

Forma do pavimento Primeira Laje

escala 1:50

Vigas			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
V201	15x40	0	310
V202	15x40	0	310
V203	40x50	37	347
V204	15x30	0	310
V205	40x50	37	347
V206	15x40	0	310
V207	15x30	0	310
V208	15x40	0	310
V209	15x30	0	310
V210	15x40	0	310
V211	40x50	37	347
V212	15x40	0	310
V213	20x30	0	310
V214	15x40	0	310
V215	40x50	37	347
V216	15x40	0	310

Lajes							
Nome	Tipo	Altura (cm)	Elevação (cm)	Nível (cm)	Sobrecarga (kgf/m²)		
					Peso próprio (kgf/m²)	Adicional	Acidental
L1	Pré-moldada	13	0	310	176	182	50
L2	Pré-moldada	13	0	310	176	182	50
L3	Maciça	10	0	310	250	182	100
L4	Maciça	10	0	310	250	182	100
L5	Pré-moldada	13	0	310	176	182	50
L6	Pré-moldada	13	0	310	176	182	50
L7	Pré-moldada	13	0	310	176	182	50
L8	Pré-moldada	13	0	310	176	182	50
L9	Pré-moldada	13	0	310	176	182	50
L10	Pré-moldada	13	0	310	176	182	50
L11	Pré-moldada	13	0	310	176	182	50
L12	Pré-moldada	13	0	310	176	182	50

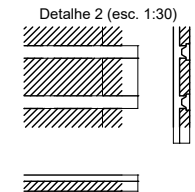
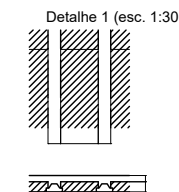
Pilares		
Nome	Seção (cm)	Elevação (cm)
P1	15x25	0
P2	15x40	37
P3	15x30	0
P4	15x25	0
P5	15x25	0
P6	15x40	37
P7	15x25	0
P8	15x25	0
P9	15x55	37
P10	15x40	37
P11	15x25	0
P12	15x40	37
P13	15x40	37
P14	15x25	0
P15	15x25	0
P16	15x40	37
P17	15x30	0
P18	15x25	0
P19	15x40	37
P20	15x40	0

Blocos de enchimento				
Detalhe	Tipo	Nome	Dimensões (cm)	Quantidade
1/2	EPS Unidirecional	B8/30/125	8 30 125	230

Características dos materiais	
fck (kgf/cm²)	Ecs (kgf/cm²)
250	241500

Legenda dos pilares	
	Pilar que morre

Legenda das vigas e paredes	
	Viga
	Viga chata ou invertida



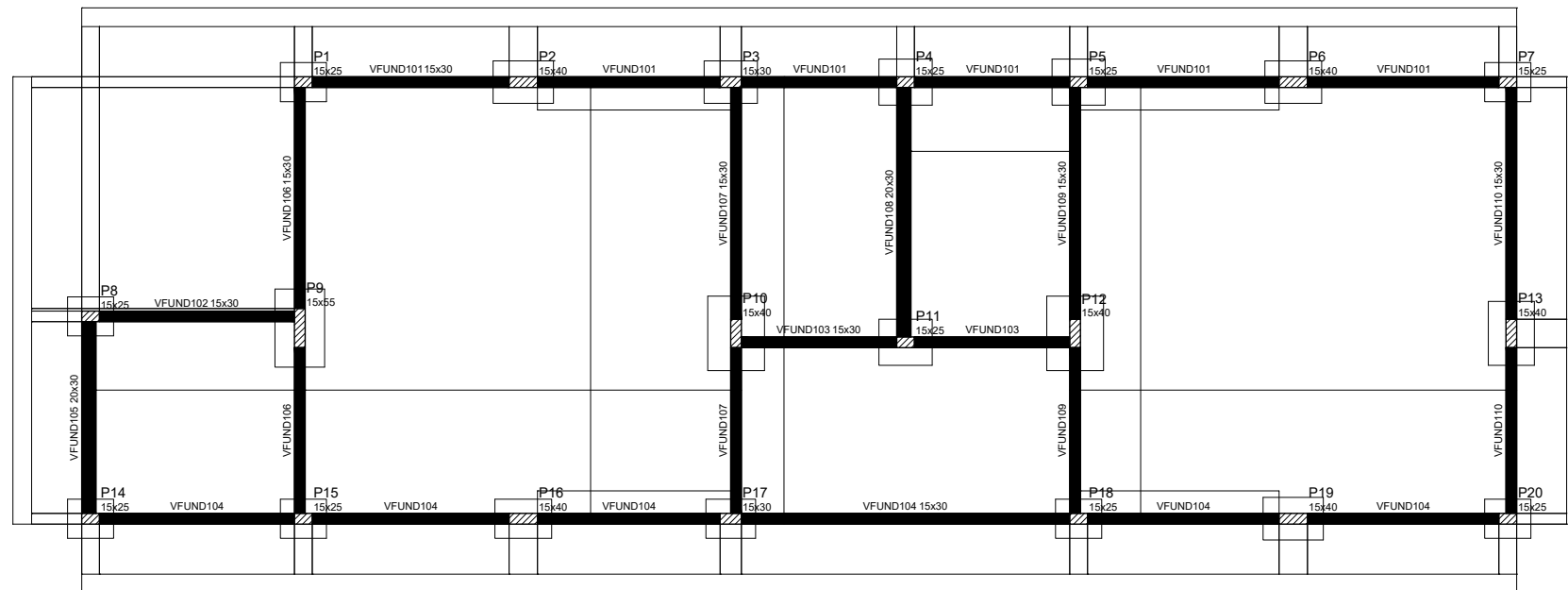
Legenda dos pilares	
	Pilar que passa
	Pilar com mudança de seção

Legenda das vigas e paredes	
	Viga

Vigas			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
VFUND101	15x30	0	0
VFUND102	15x30	0	0
VFUND103	15x30	0	0
VFUND104	15x30	0	0
VFUND105	20x30	0	0
VFUND106	15x30	0	0
VFUND107	15x30	0	0
VFUND108	20x30	0	0
VFUND109	15x30	0	0
VFUND110	15x30	0	0

Características dos materiais	
fck (kgf/cm²)	Ecs (kgf/cm²)
250	241500

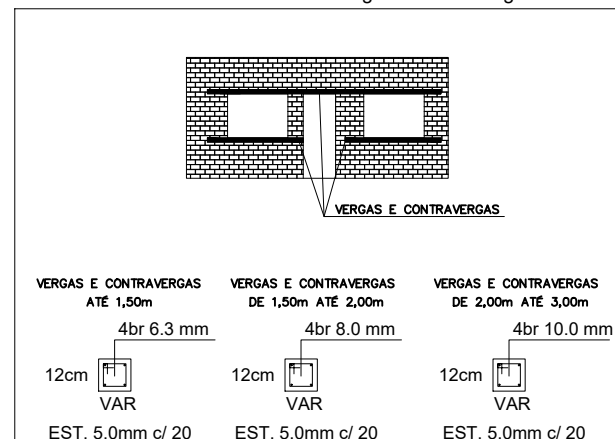
Pilares			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
P1	15x25	0	0
P2	15x40	0	0
P3	15x30	0	0
P4	15x25	0	0
P5	15x25	0	0
P6	15x40	0	0
P7	15x25	0	0
P8	15x25	0	0
P9	15x55	0	0
P10	15x40	0	0
P11	15x25	0	0
P12	15x40	0	0
P13	15x40	0	0
P14	15x25	0	0
P15	15x25	0	0
P16	15x40	0	0
P17	15x30	0	0
P18	15x25	0	0
P19	15x40	0	0
P20	15x25	0	0



