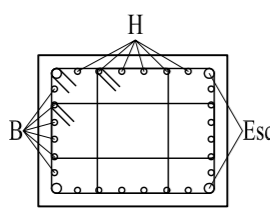
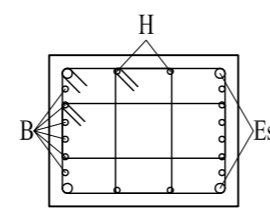
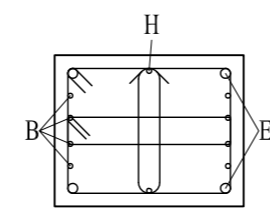
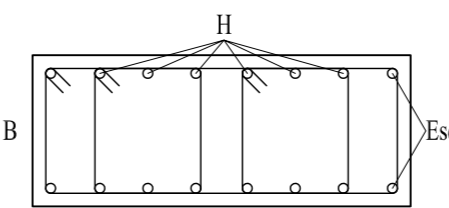
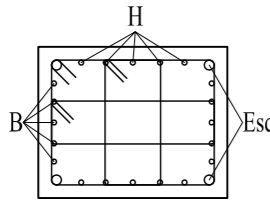
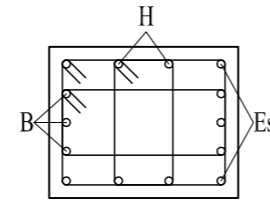
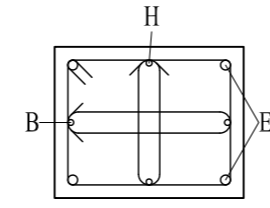
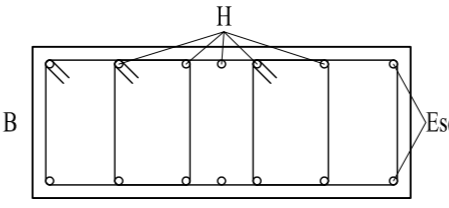
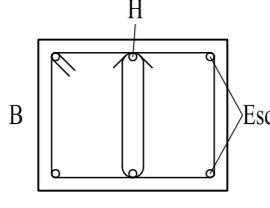
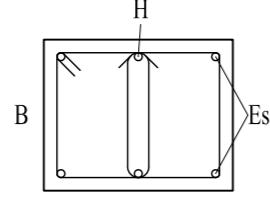
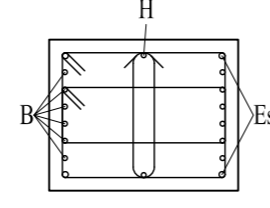
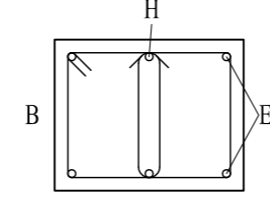
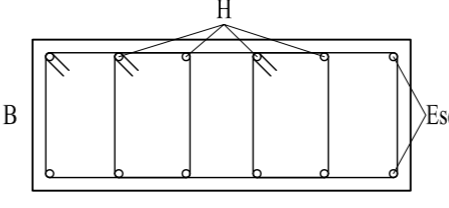
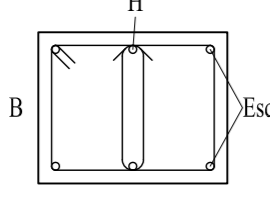
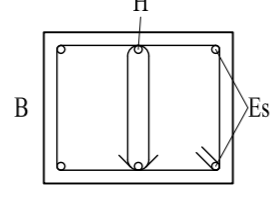
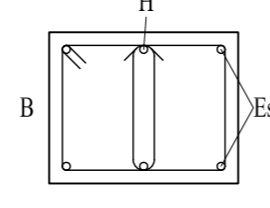
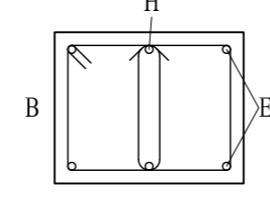
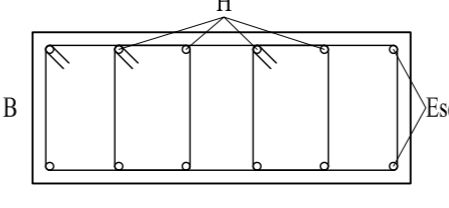




