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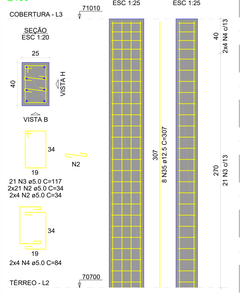

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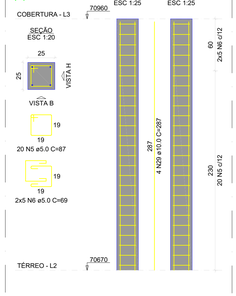

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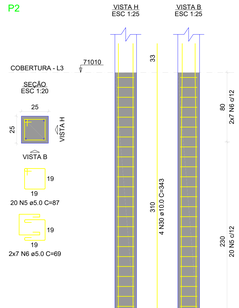

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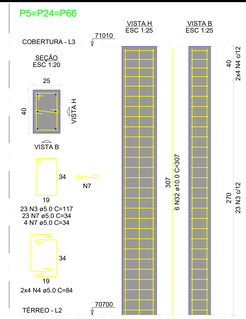

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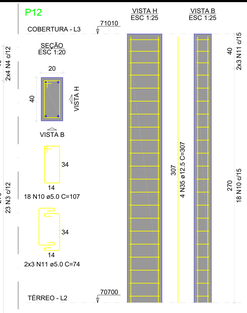

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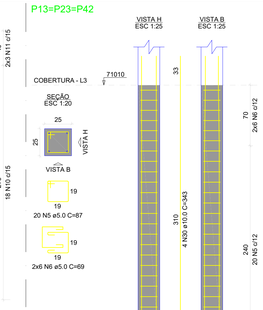

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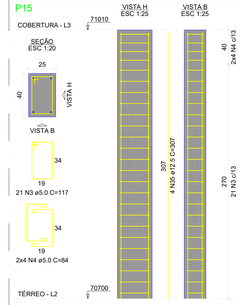

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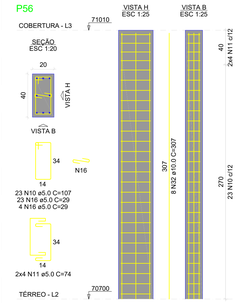

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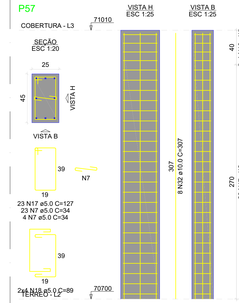

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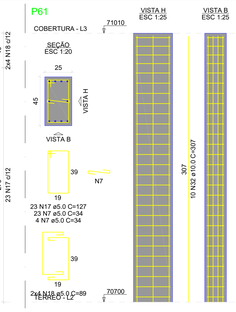

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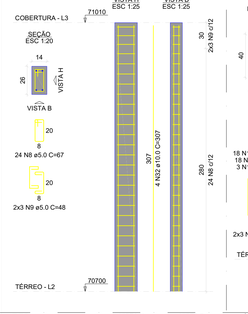

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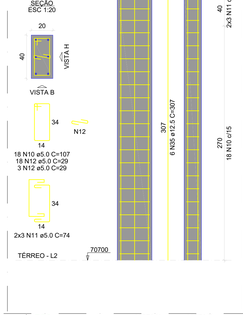

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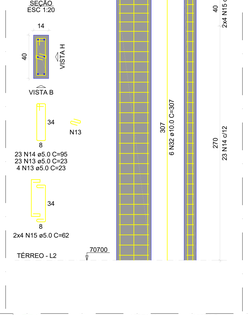

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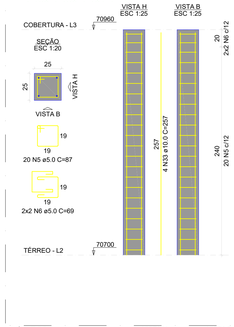

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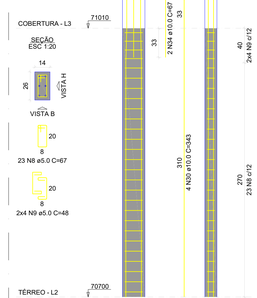

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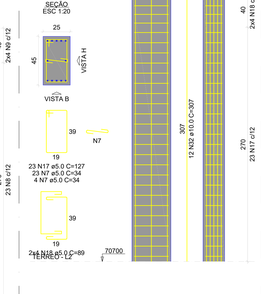

