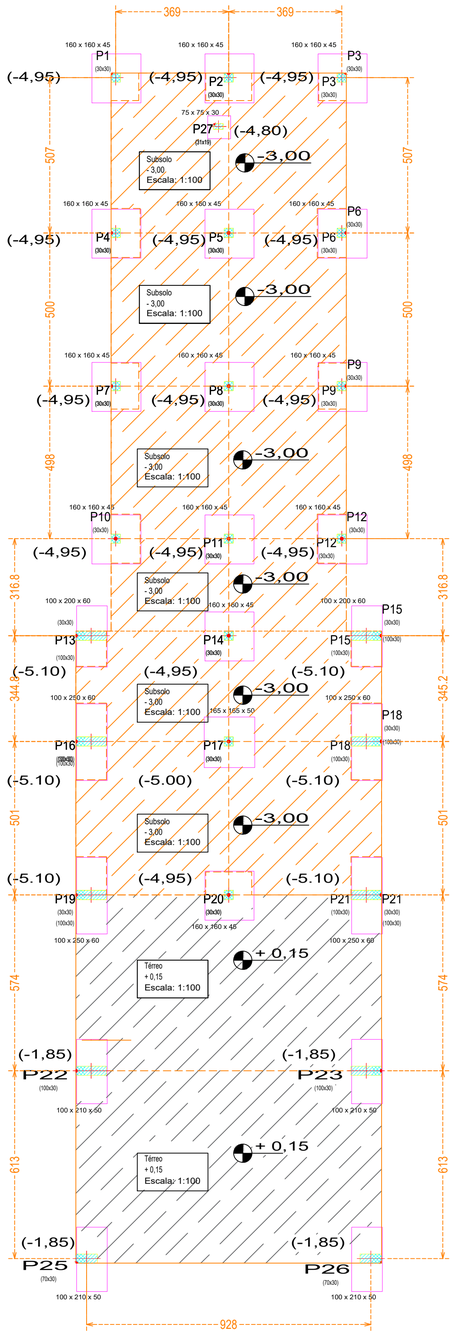
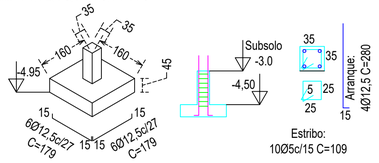
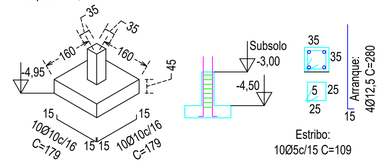


SAPATAS DO SUBSOLO + TRECHO DO TÉRREO
Detalhamento fundação
Concreto em lajes: C35, em geral
Concreto em fundação: C35, em geral
Escala: 1:100

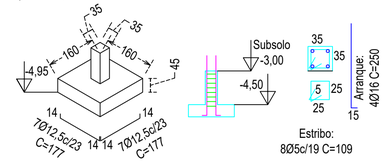
Sapata - P1, P2, P3, P4, P6, P7 e P9



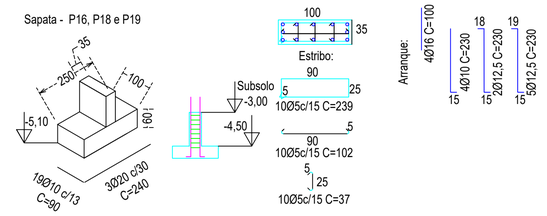
Sapata - P5, P8 e P11



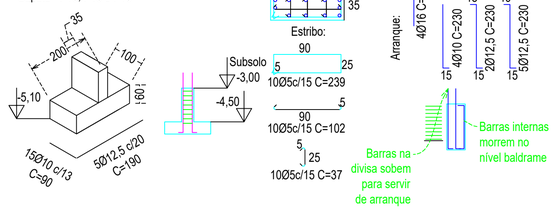
Sapata - P10 e P12



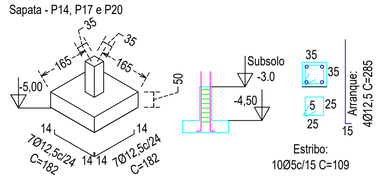
Sapata - P16, P18 e P19



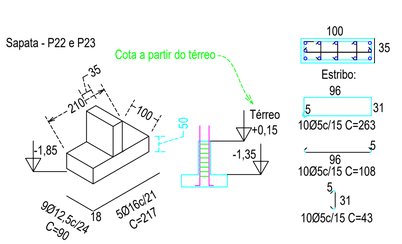
Sapata - P13, P15 e P18



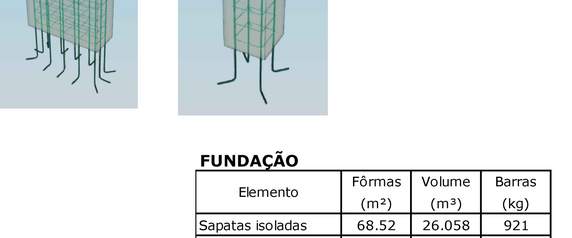
Sapata - P14, P17 e P20



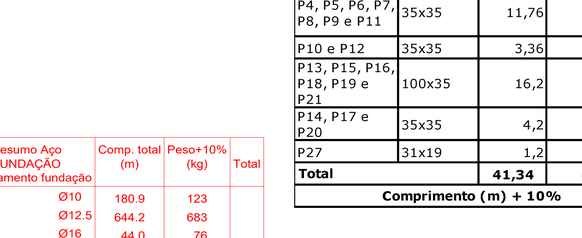
Sapata - P22 e P23



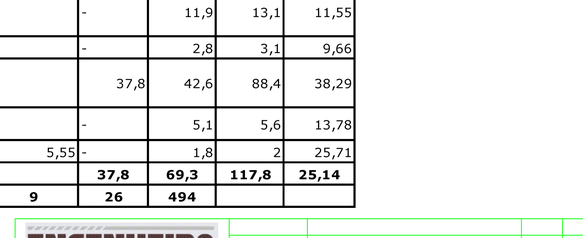
Sapata - P25

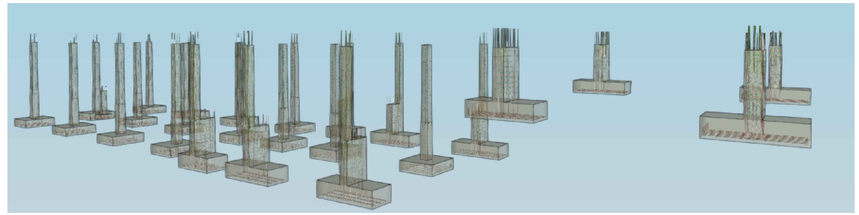


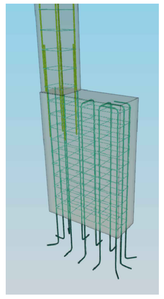
Sapata - P26

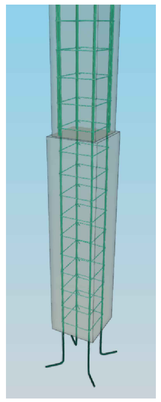


Sapata - P18 e P21









Sapata - P27
Pilar diferenciado

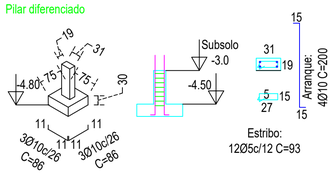


Tabela resumo SUBSOLO - TÉRREO

Pilares (Arranques)	Dimensões (cm)	Fôrmas (m²)	Concreto C35, em geral (m³)	Armaduras CA-50 e CA-60				Taxa (kg/m³)
				Longitudinal		Estribos Ø5 (kg)	Total 10% (kg)	
				Ø12,5 (kg)	Ø16 (kg)			
P22 e P23	100x35	5,4	0,7	5,4	18,4	15,6	43,3	56,29
P25	100x35	2,7	0,35	1,5	13,7	9,4	27,1	70,29
P26	100x35	2,7	0,35	2,5	6,9	7,8	18,9	49,14
Total		**10,8**	**1,4**	**9,4**	**39**	**32,8**	**89,3**	**58,00**
Comprimento (m) + 10%				**10**	**27**	**234**		

Aumento pilar no arranque



Tabela resumo - SUBSOLO

Pilares (ARRANQUES)	Dimensões (cm)	Fôrmas (m²)	Concreto C35, em geral (m³)	Armaduras CA-50 e CA-60				Taxa (kg/m³)
				Longitudinal		Estribos	Total 10%	
				Ø10 (kg)	Ø16 (kg)	Ø5 (kg)	(kg)	
P1, P2 e P3	35x35	4,62	0,4	-	-	5,1	5,6	12,75
P4, P5, P6, P7, P8, P9 e P11	35x35	11,76	1,03	-	-	11,9	13,1	11,55
P10 e P12	35x35	3,36	0,29	-	-	2,8	3,1	9,66
P13, P15, P16, P18, P19 e P21	100x35	16,2	2,1	-	37,8	42,6	88,4	38,29
P14, P17 e P20	35x35	4,2	0,37		-	5,1	5,6	13,78
P27	31x19	1,2	0,07	5,55	-	1,8	2	25,71
Total		**41,34**	**4,26**		**37,8**	**69,3**	**117,8**	**25,14**
Comprimento (m) + 10%				**9**	**26**	**494**		

PARÂMETROS CONSIDERADOS:

- fck: 35 Mpa;
- Cobrimentos:
  - 1.5 cm para as lajes;
  - 2.0 cm para vigas e pilares (exceto em contato com solo);
  - *Tensão admissível: 2.5 kgf/cm²;
- Concreto preparado na obra e agregados dosados em volume (S=7);
- Tipo de Brito: 1 (19mm);
- Tipo de Areia: Grossa;
- Cimento CPII - 32 Mpa.