Forma do pavimento Fundação

escala 1:50

Detalhe Construtivo das Vergas e Contravergas



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Rua: Barão de Piumhi, nº 121
Centro - Formiga | MG - Cep: 35570-000

Título:
PROJETO ESTRUTURAL – CORPO PRINCIPAL

Finalidade: AMPLIAÇÃO CENTRO DE EDUCAÇÃO INFANTIL
CONCEIÇÃO MARIA DE ALMEIDA

Detalhes:
FORMA FUNDAÇÃO, LAJE E DETALHAMENTO CONST. DE VERGAS E CONTRAVERGAS

Endereço Obra/Serviço:
AV. DR. TEIXEIRA SOARES, 1120, BAIRRO ENGENHO DE SERRA

EUGÊNIO VILELA JUNIOR
PREFEITO MUNICIPAL DE FORMIGA

Resp. Técnico:
LORENA DE PAIVA ARANTES
ENGENHEIRA CIVIL – CREA MG: 234.399/D

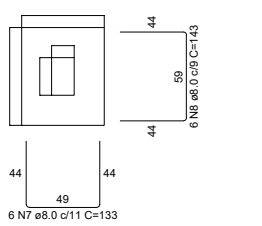
Quadro de Áreas:
ÁREA DO CORPO PRINCIPAL = 154,94 m²
TOTAL = 154,94 m²

ÁREA TOTAL RESIDÊNCIA: 154,94m²

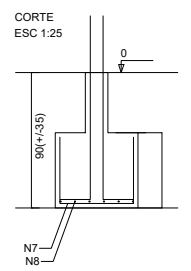
Protocolo: Aprovação: Visto:

Escala: INDICADA Desenho: LORENA ARANTES Data: MAIO/2022 Prancha: 01 / 05

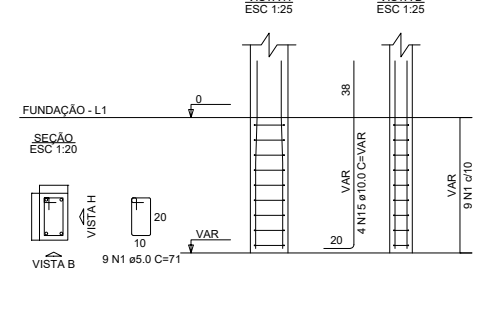
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PLANTA
ESC 1:25



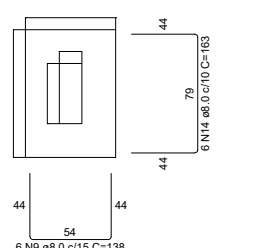
Solo com capacidade de suporte > 2.00 kgf/cm²
Solo compactado sobre a sapata
peso específico > 1600.00 kgf/m³



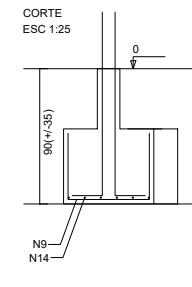
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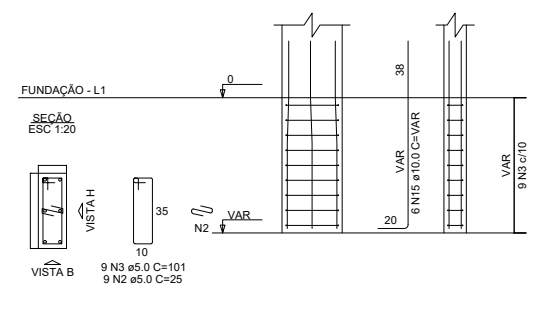
S2=S19
PLANTA
ESC 1:25



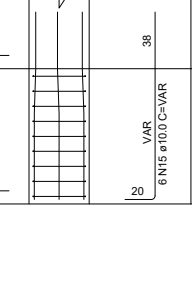
Solo com capacidade de suporte > 2.00 kgf/cm²
Solo compactado sobre a sapata
peso específico > 1600.00 kgf/m³



P2=P19



Solo com capacidade de suporte > 2.00 kgf/cm²



RELAÇÃO DO AÇO

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	87	71	6177
	2	5.0	27	25	675
	3	5.0	24	101	2424
	4	5.0	9	81	729
	5	5.0	6	25	150
	6	5.0	9	131	1179
	7	8.0	42	133	5586
	8	8.0	60	143	8580
	9	8.0	24	138	3312
	10	8.0	24	153	3672
	11	8.0	6	158	948
	12	8.0	6	148	888
	13	8.0	6	188	1128
	14	8.0	12	163	1956
	15	10.0	60	VAR	VAR
	16	12.5	10	VAR	VAR

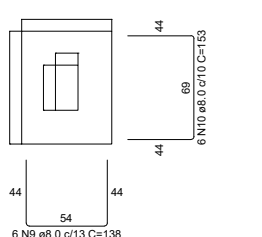
RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	8.0	250.7	113.2
	10.0	85.8	58.2
	12.5	15.1	16
CA60	5.0	113.3	19.2

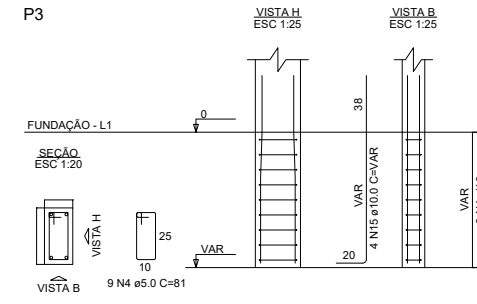
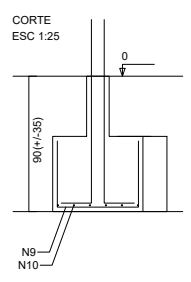
PESO TOTAL (kg)
CA50 187.3
CA60 19.2

Volume de concreto (C-25) = 3.62 m³
Área de forma = 32.29 m²

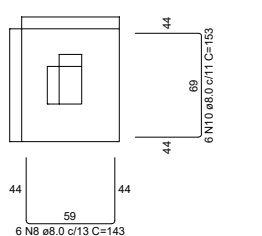
S3
PLANTA
ESC 1:25



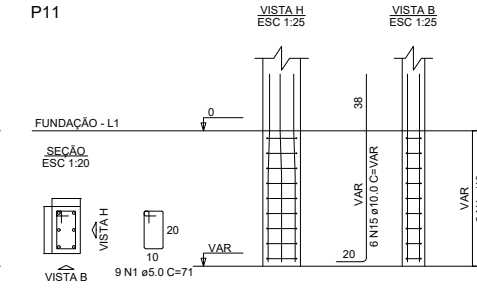
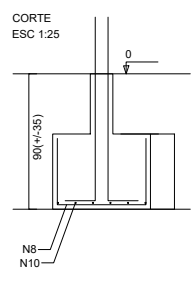
Solo com capacidade de suporte > 2.00 kgf/cm²
Solo compactado sobre a sapata
peso específico > 1600.00 kgf/m³



