ICC-ES Evaluation Report

ESR-5905

Issued *November 2026*

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DIVISION: 05 00 00— METALS **Section: 05 40 00— Cold-Formed Metal Framing** **Section: 05 41 00— Structural Metal Stud Framing** **Section: 05 42 00— Cold-Formed Metal Joist Framing** **DIVISION: 09 00 00— FINISHES** **Section: 09 22 16.13— Non-Structural Metal Stud Framing**	**REPORT HOLDER:** **UMS UGUR METAL SANAYI ANONIM SIRKETI** **ADDITIONAL LISTEES:** **UMS METAL BUILDING SYSTEM USA LLC**	**EVALUATION SUBJECT:** **UMS JOISTS, UMS STUDS AND UMS TRACKS**	

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2024, 2021, 2018 *International Building Code*® (IBC)
- 2024, 2021, 2018 *International Residential Code*® (IRC)

Property evaluated:

- Structural.

2.0 USES

The framing members (studs, tracks and joists) with a minimum base steel thickness of 33 mils [0.0329 inch (0.836 mm)] and a minimum G60 coating are used as structural members as defined by the North American Standard for Cold-Formed Steel Structural Framing (AISI S240) and may also be used as nonstructural members.

The framing members with a minimum G40 coating are used only as nonstructural members as defined by the North American Standard for Cold-Formed Steel Nonstructural Framing (AISI S220).

3.0 DESCRIPTION

The cold-formed framing members are factory-formed from steel coils conforming to ASTM A653, SS Grade 33 with minimum yield strength of 33 ksi (228 MPa) and minimum tensile strength of 45 ksi (310 MPa), or ASTM A653, SS Grade 50 Class 1 with minimum yield strength of 50 ksi (345 MPa) and minimum tensile strength of 65 ksi (448 MPa).

Minimum thickness and bend radius of evaluated products are provided in Table 1. The designations of the evaluated members and their dimensions are provided in Table 2.

The actual web height for the tracks (measured from the outside-to-outside of flanges) is equal to the value provided in Table 2 plus twice the design thickness plus a tolerance of 0 to +1/8 inch (0 to +3.18 mm). The studs/joists are manufactured with and without web punchouts. The punch-outs have a width of $1^1/_2$ inches (38 mm) and a length of 4 inches (102 mm) in members with a depth greater than $2^1/_2$ inches (64 mm). In members with a depth of $2^1/_2$ inches (64 mm), punch-outs have a width of $^3/_4$ inch (19 mm) and a length of 4 inches (102 mm). The punchouts are located along the centerline of the webs of the studs/joists with a minimum center-to-center spacing of 24 inches (610 mm). The minimum distance from the end of the stud/joist to the center of the nearest web punchout is 12 inches (305 mm). Tracks are manufactured without punchouts. See Figure 1 for members profiles.

4.0 DESIGN AND INSTALLATION

4.1 General:

The cold-formed steel members, and their connections must be designed and installed in accordance with IBC Section 2204 (2021 and 2018 IBC Section 2210), using the section properties and design values referenced in Section 4.2.

4.2 Design:

4.2.1 General: Design values have been determined in accordance with the North American Specification for the Design of Cold-Formed Steel Structural Members [AISI S100-16 (2020) w/S2-20]. The design of members must address other aspects such as web crippling, combined bending and web crippling, and combined bending and shear, as applicable, in accordance with the AISI S100.

4.2.2 Applications under the IRC: The structural studs, joists, and tracks listed in Table 3 qualify for use with prescriptive requirements of the IRC. For use of all other members under the IRC, the cold-formed steel members must be limited to engineered structures, in accordance with Section R301.1.3.

4.2.3 Framing Members: Section properties and allowable strengths of the framing members are given in Tables 4 through 7 as follows:

- Gross and torsional section properties of the structural studs/joists are provided in Table 4, and effective section properties and allowable strengths in Table 5.
- Gross and torsional section properties of the tracks are provided in Table 6, and effective section properties and allowable strengths in Table 7.

Properties were determined for the full, unreduced cross sections, away from punchouts, unless mentioned otherwise. The allowable moments are for use with Allowable Strength Design (ASD) and are for flexural members installed with the compression flange continuously braced. For other conditions of compression flange bracing, the allowable moment must be determined in accordance with AISI S100.

4.3 Installation:

The cold-formed steel framing members must be installed in accordance with the applicable code, and this report. If there is a conflict between the plans submitted for approval and this report, this report governs. The approved plans must be available at the jobsite at all times during installation.

5.0 CONDITIONS OF USE:

The cold-formed steel framing members described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

5.1 Minimum base steel thickness of cold-formed steel members, as delivered to the jobsite, must be as specified in Table 1.

5.2 The construction documents prepared or reviewed by a registered design professional, where required by the statutes of the jurisdiction in which the project is to be constructed specifying the cold-formed steel framing members, must indicate compliance with this evaluation report and applicable codes and must be submitted to the code official for approval.

5.3 Connections evaluation, including members at supports and near ends, are outside the scope of the evaluation report and must be designed by a registered design professional.

5.4 Framing members with a height-to-thickness (h/t) ratio of more than 200 must be provided with web stiffeners in accordance with Section B4.1 of AISI S100. Holes or punchouts in the web for members with h/t ratio of more than 200 are outside the scope of this report.

5.5 The cold-formed steel framing members are manufactured under approved quality control programs with inspections by ICC-ES

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Cold-Formed Steel Framing Members (AC46), dated October 2024.

7.0 IDENTIFICATION

7.1 The ICC-ES mark of conformity, electronic labeling, or the evaluation report number (ICC-ES ESR-5905) along with the name, registered trademark, or registered logo of the report holder and/or the additional listee must be included in the product label.

7.2 In addition, a spacing not exceeding 96 inches (2440 mm) on center, each cold-formed steel member recognized in this report must be stamped, stenciled or embossed with the report holder's or additional listee's name, the section identification as described in Table 2; the minimum yield strength; and the coating grade (for all structural members, and if other than G40 for nonstructural members). Nonstructural members must have the designation "NS".

7.3 The report holder's contact information is the following:

UMS UGUR METAL SANAYI ANONIM SIRKETI
1208. SOKAK NO:6 OSTIM YENIMAHALLE
ANKARA 06374
TURKEY
+90 312 354 01 06
https://umsmetal.com.tr/en/

7.4 The additional listee's contact information is the following:

UMS METAL BUILDING SYSTEM USA LLC
11417 IRVING PARK ROAD, SUITE B-16
FRANKLIN PARK, ILLINOIS 60131
(630) 426-6955
https://umsmetal.us
sales@umsmetal.com

Definition of Symbols

Gross Section Properties
Area = Full unreduced cross-sectional area of the member.
Wt = Weight per linear foot.
I_{xx} = Moment of inertia of the full unreduced cross-section about the x-axis.
S_{xx} = Elastic section modulus of the full unreduced cross-section about the x-axis.
R_x = Radius of gyration of the full unreduced cross-section about the x-axis.
I_{yy} = Moment of inertia of the full unreduced cross-section about the y-axis.
S_{yy} = Elastic section modulus of the full unreduced cross-section about the y-axis.
R_y = Radius of gyration of the full unreduced cross-section about the y-axis.

Torsional and Other Properties
J = St. Venant torsion constant of the cross-section.
C_w = Torsional warping constant of the cross-section.
R_o = Polar radius of gyration of the cross-section about the shear center.
X_o = Distance from the centroid to the shear center in the principal x-axis direction.
m = Distance from the shear center to the mid-plane of the web.
β = Torsional flexural constant, equal to $1 - (X_o/R_o)^2$.

Effective Properties and Allowable Strengths
F_y = Specified minimum yield stress of the steel.
I_{xe} = Effective moment of inertia about the x-axis, to be used for deflection calculations.
S_{xe} = Elastic section modulus of the effective section, calculated relative to the extreme compression fiber at Fy.
$M_{a\text{-}L}$ = Allowable moment based on local buckling.
$M_{a\text{-}D}$ = Allowable moment based on distortional buckling. Not applicable to tracks, which have no edge stiffeners.
L_u = Critical unbraced length for lateral-torsional buckling. Members are considered fully braced when the unbraced length (maximum of unbraced length for bending about the weak axis, L_y, and the unbraced length for twisting, L_t) is less than Lu.
V_a = Allowable strong axis shear away from punch-outs.
$V_{a,PO}$ = Allowable strong axis shear at a punch-out. Applicable to studs/joists only; tracks are manufactured without punch-outs.

TABLE 1—THICKNESSES AND INSIDE BEND RADIUSES OF FRAMING MEMBERS

Thickness		Minimum Thickness (in.)	Design Thickness (in.)	Inside Bend Radius (in.)
Mils	Gauge			
30	20 (Nonstructural)	0.0296	0.0312	0.0781
33	20S (Structural)	0.0329	0.0346	0.0764
43	18	0.0428	0.0451	0.0712
54	16	0.0538	0.0566	0.0849
68	14	0.0677	0.0713	0.1069
97	12	0.0966	0.1017	0.1525

For **SI Units**: 1 inch = 25.4 mm

TABLE 2—DESIGNATIONS AND DIMENSIONS OF FRAMING MEMBERS

MEMBER			DIMENSIONS (in.)		
Type	Designation[1]	Thickness (Mils)	Web	Flange	Lip
Structural Studs or Joists	250S162-XX	33, 43, 54, 68, 97	2.5	1.625	0.500
	250S200-XX			2.000	0.625
	250S250-XX	43, 54, 68, 97		2.500	0.625
	300S162-XX	33, 43, 54, 68, 97	3.0	1.625	0.500
	300S200-XX			2.000	0.625
	300S250-XX	43, 54, 68, 97		2.500	0.625
	350S162-XX	33, 43, 54, 68, 97	3.5	1.625	0.500
	350S200-XX			2.000	0.625
	350S250-XX			2.500	0.625
	362S162-XX		3.625	1.625	0.500
	362S200-XX			2.000	0.625
	362S250-XX	43, 54, 68, 97		2.500	0.625
	362S300-XX	54, 68, 97		3.000	0.625
	400S162-XX	33, 43, 54, 68, 97	4.0	1.625	0.500
	400S200-XX			2.000	0.625
	400S250-XX	43, 54, 68, 97		2.500	0.625
	400S300-XX	54, 68, 97		3.000	0.625
	550S162-XX	33, 43, 54, 68, 97	5.5	1.625	0.500
	550S200-XX			2.000	0.625
	550S250-XX			2.500	0.625
	550S300-XX	54, 68, 97		3.000	0.625
	600S162-XX	33, 43, 54, 68, 97	6.0	1.625	0.500
	600S200-XX			2.000	0.625
	600S250-XX	43, 54, 68, 97		2.500	0.625
	600S300-XX	54, 68, 97		3.000	0.625
	800S162-XX	33, 43, 54, 68, 97	8.0	1.625	0.500
	800S200-XX			2.000	0.625
	800S250-XX	43, 54, 68, 97		2.500	0.625
	800S300-XX	54, 68, 97		3.000	0.625
	1000S162-XX	33, 43, 54, 68, 97	10.0	1.625	0.500
	1000S200-XX			2.000	0.625
	1000S250-XX			2.500	0.625
	1000S300-XX	54, 68, 97		3.000	0.625
	1200S162-XX	33, 43, 54, 68, 97	12.0	1.625	0.500
	1200S200-XX			2.000	0.625
	1200S250-XX			2.500	0.625
	1200S300-XX	54, 68, 97		3.000	0.625

MEMBER			DIMENSIONS (in.)		
Type	Designation[1]	Thickness (Mils)	Web	Flange	Lip
Structural and Non-structural Tracks[2]	250T125-XX	33, 43, 54, 68, 97	2.5	1.250	0
	250T150-XX			1.500	
	250T162-XX	30, 33, 43, 54, 68, 97		1.625	
	250T200-XX	33, 43, 54, 68, 97		2.000	
	250T250-XX			2.500	
	300T125-XX		3.0	1.250	
	300T150-XX			1.500	
	300T162-XX	30, 33, 43, 54, 68, 97		1.625	
	300T200-XX	33, 43, 54, 68, 97		2.000	
	300T250-XX	43, 54, 68, 97		2.500	
	350T125-XX	33, 43, 54, 68, 97	3.5	1.250	
	350T150-XX			1.500	
	350T162-XX	30, 33, 43, 54, 68, 97		1.625	
	350T200-XX	33, 43, 54, 68, 97		2.000	
	350T250-XX	43, 54, 68, 97		2.500	
	362T125-XX	33, 43, 54, 68, 97	3.625	1.250	
	362T150-XX			1.500	
	362T162-XX	30, 33, 43, 54, 68, 97		1.625	
	362T200-XX	33, 43, 54, 68, 97		2.000	
	362T250-XX	43, 54, 68, 97		2.500	
	400T125-XX	33, 43, 54, 68, 97	4.0	1.250	
	400T150-XX			1.500	
	400T162-XX	30, 33, 43, 54, 68, 97		1.625	
	400T200-XX	33, 43, 54, 68, 97		2.000	
	400T250-XX	43, 54, 68, 97		2.500	
	550T125-XX	33, 43, 54, 68, 97	5.5	1.250	
	550T150-XX			1.500	
	550T162-XX	30, 33, 43, 54, 68, 97		1.625	
	550T200-XX	33, 43, 54, 68, 97		2.000	
	550T250-XX	43, 54, 68, 97		2.500	
	600T125-XX	33, 43, 54, 68, 97	6.0	1.250	
	600T150-XX			1.500	
	600T162-XX	30, 33, 43, 54, 68, 97		1.625	
	600T200-XX	33, 43, 54, 68, 97		2.000	
	600T250-XX	43, 54, 68, 97		2.500	
	800T125-XX	33, 43, 54, 68, 97	8.0	1.250	
	800T150-XX			1.500	
	800T162-XX			1.625	
	800T200-XX			2.000	
	800T250-XX	43, 54, 68, 97		2.500	
	1000T125-XX	33, 43, 54, 68, 97	10.0	1.250	
	1000T150-XX			1.500	
	1000T162-XX			1.625	
	1000T200-XX	43, 54, 68, 97		2.000	
	1000T250-XX			2.500	
	1200T125-XX	33, 43, 54, 68, 97	12.0	1.250	
	1200T150-XX			1.500	
	1200T162-XX	33, 43, 54, 68, 97		1.625	
	1200T200-XX	54, 68, 97		2.000	
	1200T250-XX	54, 68, 97		2.500	
	1200T300-XX	54, 68, 97		3.000	

For **SI Units**: 1 inch = 25.4 mm

[1] "XX" denotes the thickness in mils.

[2] The provided web depth of tracks is measured from the inside-to- inside flanges.

TABLE 3—STRUCTURAL STUDS, JOISTS, AND TRACKS FOR USE WITH THE IRC[1]

Type	IRC MEMBER DESIGNATION	EQUIVALENT UMS METALS STRUCTURAL STUD AND TRACK DESIGNATION			
		t = 33 mils	t = 43 mils	t = 54 mils	t = 68 mils
Stud Designation	350S162-t	350S162-33	350S162-43	350S162-54	350S162-68
		350S200-33	350S200-43	350S200-54	350S200-68
	550S162-t	550S162-33	550S162-43	550S162-54	550S162-68
		550S200-33	550S200-43	550S200-54	550S200-68
Joist Designation	550S162-t	550S162-33	550S162-43	550S162-54	550S162-68
		550S200-33	550S200-43	550S200-54	550S200-68
	800S162-t	800S162-33	800S162-43	800S162-54	800S162-68
		800S200-33	800S200-43	800S200-54	800S200-68
	1000S162-t	---	1000S162-43	1000S162-54	1000S162-68
		---	1000S200-43	1000S200-54	1000S200-68
	1200S162-t	---	---	1200S162-54	1200S162-68
		---	---	1200S200-54	1200S200-68
Track Designation	350T125-t	350T125-33	350T125-43	350T125-54	---
	550T125-t	550T125-33	550T125-43	550T125-54	---

[1] Under the IRC: Minimum Grade 33 ksi steel must be used, wherever 33 and 43 mil thicknesses are specified. Minimum Grade 50 ksi steel must be used, wherever 54, and 68 mil thicknesses are specified.

