

SUBJECT: SE corner Conc. Wall Analysis

$$K_a = \boxed{0.238}$$

$$\delta_{equiv} = \boxed{23.8 \text{ lb/ft}}$$

Height = 2 blocks exposed @ 30" = 5.0 ft

concrete pavement will act as solid point / beam

$$\begin{aligned} \text{Reaction on wall} &= \left(\frac{1}{2}\right)(K_a)(\gamma)(H^2) \\ &= (0.5)(0.238)(100)(5^2) \end{aligned}$$

$$R_a = \boxed{297 \text{ lb/ft}}$$

$$\begin{aligned} \text{Moment } M &= (R_a)(H/3) \\ &= (297)(5/3) \end{aligned}$$

$$M_p = \boxed{0.50 \text{ kip-ft/ft}}$$

Versus concrete wall

Weight of wall = W

$$W = (2.5'w)(5')( \delta_{conc} )$$

$$W = \boxed{1,875 \text{ lb/ft}}$$

$$\begin{aligned} \text{Moment resist} &= (W) \left( \frac{\text{width}}{2} \right) \\ &= (1,875) (1.25') \end{aligned}$$

$$M_R = \boxed{2.34 \text{ ft-kip/ft}}$$

$$\text{Factor of Safety} = \frac{M_R}{M_p} = \frac{2.34}{0.50} = \boxed{4.69 \text{ F.s}}$$

w/o consideration for  
Minor geogrid

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12/31/18