

Any data not given is to be reasonably assumed.

All calculations and sketches should be clear and neat

Material properties ($f_{cu} = 250 \text{ kg/cm}^2$, $f_y = 3600 \text{ kg/cm}^2$ for H.G.S, $f_y = 2400 \text{ kg/mm}^2$ for Mild Steel)

MODEL 1 CMC304

Figure (1) shows the typical floor building, with the following data:

There are walls for all beams

- Wall thickness = 12 cm
- Density of brick walls (including plaster) = 1600 kg/m^3
- All columns = $25 \times 60 \text{ cm}$
- Live Load (L.L) = 200 kg/m^2
- Height of Floor (H) = 3 m

It is required:

- 1- Design of RC slab and draw the reinforcement details on plan.
- 2- Design of B1 and B2 in the plan against bending moment and shear.
- 3- Give neat sketches of all reinforcement details for Beam B1, B2.

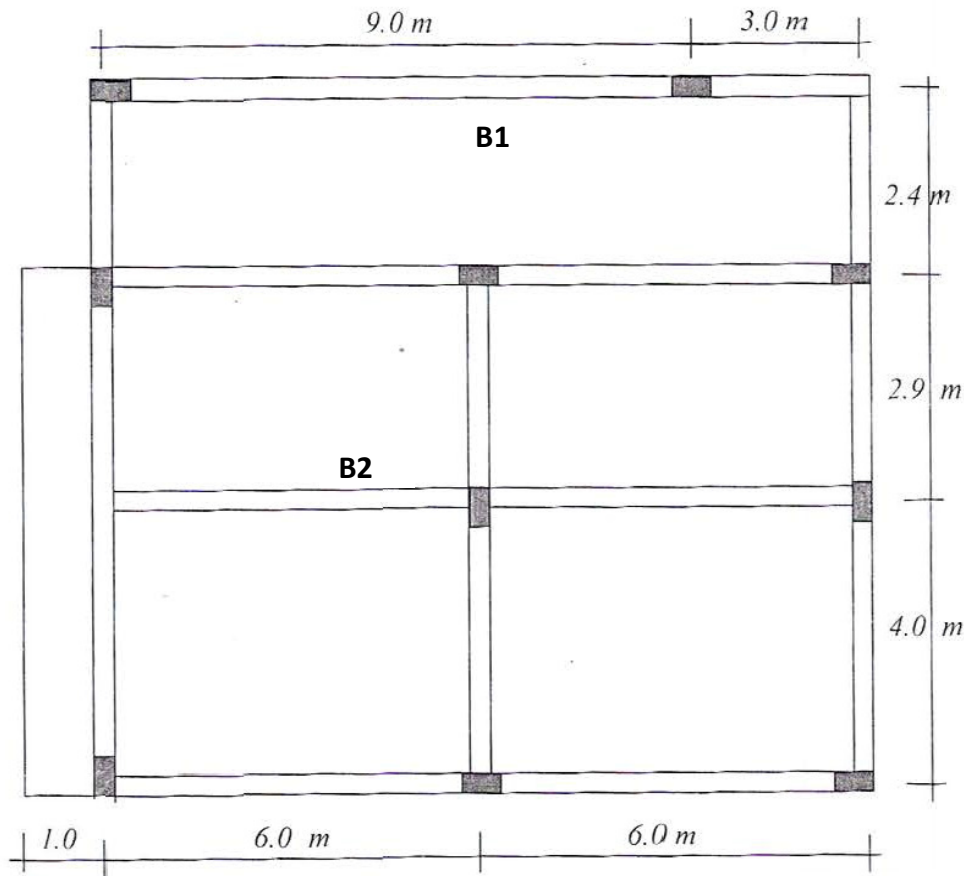


Figure (1)

For the cross-sections shown in Figure (2)

- Determine the Moment of Resistance of the section if

$$t_s = 100 \text{ mm} \quad b = 12 \text{ cm} \quad t = 60 \text{ cm} \quad A_s = 10 \text{ cm}^2$$

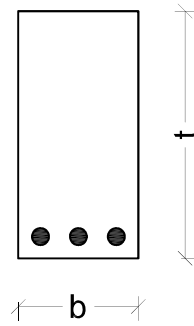


Figure (2)

MODEL 2 CMC304

Figure (1) shows the typical floor building, with the following data:

There are walls for all beams

- Wall thickness = 25 cm
- Density of brick walls (including plaster) = 1600 kg/m^3
- All columns = $30 \times 60 \text{ cm}$
- Live Load (L.L) = 250 kg/m^2
- Height of Floor (H) = 3.5 m

It is required:

- 1- Design of RC slab and draw the reinforcement details on plan.
- 2- Design of B1 and B2 in the plan against bending moment and shear.
- 3- Give neat sketches of all reinforcement details for Beam B1, B2.

