DAMMON ENGINEERING, INC.
dammonengineering.com
ARCHITECTS *ENGINEERS*
CONSULTING *DESIGN* *STUDIES* *EXPERT WITNESS*
1095 Florida Ave. P.O. Box 2830 985-649-5832
Slidell, LA 70458 Slidell, LA 70459 FAX 985-641-5950

Connection Design for Casey Civil 6-29-11 "Shear tab"
per AISC

Loads: DL = 105lb (materials)

LL = 32.6 psf (wind) = 1,630 lbf @ connection

Welds: 1/4" fillet ea. side, 4 locations per conn., Assume min 4" weld, E70 electrodes

$A_w = 0.707(0.25")(4") = 0.71 in^2$ one 1/4" weld = $4 \times \frac{1}{16}$" units

Most restrictive load pattern in shear.

$\frac{r_n}{\Omega} = (4")(4 units)(0.928) = 14.8k$ $\frac{R_n}{\Omega} = 14.8(4) = 59.2k$

$R_u = 1.63k$ $\frac{R_n}{\Omega} > R_u$ GOOD

Bolts: $s_{min} = 2\frac{2}{3}(\frac{5}{8}") = 1.67in$ min edge dist. from center of hole to edge = $1\frac{1}{8}$"

ASTM 325 std. high str. bolts 5/8"ø Std. sized holes = $\frac{5}{8} + \frac{1}{16} = \frac{11}{16}$"

$F_{nv} = 60ksi$ $A_b = \pi(\frac{5/8}{2})^2 = 0.307 in^2$

$F_u = 120 ksi$

$\frac{r_n}{\Omega} = \frac{60(0.307)}{0.75} = 24.5$ k per bolt $\frac{R_n}{\Omega} = 24.5(4) = 98$ k

$\frac{R_n}{\Omega} > R_u$ GOOD

Shear tabs:

Clip – min 4" in shear direction (assumed)

$A_{clip} = .25"(4") = 1 in^2$

$R_{nv} = 1(60 ksi) = 60k$ $R_{nv} > R_u$ GOOD

Plate – min 4" in shear direction (assumed)

$R_{nv} = 60k$ $R_{nv} > R_u$ GOOD

STATE OF LOUISIANA
EMMETT G. DAMMON, JR.
License No. 8796
PROFESSIONAL ENGINEER