



# STRUCTURAL

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## ANGLES

- Bar Size
- Structural

## CHANNELS

- Bar Size
- Ship and Car Channels
- Structural
- Stair Stringer (Junior) Channels

## BEAMS

- Standard I
- Junior
- Wide Flange and H

## TEES

- Bar Size

## TOLERANCES

# ANGLES - BAR SIZE

ASTM A-36 • 20' & 40' LENGTHS AVAILABLE  
 TENSILE STRENGTH: 58,000 / 80,000 PSI  
 YIELD POINT: 36,000 PSI MIN.

Leg	Leg	Thickness	Weight (per ft.)
1/2	1/2	1/8	0.38
5/8	5/8	1/8	0.48
3/4	3/4	1/8	0.59
1	1	1/8	0.80
		3/16	1.16
		1/4	1.49
1-1/4	1-1/4	1/8	1.01
		3/16	1.48
		1/4	1.92
1-3/8	7/8	1/8	0.91
		3/16	1.32
1-1/2	1-1/4	3/16	1.64
1-1/2	1-1/2	1/8	1.22
		3/16	1.80
		1/4	2.34
		3/8	3.35
1-3/4	1-1/4	1/8	1.23
		3/16	1.80
		1/4	2.34
1-3/4	1-3/4	1/8	1.44
		3/16	2.12
		1/4	2.77
2	1-1/4	3/16	1.96
		1/4	2.55
2	1-1/2	1/8	1.44
		3/16	2.12
		1/4	2.77
2	2	1/8	1.65
		3/16	2.44
		1/4	3.19
		5/16	3.92
		3/8	4.70
2-1/2	1-1/2	3/16	2.44
		1/4	3.16
		5/16	3.92
2-1/2	2	3/16	2.75
		1/4	3.62
		5/16	4.50
		3/8	5.30
2-1/2	2-1/2	3/16	3.07
		1/4	4.10
		5/16	5.00
		3/8	5.90
		1/2	7.70

STRUCTURAL

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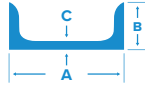
# ANGLES - STRUCTURAL

ASTM A-36 • 20' & 40' LENGTHS AVAILABLE  
 TENSILE STRENGTH: 58,000 • 80,000 PSI  
 YIELD POINT: 36,000 PSI MIN.

DIMENSIONS				DIMENSIONS			
Leg	Leg	Thickness	Weight (per ft.)	Leg	Leg	Thickness	Weight (per ft.)
3	2	3/16	3.07	5	3	1/4	6.6
		1/4	4.1			5/16	8.2
		5/16	5.0			3/8	9.8
		3/8	5.9			1/2	12.8
		1/2	7.7	5	3-1/2	1/4	7.0
3	2-1/2	1/4	4.5			5/16	8.7
		5/16	5.6			3/8	10.4
		3/8	6.6			1/2	13.6
		1/2	8.5			5/8	16.8
3	3	3/16	3.71			3/4	19.8
		1/4	4.9	5	5	5/16	10.3
		5/16	6.1			3/8	12.3
		3/8	7.2			1/2	16.2
		1/2	9.4			5/8	20.0
3-1/2	2-1/2	1/4	4.9			3/4	23.6
		5/16	6.1	6	3-1/2	5/16	9.8
		3/8	7.2			3/8	11.7
		1/2	9.4			1/2	15.3
3-1/2	3	1/4	5.4	6	4	5/16	10.3
		5/16	6.6			3/8	12.3
		3/8	7.9			1/2	16.2
		1/2	10.2			5/8	20.0
3-1/2	3-1/2	1/4	5.8			3/4	23.6
		5/16	7.2	6	6	5/16	12.4
		3/8	8.5			3/8	14.9
		1/2	11.1			1/2	19.6
4	3	1/4	5.8			5/8	24.2
		5/16	7.2			3/4	28.7
		3/8	8.5			1	37.4
		1/2	11.1	7	4	3/8	13.6
		5/8	13.6			1/2	17.9
4	3-1/2	1/4	6.2			3/4	26.2
		5/16	7.7	8	4	1/2	19.6
		3/8	9.1			3/4	28.7
		1/2	11.9	8	6	7/16	20.2
4	4	1/4	6.6			1/2	23.0
		5/16	8.2			3/4	33.8
		3/8	9.8			1	44.2
		1/2	12.8	8	8	1/2	26.4
		5/8	15.7			5/8	32.7
		3/4	18.5			3/4	38.9
						1	51.0
						1-1/8	56.9