FUNDAÇÃO

Elemento	Fôrmas (m²)	Volume (m³)	Barras (kg)
Sapatas isoladas	68.52	26.058	921
Total	**-**	**26.058**	**921**

SUBSOLO

Elemento	Fôrmas (m²)	Volume (m³)	Barras (kg)
Sapatas isoladas	12.40	4.200	239
Total	**-**	**4.200**	**239**

Resumo Aço FUNDAÇÃO Detalhamento fundação		Comp. total (m)	Peso+10% (kg)	Total
CA-50	Ø10	180.9	123	
	Ø12.5	644.2	683	
	Ø16	44.0	76	
	Ø20	14.4	39	921

Resumo Aço SUBSOLO Detalhamento fundação		Comp. total (m)	Peso+10% (kg)	Total
CA-50	Ø12.5	154.8	164	
	Ø16	43.4	75	239

ENGENHEIRO ESTRUTURAL

Revisão	Descrição	Data	Assinado

Obra: P_E_GERAL_SÃO_ROQUE

Prancha 01/09 - Fundação e Esquadro

A1

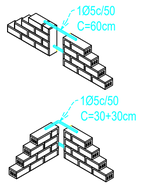
PROPRIETÁRIO

Maio de 2020

RT-Eng. Civil: XXXXXXXXXX CREA: XXXXXXXXXX

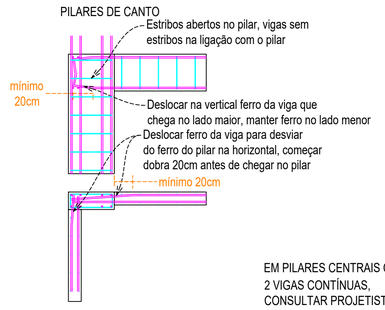
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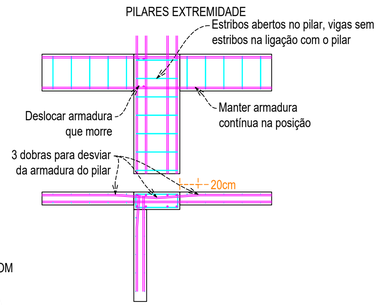
Ferros cabelo



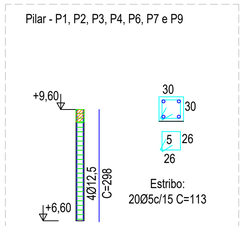


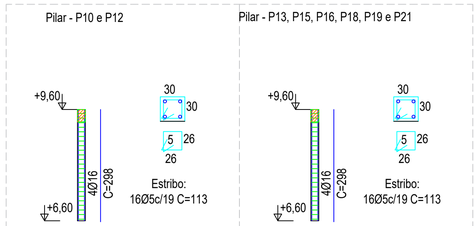
ENCONTRO VIGAS - PILAR

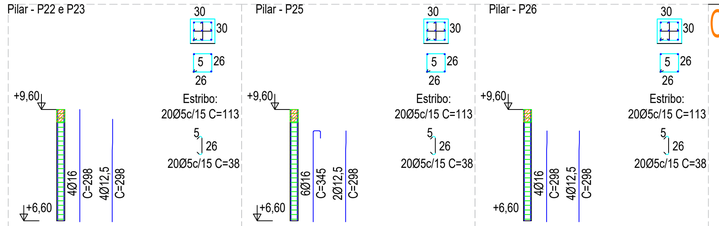




EM PILARES CENTRAIS COM
2 VIGAS CONTÍNUAS,
CONSULTAR PROJETISTA
PARA POSIÇÃO DAS BARRAS







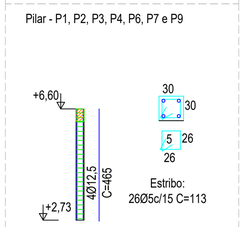
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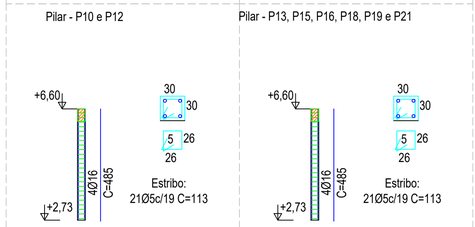
COBERTURA

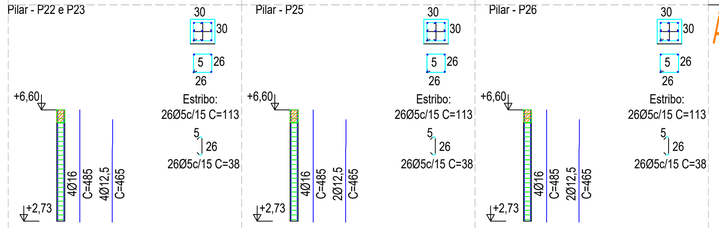
Tabela resumo ÁREA ADM - COBERTURA								
Pilares	Dimensões (cm)	Fôrmas (m²)	Concreto C35, em geral (m³)	Armaduras CA-50 e CA-60				Taxa (kg/m³)
				Longitudinal		Estribos Ø5 (kg)	Total 10% (kg)	
				Ø12,5 (kg)	Ø16 (kg)			
P1, P2 e P3	30x30	9,18	0,69	34,5	-	10,5	49,5	65,22
P4, P6, P7 e P9	30x30	12	0,9	46	-	14	66	66,67
P10, P12, P13, P15, P16, P18, P19 e P21	30x30	24	1,8	-	150,4	22,4	190,1	96
P22, P23 e P26	30x30	9	0,68	34,5	56,4	17,7	119,5	159,71
P25	30x30	3	0,23	5,7	32,7	5,9	48,7	192,61
Total		**57,18**	**4,3**	**120,7**	**239,5**	**70,5**	**473,8**	**100,16**
Comprimento (m) + 10%				**137**	**166**	**503**		

+6,60

ÁREA ADM







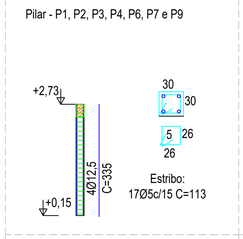
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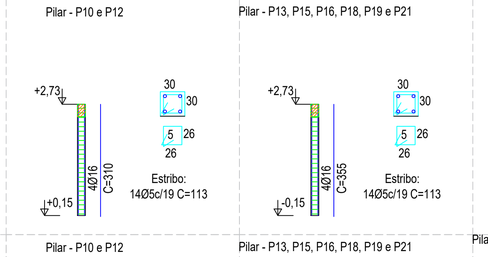
TRAVAMENTO INTERMEDIÁRIO

Tabela resumo TRAVAMENTO INTERMEDIÁRIO - ÁREA ADM								
Pilares	Dimensões (cm)	Fôrmas (m²)	Concreto C35, em geral (m³)	Armaduras CA-50 e CA-60				Taxa (kg/m³)
				Longitudinal		Estribos Ø5 (kg)	Total 10% (kg)	
				Ø12,5 (kg)	Ø16 (kg)			
P1, P2, P3, P4, P6, P7 e P9	30x30	28,7	2,15	125,3	-	32,2	173,3	73,26
P10, P12, P13, P15, P16, P18, P19 e P21	30x30	32,8	2,46	-	244,8	29,6	301,8	111,54
P22, P23 e P26	30x30	12,3	0,92	53,7	91,8	23,1	185,5	183,26
P25	30x30	4,1	0,31	9	45,9	7,7	68,9	201,94
Total		**77,9**	**5,84**	**188**	**382,5**	**92,6**	**729,5**	**113,54**
Comprimento (m) + 10%				**214**	**266**	**660**		

+0,15

TÉRREO





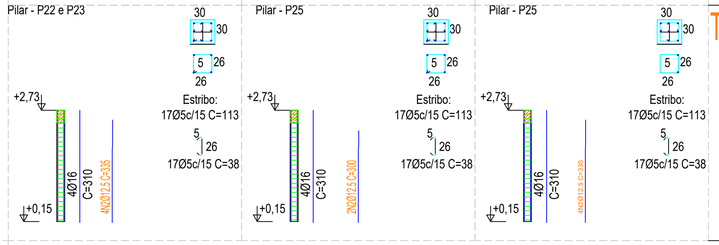
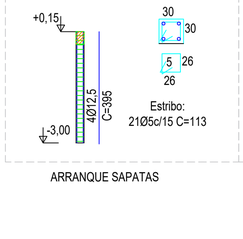
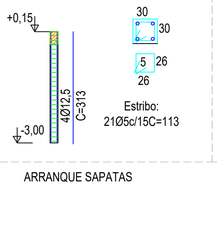


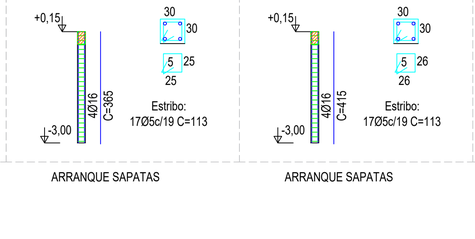
Tabela resumo TÉRREO - TRAVAMENTO INTERMEDIÁRIO								
Pilares	Dimensões (cm)	Fôrmas (m²)	Concreto C35, em geral (m³)	Armaduras CA-50 e CA-60				Taxa (kg/m³)
				Longitudinal		Estribos Ø5 (kg)	Total 10% (kg)	
				Ø12,5 (kg)	Ø16 (kg)			
P1, P2, P3, P4, P6, P7 e P9	30x30	17,5	1,31	90,3	-	21	122,4	84,96
P10 e P12	30x30	5	0,37	-	39,2	5	48,6	119,46
P13, P15, P16, P18, P19 e P21	30x30	15	1,12	-	134,4	15	164,3	133,39
P22 e P23	30x30	5	0,37	25,8	39,2	10	82,5	202,7
P25	30x30	2,5	0,19	5,8	29,4	5	44,2	211,58
P26	30x30	2,5	0,19	12,9	20,2	5	41,9	200,53
Total		**47,5**	**3,55**	**134,8**	**262,4**	**61**	**503,9**	**129,07**
Comprimento (m) + 10%				**153**	**182**	**435**		

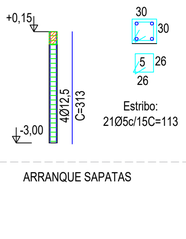
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SUBSOLO









ARRANQUE SAPATAS | ARRANQUE SAPATAS | ARRANQUE SAPATAS | ARRANQUE SAPATAS | ARRANQUE SAPATAS

ARRANQUE SAPATAS | ARRANQUE SAPATAS | ARRANQUE SAPATAS

Tabela resumo SUBSOLO - TÉRREO								
Pilares	Dimensões (cm)	Fôrmas (m²)	Concreto C35, em geral (m³)	Armaduras CA-50 e CA-60				Taxa (kg/m³)
				Longitudinal		Estribos Ø5 (kg)	Total 10% (kg)	
				Ø12,5 (kg)	Ø16 (kg)			
P1, P2, P3, P4, P6, P7 e P9	30x30	22,68	1,7	106,4	-	25,9	145,5	77,82
P5, P8, P11, P14, P17 e P20	30x30	19,44	1,46	72,6	-	22,2	104,3	64,93
P10 e P12	30x30	6,48	0,49	-	46	6	57,2	106,12
P13, P15, P16, P18, P19 e P21	30x30	19,44	1,46	-	157,2	18	192,7	120
Total		**68,04**	**5,11**	**179**	**203,2**	**72,1**	**499,7**	**88,90**
Comprimento (m) + 10%				**204**	**141**	**514**		