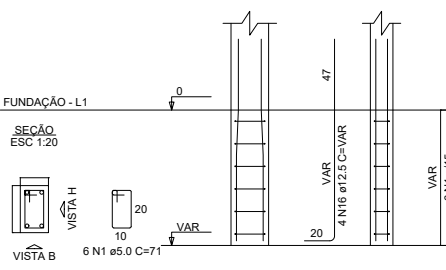
S4=S5=S11
PLANTA
ESC 1:25



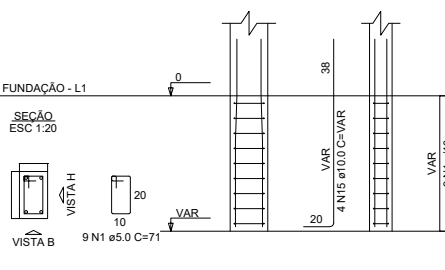
Solo com capacidade de suporte > 2.00 kgf/cm²
Solo compactado sobre a sapata
peso específico > 1600.00 kgf/m³



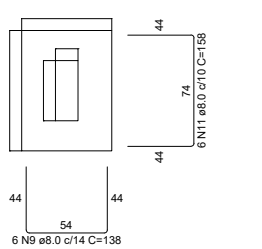
P4



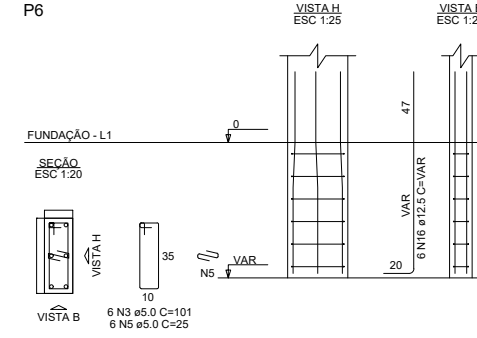
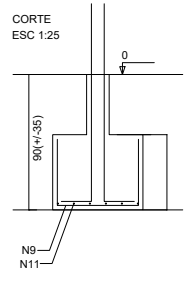
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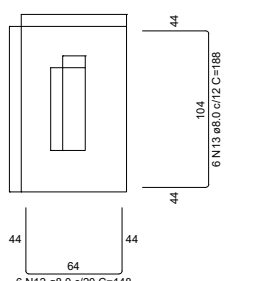
S6
PLANTA
ESC 1:25



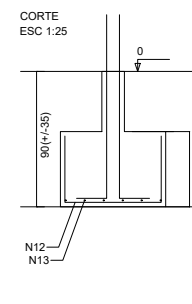
Solo com capacidade de suporte > 2.00 kgf/cm²
Solo compactado sobre a sapata
peso específico > 1600.00 kgf/m³



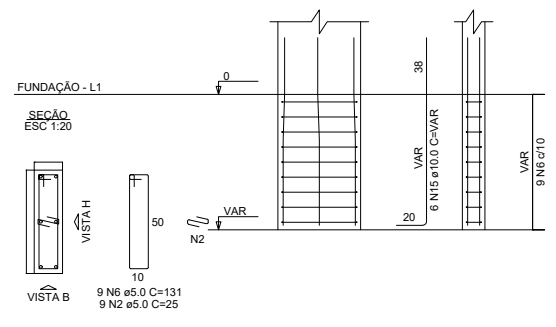
S9
PLANTA
ESC 1:25



Solo com capacidade de suporte > 2.00 kgf/cm²
Solo compactado sobre a sapata
peso específico > 1600.00 kgf/m³



P9



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Rua: Barão de Piumhi, nº 121
Centro - Formiga | MG - Cep: 35570-000

Título:
PROJETO ESTRUTURAL – CORPO PRINCIPAL

Finalidade: AMPLIAÇÃO CENTRO DE EDUCAÇÃO INFANTIL
CONCEIÇÃO MARIA DE ALMEIDA

Detalhes:
SAPATAS

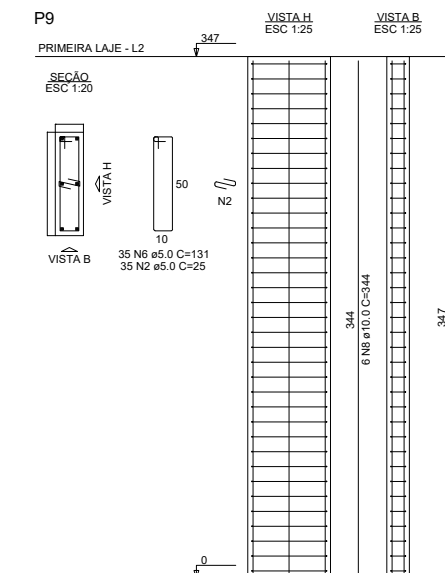
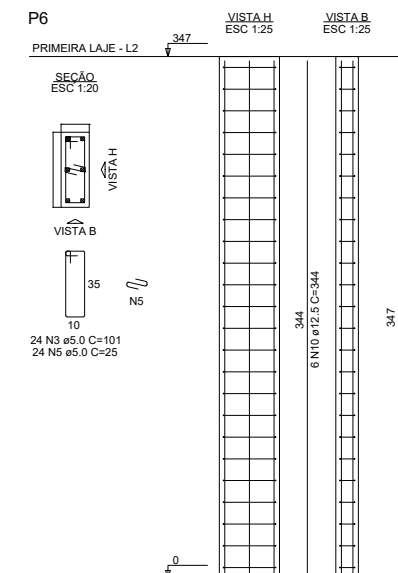
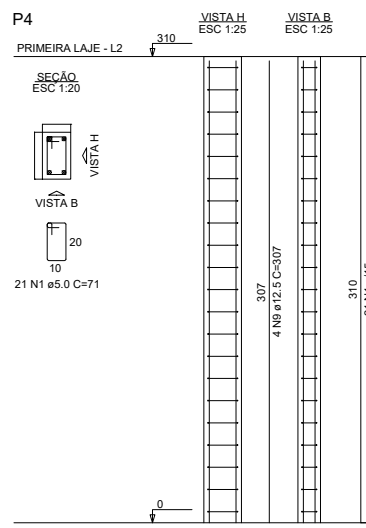
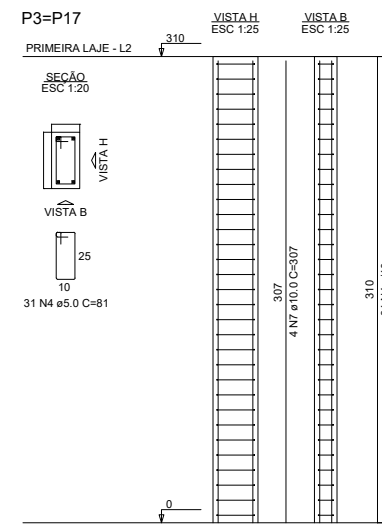
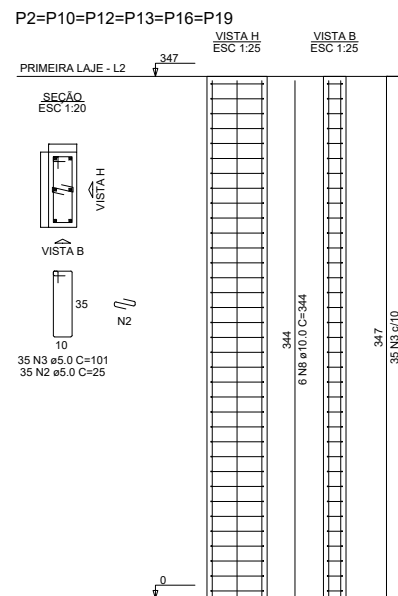
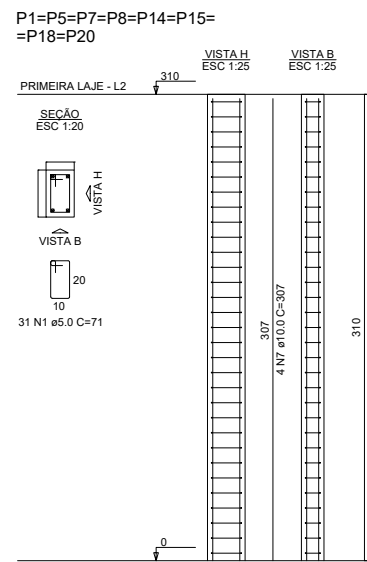
Endereço Obra/Serviço:
AV. DR. TEIXEIRA SOARES, 1120, BAIRRO ENGENHO DE SERRA