TABLE 4 – STUD/JOIST GROSS AND TORSIONAL SECTION PROPERTIES [4,5]

SECTION	GROSS PROPERTIES								TORSIONAL PROPERTIES					
	Area	Wt	I_{xx}	S_{xx}	R_x	I_{yy}	S_{yy}	R_y	Jx1000	C_w	R_o	X_o	m	β
	(in^2)	(lbf/ft)	(in^4)	(in^3)	(in)	(in^4)	(in^3)	(in)	(in^4)	(in^6)	(in)	(in)	(in)	
250S162-33	0.223	0.76	0.235	0.188	1.027	0.087	0.087	0.624	0.089	0.146	1.898	-1.470	0.859	0.401
250S162-43	0.289	0.98	0.302	0.242	1.022	0.111	0.111	0.620	0.196	0.184	1.885	-1.457	0.852	0.402
250S162-54	0.358	1.22	0.370	0.296	1.016	0.135	0.135	0.613	0.383	0.223	1.868	-1.443	0.845	0.404
250S162-68	0.443	1.51	0.450	0.360	1.008	0.162	0.162	0.605	0.752	0.268	1.847	-1.424	0.835	0.405
250S162-97	0.610	2.07	0.597	0.478	0.990	0.210	0.209	0.587	2.102	0.346	1.801	-1.386	0.815	0.408
250S200-33	0.258	0.88	0.279	0.223	1.040	0.154	0.132	0.773	0.103	0.302	2.321	-1.926	1.108	0.312
250S200-43	0.334	1.14	0.358	0.287	1.036	0.198	0.170	0.769	0.227	0.382	2.308	-1.914	1.101	0.312
250S200-54	0.415	1.41	0.440	0.352	1.030	0.241	0.207	0.763	0.443	0.464	2.291	-1.899	1.093	0.313
250S200-68	0.515	1.75	0.538	0.430	1.022	0.293	0.251	0.755	0.872	0.561	2.270	-1.881	1.084	0.313
250S200-97	0.711	2.42	0.719	0.575	1.005	0.386	0.330	0.737	2.452	0.735	2.225	-1.843	1.063	0.314
250S250-43	0.379	1.29	0.426	0.341	1.060	0.336	0.235	0.941	0.257	0.638	2.791	-2.404	1.359	0.258
250S250-54	0.471	1.60	0.524	0.419	1.055	0.412	0.287	0.935	0.503	0.778	2.774	-2.389	1.351	0.258
250S250-68	0.586	1.99	0.643	0.514	1.047	0.503	0.350	0.926	0.993	0.944	2.752	-2.371	1.341	0.258
250S250-97	0.813	2.77	0.865	0.692	1.031	0.670	0.466	0.908	2.803	1.245	2.707	-2.332	1.320	0.258
300S162-33	0.240	0.82	0.357	0.238	1.218	0.093	0.089	0.622	0.096	0.205	1.952	-1.393	0.826	0.491
300S162-43	0.312	1.06	0.459	0.306	1.214	0.119	0.114	0.617	0.211	0.259	1.939	-1.380	0.819	0.493
300S162-54	0.387	1.32	0.563	0.375	1.207	0.144	0.138	0.611	0.413	0.314	1.923	-1.366	0.812	0.495
300S162-68	0.479	1.63	0.688	0.458	1.198	0.174	0.167	0.602	0.812	0.378	1.901	-1.348	0.802	0.497
300S162-97	0.660	2.25	0.918	0.612	1.179	0.225	0.215	0.584	2.277	0.492	1.856	-1.309	0.782	0.502
300S200-33	0.275	0.94	0.421	0.281	1.238	0.165	0.136	0.775	0.110	0.409	2.348	-1.839	1.072	0.387
300S200-43	0.357	1.21	0.543	0.362	1.233	0.212	0.174	0.770	0.242	0.519	2.335	-1.827	1.065	0.388
300S200-54	0.443	1.51	0.667	0.445	1.227	0.259	0.212	0.764	0.473	0.633	2.318	-1.812	1.058	0.389
300S200-68	0.550	1.87	0.818	0.545	1.219	0.314	0.258	0.756	0.933	0.767	2.297	-1.794	1.048	0.390
300S200-97	0.762	2.59	1.100	0.734	1.202	0.415	0.340	0.738	2.628	1.010	2.252	-1.755	1.028	0.392
300S250-43	0.402	1.37	0.641	0.427	1.263	0.359	0.241	0.946	0.272	0.870	2.796	-2.308	1.321	0.319
300S250-54	0.500	1.70	0.790	0.527	1.257	0.441	0.295	0.939	0.534	1.062	2.779	-2.293	1.314	0.319
300S250-68	0.622	2.12	0.971	0.647	1.250	0.538	0.360	0.931	1.054	1.293	2.757	-2.274	1.304	0.319
300S250-97	0.864	2.94	1.314	0.876	1.233	0.719	0.480	0.912	2.978	1.716	2.711	-2.235	1.283	0.320
350S162-33	0.258	0.88	0.508	0.291	1.404	0.098	0.091	0.617	0.103	0.277	2.026	-1.324	0.796	0.573
350S162-43	0.334	1.14	0.655	0.374	1.400	0.125	0.116	0.612	0.227	0.350	2.014	-1.312	0.789	0.575
350S162-54	0.415	1.41	0.805	0.460	1.393	0.152	0.141	0.606	0.443	0.426	1.998	-1.298	0.782	0.578
350S162-68	0.515	1.75	0.985	0.563	1.383	0.184	0.170	0.597	0.872	0.514	1.977	-1.280	0.772	0.581
350S162-97	0.711	2.42	1.321	0.755	1.363	0.238	0.220	0.579	2.452	0.672	1.932	-1.242	0.752	0.587
350S200-33	0.292	0.99	0.599	0.342	1.431	0.175	0.138	0.773	0.117	0.541	2.396	-1.760	1.039	0.461
350S200-43	0.379	1.29	0.771	0.441	1.426	0.224	0.177	0.768	0.257	0.687	2.383	-1.748	1.032	0.462
350S200-54	0.471	1.60	0.950	0.543	1.420	0.274	0.217	0.762	0.503	0.838	2.367	-1.733	1.024	0.464
350S200-68	0.586	1.99	1.167	0.667	1.411	0.333	0.263	0.754	0.993	1.018	2.345	-1.715	1.014	0.465
350S200-97	0.813	2.77	1.577	0.901	1.393	0.440	0.348	0.736	2.803	1.347	2.300	-1.676	0.994	0.469
350S250-33[3]	0.327	1.11	0.702	0.401	1.466	0.296	0.192	0.951	0.130	0.904	2.834	-2.232	1.293	0.380
350S250-43	0.424	1.44	0.906	0.518	1.461	0.380	0.246	0.946	0.288	1.151	2.821	-2.220	1.286	0.381
350S250-54	0.528	1.80	1.118	0.639	1.455	0.467	0.302	0.940	0.564	1.409	2.804	-2.205	1.278	0.382
350S250-68	0.657	2.24	1.377	0.787	1.447	0.570	0.369	0.931	1.114	1.718	2.782	-2.186	1.268	0.383
350S250-97	0.915	3.11	1.871	1.069	1.430	0.763	0.492	0.913	3.154	2.291	2.736	-2.147	1.248	0.384
362S162-33	0.262	0.89	0.550	0.304	1.448	0.099	0.091	0.616	0.105	0.296	2.047	-1.309	0.789	0.591
362S162-43	0.340	1.16	0.708	0.391	1.444	0.127	0.117	0.611	0.230	0.375	2.035	-1.297	0.782	0.594

TABLE 4 – STUD/JOIST GROSS AND TORSIONAL SECTION PROPERTIES [4,5]

SECTION	GROSS PROPERTIES								TORSIONAL PROPERTIES					
	Area	Wt	I_{xx}	S_{xx}	R_x	I_{yy}	S_{yy}	R_y	Jx1000	C_w	R_o	X_o	m	β
	(in^2)	(lbf/ft)	(in^4)	(in^3)	(in)	(in^4)	(in^3)	(in)	(in^4)	(in^6)	(in)	(in)	(in)	
362S162-54	0.422	1.43	0.870	0.481	1.437	0.154	0.142	0.605	0.450	0.456	2.019	-1.283	0.775	0.596
362S162-68	0.523	1.78	1.066	0.589	1.427	0.186	0.171	0.596	0.887	0.551	1.998	-1.265	0.765	0.599
362S162-97	0.724	2.46	1.431	0.791	1.406	0.241	0.221	0.577	2.494	0.721	1.953	-1.227	0.746	0.606
362S200-33	0.297	1.01	0.646	0.357	1.476	0.177	0.139	0.772	0.118	0.576	2.410	-1.742	1.031	0.478
362S200-43	0.385	1.31	0.833	0.460	1.472	0.227	0.178	0.768	0.261	0.732	2.397	-1.730	1.024	0.479
362S200-54	0.478	1.63	1.027	0.567	1.465	0.277	0.218	0.761	0.511	0.893	2.381	-1.715	1.016	0.481
362S200-68	0.595	2.02	1.262	0.697	1.457	0.337	0.265	0.753	1.008	1.086	2.360	-1.697	1.007	0.483
362S200-97	0.825	2.81	1.706	0.943	1.438	0.446	0.349	0.735	2.845	1.437	2.315	-1.658	0.987	0.487
362S250-43	0.430	1.46	0.977	0.540	1.508	0.385	0.247	0.946	0.291	1.227	2.830	-2.200	1.277	0.396
362S250-54	0.535	1.82	1.207	0.667	1.502	0.472	0.303	0.940	0.571	1.502	2.813	-2.185	1.270	0.397
362S250-68	0.666	2.27	1.486	0.821	1.494	0.577	0.371	0.931	1.128	1.832	2.791	-2.166	1.260	0.398
362S250-97	0.927	3.15	2.021	1.117	1.477	0.772	0.495	0.913	3.196	2.445	2.745	-2.127	1.239	0.400
362S300-54	0.591	2.01	1.386	0.766	1.531	0.733	0.400	1.114	0.632	2.310	3.265	-2.660	1.522	0.336
362S300-68	0.737	2.51	1.711	0.945	1.523	0.900	0.490	1.105	1.249	2.826	3.243	-2.641	1.512	0.337
362S300-97	1.029	3.50	2.336	1.291	1.507	1.213	0.659	1.086	3.546	3.792	3.196	-2.601	1.492	0.338
400S162-33	0.275	0.94	0.692	0.346	1.586	0.103	0.092	0.611	0.110	0.363	2.118	-1.263	0.768	0.644
400S162-43	0.357	1.21	0.892	0.446	1.581	0.131	0.118	0.606	0.242	0.460	2.106	-1.252	0.761	0.647
400S162-54	0.443	1.51	1.098	0.549	1.574	0.159	0.143	0.600	0.473	0.560	2.090	-1.238	0.754	0.649
400S162-68	0.550	1.87	1.346	0.673	1.564	0.192	0.173	0.591	0.933	0.677	2.069	-1.220	0.745	0.653
400S162-97	0.762	2.59	1.813	0.907	1.542	0.250	0.223	0.572	2.628	0.889	2.026	-1.182	0.725	0.660
400S200-33	0.310	1.05	0.812	0.406	1.619	0.183	0.141	0.769	0.124	0.697	2.462	-1.688	1.007	0.530
400S200-43	0.402	1.37	1.048	0.524	1.615	0.235	0.180	0.764	0.272	0.886	2.450	-1.676	1.000	0.532
400S200-54	0.500	1.70	1.292	0.646	1.608	0.287	0.220	0.758	0.534	1.083	2.433	-1.662	0.993	0.534
400S200-68	0.622	2.12	1.590	0.795	1.599	0.349	0.268	0.750	1.054	1.318	2.412	-1.643	0.983	0.536
400S200-97	0.864	2.94	2.156	1.078	1.580	0.463	0.354	0.732	2.978	1.749	2.368	-1.605	0.963	0.541
400S250-43	0.447	1.52	1.224	0.612	1.655	0.399	0.251	0.945	0.303	1.486	2.865	-2.139	1.252	0.443
400S250-54	0.556	1.89	1.512	0.756	1.649	0.490	0.308	0.938	0.594	1.821	2.848	-2.124	1.244	0.444
400S250-68	0.693	2.36	1.865	0.932	1.640	0.599	0.376	0.929	1.174	2.225	2.826	-2.105	1.235	0.445
400S250-97	0.966	3.29	2.542	1.271	1.623	0.802	0.502	0.911	3.329	2.978	2.781	-2.066	1.214	0.448
400S300-54	0.613	2.09	1.732	0.866	1.681	0.760	0.406	1.114	0.655	2.802	3.285	-2.594	1.496	0.377
400S300-68	0.764	2.60	2.140	1.070	1.673	0.933	0.497	1.105	1.295	3.432	3.263	-2.574	1.486	0.378
400S300-97	1.067	3.63	2.928	1.464	1.656	1.259	0.670	1.086	3.679	4.619	3.217	-2.535	1.465	0.379
550S162-33	0.327	1.11	1.459	0.530	2.112	0.113	0.095	0.589	0.130	0.713	2.459	-1.114	0.697	0.795
550S162-43	0.424	1.44	1.884	0.685	2.107	0.145	0.122	0.584	0.288	0.905	2.449	-1.103	0.691	0.797
550S162-54	0.528	1.80	2.325	0.845	2.098	0.176	0.148	0.577	0.564	1.105	2.434	-1.090	0.684	0.800
550S162-68	0.657	2.24	2.862	1.041	2.087	0.212	0.178	0.569	1.114	1.342	2.414	-1.072	0.675	0.803
550S162-97	0.915	3.11	3.887	1.414	2.062	0.276	0.231	0.550	3.154	1.775	2.372	-1.037	0.656	0.809
550S200-33	0.362	1.23	1.694	0.616	2.164	0.204	0.146	0.751	0.144	1.326	2.743	-1.508	0.925	0.698
550S200-43	0.469	1.60	2.189	0.796	2.159	0.261	0.187	0.746	0.318	1.691	2.731	-1.496	0.918	0.700
550S200-54	0.585	1.99	2.707	0.984	2.152	0.320	0.228	0.739	0.624	2.072	2.716	-1.483	0.911	0.702
550S200-68	0.729	2.48	3.341	1.215	2.141	0.389	0.278	0.731	1.235	2.531	2.695	-1.465	0.902	0.705
550S200-97	1.016	3.46	4.565	1.660	2.119	0.516	0.368	0.713	3.504	3.384	2.653	-1.428	0.882	0.710
550S250-33[3]	0.396	1.35	1.952	0.710	2.220	0.346	0.203	0.935	0.158	2.219	3.096	-1.945	1.169	0.605
550S250-43	0.515	1.75	2.525	0.918	2.215	0.445	0.261	0.930	0.349	2.837	3.083	-1.933	1.163	0.607
550S250-54	0.641	2.18	3.126	1.137	2.208	0.547	0.320	0.923	0.685	3.486	3.067	-1.919	1.155	0.609

TABLE 4 – STUD/JOIST GROSS AND TORSIONAL SECTION PROPERTIES [4,5]

