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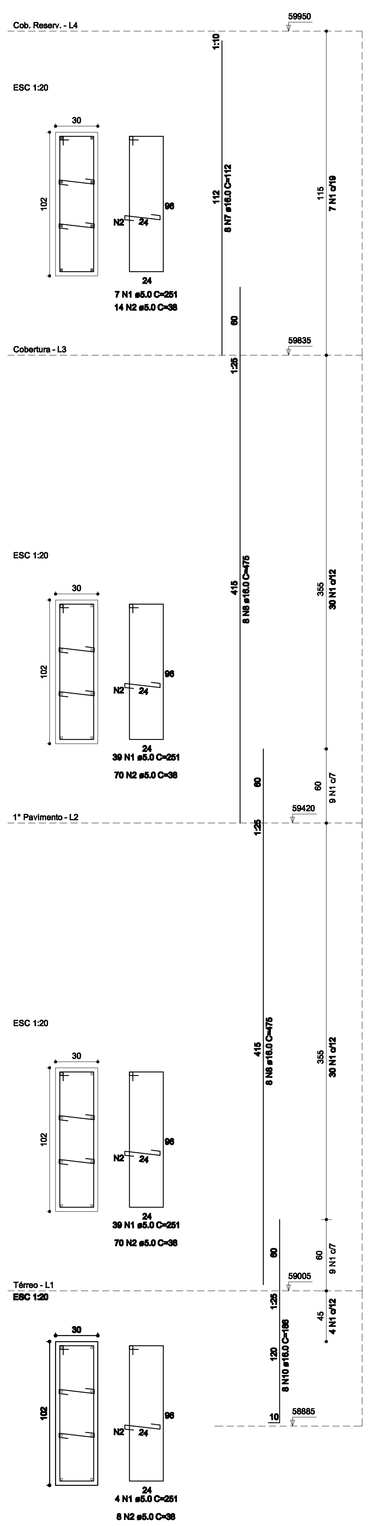

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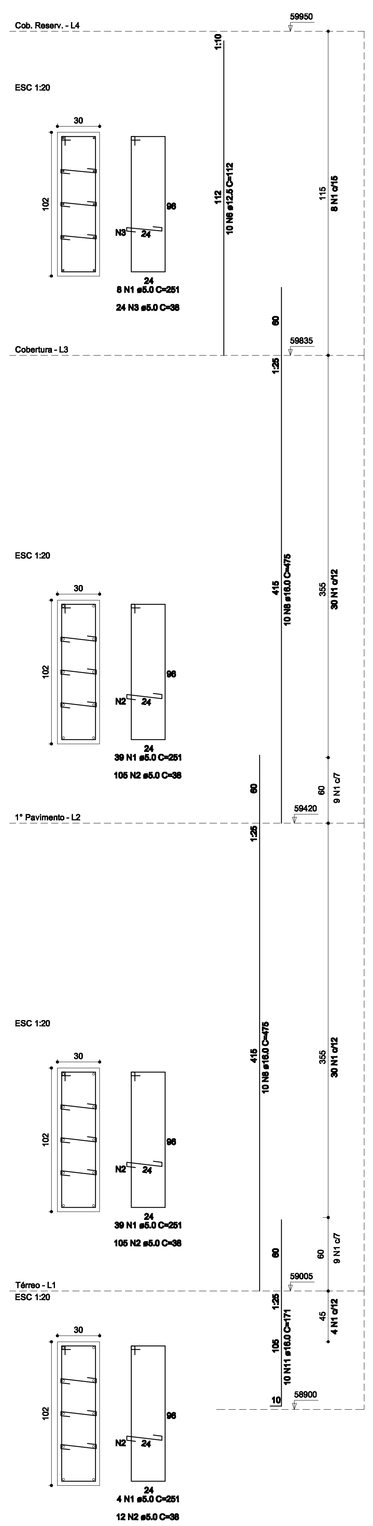

