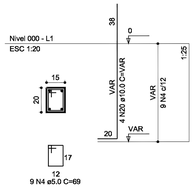


QUADRA ESCOLAR

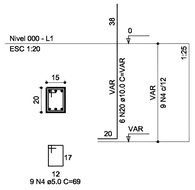
PROJETO ESTRUTURAL

DATA: OUTUBRO DE 2015	ESTRUTURA DE CONCRETO PILARES (P22 ao P30)	EST
A.R.T.: 92221220151351786		
ESCALA: INDICADA	BÉTON ENGENHARIA EIRELI - EPP CREA-SP: 1.077.875	RESPONSÁVEL TÉCNICO: LUIZ ROBERTO MOYSÉS FILHO, ENGENHEIRO CIVIL / SEG. DO TRABALHO CREA-SP: 5060736862
FORMATO: A1(841X594)		PRANCHA: 03

P15=P16=P17=P20=P21=P24=P24***



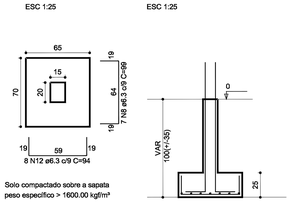
P22



S15=S16=S17=S20=S21=S22=S24=S24***

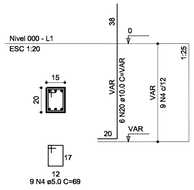
Planta
ESC 1:25

Corte
ESC 1:25

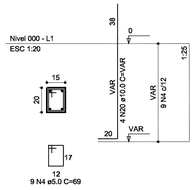


Solo compactado sobre a sapata
peso específico > 1600.00 kgf/m³

P10



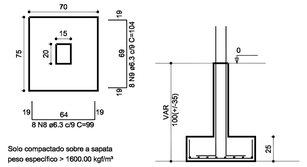
P8=P9=P11=P12=P14=P19



S8=S9=S10=S11=S12=S14=S19

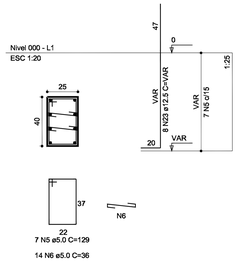
Planta
ESC 1:25

Corte
ESC 1:25



Solo compactado sobre a sapata
peso específico > 1600.00 kgf/m³

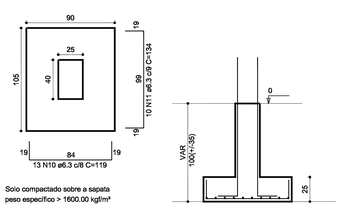
P13=P18



S13=S18

Planta
ESC 1:25

Corte
ESC 1:25



Solo compactado sobre a sapata
peso específico > 1600.00 kgf/m³

RELAÇÃO DO AÇO

P1	2xP2	8xP3
2xP7	6xP8	P10
2xP13	6xP15	P22
P23	S1	7xS11
2xS13	7xS16	S23
2xS25	8xS26	2xS30

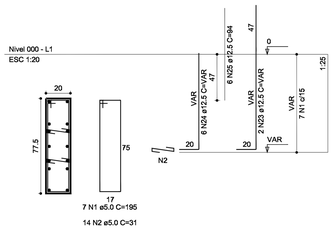
AÇO	N	DIAM	Q	UNIT (cm)	C.TOTAL (cm)
60	1	5.0	28	195	5460
	2	5.0	196	31	6076
	3	5.0	70	159	11130
	4	5.0	126	69	8694
	5	5.0	14	129	1806
	6	5.0	28	36	1008
50	7	6.3	13	189	2457
	8	6.3	105	99	10395
	9	6.3	56	104	5824
	10	6.3	26	119	3094
	11	6.3	20	134	2680
	12	6.3	56	94	5264
	13	6.3	12	179	2148
	14	6.3	18	164	2952
	15	6.3	72	154	11088
	16	6.3	20	159	3180
	17	8.0	26	108	2808
	18	8.0	88	113	9944
	19	8.0	26	118	3068
	20	10.0	60	VAR	VAR
	21	10.0	15	122	1830
	22	10.0	13	117	1521
	23	12.5	116	VAR	VAR
	24	12.5	12	VAR	VAR
	25	12.5	12	94	1128