SECTION	GROSS PROPERTIES								TORSIONAL PROPERTIES					
	Area	Wt	I_{xx}	S_{xx}	R_x	I_{yy}	S_{yy}	R_y	Jx1000	C_w	R_o	X_o	m	β
	(in^2)	(lbf/ft)	(in^4)	(in^3)	(in)	(in^4)	(in^3)	(in)	(in^4)	(in^6)	(in)	(in)	(in)	
550S250-68	0.800	2.72	3.867	1.406	2.198	0.669	0.391	0.914	1.356	4.274	3.046	-1.900	1.146	0.611
550S250-97	1.118	3.80	5.306	1.929	2.178	0.897	0.524	0.896	3.855	5.761	3.002	-1.862	1.126	0.616
550S300-54	0.698	2.37	3.546	1.289	2.254	0.850	0.424	1.104	0.745	5.364	3.449	-2.365	1.401	0.530
550S300-68	0.871	2.96	4.392	1.597	2.245	1.044	0.520	1.095	1.476	6.594	3.427	-2.346	1.391	0.531
550S300-97	1.220	4.15	6.047	2.199	2.226	1.411	0.701	1.076	4.205	8.937	3.382	-2.307	1.371	0.535
600S162-33	0.344	1.17	1.793	0.598	2.282	0.116	0.096	0.581	0.137	0.861	2.588	-1.072	0.677	0.828
600S162-43	0.447	1.52	2.316	0.772	2.277	0.148	0.123	0.576	0.303	1.095	2.577	-1.062	0.670	0.830
600S162-54	0.556	1.89	2.861	0.954	2.268	0.180	0.149	0.570	0.594	1.337	2.563	-1.049	0.663	0.833
600S162-68	0.693	2.36	3.526	1.175	2.256	0.218	0.180	0.561	1.174	1.626	2.543	-1.032	0.655	0.835
600S162-97	0.966	3.29	4.799	1.600	2.229	0.283	0.233	0.542	3.329	2.153	2.501	-0.997	0.636	0.841
600S200-33	0.379	1.29	2.076	0.692	2.340	0.209	0.147	0.743	0.151	1.593	2.855	-1.457	0.901	0.740
600S200-43	0.492	1.67	2.683	0.894	2.335	0.268	0.188	0.739	0.334	2.033	2.844	-1.446	0.894	0.742
600S200-54	0.613	2.09	3.320	1.107	2.327	0.329	0.230	0.732	0.655	2.493	2.829	-1.432	0.887	0.744
600S200-68	0.764	2.60	4.102	1.367	2.316	0.400	0.280	0.723	1.295	3.047	2.809	-1.415	0.878	0.746
600S200-97	1.067	3.63	5.614	1.871	2.293	0.530	0.371	0.705	3.679	4.080	2.767	-1.378	0.859	0.752
600S250-43	0.537	1.83	3.083	1.028	2.396	0.458	0.263	0.923	0.364	3.411	3.179	-1.874	1.136	0.652
600S250-54	0.670	2.28	3.820	1.273	2.389	0.562	0.323	0.917	0.715	4.194	3.163	-1.860	1.129	0.654
600S250-68	0.836	2.84	4.728	1.576	2.379	0.688	0.395	0.908	1.416	5.145	3.142	-1.842	1.119	0.657
600S250-97	1.169	3.98	6.498	2.166	2.358	0.923	0.529	0.889	4.030	6.947	3.099	-1.803	1.100	0.661
600S300-54	0.726	2.47	4.320	1.440	2.439	0.875	0.428	1.098	0.775	6.452	3.527	-2.299	1.372	0.575
600S300-68	0.907	3.09	5.355	1.785	2.430	1.075	0.525	1.089	1.537	7.937	3.506	-2.280	1.363	0.577
600S300-97	1.271	4.32	7.383	2.461	2.410	1.454	0.709	1.070	4.381	10.776	3.461	-2.241	1.343	0.581
800S162-33[1]	0.413	1.41	3.583	0.896	2.944	0.125	0.098	0.550	0.165	1.630	3.138	-0.936	0.607	0.911
800S162-43	0.537	1.83	4.635	1.159	2.938	0.160	0.125	0.546	0.364	2.076	3.128	-0.926	0.601	0.912
800S162-54	0.670	2.28	5.737	1.434	2.927	0.194	0.152	0.539	0.715	2.539	3.114	-0.914	0.594	0.914
800S162-68	0.836	2.84	7.092	1.773	2.913	0.235	0.184	0.530	1.416	3.093	3.094	-0.899	0.586	0.916
800S162-97	1.169	3.98	9.717	2.429	2.883	0.305	0.239	0.511	4.030	4.114	3.053	-0.866	0.568	0.920
800S200-33[1]	0.448	1.52	4.097	1.024	3.024	0.227	0.150	0.712	0.179	2.971	3.363	-1.288	0.817	0.853
800S200-43	0.582	1.98	5.303	1.326	3.018	0.292	0.193	0.708	0.395	3.797	3.353	-1.277	0.811	0.855
800S200-54	0.726	2.47	6.574	1.644	3.009	0.357	0.236	0.701	0.775	4.663	3.338	-1.265	0.804	0.856
800S200-68	0.907	3.09	8.143	2.036	2.996	0.435	0.288	0.692	1.537	5.712	3.319	-1.248	0.796	0.859
800S200-97	1.271	4.32	11.207	2.802	2.970	0.577	0.381	0.674	4.381	7.684	3.278	-1.214	0.777	0.863
800S250-43	0.627	2.13	6.017	1.504	3.097	0.500	0.271	0.893	0.425	6.374	3.632	-1.675	1.043	0.787
800S250-54	0.783	2.66	7.467	1.867	3.089	0.614	0.333	0.886	0.836	7.850	3.617	-1.661	1.036	0.789
800S250-68	0.978	3.33	9.263	2.316	3.077	0.752	0.407	0.877	1.658	9.652	3.597	-1.644	1.027	0.791
800S250-97	1.372	4.67	12.793	3.198	3.053	1.009	0.546	0.858	4.731	13.091	3.555	-1.607	1.008	0.796
800S300-54	0.839	2.86	8.360	2.090	3.156	0.960	0.442	1.069	0.896	12.076	3.924	-2.073	1.271	0.721
800S300-68	1.050	3.57	10.384	2.596	3.145	1.179	0.543	1.060	1.779	14.888	3.904	-2.055	1.262	0.723
800S300-97	1.474	5.02	14.379	3.595	3.123	1.596	0.734	1.040	5.082	20.304	3.861	-2.017	1.243	0.727
1000S162-33[2]	0.483	1.64	6.201	1.240	3.584	0.132	0.099	0.522	0.193	2.692	3.716	-0.833	0.550	0.950
1000S162-43[1]	0.627	2.13	8.028	1.606	3.577	0.168	0.127	0.518	0.425	3.430	3.707	-0.823	0.545	0.951
1000S162-54	0.783	2.66	9.954	1.991	3.566	0.204	0.155	0.511	0.836	4.198	3.693	-0.812	0.538	0.952
1000S162-68	0.978	3.33	12.330	2.466	3.550	0.247	0.187	0.502	1.658	5.121	3.673	-0.798	0.531	0.953
1000S162-97	1.372	4.67	16.974	3.395	3.517	0.320	0.243	0.483	4.731	6.827	3.632	-0.768	0.514	0.955
1000S200-33[2]	0.517	1.76	7.015	1.403	3.683	0.241	0.153	0.682	0.206	4.876	3.920	-1.157	0.749	0.913

TABLE 4 – STUD/JOIST GROSS AND TORSIONAL SECTION PROPERTIES [4,5]

SECTION	GROSS PROPERTIES								TORSIONAL PROPERTIES					
	Area	Wt	I_{xx}	S_{xx}	R_x	I_{yy}	S_{yy}	R_y	Jx1000	C_w	R_o	X_o	m	β
	(in^2)	(lbf/ft)	(in^4)	(in^3)	(in)	(in^4)	(in^3)	(in)	(in^4)	(in^6)	(in)	(in)	(in)	
1000S200-43[1]	0.672	2.29	9.088	1.818	3.676	0.309	0.196	0.677	0.456	6.236	3.910	-1.147	0.743	0.914
1000S200-54	0.839	2.86	11.282	2.256	3.666	0.378	0.240	0.671	0.896	7.665	3.896	-1.135	0.737	0.915
1000S200-68	1.050	3.57	13.999	2.800	3.652	0.460	0.292	0.662	1.779	9.401	3.877	-1.120	0.729	0.917
1000S200-97	1.474	5.02	19.343	3.869	3.622	0.610	0.388	0.643	5.082	12.679	3.836	-1.088	0.711	0.920
1000S250-33[3]	0.552	1.88	7.874	1.575	3.777	0.413	0.215	0.865	0.220	8.173	4.165	-1.528	0.971	0.865
1000S250-43[1]	0.717	2.44	10.205	2.041	3.771	0.531	0.276	0.861	0.486	10.481	4.155	-1.518	0.965	0.867
1000S250-54	0.896	3.05	12.681	2.536	3.762	0.653	0.339	0.854	0.957	12.922	4.141	-1.505	0.958	0.868
1000S250-68	1.121	3.81	15.756	3.151	3.749	0.799	0.415	0.844	1.899	15.909	4.121	-1.488	0.950	0.870
1000S250-97	1.576	5.36	21.834	4.367	3.722	1.073	0.557	0.825	5.433	21.632	4.080	-1.454	0.932	0.873
1000S300-54	0.953	3.24	14.080	2.816	3.845	1.024	0.452	1.037	1.017	19.888	4.409	-1.892	1.185	0.816
1000S300-68	1.192	4.06	17.513	3.503	3.833	1.258	0.555	1.027	2.020	24.551	4.389	-1.874	1.176	0.818
1000S300-97	1.677	5.71	24.325	4.865	3.808	1.703	0.750	1.007	5.783	33.570	4.347	-1.838	1.158	0.821
1200S162-33[3]	0.552	1.88	9.784	1.631	4.210	0.136	0.100	0.497	0.220	4.061	4.306	-0.751	0.504	0.970
1200S162-43[2]	0.717	2.44	12.677	2.113	4.203	0.174	0.128	0.493	0.486	5.177	4.297	-0.742	0.499	0.970
1200S162-54[1]	0.896	3.05	15.736	2.623	4.191	0.212	0.156	0.486	0.957	6.340	4.282	-0.732	0.493	0.971
1200S162-68	1.121	3.81	19.526	3.254	4.174	0.255	0.188	0.477	1.899	7.739	4.262	-0.719	0.485	0.972
1200S162-97	1.576	5.36	26.977	4.496	4.138	0.332	0.245	0.459	5.433	10.331	4.220	-0.691	0.470	0.973
1200S200-33[3]	0.586	2.00	10.968	1.828	4.325	0.251	0.155	0.654	0.234	7.338	4.498	-1.052	0.693	0.945
1200S200-43[2]	0.763	2.59	14.218	2.370	4.318	0.322	0.198	0.649	0.517	9.391	4.489	-1.043	0.687	0.946
1200S200-54[1]	0.953	3.24	17.668	2.945	4.307	0.394	0.243	0.643	1.017	11.550	4.475	-1.032	0.681	0.947
1200S200-68	1.192	4.06	21.955	3.659	4.291	0.479	0.296	0.634	2.020	14.176	4.456	-1.017	0.673	0.948
1200S200-97	1.677	5.71	30.428	5.071	4.259	0.635	0.392	0.615	5.783	19.150	4.415	-0.987	0.656	0.950
1200S250-33[3]	0.621	2.11	12.207	2.034	4.433	0.432	0.217	0.834	0.248	12.322	4.723	-1.400	0.905	0.912
1200S250-43[2]	0.808	2.75	15.830	2.638	4.427	0.556	0.280	0.829	0.548	15.812	4.714	-1.390	0.899	0.913
1200S250-54[1]	1.009	3.43	19.687	3.281	4.417	0.683	0.344	0.823	1.078	19.505	4.699	-1.378	0.892	0.914
1200S250-68	1.263	4.30	24.491	4.082	4.403	0.836	0.421	0.813	2.141	24.034	4.680	-1.362	0.884	0.915
1200S250-97	1.779	6.05	34.027	5.671	4.373	1.122	0.565	0.794	6.134	32.734	4.639	-1.329	0.867	0.918
1200S300-54[1]	1.066	3.63	21.705	3.618	4.513	1.074	0.459	1.004	1.138	30.051	4.941	-1.743	1.111	0.876
1200S300-68	1.335	4.54	27.028	4.505	4.500	1.320	0.564	0.994	2.262	37.126	4.921	-1.726	1.103	0.877
1200S300-97	1.881	6.40	37.627	6.271	4.473	1.787	0.763	0.975	6.484	50.853	4.880	-1.691	1.085	0.880

For **SI** Units: 1 inch = 25.4 mm; 1 lbf = 4.448 N; 1 lbf/ft = 14.594 N/m.

[1] Web height-to-thickness ratio (h/t) exceeds 200 and is less than or equal to 260 per AISI S100. Bearing stiffeners are required at all support points and concentrated loads in accordance with Section B4 and Table B4.1-1 of AISI S100-16 w/S2-20.

[2] Web height-to-thickness ratio, h/t, exceeds 260 and is less than or equal to 300. Bearing (at support points and concentrated loads) and intermediate stiffeners are required in accordance with Section B4 and Table B4.1-1 of AISI S100-16 w/S2-20.

[3] Web height-to-thickness ratio, h/t, exceeds 300 and/or flange width-to-thickness ratio (b/t or d/t), exceeds 60. The member is outside the limits of applicability of Section B4 and Table B4.1-1 of AISI S100-16 w/S2-20.

[4] Gross and torsional properties are based on the full-unreduced cross section of the studs/joists, away from web punch-outs.

[5] For definition of symbols, see page 3.

TABLE 5 – STUD/JOIST EFFECTIVE SECTION PROPERTIES AND ALLOWABLE STRENGTHS [4,6,7,8]