ENGENHEIRO ESTRUTURAL

Revisão	Descrição	Data	Assinado

Obra: P_E_GERAL_SÃO_ROQUE

Prancha 02/09 - Fundação e Esquadro

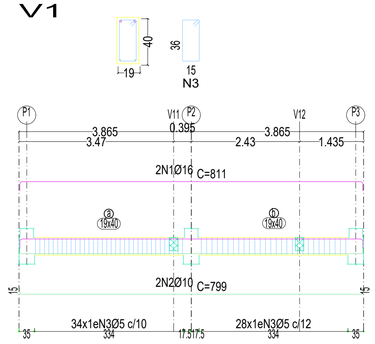
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PROPRIETÁRIO

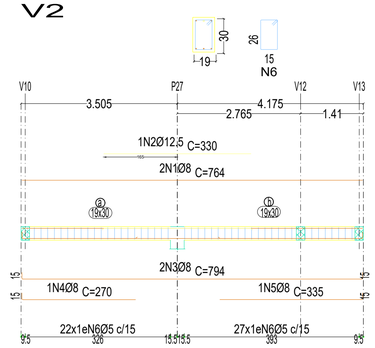
Maio de 2020

RT-Eng. Civil: XXXXXXXXXX CREA: XXXXXXXXXX

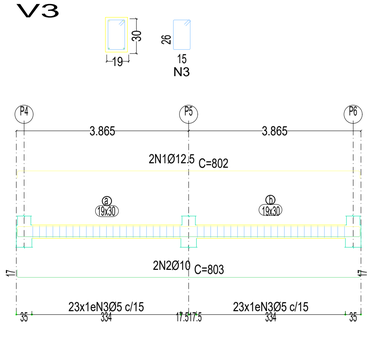
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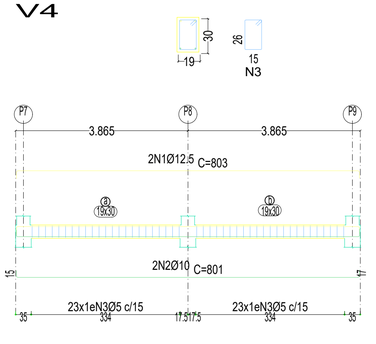
V2



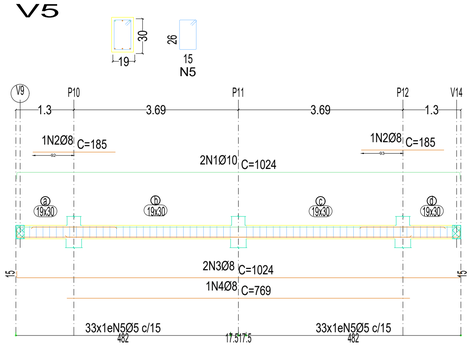
V3

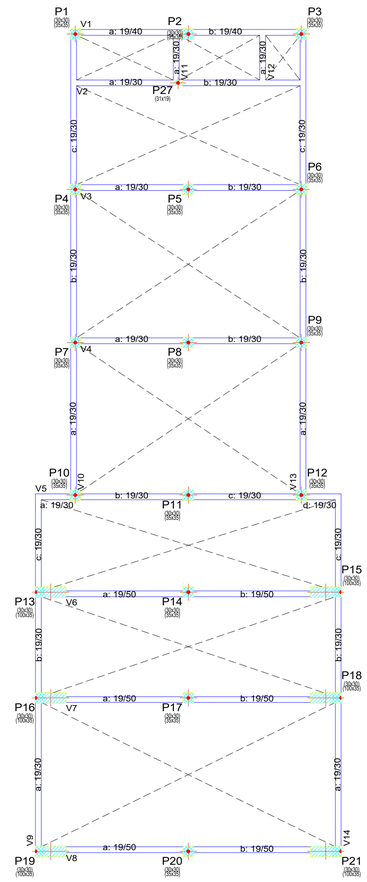


V4

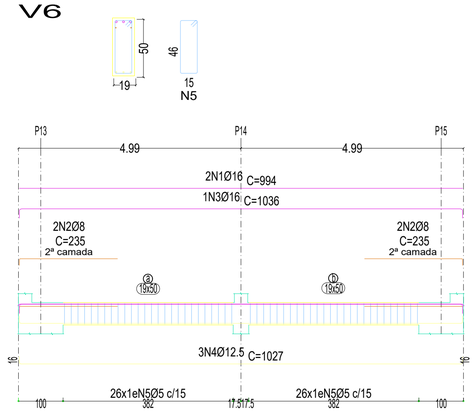


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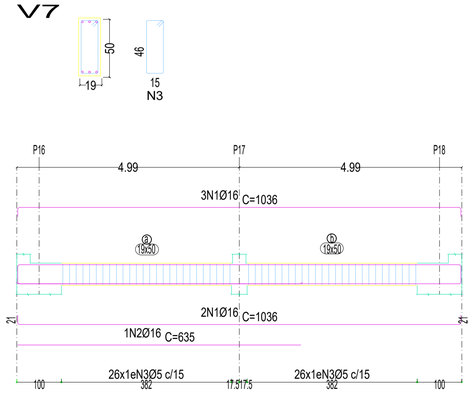




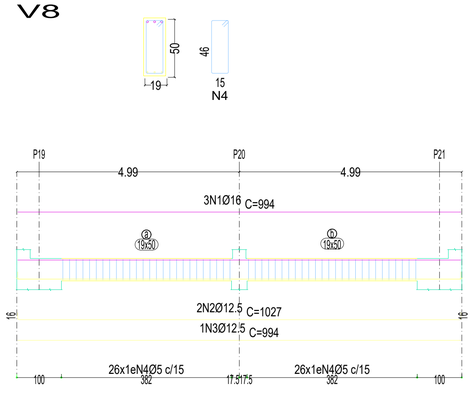
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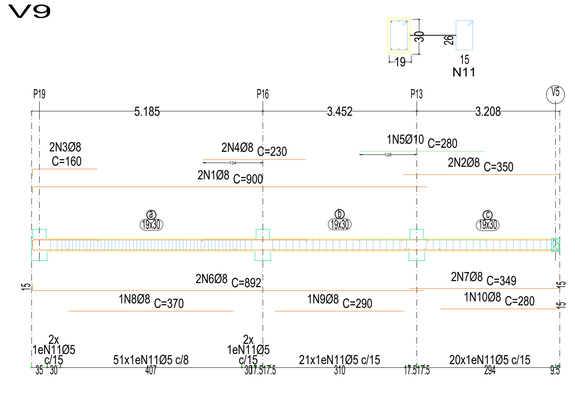
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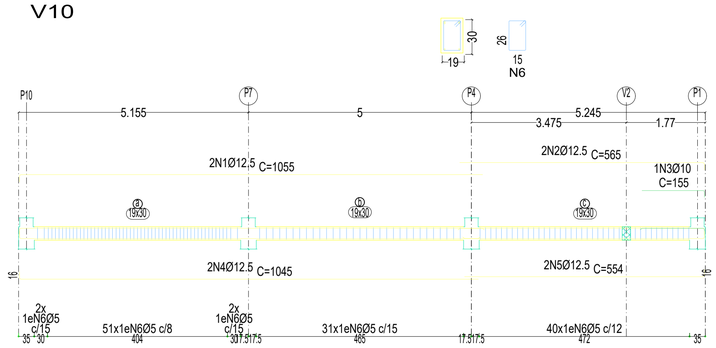
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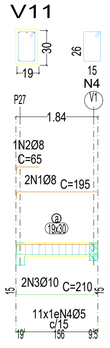
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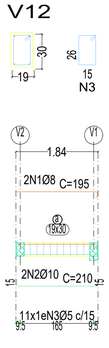
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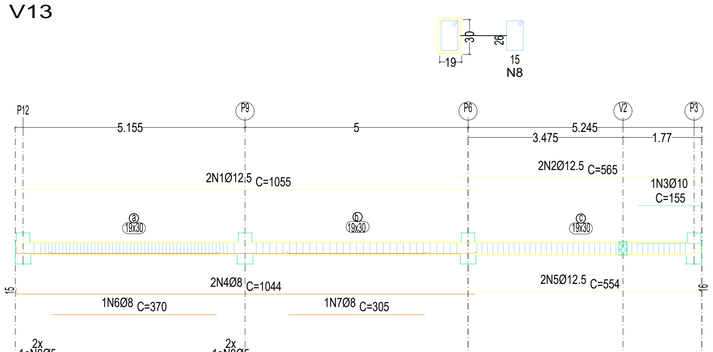
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V12

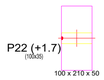


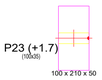
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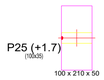


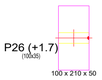
Resumo Aço Desenho de vigas		Comp. total (m)	Peso+10% (kg)	Total
CA-50	Ø8	244.7	106	
	Ø10	87.2	59	
	Ø12.5	204.6	217	
	Ø16	134.4	233	615
CA-60	Ø5	876.7	151	151
Total				766

SUBSOLO				
Elemento	Fôrmas (m2)	Superfície (m2)	Volume (m3)	Barras (kg)
Vigas	76.76	21.08	8.540	766
Pilares (ARRAQUES)	41.34	-	4.260	118
Total	-	21.08	12.800	884
Índices (por m2)	-	-	0.510	35.25
Superfície total: 25.08 m2				

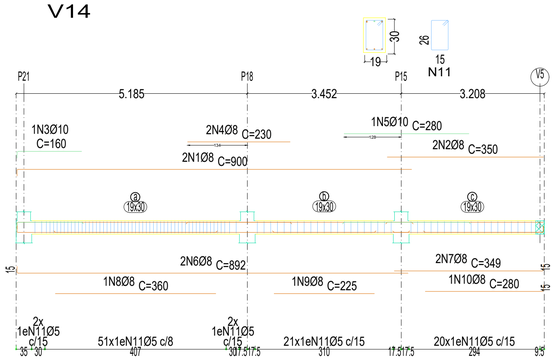






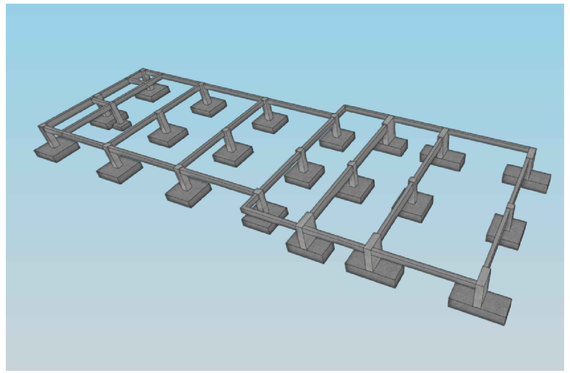


V14



SUBSOLO

Elemento	Fôrmas (m²)	Superfície (m²)	Volume (m³)	Barras (kg)
Vigas	76.76	21.08	8.540	766
Pilares (Arranques)	41.34	-	4.260	118
Total	**-**	**21.08**	**12.800**	**884**
Índices (por m²)	**-**	**-**	**0.510**	**35.25**
Superfície total: 25.08 m²				