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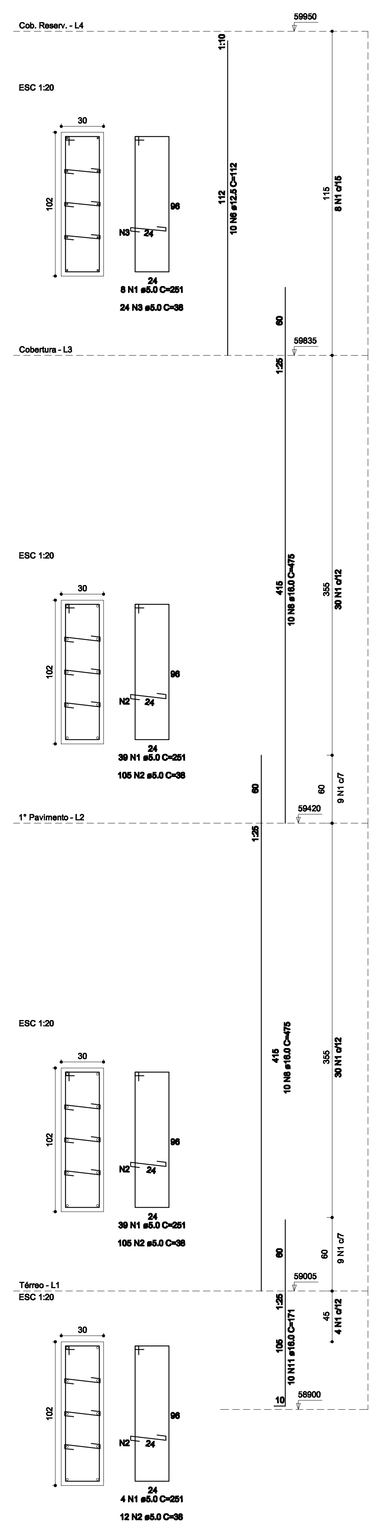

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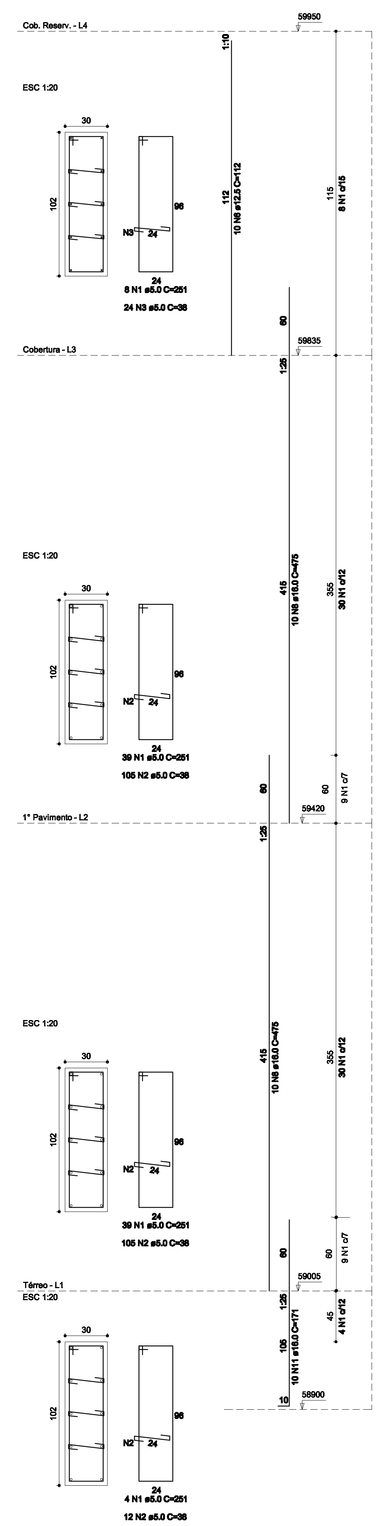

