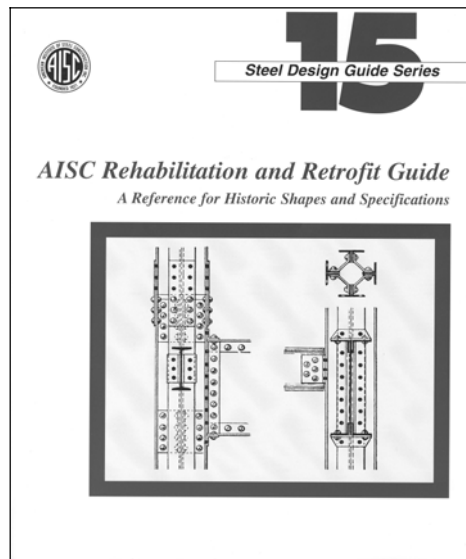


Revision and Errata List, March 1, 2003

AISC Design Guide 15: AISC Rehabilitation and Retrofit Guide – A Reference for Historic Shapes and Specifications

The following editorial corrections have been made in the First Printing, 2002. To facilitate the incorporation of these corrections, this booklet has been constructed using copies of the revised pages, with corrections noted. The user may find it convenient in some cases to hand-write a correction; in others, a cut-and-paste approach may be more efficient.



Chapter 2

PROPERTIES OF **DISCONTINUED** BEAMS AND COLUMNS 1873-2000

Rev.
5/1/02

For Steel Sections 1971-2000 (Section 2.1) and Steel Sections 1953-1970 (Section 2.2), the following properties were taken from old AISC Manuals, or calculated where missing.

For Steel Sections 1887-1952 (Section 2.3) and Wrought Iron Sections 1873-1900 (Section 2.4), the properties were taken from *Iron and Steel Beams -1873 to 1952*, or calculated where missing. Thus, the format differs somewhat from that for the sections taken from the AISC Manuals. The depth, web thickness, flange width, and flange thickness are shown only as decimal values. Dimensions T , k , and k_f are shown as decimals rather than fractions.

For Steel Sections 1887-1952 (Section 2.3), the "Designation" for 14 sections are shown as "—". These were sections have no known designation. For Wrought Iron Sections 1873-1900 (Section 2.4), the "Designation" is simply shown as a sequential number from 1 to 295 as they have and have no known designation.

2.1 Steel Sections 1971-2000

The following information can be found in Tables 2.1.1 through 2.1.3:

Table 2.1.1 - Dimensions and Primary Properties
Table 2.1.2 - Torsion Properties
Table 2.1.3 - Producers

2.2 Steel Sections 1953-1970

The following information can be found in Tables 2.2.1 through 2.2.3:

Table 2.2.1 — Dimensions and Primary Properties
Table 2.2.2 — Torsion Properties
Table 2.2.3 - Producers

These tables list WF using the W-designation.

2.3 Steel Sections 1887-1952

The following information can be found in Tables 2.2.1 through 2.2.3:

Table 2.3.1 — Dimensions and Primary Properties
Table 2.3.2 - Torsion Properties
Table 2.3.3 - Producers Key
2.3.3a American Standard Beams
2.3.3b Beams (Steel) WF Regular and Special
2.3.3c WF Shapes (Steel) Light Columns and Stanchions
2.3.3d Light Beams, Joists and Junior Beams (Steel)
2.3.3e Columns (Steel)

2.4 Wrought Iron Sections 1873-1900

The following information can be found in Tables 2.2.1 through 2.2.3:

Table 2.4.1 — Dimensions and Primary Properties
Table 2.4.2 - Torsion Properties
Table 2.4.3 - Producers Key

