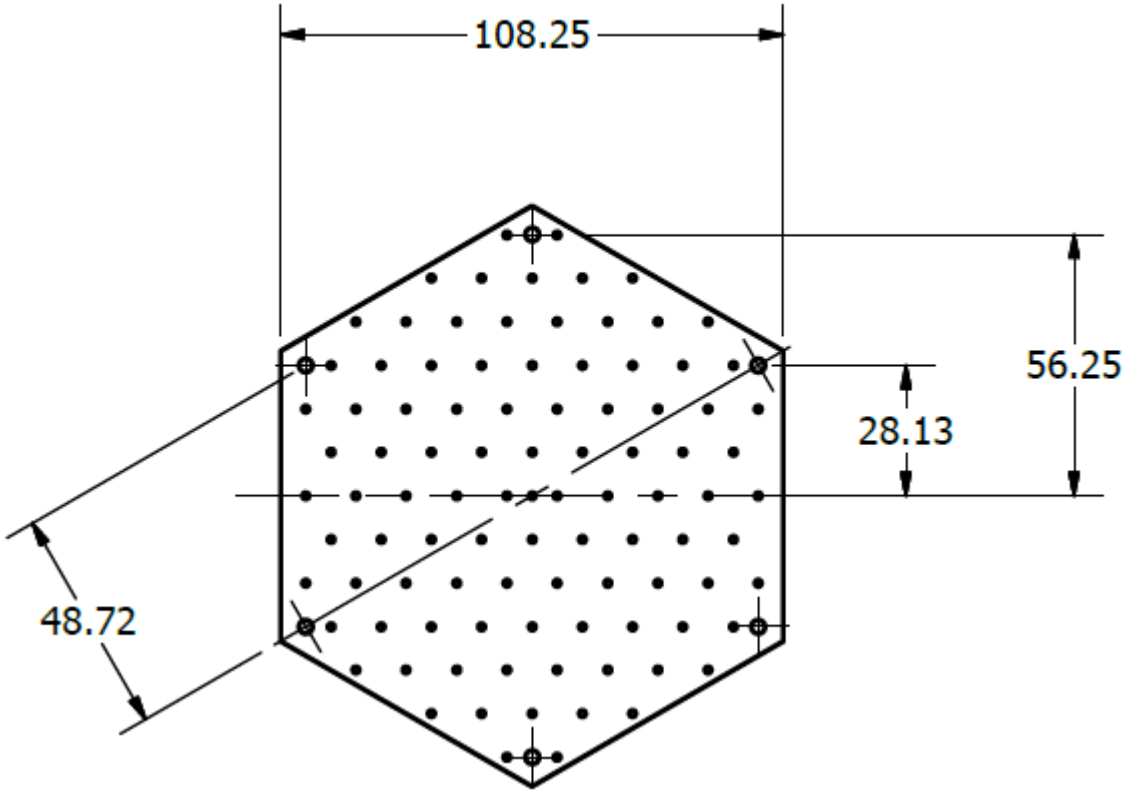

$b := 62.5\ mm$

$a1 := 2 \cdot (28.14\ mm)$ Distance between tension rods

$a2 := 2 \cdot (56.25\ mm)$

$n_L := 194$ Number of lead layers

$n_s := 194$ Number of scintilator layers

$t_L := 0.5\ mm$ Thickness of lead

$t_s := 1.5\ mm$ thickness of scintillator

$t_{gap} := 0.24\ mm$ Paper thickness

$\rho_L := 0.011340\ \frac{kg}{cm^3}$ Density of lead

$E_L := 2560\ ksi$ Modulus of Lead

kg

$\rho_s := 0.001220 \ \frac{kg}{cm^3}$ Density of scintilator

$E_s := 460 \ ksi$ Modulus of scintilator

$\mu := 0.1$ Coefficient of friction

$D_{rod} := .136 \cdot in$ Diameter of rod

$F_y := 18000 \ psi$ Yield strength of brass

$E_{brass} := 15000 \ ksi$ Modulus of brass

$Length := n_L \cdot t_L + n_s \cdot t_s = 388 \ mm$

$Area := 100 \ cm^2$

$Weight := n_L \cdot g \cdot \rho_L \cdot Area \cdot t_L + n_s \cdot g \cdot \rho_s \cdot Area \cdot t_s = 32.077 \ lbf$

$q := \frac{Weight}{Length} = 2.1 \ \frac{lbf}{in}$

$A_{rod} := \frac{\pi \cdot D_{rod}^2}{4} = 0.015 \ in^2$

$N_{req} := \frac{Weight}{\mu} = 320.773 \ lbf$

$N_{rod} := \frac{N_{req}}{6} = 53.462 \ lbf$

$F_{cant} := \frac{q \cdot Length^2}{2 \cdot \left(a2 + 2 \cdot a1 \cdot \frac{a1}{a2} \right)} = 36.864 \ lbf$

$F_{rod} := F_{cant} + 2 \ N_{rod} = 143.788 \ lbf$

$\sigma_{rod} := \frac{F_{rod}}{A_{rod}} = 9898.2 \ psi$