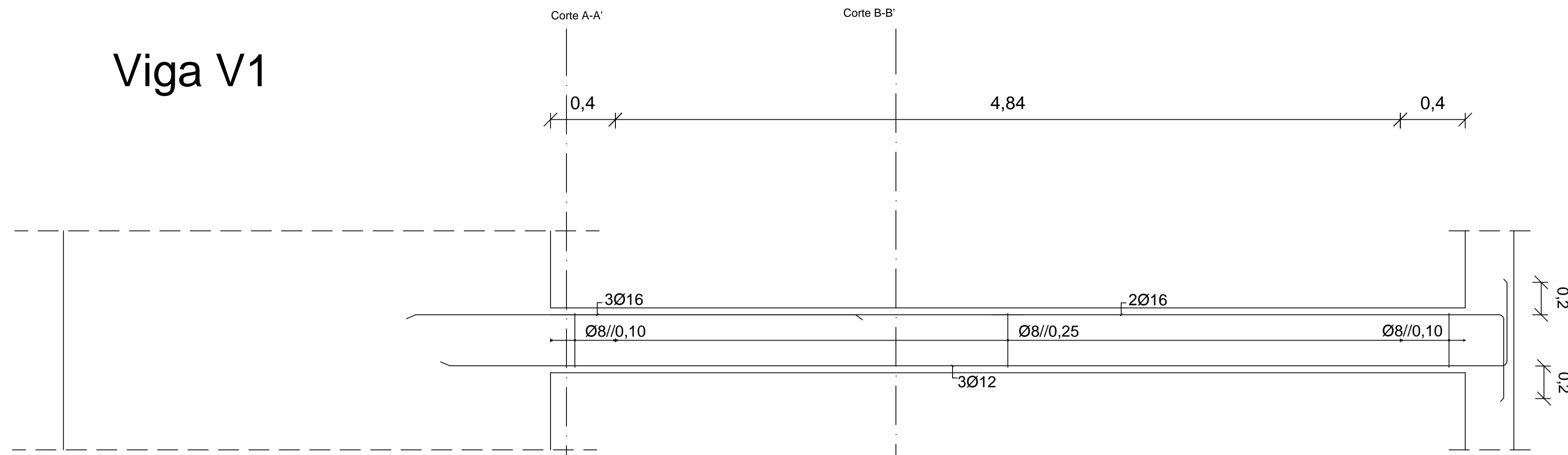
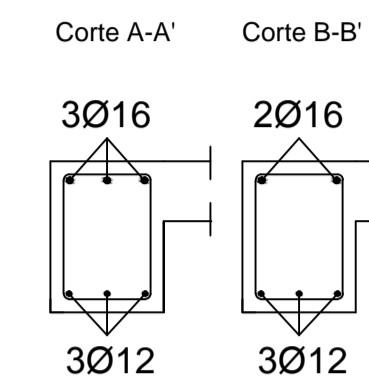


### Viga V1



Comprimento de amarração ( $l_{bd}$ )  
e comprimento de emenda ( $l_o$ )

Varão	$l_{bd}$ (m)	$l_o$ (m)
Ø8	0,42	0,63
Ø10	0,52	0,78
Ø12	0,62	0,93
Ø16	0,83	1,24
Ø20	1,04	1,56
Ø25	1,30	1,95



### Materiais

#### Betões

Em geral NP EN206-1 C30/37 XC2(pt) C10.20 D<sub>máx</sub>20 S4 c=35  
Regularização NP EN206-1 C12/15 X0(pt) C10.20 D<sub>máx</sub>25 S4  
Fundações NP EN206-1 C30/37 XC2(pt) C10.20 D<sub>máx</sub>20 S4 c=50  
c - Recobrimento nominal (mm)

