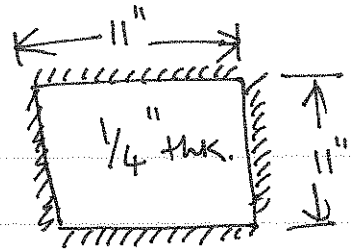


$$\frac{1}{2}mv^2 = \frac{1}{2}kd^2$$

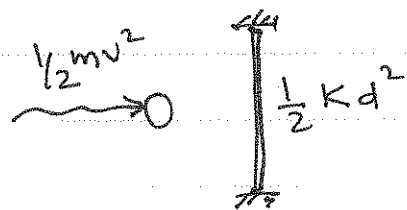


m = mass of projectile = 1.19 lb mass

v = velocity of projectile = 75 fps
= 900 in/sec

d = deflection of FEP plate

k = equivalent spring rate of plate



$$k = \frac{192 \times E \times I}{L^3} = \frac{192 \times 1,280,000 \times 0.0143}{11^3}$$

$$= 2640.4 \text{ lb/in}$$

$$\frac{1}{2}mv^2 = \frac{1}{2}kd^2$$

$$\frac{1.19}{386.1} \times (900)^2 = 2640.4 \times d^2$$

$$d = 0.97'' \text{ deflection}$$

Rectangular plate fixed all sides; concentrated load;

$$\begin{aligned} \max y &= \frac{\alpha W b^2}{E t^3} \\ &= 0.02'' \end{aligned}$$

[Roark's Table 26; 86
(flat plates w/ st. boundaries)]

$F = ma$; assuming stopping in 0.05 sec
 $a = 18,000 \text{ in/sec}^2$

$$F = W = 55 \text{ lb}$$

$$\frac{d_i}{d} = \sqrt{\frac{v^2}{g \times d}}$$

$$d = 0.02''$$

$$v = 900 \text{ in/sec}$$

$$d_i = 6.4'' \text{ deflection}$$