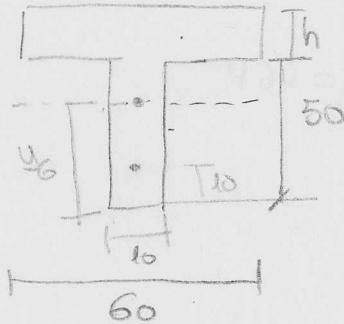


$$y_G = \frac{60h \left(50 + \frac{h}{2}\right) + 500 \cdot 25}{60h + 10 \cdot 50}$$

$$y_G = \frac{30h^2 + 3000h + 12500}{60h + 500} \quad (1)$$

$$\frac{\sigma_s}{h_s} = \frac{\sigma_i}{h_i} \quad (2) \quad 20h_i = 200h_s$$

$$h_i = 10h_s$$



$$\sum F = 0$$

$$(3) \quad P - \frac{1}{2} \sigma_i h_i \cdot 60 + \frac{1}{2} \sigma_i h_i \cdot 50 + \frac{1}{2} \sigma_s h_s \cdot 60 - \frac{1}{2} \sigma_i (h_s - h) \cdot 50 = 0$$

$$P - \frac{1}{2} \sigma_i h_i \cdot 10 + \frac{1}{2} \sigma_s h_s \cdot 60 - \frac{1}{2} \frac{(h_s - h)^2}{h_s} \sigma_s \cdot 50 = 0$$

$$P - 1000 h_i + 600 h_s - 500 \frac{(h_s - h)^2}{h_s} = 0$$

$$(4) \quad \frac{\sigma_i}{h_s - h} = \frac{\sigma_s}{h_s}$$

$$\sigma_i = \frac{h_s - h}{h_s} \sigma_s$$

$$\sum M_{G_0} = 0$$

$$(5) \quad P(y_G - 10) + P(h_i - y_G) - \frac{1}{2} \sigma_i h_i \cdot 10 \cdot \frac{2}{3} h_i - \frac{1}{2} \sigma_s h_s \cdot 60 \cdot \frac{2}{3} h_s + \frac{1}{2} \sigma_i (h_s - h)^2 \cdot 50 \cdot \frac{2}{3} = 0$$

$$h_s + h_i = h + 50 \quad (6)$$

$$h_s - h = 50 - h_i$$

$$(5) \quad P \left( \frac{30h^2 + 3000h + 7500}{60h + 500} \right) + P \left( h_i \cdot \frac{30h^2 + 2400h + 7500}{60h + 500} \right) - \sigma_i \cdot 10 h_i^2 - 20 \sigma_s h_s^2 + \frac{50}{3} \frac{(h_s - h)^3}{h_s} \sigma_s = 0$$

$$y_G = 6 \quad h = 14$$

$$h_s = 2$$

$$h_i = 7$$