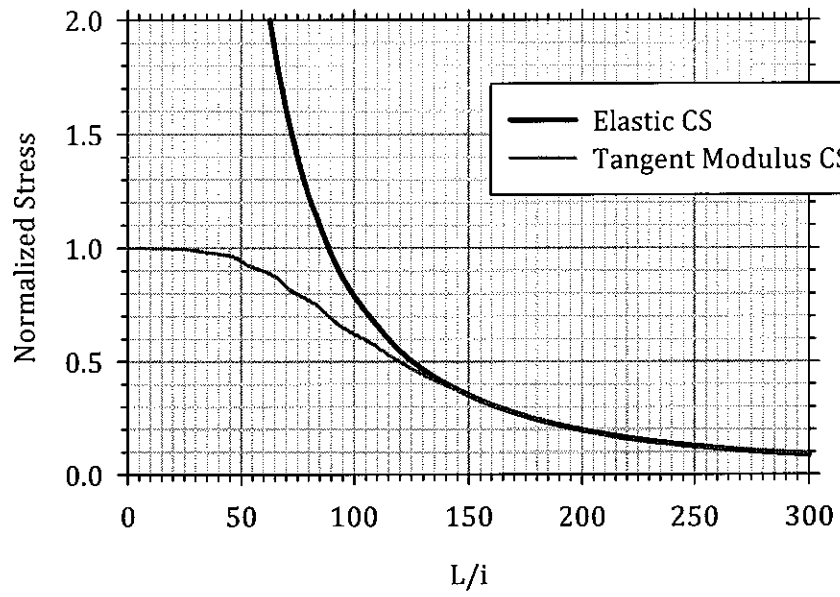


CE 388 - Hw2 - Solutions

1)

a) $E = 20000 \text{ MPa}$ μ

b)



CE 388 - HW 2 - Solutions

2) Let's assume $a = 36.6 \text{ cm}$

$$I = 43322.53 \text{ cm}^4$$

$$A = 210.6 \text{ cm}^2$$

$$\bar{i} = 14.34 \text{ cm}$$

$$\lambda = 87.9, \quad n = 2.24, \quad \sigma_{\text{bem}} = 0.831 \text{ t/cm}^2 \rightarrow P_{\text{all}} = 175 \text{ t} \checkmark$$

Answer: $a = 36.6 \text{ cm}$ \llcorner

3) HEA 400

$$A = 159 \text{ cm}^2$$

$$I_y = 45070 \text{ cm}^4, \quad i_y = 16.8 \text{ cm}$$

$$I_z = 8564 \text{ cm}^4, \quad i_z = 7.34 \text{ cm}$$

Weak direction is critic.

$$\lambda = 41 < \lambda_p = 131$$

$$n = 1.87, \quad \sigma_{\text{bem}} = 1.22 \text{ t/cm}^2 \rightarrow P_{\text{all}} = 194 \text{ t} \llcorner$$