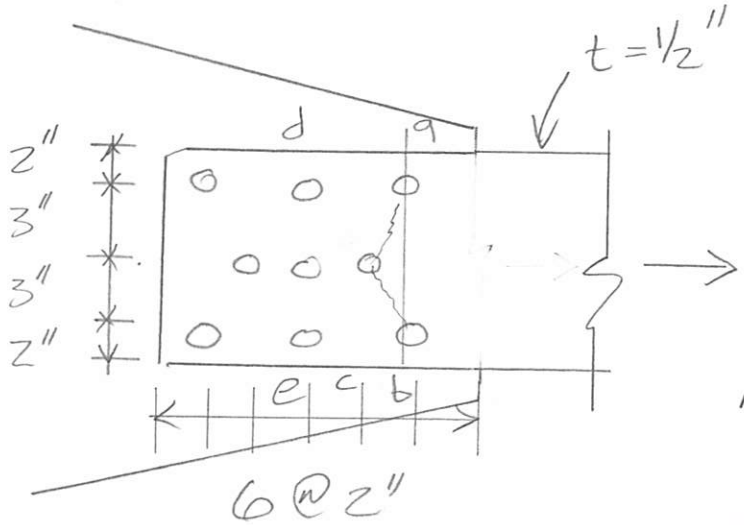
3.4-1

P 1/2 x 10

A36 STEEL $F_y = 36ksi$

$F_u = 58ksi$



7/8" BOLTS

$d_{HOLES} = 7/8\,in + 1/8\,in = 1\,in.$

$A_g = (1/2\,in)(10\,in) = 5\,IN^2$

LINE ab $\quad A_n = A_g - 2(1\,IN)(1/2\,IN) = \underline{4\,IN^2}$

$P_n = F_y A_g = 36ksi(5\,IN^2) = \underline{\underline{180k}}$ * STRENGTH GROSS SECTION

$= F_u A_e = 58ksi(4\,IN^2) = 232\,K$

LINE acb

$$A_n = A_g - t\Sigma d'$$

$$= 5\,IN^2 - (1/2\,IN)\left[(1\,in) + 2\left(1\,in - \frac{(2\,in)^2}{4(3\,in)}\right)\right]$$

$$= \underline{3.83\,IN^2}$$

$P_n = F_u A_e = 58ksi(3.83\,IN^2) = \underline{\underline{222.3\,K}}$ NET SECTION

LINE de $\quad A_N = A_g - 3\,HOLES(1\,IN)(1/2\,in) = 3.5\,IN$

* ONLY 6/9 LOAD TRANSFERED

$A_N = 9/6\,A_n = \underline{5.25\,IN^2}$ $\quad P_n = F_u A_n = \underline{304\,K}$