SUBSOLO
Desenho de vigas
Concreto: C35, em geral
Aço das barras: CA-50 e CA-60
Aço dos estribos: CA-50 e CA-60
Escala vigas 1:100
Escala seções 1:50
Escala aberturas 1:50

ENGENHEIRO ESTRUTURAL

Proprietário:

Revisão	Descrição	Data	Assinado

Obra: P_E_GERAL_SÃO_ROQUE

Prancha 03/09 - Fundação e Esquadro

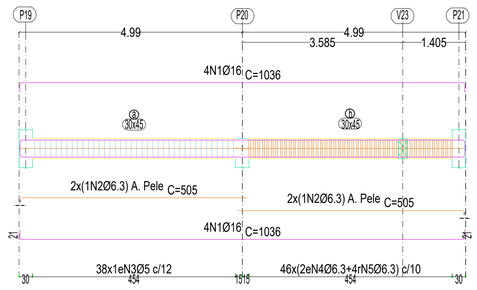
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PROPRIETÁRIO

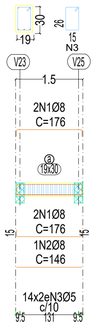
Maio de 2020

RT-Eng. Civil: XXXXXXXXXX CREA: XXXXXXXXXX

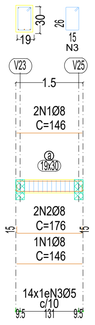
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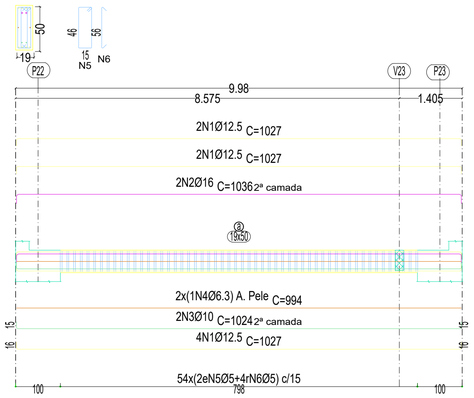
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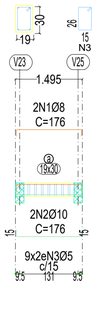
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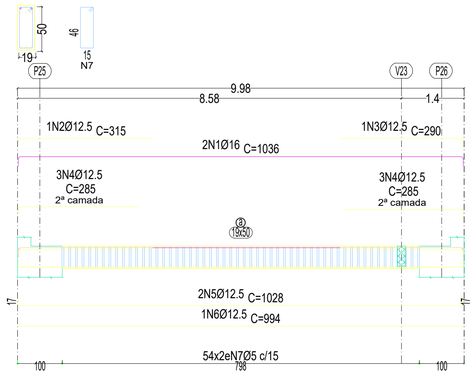
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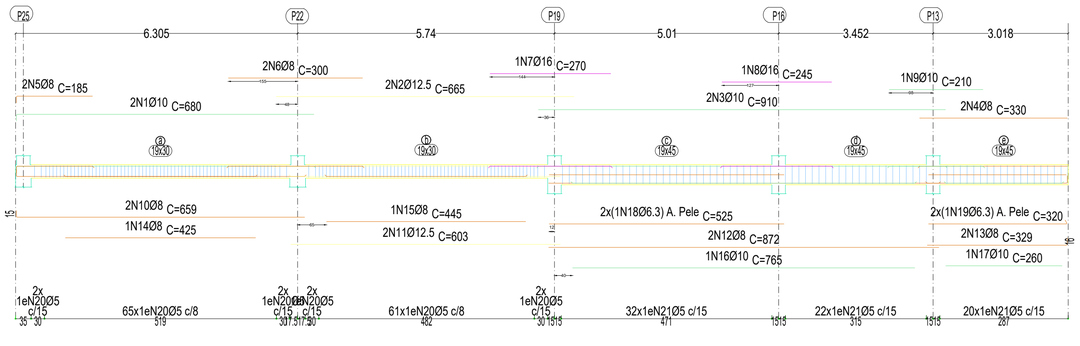
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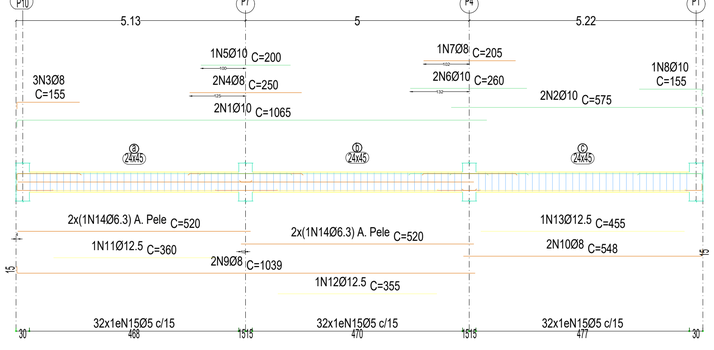
V20



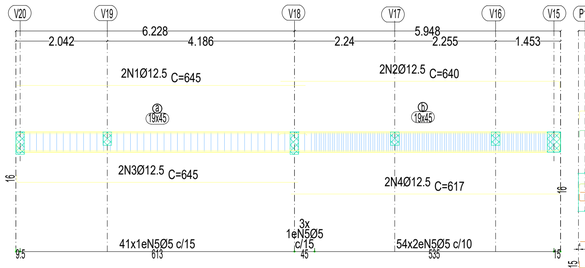
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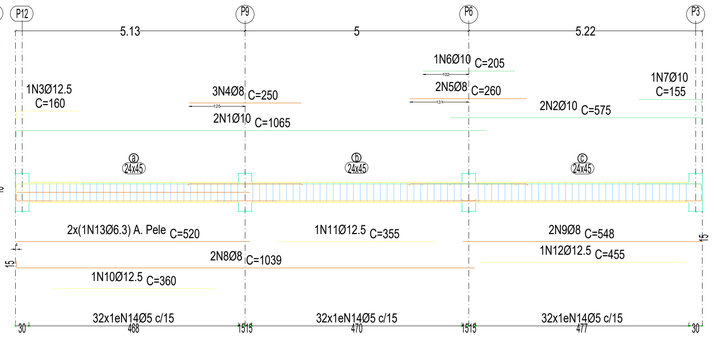
V22



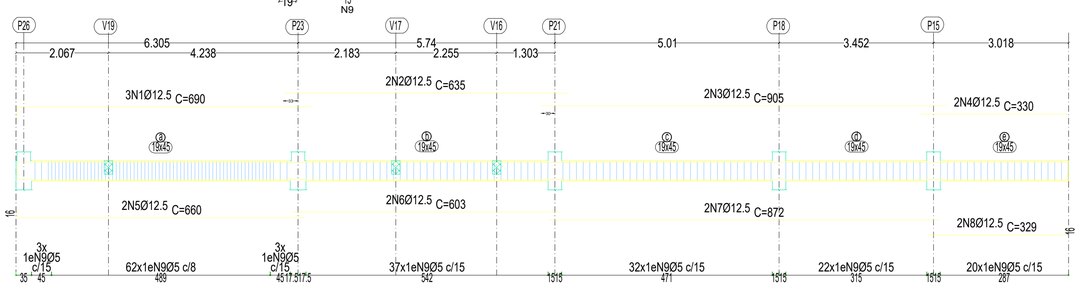
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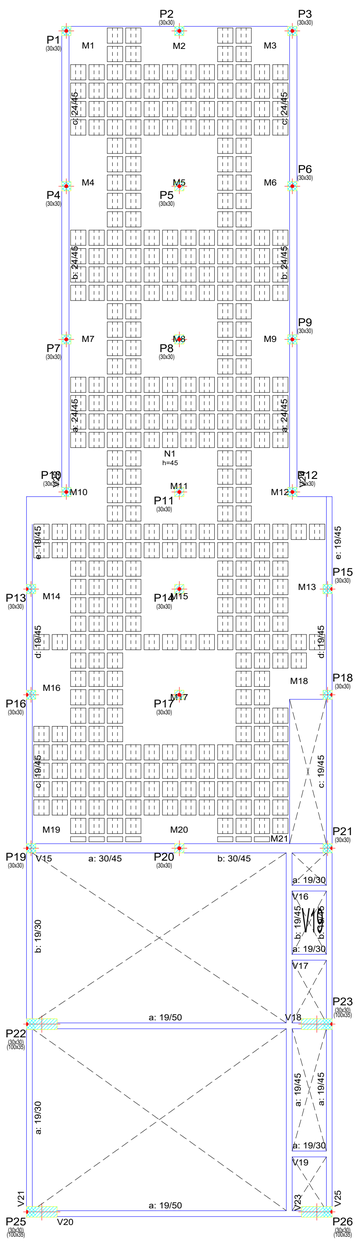


V24



V25





TÉRREO
Desenho de vigas
Concreto: C35, em geral
Aço das barras: CA-50 e CA-60
Aço dos estribos: CA-50 e CA-60
Escala vigas 1:100
Escala seções 1:50
Escala aberturas 1:50

Resumo Aço Desenho de vigas		Comp. total (m)	Peso+10% (kg)	Total
CA-50	Ø6.3	341.2	92	
	Ø8	170.0	74	
	Ø10	146.1	99	
	Ø12.5	344.5	365	
	Ø16	129.5	225	855
CA-60	Ø5	1365.9	236	236
Total				1091

TÉRREO				
Elemento	Formas (m2)	Superfície (m2)	Volume (m3)	Barras (kg)
Lajes nervuradas	-	212.82	59.430	1893
Armadura base de zonas maciças	-	-	-	635
Vigas	80.14	23.71	11.410	1084
Pilares	78.84	-	6.510	590
Total	-	236.53	77.350	4202
Indices (por m2)	-	-	0.323	17.52
Superfície total: 239.82 m2				
Nº blocos de l. nervurada = 1138 Unid.				

