

Any missing data is to be reasonably assumed as per ECP-203-2020.

DATA: $f_{cu} = 40 \text{ MPa}$, $f_y = 280 \text{ MPa}$ (for $\Phi \leq 8 \text{ mm}$), $f_y = 400 \text{ MPa}$ (for $\Phi \geq 10 \text{ mm}$)

Answer the Following Questions:

QUESTION NO. (1) [40 Marks] COMPETENCIES: A1, B2, C1

Figure "1" shows a structural plan for an R.C. building. The designer shall choose the most economical structural system, i.e. slab types whether it will be solid slabs or Hollow blocks. The floor cover over the slabs is 2.50 kN/m^2 , and the live load is 3.0 kN/m^2 . The walls are over the beams unless noted on the plan, the unit weight of the walls is 16 kN/m^3 , and the floor height is 3.0 m . it is required to:-

- Determine the slab types then make a complete design for the whole slabs. (15 marks)
- Draw the slab reinforcement in the plan to scale 1:50. (10 marks)
- Design and draw the reinforcement details (in elevation and cross-sections) of beam @ axis 1 with appropriate scale. (15 marks)

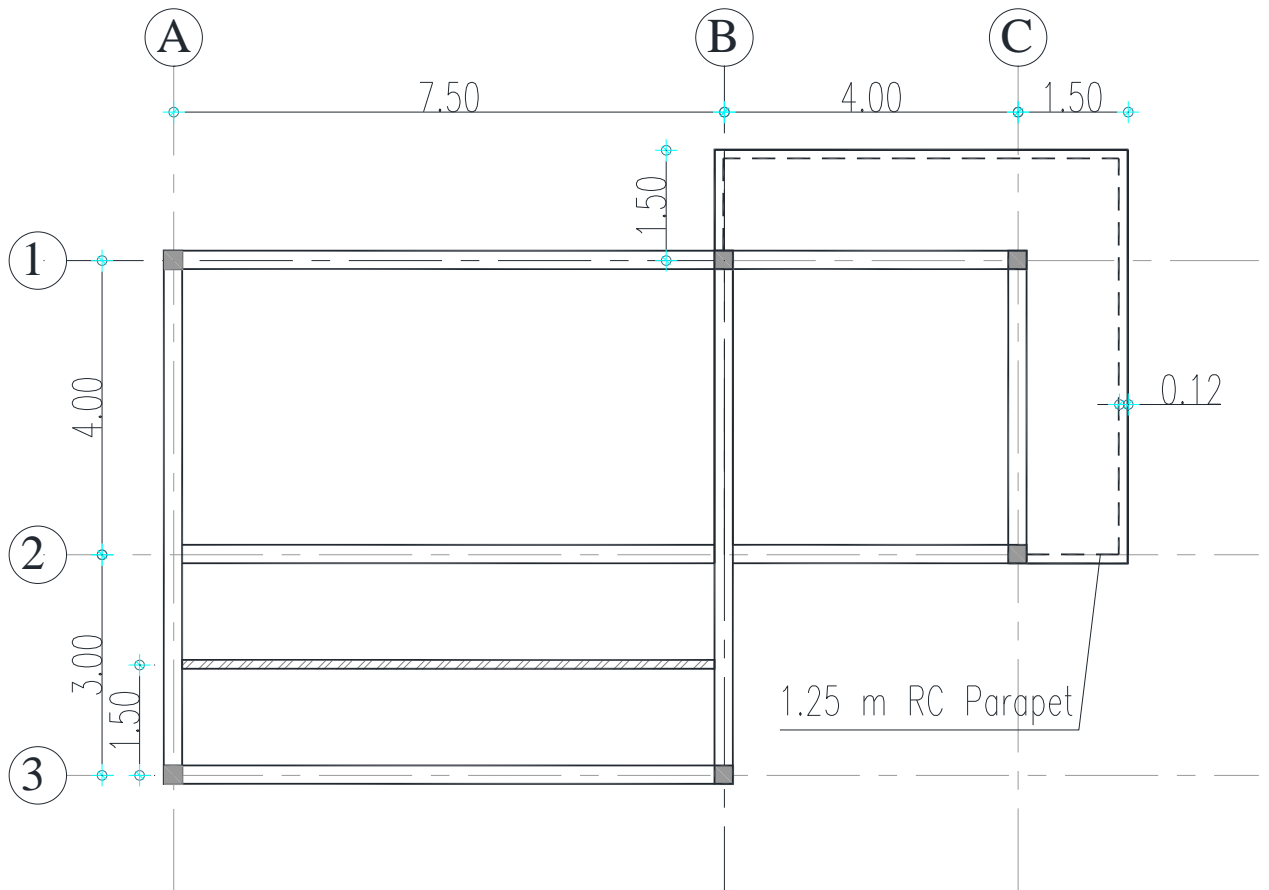


Figure "1"

Good Luck

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