

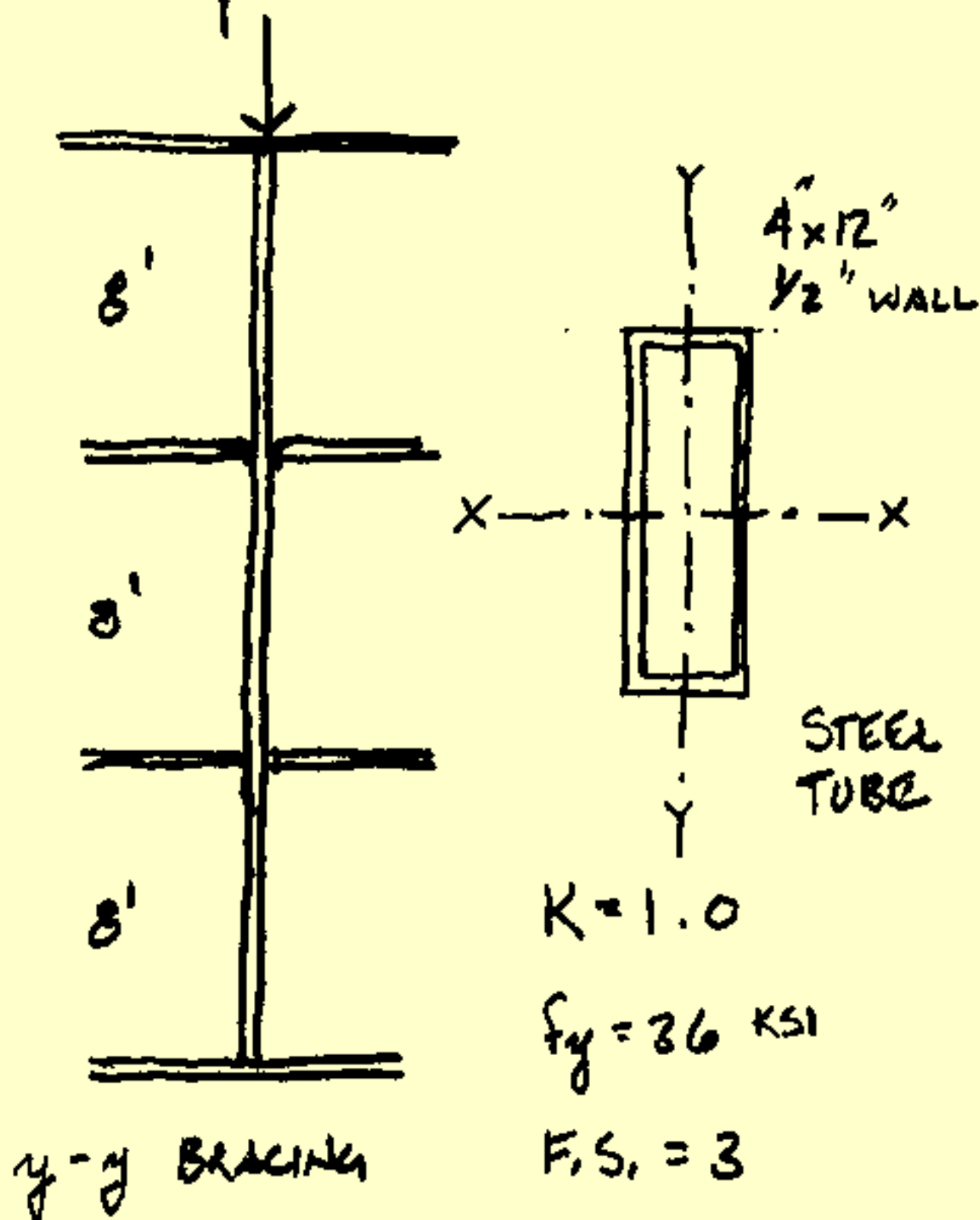
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FIND $P_{ALLOWABLE}$ FOR F.S. = 3 :



$$AREA = (4 \times 12) - (3 \times 11) = 15$$

$$I_x = \frac{4(12)^3}{12} - \frac{3(11)^3}{12} = 243.25$$

$$I_y = \frac{12(4)^3}{12} - \frac{11(3)^3}{12} = 39.25$$

$$K r_y = \sqrt{\frac{243.25}{15}} = 4.027$$

$$r_y = \sqrt{\frac{39.25}{15}} = 1.618$$

$$\frac{K r_x}{r_x} = \frac{1(24 \times 12)}{4.027} = 71.52 \leftarrow \text{CONTROLS}$$

$$\frac{K r_y}{r_y} = \frac{1(8 \times 12)}{1.618} = 59.33$$

X-X AXIS CONTROLS -

$$P_{CRX} = \frac{\pi^2 EA}{(K r_x/r)^2} = \frac{\pi^2 (29000)(15)}{71.52^2} = 839.4 \text{ K}$$

$$P_y = F_y A = 36(15) = 540 < 839.4 \quad \therefore \text{YIELDING CONTROLS}$$

$$P_{ALLOW.} = 540 / 3 = 180 \text{ K}$$