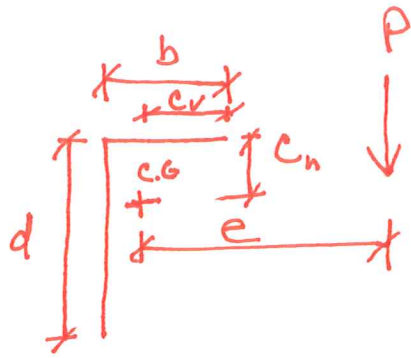


WELD GROUP



$$A_w = b + d$$

$$J_w = \frac{(b+d)^4 - 6b^2d^2}{12(b+d)}$$

$$C.G. = \frac{b^2}{2(b+d)}$$

TWISTING

$$\text{HORIZ} = \frac{T c_h}{J_w} = \frac{P e c_h}{J_w}$$

$$\text{VERT} = \frac{T c_v}{J_w} = \frac{P e c_v}{J_w}$$

VERT. DIRECT SHEAR

$$\text{VERT} = \frac{P}{A_w}$$

COMBINED STRESS

$$\text{TOTAL VERT} = \frac{P}{A_w} + \frac{P e c_v}{J_w} = f_v$$

$$\text{TOTAL HORIZ.} = \frac{P e c_h}{J_w} = f_h$$

$$f_r = \sqrt{f_v^2 + f_h^2} \Rightarrow \text{IN K/in}$$