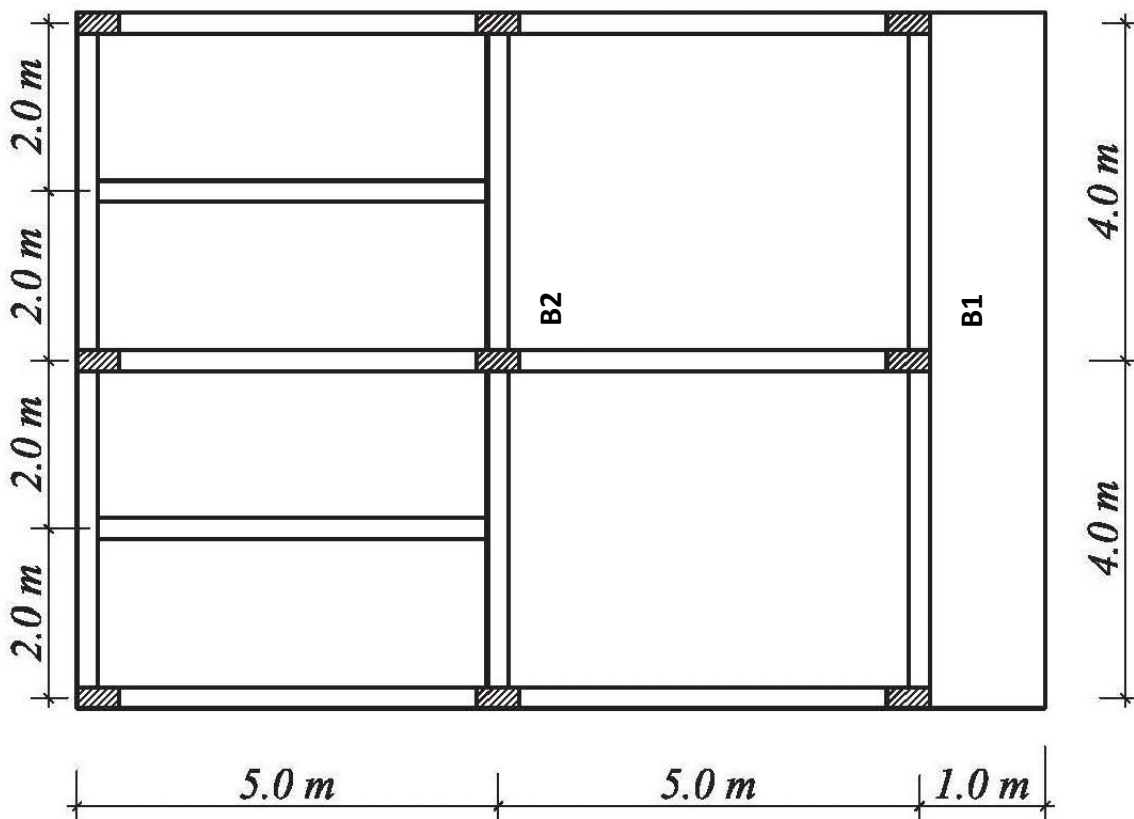


Figure (1)

For the cross-sections shown in Figure (2)

- Determine the Moment of Resistance of the section if

$$t_s = 100 \text{ mm} \quad b = 25 \text{ cm} \quad t = 60 \text{ cm} \quad A_s = 15 \text{ cm}^2 \quad A_s' = 0.2 A_s$$

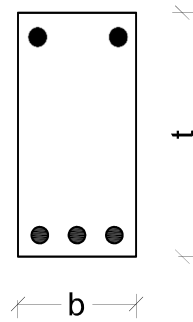


Figure (2)

MODEL 3 CMC304

Figure (1) shows the typical floor building, with the following data:

There are walls for all beams

- Wall thickness = 25 cm
- Density of brick walls (including plaster) = 1600 kg/m^3
- All columns = $30 \times 60 \text{ cm}$
- Live Load (L.L) = 400 kg/m^2
- Height of Floor (H) = 3.8 m

It is required:

- 1- Design of RC slab and draw the reinforcement details on plan.
- 2- Design of B1 and B2 in the plan against bending moment and shear.
- 3- Give neat sketches of all reinforcement details for Beam B1, B2.

