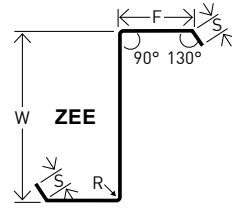


# Purlins and EZ-Form® Structural Sections



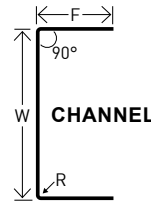
**AEP Span** is your source for steel components in the solar mounting, residential framing and pre-engineered metal building markets. We offer a broad range of light gauge steel components to meet your project needs.

- Broad range of manufacturing capabilities that encompass several variations in part sizes and punching locations.
- Optimum versatility in custom requested punch patterns and punch placements on web and flange areas.
- Large selection of standard punch shapes and sizes.



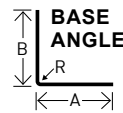
## ZEE SECTION CAPABILITIES

**Web Height (W):** 4" min - 20" max  
**Flange Size (F):** 1½" min - 4½" max  
**Inside Bend Radius (R):** 0.188" typ.  
**Stiffener Lip Length (S):** ¾" max lip with 1½" flange, 1¼" max lip with 2" or greater flange.  
 (Maximum stiffener lip length determined by flange width.)  
**Steel Thickness:** 0.047" (18ga) min to 0.105" (12ga)



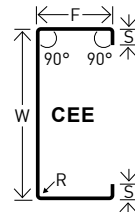
## CHANNEL CAPABILITIES

**Web Height (W):** 4" min - 20" max  
**Inside Bend Radius (R):** 0.188" typ.  
**Flange Size (F):** 1½" min - 4½" max  
**Steel Thickness:** 0.047" (18ga) min to 0.105" (12ga)



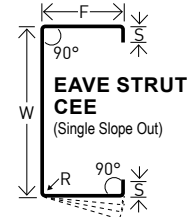
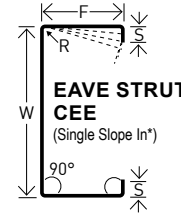
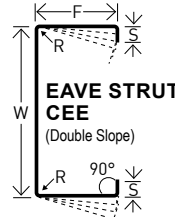
## BASE ANGLE CAPABILITIES

**Web Size (A):** 2" min - 5" max  
**Leg Size (B):** 2" min - 5" max  
**Inside Bend Radius (R):** 0.188" typ.  
**Steel Thickness:** 0.047" (18ga) min to 0.105" (12ga)



## CEE SECTION CAPABILITIES

**Web Height (W):** 4" min - 20" max  
**Flange Size (F):** 1½" min - 5" max  
**Inside Bend Radius (R):** 0.188" typ.  
**Stiffener Lip Length (S):** ¾" max lip with 1½" flange, 1¼" max lip with 3" or greater flange.  
 (Maximum stiffener lip length determined by flange width.)  
**Steel Thickness:** 0.047" (18ga) min to 0.105" (12ga)



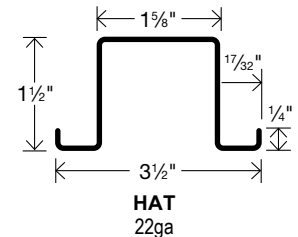
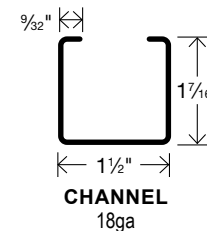
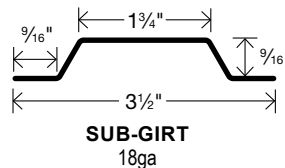
## EAVE STRUT CEE CAPABILITIES

**Slope:** 1:12 - 4:12  
**Web Height (W):** 8" min - 14" max  
**Flange Size (F):** 2½" min to 5" max  
**Inside Bend Radius (R):** 0.188"  
**Stiffener Lip Length (S):** ¾"  
**Steel Thickness:** 0.047" (18ga) min to 0.105" (12ga)  
 \*Note: On Single Slope In Eave Strut 8" web not available in 3:12 or 4:12 slope.

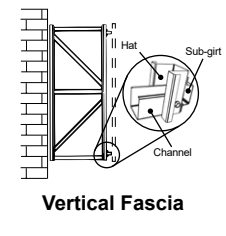
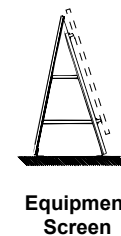
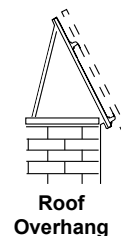
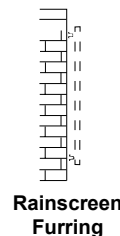
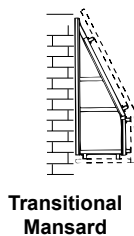
## EZ-FORM® STRUCTURAL SECTIONS (Length 20'-0")

**EZ-Form** structural sections are light gauge framing solution for maximum design flexibility and ease of installation.

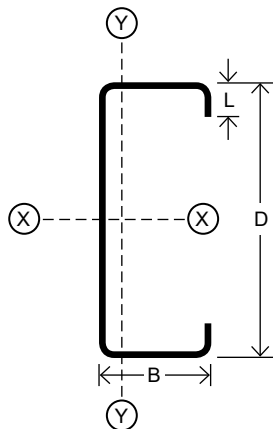
- Nestable hats and channels can be joined without a separate clip angle, increasing speed and reducing cost of on-site fabrication.
- Cost effective alternative to structural steel or wood framing.
- Precision roll formed in twenty foot lengths.
- Hot-dipped galvanized conforming to ASTM A-653, G-60 minimum.