RESUMO DO AÇO

AÇO	DIAM	C.TOTAL (m)	PESO+10% (kg)
CA50	6.3	491.3	132.5
	8.0	158.7	69.0
	10.0	127.1	86.2
	12.5	215.5	228.5
CA60	5.0	342.6	58.0
PESO TOTAL			
CA50	516.1		
CA60	58.0		

Vol. de concreto total =8.71 m³
Área de forma total = 62.84 m²

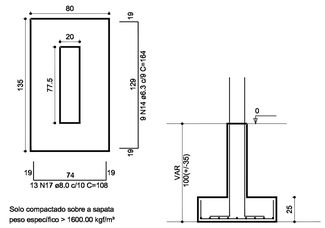
P2



S2

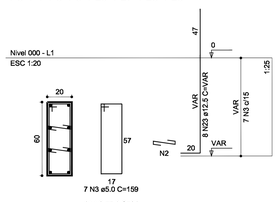
Planta
ESC 1:25

Corte
ESC 1:25



Solo compactado sobre a sapata
peso específico > 1600.00 kgf/m³

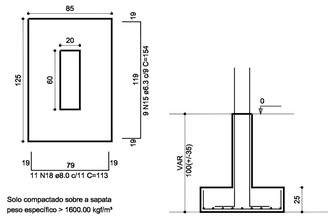
P3=P4=P5=P6=P26=P27=P28=P29



S3=S4=S5=S6=S26=S27=S28=S29

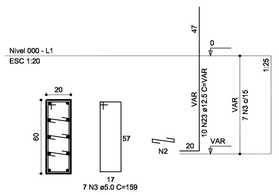
Planta
ESC 1:25

Corte
ESC 1:25



Solo compactado sobre a sapata
peso específico > 1600.00 kgf/m³

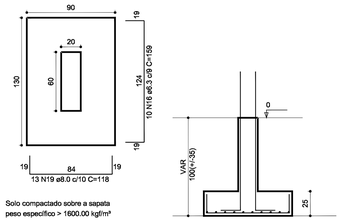
P7=P30



S7=S30

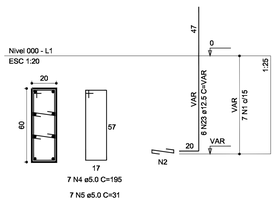
Planta
ESC 1:25

Corte
ESC 1:25



Solo compactado sobre a sapata
peso específico > 1600.00 kgf/m³

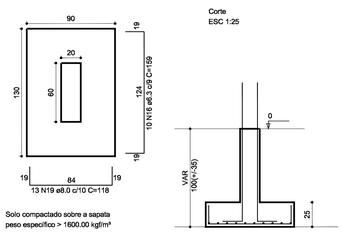
P23



S23

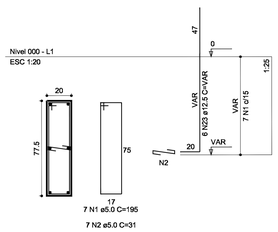
Planta
ESC 1:25

Corte
ESC 1:25



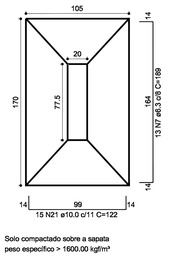
Solo compactado sobre a sapata
peso específico > 1600.00 kgf/m³