Resp. Técnico:
EUGÊNIO VILELA JUNIOR
PREFEITO MUNICIPAL DE FORMIGA

Quadro de Áreas:
ÁREA DO CORPO PRINCIPAL = 154,94 m²
TOTAL = 154,94 m²
ÁREA TOTAL RESIDÊNCIA: 154,94m²

Protocolo: **Aprovação:** **Visto:**

Escala: INDICADA **Desenho:** LORENA ARANTES **Data:** MAIO/2022 **Prancha:** 02 / 05



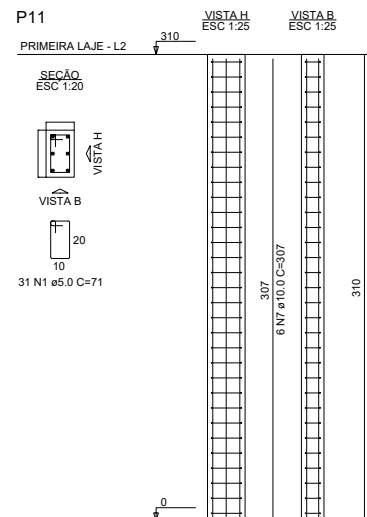
RELAÇÃO DO AÇO

8xP1 P4 P11	6xP2 P6	2xP3 P9			
CA60	1	5.0	300	71	21300
	2	5.0	245	25	6125
	3	5.0	234	101	23634
	4	5.0	62	81	5022
	5	5.0	24	25	600
	6	5.0	35	131	4585
CA50	7	10.0	46	307	14122
	8	10.0	42	344	14448
	9	12.5	4	307	1228
	10	12.5	6	344	2064

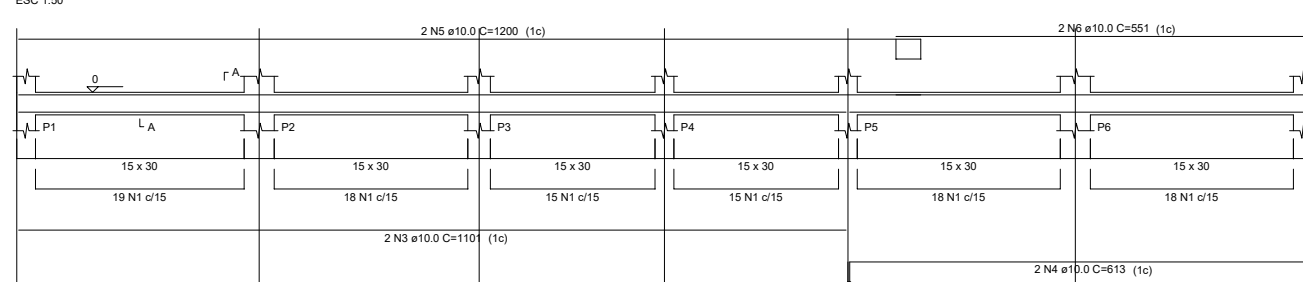
RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	10.0	285.7	193.8
CA60	5.0	612.7	34.9
PESO TOTAL (kg)			228.6
CA50			228.6
CA60			103.9

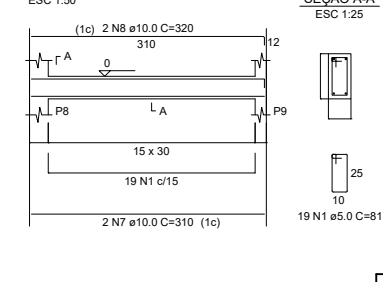
Volume de concreto (C-25) = 3.19 m³
Área de forma = 61.96 m²



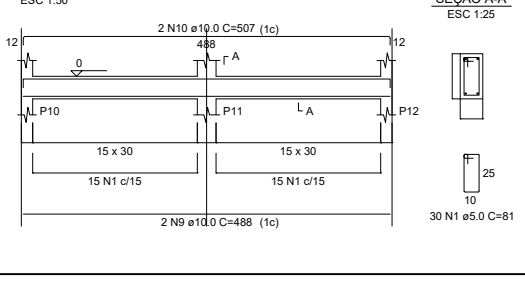
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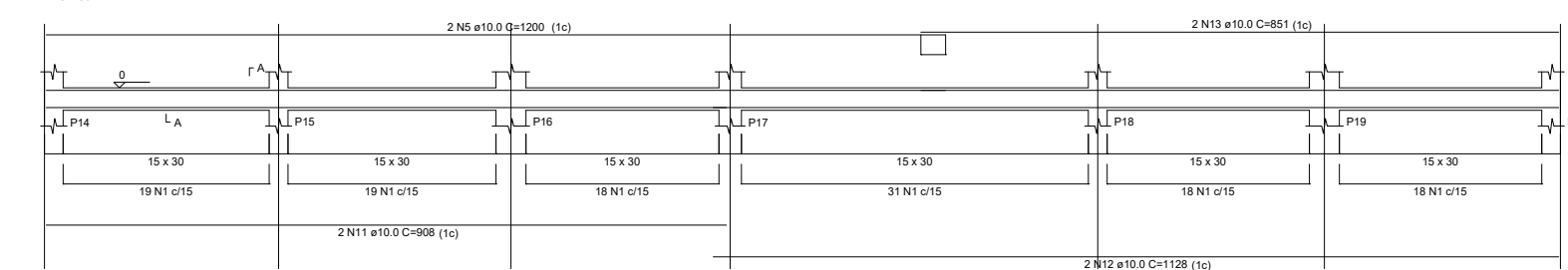
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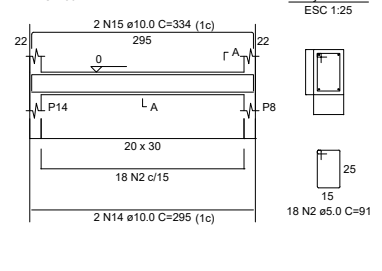
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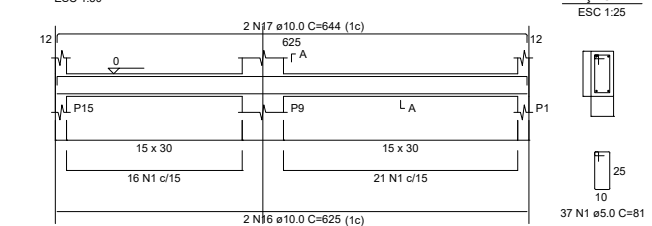
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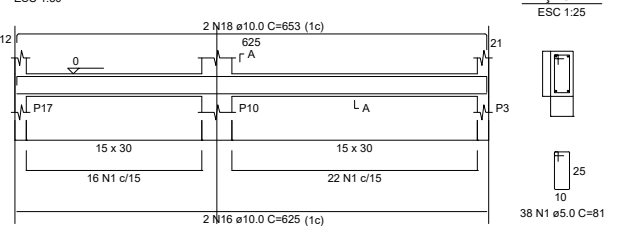
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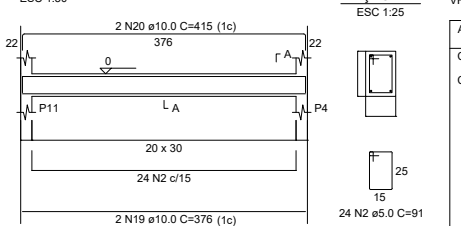
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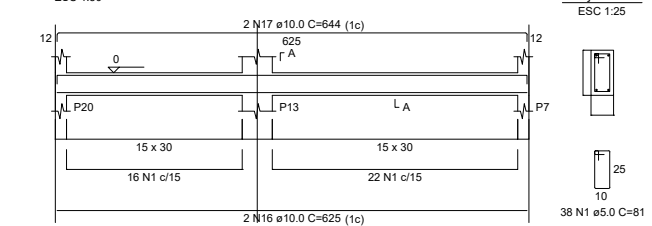
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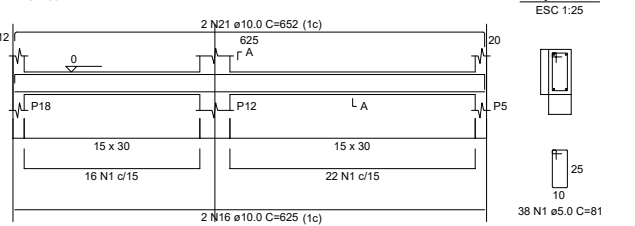
VFUND108



