Errata List
AISC Steel Construction Manual, 13th Edition, Second Printing

The following list represents corrections that have been made in the Third Printing of the 13th Edition of the Steel Construction Manual.

Page(s)	Item
1-34	Table 1-5: Replace “C8x18.7” with “C8x18.5.”
1-34	Table 1-5: For a C6x13, the dimension T is 4⅜ in.
1-56	Table I-8: The WT10.5x28.5 should only have references to note “c” and not note “c, h.”
1-58	Table I-8: The WT8x20 and the WT8x18 should only have references to note “c” and not note “c, h.” Note “h” should be removed from the bottom of the table.
1-108	Table 1-16: Replace “C8x18.7” with “C8x18.5”
1-108	Table 1-16: Replace the r_x values with the values given in the attached Table 1-16.
2-12	The table at the bottom of the page should be revised and is shown below:

Design Story Drift Limit	Load Ratio from Step 3 (times 1.6 for ASD, 1.0 for LRFD)										
	0	5	10	20	30	40	50	60	80	100	120
H/100	1	1.1	1.1	1.3	1.4	-	-	-	-	-	-
H/200	1	1	1.1	1.1	1.2	1.3	1.3	1.4	-	-	-
H/300	1	1	1	1.1	1.1	1.2	1.2	1.3	1.4	1.5	-
H/400	1	1	1	1.1	1.1	1.1	1.2	1.2	1.3	1.3	1.4
H/500	1	1	1	1	1.1	1.1	1.1	1.2	1.2	1.3	1.3

Page(s)	Item
2-21	For the section “Steel Castings and Forgings” the “ASTM A148 grade 80-35” should read “ASTM A216 grade 80-35.”
2-47	A reference should be added alphabetically between SSPC and Tide, and should read as follows: Thornton, W.A., 1992, “Eliminating the Guesswork in Connection Design,” Proceedings of the AISC National Steel Construction Conference, pp. 24-1 – 24-21, AISC, Chicago, IL.
3-16	Table 3-2: The value of I_x for a W18x86 and a W12x120 should be switched. For a W18x86 the value should be 1530 and a W12x120 should be 1070.
3-39	Table 3-6: Replace the values for a 23 ft span with the following:

Shape		W36x											
		330		302		282		262		247		231	
Design		ASD	LRFD	ASD	LRFD	ASD	LRFD	ASD	LRFD	ASD	LRFD	ASD	LRFD
Span, ft	23	1220	1840	1110	1670	1030	1550	955	1430	894	1340	836	1260

3-49 Table 3-6: For a W24x370 using ASD, at 16 ft span, the Maximum Total Uniform Load should read "1410" not "11410."

3-72 Table 3-6: The footnote on the W12x14 should be "v" rather than "f." The following note "v" should replace the note "f" at the bottom of the page:

[v] Shape does not meet the h/t_w limit for shear in Specification Section G2.1a with F_y=50 ksi, Ω_v = 1.67, ϕ_v = 0.90.

3-84 Table 3-8: The title should read "C Shapes" rather than "S Shapes."

3-123 Table 3-10: The Available ASD Moment label on the vertical axis between "176" and "184" should read "180" rather than "188."

3-137 Table 3-11: Replace "C8x18.7" with "C8x18.5."

3-139 Table 3-11: Replace "C8x18.7" with "C8x18.5."

3-144 Table 3-13: Replace this table with the attached Table 3-13.

3-207 Table 3-21: For the Deck Perpendicular condition, "Strong studs per rib" should read "Strong studs per rib (R_p=0.75)" and "Weak studs per rib" should read "Weak studs per rib (R_p=0.60)."

4-10 – 4-23 Table 4-1 and Table 4-2: Replace the Properties, "$P_{ex}(KL^2)/10^4$ " and "$P_{ey}(KL^2)/10^4$ " with "$P_{ex}(KL)^2/10^4$ " and "$P_{ey}(KL)^2/10^4$."

4-48 – 4-63 Table 4-4: The units for the radius of gyration should read "in."

