TECHNICAL BULLETIN: Volume 1, Number 4
Expansion of Standard Structural Products

STEEL FRAMING INDUSTRY ASSOCIATION

To: Intertek; SFIA Manufacturers and Contractor/Manufacturers
From: Steel Framing Industry Association
Date: January 24, 2025
Subject: Expansion of Standard Structural Products

To all concerned:

Based on the Compliance Committee's recommendation and Board of Directors approval this past year, this memo is to verify what constitutes a standard structural product as opposed to a proprietary framing product.

Previously it was held that any member not indicated in the technical guide was not a standard product. The standard product offerings have been expanded to include any member meeting the matrix of dimensions described in AISI standard S240, as well as an expanded list of (single, unslotted) slip tracks with deeper legs. Attachments are included to clarify this. It allows for certain members that can be clearly calculated per the AISI standards to be allowed as standard offerings, and the not be classified as proprietary structural members.

Additionally, this is another reminder about the SFIA Proprietary Structural product category. This was effective as of January 1, 2024, and all such products manufactured at your facility were to be enrolled by July 1, 2024, with certification by January 1, 2025. Evidently, there have been several hold ups for a variety of reasons.

Again, to help you understand what Proprietary Structural products are, we've provided the definition below directly from the certification program:

Proprietary Structural. A structural framing product utilized in cold-formed steel frame construction (per AISI S240) that is not the traditional C-shape or not listed in the SFIA Product Technical Guide.

Note: For the purpose of clarity, proprietary shapes such as "c" shapes with perforations, modified ends, or flange cuts beyond the scope of AISI specifications are required to be in the program. Products that are ancillary to the framing members such as furring or resilient channels, or components of assemblies such as shaftwall and area separation walls are not required to be in the program. These are examples and not an inclusive list.

To expound on this, shapes that include stiffened punch outs; slots as in slip tracks; specialized rolled-in tabs; swaged ends; oversized punch outs; or notches in flanges or return stiffeners are all examples of members that would be considered proprietary.

Members that would not be considered proprietary would include shapes covered under the matrix indicated in standard AISI S240 as well as additional deep leg tracks with properties recently completed. Excerpts from these are attached. These would all be considered standard structural products, and would not be subject to new technical data submission nor special audits.

Proprietary products per the Certification Program Section A8.1.1, Structural Members and Proprietary Structural Members, are to be submitted to Michael Weigner, Intertek Senior Project Engineer at michael.weigner@intertek.com

If you have any questions, feel free to contact us at your earliest convenience.

Sincerely,

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Disclaimer: These standards and practices are for educational purposes only and are not a mandate. These standards and practices may vary depending on geographic region, type of work and member preference.

ATTACHMENT A: FROM SFIA STUD CODE COMPLIANCE CERTIFICATION PROGRAM

Click here to go to the SFIA website and download a PDF of the certification program.

A6.14 Communications

When changes to the referenced standards take place and are adopted into the Compliance Program, the Administrator shall notify Licensees in writing. Notification shall include instructions detailing the process required to maintain certification approval based upon use of those updated standards and the timeline for enforcement to commence.

A6.15 Questions

Questions about the Compliance Program or applicability of specific sections of the program shall be addressed to the Administrator. If the Compliance Program is not clear on the issue, the Administrator or the Licensee may refer the matter in writing to the Compliance Committee for a written interpretation.

A7 Membership

A manufacturer is required to sign License Agreements with the Association and the Administrator in order to participate in the Code Compliance Certification Program. The manufacturer agrees to abide by the Program Requirements as set forth in these Program Requirements and other referenced Program documents. The License Agreements shall automatically renew annually provided that the Licensee continues to comply with the Program Requirements as set forth in these Program Requirements and continues to pay all applicable fees. Failure to comply with the Program Requirements shall constitute a breach of the License Agreements, and may result in Revocation of Compliance Certification.

A8 Licensee Roles and Responsibilities

The participating Licensee is a manufacturer of product who certifies that Certified Products included in the Code Compliance Certification Program comply with the Program Requirements. The Licensee shall have the following duties and responsibilities:

a. Continuously manufacture Certified Products in compliance with those tested for inclusion in the Code Compliance Certification Program.
b. Maintain an adequate quality control program or programs to ensure that Certified structural, proprietary structural, nonstructural, and/or equivalent nonstructural cold-formed steel framing Products are manufactured in accordance with the Program Requirements. (Minimum quality control requirements for participation in this Program are specified in Section A11.)
c. Provide the Administrator with an annual schedule of plant or facility closings and notify the Administrator of any changes when they occur.
d. Notify the Administrator immediately of any changes in location, addition or deletion of plants or facilities that manufacture or assemble Certified Products.
e. Permit free access during normal working hours for the Administrator's Auditor, within 15 minutes of his arrival at the facility, and allow him access into the

manufacturing areas, warehouse areas, material storage facility areas, and provide the Administrator's Auditor with any requested quality control records that validate the certification process.

