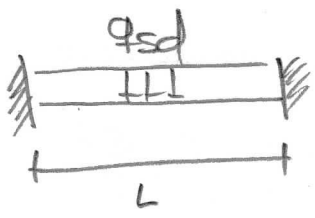
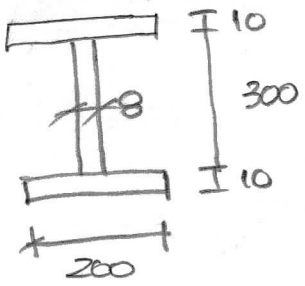
B2T5UA@520





- AR350
- VIGA CONTIDA LATERALMENTE
- $q_{sd} = 75 kN/m$ (PERM. E VALOR DE CÁLC.)
- $\gamma_g = 1,4$
- PERFIL SOLDADO;
- VIGA DE PISO;

PEDE-SE MÁXIMO VÃO L PARA AS VERIFICAÇÕES DE

Q01) MOM. Q02) CORTE Q03) FLECHA

- VERIF. DE MOM. FLA: $\lambda_{FLA} = 300/8 = 37,5$

$\lambda_{PFLA} = 3,76\sqrt{\frac{20000}{35}} = 89,88 \mapsto$ ALMA COMPACTA P/ FLEXÃO

- VERIF. DE MOM. FLM: $\lambda_{FLM} = 9,5 \times 200/10 = 10$

$\lambda_{PFLM} = 0,38\sqrt{\frac{20000}{35}} = 9,0837 \mapsto$ MESA SEMI COMPACTA

$Z_x = 800 cm^3$ $I_x = 11413 cm^4$

$W_x = 11413 / 9,5(30+2) = 713,31 cm^3$

$M_{pl} = 800 \times 35 = 28000 kN.cm$

$M_r = 713,31 \times 0,7 \times 35 = 17476 kN.cm$

$k_c = 4/\sqrt{37,5} = 0,65319$ ok!

$\lambda_{rFLM} = 0,95\sqrt{\frac{20000 \times 0,65319}{0,7 \times 35}} = 21,937$

$M_{Rd} = \frac{1}{1,1}\left[280 + \frac{(174,76-280)}{(21,937-9,0837)}(\lambda - 9,0837)\right] = \underline{247,73 kN.m}$

$M_{R\,MÁX} = 1,5 \times 713,31 \times 35/1,1 = 34044 kN.cm = 340 kN.m$ ok!

$$M_{sd} = q_{eu} L^2/12 = \frac{75 kN/m\, L^2}{12}$$

IGUALANDO: $M_{sd} = M_{rd}$

$$\frac{75}{12} L^2 = 247{,}73 \qquad L = \sqrt{247{,}73 \times 12/75} = \underline{6{,}296\ m}$$

- VERIF. DE CORTANTE:

$$\lambda_{CS} = 37{,}5 \qquad \lambda_P = 1{,}10\sqrt{\frac{5 \times 20000}{35}} = 58{,}79$$

ALMA COMPACTA P/ CISALHAMENTO

$$V_{Rd} = \frac{96 \times (30+2) \times 0{,}8 \times 35}{1{,}1} = 488{,}73 kN$$

$$V_{sd} = \frac{q_{ELU} L}{2} = \frac{75 kN/m\, L}{2}$$

$$L = 488{,}73 \times 2/75 = \underline{13{,}03\ m}$$

- VERIF. DE FLECHAS:

$$\delta_{LIM} = L/350 \qquad \delta_{calc} = \frac{1}{384} \frac{0{,}75 kN/cm \times 1{,}4\, L^4}{20000 \times 11413}$$

IGUALANDO:

$$L = \sqrt{\frac{384 \times 20000 \times 11413 \times 1{,}4}{350 \times 0{,}75}}$$

$$L = 776{,}1\ cm = \underline{7{,}761\ m}$$