SECTION	EFFECTIVE PROPERTIES (BASED ON FY = 33 KSI)							EFFECTIVE PROPERTIES (BASED ON FY = 50 KSI)						
	I_{xe}[5]	S_{xe}	$M_{a\text{-}L}$	$M_{a\text{-}D}$	L_u	V_a	$V_{a,PO}$	I_{xe}[5]	S_{xe}	$M_{a\text{-}L}$	$M_{a\text{-}D}$	L_u	V_a	$V_{a,PO}$
	(in^4)	(in^3)	(kip-in)	(kip-in)	(in)	(lbf)	(lbf)	(in^4)	(in^3)	(kip-in)	(kip-in)	(in)	(lbf)	(lbf)
250S162-33	0.229	0.180	3.6	3.6	41.8	975	399	0.217	0.164	4.9	4.7	32.1	1260	515
250S162-43	0.302	0.242	4.8	4.8	42.9	1265	394	0.284	0.217	6.5	6.7	30.8	1917	597
250S162-54	0.370	0.296	5.8	5.8	42.8	1553	373	0.365	0.288	8.6	8.8	33.1	2353	565
250S162-68	0.450	0.360	7.1	7.1	42.6	1891	342	0.450	0.360	10.8	10.8	34.6	2866	519
250S162-97	0.597	0.478	9.4	9.4	42.3	2507	283	0.597	0.478	14.3	14.3	34.4	3798	429
250S200-33	0.259	0.197	3.9	4.1	50.1	975	399	0.246	0.182	5.4	5.4	39.4	1260	515
250S200-43	0.352	0.278	5.5	5.7	51.6	1265	394	0.332	0.252	7.6	7.6	39.4	1917	597
250S200-54	0.440	0.352	7.0	7.0	52.4	1553	373	0.418	0.321	9.6	10.1	38.1	2353	565
250S200-68	0.537	0.430	8.5	8.5	52.3	1891	342	0.533	0.423	12.7	12.9	40.9	2866	519
250S200-97	0.719	0.575	11.4	11.4	52.1	2507	283	0.719	0.575	17.2	17.2	42.3	3798	429
250S250-43	0.394	0.297	5.9	6.2	57.2	1265	394	0.367	0.266	7.9	8.3	43.7	1917	597
250S250-54	0.496	0.379	7.5	8.2	55.7	1553	373	0.466	0.341	10.2	11.0	42.5	2353	565
250S250-68	0.635	0.500	9.9	10.2	59.0	1891	342	0.594	0.446	13.4	14.6	43.2	2866	519
250S250-97	0.865	0.692	13.7	13.7	62.4	2507	283	0.852	0.669	20.0	20.7	47.2	3798	429
300S162-33	0.347	0.228	4.5	4.4	42.1	1024	350	0.329	0.208	6.2	5.8	32.3	1260	431
300S162-43	0.459	0.306	6.0	6.0	43.2	1545	402	0.432	0.275	8.2	8.2	31.0	2141	557
300S162-54	0.563	0.375	7.4	7.4	43.1	1903	379	0.555	0.365	10.9	10.9	33.3	2883	574
300S162-68	0.687	0.458	9.1	9.1	42.9	2333	346	0.687	0.458	13.7	13.7	34.9	3534	525
300S162-97	0.918	0.612	12.1	12.1	42.5	3136	N/A	0.918	0.612	18.3	18.3	34.5	4751	N/A
300S200-33	0.393	0.250	4.9	5.0	50.7	1024	350	0.373	0.231	6.9	6.6	39.6	1260	431
300S200-43	0.533	0.351	6.9	7.0	52.1	1545	402	0.504	0.320	9.6	9.4	39.8	2141	557
300S200-54	0.667	0.445	8.8	8.8	52.9	1903	379	0.633	0.405	12.1	12.5	38.4	2883	574
300S200-68	0.818	0.545	10.8	10.8	52.7	2333	346	0.810	0.535	16.0	16.3	41.2	3534	525
300S200-97	1.100	0.734	14.5	14.5	52.4	3136	N/A	1.100	0.734	22.0	22.0	42.6	4751	N/A
300S250-43	0.593	0.374	7.4	7.6	58.0	1545	402	0.554	0.335	10.0	10.0	44.3	2141	557
300S250-54	0.746	0.476	9.4	10.1	56.3	1903	379	0.702	0.430	12.9	13.5	43.0	2883	574
300S250-68	0.956	0.628	12.4	12.8	59.6	2333	346	0.895	0.561	16.8	17.9	43.7	3534	525
300S250-97	1.314	0.876	17.3	17.3	63.0	3136	N/A	1.290	0.844	25.3	26.2	47.7	4751	N/A
350S162-33	0.496	0.279	5.5	5.2	42.3	1024	487	0.470	0.256	7.7	6.9	32.4	1124	535
350S162-43	0.654	0.374	7.4	7.3	43.4	1740	631	0.616	0.337	10.1	9.8	31.1	2141	777
350S162-54	0.804	0.460	9.1	9.1	43.3	2253	633	0.792	0.447	13.4	13.0	33.3	3372	947
350S162-68	0.985	0.563	11.1	11.1	43.0	2774	592	0.985	0.563	16.8	16.8	35.0	4203	897
350S162-97	1.321	0.755	14.9	14.9	42.5	3765	511	1.321	0.755	22.6	22.6	34.5	5705	775
350S200-33	0.559	0.306	6.0	5.9	51.0	1024	487	0.532	0.283	8.5	7.8	39.7	1124	535
350S200-43	0.758	0.428	8.5	8.4	52.5	1740	631	0.718	0.391	11.7	11.1	40.1	2141	777
350S200-54	0.950	0.543	10.7	10.7	53.2	2253	633	0.901	0.494	14.8	14.9	38.6	3372	947
350S200-68	1.167	0.667	13.2	13.2	53.0	2774	592	1.154	0.653	19.6	19.7	41.5	4203	897
350S200-97	1.577	0.901	17.8	17.8	52.7	3765	511	1.577	0.901	27.0	27.0	42.8	5705	775
350S250-33[3]	N/A	N/A	N/A	N/A	N/A	1024	487	N/A	N/A	N/A	N/A	N/A	1124	535
350S250-43	0.839	0.454	9.0	9.0	58.6	1740	631	0.786	0.409	12.3	11.8	44.7	2141	777
350S250-54	1.055	0.577	11.4	12.0	56.8	2253	633	0.994	0.524	15.7	15.9	43.4	3372	947
350S250-68	1.354	0.761	15.0	15.5	60.1	2774	592	1.269	0.683	20.4	21.3	44.0	4203	897
350S250-97	1.871	1.069	21.1	21.1	63.5	3765	511	1.833	1.028	30.8	32.0	48.0	5705	775
362S162-33	0.536	0.291	5.8	5.4	42.4	1024	520	0.509	0.268	8.0	7.1	32.4	1085	551
362S162-43	0.707	0.391	7.7	7.6	43.4	1740	674	0.666	0.353	10.6	10.2	31.1	2141	830

TABLE 5 – STUD/JOIST EFFECTIVE SECTION PROPERTIES AND ALLOWABLE STRENGTHS [4,6,7,8]

SECTION	EFFECTIVE PROPERTIES (BASED ON FY = 33 KSI)							EFFECTIVE PROPERTIES (BASED ON FY = 50 KSI)						
	I_{xe}[5]	S_{xe}	$M_{a\text{-}L}$	$M_{a\text{-}D}$	L_u	V_a	$V_{a,PO}$	I_{xe}[5]	S_{xe}	$M_{a\text{-}L}$	$M_{a\text{-}D}$	L_u	V_a	$V_{a,PO}$
	(in^4)	(in^3)	(kip-in)	(kip-in)	(in)	(lbf)	(lbf)	(in^4)	(in^3)	(kip-in)	(kip-in)	(in)	(lbf)	(lbf)
362S162-54	0.870	0.481	9.5	9.5	43.3	2337	702	0.856	0.467	14.0	13.6	33.3	3372	1013
362S162-68	1.065	0.589	11.6	11.6	43.0	2880	660	1.065	0.589	17.6	17.6	35.0	4363	999
362S162-97	1.430	0.790	15.6	15.6	42.5	3916	575	1.430	0.790	23.7	23.7	34.5	5933	871
362S200-33	0.604	0.320	6.3	6.2	51.1	1024	520	0.575	0.296	8.9	8.1	39.8	1085	551
362S200-43	0.819	0.447	8.8	8.7	52.5	1740	674	0.776	0.409	12.2	11.6	40.1	2141	830
362S200-54	1.027	0.567	11.2	11.2	53.3	2337	702	0.973	0.517	15.5	15.5	38.7	3372	1013
362S200-68	1.261	0.697	13.8	13.8	53.1	2880	660	1.248	0.682	20.4	20.5	41.5	4363	999
362S200-97	1.706	0.943	18.6	18.6	52.7	3916	575	1.706	0.943	28.2	28.2	42.8	5933	871
362S250-43	0.905	0.474	9.4	9.3	58.7	1740	674	0.849	0.428	12.8	12.3	44.8	2141	830
362S250-54	1.139	0.602	11.9	12.4	56.9	2337	702	1.073	0.547	16.4	16.5	43.5	3372	1013
362S250-68	1.461	0.794	15.7	16.2	60.2	2880	660	1.370	0.713	21.3	22.1	44.1	4363	999
362S250-97	2.021	1.117	22.1	22.1	63.6	3916	575	1.979	1.073	32.1	33.4	48.1	5933	871
362S300-54	1.238	0.631	12.5	13.2	62.5	2337	702	1.156	0.567	17.0	17.3	47.8	3372	1013
362S300-68	1.587	0.829	16.4	17.6	63.9	2880	660	1.487	0.746	22.3	23.4	48.6	4363	999
362S300-97	2.291	1.244	24.6	25.5	69.2	3916	575	2.214	1.173	35.1	36.4	53.2	5933	871
400S162-33	0.675	0.332	6.6	6.1	42.4	976	595	0.642	0.306	9.2	8.0	32.4	976	595
400S162-43	0.892	0.446	8.8	8.5	43.5	1740	810	0.840	0.403	12.1	11.4	31.1	2141	997
400S162-54	1.098	0.549	10.8	10.8	43.3	2603	944	1.080	0.533	16.0	15.3	33.3	3372	1223
400S162-68	1.346	0.673	13.3	13.3	43.1	3215	895	1.346	0.673	20.2	20.2	35.0	4871	1356
400S162-97	1.813	0.907	17.9	17.9	42.5	4394	797	1.813	0.907	27.1	27.1	34.5	6658	1207
400S200-33	0.760	0.365	7.2	6.9	51.2	976	595	0.725	0.338	10.1	9.0	39.8	976	595
400S200-43	1.030	0.509	10.1	9.7	52.7	1740	810	0.977	0.467	14.0	12.9	40.2	2141	997
400S200-54	1.292	0.646	12.8	12.8	53.5	2603	944	1.224	0.589	17.6	17.3	38.8	3372	1223
400S200-68	1.589	0.795	15.7	15.7	53.3	3215	895	1.571	0.778	23.3	23.0	41.6	4871	1356
400S200-97	2.155	1.078	21.3	21.3	52.8	4394	797	2.155	1.078	32.3	32.3	42.9	6658	1207
400S250-43	1.135	0.539	10.7	10.4	59.0	1740	810	1.066	0.487	14.6	13.6	45.0	2141	997
400S250-54	1.427	0.683	13.5	13.9	57.2	2603	944	1.347	0.623	18.6	18.4	43.6	3372	1223
400S250-68	1.831	0.901	17.8	18.4	60.4	3215	895	1.719	0.811	24.3	24.8	44.3	4871	1356
400S250-97	2.542	1.271	25.1	25.1	63.9	4394	797	2.487	1.221	36.5	38.1	48.2	6658	1207
400S300-54	1.549	0.716	14.2	14.7	63.0	2603	944	1.449	0.645	19.3	19.2	48.1	3372	1223
400S300-68	1.985	0.939	18.6	19.7	64.3	3215	895	1.863	0.848	25.4	26.1	48.9	4871	1356
400S300-97	2.870	1.410	27.9	28.9	69.5	4394	797	2.774	1.331	39.8	40.7	53.5	6658	1207
550S162-33	1.426	0.512	10.1	8.6	42.2	698	698	1.310	0.443	13.3	11.2	31.4	698	698
550S162-43	1.883	0.685	13.5	12.3	43.3	1550	1199	1.778	0.624	18.7	16.2	30.7	1550	1199
550S162-54	2.324	0.845	16.7	16.4	43.1	2740	1666	2.285	0.821	24.6	22.0	33.1	3093	1881
550S162-68	2.861	1.040	20.6	20.6	42.7	4348	2057	2.861	1.040	31.2	29.6	34.7	5352	2532
550S162-97	3.886	1.413	27.9	27.9	42.0	6282	1997	3.886	1.413	42.3	42.3	34.2	9518	3026
550S200-33	1.594	0.559	11.0	9.8	51.1	698	698	1.460	0.481	14.4	12.7	38.5	698	698
550S200-43	2.155	0.776	15.3	14.0	52.9	1550	1199	2.051	0.717	21.5	18.4	40.3	1550	1199
550S200-54	2.706	0.984	19.4	18.7	53.6	2740	1666	2.567	0.901	27.0	24.8	38.7	3093	1881
550S200-68	3.340	1.215	24.0	24.0	53.4	4348	2057	3.298	1.188	35.6	33.5	41.6	5352	2532
550S200-97	4.563	1.660	32.8	32.8	52.8	6282	1997	4.563	1.660	49.7	49.7	42.9	9518	3026
550S250-33[3]	N/A	N/A	N/A	N/A	N/A	698	698	N/A	N/A	N/A	N/A	N/A	698	698
550S250-43	2.352	0.817	16.2	14.7	59.7	1550	1199	2.220	0.746	22.3	19.2	45.3	1550	1199
550S250-54	2.952	1.033	20.4	19.9	57.7	2740	1666	2.800	0.950	28.4	26.1	43.9	3093	1881

TABLE 5 – STUD/JOIST EFFECTIVE SECTION PROPERTIES AND ALLOWABLE STRENGTHS [4,6,7,8]

SECTION	EFFECTIVE PROPERTIES (BASED ON FY = 33 KSI)							EFFECTIVE PROPERTIES (BASED ON FY = 50 KSI)						
	I_{xe}[5]	S_{xe}	$M_{a\text{-}L}$	$M_{a\text{-}D}$	L_u	V_a	$V_{a,PO}$	I_{xe}[5]	S_{xe}	$M_{a\text{-}L}$	$M_{a\text{-}D}$	L_u	V_a	$V_{a,PO}$
	(in^4)	(in^3)	(kip-in)	(kip-in)	(in)	(lbf)	(lbf)	(in^4)	(in^3)	(kip-in)	(kip-in)	(in)	(lbf)	(lbf)
550S250-68	3.791	1.358	26.8	26.6	60.9	4348	2057	3.572	1.233	36.9	35.4	44.5	5352	2532
550S250-97	5.304	1.929	38.1	38.1	64.4	6282	1997	5.182	1.852	55.4	55.6	48.5	9518	3026
550S300-54	3.185	1.080	21.3	20.7	63.9	2740	1666	2.998	0.983	29.4	27.0	48.7	3093	1881
550S300-68	4.080	1.411	27.9	28.0	65.2	4348	2057	3.849	1.287	38.5	36.9	49.5	5352	2532
550S300-97	5.915	2.115	41.8	43.4	70.4	6282	1997	5.727	2.005	60.0	58.6	54.1	9518	3026
600S162-33	1.754	0.577	11.4	9.5	42.0	638	638	1.578	0.481	14.4	12.3	30.9	638	638
600S162-43	2.316	0.772	15.3	13.6	43.1	1415	1240	2.189	0.705	21.1	17.8	30.6	1415	1240
600S162-54	2.860	0.953	18.8	18.2	42.9	2740	1890	2.812	0.927	27.8	24.2	32.9	2822	1947
600S162-68	3.524	1.175	23.2	23.2	42.5	4348	2340	3.524	1.175	35.2	32.8	34.6	5352	2880
600S162-97	4.797	1.599	31.6	31.6	41.8	6911	2512	4.797	1.599	47.9	47.9	34.0	10472	3806
600S200-33	1.942	0.621	12.3	10.8	50.8	638	638	1.758	0.524	15.7	14.0	37.9	638	638
600S200-43	2.642	0.873	17.2	15.4	52.9	1415	1240	2.517	0.807	24.2	20.2	40.1	1415	1240
600S200-54	3.319	1.106	21.9	20.6	53.6	2740	1890	3.150	1.015	30.4	27.4	38.6	2822	1947
600S200-68	4.100	1.367	27.0	27.0	53.3	4348	2340	4.048	1.337	40.0	37.0	41.5	5352	2880
600S200-97	5.611	1.871	37.0	37.0	52.7	6911	2512	5.611	1.871	56.0	56.0	42.8	10472	3806
600S250-43	2.876	0.918	18.1	16.2	59.7	1415	1240	2.680	0.819	24.5	21.1	44.9	1415	1240
600S250-54	3.609	1.159	22.9	21.9	57.7	2740	1890	3.428	1.069	32.0	28.7	43.9	2822	1947
600S250-68	4.634	1.522	30.1	29.4	61.0	4348	2340	4.372	1.386	41.5	39.1	44.5	5352	2880
600S250-97	6.496	2.166	42.8	42.8	64.5	6911	2512	6.345	2.079	62.3	61.6	48.5	10472	3806
600S300-54	3.888	1.211	23.9	22.8	64.0	2740	1890	3.666	1.106	33.1	29.6	48.8	2822	1947
600S300-68	4.979	1.581	31.2	30.9	65.3	4348	2340	4.704	1.446	43.3	40.5	49.6	5352	2880
600S300-97	7.220	2.367	46.8	48.3	70.6	6911	2512	6.995	2.247	67.3	64.7	54.2	10472	3806
800S162-33[1]	3.168	0.710	14.0	12.6	37.9	474	N/A	2.892	0.614	18.4	16.2	27.9	474	N/A
800S162-43	4.352	1.019	20.1	18.3	40.2	1051	1051	3.940	0.866	25.9	23.8	27.8	1051	1051
800S162-54	5.539	1.334	26.4	25.0	40.9	2091	2091	5.294	1.229	36.8	32.8	30.7	2091	2091
800S162-68	7.021	1.737	34.3	33.9	41.3	4220	3367	6.876	1.663	49.8	45.1	33.0	4220	3367
800S162-97	9.712	2.428	48.0	48.0	40.7	8846	4825	9.712	2.428	72.7	72.0	33.1	10888	5940
800S200-33[1]	3.591	0.816	16.1	14.5	48.2	474	N/A	3.261	0.696	20.8	18.7	35.9	474	N/A
800S200-43	5.220	1.293	25.5	21.0	52.2	1051	1051	4.668	1.066	31.9	27.3	38.2	1051	1051
800S200-54	6.572	1.643	32.5	28.5	53.0	2091	2091	6.210	1.499	44.9	37.4	37.9	2091	2091
800S200-68	8.140	2.035	40.2	38.4	52.6	4220	3367	8.037	1.993	59.7	51.1	40.9	4220	3367
800S200-97	11.202	2.801	55.3	55.4	51.9	8846	4825	11.202	2.801	83.9	81.2	42.1	10888	5940
800S250-43	5.542	1.314	26.0	22.1	58.9	1051	1051	4.932	1.080	32.3	28.5	42.9	1051	1051
800S250-54	7.075	1.712	33.8	30.1	57.3	2091	2091	6.594	1.526	45.7	39.1	43.1	2091	2091
800S250-68	9.079	2.240	44.3	40.9	60.6	4220	3367	8.605	2.059	61.7	53.8	44.1	4220	3367
800S250-97	12.789	3.197	63.2	63.2	64.1	8846	4825	12.493	3.076	92.1	86.3	48.1	10888	5940
800S300-54	7.576	1.785	35.3	31.1	64.0	2091	2091	6.910	1.536	46.0	40.2	47.7	2091	2091
800S300-68	9.690	2.321	45.9	42.5	65.2	4220	3367	9.206	2.145	64.2	55.5	49.4	4220	3367
800S300-97	14.061	3.463	68.4	67.6	70.5	8846	4825	13.653	3.304	98.9	89.9	54.1	10888	5940
1000S162-33[2]	5.203	0.900	17.8	15.3	36.2	377	N/A	4.717	0.776	23.2	19.5	26.6	377	N/A
1000S162-43[1]	7.205	1.302	25.7	22.5	38.4	836	N/A	6.468	1.099	32.9	28.9	26.5	836	N/A
1000S162-54	9.247	1.722	34.0	31.1	39.1	1660	1660	8.771	1.572	47.1	40.4	29.3	1660	1660
1000S162-68	11.846	2.276	45.0	42.9	39.5	3345	3345	11.516	2.155	64.5	56.4	31.5	3345	3345
1000S162-97	16.965	3.393	67.1	67.1	39.5	8846	6436	16.658	3.269	97.9	92.6	31.8	9862	7175
1000S200-33[2]	5.733	0.980	19.4	17.9	43.9	377	N/A	5.238	0.854	25.6	22.9	32.9	377	N/A

