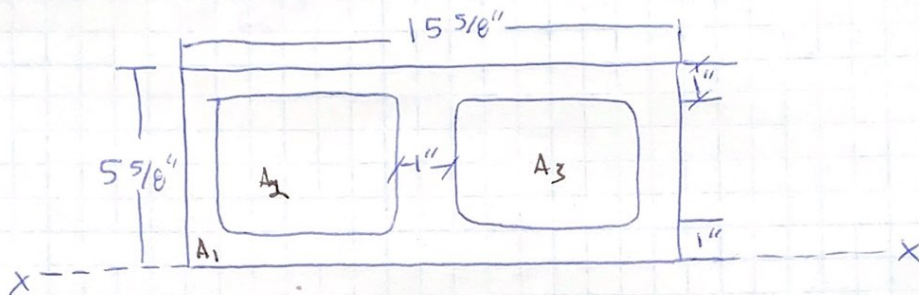


Find block moment of inertia



Use Parallel axis theorem & subtract out the hollow cells from 1 solid shape

$$I_{X_{Total}} = \sum I_{xi} + A_i d_i^2$$

Area 1 15.625×5.625

$$I_{x1} = \frac{1}{12} \cdot 15.625 \cdot 5.625^3 = 231.74 \text{ in}^4 = I_{x1}$$

$$A_1 = 15.625 \times 5.625 = 87.89 \text{ in}^2$$

$$d_1 = 5.625 / 2 = 2.8125 \text{ in.}$$

Area 2

$$\frac{15.625 - 1'' - 1'' - 1''}{2} \times 5.625 - 1'' - 1'' =$$

$$6.3125 \times 3.625 = 22.88 \text{ in}^2 = A_2$$

$$I_{x2} = \frac{1}{12} \cdot 6.3125 \times 3.625^3 = 25.0578 \text{ in}^4 \approx 25.06 \text{ in}^4$$

$$d_2 = 2.8125''$$

Area 2 is same as Area 3

$$I_{X_{Total}} = I_{x1} + A_1 d_1^2 - (I_{x2} + A_2 d_2^2) - (I_{x3} + A_3 d_3^2)$$

$$231.74 + 87.89 \cdot 2.8125^2 - 2 \cdot (25.06 + 22.88 \cdot 2.8125^2)$$

$$I_{X_{Total}} = 926.96 - 412.09$$

$$I_{X_{Total}} = 514.87 \text{ in}^4$$