## CHANNELS - BAR SIZE

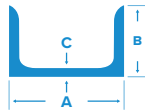
ASTM A-36 TENSILE STRENGTH: 58,000 / 80,000PSI  
YIELD POINT: 36,000 PSI Min.



A Depth	B Flange	C Web Thickness	Weight (per ft.)	A Depth	B Flange	C Web Thickness	Weight (per ft.)
3/4	3/8	1/8	.56	1-1/2	3/4	1/8	1.17
1	3/8	1/8	.68	2	1/2	1/8	1.43
1	1/2	1/8	.84	2	9/16	3/16	1.86
1-1/8	9/16	3/16	1.16	2	5/8	1/4	2.28
1-1/4	1/2	1/8	.99	2	1	1/8	1.59
1-1/2	1/2	1/8	1.12	2	1	3/16	2.32
1-1/2	9/16	3/16	1.44	2-1/2	5/8	3/16	2.27

## CHANNELS - SHIP AND CAR

ASTM A-36  
TENSILE STRENGTH: 58,000 / 80,000PSI  
YIELD POINT: 36,000 PSI Min.



A Depth	Wgt per ft.	C Thickness of Web	B Width of Flange	A Depth	Wgt per ft.	C Thickness of Web	B Width of Flange
3"	7.1	.313	1.938	10"	22.0	.290	3.315
4"	13.8	.500	2.500		28.5	.425	3.950
6"	12.0	.313	2.500		33.6	.575	4.100
	15.3	.340	3.500		41.1	.796	4.321
	16.3	.375	3.000	12"	32.9	.500	3.500
	18.0	.375	3.500		35.0	.467	3.767
7"	19.1	.350	3.450		45.0	.712	4.012
	22.7	.500	3.600		50.0	.835	4.135
8"	18.7	.350	2.975	13"	31.8	.375	4.000
	20.0	.400	3.025		35.0	.447	4.072
	21.4	.375	3.450		40.0	.560	4.185
	22.8	.425	3.500		50.0	.787	4.412
9"	25.4	.450	3.500	18"	42.7	.450	3.950
					45.8	.500	4.000
					51.9	.600	4.100
					58.0	.700	4.200

## CHANNELS - STRUCTURAL

ASTM A-36 MODIFIED  
YIELD POINT: 50,000 PSI Min.

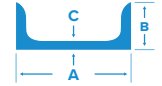
### A-36



A Depth	Weight (per ft.)	C Thickness of Web	B Width of Flange
3"	3.5	0.130	1.375
4"	4.5	0.135	1.590

## CHANNELS - STRUCTURAL

ASTM A-36 • 20' & 40' LENGTHS AVAILABLE  
TENSILE STRENGTH: 58,000 / 80,000 PSI  
YIELD POINT: 36,000 PSI MIN.



A Depth	Weight (per ft.)	C Thickness of Web	B Width of Flange
3"	4.1	0.170	1.410
	5.0	0.258	1.498
	6.0	0.356	1.596
4"	5.4	0.180	1.580
	6.25	0.247	1.647
	7.25	0.320	1.720
5"	6.7	0.190	1.750
	9.0	0.325	1.885
	10.5	0.314	2.034
6"	8.2	0.200	1.920
	13.0	0.437	2.157
	9.8	0.210	2.090
7"	12.25	0.314	2.194
	14.75	0.419	2.299
	11.5	0.220	2.260
8"	13.75	0.303	2.343
	18.75	0.487	2.527
	13.4	0.230	2.430
9"	15.0	0.285	2.485
	20.0	0.448	2.648
	15.3	0.240	2.600
10"	20.0	0.379	2.739
	25.0	0.526	2.886
	30.0	0.673	3.033
12"	20.7	0.280	2.940
	25.0	0.387	3.047
	30.0	0.510	3.170
15"	33.9	0.400	3.400
	40.0	0.520	3.520
	50.0	0.716	3.716

## CHANNELS - STAIR STRINGER

(JUNIOR)  
ASTM A-36  
TENSILE STRENGTH: 58,000 / 80,000 PSI  
YIELD POINT: 36,000 PSI Min.