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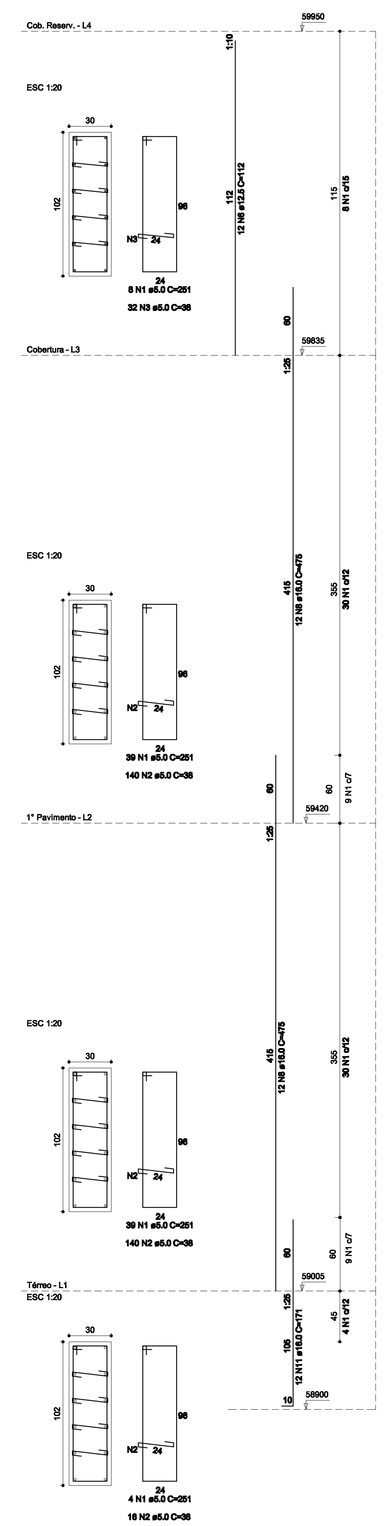

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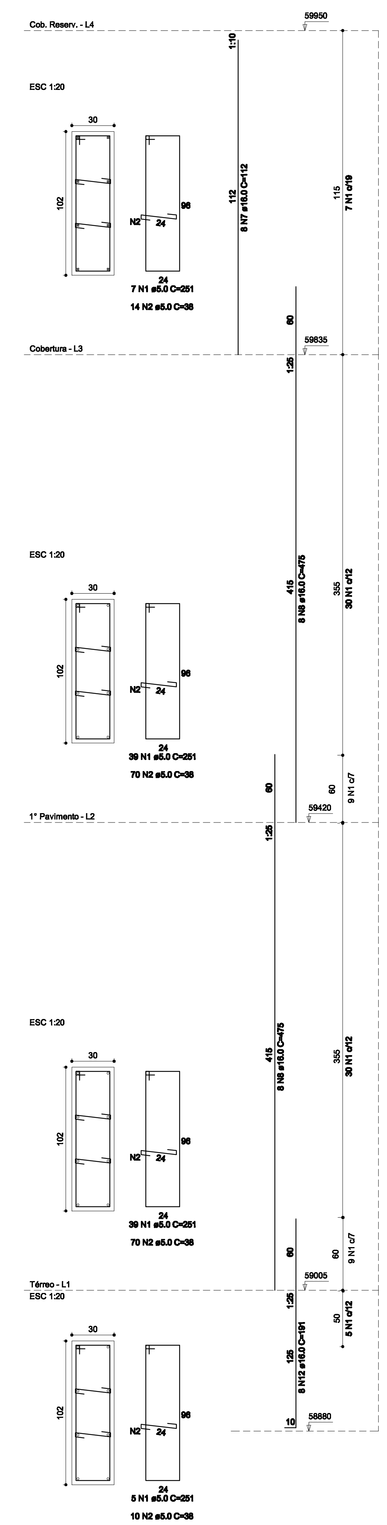