Rev.
5/1/02

Table 2.1.1 Dimensions and Primary Properties -- Steel Sections 1971-2000

Designation	Wt. per ft lb	Area A in. ²	Depth		Web Thickness			Flange Width		Flange Thickness		Distance		
			d	d	t _w	t _w	t _w /2	b _f	b _f	t _f	t _f	T	k	k _r
			in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
W44x285	285	83.8	44.02	44	1.024	1	1/2	11.811	11 3/4	1.772	1 3/4	38 5/8	2 11/16	1 3/8
W44x248	248	72.8	43.62	43 5/8	0.865	7/8	7/16	11.811	11 3/4	1.575	1 9/16	48 5/8	2 1/2	1 5/16
W44x224	224	65.8	43.31	43 1/4	0.787	13/16	7/16	11.811	11 3/4	1.416	1 7/16	48 5/8	2 5/16	1 5/16
W44x198	198	58.0	42.91	42 7/8	0.709	11/16	3/8	11.811	11 3/4	1.220	1 1/4	48 5/8	2 1/8	1 1/4
W40x655	655	192	43.62	43 5/8	1.970	2	1	16.870	16 7/8	3.540	3 9/16	33 3/4	4 15/16	2 1/4
W40x531	531	156	42.34	42 3/8	1.610	1 5/8	13/16	16.510	16 1/2	2.910	2 15/16	33 3/4	4 5/16	2
W40x480	480	140	41.81	41 3/4	1.460	1 7/16	3/4	16.360	16 3/8	2.640	2 5/8	33 3/4	4	2
W40x466	466	137	42.44	42 7/16	1.670	1 11/16	13/16	12.640	12 5/8	2.950	2 15/16	34 3/16	4 1/8	2
W40x436	436	128	41.34	41 3/8	1.340	1 5/16	11/16	16.240	16 1/4	2.400	2 3/8	33 3/4	3 13/16	1 15/16
W40x328	328	96.4	40.00	40	0.910	15/16	1/2	17.910	17 7/8	1.730	1 3/4	33 3/4	3 1/8	1 11/16
W40x321	321	94.1	40.08	40 1/16	1.000	1	1/2	15.910	15 7/8	1.770	1 3/4	34 3/16	2 15/16	1 11/16
W40x298	298	87.6	38.69	38 3/4	0.830	13/16	7/16	17.830	17 7/8	1.575	1 9/16	33 3/4	3	1 5/8
W40x268	268	78.8	39.37	39 3/8	0.750	3/4	3/8	17.750	17 3/4	1.415	1 7/16	33 3/4	2 13/16	1 9/16
W40x244	244	71.7	39.06	39	0.710	11/16	3/8	17.710	17 3/4	1.260	1 1/4	33 3/4	2 5/8	1 9/16
W40x221	221	64.8	38.67	38 5/8	0.710	11/16	3/8	17.710	17 3/4	1.065	1 1/16	33 3/4	2 7/16	1 9/16
W40x192	192	56.5	38.20	38 1/4	0.710	11/16	3/8	17.710	17 3/4	0.830	13/16	33 3/4	2 1/4	1 9/16
W40x174	174	51.1	38.20	38 1/4	0.650	5/8	5/16	15.750	15 3/4	0.830	13/16	34 3/16	2	1 1/2
W36x848	848	249	42.45	42 1/2	2.520	2 1/2	1 1/4	18.130	18 1/8	4.530	4 1/2	31 1/8	5 11/16	2 1/4
W36x720	720	211	41.19	41 1/4	2.165	2 3/16	1 1/8	17.775	17 3/4	3.900	3 7/8	31 1/8	5 1/16	2 1/16
W36x588	588	172	39.84	39 7/8	1.790	1 13/16	1	17.400	17 3/8	3.230	3 1/4	31 1/8	4 3/8	1 7/8
W36x485	485	142	38.74	38 3/4	1.500	1 1/2	3/4	17.105	17 1/8	2.680	2 11/16	31 1/8	3 13/16	1 3/4
W33x619	619	181	38.47	38 1/2	1.970	2	1	16.910	16 7/8	3.540	3 9/16	29 3/4	4 3/8	1 3/4
W33x567	567	166	37.91	37 7/8	1.810	1 13/16	1	16.750	16 3/4	3.270	3 1/4	29 3/4	4 1/16	1 11/16
W33x515	515	151	37.36	37 3/8	1.650	1 5/8	13/16	16.590	16 5/8	2.990	3	29 3/4	3 13/16	1 5/8
W33x468	468	137	36.81	36 3/4	1.520	1 1/2	3/4	16.455	16 1/2	2.720	2 3/4	29 3/4	3 1/2	1 9/16
W33x424	424	124	36.34	36 3/8	1.380	1 3/8	11/16	16.315	16 3/8	2.480	2 1/2	29 3/4	3 5/16	1 7/16
W33x387	387	113	35.95	36	1.260	1 1/4	5/8	16.200	16 1/4	2.280	2 1/4	29 3/4	3 1/8	1 3/8
W30x581	581	170	35.39	35 3/8	1.970	2	1	16.200	16 1/4	3.540	3 9/16	26 3/4	4 5/16	1 11/16
