

Shore Post Analysis and Design

Analysis to determine the axial demand for heavy duty shore post supporting the building's roof adjacent to the masonry walls to be repaired.

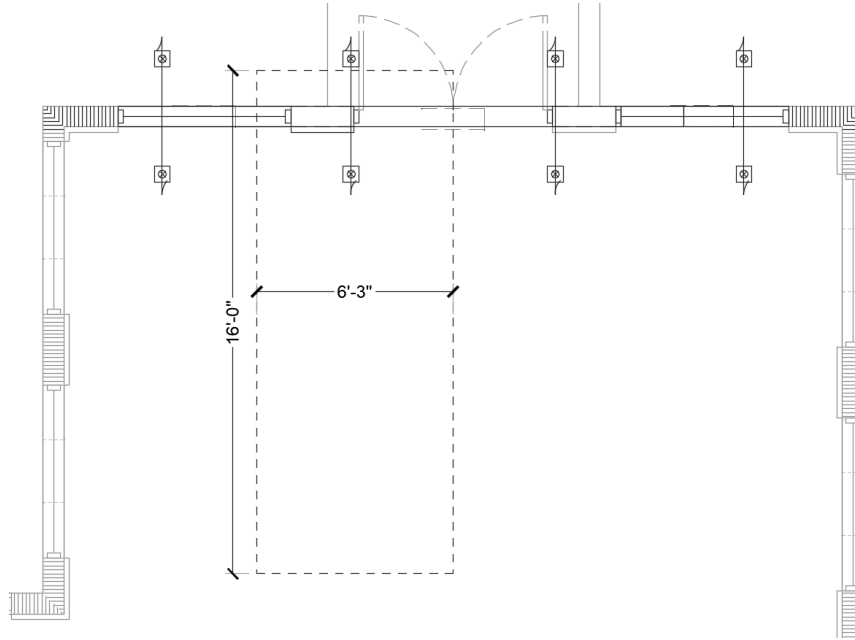


Figure 1: Plan tributary area for highest loaded shore post pair.

Tributary Area

$$S_x = 6.25 \text{ ft}$$

Tributary width in x (Spacing in X)

$$S_y = 16 \text{ ft}$$

Tributary width in y (Spacing in Y)

$$A_t = S_x S_y = 100 \text{ ft}^2$$

Plan tributary area

Load Determination

$$D = 40 \text{ psf}$$

Dead load

$$D_s = 15 \text{ psf}$$

Superimposed dead load

$$L_L = 20 \text{ psf}$$

Live load

$$P_{\max} = \frac{(D + D_s + L_L) A_t}{2} = 3750 \text{ lbf}$$

Maximum service load on one post

Shore Post Axial Capacity

Considering AS550 Heavy Duty Shore post

$$H = 14 \text{ ft}$$

Shore post height

$$P_{\text{cap}} = 6400 \text{ lbf}$$

AS550 Shore post capacity as per tech report

Shore post axial capacity

OK

$P_{\max}$: 3750 lbf P_{cap} : 6400 lbf

D/C: 0.59