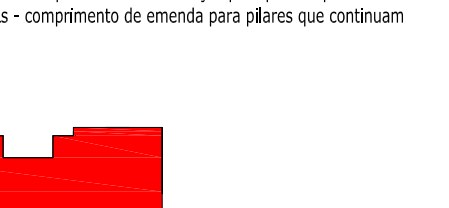
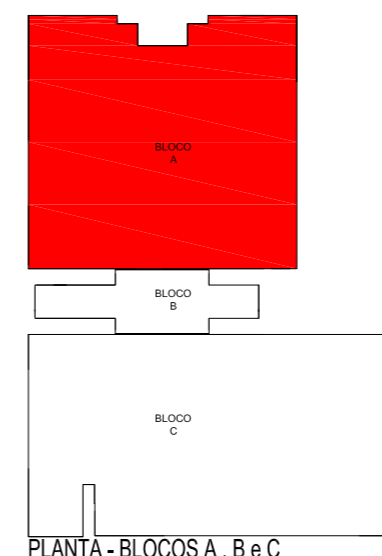


	P 21	P 22	P 23	P 24	P 25
À COTA 25,95	Pilar 178 BET 40x50 $L=3,60$ $l_b=0,53$ $l_a=0,37$ 		Pilar 179 BET 40x50 $L=3,60$ $l_b=0,53$ $l_a=0,37$ 	Pilar 181 BET 40x50 $L=3,60$ $l_b=0,53$ $l_a=0,37$ 	Pilar 182 BET 40x100 $L=3,60$ $l_b=0,53$ $l_a=0,37$ 
À COTA 22,35	Esq: 4ø20 B/H: 2x6ø12/2x6ø12 2+1estø8//0,14 Pilar 157 BET 40x50 $L=3,75$ $l_b=0,53$ $l_s=1,06$ 		Esq: 4ø20 B/H: 2x6ø12/2x2ø12 2+1estø8//0,14 Pilar 158 BET 40x50 $L=3,75$ $l_b=0,43$ $l_s=1,06$ 	Esq: 4ø20 B/H: 2x4ø10/2x1ø10 2+1estø8//0,12 Pilar 160 BET 40x50 $L=3,75$ $l_b=0,53$ $l_s=1,06$ 	Esq: 4ø20 B/H: 2x6ø20 1+2estø8//0,24 Pilar 161 BET 40x100 $L=3,75$ $l_b=0,43$ $l_s=1,06$ 
À COTA 18,60	Esq: 4ø20 B/H: 2x5ø10/2x5ø10 2+1estø8//0,12 Pilar 134 BET 40x50 $L=2,75$ $l_b=0,43$ $l_s=1,06$ 	Pilar 135 BET 40x50 $L=2,75$ $l_b=0,43$ $l_a=0,30$ 	Esq: 4ø16 B/H: 2x3ø16/2x2ø16 2+1estø8//0,18 Pilar 136 BET 40x50 $L=2,75$ $l_b=0,32$ $l_s=0,86$ 	Esq: 4ø20 B/H: 2x1ø12/2x1ø12 2+1estø8//0,14 Pilar 138 BET 40x50 $L=2,75$ $l_b=0,43$ $l_s=1,06$ 	Esq: 4ø16 B/H: 2x5ø16 1+2estø8//0,18 Pilar 139 BET 40x100 $L=2,75$ $l_b=0,43$ $l_s=0,86$ 
À COTA 15,85	Esq: 4ø16 B/H: 2x1ø16 1+1estø8//0,18 Pilar 89 BET 40x50 $L=3,80$ $l_b=0,43$ $l_s=0,86$ 	Esq: 4ø16 B/H: 2x1ø16 1+1estø8//0,18 Pilar 91 BET 40x50 $L=3,80$ $l_b=0,43$ $l_s=0,86$ 	Esq: 4ø12 B/H: 2x6ø10/2x1ø10 2+1estø8//0,12 Pilar 93 BET 40x50 $L=3,80$ $l_b=0,43$ $l_s=0,86$ 	Esq: 4ø16 B/H: 2x1ø16 1+1estø8//0,18 Pilar 99 BET 40x50 $L=3,80$ $l_b=0,43$ $l_s=0,86$ 	Esq: 4ø16 B/H: 2x4ø16 1+2estø8//0,18 Pilar 101 BET 40x100 $L=3,80$ $l_b=0,43$ $l_s=0,86$ 
À COTA 12,05	Esq: 4ø16 B/H: 2x1ø16 1+1estø8//0,12 Pilar 89 BET 40x50 $L=3,80$ $l_b=0,43$ $l_s=0,86$ 	Esq: 4ø16 B/H: 2x1ø16 1+1estø8//0,18 Pilar 91 BET 40x50 $L=3,80$ $l_b=0,43$ $l_s=0,86$ 	Esq: 4ø16 B/H: 2x1ø16 1+1estø8//0,18 Pilar 93 BET 40x50 $L=3,80$ $l_b=0,43$ $l_s=0,86$ 	Esq: 4ø16 B/H: 2x1ø16 1+1estø8//0,18 Pilar 99 BET 40x50 $L=3,80$ $l_b=0,43$ $l_s=0,86$ 	Esq: 4ø16 B/H: 2x4ø16 1+2estø8//0,18 Pilar 101 BET 40x100 $L=3,80$ $l_b=0,43$ $l_s=0,86$ 