W30x526	526	156	34.76	34 3/4	1.790	1 13/16	1	16.020	16	3.230	3 1/4	26 3/4	4	1 5/8
W30x433	433	127	33.66	33 5/8	1.500	1 1/2	3/4	15.725	15 3/4	2.680	2 11/16	26 3/4	3 7/16	1 1/2
W30x357	357	104	32.80	32 3/4	1.240	1 1/4	5/8	15.470	15 1/2	2.240	2 1/4	26 3/4	3	1 3/8
W30x477	477	140	34.21	34 1/4	1.630	1 5/8	13/16	15.865	15 7/8	2.950	3	26 3/4	3 3/4	1 9/16
W27x494	494	145	31.97	32	1.810	1 13/16	1	15.095	15 1/8	3.270	3 1/4	24	4	1 9/16
W27x448	448	131	31.42	31 3/8	1.650	1 5/8	13/16	14.940	15	2.990	3	24	3 11/16	1 1/2
W27x407	407	119	30.87	30 7/8	1.520	1 1/2	3/4	14.800	14 3/4	2.720	2 3/4	24	3 7/16	1 7/16
W24x492	492	144	29.65	29 5/8	1.970	2	1	14.115	14 1/8	3.540	3 9/16	21	4 5/16	1 9/16
W24x450	250	132	29.09	29 1/8	1.810	1 13/16	1	13.955	14	3.270	3 1/4	21	4 1/16	1 1/2
W24x408	408	119	28.54	28 1/2	1.650	1 5/8	13/16	13.800	13 3/4	2.990	3	21	3 3/4	1 3/8
W21x402	402	118	26.02	26	1.730	1 3/4	7/8	13.405	13 3/8	3.130	3 1/8	18 1/4	3 7/8	1 7/16
W21x364	364	107	25.47	25 1/2	1.590	1 9/16	13/16	13.265	13 1/4	2.850	2 7/8	18 1/4	3 5/8	1 3/8
W21x333	333	97.9	25.00	25	1.460	1 7/16	3/4	13.130	13 1/8	2.620	2 5/8	18 1/4	3 3/8	1 5/16
W21x300	300	88.2	24.53	24 1/2	1.320	1 5/16	11/16	12.990	13	2.380	2 3/8	18 1/4	3 1/8	1 1/4
W21x275	275	80.8	24.13	24 1/8	1.220	1 1/4	5/8	12.890	12 7/8	2.190	2 3/16	18 1/4	3	1 3/16
W21x248	248	72.8	23.74	23 3/4	1.100	1 1/8	9/16	12.775	12 3/4	1.990	2	18 1/4	2 3/4	1 1/8
W21x223	223	65.4	23.35	23 3/8	1.000	1	1/2	12.675	12 5/8	1.790	1 13/16	18 1/4	2 9/16	1 1/16
W18x311	311	91.5	22.32	22 3/8	1.520	1 1/2	3/4	12.005	12	2.740	2 3/4	15 1/2	3 7/16	1 3/16
W18x283	283	83.2	21.85	21 7/8	1.400	1 3/8	11/16	11.890	11 7/8	2.500	2 1/2	15 1/2	3 3/16	1 3/16
W18x258	258	75.9	21.46	21 1/2	1.280	1 1/4	5/8	11.770	11 3/4	2.300	2 5/16	15 1/2	3	1 1/8
W18x234	234	68.8	21.06	21	1.160	1 3/16	5/8	11.650	11 5/8	2.110	2 1/8	15 1/2	2 3/4	1
W18x211	211	62.1	20.67	20 5/8	1.060	1 1/16	9/16	11.555	11 1/2	1.910	1 15/16	15 1/2	2 9/16	1
W18x192	192	56.4	20.35	20 3/8	0.960	1	1/2	11.455	11 1/2	1.750	1 3/4	15 1/2	2 7/16	15/16
M14x18	18	5.10	14.00	14	0.215	3/16	1/8	4.000	4	0.270	1/4	12 3/4	5/8	-
M6x20	20	5.89	6.00	6	0.250	1/4	1/8	5.938	6	0.379	3/8	4 1/4	7/8	-
M4x13	13	3.81	4.00	4	0.254	1/4	1/8	3.940	4	0.371	3/8	2 3/8	13/16	-
S7x20	20	5.88	7.00	7	0.450	7/16	1/4	3.860	3 7/8	0.392	3/8	5 1/8	15/16	-
S7x15.3	15.3	4.50	7.00	7	0.252	1/4	1/8	3.662	3 5/8	0.392	3/8	5 1/8	15/16	-
S5x14.75	14.75	4.34	5.00	5	0.494	1/2	1/4	3.284	3 1/4	0.326	5/16	3 3/8	13/16	-
HP13x100	100	29.4	13.15	13 1/8	0.765	3/4	3/8	13.205	13 1/4	0.765	3/4	10 1/4	1 7/16	1
HP13x87	87	25.5	12.95	13	0.665	11/16	3/8	13.105	13 1/8	0.665	11/16	10 1/4	1 3/8	15/16
HP13x73	83	21.6	12.75	12 3/4	0.565	9/16	5/16	13.005	13	0.565	9/16	10 1/4	1 1/4	15/16
HP13x60	60	17.5	12.54	12 1/2	0.460	7/16	1/4	12.900	12 7/8	0.460	7/16	10 1/4	1 1/8	7/8

