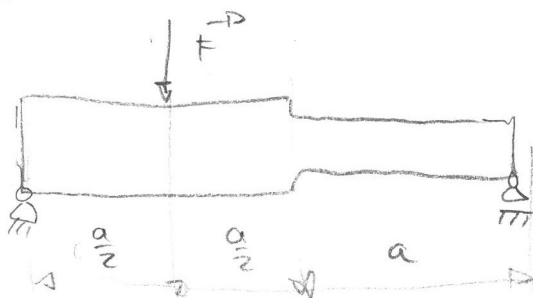
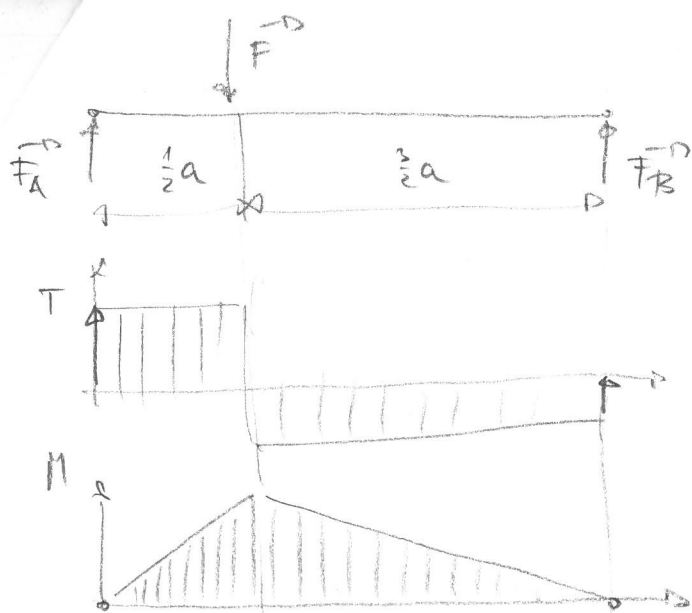
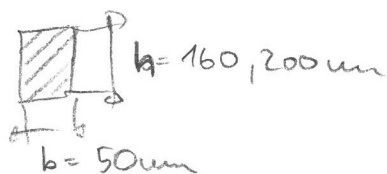


Pr: Pult znikln = mezt unay 289MPa, mezt klza k=300MPa a mezt penosti Rm = 570MPa. Soucinilel koncentracioci napeti je $\alpha = 1.3$. Zahižen osahje v rozmer $\pm a - \frac{F}{2}$. k mezinim stav unay $k_1 = 4$ stavote maximai zahižen F. Bezpecnost k₂ mezinim stav penosti k=3



$$a = 1 \text{ m}$$



$$F_A \cdot 2a - F \cdot \frac{3}{2}a = 0$$

$$F_A = \frac{3}{4} F$$

$$F_B \cdot 2a - F \cdot \frac{1}{2}a = 0$$

$$F_B = \frac{1}{4} F$$

$$M_1 = F_A \cdot x_1 = \frac{3}{4} F \cdot x_1 \quad x_1 \in (0, \frac{1}{2}a)$$

$$M_2 = F_B \cdot x_2 = \frac{1}{4} F x_2 \quad x_2 \in (0, \frac{3}{2}a)$$

$$\sigma_{\text{max}}^{\text{max}} = \alpha \cdot \frac{M_2(x_2=a)}{W_0} = 1.3 \cdot \frac{\frac{1}{4} \cdot F \cdot 1000}{2 \cdot \frac{1}{12} \cdot 50 \cdot 160^2} = 1.523 \cdot 10^{-3} F$$

$$\sigma_{\text{max}}^{\text{min}} = -\frac{1}{2} \sigma_{\text{max}}^{\text{max}} = -0.762 \cdot 10^{-3} F$$

$$\sigma_m = \frac{1}{2} (\sigma_{\text{max}}^{\text{max}} + \sigma_{\text{max}}^{\text{min}}) = 0.381 \cdot 10^{-3} F$$

$$\sigma_a = \frac{1}{2} (\sigma_{\text{max}}^{\text{max}} - \sigma_{\text{max}}^{\text{min}}) = 1.143 \cdot 10^{-3} F$$

Goodman:

$$\frac{\sigma_a}{\frac{\sigma_{ar}}{k_1}} + \frac{\sigma_m}{\frac{R_m}{k_2}} = 1 \Rightarrow \frac{1.143 F}{\frac{289}{4}} + \frac{0.381 F}{\frac{570}{3}} = 1000 \Rightarrow F = 56.1 \cdot 10^3 \text{ N}$$