#### Aço

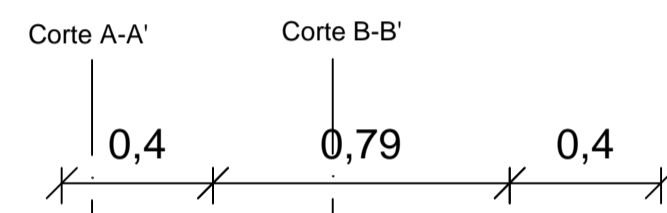
A500 NR SD

### Pa1

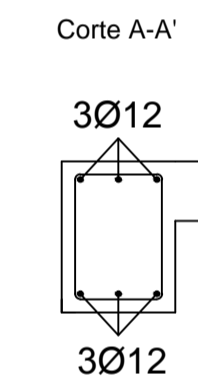
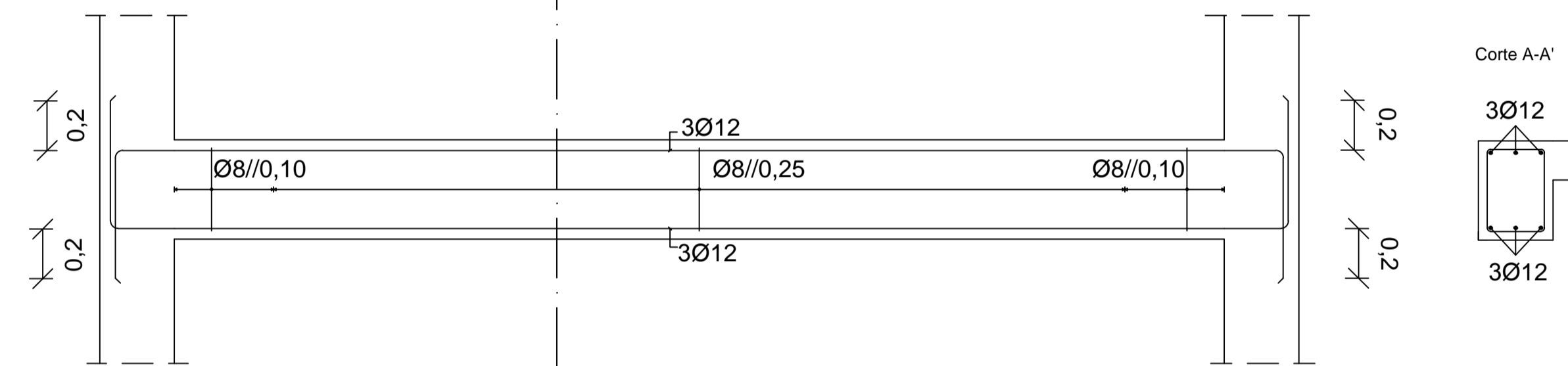