ENGENHEIRO ESTRUTURAL

Proprietário:

Maio de 2020

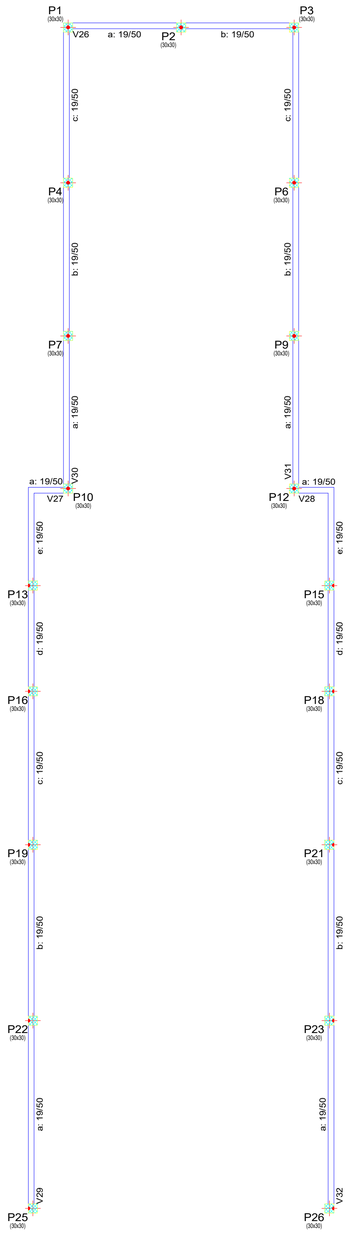
Obra: P_E_GERAL_SÃO_ROQUE

Prancha 04/09 - Fundação e Esquadro

A1

PROPRIETÁRIO

RT-Eng. Civil: XXXXXXXXXX CREA: XXXXXXXXXX



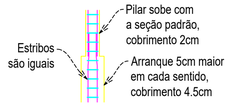
PLANTA DE FORMA - 2.73m

TRAVAMENTO INTERMEDIARIO				
Elemento	Fôrmas (m2)	Superfície (m2)	Volume (m3)	Barras (kg)
Vigas	81.38	15.46	8.350	533
Pilares	47.50	-	3.550	504
Total	-	15.46	11.900	1037
Indices (por m2)	-	-	0.693	60.40
Superfície total: 17.17 m2				

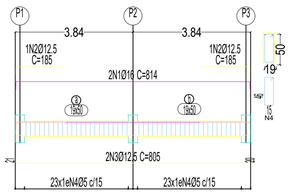
Resumo Aço Desenho de vigas		Comp. total (m)	Peso+10% (kg)	Total
CA-50	Ø6.3	2.0	1	
	Ø8	151.3	66	
	Ø10	41.8	28	
	Ø12.5	261.2	277	
	Ø16	16.3	28	400
CA-60	Ø5	769.6	133	133
Total				533

TRAVAMENTO INTERMEDIÁRIO
Desenho de vigas
Concreto: C35, em geral
Aço das barras: CA-50 e CA-60
Aço dos estribos: CA-50 e CA-60
Escala vigas 1:100
Escala seções 1:50
Escala aberturas 1:50

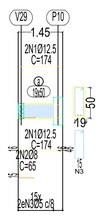
Mudança seção pilar no arranque



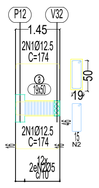
V26



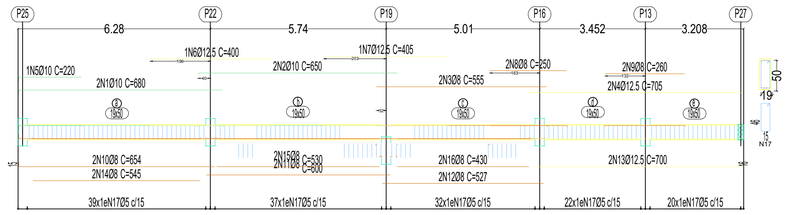
V27



V28

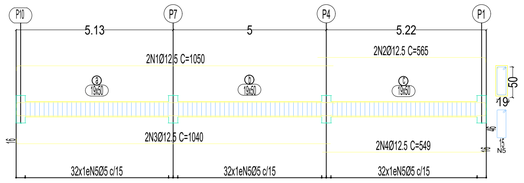


V29

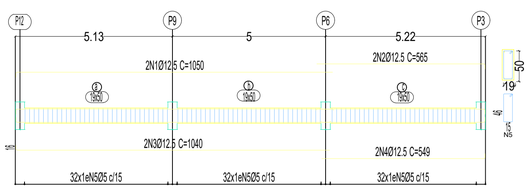


AREA ADM			
Elemento	Fôrmas (m2)	Superfície (m2)	Volume (m3)
Lajes nervuradas	-	328.53	73.020
Armadura base de zonas maciças	-	-	-
Vigas	47.07	15.17	7.330
Pilares	77.90	-	5.840
Total	-	343.70	86.190
Indices (por m2)	-	-	0.250
Superfície total: 345.41 m2			
Nº blocos de l. nervurada = 2270 Unid.			

V30

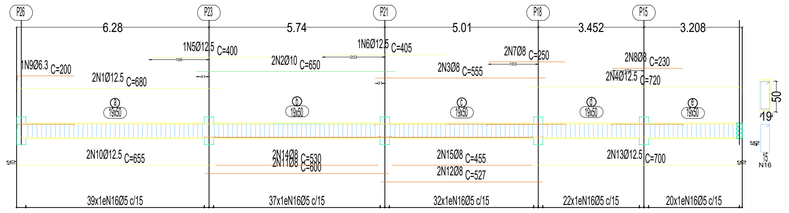


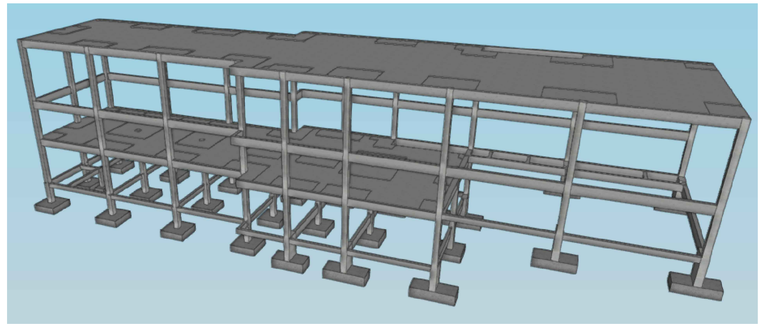
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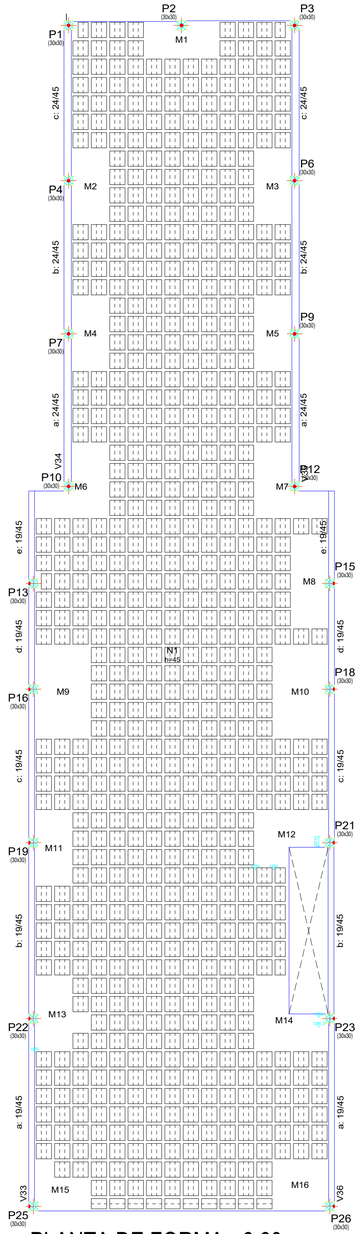


Resumo Aço Desenho de vigas		Comp. total (m)	Peso+10% (kg)	Total
CA-50	Ø6.3	97.9	26	
	Ø8	242.0	105	
	Ø10	138.5	94	
	Ø12.5	73.3	78	
	Ø16	4.3	7	310
CA-60	Ø5	648.0	112	112
Total				422

V32

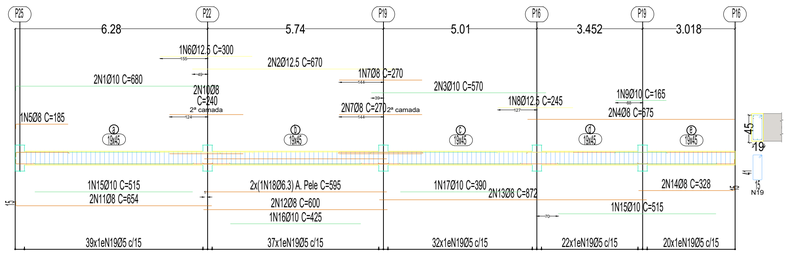




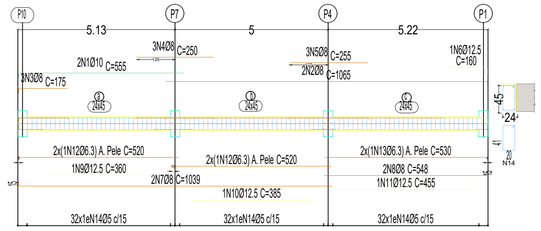


PLANTA DE FORMA - 6.60m

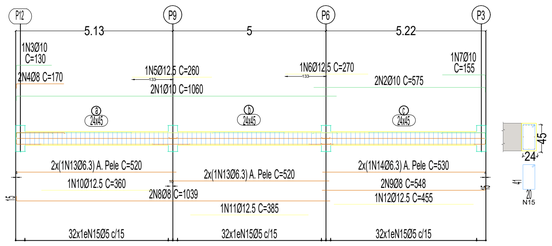
V33



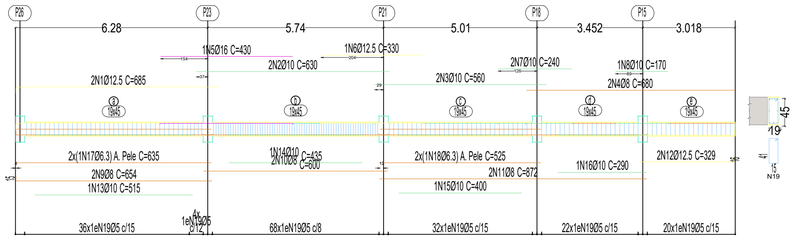
V34



V35



V36



ENGENHEIRO ESTRUTURAL

Proprietário:

