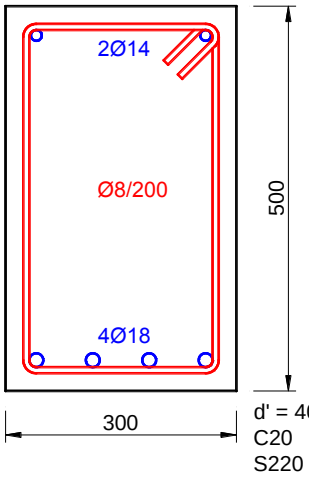
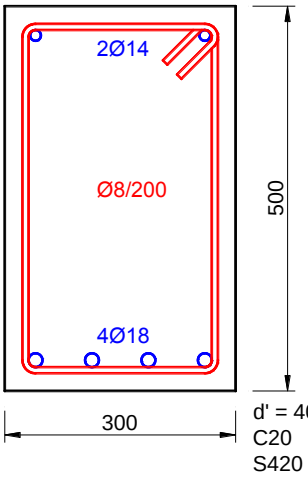
CE 382 HOMEWORK 5

Due Date & Time: May 24, 2015 @ 17.00

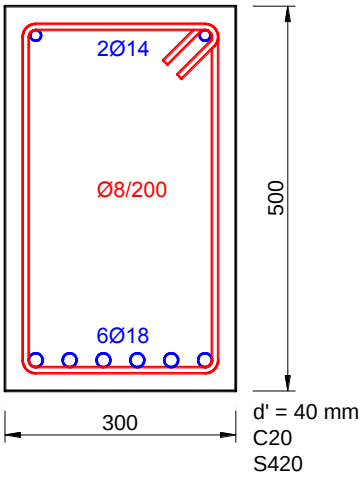
Q1. Calculate the design shear strength, V_r, of the beams given below.



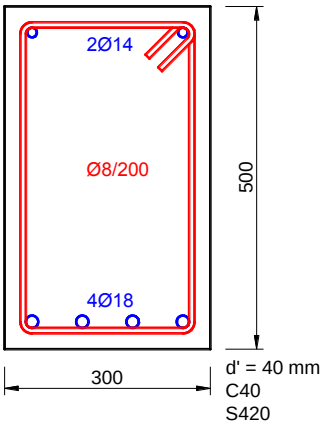
(a)



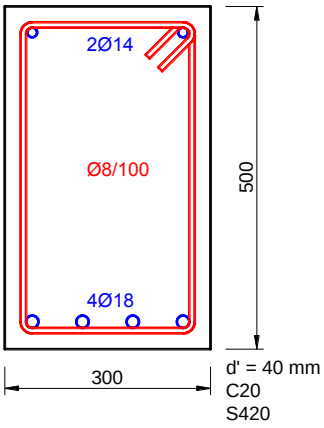
(b)



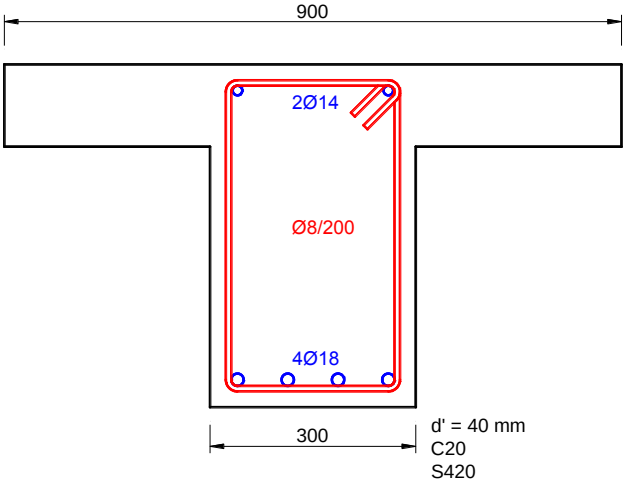
(c)