VFUND110



VFUND109



RELAÇÃO DO AÇO

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	426	81	34506
	2	5.0	42	91	3822
	3	10.0	2	1101	2202
	4	10.0	2	613	1226
	5	10.0	4	1200	4800
	6	10.0	2	551	1102
	7	10.0	2	310	620
	8	10.0	2	320	640
	9	10.0	2	488	976
	10	10.0	2	507	1014
	11	10.0	2	908	1816
	12	10.0	2	1128	2256
	13	10.0	2	851	1702
	14	10.0	2	295	590
	15	10.0	2	334	668
	16	10.0	8	625	5000
	17	10.0	4	644	2576
	18	10.0	2	653	1306
	19	10.0	2	376	752
	20	10.0	2	415	830
	21	10.0	2	652	1304

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	10.0	313.8	212.8
CA60	5.0	383.3	65
PESO TOTAL (kg)			277.8
CA50			212.8
CA60			65

Volume de concreto (C-25) = 3.19 m³
Área de forma = 58.51 m²

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PROJETO ESTRUTURAL – CORPO PRINCIPAL

Finalidade: AMPLIAÇÃO CENTRO DE EDUCAÇÃO INFANTIL CONCEIÇÃO MARIA DE ALMEIDA

Detalhes:
VIGAS BALDRAME

Endereço Obra/Serviço:
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Resp. Técnico:
EUGÊNIO VILELA JUNIOR
PREFEITO MUNICIPAL DE FORMIGA

Quadro de Áreas:
ÁREA DO CORPO PRINCIPAL = 154,94 m²

TOTAL = 154,94 m²

ÁREA TOTAL RESIDÊNCIA: 154,94m²

Protocolo: **Aprovação:** **Visto:**

Escala: INDICADA **Desenho:** LORENA ARANTES **Data:** MAIO/2022 **Prancha:** 03 / 05