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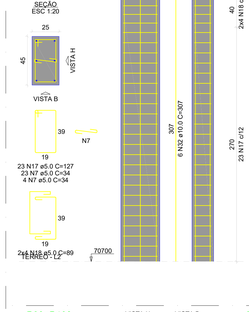

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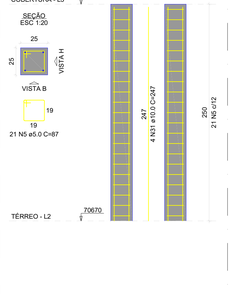

RELAÇÃO DO AÇO

19xE41	E155	P1	3xP5
P2	7xP3	P12	3xP13
40xP6	P13	14xP16	P22
P15	P23	18xP44	14xP47
P41	P42	P56	P57
P52	P61	P62	P67
3xP70	P72	P73	P74
P84	P86	P90	P92
P87	P88	2xP88	P96
P101	P102	P108	P119
P120	P123	12xP126	2xP131
2xP133	P134	P148	P150

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA50	1	5.0	1	10	10
	2	5.0	2	10	20
	3	5.0	3	10	30
	4	5.0	4	10	40
	5	5.0	5	10	50
	6	5.0	6	10	60
	7	5.0	7	10	70
	8	5.0	8	10	80
	9	5.0	9	10	90
	10	5.0	10	10	100
	11	5.0	11	10	110
	12	5.0	12	10	120
	13	5.0	13	10	130
	14	5.0	14	10	140
	15	5.0	15	10	150
	16	5.0	16	10	160
	17	5.0	17	10	170
	18	5.0	18	10	180
	19	5.0	19	10	190
	20	5.0	20	10	200
	21	5.0	21	10	210
	22	5.0	22	10	220
	23	5.0	23	10	230
	24	5.0	24	10	240
	25	5.0	25	10	250
	26	5.0	26	10	260
	27	5.0	27	10	270
	28	5.0	28	10	280
	29	5.0	29	10	290
	30	5.0	30	10	300
	31	5.0	31	10	310
	32	5.0	32	10	320
	33	5.0	33	10	330
	34	5.0	34	10	340
	35	5.0	35	10	350
	36	5.0	36	10	360
	37	5.0	37	10	370
	38	5.0	38	10	380
	39	5.0	39	10	390
	40	5.0	40	10	400
	41	5.0	41	10	410
	42	5.0	42	10	420
CA50	43	10.0	1	10	10
	44	10.0	2	10	20
	45	10.0	3	10	30
	46	10.0	4	10	40
	47	10.0	5	10	50
	48	10.0	6	10	60
	49	10.0	7	10	70
	50	10.0	8	10	80
	51	10.0	9	10	90
	52	10.0	10	10	100
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	60	10.0	18	10	180
	61	10.0	19	10	190
	62	10.0	20	10	200
	63	10.0	21	10	210
	64	10.0	22	10	220
	65	10.0	23	10	230
	66	10.0	24	10	240
	67	10.0	25	10	250
	68	10.0	26	10	260
	69	10.0	27	10	270
	70	10.0	28	10	280
	71	10.0	29	10	290
	72	10.0	30	10	300
	73	10.0	31	10	310
	74	10.0	32	10	320
	75	10.0	33	10	330
	76	10.0	34	10	340
	77	10.0	35	10	350
	78	10.0	36	10	360
	79	10.0	37	10	370
	80	10.0	38	10	380
	81	10.0	39	10	390
	82	10.0	40	10	400
	83	10.0	41	10	410
	84	10.0	42	10	420
	85	12.5	1	10	10
	86	12.5	2	10	20
	87	12.5	3	10	30
	88	12.5	4	10	40
	89	12.5	5	10	50
	90	12.5	6	10	60
	91	12.5	7	10	70
	92	12.5	8	10	80
	93	12.5	9	10	90
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	101	12.5	17	10	170
	102	12.5	18	10	180
	103	12.5	19	10	190
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	111	12.5	27	10	270
	112	12.5	28	10	280
	113	12.5	29	10	290
	114	12.5	30	10	300
	115	12.5	31	10	310
	116	12.5	32	10	320
	117	12.5	33	10	330
	118	12.5	34	10	340
	119	12.5	35	10	350
	120	12.5	36	10	360
	121	12.5	37	10	370
	122	12.5	38	10	380
	123	12.5	39	10	390
	124	12.5	40	10	400
	125	12.5	41	10	410
	126	12.5	42	10	420