4-57 Table 4-4: The last value of Effective Length, *KL,* should read "30."

4-116, 117 Table 4-7: The units for the Properties, r_x and r_y, should read "in."

4-129 Table 4-9: The weight per foot should read as follows:

Shape	2L7x4x				
	¾	⅝	½[c]	7/16[c]	⅜[c]
Wt/ft	52.4	44.2	35.7	31.5	27.2

5-16 Table 5-2: Insert the label, L3½x2½, along with a space below the currently labeled L3½x3x¼.

6-3 In the last line of the Table: In the "LRFD" column, replace ϕ_c with ϕ_t, and in the "ASD" column, replace Ω with Ω_t.

7-85	Table 7-20: For a Heavy Hex ⅝-in.-diameter bolt the value *H* should be "7⁄16 in." rather than "1⅛ in."
8-16	At the end of the second paragraph a reference should be made to "Figure 8-9b" instead of "Figure 8-10b."
8-47	Table 8-2: Replace the left-hand figure with the version in the attached Table 8-2.
9-7	The equations for F_{cr} should both include the limit, $\leq F_y$, as follows:

$$F_{cr} = \frac{\pi^2 E}{12\left(1-\upsilon^2\right)}\left(\frac{t_w}{h_o}\right)^2 fk \leq F_y$$

$$= 26,210\left(\frac{t_w}{h_o}\right)^2 fk \leq F_y$$

9-8	The top equation for F_{cr} should include $\leq F_y$ as follows:

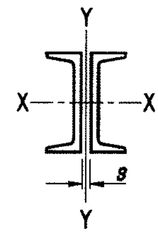
$$F_{cr} = 0.62\pi E\frac{t_w^2}{ch_o} f_d \leq F_y$$

10-4	Figure 10-1 should be replaced with the attached Figure 10-1.
10-14	The bolt and angle ASD available strength for A490 SC Class B with OVS hole type and ¼ in. angle thickness should be 180 kips, not 80 kips.
10-86	In the third paragraph following the heading, "Table 10-5 All-Bolted Unstiffened Seated Connections," both references to "Figure 10-8a" should be to "Figure 10-7a."
10-124	In the second paragraph following the heading, "Table 10-11. Bolted/Welded Single-Angle Connections," Table 8-10 should be referenced rather than Table 8-11.
10-141	Figure 10-28(a) "SECT. F-F" showing the elevation view of column B2 should read "SECT. E-E"
10-146	Replace Figure 10-32 with the attached Figure 10-32.
14-18	The equation for R_n appearing under the heading, "Flexural Strength of the Cap Plate," should include the variable "t_1" instead of "t_c"
16.1-29	In Case 7 of Table D3.1, "with web connected with 4 or more fasteners in the direction of loading" should read, "with web connected with 4 or more fasteners <u>per line</u> in the direction of loading."
16.1-217	The equation for R_n following Equation C-B3-4 should read "R_n=4$D\Omega$" instead of "R_n=4D/Ω."
16.1-397	Replace Equation C-A-2-2 with the following:

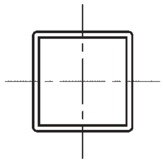
$$\delta_w = \frac{\alpha_s\delta_o\left[1+\frac{\pi^3}{32}\alpha_p+\frac{\pi^2}{8\rho}\left(1+\alpha_p\right)+0.185\alpha_s\alpha_p\right]}{1-0.25\pi\alpha_s\alpha_p}$$