Rev. 5/1/02

2.3.3b Producers - Beams (Steel) WF Regular and Special

Depth	36		33		30		28		27		26		24		22	
	Mill	Year	Mill	Year	Mill	Year	Mill	Year	Mill	Year	Mill	Year	Mill	Year	Mill	Year
1	B36a 36x16-1/2		S34	1930	S34	1930	S34	1930	S43	1933	S40	1931	B	1907	S10	1921
	B36 36x12		S35	1930	S35	1930	S35	1930	S47	1934					S12	1922
	S43	1933							S51	1938					S15	1924
	S47	1934							S53	1943					S16	1925
	36WF (B36a) 36x16-1/2								S54	1946					S18	1926
	36WF (B36) 36x12								S56	1948						
	S51	1938														
	S53	1943														
	S54	1946														
	S56	1948														
2	G36		S40	1931	S40	1931	B	1907	S43	1933	S27	1928	S3	1909	S24	1927
	S29	1928							S47	1934	S35	1930	S4	1911		
	S34	1930							S51	1938						
	S35	1930							S53	1943						
	G36,36X16-1/2															
	S40	1931														
3	S43	1933	S29	1928	S27	1928	S3	1909	S54	1946	B	1907	S3	1909	S27	1927
	S47	1934	S34	1930	S34	1930	S4	1911	S56	1948			S4	1911	S29	1928
	S51	1938	S35	1930	S35	1930							S12	1922	S35	1930
	S53	1943											S15	1924		
4	S54	1946	B33a 33x15-3/4		B30a, 30x15		G 28		C	1913	S3	1909	S10	1921	S27	1928
	S56	1948	B33, 33x11-1/2		B30, 30x10-1/2		B 28		C	1915	S4	1911	S12	1922	S34	1930
			S43	1933	S43	1933	S27	1928					S15	1924	S35	1930
			S47	1934	S47	1934	S34	1930					S16	1925		
			33WF (B33a) 33x15-3/4		30WF (B30a) 30x15		S35	1930					S18	1926		
			33WF (B33) 33x11-1/2		30WF (B30) 30x10-1/2		G28, 28x14-1/4									
			S51	1938	S51	1938	B28, 28x10									
			S53	1943	S53	1943	S40	1931								
			S54	1946	S54	1946										
			S56	1948	S56	1948										
5	S29	1928	B33a 33x15-3/4		B	1907	S12	1922	C	1916	S12	1922	S12	1922	S24	1927
			B33, 33x11-1/2				S15	1924	C	1917	S15	1924	S15	1924	S27	1928
			S43	1933			S16	1925	C	1919	S16	1925	S16	1925	S34	1930
			S47	1934			S18	1926	C	1920	S18	1926	S18	1926	S35	1930
			33WF (B33a) 33x15-3/4						C	1921						
			33WF (B33) 33x11-1/2						C	1923						
			S51	1938												
			S53	1943												
6	S29	1928	S29	1928	B30a, 30x15		S40	1931	CB 272		S24	1927	S12	1922	S34	1930
	S34	1930			S43	1933			CB 271		S27	1928	S15	1924	S35	1930
	S35	1930			S47	1934			C	1927	S35	1930				
					30WF (B30a) 30x15				C	1928						
					S51	1938			C	1929						
					S53	1943			CB 272, 27x14							
								CB 271, 27x9-3/4								
								C	1930							
7	S34	1930	S54	1946	S3	1909	S27	1928	CB 272		S15	1924			S40	1931
	S35	1930	S56	1948	S4	1911	S34	1930	C	1927	S16	1925				
							S35	1930	C	1928	S18	1926				
								C	1929							
								CB272, 27x14								
								C	1930							
								C	1931							
8	S40	1931	CB332		S12	1922	S24	1927	CB 271		S12	1922	S16	1925		
			CB331		S15	1924			C	1928			S18	1926		
			C,SP	1929	S16	1925			C	1929						
			C	1929	S18	1926			CB271, 27x9-3/4							
			CB332, 33x16						C	1930						
		CB331, 33x12														
		C	1930													
9	S40	1931	C	1931	S24	1927	S15	1924	CB 271				S24	1927		
			IL	1932			S16	1925	C	1929						
							S18	1926	CB271, 27x9-3/4							
									C	1930						
10	C	1931	CB 332, 33x15-3/4		S15	1924	G28		CB272N, 27x14				S27	1928		
	IL	1932	CB 331, 33x11-1/2		S16	1925	B28		CB271N, 27x10				S35	1930		
			C	1933	S18	1926	S34	1930	C	1931						
			C	1934			S35	1930	IL	1932						
			IL	1934			G28, 28x14-1/4									
			33WF CB332, 33x15-3/4				B28, 28x10									
			33WF CB331, 33x11-1/2				S40	1931								
			CIL	1940												

Rev.
5/1/02

2.3.3b Producers - Beams (Steel) WF Regular and Special

Depth Reference	36		33		30		28		27		26		24		22	
	Mill	Year	Mill	Year	Mill	Year	Mill	Year	Mill	Year	Mill	Year	Mill	Year	Mill	Year
11	CB CB CSP C CB362, 36x16-1/2 CB361, 36x12 C	 1929 1929 1930	CB CB C C IL 33WF CB332, 33x15-3/4 33WF CB331, 33x11-1/2 CIL CIL US	 1933 1934 1934 1940 1946 1950	S12 S15 S16 S18	1922 1924 1925 1926	S12	1922	CB272, 27x14 CB271, 27x10 C C IL 27WF CB272, 27x14 27WF CB271, 27x10 CIL	 1933 1934 1934 1940			S40	1931		
12	CB362, 36x16-1/2 C C IL 36WF, CB362, 36x16-1/2 CIL	 1933 1934 1934 1940	CIL CIL US	1946 1948 1950	S24 S27 S34 S35	1927 1928 1930 1930			CB272, 27x14 CB271, 27x10 C C IL 27WF CB272, 27x14 27WF CB271, 27x10 CIL CIL	 1933 1934 1934 1940 1946			B24b, 24x14 B24a, 24x12 B24, 24x9 S43 S47 24WF(B24b) 24x14 24WF(B24a) 24x12 24WF(B24) 24x9 S51 S53	1933 1934		
13	CB362, 36x16-1/2 CB361, 36x12 C C IL 36 WF CB362, 36x16-1/2 36 WF CB361, 36x12 CIL CIL CIL US CIL	 1933 1934 1934 1940 1946 1948 1950 1946		CB 302 CB 301 C CB CB C	 1927 1930			CIL CIL US	1946 1948 1950			B24b, 24x14 B24, 24x9 S43 S47 24WF(B24b) 24x14 24WF(B24) 24x14 S51 S53 S54 S56	1933 1934 1934 1938 1943 1946 1948			
14	CIL	1946			C C C C	1927 1928 1929 1930							B24a, 24x12 S43 S47 24WF(B24a) 24x12 S51 S53 S54 S56	1933 1934		
15					CB301 & CB 302 C C CB302, 30x14 CB301, 30x10-1/2 C C	1928 1929 1930							S54 S56	1946 1948		
16					C IL	1931 1932							C C	1913 1915		
17					CB302, 30x15 CB301, 30x10-1/2 C C C IL 30WF CB302, 30x15 30WF CB301, 30x10-1/2 CIL	 1933 1934 1934 1940							C C C C	1916 1917 1919 1920		
18					CB302, 30x15 CB301, 30x10-1/2 C C IL 30WF CB302, 30x15 30WF CH301, 30x10-1/2 CIL CIL CIL US	 1933 1934 1934 1940 1946 1948 1950							C C	1921 1923		
19													CB244 CB243 C CB244, 24x14 CB243, 24x12 C	1927 1930		