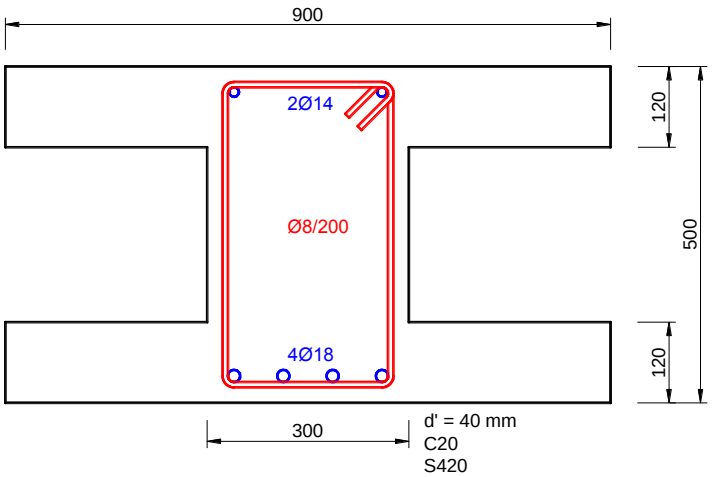
(d)



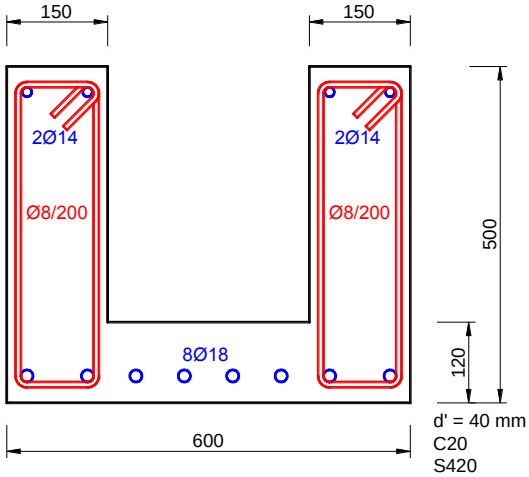
(e)



(f)

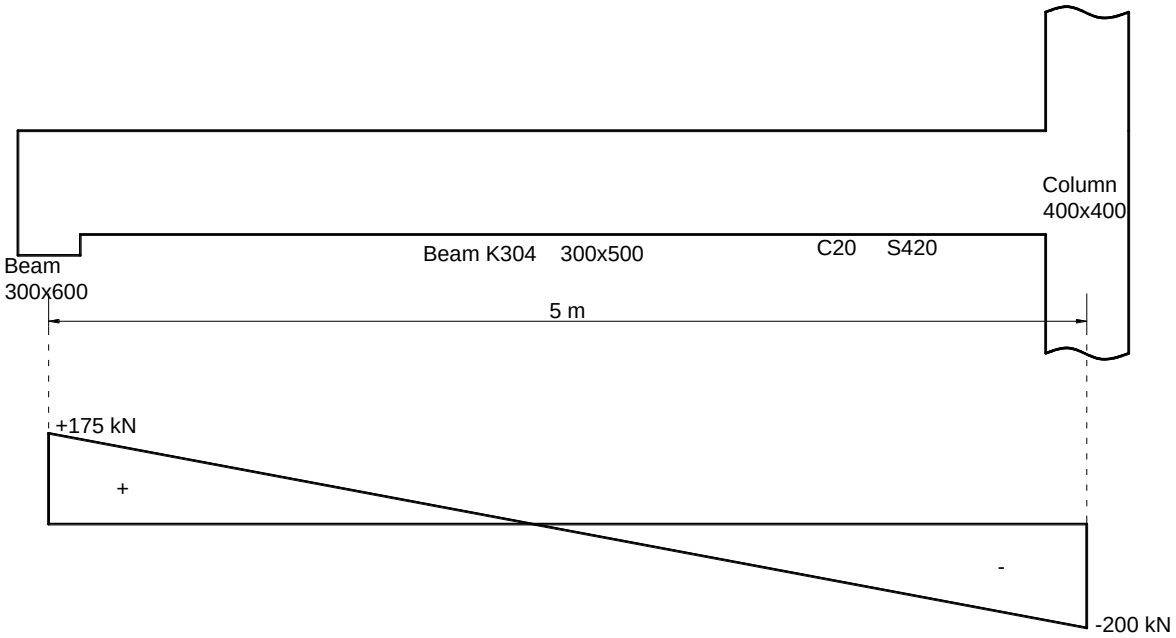


(g)

