

Design the torsional reinforcement in a rectangular beam section, 350 mm wide and 750 mm deep, subjected to an ultimate twisting moment of 140 kNm, combined with an ultimate (hogging) bending moment of 200 kNm and an ultimate shear force of 110kN. Assume M 25 concrete, Fe 415 steel and mild exposure conditions.

Design a continuous one-way slab for an office floor. The slab is continuous over tee beams spaced at 4m intervals. Assume live load of 4 kN/m^2 and adopt M-20 grade concrete and Fe-415 HYSD bars.

Design a two way slab for a room of size 4m by 5m with discontinuous and simply supported edges on all the sides with corners prevented from lifting to support a live load of 4 kN/m^2 . Adopt M-20 grade concrete & Fe-415 HYSD bars.

A simply supported beam of 8 m span is reinforced with 6 bars of 25mm diameter at center of span and 50 percent of the bars are continued into the supports. Check the development length at supports assuming M-20 Grade concrete and Fe-415 HYSD bars. The beam supports a characteristics total load of 50 kN/m.