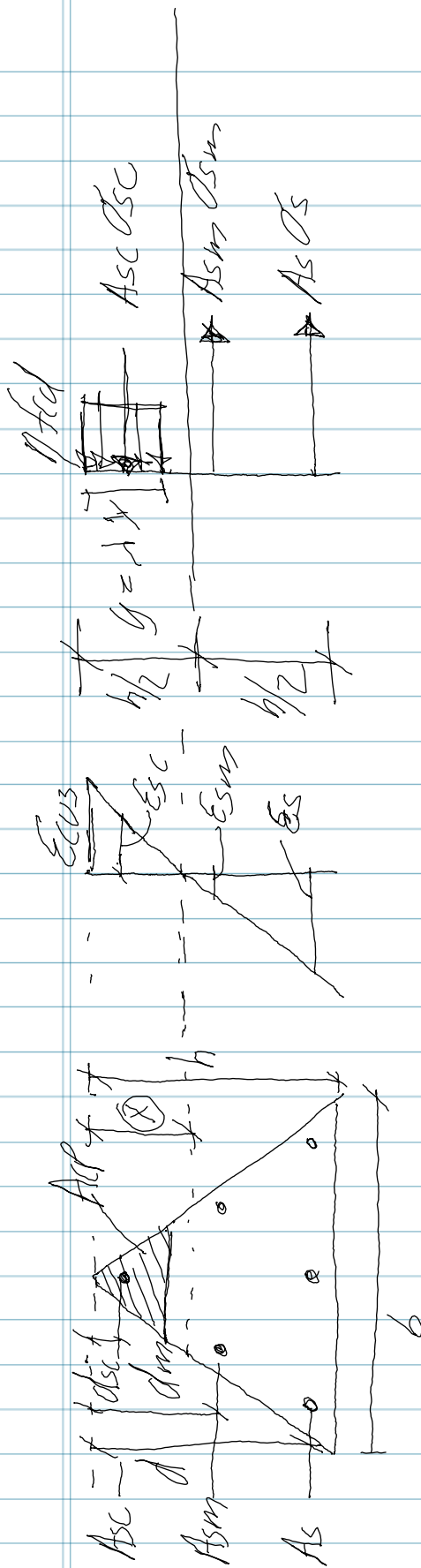




$$A_{cp} = \frac{1}{2} \cdot y \cdot \frac{y}{h} \cdot b$$

$$E_{sc} = \frac{E_{cu3}}{x} (x - d_{sc}) (b \cdot y \cdot h)$$

$$E_{sm} = \frac{E_{cu3}}{x} (d_m - x) (b \cdot x \cdot h)$$

$$E_s = \frac{E_{cu3}}{x} (d - x) (b \cdot x \cdot h)$$

$$N_{red} = A_{cp} \cdot \sigma_{fcd} + A_{sc} \cdot \sigma_{sc} - A_{sm} \cdot \sigma_{sm} - A_s \cdot \sigma_s = N_{Ed}$$

$$M_{red} = A_{cp} \cdot \sigma_{fcd} \left(\frac{b}{2} - \frac{2}{3} y \right) + A_{sc} \cdot \sigma_{sc} \cdot \left(\frac{b}{2} - d_{sc} \right) + A_{sm} \cdot \sigma_{sm} \left(d_m - \frac{b}{2} \right) + A_s \cdot \sigma_s \left(d - \frac{b}{2} \right) \geq M_{Ed} \quad (2)$$

$$f_{cu} = 35 \text{ MPa} \quad f_{yk} = 500 \text{ MPa}$$

Find X

$$\sigma_s = E_s \cdot \epsilon_s \leq f_{yd} \geq -f_{yd}$$