f. Provide a primary and secondary audit contact at each manufacturing plant or facility who will be available to accompany the Auditor throughout the audit process and has the authority to sign the appropriate audit form.
g. Address all Notice of Deficiencies assigned as a result of the audit process and document Corrective Actions, in writing, to the Administrator within the prescribed timeframe.
h. Apply Certification Labels only as authorized by the Code Compliance Certification Program.
i. Comply with all marking and labeling requirements.
j. Pay all applicable fees due to the Associations or the Administrator, and other costs as described in the underlying Agreement or in the Code Compliance Certification Program. Failure to pay fees on a timely basis shall subject Licensee to Revocation of Compliance Certification or exclusion from the Code Compliance Certification Program.

A8.1 Literature and Technical Data

Manufacturers shall submit to the Administrator the following technical data, certified by a professional engineer, in accordance with the Applicable Standards for the Administrator's verification. The manufacturer shall make available the certified data to the Administrator for products that are not listed in the Technical Guide.

A8.1.1 Structural Members and Proprietary Structural Members

a. Physical Properties Data conforming to the requirements of AC46; including properties per AISI or from Testing to cover web crippling or section reductions.
b. Members intended to be used for curtain wall framing shall submit; Non-Composite Wall Limiting Heights based upon the stud being fully braced laterally and torsionally, containing data for all the combinations of the following criteria. The maximum brace length to restrain lateral-torsional buckling (Lu) shall be shown next to each product in the table.
    I. Deflection Limits: L/240, L/360, L/600
    II. Lateral Loads: 15, 20, 25 and 30 psf
    III. Spacing: 12", 16", 24" on-center spacing
c. Members intended to be used for curtain wall framing shall submit; Non-Composite Wall Limiting Heights based upon the stud being braced at 48 inches on-center (vertically), laterally and torsionally, containing data for all the combinations of the following criteria:
    I. Deflection Limits: L/240, L/360, L/600
    II. Lateral Loads: 15, 20, 25 and 30 psf

III. Spacing: 12", 16", 24" on-center spacing

d. Members intended to be used for axial load-bearing framing shall submit; Axial capacity tables based on stud bracing at 48" on-center (vertically) laterally and torsionally. Containing data for all the combinations of the following criteria:
   I. Deflection Limits: L/240, L/360, L/600
   II. Lateral Loads: 15, 20, 25 and 30 psf
   III. Spacing: 12", 16", 24" on-center spacing
   IV. Heights of 8,9,10,12,14 and 16 feet
e. Members intended to be used for floor joist framing shall submit; Allowable span tables based on joist bridging of 96" on-center along the length of the tension flange and continuous bracing of the compression flange. Span tables shall contain data for all the combinations of the following criteria: Spacing of 12", 16" & 24" on center.
   I. Live load deflection limits of L/360 and L/480.
   II. Load combinations of dead load / live load of:
      i 10 psf / 20 psf
      ii 10 psf / 30 psf
      iii 10 psf / 40 psf
      iv 10 psf / 50 psf
      v 15 psf / 125 psf
      vi 40 psf / 125 psf
f. Proprietary Structural Members intended to be truss members:
   I. Physical Properties Data conforming to the requirements of AC46; including properties per AISI or from Testing to cover web crippling or section reductions; as well as fully dimensioned section drawings.
   II. Allowable unbraced axial loads per member for length up to and including the expected unbraced lengths used in the fabrication of trusses, with data provided for member lengths of 2', 4' and 6' at a minimum.
g. Testing required for proprietary structural members:
   I. Where unable to be analyzed in accordance with AISI S100 or S240, framing member conditions such as modified ends, non-standard punchouts, flange reductions, indentations or other modifications to the framing member along the length of its axis shall be tested for capacity.
   II. Tests shall be per appendix B of this document, the AISI S900 series standards, or code referenced ASTM test standards as applicable.
   III. Where no applicable test standard exists, the test method shall be as agreed upon between the enrollee, the plan Administrator, and SFIA Technical Director.