## Common Applications



# Section Properties



## Cee Purlins

Physical Properties						Gross Properties							Effective Properties			Torsional Properties		
D (web) (in)	B (flange) (in)	Ga. (nom)	L (lip) (in)	Weight (lb/ft)	Area (in <sup>2</sup> )	X-X Axis			Y-Y Axis				Ae (in <sup>2</sup> )	Ixe (in <sup>4</sup> )	Sxe (in <sup>3</sup> )	J (x10 <sup>-3</sup> ) (in <sup>4</sup> )	Cw (in <sup>6</sup> )	Xo (in)
						Ix (in <sup>4</sup> )	Sx (in <sup>3</sup> )	Rx (in)	Iy (in <sup>4</sup> )	Sy <sub>L</sub> (in <sup>3</sup> )	Sy <sub>R</sub> (in <sup>3</sup> )	Ry (in)						
4	2.25	12	1.17	3.57	1.050	2.533	1.267	1.553	0.827	0.874	0.634	0.887	1.032	2.533	1.267	3.859	4.596	-2.203
		14	1.08	2.38	0.700	1.744	0.872	1.578	0.560	0.606	0.423	0.895	0.600	1.712	0.846	1.143	2.953	-2.190
		16	1.05	2.01	0.590	1.484	0.742	1.586	0.475	0.517	0.356	0.897	0.460	1.417	0.688	0.685	2.460	-2.186
4	2.5	12	0.92	3.57	1.050	2.684	1.342	1.599	0.952	0.961	0.630	0.952	1.032	2.684	1.342	3.859	4.173	-2.277
		14	0.83	2.38	0.700	1.841	0.920	1.622	0.640	0.663	0.417	0.956	0.559	1.750	0.842	1.143	2.677	-2.256
		16	0.81	2.01	0.590	1.565	0.782	1.629	0.541	0.565	0.351	0.958	0.435	1.446	0.684	0.685	2.231	-2.250
5	2	12	0.92	3.57	1.050	3.893	1.557	1.925	0.608	0.869	0.468	0.761	0.960	3.893	1.557	3.859	3.685	-1.662
		14	0.83	2.38	0.700	2.656	1.062	1.948	0.410	0.605	0.310	0.765	0.569	2.656	1.062	1.143	2.406	-1.647
		16	0.81	2.01	0.590	2.255	0.902	1.955	0.347	0.517	0.261	0.767	0.451	2.236	0.899	0.685	2.015	-1.643
5	2.125	12	0.79	3.57	1.050	3.979	1.592	1.947	0.656	0.914	0.466	0.790	0.960	3.979	1.592	3.859	3.647	-1.692
		14	0.71	2.38	0.700	2.710	1.084	1.968	0.440	0.634	0.307	0.793	0.545	2.658	1.047	1.143	2.377	-1.675
		16	0.68	2.01	0.590	2.299	0.920	1.974	0.371	0.541	0.258	0.793	0.406	2.175	0.838	0.685	1.990	-1.669
6	2.25	12	1.17	4.28	1.260	6.683	2.228	2.303	0.967	1.212	0.665	0.876	1.086	6.683	2.228	4.631	8.910	-1.926
		14	1.08	2.86	0.840	4.546	1.515	2.326	0.653	0.841	0.443	0.881	0.616	4.469	1.474	1.372	5.848	-1.913
		16	1.05	2.41	0.708	3.855	1.285	2.334	0.552	0.717	0.373	0.883	0.469	3.687	1.195	0.822	4.904	-1.909
6	2.5	12	0.92	4.28	1.260	6.937	2.313	2.347	1.106	1.326	0.664	0.937	1.086	6.937	2.313	4.631	8.840	-1.992
		14	0.83	2.86	0.840	4.707	1.569	2.367	0.741	0.914	0.439	0.940	0.574	4.467	1.436	1.372	5.787	-1.974
		16	0.80	2.41	0.708	3.989	1.330	2.374	0.626	0.779	0.369	0.940	0.444	3.695	1.172	0.822	4.848	-1.968
7	2	12	0.92	4.28	1.260	8.735	2.496	2.633	0.682	1.151	0.484	0.736	0.995	8.735	2.496	4.631	7.166	-1.448
		14	0.83	2.86	0.840	5.913	1.689	2.653	0.458	0.803	0.321	0.739	0.579	5.913	1.689	1.372	4.738	-1.437
		16	0.80	2.41	0.708	5.006	1.430	2.659	0.387	0.687	0.270	0.740	0.457	4.969	1.414	0.822	3.981	-1.433
7	2.125	12	0.79	4.28	1.260	8.863	2.532	2.652	0.733	1.209	0.483	0.763	0.995	8.863	2.532	4.631	7.304	-1.478
		14	0.71	2.86	0.840	5.992	1.712	2.671	0.491	0.840	0.318	0.764	0.555	5.871	1.654	1.372	4.816	-1.463
		16	0.68	2.41	0.708	5.072	1.449	2.677	0.414	0.717	0.267	0.765	0.412	4.807	1.329	0.822	4.043	-1.458
7	3	12	0.92	5.00	1.470	11.231	3.209	2.764	1.808	1.872	0.889	1.109	1.138	10.936	3.061	5.402	18.568	-2.316
		14	0.83	3.33	0.980	7.593	2.170	2.784	1.208	1.284	0.587	1.111	0.588	6.866	1.841	1.601	12.185	-2.297
		16	0.80	2.81	0.826	6.428	1.836	2.790	1.102	1.091	0.493	1.111	0.456	5.693	1.510	0.958	10.217	-2.290
8	2.25	12	1.17	5.00	1.470	13.353	3.338	3.014	1.067	1.544	0.684	0.852	1.110	13.353	3.338	5.402	15.435	-1.712
		14	1.08	3.33	0.980	9.028	2.257	3.035	0.719	1.072	0.455	0.856	0.623	8.874	2.196	1.601	10.229	-1.702
		16	1.05	2.81	0.826	7.642	1.911	3.042	0.608	0.915	0.383	0.858	0.473	7.320	1.784	0.958	8.602	-1.699

