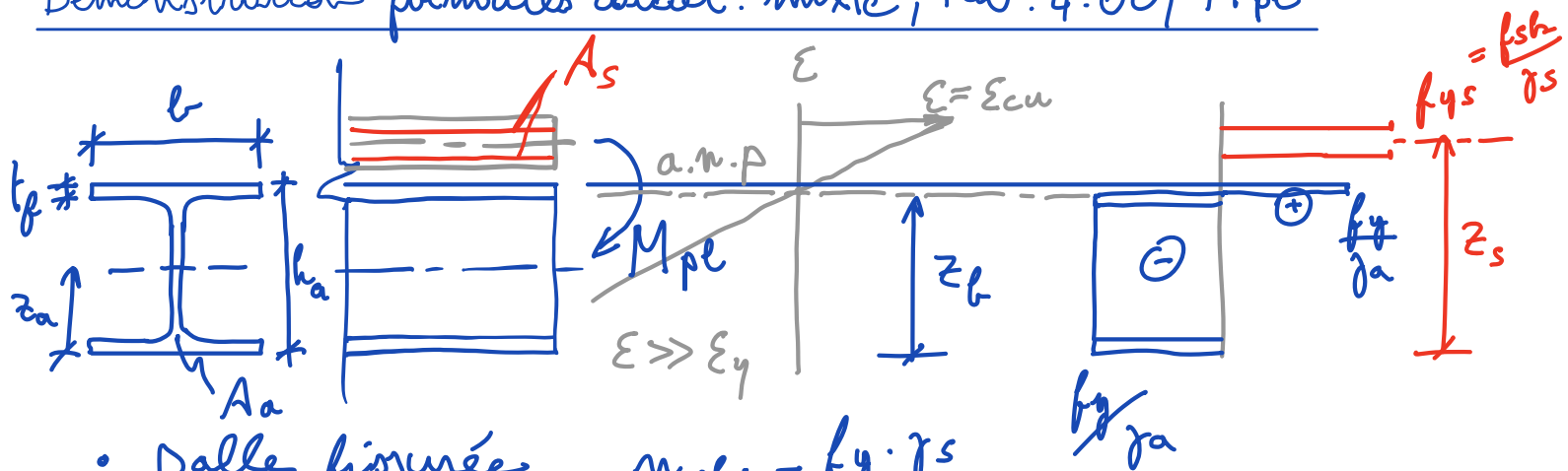


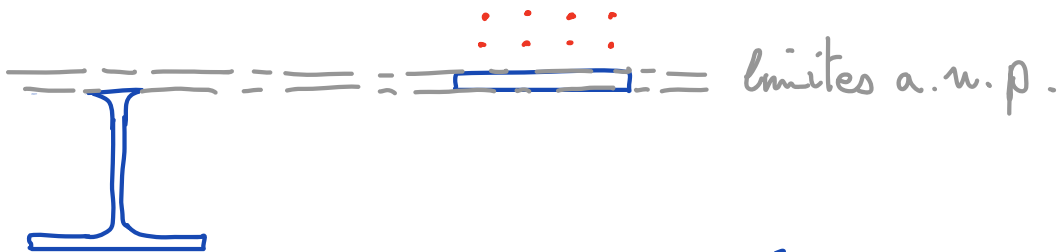


- Dalle fissurée. $n_{pls} = \frac{f_y \cdot \gamma_s}{f_{sk} \cdot \gamma_a}$
- Efforts intérieurs: M

$$N = 0 = \int_A \sigma dA$$

$$\sum F_{comp} = \sum F_{tact}$$

- Ces a.n.p. dans l'aile supérieure.
- Position de l'a.n.p., conditions:



$$f_y \cdot (A_a - b \cdot t_f) \leq \left(\frac{A_s}{n_{pls}} + b \cdot t_f \right) \cdot f_y$$

dans aile sup.

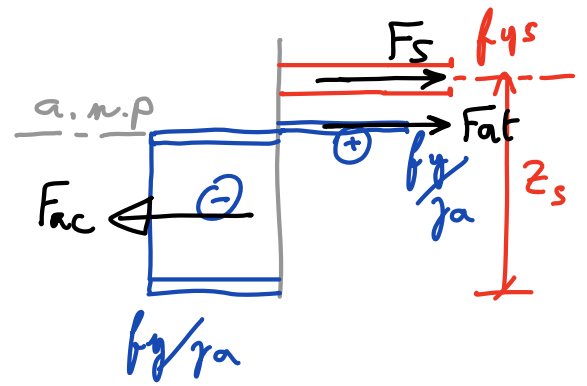
$$A_a - 2 b \cdot t_f \leq$$

$$\frac{A_s}{n_{pls}}$$

sinon
au-dessous

$$\leq A_a$$

- Détermination position a.n.p.:



$$F_{ac} = F_{at} + F_s$$

$$F_{ac} - F_{at} = 2F_{at} + F_s$$

$$A_a \cdot \cancel{f_y} = Z(h_a - z_b) \cdot b \cdot \cancel{f_y} + \frac{A_s}{m_{pls}} \cdot \cancel{f_y}$$

$$\Rightarrow z_b = h_a + \frac{1}{2b} \left(\frac{A_s}{m_{pls}} - A_a \right)$$

- Moment résistant, valeur de calcul:

$$M_{plb,Rd} = F_s + F_{at} \cdot (h_a + z_b)/2 - [F_{ac} \cdot z_a - F_{at} \cdot (h_a + z_b)/2]$$

$$M_{plb,Rd} = \frac{A_s}{m_{pls}} \cdot \frac{f_y}{\gamma_a} \cdot z_s + Z(h_a - z_b) \cdot b \cdot \frac{f_y}{\gamma_a} \cdot \frac{(h_a + z_b)}{2} - A_a \cdot z_a \cdot \frac{f_y}{\gamma_a}$$

$$\Rightarrow M_{plb,Rd} = \frac{f_y}{\gamma_a} \underbrace{\left[z_s \frac{A_s}{m_{pls}} - A_a \cdot z_a + b(h_a^2 - z_b^2) \right]}_{W_{plb}}$$