A8.1.2 Nonstructural Members and Equivalent Nonstructural Members

a. Physical Properties Data conforming to the requirements of AC46; including properties per AISI or from Testing to cover web crippling or section reductions.

b. Screw capacities for equivalent nonstructural member material containing allowable values for shear (bearing), pullout and pullover in accordance with AISI S100, Section E4.
c. Non-Composite Wall Limiting Heights based upon the stud being fully braced laterally and torsionally, containing data for all the combinations of the following criteria. The maximum brace length to restrain lateral-torsional buckling (Lu) shall be shown next to each product in the table.
    I. Deflection Limits: L/120, L/240, L/360
    II. Lateral Loads: 5, 7.5, 10 psf
    III. Spacing: 12", 16", 24" on-center spacing
d. Non-Composite Wall Limiting Heights based upon the stud being braced at 48 inches on-center (vertically), laterally and torsionally, containing data for all the combinations of the following criteria:
    I. Deflection Limits: L/120, L/240, L/360
    II. Lateral Loads: 5, 7.5, 10 psf
    III. Spacing: 12", 16", 24" on-center spacing
e. Composite Limiting Heights calculated and tested as described in Appendix C, meeting the requirements of AC86 or AISI S916, and published with data for all the combinations of the following criteria:
    I. Deflection Limits: L/120, L/240, L/360
    II. Lateral Loads: 5, 7.5, 10 psf
    III. Spacing: 12", 16", 24" on-center spacing

Where the member has zero span or is not recommended for an application, an ellipse shall be shown in the space.

A8.2 Other Marketing

Licensees may use the Certification Label in marketing when it appears to directly relate to references to this Code Compliance Certification Program. The use of the Certification Label may only be used on pages where all products represented on that page are Certified. Wherever the Code Compliance Certification Program is used or referenced in marketing, the Licensee shall include the statement "Check the updated list of Certified Production Facilities at [Administrator's] website at https://www.archtest.com/certification/SFIA_SteelFraming_Intertek.aspx." Licensees may not use Certification Labels until all appropriate agreements between the manufacturer, the Association and the Administrator are executed, and the products are qualified under this Program and a Compliance Certification has been issued. Appropriate clarifications, highlights, footnotes, etc. must be included to ensure clarity about which products are qualified under the Compliance Program and which are not.

No Licensee shall be permitted to use Certification Labels in future literature if it has received a Revocation of Compliance Certification and has not had all relevant facilities re-

certified. The Certification Label shall not be used to indicate that the Association or the Administrator in any way endorses the Licensee or its Certified Products.

Licensees that leave the Association or the Program shall immediately destroy all Certification Labels and remove or destroy any literature, signage or emblems that imply participation in the Program or membership in the Association.

The Administrator shall be responsible to review all Product literature and product websites of each Licensee at the time of the unannounced audits to verify compliance with the Program Requirements.

A8.3 Communications

All official communication with administration and/or Compliance Committee shall be in writing or by electronic submission. Verbal communications are not considered to be official. All communications concerning the Compliance Certification Program shall be done through the Administrator.

ATTACHMENT B: FROM AISI S240–NORTH AMERICAN STANDARD FOR COLD-FORMED STEEL STRUCTURAL FRAMING, 2020 EDITION

Click here to go to the SFIA website and download a PDF of the AISI S240 standard.

A5.6 Standard Shapes

Standard shapes for *structural members*, as illustrated in Figure A5-2, are combinations of the basic dimensions listed in Tables A5-4 through A5-8, depending on the member type.

