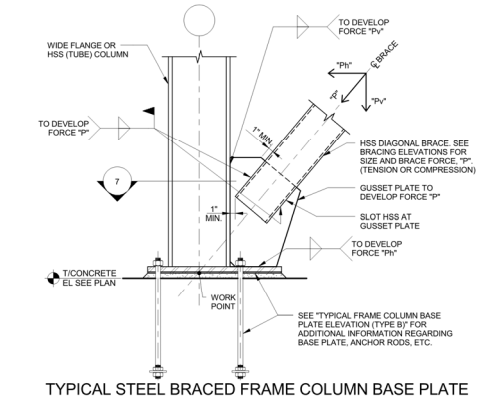
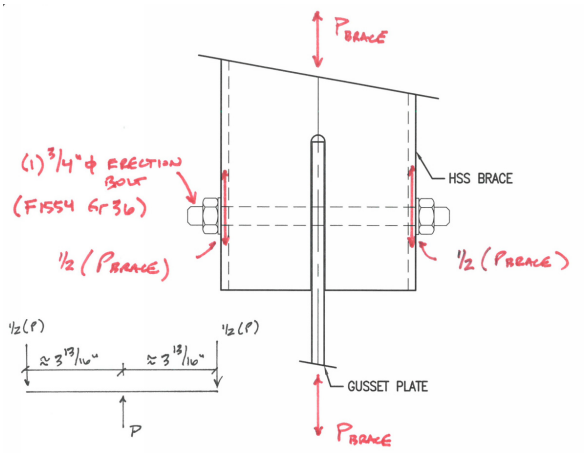
# 5. Connection Design's Affect on Stability




3 TYPICAL STEEL BRACED FRAME COLUMN BASE PLATE ELEVATION (TYPE C1)
SCALE: NOT TO SCALE

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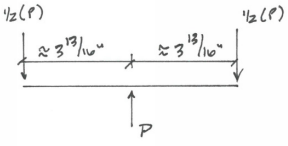


EXAMPLE:

HSS 8x8x 5/16"

ALLOWABLE $P_{BRACE} = 750^{\#}$

SHEAR CAPACITY:

$A_{Bolt} = \frac{\pi (0.75")^2}{4} = 0.442 in^2 \qquad \Omega = 2$

$R_n = A_b (F_n) = 0.442 in^2 (0.45)(58 ksi) = 11.5^k \qquad \frac{R_n}{\Omega} = 5.75^k/WA$

$\therefore \frac{R_n}{\Omega}, TOT = 11.5^k$

BENDING CAPACITY: $\Omega = 1.67$

$M_n = F_y(Z) \le 1.6 M_y = (36 ksi)\frac{(0.75")^3}{6} \le 1.6(36 ksi)\frac{(\pi)(0.75")^3}{32}$

$M_a = \frac{PL}{4}$

$2.53 k\cdot in \le 2.39 k\cdot in$

$M_a \le \frac{M_n}{\Omega} \qquad \frac{P(2 \times 3.8125")}{4} = \frac{2.39 k\cdot in}{1.67} \qquad P = 0.75^k = 750^{\#}$

75a