Revisão	Descrição	Data	Assinado

Obra: P_E_GERAL_SÃO_ROQUE

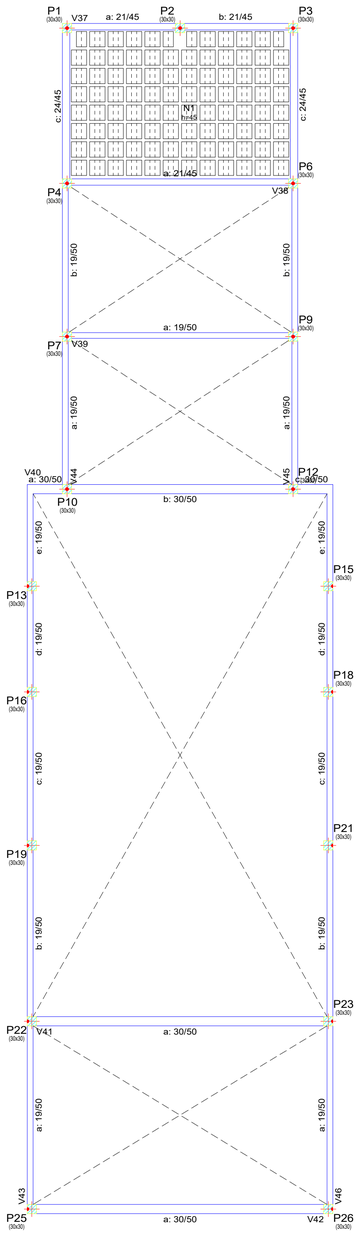
Prancha 05/06 - Fundação e Esquadro

A1

PROPRIETÁRIO

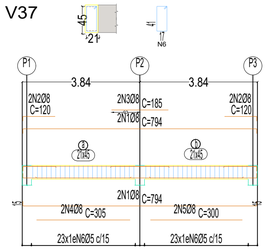
Dezembro de 2020

RT-Eng. Civil: XXXXXXXXXX CREA: XXXXXXXXXX

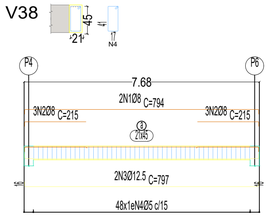


PLANTA DE FORMA - 9.60m

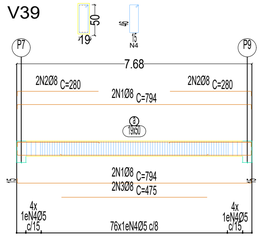
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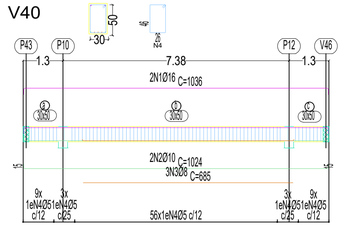
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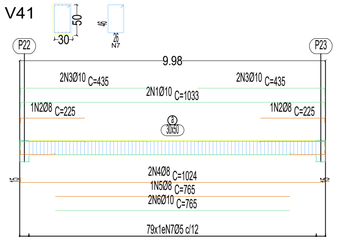
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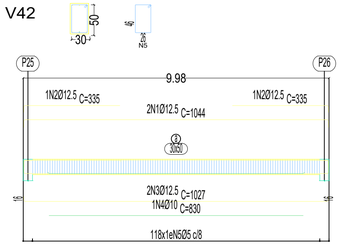
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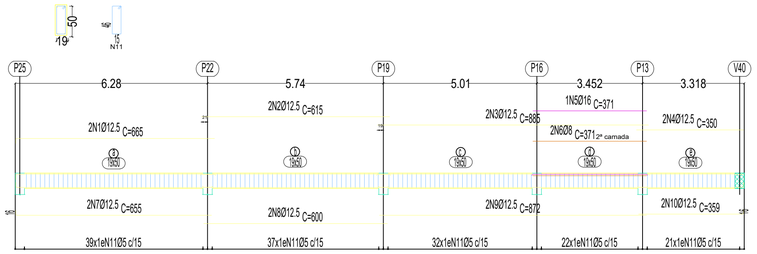
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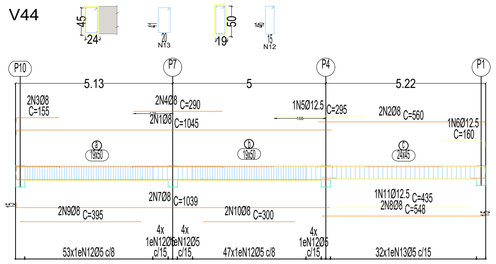
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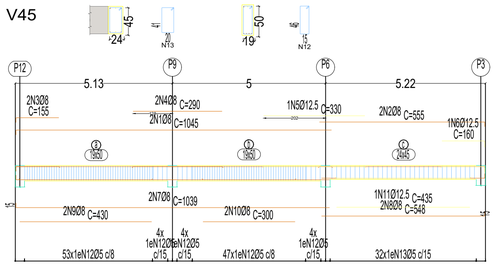
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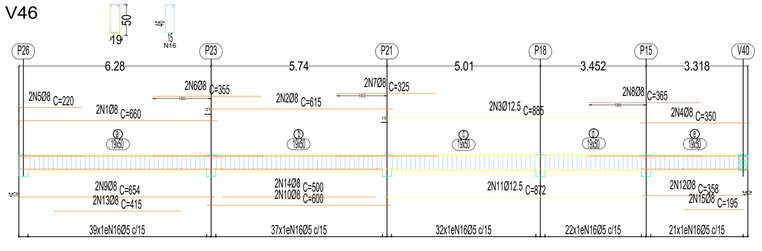
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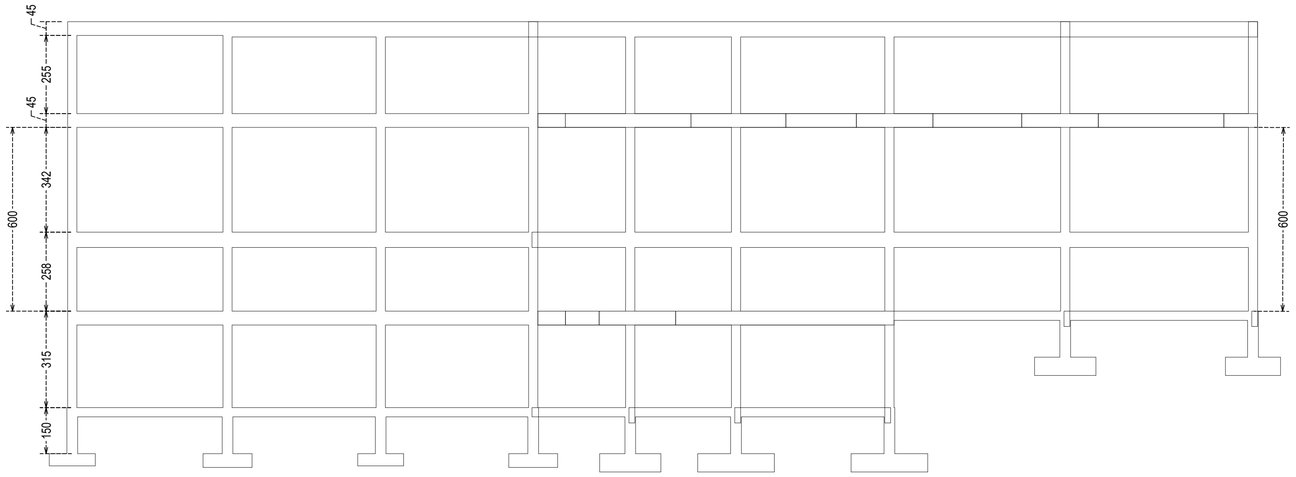


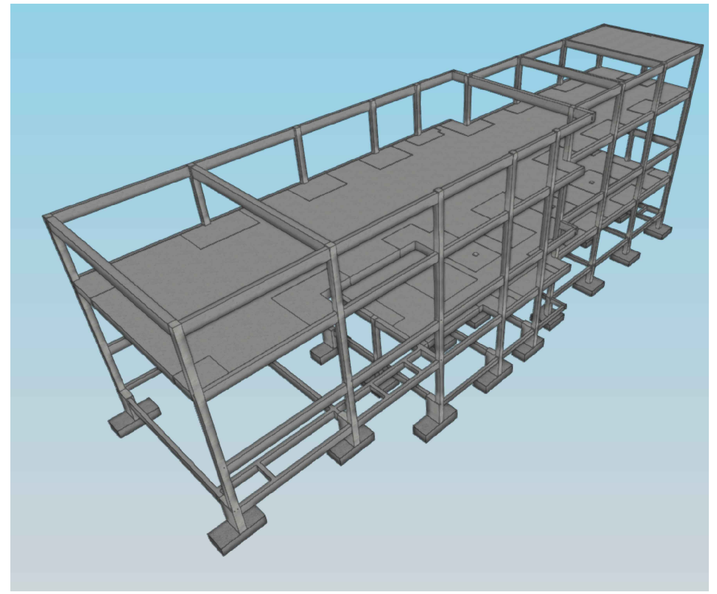
V46



COBERTURA			
Elemento	Fôrmas (m2)	Superfície (m2)	Volume (m3)
Lajes nervuradas	-	34.95	6.010
Vigas	108.62	26.92	14.140
Pilares	57.18	-	4.300
Total	-	61.87	24.450
Indices (por m2)	-	-	0.385
Superfície total: 63.58 m2			
Nº blocos de l. nervurada = 284 Unid.			

Resumo Aço Desenho de vigas		Comp. total (m)	Peso+10% (kg)	Total
CA-50	Ø8	480.3	209	
	Ø10	82.1	56	
	Ø12.5	217.4	230	
	Ø16	24.4	42	537
CA-60	Ø5	1413.8	244	244
Total				781





ENGENHEIRO ESTRUTURAL

Proprietário:

Revisão	Descrição	Data	Assinado

Obra: P_E_GERAL_SÃO_ROQUE

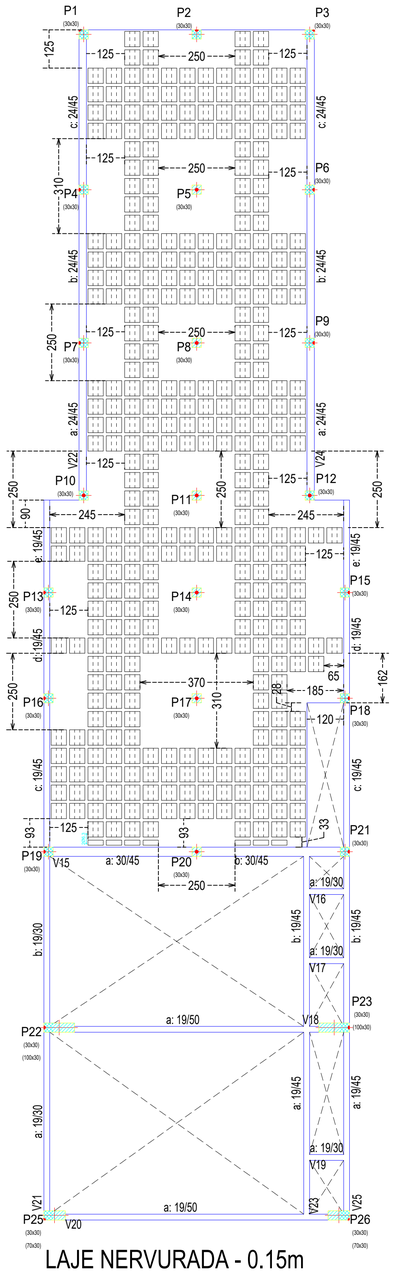
Prancha 06/09 - Fundação e Esquadro

A1

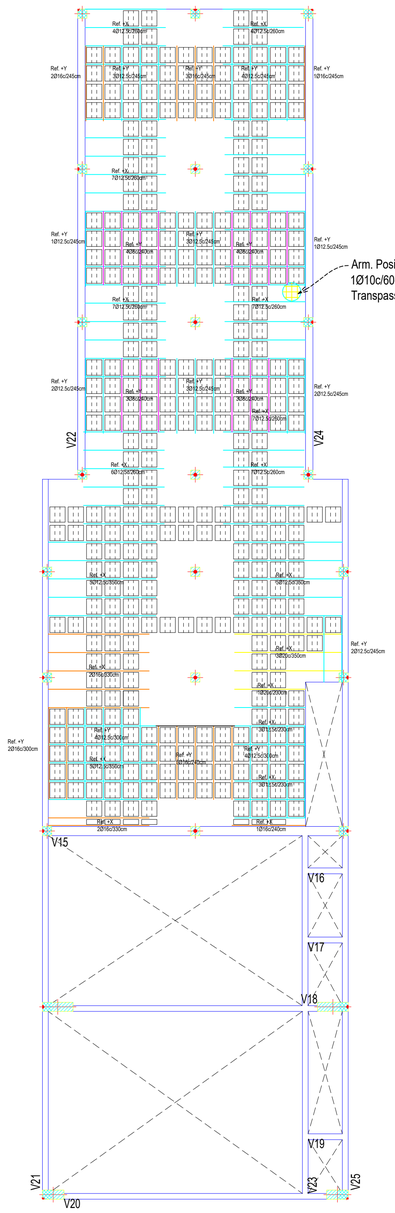
PROPRIETÁRIO

RT-Eng. Civil: XXXXXXXXXX CREA: XXXXXXXXXX

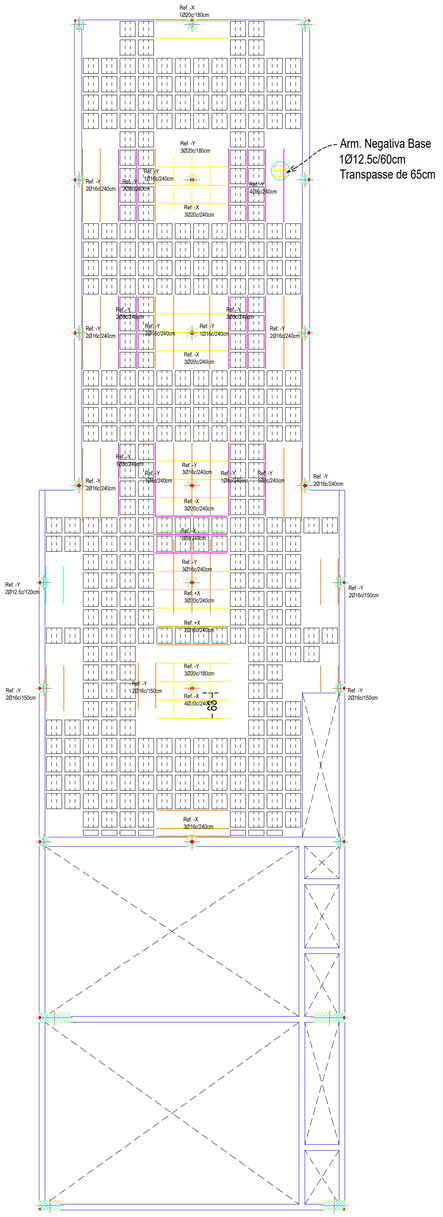
Dezembro de 2023



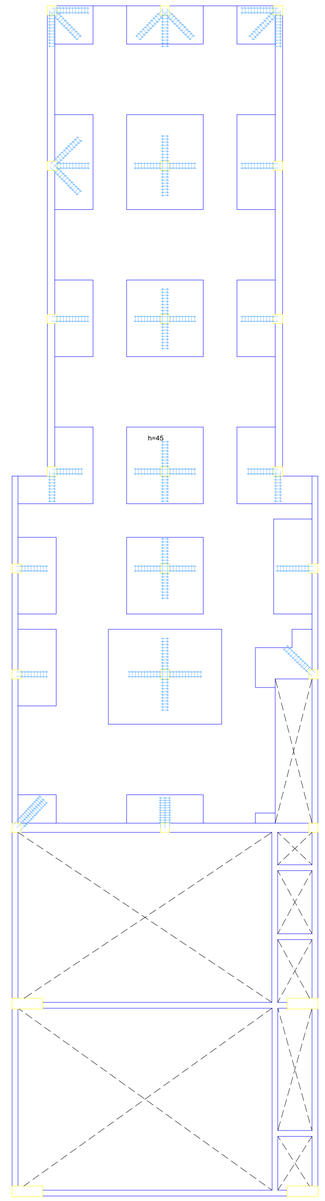
LAJE NERVURADA - 0.15m



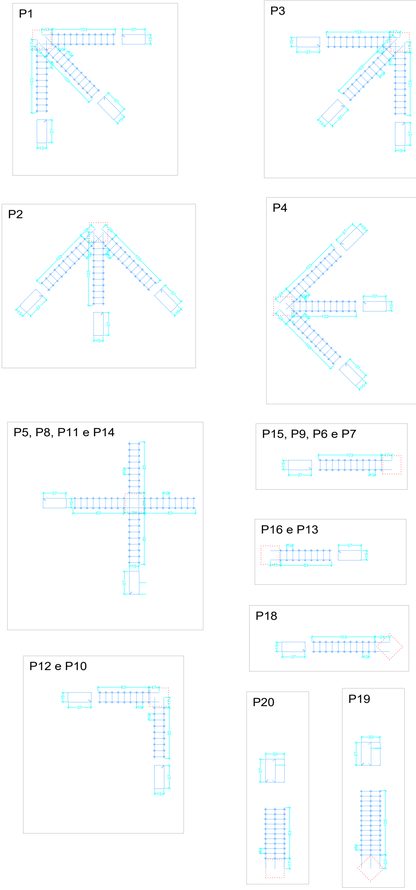
LAJE NERVURADA - ARMADURA POSITIVA

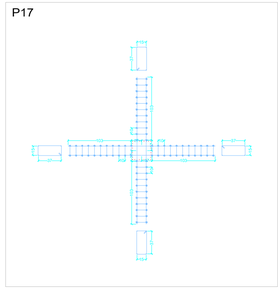


LAJE NERVURADA - ARMADURA NEGATIVA



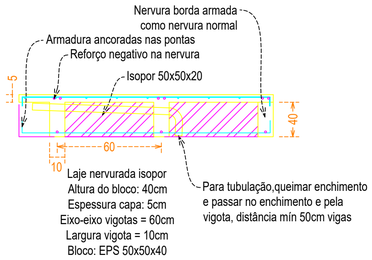
REFORÇO POR PUNÇÃO





Resumo Aço Armadura de punção e Detalhamento		Comp. total (m)	Peso+10% (kg)
CA-60	Ø5	759.0	131

DETALHE LAJE NERVURADA



ENGENHEIRO ESTRUTURAL

Proprietário:

Revisão	Descrição	Data	Assinado

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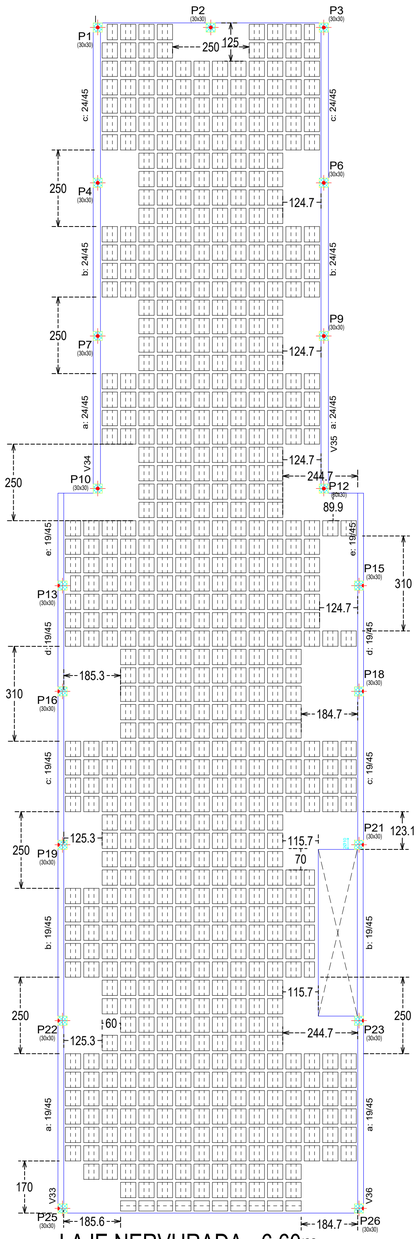
Prancha 07/09 - Fundação e Esquadro

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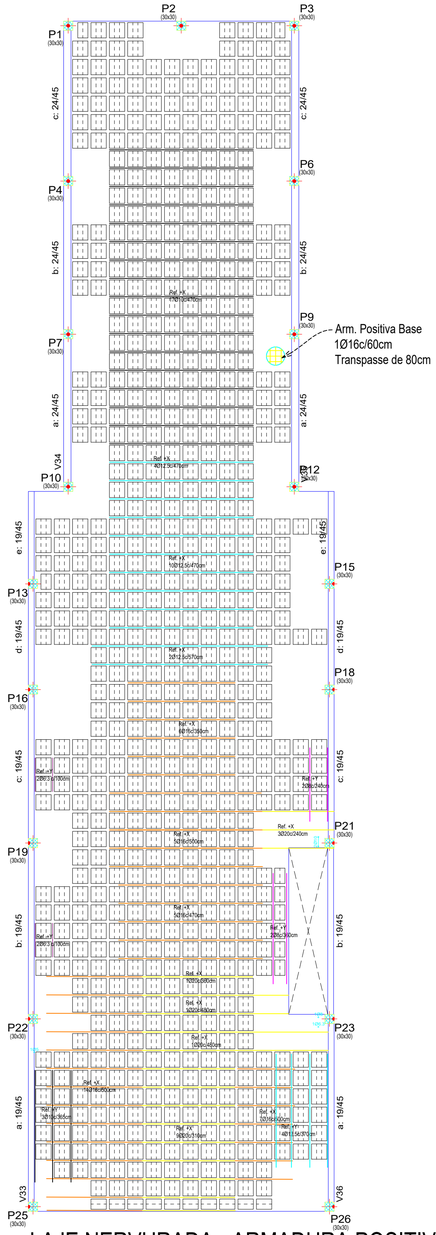
PROPRIETÁRIO