L - comprimento do pilar
 L_b - comprimento de amarração
 L_a - comprimento de amarração para pilares que não continuam
 L_s - comprimento de emenda para pilares que continuam



MATERIAIS:

Betões:
 Classe de exposição - XS1
 C30/37 - Todos os elementos estruturais
 C20/25 - Massame
 C12/15 - Betão de limpeza

Aços:
 A400NR - Armaduras ordinárias
 Y1860S7 - Armaduras de pré-esforço

Recobrimentos:

Pilares e Vigas	35mm
Lajes	25mm
Paredes resistentes	25mm
Muros de suporte de terras	35mm
Maciços de encabeçamento e Estacas	50mm
Vigas de fundação	50mm

NOTAS: Fundações
 Todos os elementos enterrados são pintados com uma pintura betuminosa.


NOTAS: Lajes
 Todas as cotas devem ser verificadas com a arquitectura.
 As cotas das courtes devem ser definidas em função do projecto da especialidade.
 As cotas da estrutura devem ser confirmadas em função dos acabamentos finais.

NOTAS: Armaduras
 Sempre que não especificado em zonas maciças
 Ø10 // 0,125 nas duas direcções (não detalhada).

ARMADURA BASE É CONSIDERADA EM TODA A LAJE DEFINIDA E DEVE CONSIDERAR OS COMPRIMENTOS DE AMARRAÇÃO ADEQUADOS

COURETTES DEVEM SER MARCADAS DE ACORDO COM OS PROJECTOS DAS ESPECIALIDADES

Trabalho Final de Mestrado



Instituto Superior de Engenharia de Lisboa
Área Departamental de Engenharia Civil

ORIENTADOR: **ENG.º ANTÓNIO GORGULHO**

ALUNO: **FILIPE REIS**

PROJECTO: **PROJECTO DE ESTABILIDADE DA ESCOLA SUPERIOR DE ENFERMAGEM ARTUR RAVARA**

DESIGNAÇÃO: **ARMADURAS DOS PILARES P21 a P25 BLOCO A**

ENTIDADE LICENCIADORA: **ESTABILIDADE**

PROCESSO Nº: **FASE**

SUBSTITUI: **EXECUÇÃO**

ENCOMENDA | DESENHO

ESCALA: **1/20** DATA: **JULHO 2011**

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