TABLE 5 – STUD/JOIST EFFECTIVE SECTION PROPERTIES AND ALLOWABLE STRENGTHS [4,6,7,8]

SECTION	EFFECTIVE PROPERTIES (BASED ON FY = 33 KSI)							EFFECTIVE PROPERTIES (BASED ON FY = 50 KSI)						
	I_{xe}[5]	S_{xe}	M_{a-L}	M_{a-D}	L_u	V_a	$V_{a,PO}$	I_{xe}[5]	S_{xe}	M_{a-L}	M_{a-D}	L_u	V_a	$V_{a,PO}$
	(in^4)	(in^3)	(kip-in)	(kip-in)	(in)	(lbf)	(lbf)	(in^4)	(in^3)	(kip-in)	(kip-in)	(in)	(lbf)	(lbf)
1000S200-43[1]	8.138	1.470	29.1	26.2	47.5	836	N/A	7.425	1.270	38.0	33.7	34.8	836	N/A
1000S200-54	10.589	1.984	39.2	35.9	49.5	1660	1660	9.660	1.705	51.1	46.6	34.7	1660	1660
1000S200-68	13.523	2.607	51.5	49.1	50.3	3345	3345	12.988	2.420	72.5	64.5	38.3	3345	3345
1000S200-97	19.335	3.867	76.4	76.4	50.8	8846	6436	19.030	3.741	112.0	104.8	40.8	9862	7175
1000S250-33[3]	N/A	N/A	N/A	N/A	N/A	377	N/A	N/A	N/A	N/A	N/A	N/A	377	N/A
1000S250-43[1]	8.907	1.617	32.0	27.7	56.6	836	N/A	7.944	1.343	40.2	35.5	41.2	836	N/A
1000S250-54	11.871	2.278	45.0	38.0	56.2	1660	1660	10.593	1.880	56.3	49.2	41.4	1660	1660
1000S250-68	15.451	3.054	60.3	52.2	59.8	3345	3345	14.530	2.770	82.9	68.1	43.2	3345	3345
1000S250-97	21.826	4.365	86.3	83.5	63.3	8846	6436	21.337	4.210	126.0	111.3	47.4	9862	7175
1000S300-54	12.477	2.314	45.7	39.4	62.7	1660	1660	11.086	1.904	57.0	50.7	46.0	1660	1660
1000S300-68	16.406	3.158	62.4	54.3	64.7	3345	3345	15.240	2.804	83.9	70.4	48.4	3345	3345
1000S300-97	23.800	4.696	92.8	87.6	69.9	8846	6436	23.156	4.499	134.7	115.7	53.6	9862	7175
1200S162-33[3]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1200S162-43[2]	10.855	1.585	31.3	26.0	36.8	694	N/A	9.680	1.332	39.9	33.1	25.4	694	N/A
1200S162-54[1]	14.025	2.109	41.7	36.4	37.5	1377	N/A	13.221	1.914	57.3	46.8	28.1	1377	N/A
1200S162-68	18.118	2.817	55.7	51.0	37.9	2770	2770	17.504	2.645	79.2	66.2	30.2	2770	2770
1200S162-97	26.453	4.327	85.5	83.9	38.0	8145	7410	25.700	4.091	122.5	111.3	30.4	8145	7410
1200S200-33[3]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1200S200-43[2]	12.217	1.787	35.3	30.7	45.7	694	N/A	11.084	1.538	46.0	39.2	33.5	694	N/A
1200S200-54[1]	15.994	2.425	47.9	42.5	47.7	1377	N/A	14.492	2.073	62.1	54.8	33.4	1377	N/A
1200S200-68	20.573	3.216	63.5	58.8	48.5	2770	2770	19.639	2.963	88.7	76.6	36.9	2770	2770
1200S200-97	29.910	4.899	96.8	95.5	49.2	8145	7410	29.171	4.660	139.5	126.9	39.3	8145	7410
1200S250-33[3]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1200S250-43[2]	12.949	1.847	36.5	32.8	52.2	694	N/A	11.647	1.573	47.1	41.9	38.2	694	N/A
1200S250-54[1]	16.865	2.483	49.1	45.4	51.9	1377	N/A	15.383	2.149	64.3	58.4	38.4	1377	N/A
1200S250-68	22.583	3.496	69.1	63.0	56.4	2770	2770	20.589	3.007	90.0	81.6	40.0	2770	2770
1200S250-97	33.514	5.496	108.6	102.6	61.6	8145	7410	31.935	5.037	150.8	135.4	45.3	8145	7410
1200S300-54[1]	18.357	2.738	54.1	47.4	60.6	1377	N/A	16.354	2.274	68.1	60.7	44.5	1377	N/A
1200S300-68	25.315	4.065	80.3	65.7	63.7	2770	2770	22.430	3.320	99.4	84.8	46.8	2770	2770
1200S300-97	36.843	6.065	119.9	107.6	69.0	8145	7410	35.911	5.831	174.6	141.1	52.9	8145	7410

For **SI** Units: 1 inch = 25.4 mm; 1 lbf = 4.448 N; 1 kip-in. = 112.99 N.m; 1 ksi = 6.895 MPa.

[1] Web height-to-thickness ratio (h/t) exceeds 200 and is less than or equal to 260 per AISI S100. Bearing stiffeners are required at all support points and concentrated loads in accordance with Section B4 and Table B4.1-1 of AISI S100-16 w/S2-20.

[2] Web height-to-thickness ratio, h/t, exceeds 260 and is less than or equal to 300. Bearing (at support points and concentrated loads) and intermediate stiffeners are required in accordance with Section B4 and Table B4.1-1 of AISI S100-16 w/S2-20.

[3] Web height-to-thickness ratio, h/t, exceeds 300 and/or flange width-to-thickness ratio (b/t or d/t), exceeds 60. Effective section properties are outside the scope of this evaluation report, reported "N/A". Bearing and intermediate stiffeners are required for members with web height-to-thickness ratio exceeding 260.

[4] Effective properties, except for $V_{a,PO}$, are based on studs/joists without punchouts. Cold work of forming has not been considered.

[5] Use the effective moment of inertia, I_{xe}, for deflection calculations.

[6] M_{a-L} and M_{a-D} are based on the compression flange fully braced at intervals not exceeding L_u. For other conditions of compression flange bracing, the allowable moment must be determined in accordance with AISI S100.

[7] M_{a-D} is calculated without the beneficial effect of sheathing to rotational stiffness, $K\varphi$ =0.

[8] For definition of symbols, see page 3.

TABLE 6 – TRACK GROSS AND TORSIONAL SECTION PROPERTIES [4]

SECTION	GROSS PROPERTIES								TORSIONAL PROPERTIES					
	Area	Wt	I_{xx}	S_{xx}	R_x	I_{yy}	S_{yy}	R_y	Jx1000	C_w	R_o	X_o	m	β
	(in^2)	(lbf/ft)	(in^4)	(in^3)	(in)	(in^4)	(in^3)	(in)	(in^4)	(in^6)	(in)	(in)	(in)	
250T125-33	0.170	0.58	0.179	0.140	1.027	0.027	0.029	0.398	0.068	0.031	1.342	-0.768	0.459	0.673
250T125-43	0.222	0.75	0.235	0.182	1.030	0.035	0.038	0.396	0.150	0.040	1.341	-0.763	0.456	0.677
250T125-54	0.278	0.94	0.296	0.226	1.032	0.043	0.047	0.394	0.296	0.050	1.340	-0.758	0.453	0.680
250T125-68	0.348	1.18	0.372	0.282	1.035	0.053	0.058	0.391	0.589	0.063	1.337	-0.752	0.449	0.684
250T125-97	0.491	1.67	0.530	0.392	1.039	0.073	0.081	0.386	1.692	0.089	1.333	-0.740	0.440	0.692
250T150-33	0.188	0.64	0.207	0.161	1.051	0.044	0.041	0.486	0.075	0.050	1.519	-0.983	0.577	0.581
250T150-43	0.244	0.83	0.272	0.210	1.054	0.057	0.053	0.484	0.166	0.066	1.517	-0.977	0.574	0.585
250T150-54	0.306	1.04	0.342	0.262	1.057	0.071	0.066	0.482	0.327	0.082	1.515	-0.972	0.571	0.588
250T150-68	0.383	1.30	0.431	0.326	1.060	0.088	0.083	0.479	0.650	0.104	1.512	-0.966	0.566	0.592
250T150-97	0.542	1.84	0.616	0.456	1.067	0.122	0.115	0.474	1.867	0.148	1.507	-0.953	0.558	0.600
250T162-30[NS]	0.177	0.60	0.199	0.155	1.060	0.050	0.043	0.530	0.057	0.056	1.614	-1.095	0.638	0.540
250T162-33	0.196	0.67	0.221	0.172	1.062	0.055	0.048	0.530	0.078	0.063	1.613	-1.093	0.637	0.541
250T162-43	0.256	0.87	0.290	0.224	1.065	0.071	0.062	0.528	0.173	0.082	1.610	-1.087	0.634	0.545
250T162-54	0.320	1.09	0.365	0.279	1.068	0.088	0.077	0.526	0.342	0.102	1.608	-1.082	0.630	0.548
250T162-68	0.401	1.37	0.461	0.349	1.072	0.110	0.096	0.523	0.680	0.129	1.606	-1.075	0.626	0.552
250T162-97	0.567	1.93	0.659	0.488	1.078	0.152	0.135	0.518	1.955	0.184	1.600	-1.063	0.617	0.559
250T200-33	0.222	0.76	0.263	0.205	1.088	0.096	0.070	0.659	0.089	0.110	1.913	-1.430	0.817	0.442
250T200-43	0.290	0.99	0.345	0.266	1.091	0.125	0.091	0.657	0.196	0.144	1.910	-1.423	0.814	0.445
250T200-54	0.362	1.23	0.434	0.332	1.095	0.156	0.114	0.655	0.387	0.181	1.908	-1.418	0.811	0.447
250T200-68	0.455	1.55	0.549	0.416	1.099	0.194	0.142	0.652	0.771	0.229	1.904	-1.412	0.806	0.450
250T200-97	0.643	2.19	0.788	0.583	1.107	0.269	0.200	0.647	2.218	0.328	1.898	-1.399	0.797	0.457
250T250-33[3]	0.257	0.87	0.318	0.248	1.114	0.176	0.106	0.827	0.102	0.204	2.346	-1.892	1.061	0.350
250T250-43	0.335	1.14	0.418	0.323	1.117	0.228	0.138	0.826	0.227	0.266	2.342	-1.885	1.058	0.352
250T250-54	0.419	1.43	0.527	0.403	1.121	0.284	0.173	0.824	0.447	0.335	2.339	-1.880	1.054	0.354
250T250-68	0.526	1.79	0.667	0.505	1.126	0.355	0.216	0.821	0.891	0.425	2.335	-1.873	1.050	0.356
250T250-97	0.745	2.54	0.961	0.711	1.135	0.496	0.304	0.816	2.568	0.612	2.327	-1.860	1.040	0.361
300T125-33	0.188	0.64	0.270	0.176	1.201	0.028	0.030	0.389	0.075	0.047	1.452	-0.718	0.437	0.756
300T125-43	0.244	0.83	0.354	0.229	1.204	0.037	0.039	0.387	0.166	0.061	1.452	-0.712	0.434	0.759
300T125-54	0.306	1.04	0.445	0.286	1.206	0.045	0.048	0.385	0.327	0.076	1.450	-0.708	0.431	0.762
300T125-68	0.383	1.30	0.559	0.356	1.208	0.056	0.060	0.383	0.650	0.095	1.448	-0.702	0.427	0.765
300T125-97	0.542	1.84	0.795	0.496	1.211	0.077	0.083	0.377	1.867	0.134	1.444	-0.690	0.419	0.772
300T150-33	0.205	0.70	0.310	0.202	1.231	0.047	0.042	0.479	0.082	0.076	1.612	-0.924	0.553	0.671
300T150-43	0.267	0.91	0.407	0.263	1.234	0.061	0.055	0.477	0.181	0.099	1.611	-0.919	0.550	0.675
300T150-54	0.334	1.14	0.511	0.328	1.236	0.075	0.068	0.475	0.357	0.124	1.609	-0.914	0.547	0.677
300T150-68	0.419	1.43	0.643	0.409	1.239	0.093	0.085	0.472	0.710	0.156	1.607	-0.908	0.543	0.681
300T150-97	0.592	2.02	0.917	0.573	1.244	0.129	0.119	0.467	2.043	0.222	1.602	-0.896	0.534	0.688
300T162-30[NS]	0.192	0.66	0.297	0.194	1.243	0.053	0.044	0.523	0.062	0.085	1.698	-1.032	0.612	0.630
300T162-33	0.213	0.73	0.330	0.215	1.244	0.058	0.049	0.523	0.085	0.095	1.698	-1.031	0.611	0.631
300T162-43	0.278	0.95	0.433	0.280	1.247	0.075	0.064	0.521	0.189	0.123	1.696	-1.025	0.609	0.635
300T162-54	0.348	1.19	0.544	0.349	1.250	0.094	0.079	0.519	0.372	0.155	1.694	-1.020	0.605	0.638
300T162-68	0.437	1.49	0.685	0.436	1.253	0.116	0.099	0.516	0.740	0.195	1.692	-1.014	0.601	0.641
300T162-97	0.618	2.10	0.978	0.611	1.258	0.161	0.138	0.511	2.130	0.277	1.687	-1.001	0.592	0.648
300T200-33	0.239	0.81	0.390	0.254	1.276	0.102	0.072	0.654	0.096	0.167	1.975	-1.358	0.790	0.527
300T200-43	0.312	1.06	0.511	0.331	1.280	0.133	0.094	0.652	0.212	0.217	1.973	-1.352	0.787	0.530
300T200-54	0.391	1.33	0.643	0.413	1.283	0.165	0.117	0.650	0.417	0.273	1.970	-1.347	0.783	0.533

TABLE 6 – TRACK GROSS AND TORSIONAL SECTION PROPERTIES [4]