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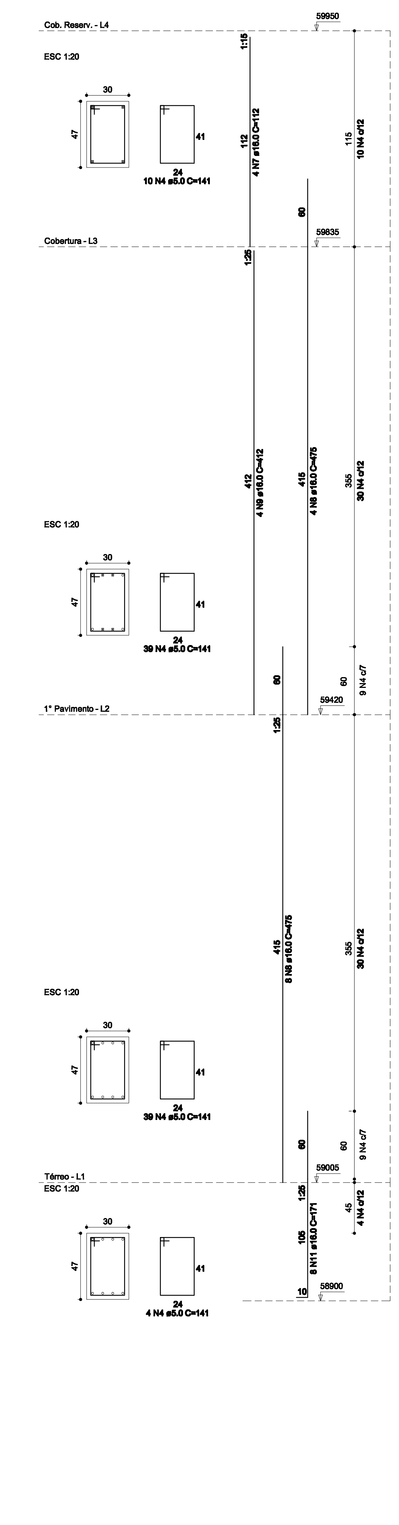

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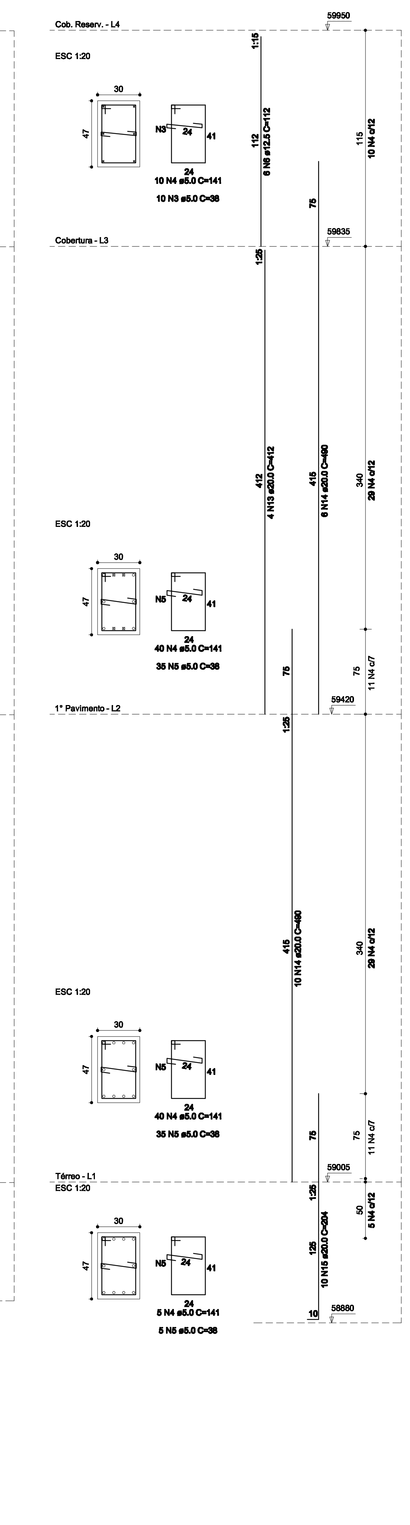


