REVISIONS AND ERRATA LIST

AISC Steel Design Guide 1, 2nd Edition

2nd printing (Printed Copy)

May 31, 2016

The following list represents corrections to the second printing (dated March 2010) of the second edition of AISC Design Guide 1, *Base Plate and Anchor Rod Design*.

Page(s)	**Item**
6	In the left column, third paragraph beginning with "The washer diameters shown in Table 2.3…," the fourth sentence contains a reference to AISC *Design Guide 7*, but the reference should be to *Design Guide 10*. The corrected sentence should read, "The plate washer thicknesses shown in the table are similar to the recommendation in Section 4.2.5 of AISC *Design Guide 10*, that the minimum washer thickness be approximately ⅓ the anchor rod diameter."
17	In the left column, the third equation below step "4. Calculate the required base plate thickness" should read: $$\lambda n' = \lambda \frac{\sqrt{db_f}}{4}$$
29	The last word of the first incomplete paragraph should be "bending" rather than "shear." The last sentence should read: "It is the authors' opinion that the reduction is not required when AISC combined bending and shear checks are made on the anchor rods, and the resulting area of the anchor rod is 20% larger than the rod without bending."
42	Example 4.9: In the left column, the last sentence in paragraph 1 of the *Solution* section should be, "The bearing strength of the concrete in contact with the lug is evaluated as $\phi 1.3 f'_c A_l$, where $\phi = 0.65$."
42	In the right column, eighth line from the top, the calculation changes to: $$0.65(1.3)(4{,}000\text{ psi})(A_l)_{req'd} = 36{,}800\text{ lb}$$ $$(A_l)_{req'd} = 10.8\text{ in.}^2$$ And the next calculation becomes: $$d = 10.8\text{ in.}/9\text{ in.} = 1.2\text{ in.}$$

45 Replace the text in the left column, beginning with the last paragraph, as follows:

By inspection, ½-in. plate washers will suffice even with minimal edge distance. Thus, the lever arm can be taken as half the distance from the center of the plate washer to the top of the grout. The plate washer is ½-in. thick, and the base plate is 1.25-in. thick (LRFD) and 1.00-in. thick (ASD), as determined in Example 4.5.

LRFD	ASD
$\text{Lever arm} = \dfrac{1.25\text{ in.} + (0.500\text{ in.}/2)}{2}$ $= 0.750\text{ in.}$ Thus $M_l = \dfrac{36.8\text{ kips}(0.750\text{ in.})}{4}$ $= 6.90\text{ kip-in.}$	$\text{Lever arm} = \dfrac{1.00\text{ in.} + (0.500\text{ in.}/2)}{2}$ $= 0.625\text{ in.}$ Thus $M_l = \dfrac{23.0\text{ kips}(0.625\text{ in.})}{4}$ $= 3.59\text{ kip-in.}$

45 Replace the calculation boxes in the right column with the following:

LRFD	ASD
$f_{tb} = \dfrac{6.90\text{ kip-in.}}{0.237\text{ in.}^3}$ $= 29.1\text{ ksi}$	$f_{tb} = \dfrac{3.59\text{ kip-in.}}{0.237\text{ in.}^3}$ $= 15.1\text{ ksi}$

LRFD	ASD
The axial stress in the rods is: $f_{ta} = \dfrac{P_u}{A}$ $= \dfrac{69.8\text{ kips}}{4(0.994\text{ in.}^2)}$ $= 17.6\text{ ksi}$ The tensile stress is: $f_t = 29.1\text{ ksi} + 17.6\text{ ksi}$ $= 46.7\text{ ksi}$ Combined shear and tension strength: $F_{nt} = 0.75F_u$ $= (0.75)(58\text{ ksi})$ $= 43.5\text{ ksi}$ $F_{nv} = 0.4F_u$ $= (0.4)(58\text{ ksi})$ $= 23.2\text{ ksi (threads included)}$	The axial stress in the rods is: $f_{ta} = \dfrac{P_a}{A}$ $= \dfrac{42.8\text{ kips}}{4(0.994\text{ in.}^2)}$ $= 10.8\text{ ksi}$ The tensile stress is: $f_t = 15.1\text{ ksi} + 10.8\text{ ksi}$ $= 25.9\text{ ksi}$ Combined shear and tension strength: $F_{nt} = 0.75F_u$ $= (0.75)(58\text{ ksi})$ $= 43.5\text{ ksi}$ $F_{nv} = 0.4F_u$ $= (0.4)(58\text{ ksi})$ $= 23.2\text{ ksi (threads included)}$

LRFD	ASD
$\phi F'_{nt} = \phi\left(1.3F_{nt} - \frac{F_{nt}}{\phi F_{nv}} f_v\right) \le \phi F_{nt}$ $= 0.75\left[(1.3)(43.5\text{ ksi}) - \frac{43.5\text{ ksi}(9.26\text{ ksi})}{(0.75)(23.2\text{ ksi})}\right]$ $= 25.1\text{ ksi}$ $\le (0.75)(43.5\text{ ksi}) = 32.6\text{ ksi}$ 46.7 ksi > 25.1 ksi **n.g.**	$\frac{F'_{nt}}{\Omega} = \frac{\left(1.3F_{nt} - \frac{\Omega F_{nt}}{F_{nv}} f_v\right)}{\Omega} \le \frac{F_{nt}}{\Omega}$ $= \frac{\left[(1.3)(43.5\text{ ksi}) - \frac{2.00(43.5\text{ ksi})(5.78\text{ ksi})}{(23.2\text{ ksi})}\right]}{2.00}$ $= 17.4\text{ ksi}$ $\le \frac{(43.5\text{ ksi})}{2.00} = 21.8\text{ ksi}$ 25.9 ksi > 17.4 ksi **n.g.**

