

Steel Beam



① Bending moment applied $= 4.5 \text{ kNm} + 1.35 \text{ kNm}$
(Calculations from Concrete sheet)

$$= ~~4.5~~ 5.85 \text{ kNm}$$

$$= 5850000 \text{ Nmm.}$$

② Permissible bending stress for steel $f_y =$
 460 N/mm^2

③ The Section modulus required $W = \frac{M}{f_y} =$
$$= \frac{5850000 \text{ Nmm}}{460 \text{ N/mm}^2} = 12717.391304347$$
$$= 12717.39 \text{ mm}^3$$
$$= \underline{12.717 \text{ cm}^3}$$

④ $\approx 12.717 \text{ cm}^3$ required, So we look at
the final Column W_f and decide to provide
slightly higher $= 14.7 \text{ cm}^3$.
Which is UB $127 \times 76 \times 13$