# Cee Purlins

Physical Properties						Gross Properties							Effective Properties			Torsional Properties		
D (web) (in)	B (flange) (in)	Ga. (nom)	L (lip) (in)	Weight (lb/ft)	Area (in <sup>2</sup> )	X-X Axis			Y-Y Axis				Ae (in <sup>2</sup> )	Ixe (in <sup>4</sup> )	Sxe (in <sup>3</sup> )	J (x10 <sup>-3</sup> ) (in <sup>4</sup> )	Cw (in <sup>6</sup> )	Xo (in)
						Ix (in <sup>4</sup> )	Sx (in <sup>3</sup> )	Rx (in)	Iy (in <sup>4</sup> )	Sy <sub>L</sub> (in <sup>3</sup> )	Sy <sub>R</sub> (in <sup>3</sup> )	Ry (in)						
8	2.5	12	0.92	5.00	1.470	13.711	3.428	3.054	1.216	1.683	0.684	0.910	1.110	13.711	3.428	5.402	15.985	-1.776
		14	0.83	3.33	0.980	9.254	2.313	3.073	0.814	1.162	0.452	0.911	0.581	8.792	2.128	1.601	10.552	-1.762
		16	0.80	2.81	0.80	7.829	1.957	3.079	0.686	0.991	0.380	0.912	0.449	7.241	1.725	0.958	8.863	-1.757
8.5	2.5	12	0.67	5.00	1.470	15.220	3.581	3.218	1.073	1.684	0.576	0.854	1.015	14.827	3.431	5.402	14.665	-1.572
		14	0.58	3.33	0.980	10.246	2.411	3.233	0.713	1.162	0.378	0.853	0.525	9.451	2.124	1.601	9.670	-1.555
		16	0.55	2.81	0.826	8.661	2.038	3.238	0.600	0.990	0.317	0.852	0.397	7.523	1.623	0.958	8.120	-1.550
8	2.75	12	1.17	5.36	1.575	14.989	3.747	3.085	1.711	1.955	0.913	1.042	1.215	14.989	3.747	5.788	24.479	-2.147
		14	1.08	3.57	1.050	10.128	2.532	3.106	1.149	1.346	0.606	1.046	0.668	9.775	2.392	1.715	16.149	-2.134
		16	1.05	3.01	0.885	8.572	2.143	3.112	0.970	1.146	0.510	1.047	0.504	7.991	1.914	1.027	13.563	-2.129
8	3.5	12	0.92	5.71	1.680	16.984	4.246	3.180	2.749	2.509	1.143	1.279	1.142	15.796	3.764	6.174	35.410	-2.637
		14	0.83	3.81	1.120	11.455	2.864	3.198	1.833	1.712	0.755	1.279	0.602	9.966	2.291	1.829	23.288	-2.616
		16	0.80	3.21	0.944	9.689	2.422	3.204	1.545	1.454	0.634	1.279	0.463	7.983	1.768	1.095	19.541	-2.609
8	4	12	0.92	6.07	1.785	18.620	4.655	3.230	3.807	2.943	1.407	1.460	1.156	16.645	3.873	6.560	48.741	-3.080
		14	0.83	4.05	1.190	12.555	3.139	3.248	2.537	2.002	0.929	1.460	0.607	10.466	2.348	1.944	32.035	-3.057
9	2.25	12	1.17	5.36	1.575	17.764	3.948	3.358	1.107	1.707	0.691	0.838	1.118	17.764	3.948	5.788	19.601	-1.624
		14	1.08	3.57	1.050	11.986	2.664	3.379	0.745	1.186	0.459	0.842	0.625	11.783	2.592	1.715	13.026	-1.615
		16	1.05	3.01	0.885	10.140	2.253	3.385	0.630	1.013	0.387	0.844	0.475	9.472	2.009	1.027	10.964	-1.612
9	2.75	12	1.17	5.71	1.680	19.841	4.409	3.437	1.778	2.158	0.923	1.029	1.223	19.841	4.409	6.174	31.084	-2.046
		14	1.08	3.81	1.120	13.382	2.974	3.457	1.193	1.487	0.612	1.032	0.670	12.925	2.814	1.829	20.565	-2.033
9	3	12	0.92	5.71	1.680	20.252	4.500	3.472	1.962	2.304	0.913	1.081	1.156	19.706	4.297	6.174	31.610	-2.099
		14	0.83	3.81	1.120	13.640	3.031	3.490	1.309	1.581	0.603	1.081	0.593	12.381	2.597	1.829	20.865	-2.083
		16	0.80	3.21	0.944	11.532	2.563	3.495	1.103	1.345	0.506	1.081	0.459	9.820	1.965	1.095	17.527	-2.077
10	2.25	12	1.17	5.71	1.680	22.963	4.593	3.697	1.142	1.868	0.697	0.824	1.125	22.655	4.461	6.174	24.399	-1.546
		14	1.08	3.81	1.120	15.470	3.094	3.717	0.768	1.300	0.463	0.828	0.627	14.373	2.681	1.829	16.247	-1.537
		16	1.06	3.21	0.944	13.081	2.616	3.723	0.649	1.110	0.390	0.829	0.476	11.545	2.077	1.095	13.684	-1.535
10	2.5	12	0.92	5.71	1.680	23.425	4.685	3.734	1.299	2.033	0.698	0.879	1.125	23.425	4.685	6.174	25.870	-1.607
		14	0.83	3.81	1.120	15.760	3.152	3.751	0.868	1.407	1.407	0.880	0.585	14.767	2.831	1.829	17.148	-1.594
		16	0.81	3.21	0.944	13.320	2.664	3.757	0.732	1.200	0.387	0.881	0.451	11.674	2.130	1.095	14.422	-1.590
10	3.25	12	1.17	6.43	1.890	28.104	5.621	3.856	2.734	2.862	1.191	1.203	1.298	27.873	5.540	6.946	56.928	-2.374
		14	1.08	4.28	1.260	18.921	3.784	3.875	1.829	1.961	0.789	1.205	0.686	17.349	3.279	2.058	37.646	-2.359
10	3.5	12	0.92	6.43	1.890	28.566	5.713	3.888	2.952	3.013	1.171	1.250	1.156	26.628	5.098	6.946	57.326	-2.420
		14	0.83	4.28	1.260	19.212	3.842	3.905	1.967	2.058	0.773	1.249	0.606	16.193	2.908	2.058	37.858	-2.402
10 <sup>A</sup>	4	12	1.17	6.96	2.048	31.959	6.392	3.951	4.493	3.640	1.625	1.481	1.258	29.421	5.581	7.525	92.354	-3.019
		14	1.08	4.64	1.365	21.510	4.302	3.970	3.000	2.479	1.075	1.483	0.692	18.330	3.306	2.230	60.948	-3.000
10 <sup>B</sup>	4	12	1.42	7.14	2.100	32.681	6.536	3.945	4.870	3.740	1.805	1.523	1.387	31.128	6.031	7.718	107.610	-3.189
		14	1.33	4.76	1.400	22.014	4.403	3.965	3.259	2.548	1.198	1.526	0.735	19.071	3.475	2.287	71.013	-3.173
11	3	12	0.92	6.43	1.890	32.632	5.933	4.155	2.081	2.728	0.930	1.049	1.168	31.762	5.675	6.946	49.050	-1.924
		14	0.83	4.28	1.260	21.927	3.987	4.172	1.388	1.875	0.614	1.049	0.596	18.967	3.133	2.058	32.476	-1.909
12	2.25	12	1.17	6.43	1.890	35.933	5.989	4.360	1.200	2.186	0.706	0.797	1.134	34.682	5.564	6.946	35.971	-1.411
		14	1.08	4.28	1.260	24.152	4.025	4.378	0.807	1.524	0.469	0.800	0.629	21.720	3.286	2.058	24.017	-1.404

<sup>A</sup>This product produced from 19.5" feed.

<sup>B</sup>This product produced from 20" feed.