SECTION	GROSS PROPERTIES								TORSIONAL PROPERTIES					
	Area	Wt	I_{xx}	S_{xx}	R_x	I_{yy}	S_{yy}	R_y	Jx1000	C_w	R_o	X_o	m	β
	(in^2)	(lbf/ft)	(in^4)	(in^3)	(in)	(in^4)	(in^3)	(in)	(in^4)	(in^6)	(in)	(in)	(in)	
300T200-68	0.490	1.67	0.812	0.516	1.286	0.206	0.147	0.648	0.831	0.344	1.968	-1.341	0.779	0.536
300T200-97	0.694	2.36	1.162	0.725	1.294	0.286	0.206	0.642	2.393	0.492	1.962	-1.328	0.770	0.542
300T250-43	0.357	1.22	0.616	0.398	1.313	0.243	0.142	0.824	0.242	0.400	2.378	-1.803	1.028	0.425
300T250-54	0.447	1.52	0.775	0.498	1.316	0.302	0.178	0.822	0.478	0.503	2.375	-1.798	1.025	0.427
300T250-68	0.562	1.91	0.980	0.624	1.321	0.377	0.223	0.820	0.952	0.636	2.372	-1.792	1.020	0.429
300T250-97	0.796	2.71	1.406	0.878	1.329	0.528	0.314	0.814	2.744	0.912	2.365	-1.778	1.011	0.435
350T125-33	0.205	0.70	0.385	0.216	1.371	0.030	0.030	0.381	0.082	0.066	1.574	-0.674	0.417	0.817
350T125-43	0.267	0.91	0.504	0.281	1.374	0.038	0.039	0.379	0.181	0.086	1.574	-0.669	0.414	0.819
350T125-54	0.334	1.14	0.632	0.350	1.375	0.047	0.049	0.377	0.357	0.108	1.573	-0.664	0.411	0.822
350T125-68	0.419	1.43	0.794	0.436	1.377	0.059	0.061	0.374	0.710	0.135	1.571	-0.659	0.407	0.824
350T125-97	0.592	2.02	1.127	0.609	1.379	0.081	0.085	0.369	2.043	0.190	1.568	-0.647	0.400	0.829
350T150-33	0.222	0.76	0.439	0.246	1.406	0.049	0.043	0.470	0.089	0.109	1.721	-0.873	0.531	0.742
350T150-43	0.290	0.99	0.575	0.320	1.409	0.063	0.056	0.468	0.196	0.141	1.720	-0.868	0.528	0.745
350T150-54	0.362	1.23	0.721	0.399	1.411	0.079	0.069	0.466	0.387	0.177	1.718	-0.863	0.525	0.748
350T150-68	0.455	1.55	0.908	0.499	1.413	0.098	0.087	0.464	0.771	0.222	1.717	-0.857	0.521	0.751
350T150-97	0.643	2.19	1.292	0.698	1.417	0.135	0.121	0.458	2.218	0.314	1.713	-0.845	0.512	0.756
350T162-30[NS]	0.208	0.71	0.420	0.236	1.420	0.055	0.045	0.515	0.068	0.122	1.800	-0.978	0.589	0.705
350T162-33	0.231	0.79	0.466	0.261	1.421	0.061	0.050	0.515	0.092	0.135	1.799	-0.976	0.588	0.706
350T162-43	0.301	1.02	0.610	0.340	1.424	0.079	0.065	0.513	0.204	0.176	1.798	-0.971	0.585	0.709
350T162-54	0.377	1.28	0.766	0.424	1.426	0.098	0.081	0.511	0.402	0.220	1.797	-0.966	0.582	0.711
350T162-68	0.473	1.61	0.965	0.530	1.429	0.122	0.101	0.508	0.801	0.276	1.795	-0.960	0.578	0.714
350T162-97	0.669	2.28	1.375	0.742	1.434	0.169	0.141	0.503	2.306	0.392	1.791	-0.948	0.570	0.720
350T200-33	0.257	0.87	0.547	0.307	1.460	0.108	0.074	0.648	0.102	0.237	2.056	-1.294	0.764	0.604
350T200-43	0.335	1.14	0.716	0.399	1.463	0.139	0.096	0.646	0.227	0.309	2.054	-1.288	0.761	0.606
350T200-54	0.419	1.43	0.900	0.498	1.466	0.174	0.120	0.644	0.447	0.387	2.052	-1.283	0.758	0.609
350T200-68	0.526	1.79	1.135	0.623	1.469	0.216	0.150	0.641	0.891	0.488	2.050	-1.277	0.754	0.612
350T200-97	0.745	2.54	1.622	0.876	1.476	0.301	0.211	0.636	2.568	0.695	2.045	-1.265	0.745	0.617
350T250-43	0.380	1.29	0.858	0.478	1.503	0.255	0.146	0.820	0.257	0.567	2.434	-1.729	1.000	0.495
350T250-54	0.476	1.62	1.079	0.597	1.506	0.318	0.182	0.818	0.508	0.712	2.431	-1.724	0.997	0.497
350T250-68	0.597	2.03	1.363	0.748	1.510	0.397	0.228	0.815	1.012	0.898	2.428	-1.718	0.992	0.500
350T250-97	0.847	2.88	1.952	1.054	1.518	0.556	0.322	0.810	2.919	1.284	2.422	-1.705	0.984	0.505
362T125-33	0.209	0.71	0.416	0.226	1.411	0.030	0.031	0.379	0.083	0.072	1.605	-0.664	0.413	0.829
362T125-43	0.272	0.93	0.545	0.294	1.414	0.039	0.040	0.377	0.185	0.093	1.605	-0.659	0.410	0.831
362T125-54	0.341	1.16	0.683	0.366	1.415	0.048	0.049	0.375	0.364	0.116	1.604	-0.655	0.407	0.833
362T125-68	0.428	1.46	0.858	0.456	1.417	0.059	0.061	0.372	0.725	0.146	1.602	-0.649	0.403	0.836
362T125-97	0.605	2.06	1.218	0.637	1.419	0.081	0.085	0.367	2.085	0.205	1.599	-0.638	0.395	0.841
362T150-33	0.226	0.77	0.474	0.257	1.447	0.050	0.043	0.468	0.090	0.118	1.748	-0.862	0.525	0.757
362T150-43	0.295	1.00	0.620	0.334	1.450	0.064	0.056	0.466	0.200	0.153	1.748	-0.857	0.523	0.760
362T150-54	0.369	1.26	0.779	0.417	1.452	0.080	0.070	0.464	0.394	0.191	1.746	-0.852	0.520	0.762
362T150-68	0.463	1.58	0.980	0.521	1.454	0.099	0.087	0.462	0.785	0.240	1.745	-0.846	0.516	0.765
362T150-97	0.656	2.23	1.394	0.729	1.458	0.136	0.122	0.456	2.260	0.339	1.741	-0.834	0.507	0.770
362T162-30[NS]	0.212	0.72	0.453	0.246	1.462	0.056	0.045	0.513	0.069	0.132	1.826	-0.966	0.584	0.720
362T162-33	0.235	0.80	0.503	0.273	1.463	0.062	0.050	0.513	0.094	0.146	1.826	-0.964	0.583	0.721
362T162-43	0.306	1.04	0.658	0.355	1.466	0.080	0.065	0.511	0.208	0.190	1.825	-0.958	0.580	0.724
362T162-54	0.383	1.30	0.826	0.443	1.468	0.099	0.081	0.509	0.409	0.238	1.823	-0.954	0.577	0.726

TABLE 6 – TRACK GROSS AND TORSIONAL SECTION PROPERTIES [4]

SECTION	GROSS PROPERTIES								TORSIONAL PROPERTIES					
	Area	Wt	I_{xx}	S_{xx}	R_x	I_{yy}	S_{yy}	R_y	Jx1000	C_w	R_o	X_o	m	β
	(in^2)	(lbf/ft)	(in^4)	(in^3)	(in)	(in^4)	(in^3)	(in)	(in^4)	(in^6)	(in)	(in)	(in)	
362T162-68	0.481	1.64	1.041	0.553	1.471	0.123	0.101	0.506	0.815	0.299	1.821	-0.948	0.573	0.729
362T162-97	0.681	2.32	1.482	0.775	1.475	0.171	0.142	0.501	2.348	0.423	1.817	-0.936	0.565	0.735
362T200-33	0.261	0.89	0.590	0.320	1.503	0.109	0.074	0.646	0.104	0.256	2.077	-1.280	0.758	0.620
362T200-43	0.340	1.16	0.772	0.416	1.507	0.141	0.097	0.644	0.231	0.333	2.076	-1.274	0.755	0.623
362T200-54	0.426	1.45	0.970	0.520	1.509	0.175	0.121	0.642	0.455	0.418	2.074	-1.269	0.752	0.625
362T200-68	0.535	1.82	1.223	0.650	1.512	0.218	0.151	0.639	0.906	0.526	2.071	-1.263	0.748	0.628
362T200-97	0.757	2.58	1.746	0.913	1.519	0.304	0.212	0.634	2.611	0.749	2.067	-1.250	0.739	0.634
362T250-43	0.385	1.31	0.923	0.498	1.548	0.258	0.147	0.819	0.261	0.612	2.450	-1.713	0.994	0.511
362T250-54	0.482	1.64	1.161	0.622	1.551	0.322	0.183	0.817	0.515	0.768	2.447	-1.707	0.990	0.513
362T250-68	0.606	2.06	1.466	0.779	1.555	0.402	0.230	0.814	1.027	0.969	2.444	-1.701	0.986	0.516
362T250-97	0.859	2.92	2.098	1.098	1.563	0.562	0.323	0.809	2.961	1.385	2.439	-1.688	0.977	0.521
400T125-33	0.222	0.76	0.525	0.258	1.538	0.031	0.031	0.372	0.089	0.091	1.705	-0.636	0.399	0.861
400T125-43	0.290	0.99	0.687	0.336	1.540	0.040	0.040	0.370	0.196	0.117	1.705	-0.631	0.396	0.863
400T125-54	0.362	1.23	0.861	0.419	1.541	0.049	0.050	0.368	0.387	0.146	1.704	-0.627	0.393	0.865
400T125-68	0.455	1.55	1.082	0.522	1.542	0.061	0.062	0.365	0.771	0.183	1.702	-0.621	0.390	0.867
400T125-97	0.643	2.19	1.534	0.730	1.544	0.083	0.086	0.360	2.218	0.257	1.699	-0.610	0.382	0.871
400T150-33	0.239	0.81	0.596	0.293	1.577	0.051	0.044	0.462	0.096	0.148	1.840	-0.828	0.510	0.798
400T150-43	0.312	1.06	0.779	0.381	1.580	0.066	0.057	0.459	0.212	0.192	1.840	-0.823	0.507	0.800
400T150-54	0.391	1.33	0.977	0.475	1.582	0.082	0.071	0.457	0.417	0.241	1.839	-0.818	0.504	0.802
400T150-68	0.490	1.67	1.229	0.594	1.583	0.101	0.088	0.455	0.831	0.302	1.837	-0.813	0.500	0.804
400T150-97	0.694	2.36	1.748	0.832	1.587	0.140	0.123	0.450	2.393	0.426	1.833	-0.801	0.492	0.809
400T162-30[NS]	0.224	0.76	0.568	0.280	1.594	0.057	0.046	0.507	0.073	0.166	1.913	-0.929	0.568	0.764
400T162-33	0.248	0.84	0.631	0.310	1.595	0.064	0.051	0.506	0.099	0.184	1.913	-0.927	0.567	0.765
400T162-43	0.323	1.10	0.825	0.403	1.597	0.082	0.066	0.504	0.219	0.239	1.912	-0.922	0.564	0.767
400T162-54	0.405	1.38	1.036	0.504	1.599	0.102	0.082	0.502	0.432	0.299	1.911	-0.918	0.561	0.769
400T162-68	0.508	1.73	1.303	0.629	1.601	0.127	0.103	0.500	0.861	0.375	1.909	-0.912	0.557	0.772
400T162-97	0.720	2.45	1.855	0.882	1.605	0.176	0.144	0.494	2.481	0.531	1.906	-0.900	0.549	0.777
400T200-33	0.274	0.93	0.736	0.362	1.639	0.112	0.076	0.640	0.109	0.322	2.151	-1.237	0.740	0.669
400T200-43	0.357	1.22	0.963	0.471	1.642	0.145	0.098	0.638	0.242	0.419	2.150	-1.231	0.737	0.672
400T200-54	0.447	1.52	1.210	0.588	1.645	0.181	0.122	0.636	0.478	0.525	2.148	-1.226	0.734	0.674
400T200-68	0.562	1.91	1.525	0.736	1.648	0.225	0.153	0.633	0.952	0.661	2.146	-1.220	0.730	0.677
400T200-97	0.796	2.71	2.175	1.035	1.653	0.314	0.215	0.628	2.744	0.939	2.142	-1.208	0.722	0.682
400T250-43	0.402	1.37	1.148	0.561	1.689	0.267	0.149	0.814	0.273	0.768	2.506	-1.662	0.974	0.560
400T250-54	0.504	1.71	1.443	0.702	1.692	0.332	0.186	0.812	0.538	0.964	2.504	-1.657	0.970	0.562
400T250-68	0.633	2.15	1.820	0.879	1.696	0.415	0.233	0.810	1.073	1.214	2.501	-1.651	0.966	0.565
400T250-97	0.898	3.05	2.603	1.239	1.703	0.581	0.328	0.804	3.094	1.733	2.496	-1.638	0.957	0.569
550T125-33	0.274	0.93	1.121	0.403	2.022	0.033	0.032	0.348	0.109	0.189	2.123	-0.545	0.353	0.934
550T125-43	0.357	1.22	1.464	0.524	2.025	0.043	0.041	0.346	0.242	0.245	2.124	-0.541	0.350	0.935
550T125-54	0.447	1.52	1.834	0.654	2.025	0.053	0.051	0.344	0.478	0.305	2.123	-0.537	0.347	0.936
550T125-68	0.562	1.91	2.303	0.816	2.025	0.065	0.064	0.341	0.952	0.380	2.121	-0.532	0.344	0.937
550T125-97	0.796	2.71	3.261	1.144	2.024	0.090	0.089	0.336	2.744	0.530	2.117	-0.522	0.337	0.939
550T150-33	0.291	0.99	1.253	0.450	2.074	0.055	0.045	0.436	0.116	0.310	2.238	-0.718	0.457	0.897
550T150-43	0.380	1.29	1.637	0.586	2.077	0.071	0.059	0.434	0.257	0.401	2.238	-0.714	0.454	0.898
550T150-54	0.476	1.62	2.053	0.731	2.078	0.089	0.073	0.432	0.508	0.501	2.237	-0.710	0.452	0.899
550T150-68	0.597	2.03	2.580	0.914	2.078	0.110	0.091	0.429	1.012	0.627	2.236	-0.704	0.448	0.901

TABLE 6 – TRACK GROSS AND TORSIONAL SECTION PROPERTIES [4]