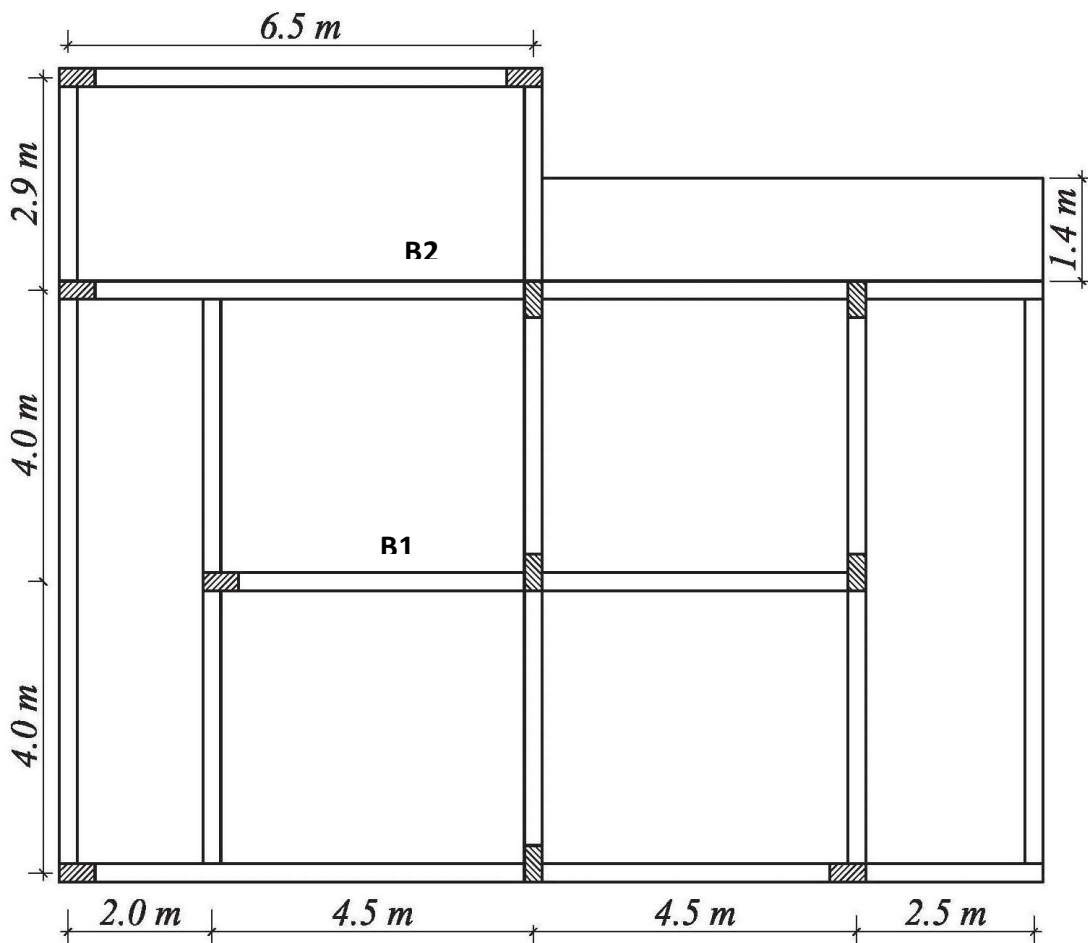


Figure (1)

For the cross-sections shown in Figure (2)

- Determine the Moment of Resistance of the section if

$$t_s = 100 \text{ mm} \quad b = 25 \text{ cm} \quad t = 70 \text{ cm} \quad A_s = 20 \text{ cm}^2$$

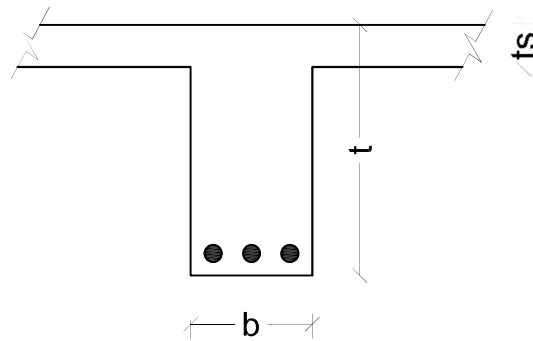


Figure (2)