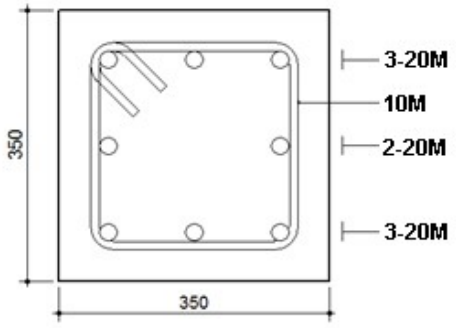
Assignment #7

2 Problems, Total = 60 MARKS

Problem 1 (30 marks)
Develop the interaction P-M interaction diagram for the following column. To develop the diagram use the following points : c=cb, c=100 mm and c=d. Also show the points that corresponds to Mro, Pro and Prmax

BONUS (+10): Use program S-Concrete (available in the computer labs) to generate the interaction diagram for the same column. This is a bonus question.

Note: **f'c= 35 MPa**, fy= 400 MPa. Clear cover to ties = 40 mm, 10M ties, 8-20M bars.



Problem 2 (30 marks)
Consider the 3m long column which has the design shown below. The column must resist factored loads of **Pf = 2500 kN** and **Mf = 200 kNm** (@ top) and **110 kN m** (@ bottom). Verify that the column design shown in **Figure 2c** meets the CSA A23.3 design requirements.

Note: Use the CDH interaction diagrams to verify the design.

Note: f_c' = 30 MPa; f_y = 400 MPa; clear cover = 30 mm; 10M ties; 8-25M bars.

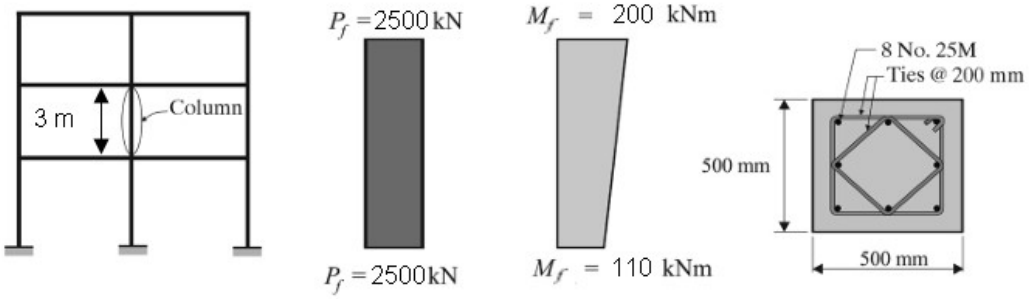


Figure 2