# Section Properties

## Cee Purlins

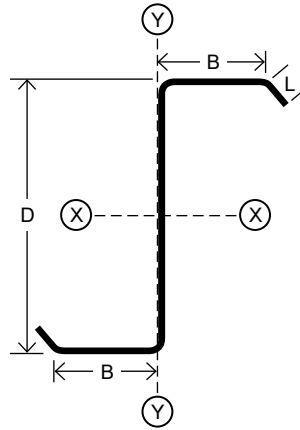
Physical Properties						Gross Properties							Effective Properties			Torsional Properties		
D (web) (in)	B (flange) (in)	Ga. (nom)	L (lip) (in)	Weight (lb/ft)	Area (in <sup>2</sup> )	X-X Axis			Y-Y Axis				Ae (in <sup>2</sup> )	Ixe (in <sup>4</sup> )	Sxe (in <sup>3</sup> )	J (x10 <sup>-3</sup> ) (in <sup>4</sup> )	Cw (in <sup>6</sup> )	Xo (in)
						Ix (in <sup>4</sup> )	Sx (in <sup>3</sup> )	Rx (in)	Iy (in <sup>4</sup> )	Sy <sub>L</sub> (in <sup>3</sup> )	Sy <sub>R</sub> (in <sup>3</sup> )	Ry (in)						
12	2.5	12	0.92	6.43	1.890	36.499	6.083	4.395	1.363	2.376	0.708	0.849	1.134	35.248	5.655	6.946	38.693	-1.470
		14	0.83	4.28	1.260	24.507	4.085	4.410	0.910	1.648	0.467	0.850	0.588	21.143	3.124	2.058	25.705	-1.459
13	2	12	0.92	6.43	1.890	40.063	6.164	4.604	0.805	1.952	0.507	0.652	1.032	37.996	5.543	6.946	27.353	-1.060
		14	0.83	4.28	1.260	26.882	4.136	4.619	0.539	1.374	0.335	0.654	0.590	24.053	3.335	2.058	18.266	-1.053
13	2.125	12	0.79	6.43	1.890	40.317	6.203	4.619	0.863	2.045	0.507	0.676	1.032	38.250	5.580	6.946	28.682	-1.085
		14	0.71	4.28	1.260	27.039	4.160	4.632	0.575	1.434	0.334	0.676	0.566	23.651	3.239	2.058	19.080	-1.076
12	3.5	12	0.92	7.14	2.100	43.928	7.321	4.574	3.115	3.511	1.192	1.218	1.165	41.059	6.576	7.718	85.836	-2.239
		14	0.83	4.76	1.400	29.488	4.915	4.589	2.074	2.401	0.787	1.217	0.609	23.875	3.467	2.287	56.816	-2.228
13	3	12	0.92	7.14	2.100	48.792	7.507	4.820	2.177	3.147	0.943	1.018	1.175	45.468	6.559	7.718	71.177	-1.778
		14	0.83	4.76	1.400	32.734	5.036	4.835	1.450	2.166	0.622	1.018	0.599	26.549	3.497	2.287	47.209	-1.764
14	2.5	12	0.92	7.14	2.100	53.353	7.622	5.041	1.415	2.712	0.715	0.821	1.140	50.267	6.757	7.718	54.601	-1.356
		14	0.83	4.76	1.400	35.774	5.111	5.055	0.944	1.886	0.472	0.821	0.590	29.811	3.688	2.287	36.320	-1.346
15	2	12	0.92	7.14	2.100	57.505	7.667	5.233	0.829	2.204	0.511	0.628	1.038	53.002	6.545	7.718	37.634	-0.976
		14	0.83	4.76	1.400	38.539	5.139	5.247	0.555	1.557	0.338	0.630	0.592	33.241	3.898	2.287	25.154	-0.969
15	2.125	12	0.79	7.14	2.100	57.802	7.707	5.246	0.889	2.308	0.511	0.651	1.038	53.298	6.582	7.718	39.604	-0.999
		14	0.71	4.76	1.400	38.721	5.163	5.259	0.592	1.625	0.336	0.650	0.568	32.620	3.779	2.287	26.365	-0.991
15	2.25	12	0.67	7.14	2.100	58.054	7.740	5.258	0.941	2.400	0.506	0.669	1.038	53.551	6.613	7.718	41.225	-1.018
		14	0.58	4.76	1.400	38.874	5.183	5.269	0.624	1.683	0.332	0.668	0.532	31.367	3.561	2.287	27.338	-1.008
16	3	12	1.04	8.30	2.441	82.333	10.292	5.807	2.431	3.837	1.027	0.998	1.252	75.603	8.704	8.972	122.310	-1.665
16	4	12	1.04	9.01	2.651	95.600	11.950	6.005	4.930	5.320	1.604	1.364	1.231	83.193	9.503	9.743	241.190	-2.400
16	3.5	12	0.92	8.57	2.520	87.670	10.959	5.898	3.360	4.491	1.221	1.155	1.176	75.069	8.321	9.261	164.150	-1.954
17	3	12	0.92	8.57	2.520	94.130	11.075	6.112	2.320	3.964	0.961	0.960	1.185	83.425	8.838	9.261	130.350	-1.547
18	2.5	12	0.92	8.57	2.520	100.080	11.120	6.302	1.490	3.365	0.725	0.769	1.149	89.354	8.958	9.261	96.106	-1.176
19	2	12	0.92	8.57	2.520	105.410	11.096	6.468	0.870	2.688	0.516	0.586	1.045	91.461	8.547	9.261	63.851	-0.843
19	2.125	12	0.79	8.57	2.520	105.790	11.136	6.479	0.930	2.815	0.517	0.607	1.045	91.842	8.582	9.261	67.494	-0.864
19	2.25	12	0.67	8.57	2.520	106.110	11.170	6.489	0.980	2.926	0.513	0.624	1.045	92.165	8.613	9.261	70.554	-0.881
20	4.5	12	0.92	10.71	3.150	172.360	17.236	7.397	6.660	7.243	1.859	1.454	1.213	131.960	10.986	11.576	500.260	-2.431

### Notes:

- Materials conform to ASTM A653 Grade 55 Class 1 or ASTM A1011 Grade 55 (Fy = 55 ksi, Fu = 70 ksi); G60 minimum galvanized.
- Section Properties in accordance to the American Iron and Steel Institute Cold Formed Steel Design Manual (AISI S100-12).
- Lip (L) based on theoretical feed width; actual dimension may vary.
- Design Base Metal Thickness per nominal Gauge:  
 18ga = 0.047"  
 16ga = 0.059"  
 14ga = 0.070"  
 12ga = 0.105"