P1

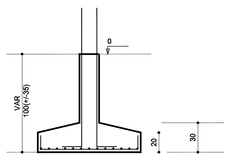


S1

Planta
ESC 1:25

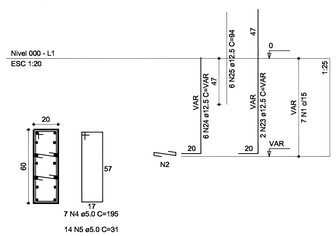


Corte
ESC 1:25



Solo compactado sobre a sapata
peso específico > 1600.00 kgf/m³

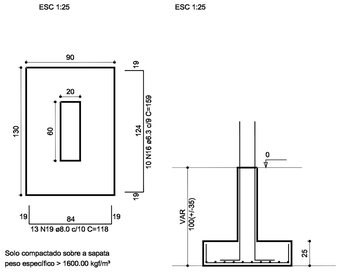
P25



S25

Planta
ESC 1:25

Corte
ESC 1:25



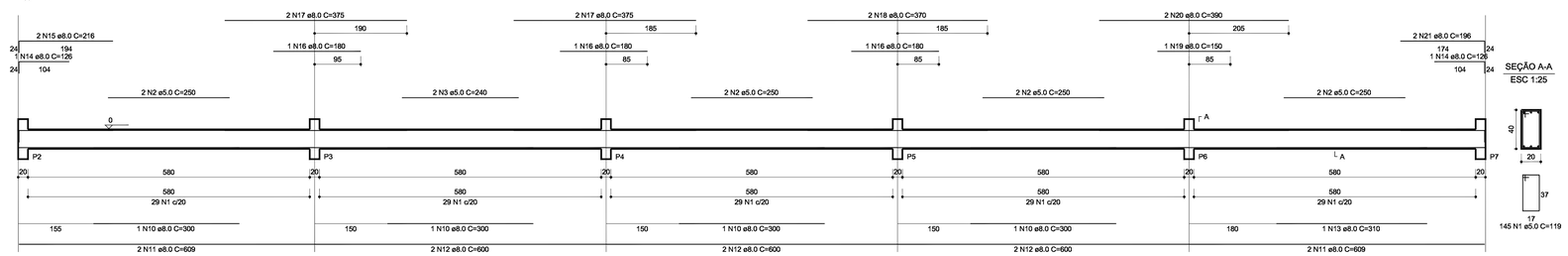
Solo compactado sobre a sapata
peso específico > 1600.00 kgf/m³

QUADRA ESCOLAR

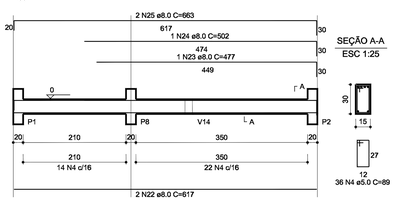
PROJETO ESTRUTURAL

DATA: OUTUBRO DE 2015	ESTRUTURA DE CONCRETO		EST
A.R.T.: 9222122015351786	SAPATAS		
ESCALA: INDICADA	BÉTON ENGENHARIA EIRELI - EPP CREA-SP: 1.077.875	RESPONSÁVEL TÉCNICO: LUIZ ROBERTO MOYSÉS FILHO, ENGENHEIRO CIVIL / SEG. DO TRABALHO CREA-SP: 5060736862	PRANCHA 01
FORMATO: A1(841X594)			