RELAÇÃO DO AÇO

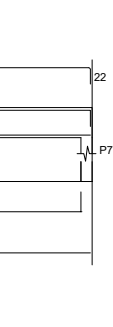
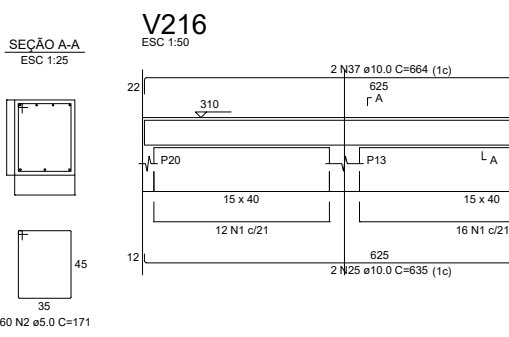
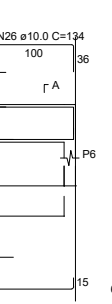
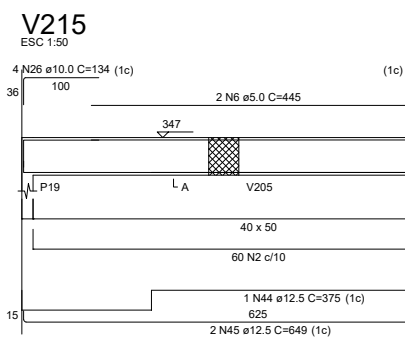
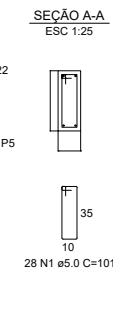
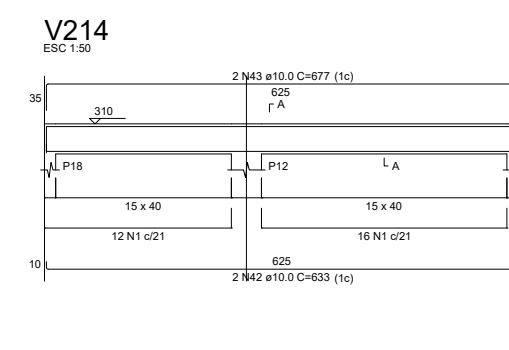
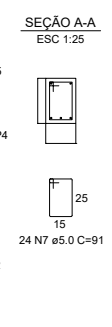
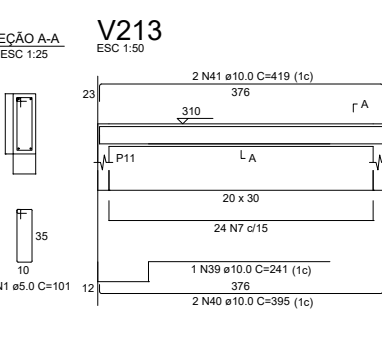
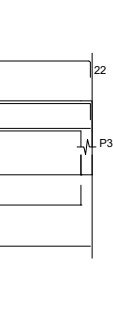
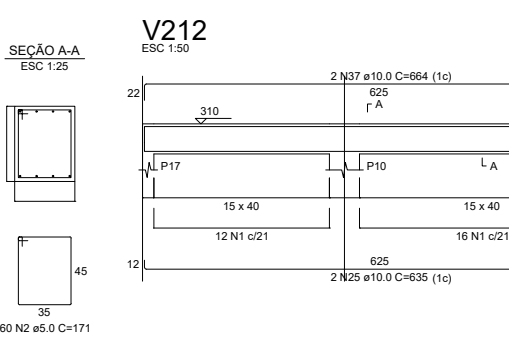
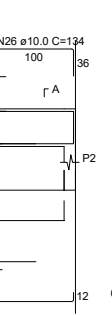
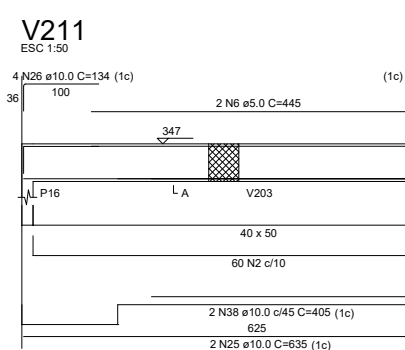
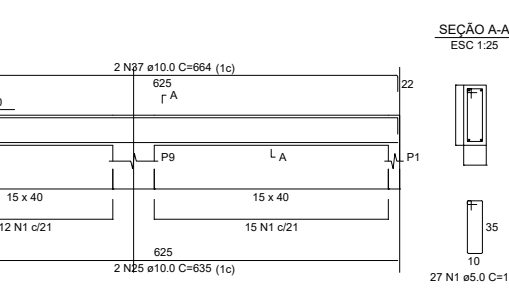
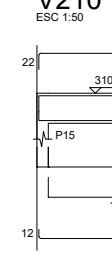
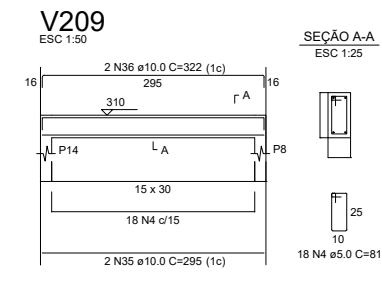
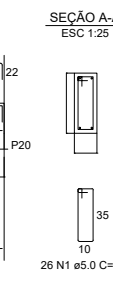
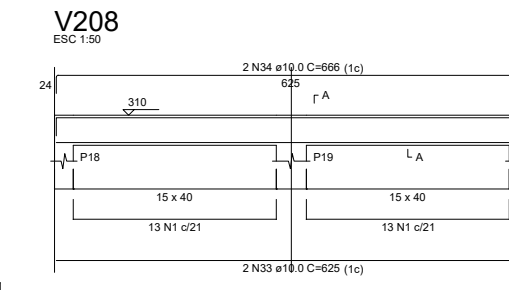
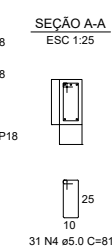
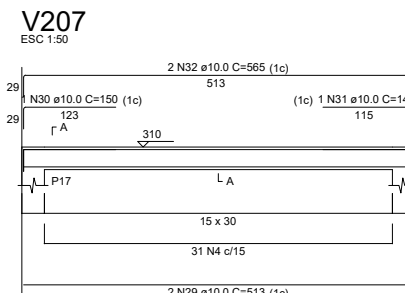
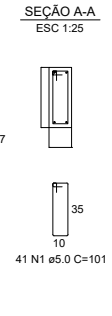
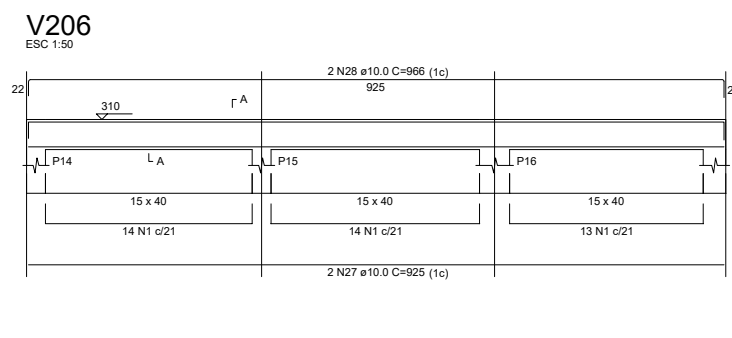
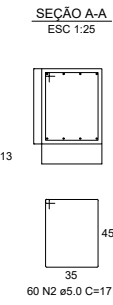
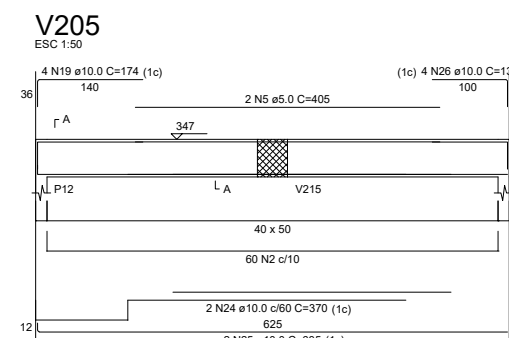
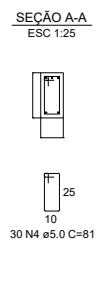
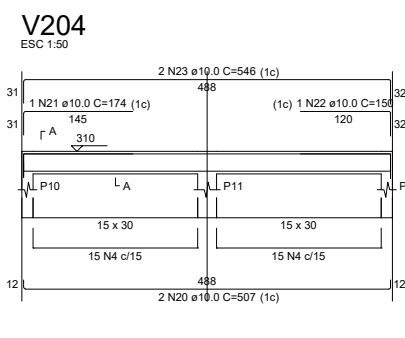
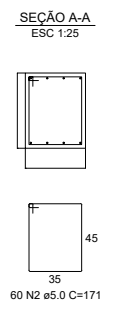
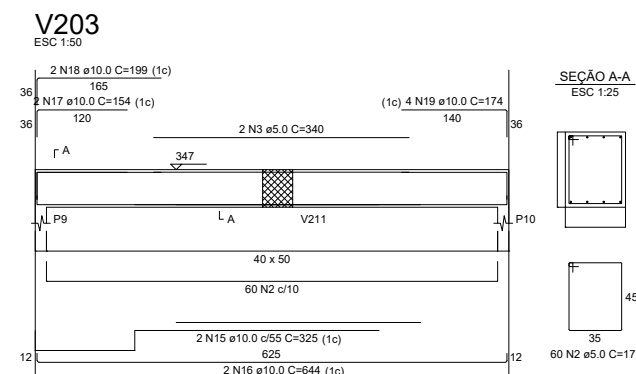
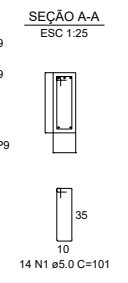
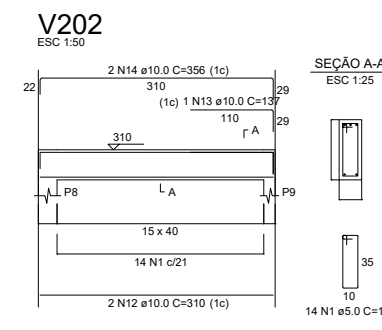
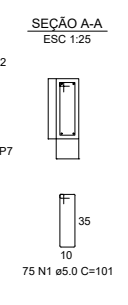
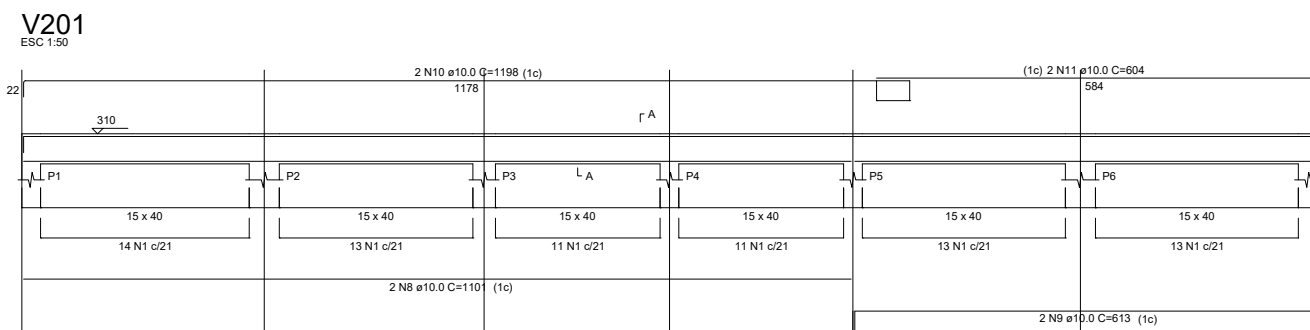
V201	V202	V203
V204	V205	V206
V207	V208	V209
V210	V211	V212
V213	V214	V215
V216		