### Symbols and Abbreviations

- Ae - Effective cross sectional area
- Cw - Torsional warping constant
- Ix - Moment of inertia about the X axis
- Ixe - Effective moment of inertia about the X axis
- Iy - Moment of inertia about the Y axis
- J - Torsion constant (St. Venant)
- rx - Radius of gyration about the X axis
- ry - Radius of gyration about the Y axis
- Sx - Section modulus about the X axis for the extreme fiber
- Sxe - Effective section modulus about the X axis for the extreme fiber
- Sy(l) - Section modulus about the Y axis for the extreme left fiber
- Sy(r) - Section modulus about the Y axis for the extreme right fiber
- Xo - Horizontal coordinate of the shear center relative to the centroid



## Zee Purlins

Physical Properties						Gross Properties						Effective Properties			Torsional Properties	
D (web) (in)	B (flange) (in)	Ga. (nom)	L (lip) (in)	Weight (lb/ft)	Area (in <sup>2</sup> )	X-X Axis			Y-Y Axis			Ae (in <sup>2</sup> )	Ixe (in <sup>4</sup> )	Sxe (in <sup>3</sup> )	J (x10 <sup>-3</sup> ) (in <sup>4</sup> )	Cw (in <sup>6</sup> )
						Ix (in <sup>4</sup> )	Sx (in <sup>3</sup> )	Rx (in)	Iy (in <sup>4</sup> )	Sy (in <sup>3</sup> )	Ry (in)					
4	2.25	12	1.02	3.57	1.050	2.675	1.338	1.596	2.013	0.705	1.385	1.032	2.675	1.338	3.859	5.162
		14	0.96	2.38	0.700	1.828	0.914	1.616	1.320	0.466	1.373	0.603	1.802	0.910	1.143	3.405
		16	0.94	2.01	0.590	1.552	0.776	1.622	1.106	0.391	1.369	0.459	1.480	0.716	0.685	2.860
4	2.5	12	0.77	3.57	1.050	2.788	1.394	1.630	2.094	0.711	1.412	0.995	2.738	1.347	3.859	4.921
		14	0.71	2.38	0.700	1.900	0.950	1.648	1.371	0.469	1.399	0.521	1.720	0.802	1.143	3.244
		16	0.69	2.01	0.590	1.612	0.806	1.653	1.149	0.394	1.395	0.407	1.426	0.656	0.685	2.725
5	2	12	0.77	3.57	1.050	4.031	1.612	1.959	1.224	0.501	1.080	0.960	4.031	1.612	3.859	5.017
		14	0.71	2.38	0.700	2.734	1.094	1.976	0.799	0.330	1.068	0.553	2.688	1.061	1.143	3.300
		16	0.69	2.01	0.590	2.317	0.927	1.982	0.669	0.277	1.065	0.409	2.198	0.848	0.685	2.770
5	2.125	12	0.65	3.57	1.050	4.091	1.637	1.974	1.251	0.503	1.091	0.960	4.091	1.637	3.859	4.958
		14	0.59	2.38	0.700	2.772	1.109	1.990	0.816	0.331	1.080	0.510	2.626	1.012	1.143	3.262
		16	0.57	2.01	0.590	2.348	0.939	1.995	0.683	0.277	1.076	0.381	2.129	0.800	0.685	2.736
6	2.25	12	1.02	4.28	1.260	6.927	2.309	2.345	2.013	0.705	1.264	1.086	6.927	2.309	4.630	12.351
		14	0.96	2.86	0.840	4.688	1.563	2.362	1.320	0.466	1.253	0.618	4.615	1.522	1.372	8.144
		16	0.94	2.41	0.708	3.970	1.323	2.368	1.107	0.392	1.250	0.468	3.786	1.224	0.822	6.843
6	2.5	12	0.77	4.28	1.260	7.110	2.370	2.375	2.094	0.711	1.289	1.049	6.961	2.284	4.630	12.154
		14	0.71	2.86	0.840	4.804	1.601	2.392	1.370	0.469	1.277	0.537	4.367	1.370	1.372	8.007
		16	0.69	2.41	0.708	4.066	1.355	2.397	1.149	0.394	1.274	0.416	3.624	1.125	0.822	6.725
7	2	12	0.77	4.28	1.260	8.941	2.555	2.664	1.224	0.501	0.986	0.995	8.941	2.555	4.630	10.591
		14	0.71	2.86	0.840	6.028	1.722	2.679	0.799	0.330	0.975	0.563	5.922	1.672	1.372	6.958
		16	0.69	2.41	0.708	5.099	1.457	2.684	0.669	0.277	0.972	0.415	4.846	1.342	0.822	5.839
7	2.125	12	0.65	4.28	1.260	9.029	2.580	2.677	1.251	0.503	0.996	0.995	9.029	2.580	4.630	10.578
		14	0.59	2.86	0.840	6.083	1.738	2.691	0.816	0.331	0.985	0.520	5.772	1.597	1.372	6.945
		16	0.57	2.41	0.708	5.150	1.470	2.695	0.683	0.278	0.982	0.387	4.698	1.273	0.822	5.827
7	3	12	0.77	5.00	1.470	11.437	3.268	2.789	3.295	0.957	1.497	1.078	10.815	2.975	5.402	25.739
		14	0.71	3.33	0.980	7.709	2.203	2.805	2.161	0.631	1.485	0.555	6.725	1.769	1.601	16.980
		16	0.69	2.81	0.826	6.520	1.863	2.810	1.812	0.531	1.481	0.426	5.555	1.444	0.958	14.269
8	2.25	12	1.02	5.00	1.470	13.698	3.425	3.053	2.014	0.706	1.170	1.110	13.698	3.425	5.402	23.176
		14	0.96	3.33	0.980	9.227	2.307	3.069	1.320	0.466	1.161	0.625	9.080	2.247	1.601	15.271
		16	0.94	2.81	0.826	7.803	1.951	3.074	1.107	0.392	1.158	0.472	7.456	1.814	0.958	12.827