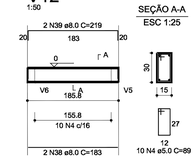
V1
1:50



V2
1:50



V12
1:50



RELAÇÃO DO AÇO

V1 V2 V3
V4 V5 V6
V7 V8 V9
V10 V11 V12
V13 V14 V15

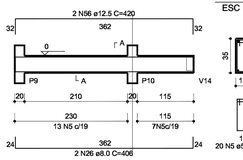
AÇO	N	DIAM	Q	UNIT (cm)	C.TOTAL (cm)
60	1	5.0	389	119	46291
	2	5.0	16	250	4000
	3	5.0	4	240	960
	4	5.0	280	89	24920
	5	5.0	39	99	3861
	6	5.0	124	99	12276
	7	5.0	4	265	1060
	8	5.0	4	227	908
	9	5.0	2	297	594
50	10	8.0	8	300	2400
	11	8.0	8	609	4872
	12	8.0	12	600	7200
	13	8.0	2	310	620
	14	8.0	4	126	504
	15	8.0	4	216	864
	16	8.0	4	180	720
	17	8.0	8	375	3000
	18	8.0	4	370	1480
	19	8.0	3	150	450
	20	8.0	4	390	1560
	21	8.0	4	196	784
	22	8.0	4	617	2468
	23	8.0	1	477	477
	24	8.0	1	502	502
	25	8.0	2	663	1326
	26	8.0	4	406	1624
	27	8.0	8	362	2896
	28	8.0	2	406	812
	29	8.0	1	120	120
	30	8.0	2	407	814
	31	8.0	1	120	120
	32	8.0	2	407	814
	33	8.0	2	407	814
	34	8.0	1	155	155
	35	8.0	1	190	190
	36	8.0	2	1139	2278
	37	8.0	2	969	1938
	38	8.0	2	183	366
	39	8.0	2	219	438
	40	8.0	2	255	510
	41	8.0	4	937	3748
	42	8.0	4	89	356
	43	8.0	4	639	2556
	44	8.0	1	160	160
	45	8.0	1	297	297
	46	8.0	2	667	1334
	47	10.0	2	661	1322
	48	10.0	2	1198	2396
	49	10.0	2	1052	2104
	50	10.0	4	715	2860
	51	10.0	2	188	376
	52	10.0	2	228	456
	53	10.0	4	308	1232
	54	10.0	4	290	1160
	55	10.0	4	450	1800
	56	12.5	4	420	1680

RESUMO DO AÇO

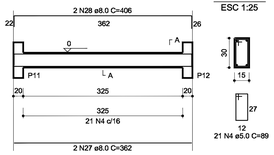
AÇO	DIAM	C.TOTAL (m)	PESO+10% (kg)
CA50	8.0	515.8	224.2
	10.0	137.0	93.0
	12.5	16.8	17.9
CA60	5.0	952.8	161.4
PESO TOTAL			
CA50	335.0		
CA60	161.4		