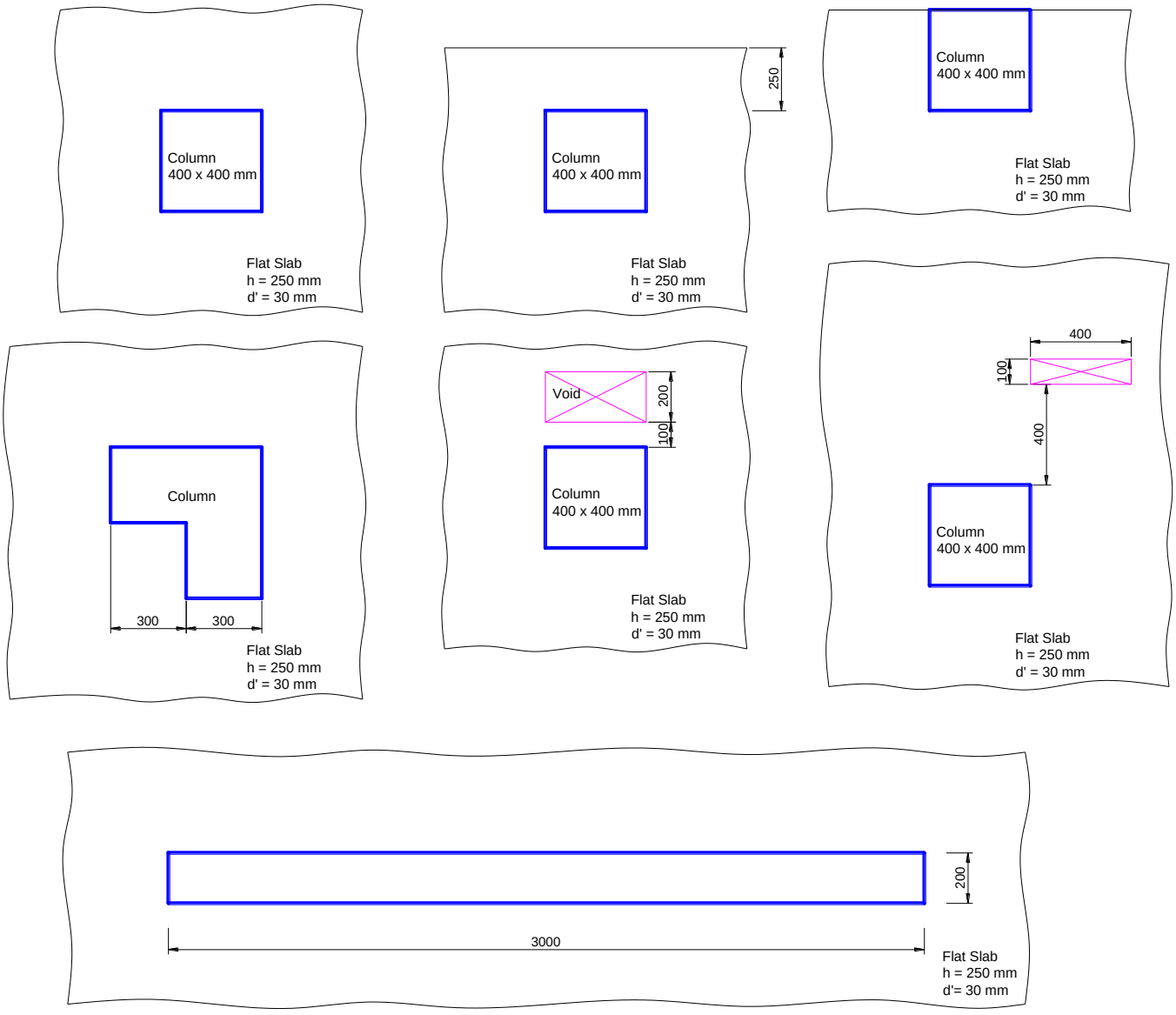


(h)

Q2. Design the beam K304 for shear forces given below. The beam K304 is supported by another beam on the left hand side (indirect support) and by a column on the right hand side (direct support). A compressive axial load of 84 kN is acting on beam K304. Required dimensions and material properties are given in the figure.



Q3. Calculate the critical perimeter, u_p, of the flat slabs given below. Consider $\gamma = 1.0$.



Q4. Check the safety of the flat slab and mat foundation with respect to punching shear. Materials are C30 and S420. Consider $\gamma = 1.0$.