Rev.
5/1/02

2.3.3b Producers - Beams (Steel) WF Regular and Special

Depth	36		33		30		28		27		26		24		22	
Reference	Mill	Year	Mill	Year	Mill	Year	Mill	Year	Mill	Year	Mill	Year	Mill	Year	Mill	Year
20													C IL	1931 1932		
21													CB243, 24x14 CB241, 24x9 C C IL 24WFCB243, 24x14 24WFCB241, 24x9 CIL	1933 1934 1933 1940		
22													CB243, 24x14 CB242, 24x12 CB241, 24x9 C C IL 24WF CB243, 24x14 24WF CB242, 24x12 24WF CB241, 24x9 CIL CIL CIL US CIL US	1933 1934 1934 1940 1946 1948 1950 1946 1950		
23													CIL US	1946 1950		
24													IL IL	1914 1925		
25																
26																

Rev.
5/1/03

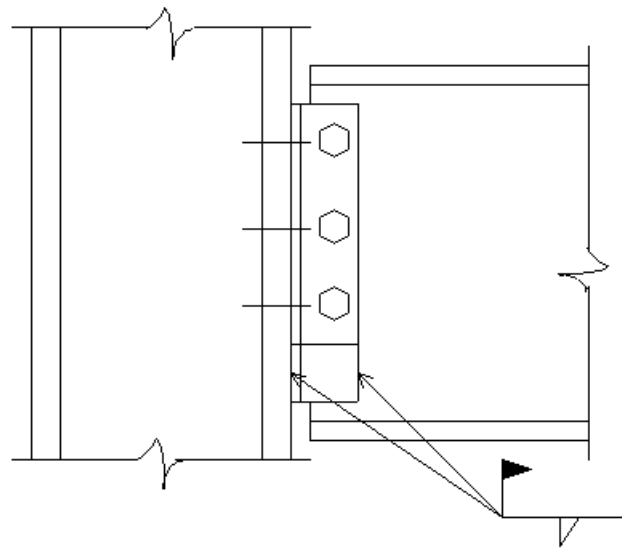


Figure 4.3.2.1 Framing Angle Extension

Rev.
5/1/03

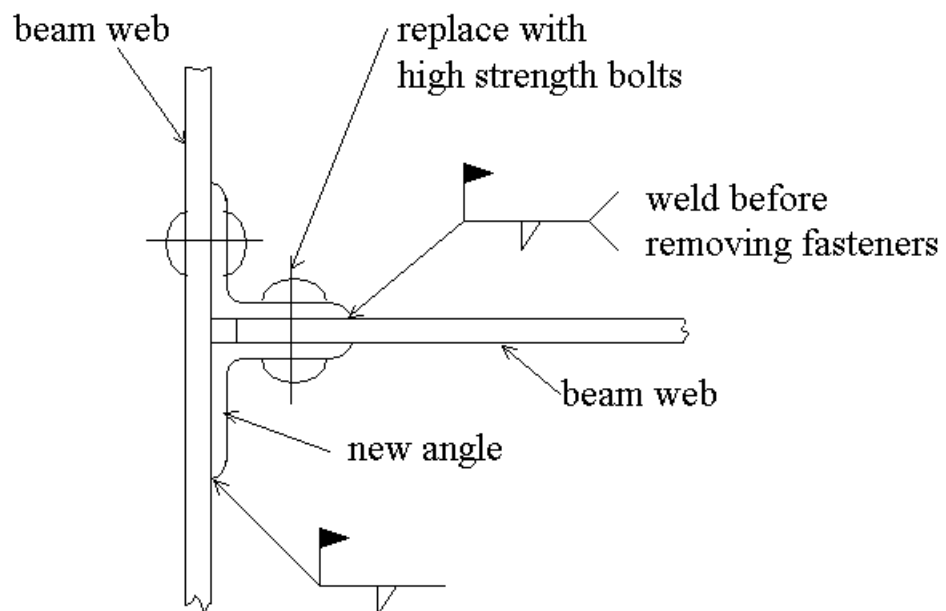


Figure 4.3.2.2 Adding Second Framing Angle

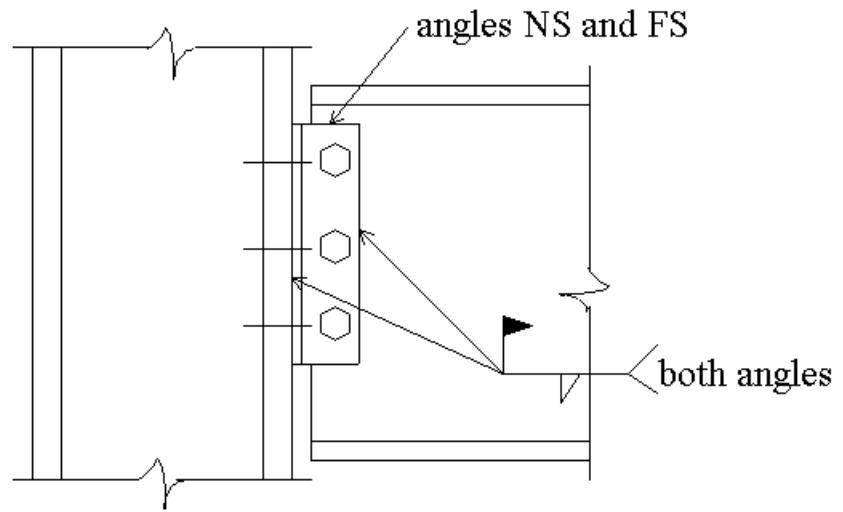


Figure 4.3.2.3 Fillet Weld Reinforcement

Rev.
5/1/03

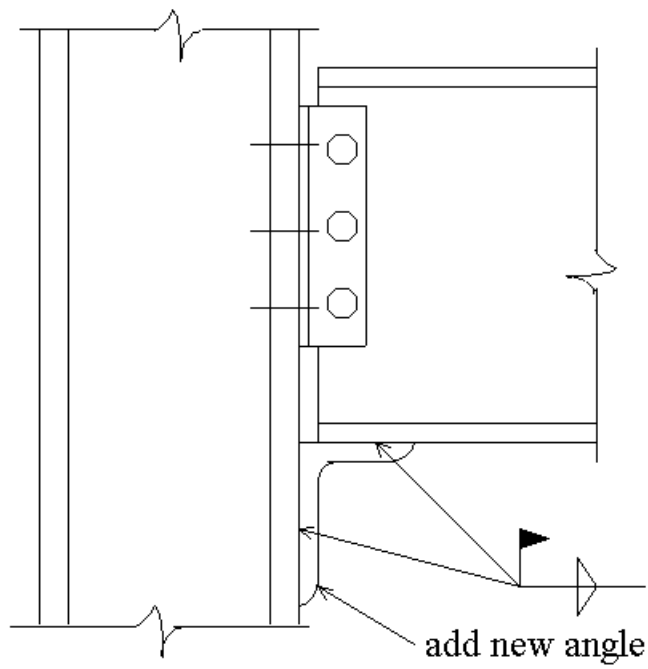