A Depth	Weight (per ft.)	C Thickness of Web	B Width of Flange
8"	8.5	0.180	1.875
10"	6.5	0.150	1.125
12"	8.4	0.170	1.500
	10.6	0.190	1.500

# AMERICAN STANDARD I-BEAM

ASTM A-36

TENSILE STRENGTH: 58,000 / 80,000 PSI

YIELD POINT: 36,000 PSI Min



A Depth	Weight (per ft.)	C Thickness of Web	B Width of Flange
3"	5.7	.170	2.330
	7.5	.349	2.509
4"	7.7	.190	2.660
	9.5	.326	2.796
5"	10.0	.210	3.000
	14.75	.494	3.284
6"	12.5	.230	3.330
	17.25	.465	3.565
7"	15.3	.250	3.660
	20	.450	3.860
8"	18.4	.270	4.000
	23.0	.441	4.171
10"	25.4	.310	4.660
	35.0	.594	4.944
12"	31.8	.350	5.000
	35.0	.428	5.078
	40.8	.460	5.250
	50.0	.687	5.477
15"	42.9	.410	5.500
	50.0	.550	5.640
18"	54.7	.460	6.000
	70.0	.711	6.251
20"	66.0	.505	6.255
	75.0	.635	6.385
	86.0	.660	7.060
	96.0	.800	7.200
24"	80.0	.500	7.000
	90.0	.625	7.125
	100.0	.745	7.245
	106.0	.620	7.870
	121.0	.800	8.050

# JUNIOR BEAMS

ASTM A-36

TENSILE STRENGTH: 58,000 / 80,000 PSI • YIELD

POINT: 36,000 PSI Min.



A Depth	Weight (per ft.)	C Thickness of Web	B Width of Flange
6"	4.4	.114	1.84
8"	6.5	.135	2.28
10"	9.0	.155	2.69
12"	11.8	.175	3.06

# WIDE FLANGE AND H BEAMS

\* ASTM A992 / A572 GRADE 50 / ASTM A-36

TENSILE STRENGTH: 65,000 MIN. PSI

YIELD POINT: 50,000 MIN. - 65,000 MAX. PSI



Nominal Depth	Weight (per ft.)	A Depth of Section	D Flange Thickness	B Width of Flange	C Thickness of Web
W 4 x	13.0	4.16	0.345	4.060	0.280
	W 5 x	16.0	5.01	0.360	5.000
W 5 x	19.0	5.15	0.430	5.030	0.270
	W 6 x	9.0	5.90	0.215	3.940
W 8 x	12.0	6.03	0.280	4.000	0.230
	15.0	5.99	0.260	5.990	0.230
	16.0	6.28	0.405	4.030	0.260
	20.0	6.20	0.365	6.020	0.260
	25.0	6.38	0.455	6.080	0.320
	10.0	7.89	0.205	3.940	0.170
	13.0	7.99	0.255	4.000	0.230
	15.0	8.11	0.315	4.015	0.245
	18.0	8.14	0.330	5.250	0.230
	21.0	8.28	0.400	5.270	0.250
W 10 x	24.0	7.93	0.400	6.495	0.245
	28.0	8.06	0.465	6.535	0.285
	31.0	8.00	0.435	7.995	0.285
	35.0	8.12	0.495	8.020	0.310
	40.0	8.25	0.560	8.070	0.360
	48.0	8.50	0.685	8.110	0.400
	58.0	8.75	0.810	8.220	0.510
	67.0	9.00	0.935	8.280	0.570
	12.0	9.87	0.210	3.960	0.190
	15.0	9.99	0.270	4.000	0.230
	17.0	10.11	0.330	4.010	0.240
	19.0	10.24	0.395	4.020	0.250
	22.0	10.17	0.360	5.750	0.240
	26.0	10.33	0.440	5.770	0.260
30.0	10.47	0.510	5.810	0.300	
33.0	9.73	0.435	7.960	0.290	
39.0	9.92	0.530	7.985	0.315	
45.0	10.10	0.620	8.020	0.350	
49.0	9.98	0.560	10.000	0.340	
54.0	10.09	0.620	10.030	0.370	
60.0	10.22	0.680	10.080	0.420	
68.0	10.40	0.770	10.130	0.470	
77.0	10.60	0.870	10.190	0.530	
88.0	10.84	0.990	10.265	0.605	
100.0	11.10	1.120	10.340	0.680	
112.0	11.36	1.250	10.415	0.755	
W 12 x	14.0	11.91	0.225	3.970	0.200
	16.0	11.99	0.265	3.990	0.220
	19.0	12.16	0.350	4.005	0.235
	22.0	12.31	0.425	4.030	0.260
	26.0	12.22	0.380	6.490	0.230
	30.0	12.34	0.440	6.520	0.260
	35.0	12.50	0.520	6.560	0.300
	40.0	11.94	0.515	8.005	0.295