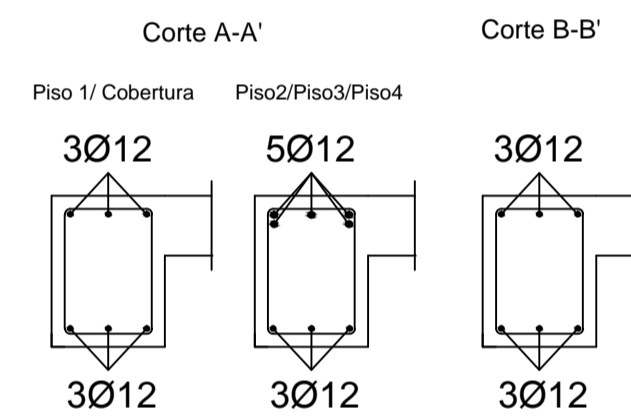
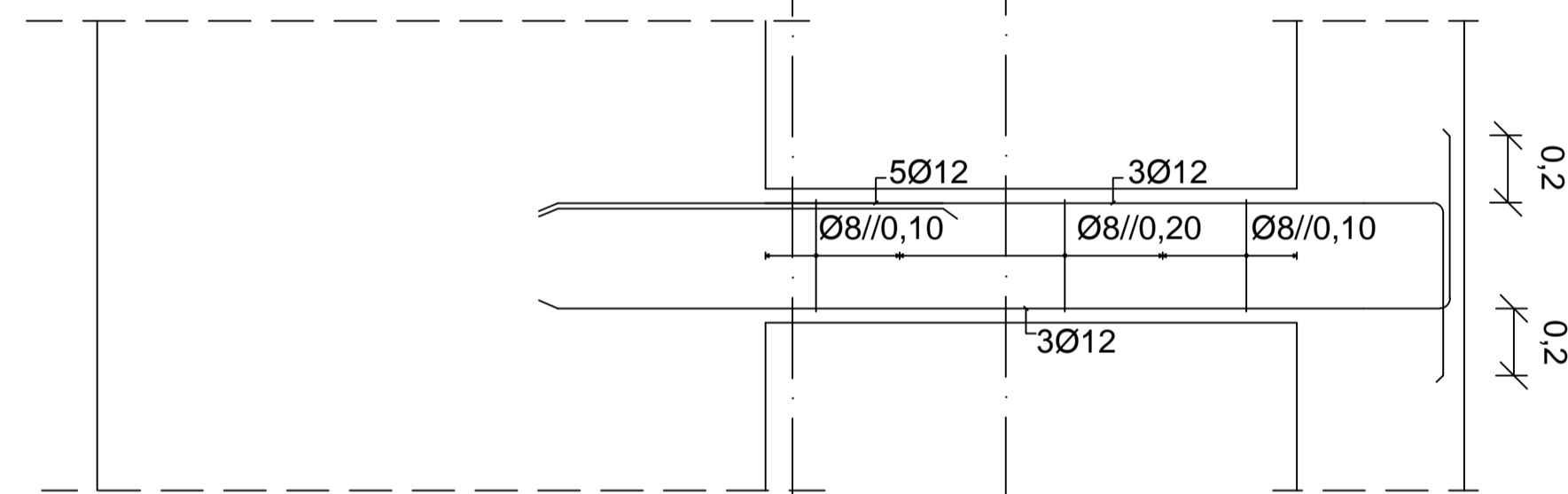
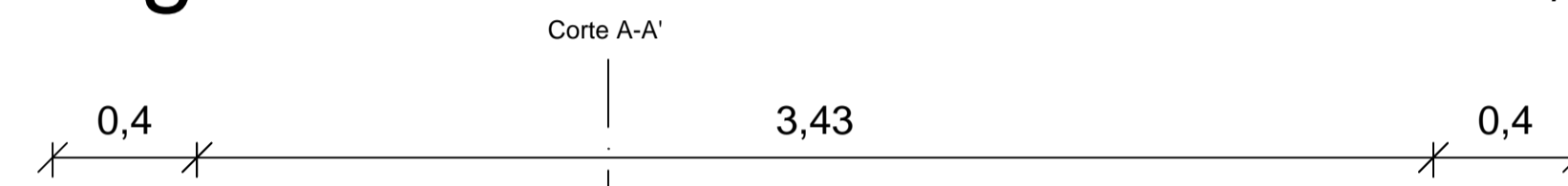