Figure 4.3.2.4 Seat Angle Addition

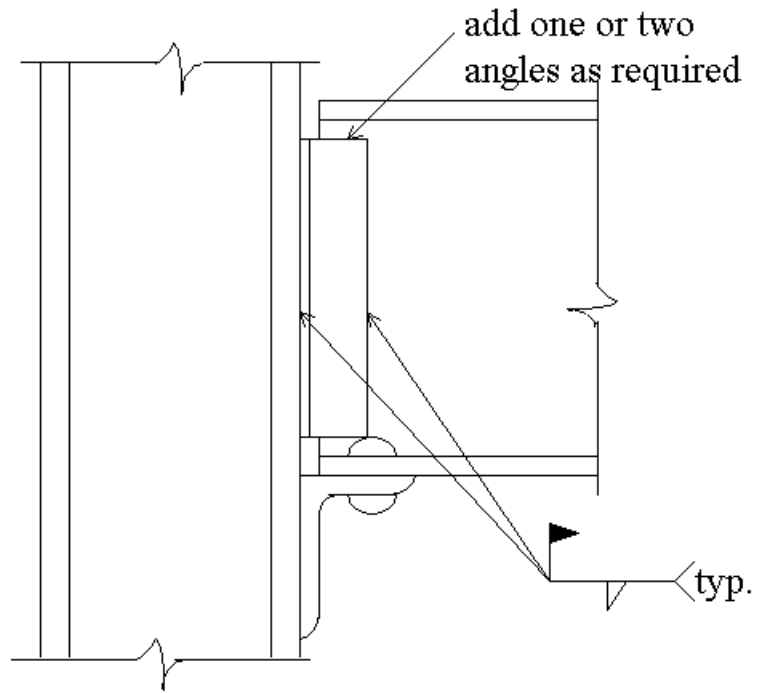


Figure 4.3.2.5 Framing Angle Addition

Rev.
5/1/03

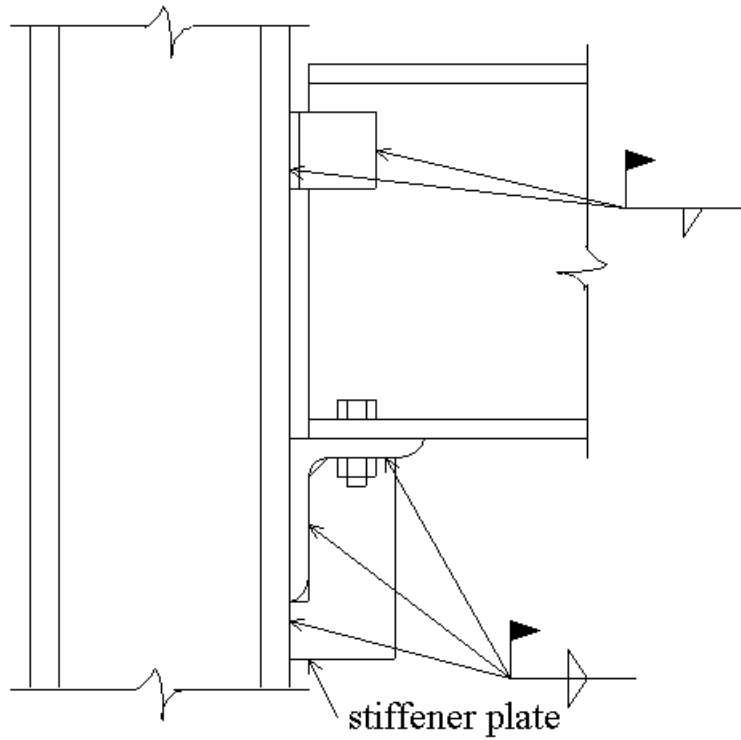


Figure 4.3.2.6 Strengthening an Unstiffened Seat Angle

Rev.
5/1/03

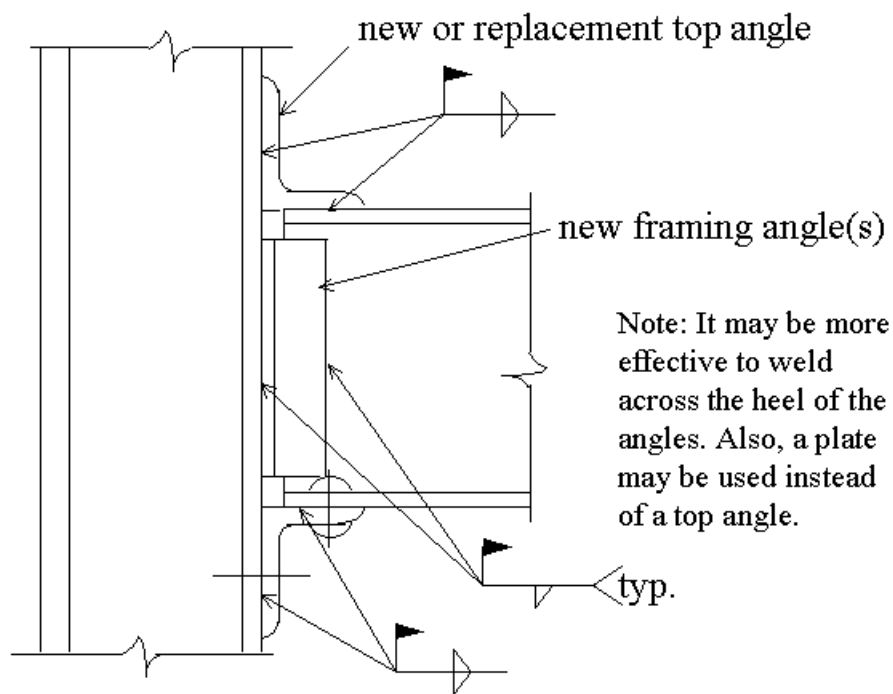


Figure 4.3.2.7 Upgrade of Unstiffened Seated Connection to PR Type

Rev.
5/1/03

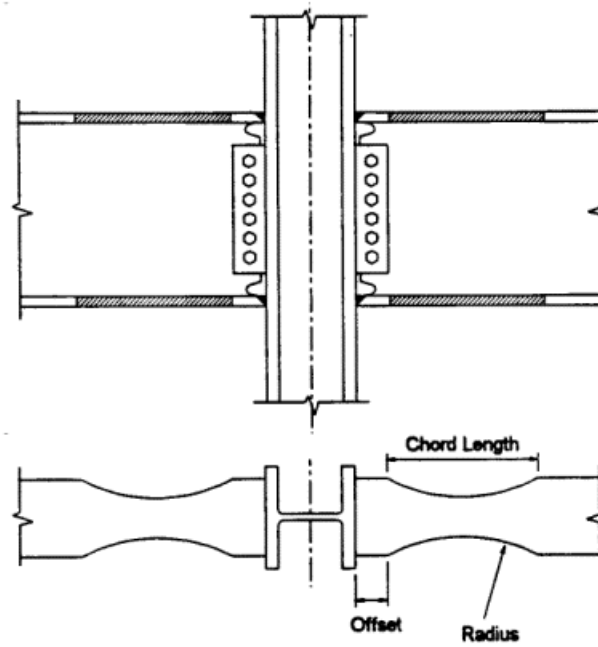


Fig. 4.3.3.1 Reduced Beam Section (RBS) Connection