# WIDE FLANGE AND H BEAMS

\*ASTM A992 / A572 GRADE 50

TENSILE STRENGTH: 65,000 MIN. PSI

YIELD POINT: 50,000 MIN.- 65,000 MAX. PSI



Nominal Depth	Weight (per ft.)	A Depth of Section	D Flange Thickness	B Width of Flange	C Thickness of Web
<b>W 12 x</b>	45.0	12.06	0.575	8.045	0.335
	50.0	12.19	0.640	8.080	0.370
	53.0	12.06	0.575	9.995	0.345
	58.0	12.19	0.640	10.010	0.360
	65.0	12.12	0.605	12.000	0.390
	72.0	12.25	0.670	12.040	0.430
	79.0	12.38	0.735	12.080	0.470
	87.0	12.53	0.810	12.125	0.515
	96.0	12.71	0.900	12.160	0.550
	106.0	12.89	0.990	12.220	0.610
	120.0	13.12	1.105	12.320	0.710
	136.0	13.41	1.250	12.400	0.790
	152.0	13.71	1.400	12.480	0.870
	170.0	14.03	1.560	12.570	0.960
	190.0	14.38	1.735	12.670	1.060
<b>W 14 x</b>	22.0	13.74	0.335	5.000	0.230
	26.0	13.91	0.420	5.025	0.255
	30.0	13.84	0.385	6.730	0.270
	34.0	13.98	0.455	6.745	0.285
	38.0	14.10	0.515	6.770	0.310
	43.0	13.66	0.530	7.995	0.305
	48.0	13.79	0.595	8.030	0.340
	53.0	13.92	0.660	8.060	0.370
	61.0	13.89	0.645	9.995	0.375
	68.0	14.04	0.720	10.035	0.415
	74.0	14.17	0.785	10.070	0.450
	82.0	14.31	0.855	10.130	0.510
	90.0	14.02	0.710	14.520	0.440
	99.0	14.16	0.780	14.565	0.485
	109.0	14.32	0.860	14.605	0.525
	120.0	14.48	0.940	14.670	0.590
	132.0	14.66	1.030	14.725	0.645
	145.0	14.78	1.090	15.500	0.680
	159.0	14.98	1.190	15.565	0.745
	176.0	15.22	1.310	15.650	0.830
	193.0	15.48	1.440	15.710	0.890
	211.0	15.72	1.560	15.800	0.980
	233.0	16.04	1.720	15.890	1.070
	257.0	16.38	1.560	15.995	1.175
	283.0	16.74	1.720	16.110	1.290
	311.0	17.12	1.890	16.230	1.410
	342.0	17.54	2.070	16.360	1.540
	370.0	17.92	2.660	16.475	1.655
	398.0	18.29	2.845	16.590	1.770
<b>W 16 x</b>	26.0	15.69	0.345	5.500	0.250
	31.0	15.88	0.440	5.525	0.275
	36.0	15.86	0.430	6.985	0.295
	40.0	16.01	0.505	6.995	0.305
	45.0	16.13	0.565	7.035	0.345

