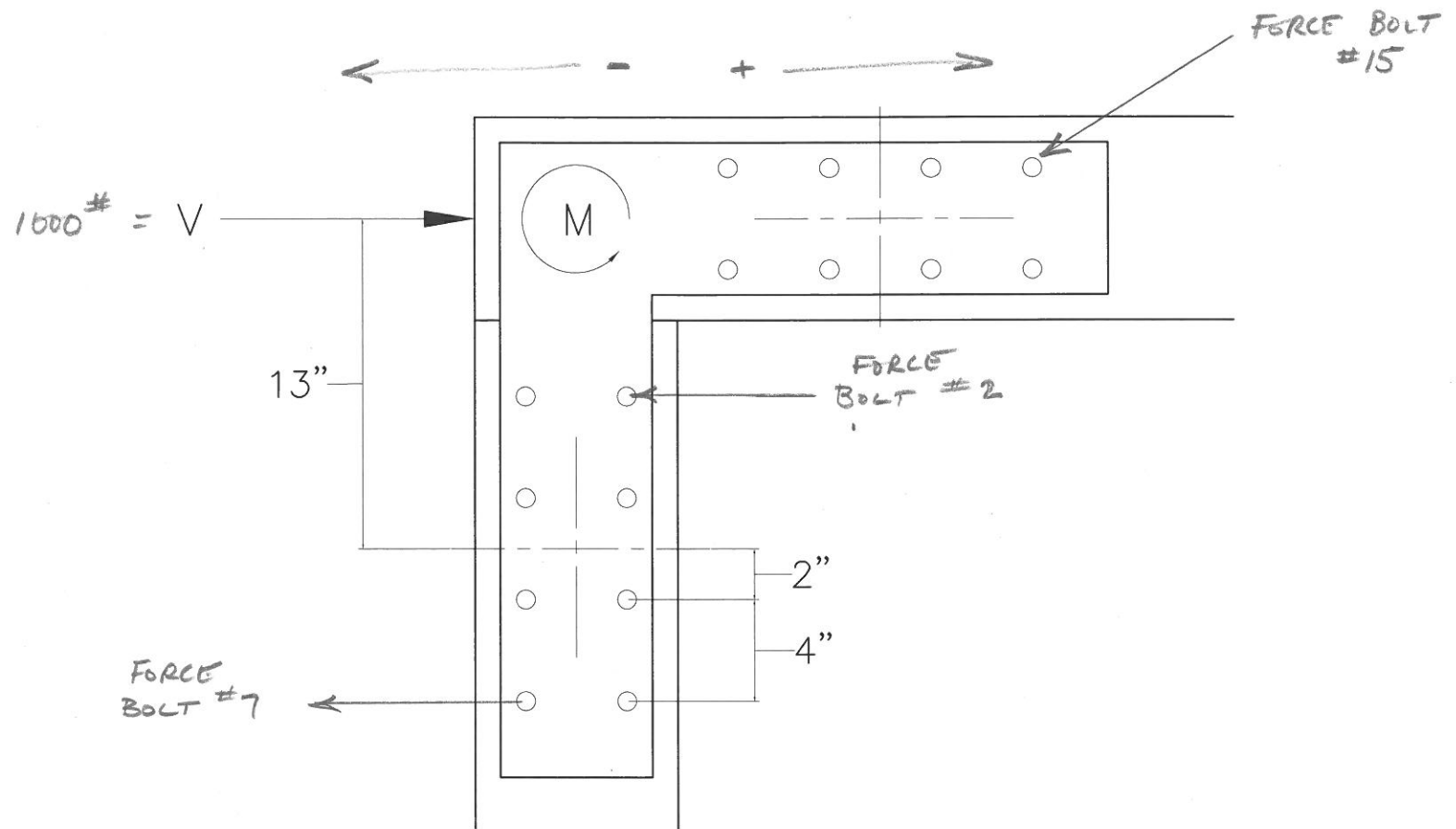


$$\text{BOLT FORCE} = \pm P/A \pm M_c/I$$

ASSUME  $H=10'$

$$\text{MOMENT IN FRAME} = VH/2$$

$$= 5000 \text{ ft. lb}$$



$$I_{\text{BOLT GROUP}} = 4(7^2 + 11^2 + 15^2 + 19^2) = 3024 \text{ in}^4$$

$$\begin{aligned} \text{FORCE BOLT \#2} &= 1000 \text{ #} / 16 \text{ bolts} + 5000 \text{ ft. lb} (12 \text{ in/ft}) * 7 \text{ in} / 3024 \text{ in}^4 \\ &= 167 \text{ #} + 139 \text{ #} = 306 \text{ #} \end{aligned}$$