Vol. de concreto total =10.33 m³
Área de forma total = 140.59 m²

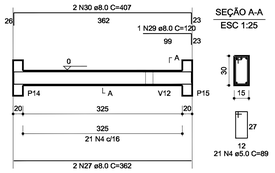
V3
1:50



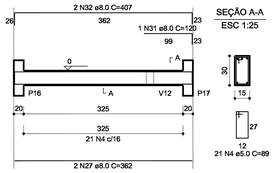
V4
1:50



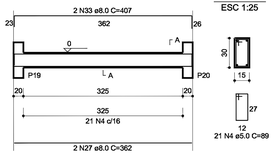
V5
1:50



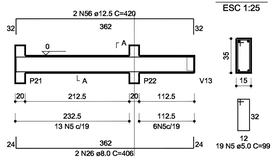
V6
1:50



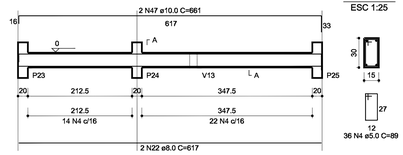
V7
1:50



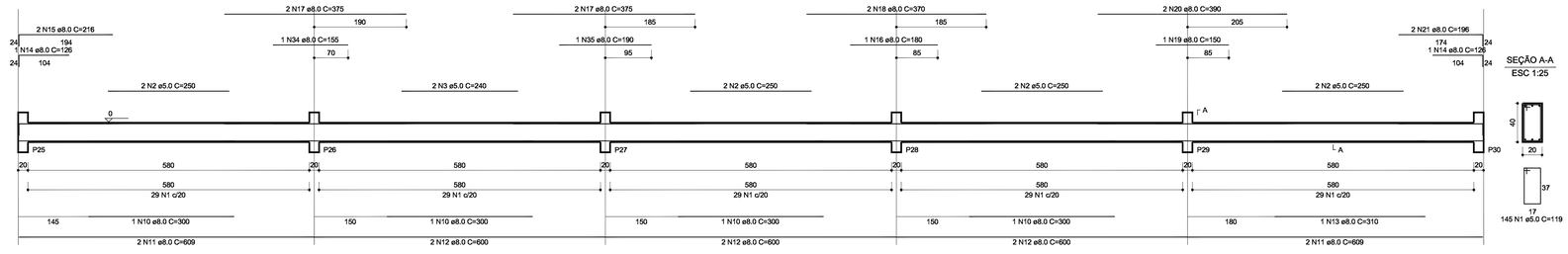
V8
1:50



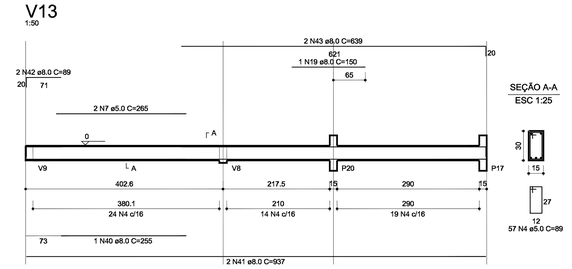
V9
1:50



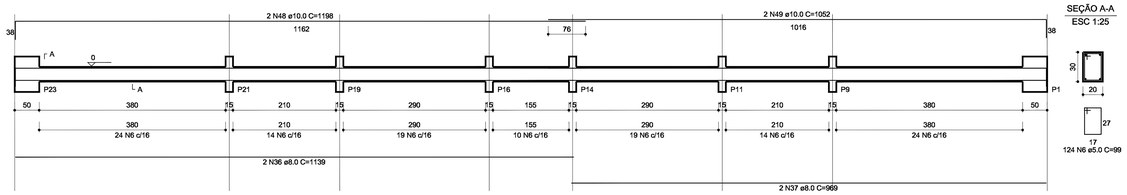
V10
1:50



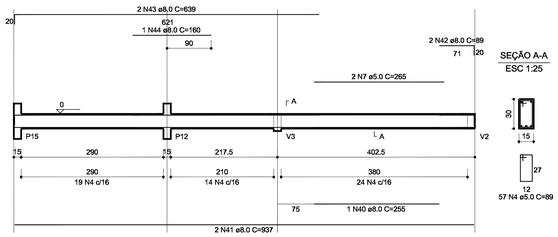
V13
1:50



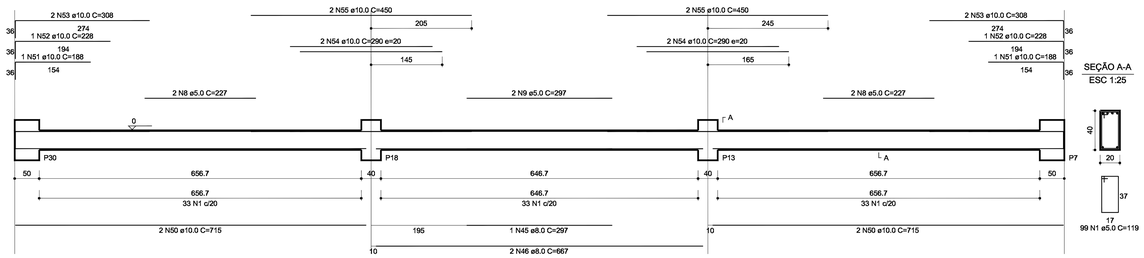
V11
1:50



V14
1:50

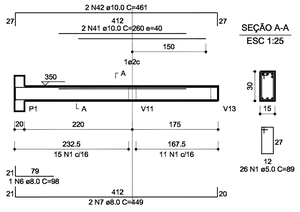


V15
1:50

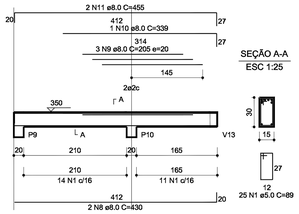


QUADRA ESCOLAR			
PROJETO ESTRUTURAL			
DATA: OUTUBRO DE 2015	ESTRUTURA DE CONCRETO VIGAS - NÍVEL 000		EST
A.R.T.: 9222122015351786			
ESCALA: INDICADA	BÉTON ENGENHARIA EIRELI - EPP CREA-SP: 1.077.875	RESPONSÁVEL TÉCNICO: LUIZ ROBERTO MOYSES FILHO, ENGENHEIRO CIVIL / SEG. DO TRABALHO CREA-SP: 5060736862	PRANCHA 01
FORMATO: A1(841X594)			