# WIDE FLANGE AND H BEAMS

\*ASTM A992 / A572 GRADE 50 / ASTM A-36

TENSILE STRENGTH: 65,000 MIN. PSI

YIELD POINT: 50,000 MIN. - 65,000 MAX. PSI



Nominal Depth	Weight (per ft.)	A Depth of Section	D Flange Thickness	B Width of Flange	C Thickness of Web
<b>W 16 x</b>	50.0	16.26	0.630	7.070	0.380
	57.0	16.43	0.715	7.120	0.430
	67.0	16.33	0.665	10.235	0.395
	77.0	16.52	0.760	10.295	0.455
	89.0	16.75	0.875	10.365	0.525
	100.0	16.97	0.985	10.425	0.585
<b>W 18 x</b>	35.0	17.70	0.425	6.000	0.300
	40.0	17.90	0.525	6.015	0.315
	46.0	18.06	0.605	6.060	0.360
	50.0	17.99	0.570	7.495	0.355
	55.0	18.11	0.630	7.530	0.390
	60.0	18.24	0.695	7.555	0.415
	65.0	18.35	0.750	7.590	0.450
	71.0	18.47	0.810	7.635	0.495
	76.0	18.21	0.680	11.035	0.425
	86.0	18.39	0.770	11.090	0.480
	97.0	18.59	0.870	11.145	0.535
	106.0	18.73	0.940	11.200	0.590
	119.0	18.97	1.060	11.265	0.655
	130.0	19.25	1.200	11.160	0.670
	143.0	19.49	1.320	11.220	0.730
<b>W 21 x</b>	44.0	20.66	0.450	6.500	0.350
	50.0	20.83	0.535	6.530	0.380
	57.0	21.06	0.650	6.555	0.405
	62.0	20.99	0.615	8.240	0.400
	68.0	21.13	0.685	8.270	0.430
	73.0	21.24	0.740	8.295	0.455
	83.0	21.43	0.835	8.355	0.515
	93.0	21.62	0.930	8.420	0.580
	101.0	21.36	0.800	12.290	0.500
	111.0	21.51	0.875	12.340	0.550
	122.0	21.68	0.960	12.390	0.600
	132.0	21.83	1.035	12.440	0.650
	147.0	22.06	1.150	12.510	0.720
	166.0	22.48	1.360	12.420	0.750
<b>W 24 x</b>	55.0	23.57	0.505	7.005	0.395
	62.0	23.74	0.590	7.040	0.430
	68.0	23.73	0.585	8.965	0.415
	76.0	23.92	0.680	8.990	0.440
	84.0	24.10	0.770	9.020	0.470
	94.0	24.31	0.875	9.065	0.515
	104.0	24.06	0.750	12.750	0.500
	117.0	24.26	0.850	12.800	0.550
	131.0	24.48	0.960	12.855	0.605

\* May include A-36

# WIDE FLANGE AND H BEAMS

\*ASTM A992 / A572 GRADE 50 / ASTM A-36  
 TENSILE STRENGTH: 65,000 MIN. PSI  
 YIELD POINT: 50,000 MIN. - 65,000 MAX. PSI