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	10.0	2102.5	1425.9
	12.5	119.4	126.5
CA60	5.0	3590.7	608.8
PESO TOTAL (kg)			
CA50	1552.4		
CA60	608.8		

Volume de concreto (C-30) = 24.03 m³
Área de forma = 429.20 m²

APROVADO
DEPARTAMENTO DE ENGENHARIA DE RIO BONITO DO IGUAÇU

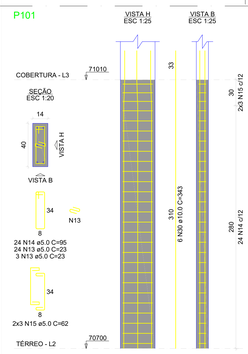
ENIO AUGUSTO SIQUEIRA DA LUZ:08054071973

Assinado de forma digital por ENIO AUGUSTO SIQUEIRA DA LUZ:08054071973
Dados: 2026.02.24 10:44:03 -03'00'

NOTAS GERAIS

1. RECOMENDA-SE A LEITURA DO MEMORIAL DESCRITO DESTE PROJETO DE FUNDAÇÃO PARA A EXECUÇÃO;
2. CLASSE DO CIMENTO:
   2.1. BLOCOS: C-30
   2.2. ESTACAS: C-25
3. DIMENSÃO MÁXIMA DO AGREGADO: 19 MM;
4. CLASSE DE AGRESSIVIDADE AMBIENTAL: II
5. MÓDULO DE ELASTICIDADE DO CONCRETO:
   5.1. BLOCOS: 32260 KGF/CM²
   5.2. ESTACAS: 241500 KGF/CM²
6. COBRIMENTO DAS ARMADURAS PARA A CLASSE DE AGRESSIVIDADE AMBIENTAL II (GARANTIDO COM ESPAÇADORES PLÁSTICOS):
   6.1. BLOCOS: 45 MM
   6.2. ESTACAS: 50 MM
7. A EXECUÇÃO DEVERÁ SEGUIR AS RECOMENDAÇÕES NORMATIVAS;
8. ATENTAR PARA A IMPORTÂNCIA DA CURA E DO CONTROLE TECNOLÓGICO DO CONCRETO;
9. NÃO EXECUTAR FUROS PARA PASSAGEM DE TUBULAÇÃO SUPERIORES A 10 CM SEM PREVISÃO EM PROJETO;
10. A EXECUÇÃO DEVERÁ SER ACOMPANHADA DOS DESENHOS DE ARQUITETURA;
11. NENHUMA ALTERAÇÃO NO PROJETO DE FUNDAÇÃO PODERÁ SER EFETUADA SEM A AUTORIZAÇÃO DO ENGENHEIRO RESPONSÁVEL TÉCNICO DO PROJETO;
12. A DEMARCAÇÃO DA OBRA EM FUNÇÃO DO LOTE, DEVERÁ SER EFETUADA PELO RT DA OBRA, CONFORME ORIENTAÇÃO DO RT DO PROJETO DE ARQUITETURA;
13. RECOMENDA-SE O USO DE CONCRETO USINADO EM TODAS AS PEÇAS DE CONCRETO ARMADO.
14. A INOBSERVÂNCIA DO PROJETO, BEM COMO DE SUAS NOTAS GERAIS E MEMORIAL DESCRITIVO, EXIME O AUTOR DO PROJETO DE QUALQUER RESPONSABILIDADE TÉCNICA SOBRE A ESTRUTURA.

P101



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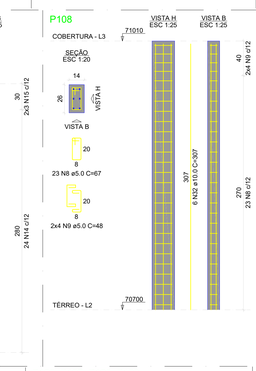

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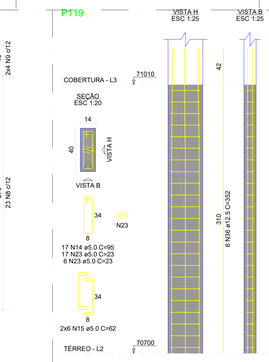

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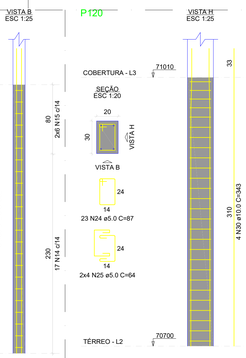

