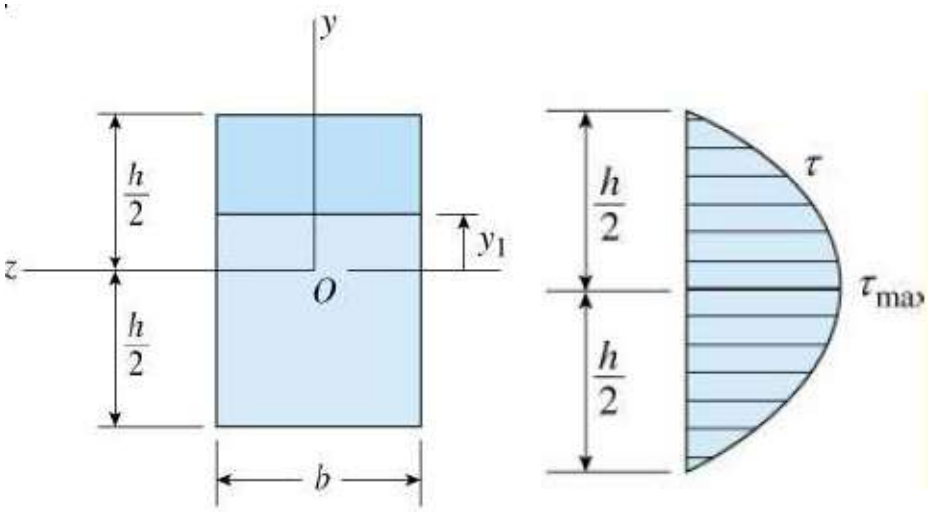
Universidade Federal de Pernambuco
Projeto Estrutural
Prof - Adriano Dayvson
Engenharia Naval
adrianodayvson.github.io

UFPE

Primeiro Momento de Inércia

Seção Retangular



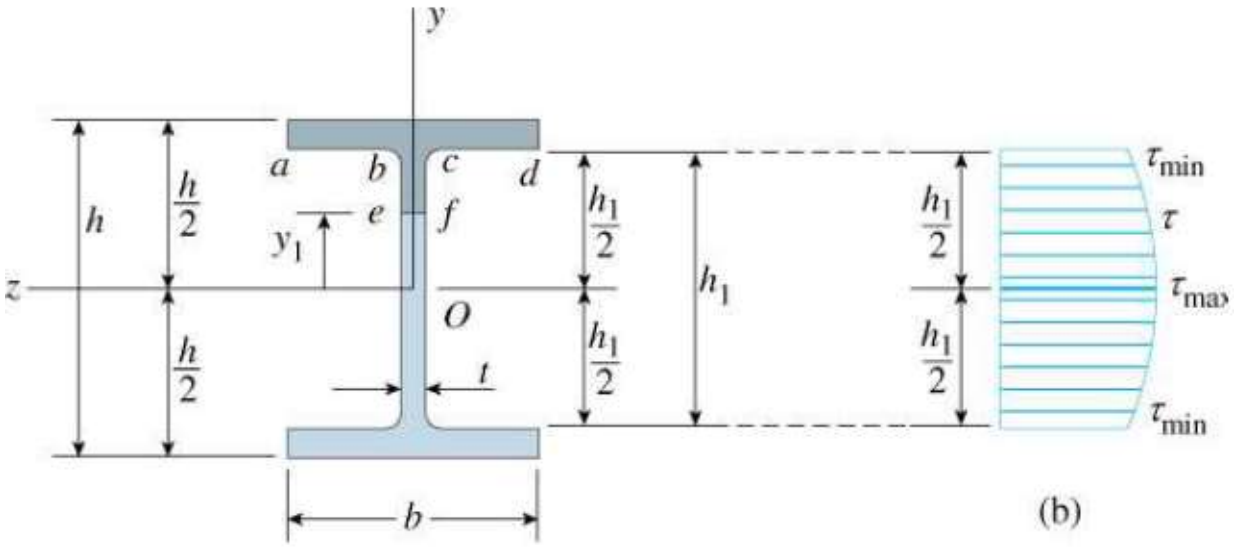
$$dA := b \cdot dy$$

$$Q := \int_{y_1}^{\frac{h}{2}} y \, dA \qquad Q := \int_{y_1}^{\frac{h}{2}} y \cdot b \, dy$$

$$Q := b \cdot \left(\frac{y^2}{2} \right) \Bigg|_{y_1}^{\frac{h}{2}} \qquad Q := b \cdot \left(\frac{h^2}{8} - \frac{y_1^2}{2} \right)$$

$$Q := \frac{b}{2} \cdot \left(\frac{h^2}{4} - y_1^2 \right)$$

Perfil I



Momento estático da área sombreada

$$A_1 := b\cdot\left(\frac{h}{2}-\frac{h_1}{2}\right) \qquad A_2 := t\cdot\left(\frac{h_1}{2}-y_1\right)$$

$$yLN_1 := \frac{h_1}{2}+\left(\frac{\frac{h}{2}-\frac{h_1}{2}}{2}\right) \qquad yLN_2 := y_1+\left(\frac{\frac{h_1}{2}-y_1}{2}\right)$$

$$Q := A_1\cdot yLN_1 + A_2\cdot yLN_2 \qquad Q := \frac{b}{8}\cdot\left(h^2-h_1^2\right)+\frac{t}{8}\cdot\left(h_1^2-4\cdot y_1^2\right)$$