# Section Properties

## Zee Purlins

Physical Properties						Gross Properties						Effective Properties			Torsional Properties	
D (web) (in)	B (flange) (in)	Ga. (nom)	L (lip) (in)	Weight (lb/ft)	Area (in <sup>2</sup> )	X-X Axis			Y-Y Axis			Ae (in <sup>2</sup> )	Ixe (in <sup>4</sup> )	Sxe (in <sup>3</sup> )	J (x10 <sup>-3</sup> ) (in <sup>4</sup> )	Cw (in <sup>6</sup> )
						Ix (in <sup>4</sup> )	Sx (in <sup>3</sup> )	Rx (in)	Iy (in <sup>4</sup> )	Sy (in <sup>3</sup> )	Ry (in)					
8	2.5	12	0.77	5.00	1.470	13.951	3.488	3.081	2.094	0.712	1.194	1.073	13.650	3.363	5.402	23.154
		14	0.71	3.33	0.980	9.388	2.347	3.095	1.370	0.469	1.183	0.544	8.583	2.035	1.601	15.239
		16	0.69	2.81	0.826	7.936	1.984	3.100	1.149	0.394	1.179	0.420	7.012	1.625	0.958	12.796
8.5	2.5	12	0.52	5.00	1.470	15.378	3.618	3.234	1.676	0.602	1.068	0.995	14.827	3.413	5.402	20.981
		14	0.46	3.33	0.980	10.329	2.431	3.247	1.093	0.396	1.056	0.500	9.257	2.051	1.601	13.780
		16	0.44	2.81	0.826	8.727	2.053	3.250	0.915	0.332	1.053	0.377	7.283	1.538	0.958	11.563
8	2.75	12	1.02	5.36	1.575	15.334	3.834	3.120	3.199	0.954	1.425	1.215	15.252	3.797	5.788	35.152
		14	0.96	3.57	1.050	10.328	2.582	3.136	2.100	0.630	1.414	0.613	9.571	2.282	1.715	23.192
		16	0.94	3.01	0.885	8.733	2.183	3.141	1.762	0.530	1.411	0.483	7.915	1.859	1.027	19.488
8	3.5	12	0.77	5.71	1.680	17.224	4.306	3.202	4.881	1.238	1.704	1.086	15.464	3.615	6.174	49.398
		14	0.71	3.81	1.120	11.589	2.897	3.217	3.206	0.817	1.692	0.564	9.702	2.722	1.829	32.630
		16	0.69	3.21	0.944	9.796	2.449	3.221	2.690	0.687	1.688	0.429	7.641	1.643	1.095	27.430
8	4	12	0.77	6.07	1.785	18.860	4.715	3.251	6.902	1.553	1.966	1.098	16.258	3.711	6.560	67.214
		14	0.71	4.05	1.190	12.689	3.172	3.266	4.540	1.027	1.953	0.565	10.029	2.185	1.944	44.462
9	2.25	12	1.02	5.36	1.575	18.160	4.036	3.396	2.014	0.706	1.131	1.118	18.160	4.036	5.788	30.001
		14	0.96	3.57	1.050	12.215	2.714	3.411	1.320	0.466	1.121	0.627	12.020	2.645	1.715	19.760
		16	0.94	3.01	0.885	10.324	2.294	3.416	1.107	0.392	1.118	0.474	9.618	2.035	1.027	16.596
9	2.75	12	1.02	5.71	1.680	20.237	4.497	3.471	3.199	0.954	1.380	1.223	20.122	4.453	6.174	45.603
		14	0.96	3.81	1.120	13.610	3.025	3.486	2.101	0.630	1.370	0.615	12.634	2.684	1.829	30.079
9	3	12	0.77	5.71	1.680	20.526	4.561	3.495	3.296	0.957	1.401	1.097	19.437	4.174	6.174	45.359
		14	0.71	3.81	1.120	13.793	3.065	3.509	2.161	0.632	1.389	0.560	12.002	2.456	1.829	29.901
		16	0.69	3.21	0.944	11.655	2.590	3.514	1.812	0.531	1.386	0.429	9.464	1.845	1.095	25.120
10	2.25	12	1.02	5.71	1.680	23.410	4.682	3.733	2.014	0.706	1.095	1.125	23.102	4.549	6.174	37.783
		14	0.96	3.81	1.120	15.727	3.146	3.747	1.320	0.466	1.086	0.629	14.644	2.733	1.829	24.878
		16	0.94	3.21	0.944	13.288	2.658	3.752	1.107	0.392	1.083	0.475	11.710	2.103	1.095	20.892
10	2.5	12	0.77	5.71	1.680	23.733	4.747	3.759	2.094	0.712	1.117	1.087	23.228	4.584	6.174	38.077
		14	0.71	3.81	1.120	15.932	3.186	3.772	1.371	0.469	1.106	0.548	14.235	2.654	1.829	25.043
		16	0.69	3.21	0.944	13.458	2.692	3.776	1.149	0.394	1.103	0.423	11.280	2.007	1.095	21.023
10	3.25	12	1.02	6.43	1.890	28.550	5.710	3.887	4.769	1.237	1.589	1.181	26.955	5.198	6.946	82.479
		14	0.96	4.28	1.260	19.179	3.836	3.902	3.135	0.818	1.578	0.626	16.577	3.020	2.058	54.456
10	3.5	12	0.77	6.43	1.890	28.874	5.775	3.909	4.881	1.238	1.607	1.100	26.070	4.909	6.946	81.888
		14	0.71	4.28	1.260	19.383	3.877	3.922	3.206	0.817	1.595	0.568	15.586	2.728	2.058	54.054
10 <sup>A</sup>	4	12	1.02	6.96	2.048	32.406	6.481	3.978	7.958	1.728	1.971	1.188	28.791	5.357	7.524	130.420
		14	0.96	4.64	1.365	21.767	4.353	3.993	5.241	1.144	1.960	0.634	17.474	3.044	2.229	86.252
10 <sup>B</sup>	4	12	1.27	7.14	2.100	33.283	6.657	3.981	9.090	1.908	2.081	1.274	30.317	5.714	7.717	151.230
		14	1.21	4.76	1.400	22.368	4.474	3.997	5.993	1.263	2.069	0.710	18.944	3.401	2.287	100.060
11	3	12	0.77	6.43	1.890	32.974	5.995	4.177	3.296	0.957	1.321	1.108	31.292	5.516	6.946	71.130
		14	0.71	4.28	1.260	22.117	4.021	4.190	2.161	0.632	1.310	0.564	18.366	2.968	2.058	46.861
12	2.25	12	1.02	6.43	1.890	36.481	6.080	4.394	2.014	0.706	1.032	1.134	35.230	5.652	6.946	56.251
		14	0.96	4.28	1.260	24.467	4.078	4.407	1.320	0.466	1.024	0.632	22.059	3.339	2.058	37.020

<sup>A</sup>This product produced from 19.5" feed.

<sup>B</sup>This product produced from 20" feed.