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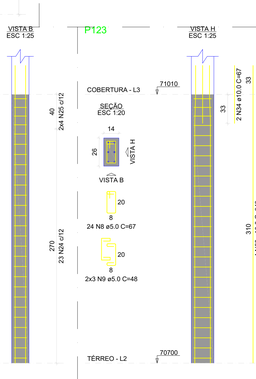

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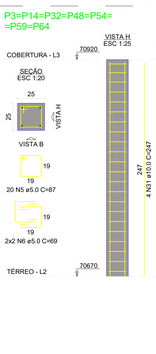

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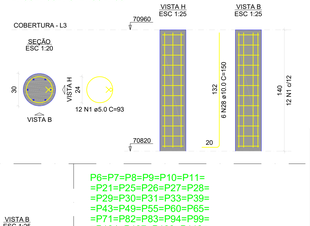

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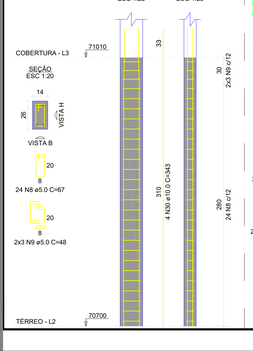

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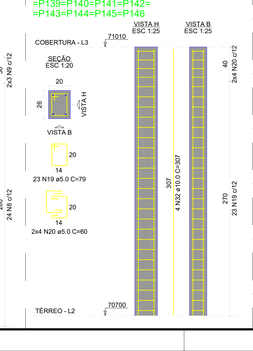

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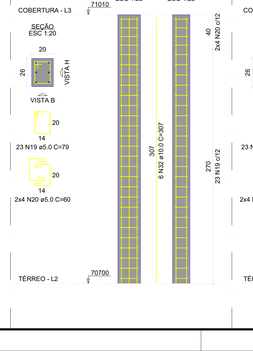

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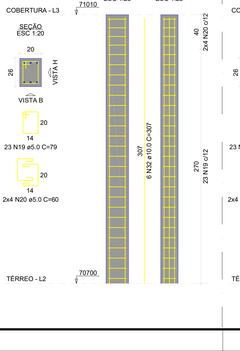

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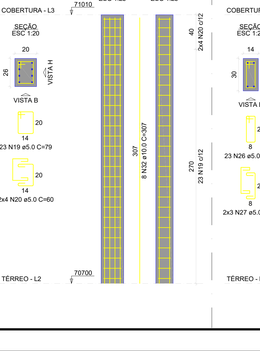

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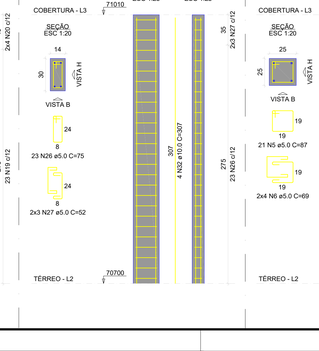

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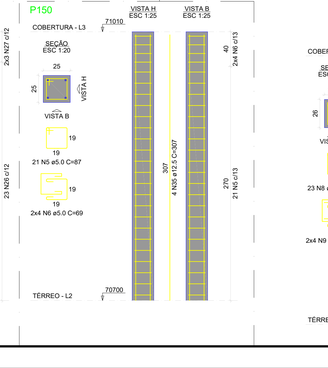

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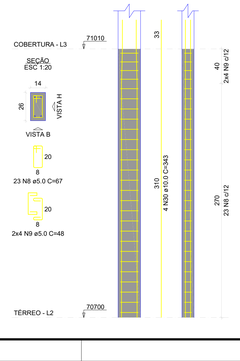

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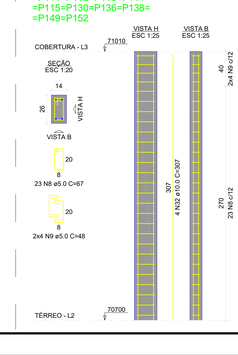

PROJETO ESTRUTURAL

CONTEÚDO:
Pilares Nv. Cobertura

TIPO DA EDIFICAÇÃO:
Escola APAE - Educação básica na modalidade ensino especial

MUNICÍPIO:
Rio Bonito do Iguaçu - PR

ENDEREÇO DA OBRA:
Av. Xv de Novembro, nº 1.162 - Bairro Vista Alegre

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