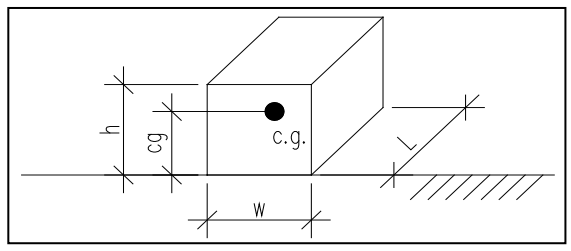
Project: ENCORE 
Date: 09/06/22
Engineer: BMH

# RBI ENCORE RB0725 INDOOR DUAL FUEL UNIT - SEISMIC ANCHORAGE (ASCE 7-16/IBC 2000)

## Slab on Grade Applications Only

Equipment Parameters:

| | | |
|---|---|---|
| weight, $W_p$ = | 610.12 | LBS. |
| w = | 27.94 | in. |
| L = | 39.31 | in. |
| h = | 66.09 | in. |
| cg = | 30.90 | 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 = D

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:

| | | |
|---|---|---|
| $F_p = (0.4 * a_p * S_{DS} * W_p)/(R_p/I_p)$ = | **302.4** | LBS. (ASCE 7-16 Eqn. 13.3-1) |
| Upper Limit: $F_{pMAX} = 1.6 * S_{DS} * I_p * W_p$ = | **1814.2** | LBS. (ASCE 7-16 Eqn. 13.3-2) |
| Lower Bound: $F_{pMIN} = 0.3 * S_{DS} * I_p * W_p$ = | **340.2** | LBS. (ASCE 7-16 Eqn. 13.3-3) |

$F_{p,\ DESIGN}$ = **340.2** LBS.

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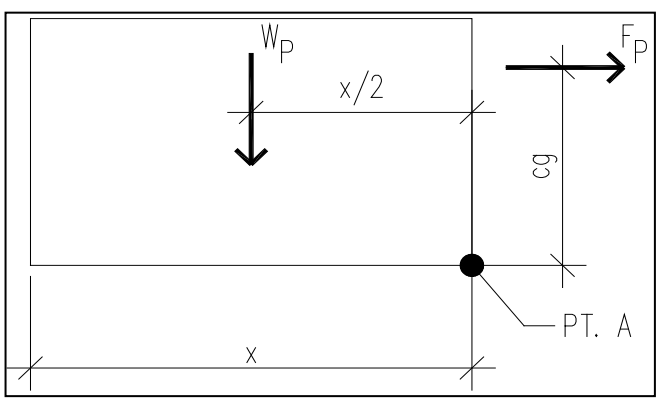
Design Anchorage Force:

Horizontal Shear Force Per Anchor:

$R_H = F_p/4 =$ **85.0** LBS.

Overturning Resistance About Point A:




x = **39.31** in.
x = lesser of L or h

$M_{OT} = F_p*cg =$ **10510.8** LBS.-FT.

$M_{RES} = W_p*x/2 =$ **11991.9** LBS.-FT. **OK, No Uplift**

Vertical Acceleration: assume $\rho = 1.0$

$Ev = \rho*Fp + 0.2*S_{DS}*W =$ **236.2** LBS. (IBC Eqn. 1617.1.1)

$R_{VNETUP} = (M_{OT}/(2*x))-(W_p/4)+(Ev/4) =$ **40.2** LBS. **No Uplfit**

Force Summary Per Corner:

Component Anchorage:

$R_{HNET} =$ **85.0** LBS.
$R_{VNETUP} =$ **40.2** LBS.

Anchors Embedded in Concrete or CMU:

$1.3*R_p*R_{HNET} =$ **165.8** LBS. (IBC 1617.1.7 #2)
$1.3*R_p*R_{VNETUP} =$ **78.4** LBS. (IBC 1617.1.7 #2)