SECTION	GROSS PROPERTIES								TORSIONAL PROPERTIES					
	Area	Wt	I_{xx}	S_{xx}	R_x	I_{yy}	S_{yy}	R_y	Jx1000	C_w	R_o	X_o	m	β
	(in^2)	(lbf/ft)	(in^4)	(in^3)	(in)	(in^4)	(in^3)	(in)	(in^4)	(in^6)	(in)	(in)	(in)	
550T150-97	0.847	2.88	3.660	1.284	2.079	0.152	0.127	0.424	2.919	0.880	2.232	-0.694	0.441	0.903
550T162-30[NS]	0.270	0.92	1.189	0.428	2.097	0.063	0.048	0.481	0.088	0.347	2.299	-0.811	0.512	0.876
550T162-33	0.300	1.02	1.320	0.474	2.097	0.069	0.053	0.480	0.120	0.384	2.299	-0.809	0.511	0.876
550T162-43	0.391	1.33	1.724	0.617	2.100	0.089	0.068	0.478	0.265	0.499	2.299	-0.804	0.508	0.878
550T162-54	0.490	1.67	2.162	0.770	2.101	0.111	0.085	0.476	0.523	0.623	2.298	-0.800	0.505	0.879
550T162-68	0.615	2.09	2.718	0.963	2.102	0.138	0.106	0.474	1.042	0.780	2.297	-0.795	0.502	0.880
550T162-97	0.872	2.97	3.860	1.353	2.104	0.191	0.149	0.468	3.007	1.098	2.293	-0.784	0.494	0.883
550T200-33	0.326	1.11	1.518	0.545	2.158	0.123	0.079	0.614	0.130	0.672	2.497	-1.094	0.677	0.808
550T200-43	0.425	1.45	1.984	0.710	2.161	0.159	0.102	0.612	0.288	0.874	2.496	-1.089	0.674	0.810
550T200-54	0.532	1.81	2.490	0.887	2.163	0.198	0.127	0.610	0.568	1.093	2.495	-1.084	0.671	0.811
550T200-68	0.669	2.28	3.133	1.110	2.165	0.247	0.159	0.608	1.133	1.372	2.494	-1.079	0.667	0.813
550T200-97	0.948	3.23	4.458	1.563	2.168	0.344	0.223	0.602	3.270	1.941	2.490	-1.067	0.659	0.816
550T250-43	0.470	1.60	2.331	0.834	2.227	0.294	0.156	0.791	0.319	1.595	2.795	-1.491	0.902	0.715
550T250-54	0.589	2.00	2.926	1.043	2.229	0.367	0.195	0.789	0.629	1.999	2.793	-1.486	0.899	0.717
550T250-68	0.740	2.52	3.686	1.307	2.232	0.458	0.244	0.787	1.254	2.513	2.791	-1.480	0.895	0.719
550T250-97	1.050	3.57	5.256	1.843	2.237	0.641	0.343	0.781	3.620	3.571	2.788	-1.468	0.887	0.723
600T125-33	0.291	0.99	1.385	0.456	2.181	0.034	0.032	0.340	0.116	0.231	2.267	-0.520	0.339	0.947
600T125-43	0.380	1.29	1.809	0.594	2.183	0.043	0.041	0.338	0.257	0.299	2.268	-0.516	0.337	0.948
600T125-54	0.476	1.62	2.266	0.741	2.183	0.054	0.052	0.336	0.508	0.372	2.267	-0.512	0.334	0.949
600T125-68	0.597	2.03	2.845	0.926	2.182	0.067	0.064	0.334	1.012	0.463	2.265	-0.508	0.331	0.950
600T125-97	0.847	2.88	4.028	1.299	2.181	0.091	0.089	0.329	2.919	0.647	2.261	-0.498	0.324	0.952
600T150-33	0.309	1.05	1.543	0.508	2.236	0.056	0.046	0.428	0.123	0.379	2.378	-0.688	0.442	0.916
600T150-43	0.402	1.37	2.015	0.662	2.238	0.073	0.059	0.426	0.273	0.491	2.379	-0.684	0.439	0.917
600T150-54	0.504	1.71	2.525	0.826	2.239	0.090	0.074	0.424	0.538	0.612	2.378	-0.680	0.436	0.918
600T150-68	0.633	2.15	3.173	1.033	2.239	0.112	0.092	0.421	1.073	0.765	2.376	-0.675	0.433	0.919
600T150-97	0.898	3.05	4.501	1.451	2.239	0.155	0.128	0.416	3.094	1.074	2.373	-0.664	0.426	0.922
600T162-30[NS]	0.286	0.97	1.461	0.482	2.260	0.064	0.048	0.472	0.093	0.424	2.436	-0.778	0.495	0.898
600T162-33	0.317	1.08	1.621	0.534	2.261	0.071	0.053	0.472	0.127	0.470	2.436	-0.777	0.494	0.898
600T162-43	0.414	1.41	2.118	0.695	2.263	0.091	0.069	0.470	0.280	0.610	2.437	-0.772	0.492	0.900
600T162-54	0.518	1.76	2.655	0.869	2.264	0.113	0.086	0.468	0.553	0.761	2.436	-0.768	0.489	0.901
600T162-68	0.651	2.21	3.337	1.087	2.265	0.141	0.107	0.465	1.103	0.953	2.434	-0.763	0.486	0.902
600T162-97	0.923	3.14	4.738	1.527	2.266	0.195	0.150	0.460	3.182	1.340	2.431	-0.752	0.478	0.904
600T200-33	0.343	1.17	1.858	0.612	2.326	0.126	0.079	0.606	0.137	0.822	2.625	-1.054	0.658	0.839
600T200-43	0.447	1.52	2.427	0.797	2.329	0.163	0.103	0.603	0.303	1.069	2.625	-1.049	0.655	0.840
600T200-54	0.561	1.91	3.044	0.996	2.331	0.203	0.128	0.601	0.599	1.337	2.624	-1.045	0.652	0.841
600T200-68	0.704	2.40	3.830	1.247	2.332	0.253	0.161	0.599	1.193	1.677	2.622	-1.039	0.648	0.843
600T200-97	0.999	3.40	5.448	1.756	2.335	0.352	0.226	0.594	3.445	2.370	2.619	-1.028	0.640	0.846
600T250-43	0.492	1.68	2.839	0.932	2.401	0.302	0.157	0.782	0.334	1.950	2.908	-1.443	0.881	0.754
600T250-54	0.617	2.10	3.563	1.166	2.403	0.376	0.197	0.780	0.659	2.443	2.907	-1.438	0.877	0.755
600T250-68	0.776	2.64	4.487	1.461	2.405	0.469	0.246	0.778	1.314	3.070	2.905	-1.432	0.874	0.757
600T250-97	1.101	3.75	6.394	2.062	2.410	0.657	0.347	0.773	3.796	4.358	2.902	-1.420	0.865	0.761
800T125-33[1]	0.361	1.23	2.828	0.701	2.801	0.036	0.033	0.314	0.144	0.447	2.853	-0.441	0.295	0.976
800T125-43	0.470	1.60	3.691	0.912	2.802	0.046	0.042	0.312	0.319	0.577	2.854	-0.438	0.293	0.976
800T125-54	0.589	2.00	4.622	1.139	2.802	0.057	0.053	0.310	0.629	0.718	2.852	-0.435	0.291	0.977
800T125-68	0.740	2.52	5.803	1.425	2.800	0.070	0.065	0.308	1.254	0.893	2.850	-0.430	0.288	0.977

TABLE 6 – TRACK GROSS AND TORSIONAL SECTION PROPERTIES [4]

SECTION	GROSS PROPERTIES								TORSIONAL PROPERTIES					
	Area	Wt	I_{xx}	S_{xx}	R_x	I_{yy}	S_{yy}	R_y	Jx1000	C_w	R_o	X_o	m	β
	(in^2)	(lbf/ft)	(in^4)	(in^3)	(in)	(in^4)	(in^3)	(in)	(in^4)	(in^6)	(in)	(in)	(in)	
800T125-97	1.050	3.57	8.216	2.003	2.797	0.096	0.091	0.303	3.620	1.242	2.845	-0.422	0.282	0.978
800T150-33[1]	0.378	1.29	3.107	0.770	2.868	0.060	0.047	0.398	0.151	0.735	2.955	-0.591	0.390	0.960
800T150-43	0.492	1.68	4.056	1.003	2.870	0.077	0.060	0.396	0.334	0.952	2.956	-0.587	0.387	0.961
800T150-54	0.617	2.10	5.082	1.253	2.870	0.096	0.075	0.394	0.659	1.186	2.955	-0.584	0.385	0.961
800T150-68	0.776	2.64	6.384	1.568	2.869	0.119	0.094	0.392	1.314	1.481	2.953	-0.579	0.382	0.962
800T150-97	1.101	3.75	9.050	2.206	2.867	0.165	0.131	0.387	3.796	2.071	2.949	-0.570	0.375	0.963
800T162-33[1]	0.386	1.32	3.247	0.805	2.899	0.075	0.055	0.441	0.154	0.914	3.007	-0.670	0.439	0.950
800T162-43	0.504	1.71	4.238	1.048	2.901	0.097	0.071	0.439	0.342	1.184	3.008	-0.666	0.436	0.951
800T162-54	0.631	2.15	5.311	1.309	2.901	0.121	0.088	0.437	0.674	1.477	3.007	-0.662	0.434	0.951
800T162-68	0.793	2.70	6.674	1.639	2.900	0.150	0.110	0.435	1.344	1.846	3.006	-0.658	0.430	0.952
800T162-97	1.126	3.83	9.468	2.308	2.899	0.208	0.154	0.430	3.883	2.588	3.002	-0.648	0.424	0.953
800T200-33[1]	0.412	1.40	3.666	0.909	2.981	0.135	0.082	0.572	0.165	1.603	3.172	-0.922	0.592	0.916
800T200-43	0.538	1.83	4.785	1.183	2.984	0.175	0.106	0.570	0.364	2.081	3.173	-0.917	0.589	0.916
800T200-54	0.674	2.29	6.000	1.479	2.984	0.217	0.132	0.568	0.719	2.599	3.172	-0.913	0.586	0.917
800T200-68	0.847	2.88	7.545	1.853	2.985	0.271	0.165	0.565	1.435	3.256	3.171	-0.908	0.583	0.918
800T200-97	1.203	4.09	10.719	2.613	2.985	0.378	0.232	0.560	4.146	4.588	3.167	-0.897	0.576	0.920
800T250-43	0.583	1.98	5.515	1.363	3.077	0.326	0.163	0.748	0.395	3.798	3.415	-1.279	0.804	0.860
800T250-54	0.730	2.49	6.919	1.706	3.078	0.406	0.203	0.746	0.780	4.753	3.414	-1.274	0.801	0.861
800T250-68	0.918	3.12	8.706	2.138	3.079	0.507	0.254	0.743	1.556	5.965	3.412	-1.269	0.797	0.862
800T250-97	1.304	4.44	12.388	3.020	3.082	0.710	0.359	0.738	4.497	8.443	3.409	-1.258	0.789	0.864
1000T125-33[2]	0.430	1.46	4.992	0.992	3.409	0.037	0.033	0.293	0.171	0.742	3.443	-0.384	0.262	0.988
1000T125-43[1]	0.560	1.91	6.513	1.291	3.410	0.047	0.043	0.291	0.380	0.958	3.444	-0.381	0.260	0.988
1000T125-54	0.702	2.39	8.157	1.613	3.409	0.059	0.053	0.289	0.750	1.190	3.442	-0.378	0.258	0.988
1000T125-68	0.883	3.00	10.242	2.020	3.407	0.073	0.066	0.287	1.495	1.479	3.439	-0.374	0.255	0.988
1000T125-97	1.253	4.27	14.506	2.843	3.402	0.100	0.092	0.282	4.322	2.052	3.433	-0.367	0.249	0.989
1000T150-33[2]	0.447	1.52	5.428	1.078	3.485	0.062	0.047	0.373	0.178	1.226	3.543	-0.519	0.348	0.979
1000T150-43[1]	0.583	1.98	7.082	1.404	3.486	0.080	0.061	0.371	0.395	1.586	3.544	-0.515	0.346	0.979
1000T150-54	0.730	2.49	8.873	1.755	3.486	0.100	0.076	0.369	0.780	1.975	3.542	-0.512	0.344	0.979
1000T150-68	0.918	3.12	11.146	2.198	3.484	0.124	0.095	0.367	1.556	2.462	3.540	-0.508	0.341	0.979
1000T150-97	1.304	4.44	15.803	3.098	3.481	0.171	0.133	0.362	4.497	3.438	3.535	-0.499	0.335	0.980
1000T162-33[2]	0.456	1.55	5.646	1.121	3.520	0.078	0.055	0.414	0.182	1.526	3.593	-0.590	0.394	0.973
1000T162-43[1]	0.594	2.02	7.366	1.460	3.522	0.101	0.072	0.413	0.403	1.976	3.594	-0.587	0.392	0.973
1000T162-54	0.744	2.53	9.231	1.825	3.521	0.126	0.090	0.411	0.795	2.463	3.593	-0.583	0.389	0.974
1000T162-68	0.936	3.19	11.598	2.287	3.520	0.156	0.112	0.408	1.586	3.074	3.591	-0.579	0.386	0.974
1000T162-97	1.330	4.52	16.452	3.225	3.517	0.217	0.156	0.404	4.585	4.302	3.586	-0.570	0.380	0.975
1000T200-43[1]	0.628	2.14	8.220	1.629	3.618	0.183	0.108	0.540	0.426	3.483	3.749	-0.816	0.535	0.953
1000T200-54	0.787	2.68	10.304	2.038	3.619	0.228	0.135	0.538	0.840	4.348	3.748	-0.813	0.533	0.953
1000T200-68	0.989	3.37	12.954	2.554	3.618	0.284	0.168	0.535	1.677	5.441	3.746	-0.808	0.530	0.953
1000T200-97	1.406	4.78	18.397	3.606	3.617	0.396	0.236	0.530	4.848	7.654	3.742	-0.798	0.523	0.955
1000T250-43[1]	0.673	2.29	9.357	1.855	3.729	0.343	0.166	0.714	0.456	6.371	3.967	-1.151	0.739	0.916
1000T250-54	0.844	2.87	11.735	2.321	3.730	0.428	0.208	0.712	0.901	7.968	3.967	-1.147	0.736	0.916
1000T250-68	1.061	3.61	14.762	2.911	3.730	0.534	0.260	0.710	1.798	9.991	3.965	-1.141	0.733	0.917
1000T250-97	1.508	5.13	20.992	4.115	3.731	0.749	0.366	0.705	5.198	14.116	3.962	-1.131	0.726	0.919
1200T125-33[3]	0.499	1.70	8.017	1.328	4.009	0.038	0.033	0.275	0.199	1.118	4.032	-0.340	0.235	0.993
1200T125-43[2]	0.650	2.21	10.456	1.730	4.010	0.048	0.043	0.273	0.441	1.443	4.033	-0.337	0.233	0.993

TABLE 6 – TRACK GROSS AND TORSIONAL SECTION PROPERTIES [4]

SECTION	GROSS PROPERTIES								TORSIONAL PROPERTIES					
	Area	Wt	I_{xx}	S_{xx}	R_x	I_{yy}	S_{yy}	R_y	Jx1000	C_w	R_o	X_o	m	β
	(in^2)	(lbf/ft)	(in^4)	(in^3)	(in)	(in^4)	(in^3)	(in)	(in^4)	(in^6)	(in)	(in)	(in)	
1200T125-54[1]	0.815	2.77	13.097	2.162	4.008	0.060	0.054	0.271	0.871	1.791	4.031	-0.335	0.231	0.993
1200T125-68	1.025	3.49	16.447	2.709	4.005	0.074	0.067	0.269	1.737	2.225	4.028	-0.331	0.229	0.993
1200T125-97	1.457	4.96	23.304	3.819	3.999	0.102	0.093	0.265	5.023	3.083	4.021	-0.324	0.224	0.993
1200T150-33[3]	0.516	1.76	8.643	1.432	4.092	0.064	0.048	0.352	0.206	1.855	4.133	-0.463	0.315	0.987
1200T150-43[2]	0.673	2.29	11.274	1.865	4.093	0.083	0.062	0.350	0.456	2.399	4.134	-0.460	0.313	0.988
1200T150-54[1]	0.844	2.87	14.126	2.332	4.092	0.102	0.077	0.348	0.901	2.985	4.132	-0.457	0.311	0.988
1200T150-68	1.061	3.61	17.746	2.923	4.090	0.127	0.096	0.346	1.798	3.719	4.130	-0.453	0.308	0.988
1200T150-97	1.508	5.13	25.166	4.124	4.085	0.176	0.135	0.342	5.198	5.186	4.124	-0.445	0.303	0.988
1200T162-33[3]	0.525	1.79	8.956	1.484	4.131	0.081	0.056	0.392	0.209	2.312	4.183	-0.528	0.358	0.984
1200T162-43[2]	0.684	2.328	11.683	1.933	4.132	0.104	0.073	0.390	0.464	2.993	4.184	-0.525	0.356	0.984
1200T162-54[1]	0.858	2.92	14.640	2.417	4.132	0.129	0.091	0.388	0.916	3.728	4.182	-0.522	0.353	0.984
1200T162-68	1.079	3.67	18.395	3.030	4.130	0.161	0.113	0.386	1.828	4.651	4.180	-0.518	0.351	0.985
1200T162-97	1.533	5.22	26.097	4.277	4.126	0.223	0.158	0.381	5.286	6.499	4.175	-0.510	0.345	0.985
1200T200-54[1]	0.900	3.06	16.182	2.672	4.240	0.235	0.136	0.511	0.961	6.607	4.333	-0.733	0.488	0.971
1200T200-68	1.132	3.85	20.343	3.351	4.239	0.293	0.170	0.509	1.918	8.262	4.331	-0.728	0.485	0.972
1200T200-97	1.609	5.48	28.889	4.735	4.237	0.409	0.239	0.504	5.549	11.607	4.327	-0.719	0.479	0.972
1200T250-54[1]	0.957	3.26	18.239	3.011	4.366	0.445	0.211	0.682	1.022	12.140	4.541	-1.043	0.682	0.947
1200T250-68	1.203	4.09	22.941	3.779	4.366	0.555	0.264	0.679	2.039	15.215	4.539	-1.038	0.678	0.948
1200T250-97	1.711	5.82	32.613	5.345	4.366	0.778	0.372	0.674	5.899	21.469	4.536	-1.028	0.672	0.949
1200T300-54[1]	1.013	3.448	20.296	3.351	4.475	0.744	0.300	0.857	1.082	19.884	4.761	-1.380	0.886	0.916
1200T300-68	1.275	4.337	25.538	4.206	4.476	0.930	0.376	0.854	2.160	24.954	4.760	-1.375	0.883	0.917
1200T300-97	1.813	6.169	36.336	5.955	4.477	1.307	0.531	0.849	6.250	35.313	4.757	-1.364	0.876	0.918

For **SI** Units: 1 inch = 25.4 mm; 1 lbf = 4.448 N; 1 lbf/ft = 14.594 N/m.