RT-Eng. Civil: XXXXXXXXXX CREA: XXXXXXXXXX

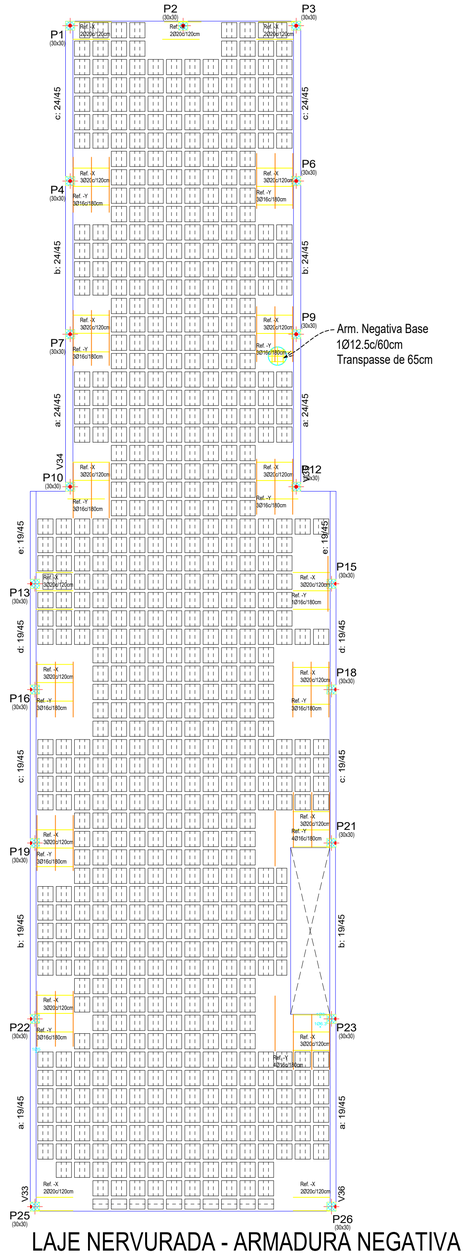
Dezembro de 2023



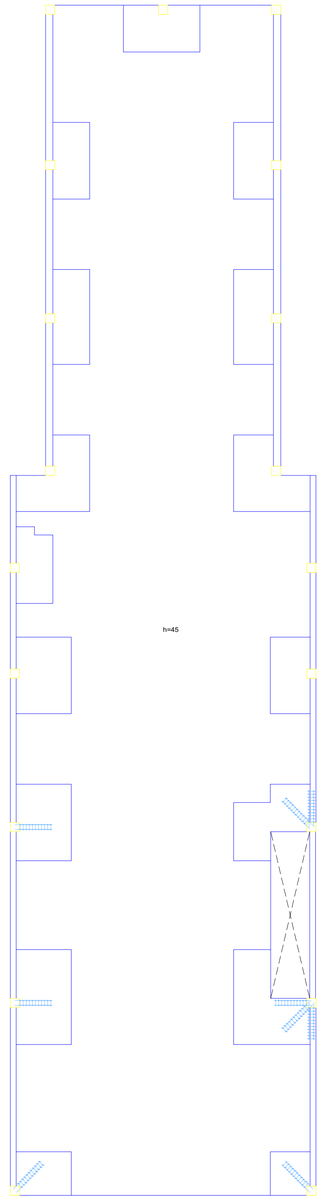
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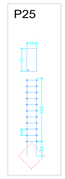


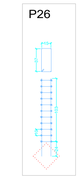
LAJE NERVURADA - ARMADURA POSITIVA



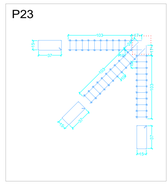
LAJE NERVURADA - ARMADURA NEGATIVA

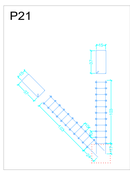






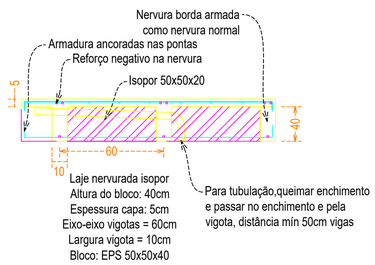






Resumo Aço Armadura de punção e Detalhamento		Comp. total (m)	Peso+10% (kg)
CA-60	Ø5	161.1	28

DETALHE LAJE NERVURADA



ENGENHEIRO ESTRUTURAL

Proprietário:

Obra: P_E_GERAL_SÃO_ROQUE

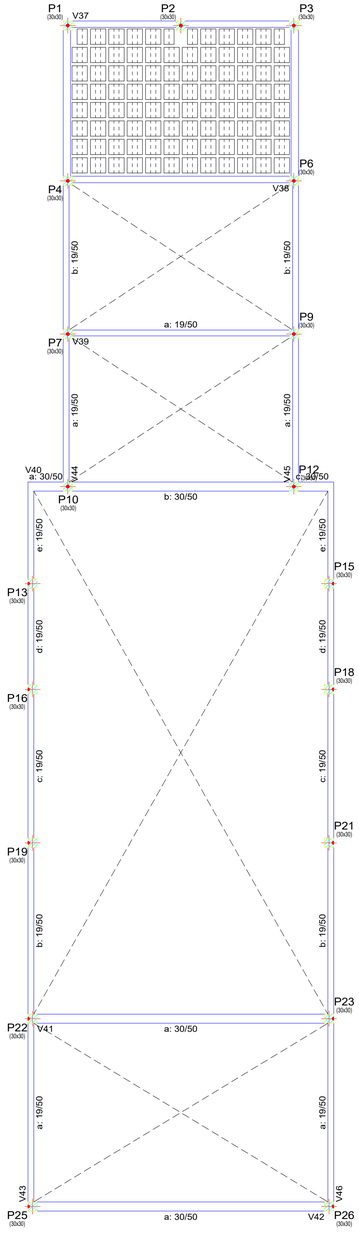
Prancha 08/09 - Fundação e Esquadro

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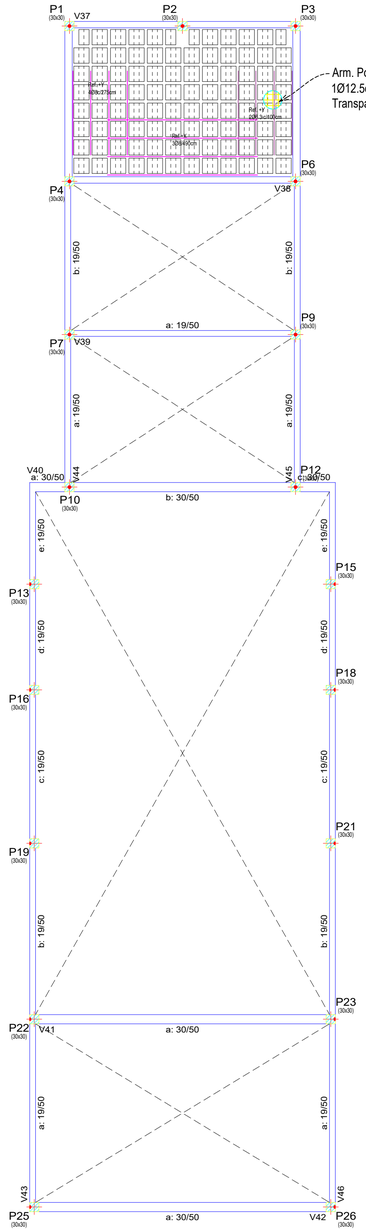
PROPRIETÁRIO

RT-Eng. Civil: XXXXXXXXXX CREA: XXXXXXXXXX

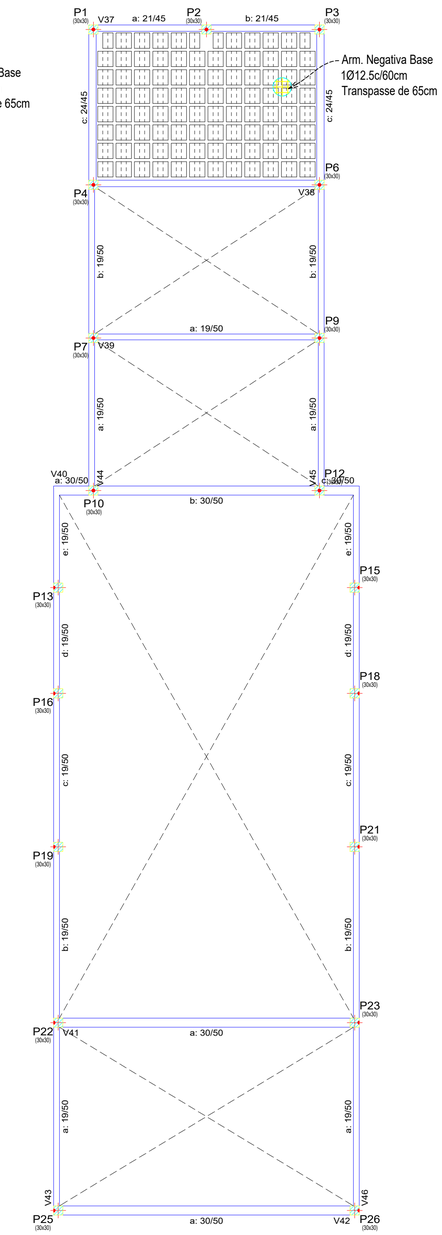
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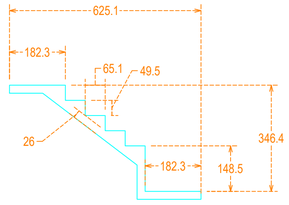
LAJE NERVURADA - 9.60m

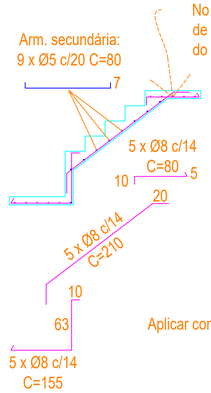


LAJE NERVURADA - ARMADURA POSITIVA

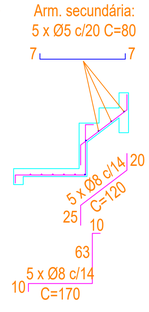


LAJE NERVURADA - ARMADURA NEGATIVA

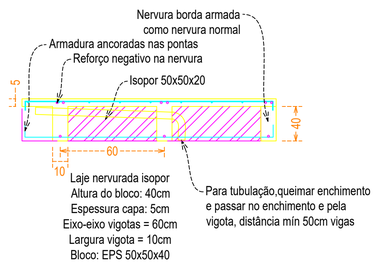




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DETALHE LAJE NERVURADA



ENGENHEIRO ESTRUTURAL

Proprietário:

Obra: P_E_GERAL_SÃO_ROQUE

Prancha 09/09 - Fundação e Esquadro

A1

PROPRIETÁRIO

RT-Eng. Civil: XXXXXXXXXX CREA: XXXXXXXXXX

Dezembro de 2023