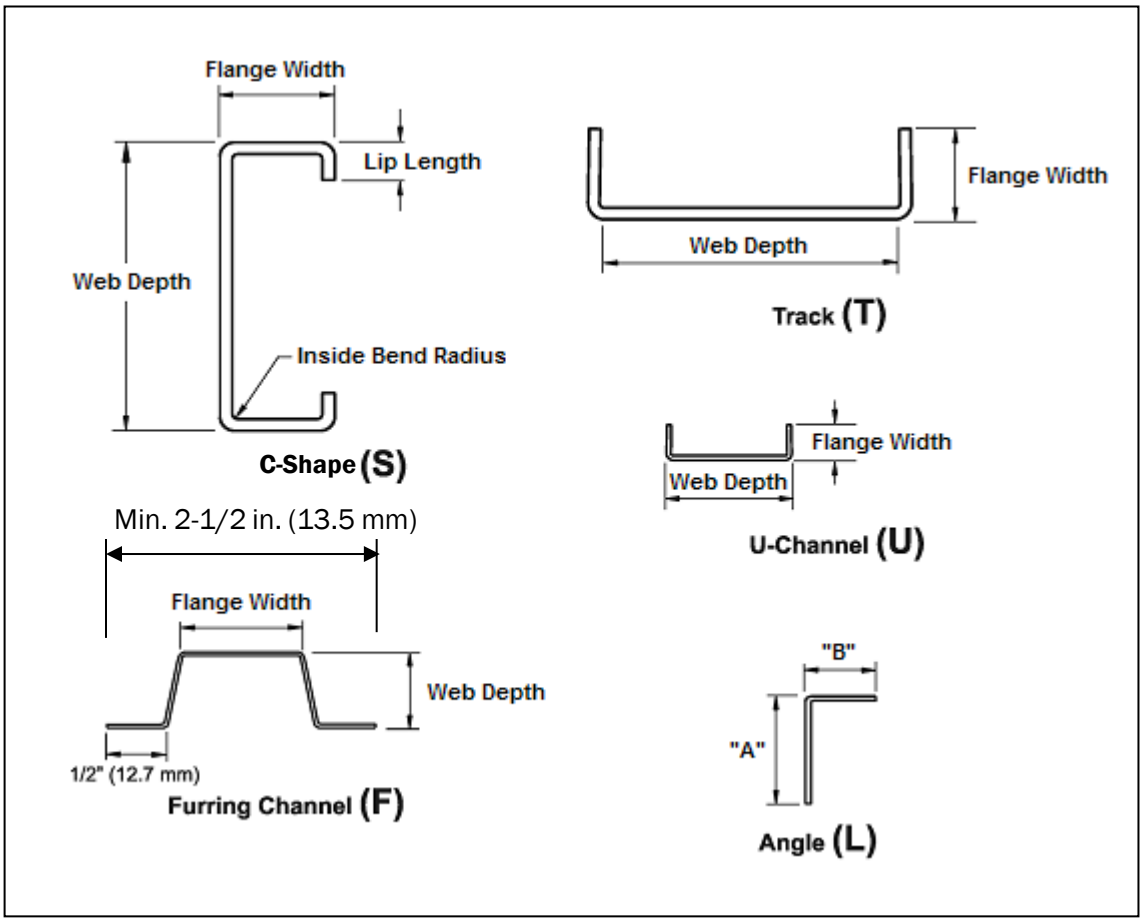

Figure A5-2 Standard Cold-Formed Steel Framing Member Types

Table A5-4
Standard Dimensions for C-Shapes (S)

Web Depth		
Depth Designation	Design Depth	
	(inch)	(mm)
162	1-5/8	41.3
250	2-1/2	63.5
350	3-1/2	88.9
362	3-5/8	92.1
400	4	102
550	5-1/2	140
600	6	152
800	8	203
1000	10	254
1200	12	305
1400	14	356

Flange Width		
Width Designation	Design Width	
	(inch)	(mm)
125	1-1/4	31.8
137	1-3/8	34.9
162	1-5/8	41.3
200	2	50.8
250	2-1/2	63.5
300	3	76.2
350	3-1/2	88.9

Notes: (1) Not all shapes are available in every standard thickness.
(2) Not all combinations of web depth and flange width are available.

Table A5-5
Standard Dimensions for Tracks (T)

Web Depth		
Depth Designation	Design Depth	
	(inch)	(mm)
162	1-5/8	41.3
250	2-1/2	63.5
350	3-1/2	88.9
362	3-5/8	92.1
400	4	102
550	5-1/2	140
600	6	152
800	8	203
1000	10	254
1200	12	305
1400	14	356

Flange Width		
Width Designation	Design Width	
	(inch)	(mm)
125	1-1/4	31.8
150	1-1/2	38.1
200	2	50.8
250	2-1/2	63.5
300	3	76.2

Notes: (1) Not all shapes are available in every standard thickness.
(2) Not all combinations of web depth and flange width are available.

ATTACHMENT C: FROM SFIA TECHNICAL GUIDE FOR COLD-FORMED STEEL FRAMING PRODUCTS

Click here to go to the SFIA website and download a PDF of the Technical Guide.