2C SHAPES

Table 1–16
2C Shapes
Properties



Shape	Area, A	Axis Y-Y												Axis X-X
		Separation, s, in.												
		0				3/8				3/4				r_x
		I	S	r	Z	I	S	r	Z	I	S	r	Z	
	in.^{2}	in.^{4}	in.^{3}	in.	in.^{3}	in.^{4}	in.^{3}	in.	in.^{3}	in.^{4}	in.^{3}	in.	in.^{3}	in.
2C15×50	29.4	40.7	11.0	1.18	30.7	50.5	12.9	1.31	36.2	62.4	15.3	1.46	41.7	5.24
×40	23.5	32.6	9.25	1.18	22.9	40.2	10.9	1.31	27.3	49.6	12.7	1.45	31.7	5.44
×33.9	19.9	28.5	8.38	1.20	19.0	35.1	9.78	1.33	22.7	43.1	11.4	1.47	26.4	5.63
2C12×30	17.6	18.2	5.75	1.02	15.1	23.3	6.94	1.15	18.4	29.6	8.36	1.30	21.7	4.29
×25	14.7	15.6	5.11	1.03	12.1	19.8	6.12	1.16	14.9	25.0	7.32	1.31	17.6	4.43
×20.7	12.2	13.6	4.64	1.06	10.0	17.2	5.51	1.19	12.3	21.7	6.55	1.34	14.6	4.61
2C10×30	17.6	15.3	5.04	0.931	15.3	20.2	6.27	1.07	18.6	26.3	7.73	1.22	21.9	3.42
×25	14.7	12.3	4.25	0.914	11.8	16.2	5.27	1.05	14.5	21.1	6.48	1.20	17.3	3.52
×20	11.7	9.91	3.62	0.918	8.84	13.0	4.44	1.05	11.0	16.9	5.43	1.20	13.2	3.66
×15.3	8.96	8.14	3.13	0.953	6.69	10.6	3.80	1.09	8.37	13.7	4.59	1.23	10.0	3.87
2C9×20	11.7	8.80	3.32	0.866	8.76	11.8	4.15	1.00	11.0	15.6	5.15	1.15	13.2	3.22
×15	8.81	6.86	2.76	0.882	6.25	9.10	3.41	1.02	7.90	12.0	4.19	1.17	9.55	3.40
×13.4	7.88	6.34	2.61	0.897	5.59	8.39	3.20	1.03	7.07	11.0	3.92	1.18	8.55	3.49
2C8×18.5	11.0	7.46	2.95	0.823	8.12	10.2	3.75	0.962	10.2	13.7	4.71	1.11	12.3	2.82
×13.7	8.07	5.51	2.35	0.826	5.49	7.47	2.95	0.962	7.00	10.0	3.68	1.11	8.52	2.99
×11.5	6.74	4.82	2.13	0.846	4.57	6.50	2.66	0.982	5.83	8.66	3.29	1.13	7.10	3.11
2C7×14.7	8.66	5.18	2.25	0.773	5.94	7.21	2.90	0.912	7.57	9.85	3.68	1.07	9.19	2.51
×12.2	7.19	4.30	1.96	0.773	4.69	5.97	2.51	0.911	6.04	8.14	3.17	1.06	7.39	2.60
×9.8	5.73	3.59	1.72	0.791	3.69	4.95	2.17	0.929	4.76	6.72	2.73	1.08	5.84	2.72
2C6×13	7.63	4.11	1.91	0.734	5.13	5.85	2.50	0.876	6.56	8.13	3.21	1.03	7.99	2.13
×10.5	6.15	3.26	1.60	0.728	3.86	4.63	2.08	0.867	5.02	6.43	2.67	1.02	6.17	2.22
×8.2	4.78	2.63	1.37	0.741	2.93	3.72	1.76	0.881	3.82	5.14	2.24	1.04	4.72	2.34
2C5×9	5.28	2.45	1.30	0.682	3.22	3.59	1.73	0.824	4.21	5.09	2.25	0.982	5.20	1.83
×6.7	3.93	1.86	1.06	0.688	2.36	2.71	1.40	0.831	3.09	3.84	1.81	0.989	3.83	1.95
2C4×7.2	4.26	1.75	1.02	0.641	2.52	2.63	1.38	0.786	3.32	3.81	1.82	0.946	4.12	1.47
×5.4	3.16	1.29	0.812	0.637	1.86	1.94	1.10	0.783	2.45	2.82	1.44	0.943	3.05	1.56
×4.5	2.76	1.25	0.789	0.673	1.95	1.86	1.05	0.820	2.47	2.66	1.36	0.981	2.98	1.63
2C3×6	3.52	1.33	0.833	0.614	2.12	2.06	1.15	0.764	2.78	3.03	1.54	0.927	3.44	1.08
×5	2.94	1.05	0.699	0.597	1.65	1.63	0.969	0.746	2.20	2.43	1.30	0.909	2.75	1.12
×4.1	2.41	0.842	0.597	0.591	1.43	1.32	0.827	0.741	1.88	1.97	1.10	0.905	2.33	1.17
×3.5	2.18	0.766	0.558	0.593	1.37	1.20	0.772	0.743	1.78	1.80	1.03	0.908	2.19	1.20