# Zee Purlins

Physical Properties						Gross Properties						Effective Properties			Torsional Properties	
						X-X Axis			Y-Y Axis							
D (web) (in)	B (flange) (in)	Ga. (nom)	L (lip) (in)	Weight (lb/ft)	Area (in <sup>2</sup> )	I <sub>x</sub> (in <sup>4</sup> )	S <sub>x</sub> (in <sup>3</sup> )	R <sub>x</sub> (in)	I <sub>y</sub> (in <sup>4</sup> )	S <sub>y</sub> (in <sup>3</sup> )	R <sub>y</sub> (in)	A <sub>e</sub> (in <sup>2</sup> )	I <sub>xe</sub> (in <sup>4</sup> )	S <sub>xe</sub> (in <sup>3</sup> )	J (x10 <sup>-3</sup> ) (in <sup>4</sup> )	C <sub>w</sub> (in <sup>6</sup> )
12	2.5	12	0.77	6.43	1.890	36.875	6.146	4.417	2.095	0.712	1.053	1.096	35.017	5.559	6.946	57.011
		14	0.71	4.28	1.260	24.716	4.119	4.429	1.371	0.469	1.043	0.551	20.391	2.945	2.058	37.473
13	2	12	0.77	6.43	1.890	40.472	6.227	4.628	1.225	0.501	0.805	1.032	38.405	5.603	6.946	41.327
		14	0.71	4.28	1.260	27.109	4.171	4.639	0.799	0.330	0.796	0.574	23.901	3.286	2.058	27.092
13	2.125	12	0.65	6.43	1.890	40.642	6.253	4.637	1.252	0.503	0.814	1.032	38.575	5.627	6.946	41.744
		14	0.59	4.28	1.260	27.215	4.187	4.648	0.816	0.331	0.805	0.531	22.835	3.063	2.058	27.340
12	3.5	12	0.77	7.14	2.100	44.303	7.384	4.593	4.881	1.238	1.525	1.109	40.219	6.347	7.717	123.460
		14	0.71	4.76	1.400	29.697	4.950	4.606	3.206	0.817	1.513	0.571	22.957	3.257	2.287	81.451
13	3	12	0.77	7.14	2.100	49.202	7.570	4.840	3.296	0.957	1.253	1.116	44.340	6.279	7.717	103.180
		14	0.71	4.76	1.400	32.961	5.071	4.852	2.161	0.632	1.243	0.566	25.704	3.323	2.287	67.943
14	2.5	12	0.77	7.14	2.100	53.796	7.685	5.061	2.095	0.712	0.999	1.103	49.808	6.626	7.717	80.008
		14	0.71	4.76	1.400	36.019	5.146	5.072	1.371	0.469	0.990	0.552	28.695	3.475	2.287	52.565
15	2	12	0.77	7.14	2.100	57.982	7.731	5.255	1.225	0.501	0.764	1.038	53.479	6.604	7.717	56.354
		14	0.71	4.76	1.400	38.803	5.174	5.265	0.799	0.330	0.756	0.575	32.960	3.833	2.287	36.927
15	2.125	12	0.65	7.14	2.100	58.180	7.757	5.264	1.252	0.503	0.772	1.038	53.676	6.629	7.717	57.016
		14	0.59	4.76	1.400	38.925	5.190	5.273	0.816	0.331	0.763	0.532	31.436	3.570	2.287	37.326
15	2.25	12	0.52	7.14	2.100	58.343	7.779	5.271	1.274	0.503	0.779	0.987	52.202	6.345	7.717	57.499
		14	0.46	4.76	1.400	39.024	5.203	5.280	0.829	0.330	0.770	0.507	30.444	3.406	2.287	37.609
16	3	12	0.90	8.30	2.441	82.960	10.370	5.830	3.607	1.024	1.216	1.169	73.138	8.233	8.972	178.870
16	4	12	0.90	9.01	2.651	96.220	12.028	6.025	7.420	1.640	1.673	1.173	80.803	9.055	9.743	347.060
16	3.5	12	0.77	8.57	2.520	88.182	11.023	5.916	4.881	1.238	1.392	1.121	72.952	7.952	9.261	234.540
17	3	12	0.77	8.57	2.520	94.678	11.139	6.130	3.296	0.957	1.144	1.125	81.107	8.447	9.261	186.450
18	2.5	12	0.77	8.57	2.520	100.660	11.184	6.320	2.100	0.712	0.912	1.111	88.218	8.758	9.261	138.320
19	2	12	0.77	8.57	2.520	106.020	11.160	6.486	1.230	0.501	0.697	1.045	92.073	8.604	9.261	93.665
19	2.125	12	0.65	8.57	2.520	106.280	11.187	6.494	1.250	0.503	0.705	1.045	92.326	8.628	9.261	94.975
19	2.25	12	0.52	8.57	2.520	106.480	11.209	6.500	1.270	0.503	0.711	0.995	89.602	8.248	9.261	95.979
20	4.5	12	0.77	10.71	3.150	173.000	17.300	7.411	9.410	1.904	1.729	1.148	127.290	10.414	11.580	704.390

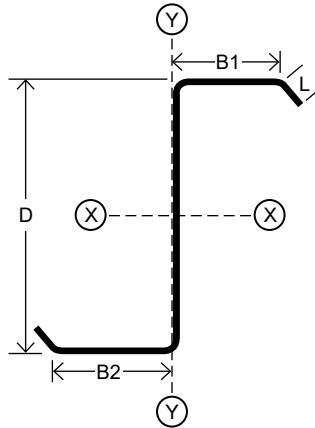
### Notes:

- Materials conform to ASTM A653 Grade 55 Class 1 or ASTM A1011 Grade 55 (F<sub>y</sub> = 55 ksi, F<sub>u</sub> = 70 ksi); G60 minimum galvanized.
- Section Properties in accordance to the American Iron and Steel Institute Cold Formed Steel Design Manual (AISI S100-12).
- Lip (L) based on theoretical feed width; actual dimension may vary.
- Design Base Metal Thickness per nominal Gauge:  
 18ga = 0.047"  
 16ga = 0.059"  
 14ga = 0.070"  
 12ga = 0.105"