Section Properties

Track (T) Section Properties

Member	Design Thickness (in)	F_y (ksi)	Gross Properties: Area (in^2)	Weight (lb/ft)	I_x (in^4)	S_x (in^3)	R_x (in)	I_y (in^4)	R_y (in)	Effective Properties: I_x (in^4)	S_x (in^3)	M_a (in-k)	Va_g (lb)	Torsional Properties: Jx1000 (in^4)	C_w (in^6)	X_o (in)	m (in)	R_o (in)	β
250T250-33 (33)	0.0346	33	0.259	0.882	0.339	0.257	1.144	0.178	0.827	0.231	0.117	1.925	866	0.104	0.212	-1.891	1.069	2.360	0.358
250T250-43 (33)	0.0451	33	0.338	1.149	0.443	0.333	1.146	0.230	0.826	0.318	0.170	3.350	1286	0.229	0.276	-1.886	1.066	2.356	0.359
250T250-54 (33)	0.0566	33	0.424	1.442	0.565	0.419	1.155	0.288	0.824	0.441	0.239	4.726	1621	0.453	0.349	-1.880	1.064	2.355	0.363
250T250-54 (50)	0.0566	50	0.424	1.442	0.565	0.419	1.155	0.288	0.824	0.412	0.218	6.527	2444	0.453	0.349	-1.880	1.064	2.355	0.363
250T250-68 (33)	0.0713	33	0.534	1.815	0.728	0.530	1.168	0.360	0.821	0.618	0.343	6.778	2023	0.904	0.446	-1.873	1.061	2.355	0.368
250T250-68 (50)	0.0713	50	0.534	1.815	0.728	0.530	1.168	0.360	0.821	0.578	0.311	9.320	3065	0.904	0.446	-1.873	1.061	2.355	0.368
362T250-33 (33)	0.0346	33	0.298	1.015	0.740	0.393	1.575	0.200	0.820	0.522	0.198	3.264	915	0.119	0.482	-1.719	1.004	2.472	0.516
362T250-43 (33)	0.0451	33	0.389	1.322	0.966	0.510	1.577	0.260	0.818	0.714	0.282	5.573	1516	0.263	0.627	-1.714	1.001	2.468	0.518
362T250-54 (33)	0.0566	33	0.487	1.658	1.225	0.641	1.585	0.324	0.816	0.973	0.390	7.708	2218	0.521	0.790	-1.709	0.999	2.469	0.521
362T250-54 (50)	0.0566	50	0.487	1.658	1.225	0.641	1.585	0.324	0.816	0.916	0.361	10.801	2924	0.521	0.790	-1.709	0.999	2.469	0.521
362T250-68 (33)	0.0713	33	0.614	2.088	1.566	0.808	1.597	0.406	0.813	1.341	0.548	10.830	2974	1.040	1.002	-1.703	0.997	2.472	0.526
362T250-68 (50)	0.0713	50	0.614	2.088	1.566	0.808	1.597	0.406	0.813	1.263	0.504	15.095	4271	1.040	1.002	-1.703	0.997	2.472	0.526
362T250-97 (33)	0.1017	33	0.875	2.977	2.301	1.156	1.622	0.570	0.807	2.188	0.933	18.440	4187	3.016	1.445	-1.689	0.991	2.477	0.535
362T250-97 (50)	0.1017	50	0.875	2.977	2.301	1.156	1.622	0.570	0.807	2.078	0.856	25.628	6344	3.016	1.445	-1.689	0.991	2.477	0.535
362T300-33 (33)	0.0346	33	0.333	1.132	0.861	0.457	1.608	0.327	0.992	0.564	0.197	3.256	915	0.133	0.794	-2.171	1.246	2.878	0.431
362T300-43 (33)	0.0451	33	0.434	1.475	1.124	0.594	1.610	0.425	0.990	0.796	0.291	4.795	1516	0.294	1.034	-2.166	1.244	2.874	0.432
362T300-54 (33)	0.0566	33	0.544	1.851	1.425	0.746	1.619	0.531	0.988	1.053	0.403	7.961	2218	0.581	1.304	-2.160	1.242	2.875	0.435
362T300-54 (50)	0.0566	50	0.544	1.851	1.425	0.746	1.619	0.531	0.988	0.987	0.372	11.134	2924	0.581	1.304	-2.160	1.242	2.875	0.435