RELAÇÃO DO AÇO

P1:4	P2:4	P3:4	P4:4
P4:4	P5:4	P6:4	P7:4
P12:4	P1:3	P2:3	P3:3
P4:3	P5:3	P6:3	P7:3
P12:3	P1:2	P2:2	P3:2
P4:2	P5:2	P6:2	P7:2
P12:2	P1:1	P2:1	P3:1
P4:1	P5:1	P6:1	P7:1
P12:1			

AÇO	N	DIAM	Q	UNIT (cm)	C.TOTAL (cm)
60	1	5.0	539	251	123241
	2	5.0	1288	36	46944
	3	5.0	114	38	4332
	4	5.0	167	141	23635
	5	5.0	11	178	2030
	6	12.5	69	251	17400
	7	16.0	20	112	2240
	8	16.0	128	473	60600
	9	16.0	4	412	1648
	10	16.0	4	458	1460
	11	16.0	8	191	1528
	12	16.0	8	181	1328
	13	20.0	4	412	1648
	14	20.0	16	490	7840
	15	20.0	10	204	2040

RESUMO DO AÇO

AÇO	DIAM	C.TOTAL (m)	PESO+10% (kg)
CA50	12.5	69.0	27.3
	16.0	1922.8	1325.8
	20.0	115.3	313.0
CA60	5.0	2033.6	344.4

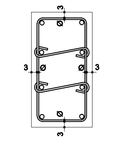
PESO TOTAL

CA50	1695.6
CA60	344.4

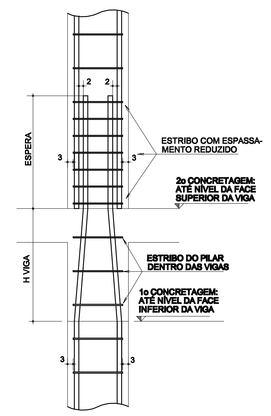
Vol. de concreto total =22.37 m³
Área de forma total = 199.09 m²

DET. TÍPICO COBRIMENTO E POSICIONAMENTO ARM. EM PILARES

OBRIGATÓRIO O USO DE ESPACADORES PLÁSTICOS



GRAMPO CONTRA FLAMBAGEM DA ARMADURA. UTILIZAR MESMO ESPAÇAMENTO DO ESTRIBO.



NOTAS

1 - Concreto fck >= 25MPa (C25)
2 - Cobrimento mínimo das armaduras:
Viga = 3cm
Pilares = 3cm
Lajes = 2,5cm
3 - Abatimento (slump) máx.: 8cm
4 - Fator água/cimento máx.: 0,55
5 - As formas devem estar totalmente limpas e saturadas com água antes da concretagem
6 - Dimensões e cotas em cm
bitolas em mm.

REV.	DATA	DESCRIÇÃO DA REVISÃO

NÚCLEO DE GERENCIAMENTO DE PROJETOS DE OBRAS
Pró-reitoria de Desenvolvimento Universitário
UNIVERSIDADE ESTADUAL DE CAMPINAS

OBRA: LABORATÓRIO KYATERA / CONSTRUÇÃO
LOCAL: INSTITUTO DE FÍSICA - AV. BERTRAND RUSSEL - UNICAMP
CÓDIGO DA OBRA: IFGWkya

CBR - ENGENHARIA S/S LTDA
Rua Botafogo 280, cj. 03-Heróis Deca-Porto Alegre-RS
CGF 90106-000 - Tel/Fax (51)3025-3100

Assistente do Projeto: Eng. Paulo Loeck
ORÇA: 35 634- D
DATA:
VISTO

REFERÊNCIA: PROJETO ESTRUTURAL
PILARES - 1 / 4

DATA: 01/07/2008
DESENHO:
ARQUIVO: IFGWKya_ESTR17_Pilares 1_R00.dwg
ESCALA: INDICADA

ESTR 17/28