HSS16–HSS4½

Table 3–13
Available Flexural Strength, kip-ft
Square HSS

F_y = 46 ksi

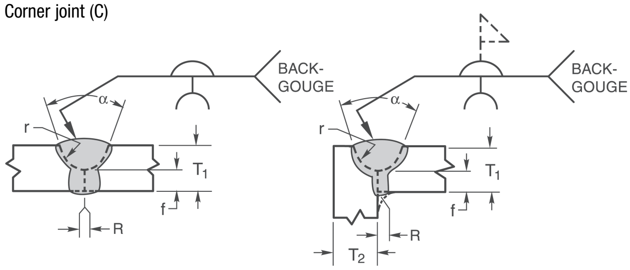
Shape		M_n/Ω	ϕM_n
		ASD	LRFD
HSS16×16×	5/8	459	690
	1/2[f]	352	529
	3/8[f]	232	348
	5/16[f]	181	272
HSS14×14×	5/8	347	521
	1/2	285	428
	3/8[f]	185	278
	5/16[f]	145	219
HSS12×12×	5/8	250	376
	1/2	206	309
	3/8[f]	149	223
	5/16[f]	113	169
	1/4[f]	83.3	125
	3/16[f]	55.7	83.8
HSS10×10×	5/8	168	252
	1/2	139	210
	3/8	108	163
	5/16[f]	86.1	129
	1/4[f]	61.6	92.5
	3/16[f]	41.4	62.3
HSS9×9×	5/8	133	200
	1/2	111	167
	3/8	86.8	130
	5/16	73.8	111
	1/4[f]	51.7	77.8
	3/16[f]	35.0	52.5
	1/8[f]	20.0	30.1
HSS8×8×	5/8	103	154
	1/2	86.0	129
	3/8	67.6	102
	5/16	57.6	86.6
	1/4[f]	44.1	66.3
	3/16[f]	28.8	43.3
	1/8[f]	16.5	24.8
HSS7×7×	5/8	75.9	114
	1/2	64.1	96.4
	3/8	50.7	76.2
	5/16	43.4	65.2
	1/4	35.6	53.6
	3/16[f]	23.1	34.7
	1/8[f]	13.3	20.0
HSS6×6×	5/8	53.2	80.0
	1/2	45.4	68.3
	3/8	36.3	54.6
	5/16	31.2	46.9
	1/4	25.7	38.7
	3/16[f]	18.5	27.8
	1/8[f]	10.4	15.6
HSS5½×5½×	3/8	30.0	45.1
	5/16	25.9	38.9
	1/4	21.4	32.2
	3/16[f]	16.4	24.6
	1/8[f]	8.98	13.5
HSS5×5×	1/2	30.0	45.0
	3/8	24.3	36.5
	5/16	21.0	31.6
	1/4	17.5	26.2
	3/16	13.5	20.3
	1/8[f]	7.67	11.5
HSS4½×4½×	1/2	23.4	35.2
	3/8	19.2	28.8
	5/16	16.7	25.1
	1/4	13.9	20.9
	3/16	10.8	16.3
	1/8[f]	6.43	9.66

[f] Shape exceeds compact limit for flexure with F_y = 46 ksi.