362T300-68 (33)	0.0713	33	0.685	2.331	1.824	0.941	1.631	0.665	0.985	1.461	0.568	11.228	2974	1.161	1.657	-2.154	1.239	2.876	0.439
362T300-68 (50)	0.0713	50	0.685	2.331	1.824	0.941	1.631	0.665	0.985	1.368	0.521	15.604	4271	1.161	1.657	-2.154	1.239	2.876	0.439
362T300-97 (33)	0.1017	33	0.977	3.322	2.684	1.348	1.658	0.938	0.980	2.419	0.978	19.318	4187	3.367	2.399	-2.140	1.234	2.879	0.447
362T300-97 (50)	0.1017	50	0.977	3.322	2.684	1.348	1.658	0.938	0.980	2.278	0.891	26.691	6344	3.367	2.399	-2.140	1.234	2.879	0.447
362T350-33 (33)	0.0346	33	0.367	1.250	0.982	0.521	1.634	0.495	1.161	0.601	0.195	3.217	915	0.147	1.214	-2.633	1.491	3.309	0.367
362T350-43 (33)	0.0451	33	0.479	1.629	1.282	0.677	1.636	0.643	1.159	0.847	0.297	4.907	1516	0.325	1.581	-2.627	1.488	3.305	0.368
362T350-54 (33)	0.0566	33	0.601	2.044	1.626	0.851	1.645	0.804	1.157	1.123	0.413	8.161	2218	0.641	1.996	-2.622	1.486	3.304	0.371
362T350-54 (50)	0.0566	50	0.601	2.044	1.626	0.851	1.645	0.804	1.157	1.049	0.381	11.399	2924	0.641	1.996	-2.622	1.486	3.304	0.371
362T350-68 (33)	0.0713	33	0.756	2.574	2.081	1.074	1.659	1.008	1.154	1.566	0.584	11.540	2974	1.282	2.539	-2.615	1.483	3.305	0.374
362T350-68 (50)	0.0713	50	0.756	2.574	2.081	1.074	1.659	1.008	1.154	1.460	0.535	16.005	4271	1.282	2.539	-2.615	1.483	3.305	0.374
362T350-97 (33)	0.1017	33	1.078	3.668	3.066	1.541	1.686	1.424	1.149	2.622	1.012	19.991	4187	3.718	3.689	-2.600	1.478	3.305	0.381
362T350-97 (50)	0.1017	50	1.078	3.668	3.066	1.541	1.686	1.424	1.149	2.454	0.919	27.515	6344	3.718	3.689	-2.600	1.478	3.305	0.381
600T250-33 (33)	0.0346	33	0.380	1.294	2.236	0.728	2.424	0.233	0.783	1.721	0.332	5.483	877	0.152	1.520	-1.451	0.890	2.932	0.755
600T250-43 (33)	0.0451	33	0.496	1.686	2.916	0.946	2.425	0.303	0.781	2.271	0.564	11.145	1539	0.336	1.974	-1.446	0.887	2.930	0.756
600T250-54 (33)	0.0566	33	0.622	2.116	3.679	1.187	2.432	0.378	0.779	3.017	0.795	15.700	2449	0.664	2.478	-1.442	0.885	2.933	0.758
600T250-54 (50)	0.0566	50	0.622	2.116	3.679	1.187	2.432	0.378	0.779	2.884	0.734	21.964	2990	0.664	2.478	-1.442	0.885	2.933	0.758
600T250-68 (33)	0.0713	33	0.783	2.664	4.671	1.495	2.442	0.472	0.776	4.071	1.087	21.487	3819	1.327	3.123	-1.436	0.883	2.938	0.761
600T250-68 (50)	0.0713	50	0.783	2.664	4.671	1.495	2.442	0.472	0.776	3.877	1.019	30.512	4782	1.327	3.123	-1.436	0.883	2.938	0.761
600T250-97 (33)	0.1017	33	1.116	3.798	6.769	2.130	2.462	0.663	0.771	6.454	1.780	35.181	6844	3.849	4.453	-1.425	0.878	2.947	0.766
600T250-97 (50)	0.1017	50	1.116	3.798	6.769	2.130	2.462	0.663	0.771	6.170	1.661	49.720	9240	3.849	4.453	-1.425	0.878	2.947	0.766
600T250-118 (33)	0.1242	33	1.363	4.636	8.362	2.599	2.477	0.800	0.766	8.323	2.351	46.465	8561	7.008	5.431	-1.417	0.874	2.955	0.770
