

$$1600 \text{ lbs} \approx 7117 \text{ N}$$

$$\text{So A/C weight} \approx 7117 \text{ N}$$

To answer the question, we need air density which is $\approx 1.2 \text{ Kg/m}^3$ at low altitudes

$$\text{at } 20 \text{ fps, } C_d \approx 0.55$$

$$\text{at } 30 \text{ fps, } C_d \approx 0.6$$

now, the drag generated by the shoot is;

$$\frac{1}{2} \rho V^2 S C_D$$

$$\text{So: } S_{\min} = \frac{2 \times 7117}{0.6 \rho V_{\max}^2} = \frac{2 \times 7117}{1.2 \times 81 \times 0.6} = 244 \text{ m}^2$$

$$S_{\max} = \frac{2 \times 7117}{0.55 \rho V_{\min}^2} = 599 \text{ m}^2$$