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	267	101	26967
	2	5.0	240	171	41040
	3	5.0	2	340	680
	4	5.0	79	81	6399
	5	5.0	2	405	810
	6	5.0	4	445	1780
	7	5.0	24	91	2184
	8	10.0	2	1101	2202
	9	10.0	2	813	1226
	10	10.0	2	1198	2396
	11	10.0	2	604	1208
	12	10.0	2	310	620
	13	10.0	1	137	137
	14	10.0	2	356	712
	15	10.0	2	325	650
	16	10.0	2	644	1288
	17	10.0	2	154	308
	18	10.0	2	199	398
	19	10.0	8	174	1392
	20	10.0	2	507	1014
	21	10.0	1	174	174
	22	10.0	1	150	150
	23	10.0	2	546	1092
	24	10.0	2	370	740
	25	10.0	10	635	6350
	26	10.0	20	134	2680
	27	10.0	2	925	1850
	28	10.0	2	966	1932
	29	10.0	2	513	1026
	30	10.0	1	150	150
	31	10.0	1	141	141
	32	10.0	2	565	1130
	33	10.0	2	625	1250
	34	10.0	2	666	1332
	35	10.0	2	295	590
	36	10.0	2	322	644
	37	10.0	6	664	3984
	38	10.0	2	405	810
	39	10.0	1	241	241
	40	10.0	2	385	770
	41	10.0	2	419	838
	42	10.0	2	833	1666
	43	10.0	2	677	1354
	44	12.5	1	375	375
	45	12.5	2	649	1298

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	10.0	440.7	298.8
CA60	5.0	798.6	135.4
PESO TOTAL (kg)			
CA50		316.6	
CA60		135.4	

Volume de concreto (C-25) = 8.76 m³
 Área de forma = 106.28 m²



PREFEITURA MUNICIPAL DE FORMIGA
 C.N.P.J. - 16.784.720/0001-25
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Rua: Barão de Piumhi, nº 121
 Centro - Formiga | MG - Cep: 35570-000

Título:
 PROJETO ESTRUTURAL – CORPO PRINCIPAL

Finalidade: AMPLIAÇÃO CENTRO DE EDUCAÇÃO INFANTIL
 CONCEIÇÃO MARIA DE ALMEIDA

Detalhes:
 VIGAS

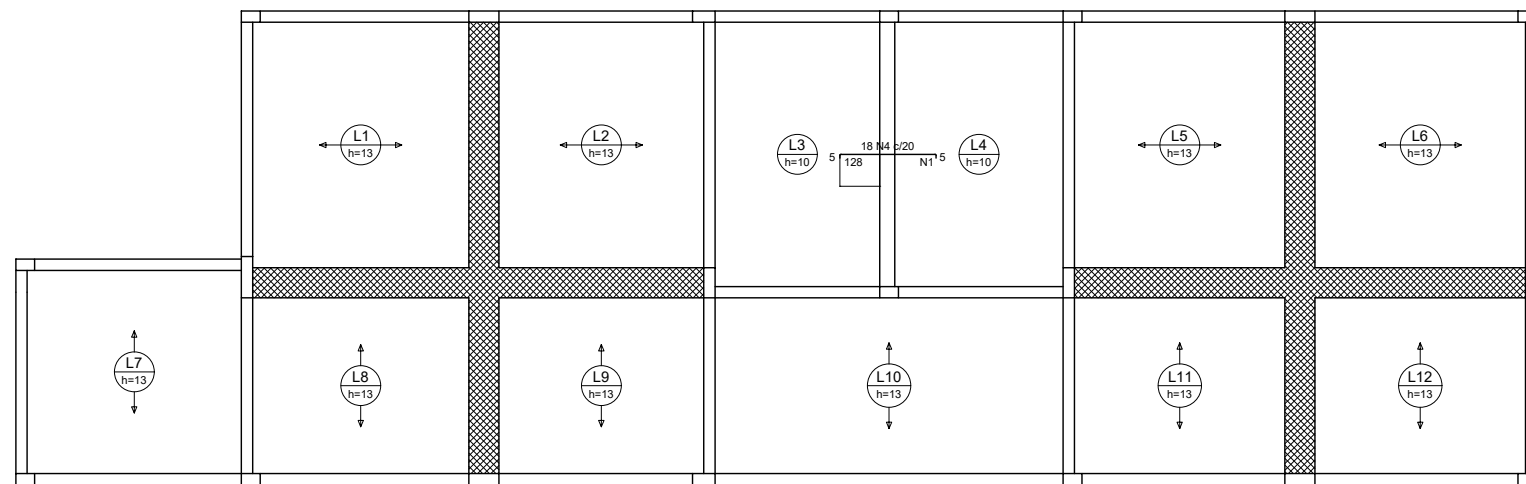
Endereço Obra/Serviço:
 AV. DR. TEIXEIRA SOARES, 1120, BAIRRO ENGENHO DE SERRA

Resp. Técnico:
 EUGÊNIO VILELA JUNIOR
 PREFEITO MUNICIPAL DE FORMIGA

Quadro de Áreas:
 ÁREA DO CORPO PRINCIPAL = 154,94 m²
 TOTAL = 154,94 m²
ÁREA TOTAL RESIDÊNCIA: 154,94m²

Protocolo: **Aprovação:** **Visto:**

Escala: INDICADA **Desenho:** LORENA ARANTES **Data:** MAIO/2022 **Prancha:** 04 / 05