600T250-118 (50)	0.1242	50	1.363	4.636	8.362	2.599	2.477	0.800	0.766	8.009	2.196	65.738	12580	7.008	5.431	-1.417	0.874	2.955	0.770
600T300-33 (33)	0.0346	33	0.415	1.412	2.559	0.833	2.483	0.384	0.962	1.851	0.331	5.463	877	0.166	2.484	-1.864	1.122	3.250	0.671
600T300-43 (33)	0.0451	33	0.541	1.840	3.337	1.083	2.484	0.498	0.960	2.513	0.557	9.184	1539	0.367	3.229	-1.859	1.120	3.248	0.672
600T300-54 (33)	0.0566	33	0.679	2.308	4.212	1.359	2.492	0.622	0.957	3.243	0.822	16.240	2449	0.725	4.057	-1.855	1.118	3.250	0.674
600T300-54 (50)	0.0566	50	0.679	2.308	4.212	1.359	2.492	0.622	0.957	3.111	0.723	21.652	2990	0.725	4.057	-1.855	1.118	3.250	0.674
600T300-68 (33)	0.0713	33	0.855	2.907	5.351	1.712	2.502	0.779	0.955	4.396	1.128	22.292	3819	1.448	5.122	-1.849	1.116	3.255	0.677
600T300-68 (50)	0.0713	50	0.855	2.907	5.351	1.712	2.502	0.779	0.955	4.170	1.055	31.582	4782	1.448	5.122	-1.849	1.116	3.255	0.677
600T300-97 (33)	0.1017	33	1.218	4.144	7.764	2.443	2.525	1.097	0.949	7.050	1.862	36.803	6844	4.200	7.331	-1.837	1.111	3.263	0.683
600T300-97 (50)	0.1017	50	1.218	4.144	7.764	2.443	2.525	1.097	0.949	6.697	1.729	51.764	9240	4.200	7.331	-1.837	1.111	3.263	0.683
600T300-118 (33)	0.1242	33	1.487	5.059	9.599	2.983	2.541	1.327	0.945	9.180	2.480	49.005	8561	7.646	8.966	-1.828	1.107	3.270	0.687
600T300-118 (50)	0.1242	50	1.487	5.059	9.599	2.983	2.541	1.327	0.945	8.757	2.299	68.835	12580	7.646	8.966	-1.828	1.107	3.270	0.687
600T350-33 (33)	0.0346	33	0.450	1.530	2.882	0.938	2.532	0.583	1.138	1.969	0.330	5.447	877	0.179	3.767	-2.292	1.359	3.600	0.595
600T350-43 (33)	0.0451	33	0.586	1.993	3.759	1.220	2.533	0.757	1.136	2.682	0.551	9.094	1539	0.397	4.900	-2.287	1.356	3.597	0.596
600T350-54 (33)	0.0566	33	0.735	2.501	4.746	1.531	2.541	0.946	1.134	3.445	0.844	16.686	2449	0.785	6.162	-2.282	1.354	3.599	0.598
600T350-54 (50)	0.0566	50	0.735	2.501	4.746	1.531	2.541	0.946	1.134	3.317	0.716	21.427	2990	0.785	6.162	-2.282	1.354	3.599	0.598
600T350-68 (33)	0.0713	33	0.926	3.150	6.032	1.930	2.552	1.185	1.132	4.688	1.161	22.947	3819	1.569	7.788	-2.277	1.352	3.603	0.601
600T350-68 (50)	0.0713	50	0.926	3.150	6.032	1.930	2.552	1.185	1.132	4.433	1.084	32.462	4782	1.569	7.788	-2.277	1.352	3.603	0.601
600T350-97 (33)	0.1017	33	1.320	4.490	8.758	2.756	2.576	1.673	1.126	7.581	1.928	38.093	6844	4.550	11.175	-2.264	1.347	3.610	0.607
600T350-97 (50)	0.1017	50	1.320	4.490	8.758	2.756	2.576	1.673	1.126	7.167	1.784	53.411	9240	4.550	11.175	-2.264	1.347	3.610	0.607
600T350-118 (33)	0.1242	33	1.611	5.481	10.835	3.368	2.593	2.027	1.122	9.939	2.580	50.988	8561	8.285	13.697	-2.255	1.344	3.615	0.611
600T350-118 (50)	0.1242	50	1.611	5.481	10.835	3.368	2.593	2.027	1.122	9.423	2.381	71.290	12580	8.285	13.697	-2.255	1.344	3.615	0.611