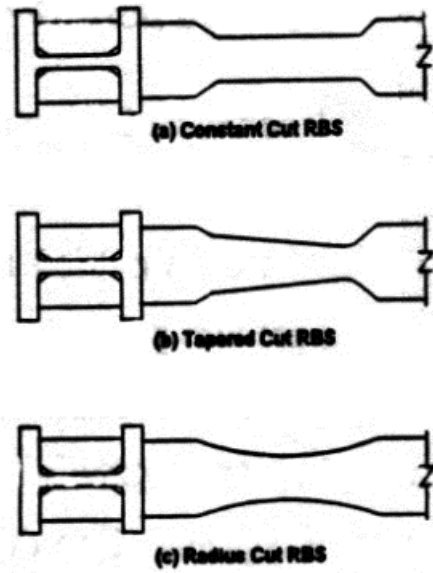


Fig. 4.3.3.2 Contour Detail for RBS Connection

Rev.
5/1/03

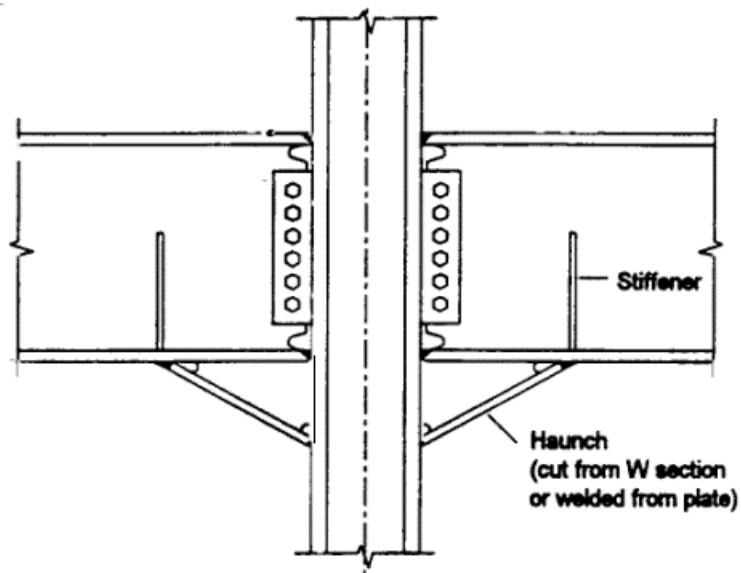


Fig. 4.3.3.3 Welded Haunch Connection

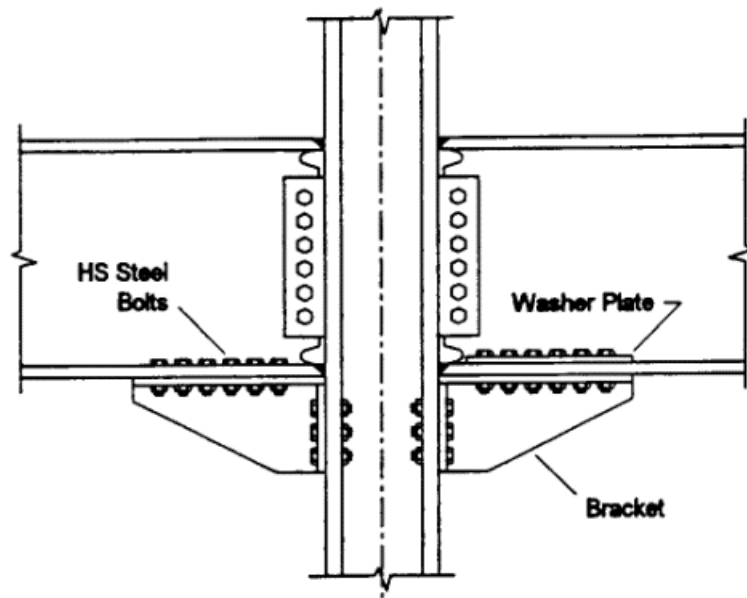


Fig. 4.3.3.4 Bolted Bracket Connection, Haunch Type

Rev.
5/1/03

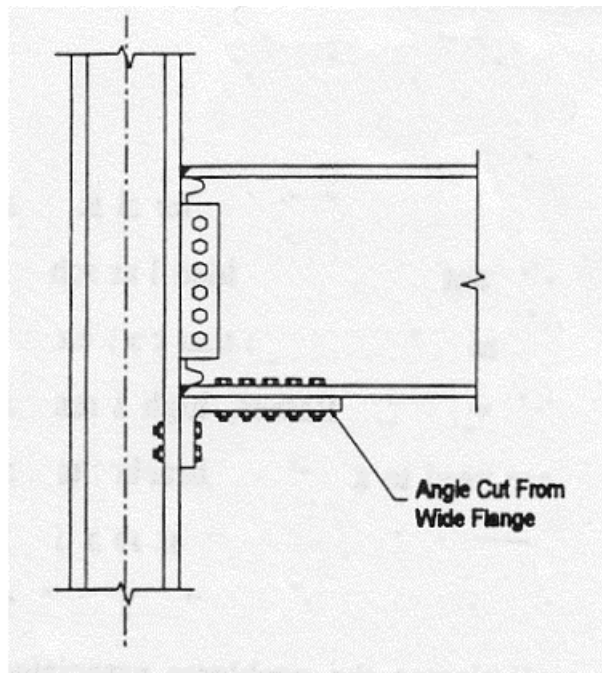


Fig. 4.3.3.5 Bolted Bracket Connection, Angle Type

Rev.
5/1/03

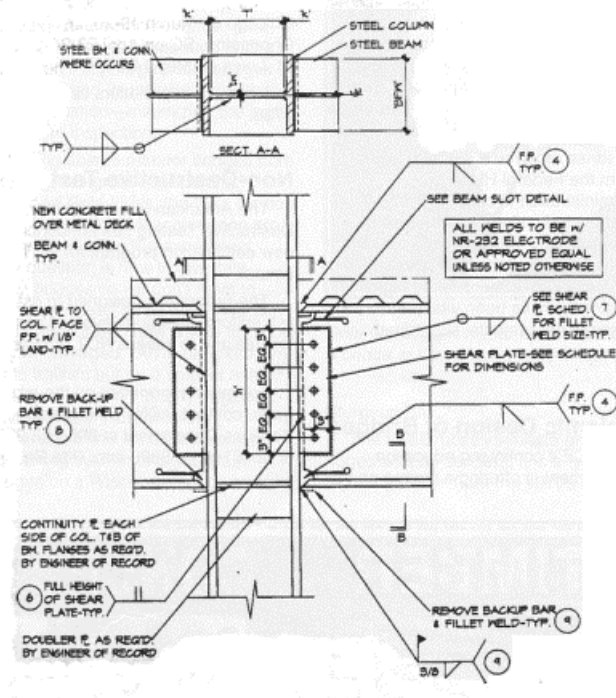


Fig. 4.3.3.6 Proprietary Slotted Beam Connection