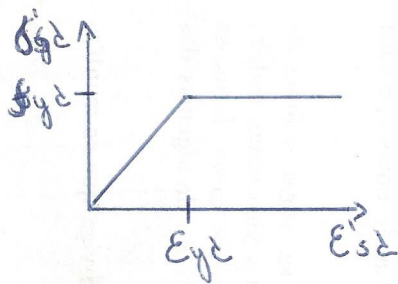


• Aço Classe A ⇒

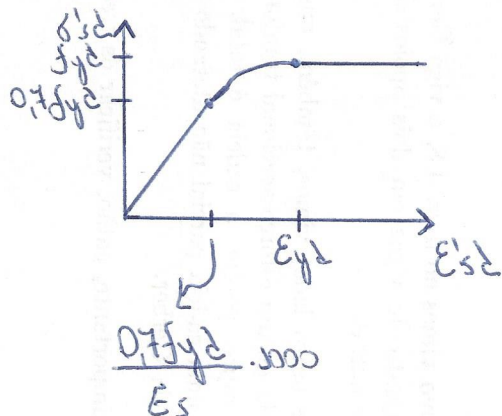


⇒ Se  $\epsilon'sc \geq \epsilon_{yc} \Rightarrow \sigma'cd = f_{yc}$  (aço escoado)

⇒ Se  $\epsilon'sc < \epsilon_{yc} \Rightarrow$

$$\sigma'cd = \frac{E_s \cdot \epsilon'sc}{1000} \quad (\text{Lei de Hooke})$$

• Aço Classe B ⇒



⇒ Se  $\epsilon'sc \leq \frac{0.7 f_{yc} \cdot 1000}{E_s}$

$$\sigma'cd = \frac{E_s \cdot \epsilon'sc}{1000} \quad (\text{Lei de Hooke})$$

⇒ Se  $\epsilon'sc \geq \epsilon_{yc} \Rightarrow \sigma'cd = f_{yc}$  (aço escoado)

⇒ Se  $\frac{0.7 f_{yc} \cdot 1000}{E_s} < \epsilon'sc < \epsilon_{yc} \Rightarrow \sigma'$

$$\frac{\sigma'cd}{f_{yc}} = 0.7 + \frac{\left[ 1 + \frac{4 E_s}{45 f_{yc}} \cdot \left( \frac{E_s \cdot \epsilon'sc}{1000 f_{yc}} - 0.7 \right) \right]^{1/2} - 1}{\frac{2 E_s}{45 f_{yc}}}$$

→ Verificação ⇒

→ Armadura Simples ⇒

$$w = \frac{A_s \cdot f_{yd}}{b \cdot d \cdot f_{cd}} \Rightarrow K_x = \frac{w}{0.68}$$

$K_x \leq K_{x,lim} \Rightarrow$  Armadura escoada //

$$w_d = w - \frac{w^2}{1.7}$$

$$M_d = w_d \cdot b \cdot d^2 \cdot f_{cd}$$

$$M_k = \frac{M_d}{\gamma_f}$$