CJP

Table 8–2 (continued)
Prequalified Welded Joints
Complete-Joint-Penetration Groove Welds

Single-U-groove weld (6)
Butt joint (B)
Corner joint (C)



Tolerances	
As Detailed (see 3.13.1)	As Fit-Up (see 3.13.1)
$R = +^1/_{16}, -0$	$+^1/_{16}, -^1/_8$
$\alpha = +10°, -0°$	$+10°, -5°$
$f = \pm^1/_{16}$	Not Limited
$r = +^1/_8, -0$	$+^1/_8, -0$

Welding Process	Joint Designation	Base Metal Thickness (U = unlimited)		Groove Preparation				Allowed Welding Positions	Gas Shielding for FCAW	Notes
		T_1	T_2	Root Opening	Groove Angle	Root Face	Bevel Radius			
SMAW	B-U6	U	U	$R = 0$ to $^1/_8$	$\alpha = 45°$	$f = ^1/_8$	$r = ^1/_4$	All	—	4, 5, 10
				$R = 0$ to $^1/_8$	$\alpha = 20°$	$f = ^1/_8$	$r = ^1/_4$	F, OH	—	4, 5, 10
	C-U6	U	U	$R = 0$ to $^1/_8$	$\alpha = 45°$	$f = ^1/_8$	$r = ^1/_4$	All	—	4, 5, 7, 10
				$R = 0$ to $^1/_8$	$\alpha = 20°$	$f = ^1/_8$	$r = ^1/_4$	F, OH	—	4, 5, 7, 10
GMAW FCAW	B-U6-GF	U	U	$R = 0$ to $^1/_8$	$\alpha = 20°$	$f = ^1/_8$	$r = ^1/_4$	All	Not req.	1, 4, 10
	C-U6-GF	U	U	$R = 0$ to $^1/_8$	$\alpha = 20°$	$f = ^1/_8$	$r = ^1/_4$	All	Not req.	1, 4, 7, 10

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SCOPE

The specification requirements and other design considerations summarized in this Part apply to the design of simple shear connections. For the design of flexible moment connections, see Part 11. For the design of fully restrained (FR) moment connections, see Part 12.

FORCE TRANSFER

The required strength (end reaction), R_u or R_a, is determined by analysis as indicated in AISC *Specification* Section B3. Per AISC *Specification* Section J1.2, the ends of members with simple shear connections are normally assumed to be free to rotate under load. While simple shear connections do actually possess some rotational restraint (see curve A in Figure 10–1), this small amount can be neglected and the connection idealized as completely flexible. The simple shear connections shown in this Manual are suitable to accommodate the end rotations required per AISC *Specification* Section J1.2.

Support rotation is acceptably limited for most framing details involving simple shear connections without explicit consideration. The case of a bare spandrel girder supporting infill beams, however, may require consideration to verify that an acceptable level of support rotational stiffness is present. Sumner (2003) showed that a nominal interconnection between the top flange of the gider and the top flange of the framing beam is sufficient to limit support rotation.

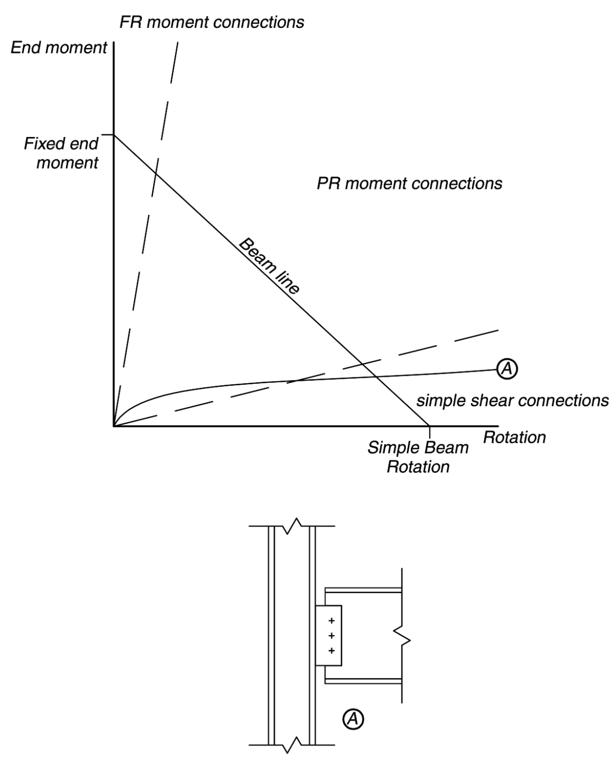

Figure 10–1. Illustration of typical moment rotation curve for simple shear connection.