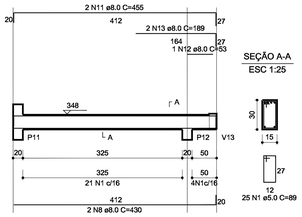
V1
1:50



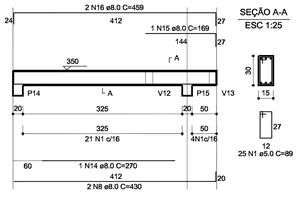
V2
1:50



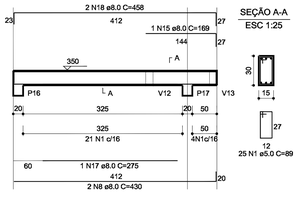
V3
1:50



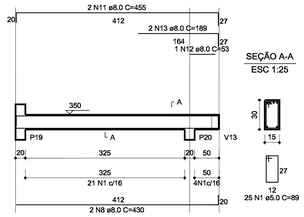
V4
1:50



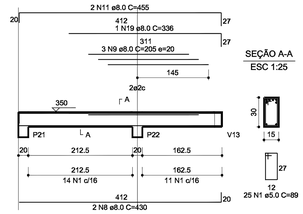
V5
1:50



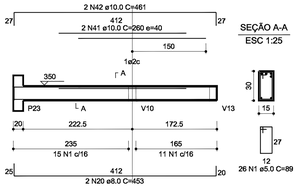
V6
1:50



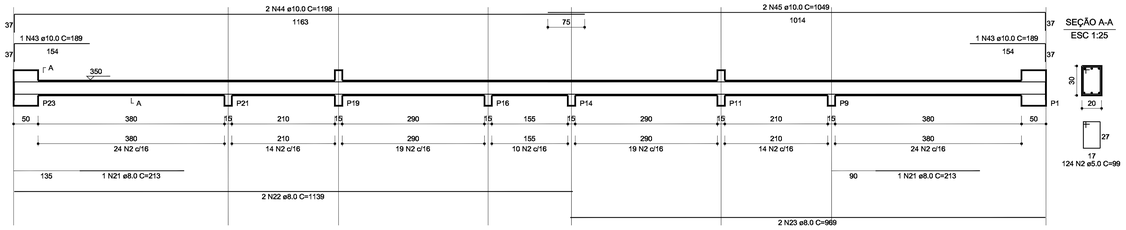
V7
1:50



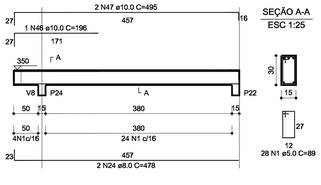
V8
1:50



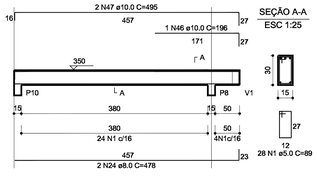
V9
1:50



V10
1:50



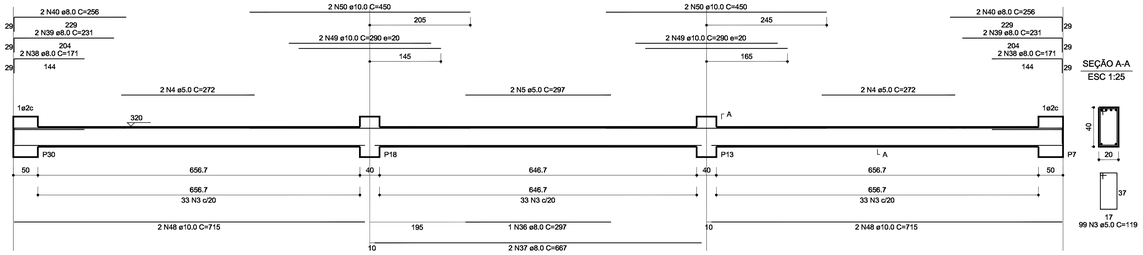
V11
1:50



V12
1:50

V13
1:50

V14
1:50



RELAÇÃO DO AÇO

V1	V2	V3
V4	V5	V6
V7	V8	V9
V10	V11	V12
V13	V14	

AÇO	N	DIAM	Q	UNIT (cm)	C.TOTAL (cm)
60	1	5.0	398	89	35422
	2	5.0	124	99	12276
	3	5.0	99	119	11781
	4	5.0	4	272	1088
	5	5.0	2	297	594
50	6	8.0	1	98	98
	7	8.0	2	449	898
	8	8.0	12	430	5160
	9	8.0	6	205	1230
	10	8.0	1	339	339
	11	8.0	8	455	3640
	12	8.0	2	53	106
	13	8.0	4	189	756
	14	8.0	1	270	270
	15	8.0	2	169	338
	16	8.0	2	459	918
	17	8.0	1	275	275
	18	8.0	2	458	916
	19	8.0	1	336	336
	20	8.0	2	453	906
	21	8.0	2	213	426
	22	8.0	2	1139	2278
