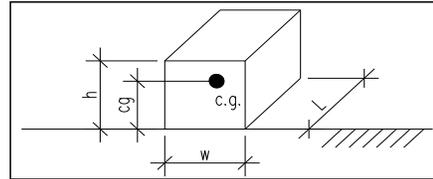


ATH KN30+ INDOOR SEISMIC ANCHORAGE (ASCE 7-16/IBC 2000)
Slab on Grade Applications Only

Equipment Parameters:

weight, $W_p = 3915.97$ LBS.
 $w = 33.44$ in.
 $L = 116.84$ in.
 $h = 71.91$ in.
 $cg = 30.91$ in.



Seismic Parameters:

$S_s = 1.800$ (ASCE 7-16 Figure 22-1 using 84th percentile value)
 $a_p = 1.000$ (ASCE 7-16 Table 13.6-1)
 $I_p = 1.500$ (ASCE 7-16 Table 13.1.3)

Site Class =

Seismic Use Group =

$R_p = 1.500$ (Default value for Anchorage per ASCE 7-16 13.6-1)
 $F_a = 1.032$ (ASCE 7-16 Table 11.4-1)
 $S_{MS} = F_a * S_s = 1.858$ (ASCE 7-16 Eqn. 11.4-1)
 $S_{DS} = 2/3 * S_{MS} = 1.239$ (ASCE 7-16 Eqn. 11.4-3)

Seismic Design Category =

Seismic Force:

$F_p = (0.4 * a_p * S_{DS} * W_p) / (R_p / I_p) = 1940.7$ LBS. (ASCE 7-16 Eqn. 13.3-1)
 Upper Limit: $F_{pMAX} = 1.6 * S_{DS} * I_p * W_p = 11644.0$ LBS. (ASCE 7-16 Eqn. 13.3-2)
 Lower Bound: $F_{pMIN} = 0.3 * S_{DS} * I_p * W_p = 2183.2$ LBS. (ASCE 7-16 Eqn. 13.3-3)
 $F_{p, DESIGN} = 2183.2$ LBS.

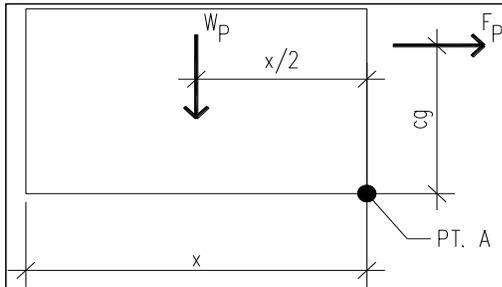
ATH KN30+ INDOOR SEISMIC ANCHORAGE (ASCE 7-16/IBC 2000)

Design Anchorage Force:

Horizontal Shear Force Per Anchor:

$$R_H = F_p/4 = \boxed{545.8} \text{ LBS.}$$

Overturning Resistance About Point A:



$$x = \boxed{71.90625} \text{ in.}$$

$x = \text{lesser of } L \text{ or } h$

$$M_{OT} = F_p * cg = \boxed{67475.9} \text{ LBS.-FT.}$$

$$M_{RES} = W_p * x/2 = \boxed{140791.4} \text{ LBS.-FT. OK, No Uplift}$$

Vertical Acceleration:

assume $\rho = 1.0$

$$E_v = \rho * F_p + 0.2 * S_{DS} * W = \boxed{1516.1} \text{ LBS. (IBC Eqn. 1617.1.1)}$$

$$R_{VNETUP} = (M_{OT}/(2*x)) - (W_p/4) + (E_v/4) = \boxed{0.0} \text{ LBS. No Uplift}$$

Force Summary Per Corner:

Component Anchorage:

$$R_{HNET} = \boxed{545.8} \text{ LBS.}$$

$$R_{VNETUP} = \boxed{0.0} \text{ LBS.}$$

Anchors Embedded in Concrete or CMU:

$$1.3 * R_p * R_{HNET} = \boxed{1064.3} \text{ LBS. (IBC 1617.1.7 #2)}$$

$$1.3 * R_p * R_{VNETUP} = \boxed{0.0} \text{ LBS. (IBC 1617.1.7 #2)}$$