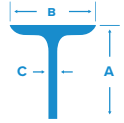


Nominal Depth	Weight (per ft.)	A Depth of Section	D Flange Thickness	B Width of Flange	C Thickness of Web
<b>W 24 x</b>	146.0	24.74	1.090	12.900	.650
	162.0	25.00	1.220	12.955	.705
	176.0	25.24	1.340	12.890	.750
<b>W 27 x</b>	84.0	26.71	0.640	9.960	0.460
	94.0	26.92	0.745	9.990	0.490
	102.0	27.09	0.830	10.015	0.515
	114.0	27.29	0.930	10.070	0.570
	129.0	27.63	1.100	10.010	0.610
	146.0	27.38	0.975	13.965	0.605
	161.0	27.59	1.080	14.020	0.660
<b>W 30 x</b>	178.0	27.81	1.190	14.085	0.725
	99.0	29.65	0.670	10.450	0.520
	108.0	29.83	0.760	10.475	0.545
	116.0	30.01	0.850	10.495	0.565
	124.0	30.17	0.930	10.515	0.585
	132.0	30.31	1.000	10.545	0.615
	173.0	30.44	1.065	14.985	0.655
	191.0	30.68	1.185	15.040	0.710
	211.0	30.94	1.315	15.105	0.775
	235.0	31.30	1.500	15.055	0.830
	<b>W 33 x</b>	118.0	32.86	0.740	11.480
130.0		33.09	0.855	11.510	0.580
141.0		33.30	0.960	11.535	0.605
152.0		33.49	1.055	11.565	0.635
201.0		33.68	1.150	15.745	0.715
221.0		33.93	1.275	15.805	0.775
241.0		34.18	1.400	15.860	0.830
263.0		34.53	1.570	15.805	0.870
291.0		34.84	1.730	15.905	0.960
318.0		35.16	1.890	15.985	1.040
354.0		35.55	2.090	16.100	1.160
<b>W 36 x</b>	135.0	35.55	0.790	11.950	0.600
	150.0	35.85	0.940	11.975	0.625
	160.0	36.01	1.020	12.000	0.650
	170.0	36.17	1.100	12.030	0.680
	182.0	36.33	1.180	12.075	0.725
	194.0	36.49	1.260	12.115	0.765
	210.0	36.69	1.360	12.180	0.830
	230.0	35.90	1.260	16.470	0.760
	232.0	37.12	1.570	12.120	0.870
	245.0	36.08	1.350	16.510	0.800
	256.0	37.43	1.730	12.215	0.960
	260.0	36.26	1.440	16.550	0.840
	280.0	36.52	1.570	16.595	0.885
	300.0	36.74	1.680	16.655	0.945
328.0	37.09	1.850	16.630	1.020	
359.0	37.40	2.010	16.730	1.120	

\* May include A-36

# TEES-BAR SIZE HOT ROLLED

ASTM A-36  
 TENSILE STRENGTH: 58,000/80,000 PSI  
 YIELD POINT: 36,000 MM. PSI



A Stem	B Flange	C Stem Thickness	Weight (per ft.)
<b>1</b>		1/8	0.85
		3/16	1.20
<b>1-1/4</b>	1-1/4	1/8	1.09
		3/16	1.55
<b>1-1/2</b>	1-1/2	1/4	1.93
		3/16	1.90
		1/4	2.43
<b>1-3/4</b>	1-3/4	3/16	2.26
		1/4	3.62
<b>2</b>	2	5/16	4.40
		1/4	4.60
<b>2-1/2</b>	2-1/2	1/4	4.60

## SPECIAL TEE SECTIONS

Steel Cities Steels offers a wider range of Tee sizes from stock. By flame cutting through the length of the web of Standard Wide Flange or I-Beams we can furnish Tees to your exact specification.

# STRUCTURAL TOLERANCES

PERMISSIBLE VARIATIONS IN WIDE FLANGE SHAPES  
STRAIGHTNESS - CAMBER AND SWEEP

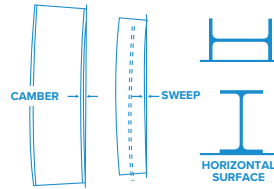
Wide Flange Shapes	Permissible Variation	
All, except following: When certain shapes** with a flange width approximately equal to depth are specified on order as columns:	$1/8''$	$x \frac{\text{number of feet of total length}^*}{10}$
Lengths of 45 feet and under	$1/8''$	$x \frac{\text{number of feet of total length but not over } 3/8''}{10}$
Lengths over 45 feet	$3/8'' + 1/8''$	$x \frac{\text{number of feet of total length} - 45}{10}$
Shapes with a flange width less than 6 inches, variation for sweep	$= 1/8''$	$x \frac{\text{number of feet of total length}}{5}$

\*\*Applies only to:  
8 inch deep shapes 31 lbs. per foot and heavier,  
10 inch deep shapes 49 lbs. per foot and heavier,  
12 inch deep shapes 65 lbs. per foot and heavier, and  
14 inch deep shapes 90 lbs. per foot and heavier,  
If other shapes are specified on the order as columns,  
the variation will be subject to negotiation with the manufacturer.