Section Properties

Track (T) Section Properties

Member	Design Thickness (in)	F_y (ksi)	Gross Properties							Effective Properties				Torsional Properties					
			Area (in^2)	Weight (lb/ft)	I_x (in^4)	S_x (in^3)	R_x (in)	I_y (in^4)	R_y (in)	I_x (in^4)	S_x (in^3)	M_a (in-k)	Va_g (lb)	Jx1000 (in^4)	C_w (in^6)	X_o (in)	m (in)	R_o (in)	β
800T250-33 (33)	0.0346	33	0.450	1.530	4.318	1.060	3.099	0.252	0.748	3.483	0.443	7.306	695	0.179	2.953	-1.286	0.812	3.438	0.860
800T250-43 (33)	0.0451	33	0.586	1.993	5.630	1.380	3.100	0.326	0.746	4.596	0.740	14.618	1484	0.397	3.833	-1.282	0.809	3.436	0.861
800T250-54 (33)	0.0566	33	0.735	2.501	7.090	1.730	3.106	0.407	0.744	5.951	1.195	23.613	2410	0.785	4.803	-1.278	0.808	3.440	0.862
800T250-54 (50)	0.0566	50	0.735	2.501	7.090	1.730	3.106	0.407	0.744	5.820	0.960	28.749	2887	0.785	4.803	-1.278	0.808	3.440	0.862
800T250-68 (33)	0.0713	33	0.926	3.150	8.979	2.177	3.114	0.509	0.741	7.925	1.650	32.607	3884	1.569	6.040	-1.273	0.805	3.445	0.863
800T250-68 (50)	0.0713	50	0.926	3.150	8.979	2.177	3.114	0.509	0.741	7.596	1.562	46.770	4721	1.569	6.040	-1.273	0.805	3.445	0.863
800T250-97 (33)	0.1017	33	1.320	4.490	12.946	3.099	3.132	0.714	0.736	12.378	2.646	52.288	7674	4.550	8.578	-1.263	0.801	3.456	0.866
800T250-97 (50)	0.1017	50	1.320	4.490	12.946	3.099	3.132	0.714	0.736	11.889	2.492	74.607	9703	4.550	8.578	-1.263	0.801	3.456	0.866
800T250-118 (33)	0.1242	33	1.611	5.481	15.934	3.778	3.145	0.862	0.732	15.845	3.457	68.302	10711	8.285	10.433	-1.256	0.797	3.464	0.869
800T250-118 (50)	0.1242	50	1.611	5.481	15.934	3.778	3.145	0.862	0.732	15.297	3.256	97.483	14099	8.285	10.433	-1.256	0.797	3.464	0.869
800T300-33 (33)	0.0346	33	0.484	1.647	4.887	1.200	3.177	0.416	0.927	3.729	0.444	7.320	695	0.193	4.818	-1.671	1.035	3.707	0.797
800T300-43 (33)	0.0451	33	0.631	2.147	6.372	1.562	3.178	0.540	0.925	5.037	0.738	12.173	1484	0.428	6.260	-1.667	1.033	3.706	0.798
800T300-54 (33)	0.0566	33	0.792	2.693	8.028	1.959	3.184	0.675	0.923	6.401	1.180	23.324	2410	0.845	7.853	-1.662	1.031	3.709	0.799
800T300-54 (50)	0.0566	50	0.792	2.693	8.028	1.959	3.184	0.675	0.923	6.242	0.957	28.659	2887	0.845	7.853	-1.662	1.031	3.709	0.799
800T300-68 (33)	0.0713	33	0.997	3.392	10.172	2.466	3.194	0.845	0.920	8.506	1.711	33.805	3884	1.690	9.892	-1.657	1.029	3.714	0.801
800T300-68 (50)	0.0713	50	0.997	3.392	10.172	2.466	3.194	0.845	0.920	8.168	1.551	46.446	4721	1.690	9.892	-1.657	1.029	3.714	0.801
800T300-97 (33)	0.1017	33	1.422	4.836	14.679	3.513	3.213	1.189	0.915	13.415	2.763	54.599	7674	4.901	14.096	-1.647	1.024	3.725	0.805
800T300-97 (50)	0.1017	50	1.422	4.836	14.679	3.513	3.213	1.189	0.915	12.813	2.591	77.578	9703	4.901	14.096	-1.647	1.024	3.725	0.805
800T300-118 (33)	0.1242	33	1.735	5.904	18.078	4.287	3.228	1.438	0.910	17.321	3.635	71.833	10711	8.924	17.189	-1.639	1.021	3.732	0.807
800T300-118 (50)	0.1242	50	1.735	5.904	18.078	4.287	3.228	1.438	0.910	16.593	3.403	101.872	14099	8.924	17.189	-1.639	1.021	3.732	0.807
800T350-33 (33)	0.0346	33	0.519	1.765	5.456	1.340	3.243	0.635	1.106	3.955	0.444	7.325	695	0.207	7.289	-2.073	1.264	4.005	0.732
800T350-43 (33)	0.0451	33	0.676	2.300	7.115	1.744	3.244	0.824	1.104	5.355	0.736	12.141	1484	0.458	9.477	-2.069	1.262	4.003	0.733
800T350-54 (33)	0.0566	33	0.848	2.886	8.966	2.187	3.251	1.030	1.102	6.813	1.169	23.105	2410	0.906	11.898	-2.064	1.260	4.006	0.734
800T350-54 (50)	0.0566	50	0.848	2.886	8.966	2.187	3.251	1.030	1.102	6.629	0.954	28.575	2887	0.906	11.898	-2.064	1.260	4.006	0.734
800T350-68 (33)	0.0713	33	1.068	3.635	11.364	2.755	3.261	1.291	1.099	9.033	1.761	34.805	3884	1.810	15.004	-2.059	1.258	4.011	0.736
800T350-68 (50)	0.0713	50	1.068	3.635	11.364	2.755	3.261	1.291	1.099	8.699	1.535	45.971	4721	1.810	15.004	-2.059	1.258	4.011	0.736
800T350-97 (33)	0.1017	33	1.523	5.182	16.411	3.928	3.282	1.821	1.093	14.347	2.858	56.477	7674	5.252	21.432	-2.048	1.253	4.020	0.741
800T350-97 (50)	0.1017	50	1.523	5.182	16.411	3.928	3.282	1.821	1.093	13.648	2.673	80.029	9703	5.252	21.432	-2.048	1.253	4.020	0.741
800T350-118 (33)	0.1242	33	1.860	6.327	20.223	4.795	3.298	2.206	1.089	18.634	3.778	74.645	10711	9.562	26.185	-2.040	1.250	4.027	0.744
800T350-118 (50)	0.1242	50	1.860	6.327	20.223	4.795	3.298	2.206	1.089	17.755	3.521	105.428	14099	9.562	26.185	-2.040	1.250	4.027	0.744