	23	8.0	2	969	1938
	24	8.0	4	478	1912
	25	8.0	2	183	366
	26	8.0	2	219	438
	27	8.0	1	346	346
	28	8.0	1	344	344
	29	8.0	2	295	590
	30	8.0	2	1164	2328
	31	8.0	2	984	1968
	32	8.0	1	200	200
	33	8.0	2	220	440
	34	8.0	2	1198	2396
	35	8.0	2	1051	2102
	36	8.0	1	297	297
	37	8.0	2	667	1334
	38	8.0	4	171	684
	39	8.0	4	231	924
	40	8.0	4	256	1024
	41	10.0	4	260	1040
	42	10.0	4	461	1844
	43	10.0	2	189	378
	44	10.0	2	1198	2396
	45	10.0	2	1049	2098
	46	10.0	2	196	392
	47	10.0	4	495	1980
	48	10.0	4	715	2860
	49	10.0	4	290	1160
	50	10.0	4	450	1800

RESUMO DO AÇO

AÇO	DIAM	C.TOTAL (m)	PESO+10% (kg)
CA50	8.0	385.3	167.5
	10.0	159.5	108.2
CA60	5.0	614.7	104.1
PESO TOTAL			
CA50	275.7		
CA60	104.1		

Vol. de concreto total =5.93 m³
Área de forma total = 87.45 m²

QUADRA ESCOLAR

PROJETO ESTRUTURAL

DATA: OUTUBRO DE 2015	ESTRUTURA DE CONCRETO VIGAS - NÍVEL 320		EST
A.R.T.: 92221220151351786			
ESCALA: INDICADA	BÉTON ENGENHARIA EIRELI - EPP CREA-SP: 1.077.875	RESPONSÁVEL TÉCNICO: LUIZ ROBERTO MOYSÉS FILHO, ENGENHEIRO CIVIL / SEG. DO TRABALHO CREA-SP: 5060736862	PRANCHA: 02
FORMATO: A1(841X594)			