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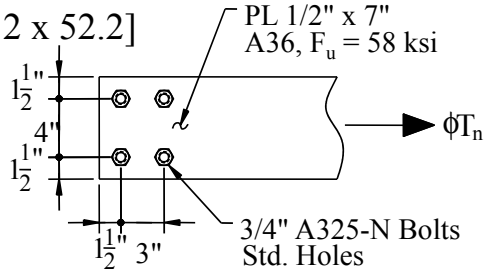
Example: Bearing/Tearout Design Strength

Design Strength

$\phi T_n = 0.75$ [2 x edge + 2 x other]

$= 0.75$ [2 x 37.9 + 2 x 52.2]

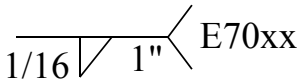
$=$ 135 k



Note: For 3/4" A325-N, r_v = 17.9 k.
Since 17.9 k < 0.75(37.9) = 28.4 k, bolt shear ~~does not~~ controls at bolt holes for this plate.

Fillet Weld Rupture – SMAW Welds

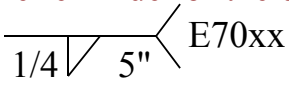
Example: $\theta = 0^0$



$\phi R_n = 0.75\ (0.6x70)(0.707x\ 1/16) =$ 1.392 k/in/(1/16)

1.392 will be used for the reminder of the course.

Example: $\theta = 90^0$



Let D = no. of 1/16's

$\phi R_n = 1.392(1.0 + 0.50 \sin^{1.5}\theta)D\ L_{weld}$

$= 1.392$ x1.5x 4 x 5 = 41.8 k