RBI TORUS 0800 INDOOR DUAL FUEL - SEISMIC ANCHORAGE (ASCE 7-16/IBC 2000)
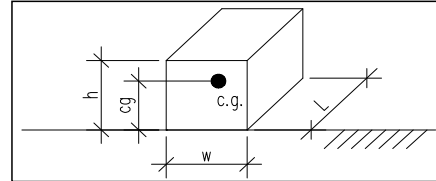### Slab on Grade Applications Only

Equipment Parameters:

weight, W_p = **481.46** LBS.
w = **25.09** in.
L = **52.12** in.
h = **40.94** in.
cg = **17.07** in.

Seismic Parameters:

S_S = **1.800** ASCE 7-16 Figure 22-1 using 84th percentile value   Site Class = D

a_p = **1.000** (ASCE 7-16 Table 13.6-1)

I_p = **1.500** (ASCE 7-16 Table 13.1.3)   Seismic Use Group = IV

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 = **D**

Seismic Force:

$F_p = (0.4*a_p*S_{DS}*W_p)/(R_p/I_p)$ = **238.6** LBS. (ASCE 7-16 Eqn. 13.3-1)
Upper Limit: $F_{pMAX} = 1.6*S_{DS}*I_p*W_p$ = **1431.6** LBS. (ASCE 7-16 Eqn. 13.3-2)
Lower Bound: $F_{pMIN} = 0.3*S_{DS}*I_p*W_p$ = **268.4** LBS. (ASCE 7-16 Eqn. 13.3-3)
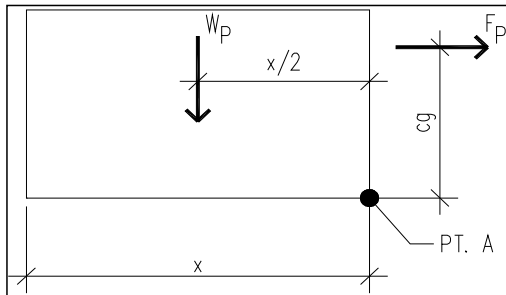
$F_{p, DESIGN}$ = **268.4** LBS.

RBI TORUS 0800 INDOOR DUAL FUEL - SEISMIC ANCHORAGE (ASCE 7-16/IBC 2000)

<u>Design Anchorage Force:</u>

Horizontal Shear Force Per Anchor:

$$R_H = F_p/4 = \boxed{67.1} \text{ LBS.}$$

Overturning Resistance About Point A:

$$x = \boxed{40.94} \text{ in.}$$
x = lesser of L or h

$$M_{OT} = F_p \cdot cg = \boxed{4582.0} \text{ LBS.-FT.}$$

$$M_{RES} = W_p \cdot x/2 = \boxed{9855.5} \text{ LBS.-FT.} \quad \textbf{OK, No Uplift}$$

Vertical Acceleration: assume ρ = 1.0

$$Ev = \rho \cdot Fp + 0.2 \cdot S_{DS} \cdot W = \boxed{186.4} \text{ LBS. (IBC Eqn. 1617.1.1)}$$

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

<u>Force Summary Per Corner:</u>
   <u>Component Anchorage:</u>

$$R_{HNET} = \boxed{67.1} \text{ LBS.}$$
$$R_{VNETUP} = \boxed{0.0} \text{ LBS.}$$

   <u>Anchors Embedded in Concrete or CMU:</u>

$$1.3 \cdot R_p \cdot R_{HNET} = \boxed{130.9} \text{ LBS. (IBC 1617.1.7 \#2)}$$
$$1.3 \cdot R_p \cdot R_{VNETUP} = \boxed{0.0} \text{ LBS. (IBC 1617.1.7 \#2)}$$