### Pa2

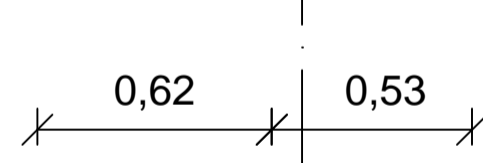
### Viga V2



### Viga V3



### Pa2

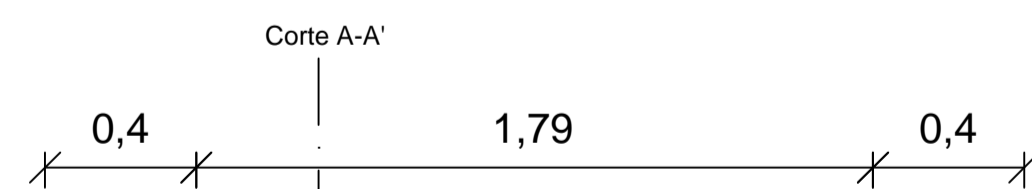


### P2

### P2

### P1

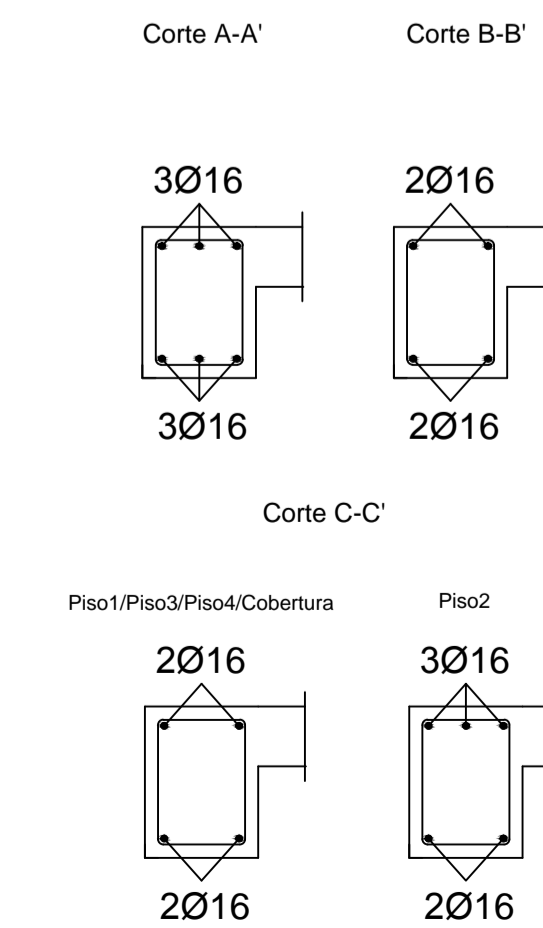
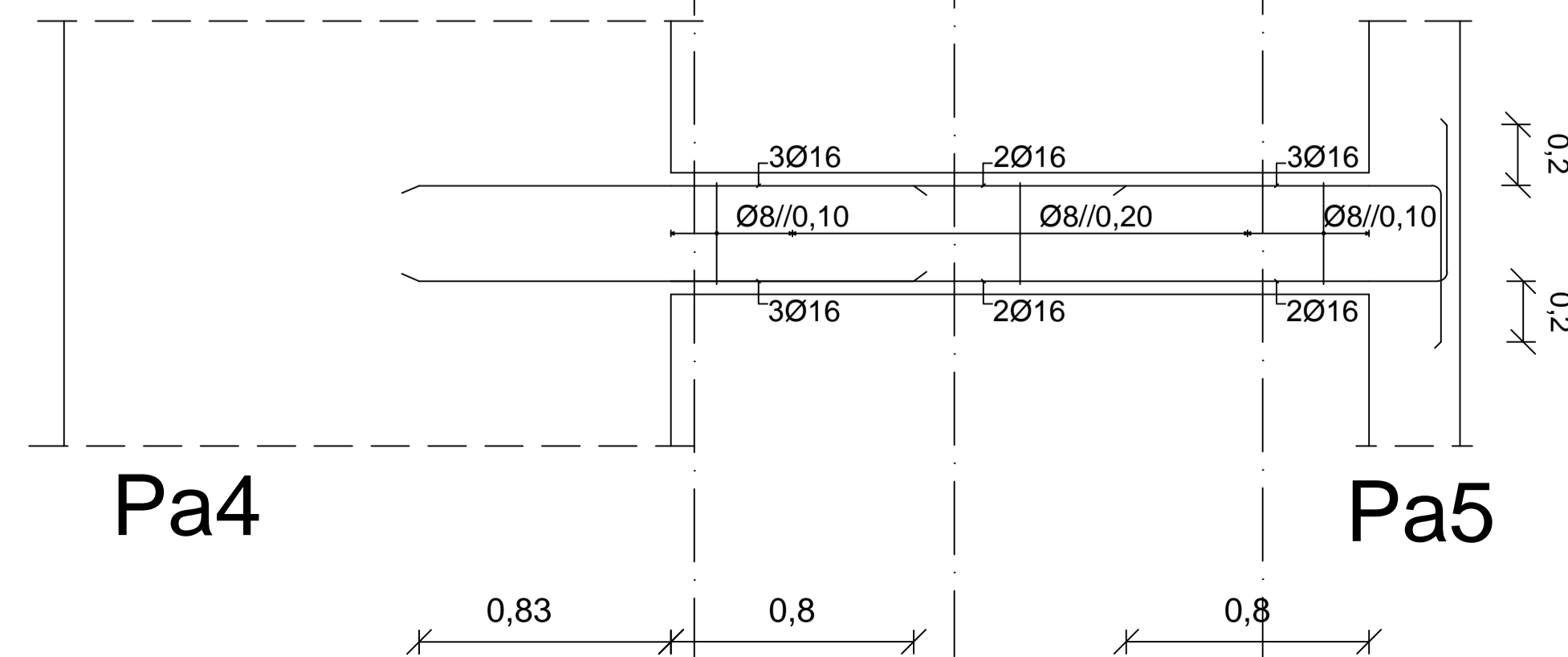
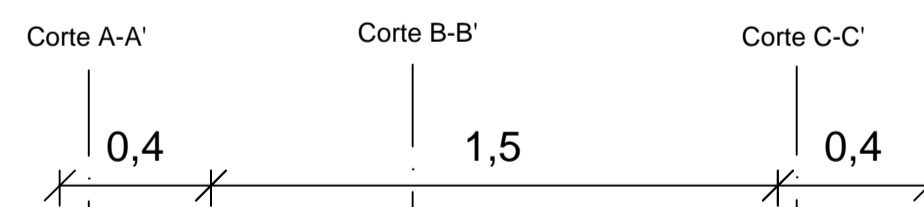
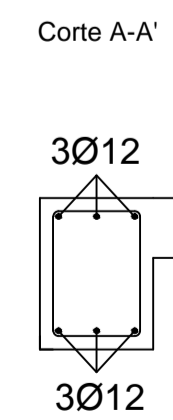
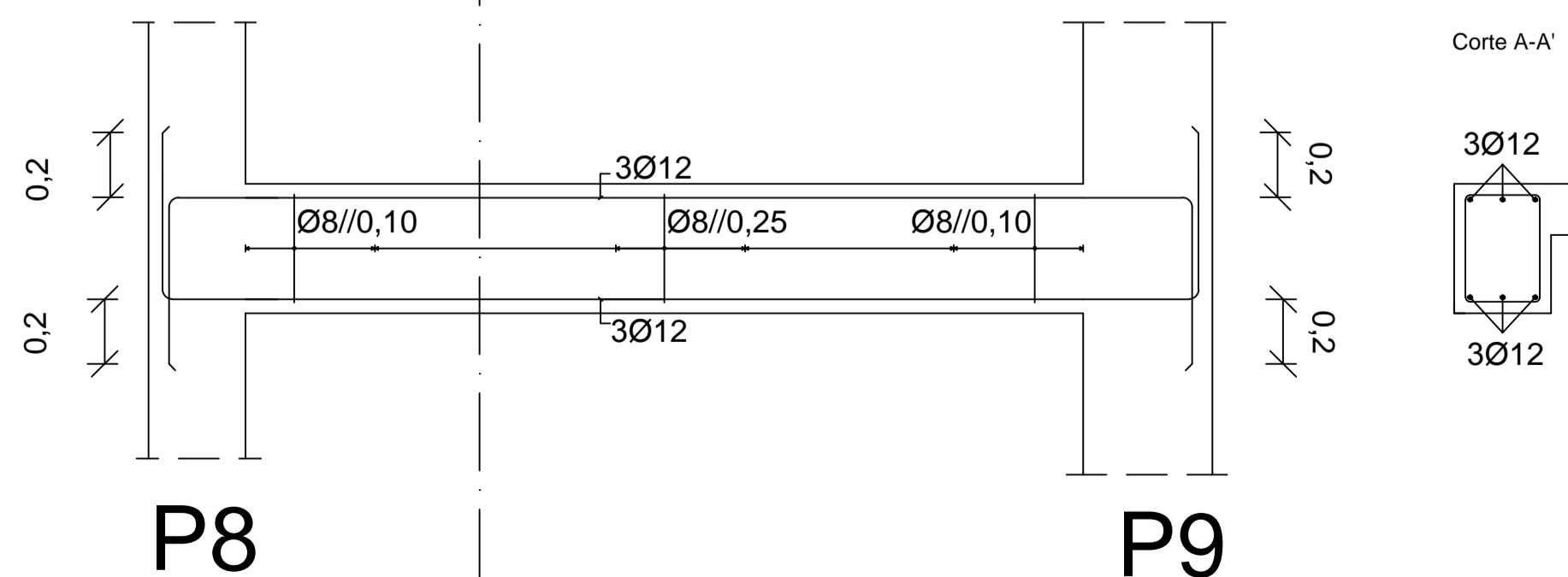
### Viga V6



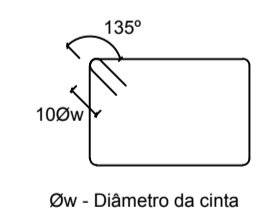
### Viga V8

Nota: Todas as vigas tem a mesma secção transversal 0,3x0,4

Nota: A armadura longitudinal é igual em todas as vigas do Piso 0 ( $A_{sup}=3Ø12; A_{inf}=3Ø12$ )



Pormenor de amarração das cintas



<p><b>ISEL</b> Instituto Superior de Engenharia de Lisboa</p>	ÁREA DEPARTAMENTAL DE ENGENHARIA CIVIL MESTRADO EM ENGENHARIA CIVIL	
	Elaborado por: Sérgio Pires N.º 30563	TRABALHO FINAL DE MESTRADO
Fevereiro de 2015	Dimensionamento Vigas (1)	DESENHO N.º 16
		Formato A1