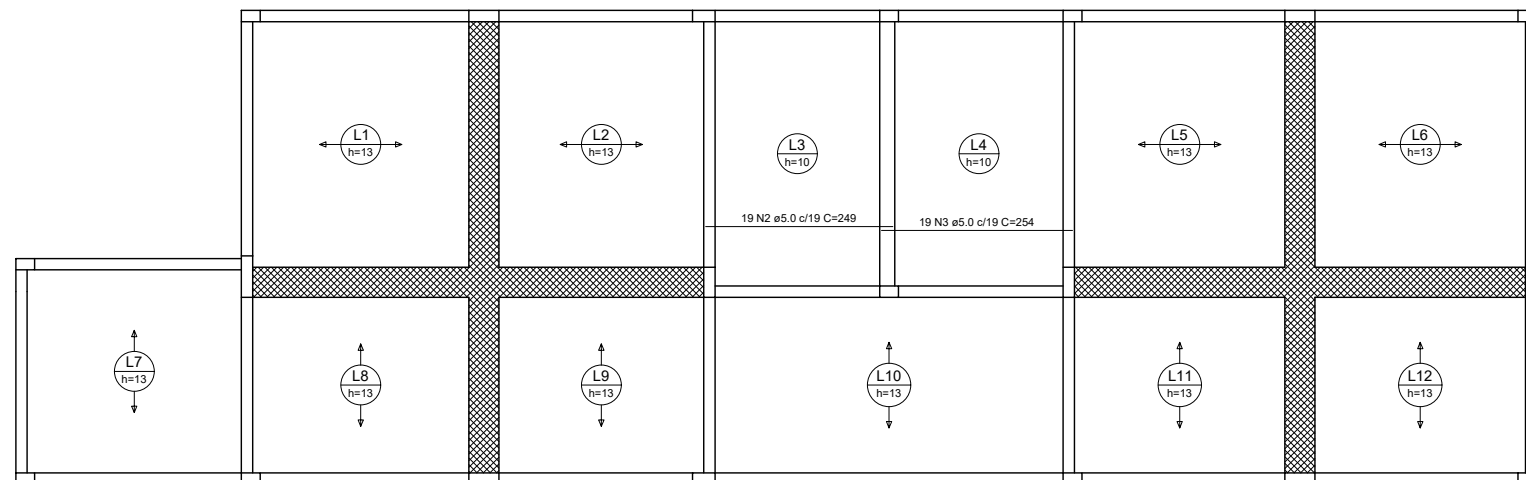
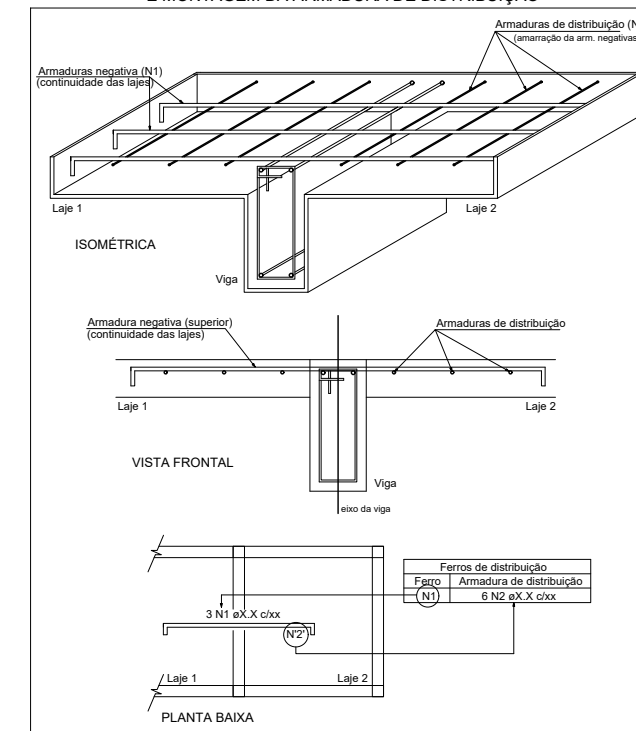


Armação negativa das lajes do pavimento Primeira Laje (Eixo X)

escala 1:50

Armaduras de distribuição	
Armadura	Armadura de distribuição
N4	7 N1 ø5.0 c/20 C=366

DETALHE DA ARMADURA DE SUPERIOR DE CONTINUIDADE DA LAJE E MONTAGEM DA ARMADURA DE DISTRIBUIÇÃO



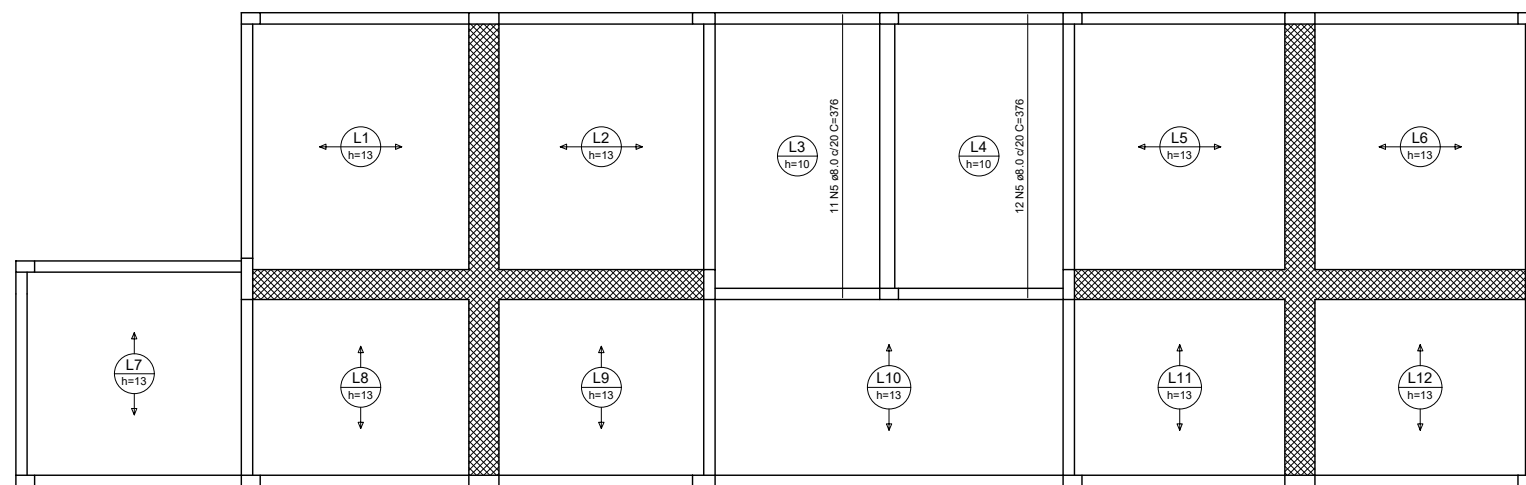
Armação positiva das lajes do pavimento Primeira Laje (Eixo X)

escala 1:50

RELAÇÃO DO AÇO					
Negativos X		Positivos X		Positivos Y	
AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	7	366	2562
	2	5.0	19	249	4731
	3	5.0	19	254	4826
CA50	4	6.3	18	135	2430
	5	8.0	23	376	8648

RESUMO DO AÇO			
AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	6.3	24.3	6.5
	8.0	86.5	37.5
CA60	5.0	121.2	20.5
PESO TOTAL (kg)			
CA50		44.1	
CA60		20.5	

Volume de concreto (C-25) = 5.63 m³
Área de forma = 15.60 m²



Armação positiva das lajes do pavimento Primeira Laje (Eixo Y)

escala 1:50

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<p>Título: PROJETO ESTRUTURAL – CORPO PRINCIPAL</p>							
<p>Finalidade: AMPLIAÇÃO CENTRO DE EDUCAÇÃO INFANTIL CONCEIÇÃO MARIA DE ALMEIDA</p>							
<p>Detalhes: ARMAÇÃO LAJES</p>							
<p>Endereço Obra/Serviço: AV. DR. TEIXEIRA SOARES, 1120, BAIRRO ENGENHO DE SERRA</p>							
<p>_____</p> <p>EUGÊNIO VILELA JUNIOR PREFEITO MUNICIPAL DE FORMIGA</p>							
<p>Resp. Técnico: _____</p> <p>LORENA DE PAIVA ARANTES ENGENHEIRA CIVIL – CREA MG: 234.399/D</p>							
<p>Quadro de Áreas:</p> <table border="1"> <tr> <td>ÁREA DO CORPO PRINCIPAL</td> <td>= 154,94 m²</td> </tr> <tr> <td>TOTAL</td> <td>= 154,94 m²</td> </tr> </table> <p>ÁREA TOTAL RESIDÊNCIA: 154,94m²</p>				ÁREA DO CORPO PRINCIPAL	= 154,94 m²	TOTAL	= 154,94 m²
ÁREA DO CORPO PRINCIPAL	= 154,94 m²						
TOTAL	= 154,94 m²						
Protocolo:	Aprovação:	Visto:					
Escala: INDICADA	Desenho: LORENA ARANTES	Data: MAIO/2022	Prancha: 05 / 05				