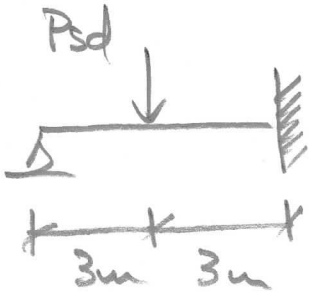
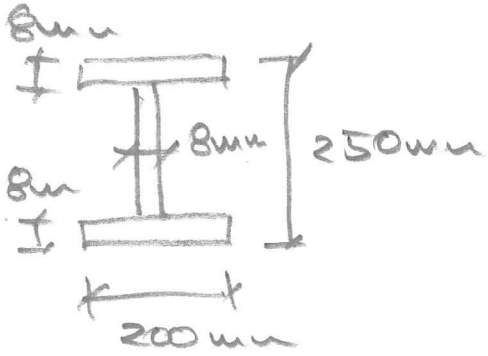
B275NA@513

- AÇO MR250, PERFIL SOLDADO;
- VIGA CONTIDA LATERALMENTE



0,8 PONTOS



PEDE-SE O MÁXIMO Psd P/ VERIF. DE

Q01) MOMENTOS

Q02) CORTANTES

(1) MOM. FLT: $h_w = 250 - 2\times 8 = 234\ mm$

$\lambda_{FLT} = 234\ mm / 8\ mm = 29,25$

$\lambda_{PFLT} = 3,76\sqrt{\frac{20000}{25}} = 106,35$

} ALMA COMPACTA

(2) MOM. FLM:

$\lambda_{FLM} = 0,5\times 200\ mm / 8\ mm = 12,5$

$\lambda_{PFLM} = 0,38\sqrt{\frac{20000}{25}} = 10,74$ $\quad k_c = \frac{4}{\sqrt{29,25}} = 0,7396$

$\lambda_{RFLM} = 0,95\sqrt{\frac{20000}{0,7\times 25 / 0,7396}} = 27,619$

↳ MESA SEMICOMPACTA

$Z_x = 496,71\ cm^3$ $\quad W_x = 443,28\ cm^3$

$I_x = 5541\ cm^4$ $\quad M_{RDLIM} = \frac{1,5\times 443,28\times 25}{1,1} = 151,12\ kN.m$

$M_r = 443,28\ cm^3 \times 0,7\times 25\ kN/cm^2 = 7757,4\ kN.cm$

$M_{pl} = 496,71\ cm^3 \times 25\ kN/cm^2 = 12418\ kN.cm$

$$M_{Rd} = \frac{1}{1,1}\left[124,18 + \frac{(77,574 - 124,18)}{(27,619 - 10,74)}(12,5 - 10,74)\right] = \boxed{108,47\ kN.m}$$

(3) CORTANTES

$\lambda_{cis} = 29,25$

$\lambda_p = 1,10\sqrt{\frac{5 \times 20000}{25}} = 69,57$ } ALMA COMPACTA

$V_{Rd} = \frac{0,6 \times 25 \times 0,8 \times 25}{1,1} = \boxed{272,73\ kN}$

$M_{MEIO} = 5P/16 \times L/2 = \frac{5PL}{32} = \frac{5}{32} Psd \times 6 = 0,9375\ Psd$

$M_{ENG} = 3PL/16 = 3/16\ Psd \times 6 = \underline{1,125\ Psd}$

$V_{sd} = \frac{11\ Psd}{16} = \underline{0,6875\ Psd}$

$M_{sd} = M_{Rd} \quad 1,125\ Psd = 108,47\ kN$

$Psd = 10847/1,125 = \boxed{96,418\ kN}$ Q01

$V_{sd} = V_{Rd} \quad 0,6875\ Psd = 272,73$

$Psd = 272,73/0,6875 = \boxed{396,70\ kN}$ Q02