46 Replace the calculation boxes in the left column with the following:

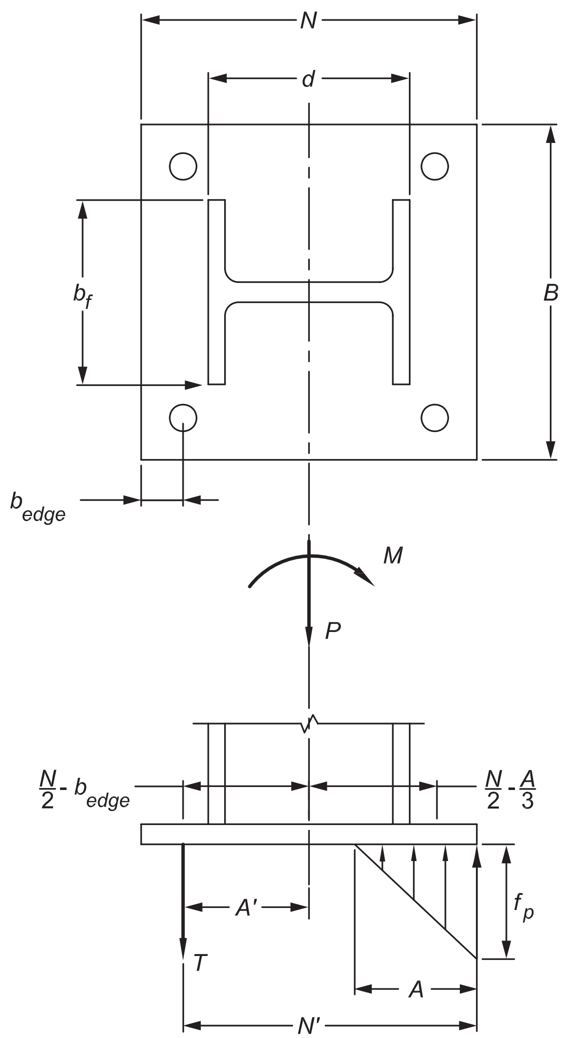
LRFD	ASD
Shear stress: $f_v = \frac{36.8\text{ kips}}{4(1.77\text{ in.}^2)}$ $= 5.20\text{ ksi}$ $Z = \frac{d^3}{6}$ $= \frac{(1.50\text{ in.})^3}{6}$ $= 0.563\text{ in.}^3$ $f_{tb} = \frac{6.90\text{ kip-in.}}{0.563\text{ in.}^3}$ $= 12.3\text{ ksi}$	Shear stress: $f_v = \frac{23.0\text{ kips}}{4(1.77\text{ in.}^2)}$ $= 3.25\text{ ksi}$ $Z = \frac{d^3}{6}$ $= \frac{(1.50\text{ in.})^3}{6}$ $= 0.563\text{ in.}^3$ $f_{tb} = \frac{3.59\text{ kip-in.}}{0.563\text{ in.}^3}$ $= 6.38\text{ ksi}$

LRFD	ASD
The axial stress equals: $f_{ta} = \frac{P_u}{A}$ $= \frac{69.8\text{ kips}}{4(1.77\text{ in.}^2)}$ $= 9.86\text{ ksi}$ The tensile stress is $f_t = 12.3\text{ ksi} + 9.86\text{ ksi}$ $= 22.2\text{ ksi}$	The axial stress equals: $f_{ta} = \frac{P_a}{A}$ $= \frac{42.8\text{ kips}}{4(1.77\text{ in.}^2)}$ $= 6.05\text{ ksi}$ The tensile stress is $f_t = 6.38\text{ ksi} + 6.05\text{ ksi}$ $= 12.4\text{ ksi}$

LRFD	ASD
$$\phi F'_{nt} = 0.75\left[(1.3)(43.5\text{ ksi}) - \frac{43.5\text{ ksi}(5.20\text{ ksi})}{(0.75)(23.2\text{ ksi})}\right]$$ $$= 32.7\text{ ksi}$$ $$\le (0.75)(43.5\text{ ksi}) = 32.6\text{ ksi}$$ $$\phi F'_{nt} = 32.6\text{ ksi}$$ 22.2 ksi < 32.6 ksi **o.k.** Use four 1½-in.-diameter rods.	$$\frac{F'_{nt}}{\Omega} = \frac{\left[(1.3)(43.5\text{ ksi}) - \frac{2.00(43.5\text{ ksi})(3.25\text{ ksi})}{(23.2\text{ ksi})}\right]}{2.00}$$ $$= 22.2\text{ ksi}$$ $$\le \frac{(43.5\text{ ksi})}{2.00} = 21.8\text{ ksi}$$ $$\frac{F'_{nt}}{\Omega} = 21.8\text{ ksi}$$ 12.4 ksi < 21.8 ksi **o.k.** Use four 1½-in.-diameter rods.

59 Figure B.3:

Revise Figure B.3, revising the N' dimension to start at the T tension force at the anchor rod rather than the left edge of the base plate, as follows:



63 Example B.5.2:

In the left column, step #3, the LRFD calculation box should be revised to:

LRFD
$A = \dfrac{3N' \pm \sqrt{\left(3N'\right)^2 - \dfrac{24\left(P_u A' + M_u\right)}{f_{pu} B}}}{2}$ $= \dfrac{3\left(12.5\text{ in.}\right) \pm \sqrt{\left[\left(3\right)\left(12.5\text{ in.}\right)\right]^2 - \dfrac{24\left[\left(90\text{ kips}\right)\left(5.5\text{ in.}\right) + 720\text{ kip-in.}\right]}{\left(3.22\text{ ksi}\right)\left(14\text{ in.}\right)}}}{2}$ $= 4.97$ in.