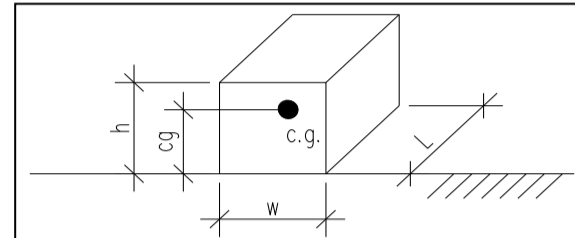


RBI TORUS 4000 INDOOR DUAL FUEL VERTICAL - SEISMIC ANCHORAGE (ASCE 7-16/IBC 2000)
Slab on Grade Applications Only

Equipment Parameters:

weight, W_p =	2491.89	LBS.
w =	44.06	in.
L =	101.66	in.
h =	94.94	in.
cg =	33.50	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:

$$F_p = (0.4 * a_p * S_{DS} * W_p) / (R_p / I_p) = 1234.9 \text{ LBS. (ASCE 7-16 Eqn. 13.3-1)}$$

$$\text{Upper Limit: } F_{pMAX} = 1.6 * S_{DS} * I_p * W_p = 7409.5 \text{ LBS. (ASCE 7-16 Eqn. 13.3-2)}$$

$$\text{Lower Bound: } F_{pMIN} = 0.3 * S_{DS} * I_p * W_p = 1389.3 \text{ LBS. (ASCE 7-16 Eqn. 13.3-3)}$$

$$F_{p, DESIGN} = 1389.3 \text{ LBS.}$$

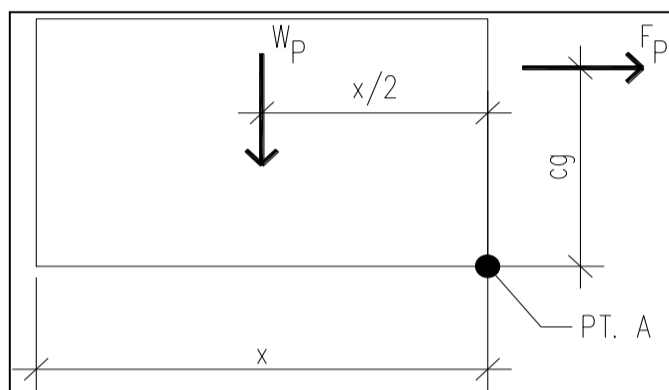
RBI TORUS 4000 INDOOR DUAL FUEL VERTICAL - SEISMIC ANCHORAGE (ASCE 7-16/IBC 2000)

Design Anchorage Force:

Horizontal Shear Force Per Anchor:

$$R_H = F_p/4 = \boxed{347.3} \text{ LBS.}$$

Overturning Resistance About Point A:



$$x = \boxed{94.9375} \text{ in.}$$

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

$$M_{OT} = F_p * cg = \boxed{46541.1} \text{ LBS.-FT.}$$

$$M_{RES} = W_p * x/2 = \boxed{118286.9} \text{ LBS.-FT. OK, No Uplift}$$

Vertical Acceleration:

assume $\rho = 1.0$

$$E_v = \rho * F_p + 0.2 * S_{DS} * W = \boxed{964.8} \text{ LBS. (IBC Eqn. 1617.1.1)}$$

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

Force Summary Per Corner:

Component Anchorage:

$$R_{HNET} = \boxed{347.3} \text{ LBS.}$$

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

Anchors Embedded in Concrete or CMU:

$$1.3 * R_p * R_{HNET} = \boxed{677.3} \text{ LBS. (IBC 1617.1.7 #2)}$$

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