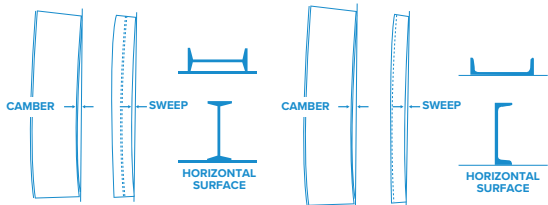
### Ends Out-of-Square

S, M, C, MC Shapes 1/64" per inch of depth  
S - American Standard Beams  
M - Miscellaneous Beams

C - American Standard Channels  
MC - Miscellaneous Channels



Straightness	Permissible Variation	
Camber	$1/8''$	$x \frac{\text{number of feet of total length}}{10}$
Sweep	Due to the extreme variations in flexibility of standard beams and channels, sweep tolerances are subject to negotiations for the individual shapes involved.	



# STRUCTURAL TOLERANCES

PERMISSIBLE VARIATIONS IN CROSS SECTION FOR W, HP, S, M, C, AND MC SHAPES

Shape	Section Nominal Sizes (inches)	Depth (inches)		Flange Width (inches)		Flange Out-of-Square, max.in <sup>AB</sup>
		Over Theoretical	Under Theoretical	Over Theoretical	Under Theoretical	
<b>W and H</b>	Up thru 12	1/8	1/8	1/4	3/16	1/4
	Over 12	1/8	1/8	1/4	3/16	5/16
<b>S and M</b>	3 thru 7	3/32	1/16	1/8	1/8	1/32
	Over 7 thru 14	1/8	3/32	5/32	5/32	1/32
	Over 14 thru 24	3/16	1/8	3/16	3/16	1/32
<b>C and MC</b>	Up thru 1-1/2	1/32	1/32	1/32	1/32	1/32
	Over 1-1/2 up to 3	1/16	1/16	1/16	1/16	1/32
	3 thru 7	3/32	1/16	1/8	1/8	1/32
	Over 7 thru 14	1/8	3/32	1/8	5/32	1/32
	Over 14	3/16	1/8	1/8	3/16	1/32

- A. Applies when flanges of channels are toed in or out. For channels 5/8" and under in depth, the permissible out-of-square is 3/64 inch of depth.
- B. Tolerance is per inch of flange width for S, M, C, and MC shapes

# STRUCTURAL TOLERANCES

## PERMISSIBLE VARIATIONS IN CROSS SECTION FOR ANGLES (L SHAPES)

Shape	Section Nominal Sizes (inches)	Depth (inches)		Flange Width or Length of Leg (inches)		Out of Square per Inch, In.	Flange Width or Length of Leg (inches)		
		Over Theoretical	Under Theoretical	Over Theoretical	Under Theoretical		Up thru 3/16	Over 3/16 thru 3/8	Over 3/8
<b>Angles<sup>A</sup> (L Shapes)</b>	Up thru 1	-	-	1/32	1/32	3/128 <sup>B</sup>	0.008	0.010	-
	Over 1 thru 2	-	-	3/64	3/64	3/128 <sup>B</sup>	0.010	0.010	0.012
	Over 2 thru 3	-	-	1/16	1/16	3/128 <sup>B</sup>	0.012	0.015	0.015
	Over 3 thru 4	-	-	1/8	3/32	3/128 <sup>B</sup>	-	-	-
	Over 4 thru 6	-	-	1/8	1/8	3/128 <sup>B</sup>	-	-	-
	Over 6	-	-	3/16	1/8	3/128 <sup>B</sup>	-	-	-

**A.** For unequal leg angles, longer leg determines classifications,

**B.** 3/128 inch = 1-1/2 deg.