### Symbols and Abbreviations

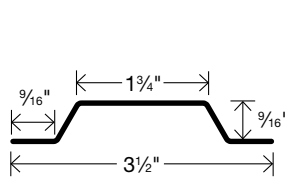
- A<sub>e</sub> - Effective cross sectional area
- C<sub>w</sub> - Torsional warping constant
- I<sub>x</sub> - Moment of inertia about the X axis
- I<sub>xe</sub> - Effective moment of inertia about the X axis
- I<sub>y</sub> - Moment of inertia about the Y axis
- J - Torsion constant (St. Venant)
- r<sub>x</sub> - Radius of gyration about the X axis
- r<sub>y</sub> - Radius of gyration about the Y axis
- S<sub>x</sub> - Section modulus about the X axis for the extreme fiber
- S<sub>xe</sub> - Effective section modulus about the X axis for the extreme fiber
- S<sub>y(l)</sub> - Section modulus about the Y axis for the extreme left fiber
- S<sub>y(r)</sub> - Section modulus about the Y axis for the extreme right fiber
- X<sub>o</sub> - Horizontal coordinate of the shear center relative to the centroid

# Section Properties

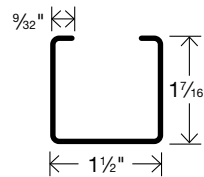


## 'Easy Lap' Zee Purlins

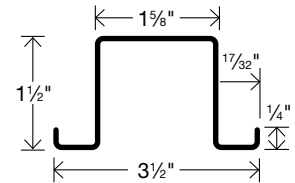
Physical Properties							Gross Properties							Effective Properties			Torsional Properties				
D (web) (in)	B1 (flange) (in)	B2 (flange) (in)	Ga. (nom)	L (lip) (in)	Weight (lb/ft)	Area (in <sup>2</sup> )	X-X Axis				Y-Y Axis				Ae (in <sup>2</sup> )	Ixe (in <sup>4</sup> )	Sxe (in <sup>3</sup> )	J (x10 <sup>-3</sup> ) (in <sup>4</sup> )	Cw (in <sup>6</sup> )	Xo (in)	
							Ix (in <sup>4</sup> )	Sx <sub>T</sub> (in <sup>3</sup> )	Sx <sub>B</sub> (in <sup>3</sup> )	Rx (in)	Iy (in <sup>4</sup> )	Sy <sub>L</sub> (in <sup>3</sup> )	Sy <sub>R</sub> (in <sup>3</sup> )	Ry (in)							
4	2.125	2.375	14	0.48	2.38	0.700	1.826	0.891	0.936	1.615	1.322	0.459	0.475	1.374	0.592	1.809	0.878	1.143	3.372	-0.026	
				16	0.47	2.01	0.590	1.551	0.757	0.795	1.621	1.109	0.386	0.399	1.371	0.458	1.488	0.706	0.685	2.834	-0.026
6	2.125	2.375	14	0.48	2.86	0.840	4.684	1.530	1.594	2.362	1.323	0.457	0.477	1.255	0.607	4.632	1.502	1.372	8.063	-0.025	
				16	0.47	2.41	0.708	3.967	1.296	1.350	2.367	1.109	0.384	0.401	1.252	0.467	3.805	1.211	0.822	6.774	-0.025
8	2.125	2.375	12	0.51	5.00	1.470	13.691	3.363	3.484	3.052	2.019	0.691	0.725	1.172	1.110	13.691	3.363	5.402	22.944	-0.024	
				14	0.48	3.33	0.980	9.223	2.266	2.347	3.068	1.324	0.456	0.479	1.162	0.614	9.113	2.222	1.601	15.116	-0.024
				16	0.47	2.81	0.826	7.799	1.916	1.985	3.073	1.110	0.383	0.403	1.159	0.471	7.459	1.783	0.958	12.697	-0.023
8	3.125	3.375	12	0.51	5.71	1.680	16.964	4.177	4.308	3.178	4.775	1.220	1.259	1.686	1.169	16.270	3.893	6.174	49.922	-0.024	
				14	0.48	3.81	1.120	11.424	2.813	2.901	3.194	3.140	0.806	0.832	1.674	0.622	10.248	2.363	1.829	32.975	-0.023
				16	0.47	3.21	0.944	9.660	2.378	2.453	3.199	2.635	0.678	0.700	1.671	0.485	8.306	1.859	1.095	27.719	-0.023
10	2.125	2.375	12	0.51	5.71	1.680	23.400	4.609	4.753	3.732	2.020	0.690	0.727	1.097	1.125	23.035	4.458	6.174	37.399	-0.022	
				14	0.48	3.81	1.120	15.721	3.096	3.194	3.747	1.324	0.455	0.480	1.087	0.618	14.629	2.687	1.829	24.624	-0.022
				16	0.47	3.21	0.944	13.283	2.616	2.698	3.751	1.110	0.383	0.404	1.085	0.474	11.701	2.071	1.095	20.679	-0.022
10	3.125	3.375	12	0.51	6.43	1.890	28.541	5.631	5.788	3.886	4.776	1.218	1.261	1.590	1.183	27.381	5.261	6.946	82.025	-0.023	
				14	0.48	4.28	1.260	19.173	3.782	3.888	3.901	3.140	0.805	0.834	1.579	0.626	16.662	3.004	2.058	54.154	-0.022
12	2.125	2.375	12	0.51	6.43	1.890	36.468	5.996	6.163	4.393	2.021	0.688	0.729	1.034	1.134	35.080	5.536	6.946	55.677	-0.021	
				14	0.48	4.28	1.260	24.459	4.021	4.134	4.406	1.324	0.454	0.481	1.025	0.621	22.006	3.283	2.058	36.639	-0.020
12	3.125	3.375	12	0.51	7.14	2.100	43.898	7.227	7.408	4.572	4.777	1.216	1.263	1.508	1.192	42.155	6.772	7.717	122.970	-0.021	
				14	0.48	4.76	1.400	29.441	4.847	4.969	4.586	3.141	0.804	0.835	1.498	0.629	24.559	3.581	2.287	81.151	-0.021



**SUB-GIRT**  
18ga



**CHANNEL**  
18ga



**HAT**  
22ga

## EZ-Form Sections

	Physical Properties					Full Properties					
	Nominal Ga. (in)	Min. Base Steel Thickness (in)	Yield (ksi)	Tensile (ksi)	Weight (lb/ft)	X-X Axis			Y-Y Axis		
						Ix (in <sup>4</sup> )	Sx (in <sup>3</sup> )	Rx (in)	Iy (in <sup>4</sup> )	Sy (in <sup>3</sup> )	Ry (in)
Hat	22	0.027	40	55	0.546	0.056	0.073	0.592	0.114	0.083	0.844
Channel	18	0.044	40	55	0.691	0.055	0.064	0.520	0.081	0.108	0.632
Sub Girt	18	0.044	40	55	0.609	0.009	0.030	0.230	0.183	0.105	1.011