The detail shown in Figure 10–31c is used frequently when *m* is up to 6 or 7 in. The load on the shop bolts in this case is no greater than that in Figure 10–31a. However, to provide more lateral stiffness, the fittings are cut from a 15-in. channel and are detailed to overlap the beam web sufficiently to permit four shop bolts on two gage lines.

A stool or pedestal, cut from a rolled shape, can be used with or without fillers to provide for the necessary *m* distance, as in Figure 10–31d. A pair of connection angles and a tee will also serve a similar purpose, as shown in Figure 10–31e. To provide adequate strength to

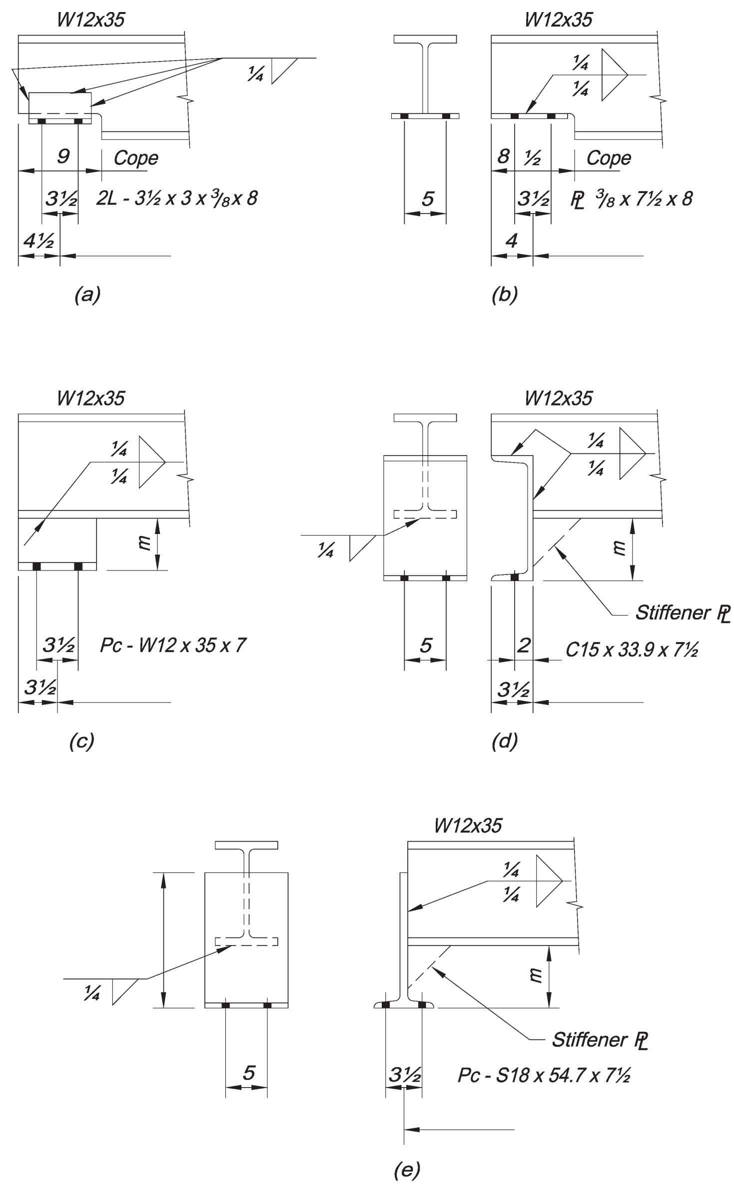

Figure 10–32. Welded raised-beam connections.