[1] Web height-to-thickness ratio (h/t) exceeds 200 and is less than or equal to 260 per AISI S100. Bearing stiffeners are required at all support points and concentrated loads in accordance with Section B4 and Table B4.1-1 of AISI S100-16 w/S2-20.

[2] Web height-to-thickness ratio, h/t, exceeds 260 and is less than or equal to 300. Bearing (at support points and concentrated loads) and intermediate stiffeners are required in accordance with Section B4 and Table B4.1-1 of AISI S100-16 w/S2-20.

[3] Web height-to-thickness ratio, h/t, exceeds 300 and/or flange width-to-thickness ratio (b/t or d/t), exceeds 60. The member is outside the limits of applicability of Section B4 and Table B4.1-1 of AISI S100-16 w/S2-20.

[4] For definition of symbols, see page 3.

" NS" denotes nonstructural track members.

TABLE 7 – TRACK EFFECTIVE SECTION PROPERTIES AND ALLOWABLE STRENGTHS [5,6]

SECTION	EFFECTIVE PROPERTIES (BASED ON FY = 33 KSI)					EFFECTIVE PROPERTIES (BASED ON FY = 50 KSI)				
	I_{xe}[4]	S_{xe}	$M_{a\text{-}L}$	L_u	V_a	I_{xe}[4]	S_{xe}	$M_{a\text{-}L}$	L_u	V_a
	(in^4)	(in^3)	(kip-in)	(in)	(lbf)	(in^4)	(in^3)	(kip-in)	(in)	(lbf)
250T125-33	0.143	0.099	1.9	18.7	1005	0.136	0.092	2.8	14.1	1260
250T125-43	0.201	0.142	2.8	20.8	1316	0.191	0.131	3.9	15.6	1994
250T125-54	0.269	0.194	3.8	22.8	1632	0.256	0.180	5.4	17.1	2473
250T125-68	0.360	0.266	5.3	25.0	2017	0.344	0.248	7.4	18.8	3056
250T125-97	0.530	0.392	7.8	26.0	2762	0.530	0.392	11.7	21.1	4186
250T150-33	0.154	0.102	2.0	21.0	1005	0.146	0.095	2.8	15.8	1260
250T150-43	0.217	0.148	2.9	23.3	1316	0.206	0.136	4.1	17.5	1994
250T150-54	0.293	0.204	4.0	25.5	1632	0.277	0.188	5.6	19.2	2473
250T150-68	0.396	0.284	5.6	27.9	2017	0.375	0.262	7.8	21.0	3056
250T150-97	0.616	0.456	9.0	31.6	2762	0.595	0.430	12.9	24.2	4186
250T162-30[NS]	0.139	0.090	1.8	21.2	833	0.132	0.084	2.5	15.9	1025
250T162-33	0.159	0.104	2.1	22.0	1005	0.151	0.096	2.9	16.6	1260
250T162-43	0.225	0.150	3.0	24.4	1316	0.213	0.139	4.1	18.4	1994
250T162-54	0.304	0.208	4.1	26.7	1632	0.287	0.191	5.7	20.1	2473
250T162-68	0.412	0.291	5.7	29.3	2017	0.390	0.267	8.0	22.0	3056
250T162-97	0.651	0.477	9.4	33.6	2762	0.622	0.443	13.3	25.4	4186
250T200-33	0.173	0.108	2.1	25.0	1005	0.163	0.100	3.0	18.8	1260
250T200-43	0.245	0.157	3.1	27.6	1316	0.231	0.144	4.3	20.8	1994
250T200-54	0.333	0.218	4.3	30.1	1632	0.313	0.200	6.0	22.7	2473
250T200-68	0.456	0.308	6.1	32.9	2017	0.428	0.280	8.4	24.9	3056
250T200-97	0.734	0.518	10.2	38.0	2762	0.694	0.474	14.2	28.6	4186
250T250-33[3]	N/A	N/A	N/A	N/A	1005	N/A	N/A	N/A	N/A	1260
250T250-43	0.268	0.163	3.2	31.5	1316	0.251	0.149	4.5	23.8	1994
250T250-54	0.366	0.228	4.5	34.3	1632	0.343	0.208	6.2	25.9	2473
250T250-68	0.505	0.323	6.4	37.3	2017	0.472	0.293	8.8	28.3	3056
250T250-97	0.827	0.555	11.0	42.8	2762	0.776	0.503	15.1	32.4	4186
300T125-33	0.219	0.128	2.5	18.6	1024	0.210	0.120	3.6	13.9	1260
300T125-43	0.305	0.182	3.6	20.7	1595	0.291	0.170	5.1	15.5	2141
300T125-54	0.406	0.248	4.9	22.7	1982	0.388	0.231	6.9	17.0	3004
300T125-68	0.541	0.338	6.7	24.9	2458	0.519	0.316	9.5	18.7	3725
300T125-97	0.795	0.496	9.8	25.8	3392	0.795	0.496	14.9	21.0	5139
300T150-33	0.235	0.133	2.6	20.9	1024	0.225	0.124	3.7	15.7	1260
300T150-43	0.329	0.190	3.8	23.2	1595	0.313	0.177	5.3	17.4	2141
300T150-54	0.441	0.260	5.1	25.4	1982	0.419	0.241	7.2	19.1	3004
300T150-68	0.593	0.359	7.1	27.9	2458	0.564	0.333	10.0	21.0	3725
300T150-97	0.917	0.573	11.3	31.6	3392	0.886	0.542	16.2	24.1	5139
300T162-30[NS]	0.213	0.117	2.3	21.1	833	0.204	0.110	3.3	15.8	950
300T162-33	0.243	0.135	2.7	22.0	1024	0.232	0.126	3.8	16.5	1260
300T162-43	0.340	0.193	3.8	24.4	1595	0.323	0.179	5.4	18.3	2141
300T162-54	0.457	0.266	5.2	26.7	1982	0.433	0.246	7.4	20.1	3004
300T162-68	0.616	0.368	7.3	29.3	2458	0.585	0.340	10.2	22.0	3725
300T162-97	0.966	0.598	11.8	33.6	3392	0.925	0.558	16.7	25.4	5139
300T200-33	0.263	0.140	2.8	25.0	1024	0.250	0.131	3.9	18.8	1260
300T200-43	0.370	0.201	4.0	27.7	1595	0.351	0.186	5.6	20.8	2141

TABLE 7 – TRACK EFFECTIVE SECTION PROPERTIES AND ALLOWABLE STRENGTHS [5,6]

SECTION	EFFECTIVE PROPERTIES (BASED ON FY = 33 KSI)					EFFECTIVE PROPERTIES (BASED ON FY = 50 KSI)				
	I_{xe}[4]	S_{xe}	$M_{a\text{-}L}$	L_u	V_a	I_{xe}[4]	S_{xe}	$M_{a\text{-}L}$	L_u	V_a
	(in^4)	(in^3)	(kip-in)	(in)	(lbf)	(in^4)	(in^3)	(kip-in)	(in)	(lbf)
300T200-54	0.500	0.278	5.5	30.3	1982	0.472	0.256	7.7	22.8	3004
300T200-68	0.679	0.389	7.7	33.1	2458	0.641	0.357	10.7	25.0	3725
300T200-97	1.085	0.648	12.8	38.2	3392	1.029	0.596	17.9	28.7	5139
300T250-43	0.405	0.209	4.1	31.7	1595	0.382	0.193	5.8	23.9	2141
300T250-54	0.549	0.291	5.7	34.5	1982	0.516	0.267	8.0	26.1	3004
300T250-68	0.751	0.409	8.1	37.7	2458	0.705	0.373	11.2	28.5	3725
300T250-97	1.218	0.694	13.7	43.3	3392	1.146	0.632	18.9	32.7	5139
350T125-33	0.316	0.160	3.2	18.4	1024	0.303	0.151	4.5	13.7	1101
350T125-43	0.438	0.226	4.5	20.5	1740	0.419	0.212	6.4	15.4	2141
350T125-54	0.580	0.306	6.1	22.6	2333	0.556	0.287	8.6	16.9	3372
350T125-68	0.770	0.415	8.2	24.7	2900	0.739	0.390	11.7	18.5	4393
350T125-97	1.127	0.609	12.0	25.6	4021	1.127	0.609	18.2	20.8	6092
350T150-33	0.339	0.166	3.3	20.7	1024	0.324	0.156	4.7	15.5	1101
350T150-43	0.471	0.236	4.7	23.1	1740	0.450	0.221	6.6	17.3	2141
350T150-54	0.628	0.322	6.4	25.3	2333	0.598	0.300	9.0	19.0	3372
350T150-68	0.840	0.441	8.7	27.8	2900	0.801	0.411	12.3	20.9	4393
350T150-97	1.292	0.698	13.8	31.4	4021	1.250	0.662	19.8	24.0	6092
350T162-30[NS]	0.307	0.147	2.9	20.9	808	0.283	0.131	3.9	15.5	808
350T162-33	0.349	0.169	3.3	21.8	1024	0.334	0.159	4.7	16.3	1101
350T162-43	0.486	0.240	4.7	24.3	1740	0.464	0.224	6.7	18.2	2141
350T162-54	0.649	0.328	6.5	26.6	2333	0.618	0.305	9.1	20.0	3372
350T162-68	0.871	0.451	8.9	29.3	2900	0.830	0.419	12.5	22.0	4393
350T162-97	1.357	0.728	14.4	33.5	4021	1.303	0.682	20.4	25.3	6092
350T200-33	0.378	0.175	3.5	24.9	1024	0.351	0.158	4.7	18.5	1101
350T200-43	0.528	0.250	4.9	27.7	1740	0.502	0.233	7.0	20.8	2141
350T200-54	0.709	0.343	6.8	30.3	2333	0.672	0.318	9.5	22.8	3372
350T200-68	0.958	0.476	9.4	33.2	2900	0.907	0.440	13.2	25.0	4393
350T200-97	1.518	0.787	15.5	38.3	4021	1.443	0.727	21.8	28.8	6092
350T250-43	0.576	0.260	5.1	31.7	1740	0.546	0.242	7.2	23.8	2141
350T250-54	0.777	0.359	7.1	34.7	2333	0.734	0.331	9.9	26.1	3372
350T250-68	1.056	0.501	9.9	37.9	2900	0.996	0.460	13.8	28.6	4393
350T250-97	1.699	0.842	16.6	43.5	4021	1.603	0.771	23.1	32.8	6092
362T125-33	0.343	0.168	3.3	18.4	1024	0.329	0.159	4.8	13.7	1063
362T125-43	0.474	0.238	4.7	20.5	1740	0.454	0.223	6.7	15.3	2141
362T125-54	0.628	0.321	6.3	22.5	2417	0.601	0.301	9.0	16.8	3372
362T125-68	0.832	0.435	8.6	24.6	3005	0.800	0.409	12.2	18.5	4554
362T125-97	1.218	0.637	12.6	25.5	4172	1.218	0.637	19.1	20.7	6321
362T150-33	0.367	0.175	3.4	20.7	1024	0.352	0.164	4.9	15.5	1063
362T150-43	0.510	0.248	4.9	23.1	1740	0.487	0.232	6.9	17.3	2141
362T150-54	0.678	0.337	6.7	25.3	2417	0.647	0.314	9.4	19.0	3372
362T150-68	0.907	0.461	9.1	27.8	3005	0.866	0.430	12.9	20.8	4554
362T150-97	1.394	0.729	14.4	31.4	4172	1.349	0.693	20.7	24.0	6321
362T162-30[NS]	0.333	0.155	3.1	20.9	780	0.304	0.135	4.0	15.5	780
362T162-33	0.378	0.177	3.5	21.8	1024	0.361	0.166	5.0	16.3	1063

TABLE 7 – TRACK EFFECTIVE SECTION PROPERTIES AND ALLOWABLE STRENGTHS [5,6]

SECTION	EFFECTIVE PROPERTIES (BASED ON FY = 33 KSI)					EFFECTIVE PROPERTIES (BASED ON FY = 50 KSI)				
	I_{xe}[4]	S_{xe}	$M_{a\text{-}L}$	L_u	V_a	I_{xe}[4]	S_{xe}	$M_{a\text{-}L}$	L_u	V_a
	(in^4)	(in^3)	(kip-in)	(in)	(lbf)	(in^4)	(in^3)	(kip-in)	(in)	(lbf)
362T162-43	0.526	0.252	5.0	24.3	1740	0.502	0.235	7.0	18.2	2141
362T162-54	0.702	0.343	6.8	26.6	2417	0.668	0.320	9.6	20.0	3372
362T162-68	0.941	0.472	9.3	29.2	3005	0.897	0.439	13.1	21.9	4554
362T162-97	1.464	0.760	15.0	33.5	4172	1.405	0.712	21.3	25.3	6321
362T200-33	0.409	0.184	3.6	24.9	1024	0.377	0.163	4.9	18.5	1063
362T200-43	0.571	0.262	5.2	27.7	1740	0.544	0.245	7.3	20.7	2141
362T200-54	0.765	0.360	7.1	30.3	2417	0.726	0.334	10.0	22.7	3372
362T200-68	1.033	0.498	9.8	33.2	3005	0.980	0.460	13.8	24.9	4554
362T200-97	1.635	0.821	16.2	38.3	4172	1.555	0.760	22.8	28.8	6321
362T250-43	0.623	0.273	5.4	31.7	1740	0.591	0.254	7.6	23.8	2141
362T250-54	0.839	0.376	7.4	34.7	2417	0.793	0.348	10.4	26.1	3372
362T250-68	1.139	0.524	10.4	37.9	3005	1.075	0.482	14.4	28.6	4554
362T250-97	1.829	0.879	17.4	43.6	4172	1.727	0.805	24.1	32.8	6321
400T125-33	0.436	0.195	3.9	18.2	958	0.420	0.185	5.5	13.6	958
400T125-43	0.601	0.275	5.4	20.3	1740	0.577	0.259	7.7	15.2	2116
400T125-54	0.794	0.370	7.3	22.3	2683	0.762	0.348	10.4	16.7	3372
400T125-68	1.050	0.499	9.9	24.4	3341	1.011	0.471	14.1	18.4	5062
400T125-97	1.534	0.730	14.4	25.3	4650	1.534	0.730	21.8	20.5	7046
400T150-33	0.466	0.202	4.0	20.5	958	0.437	0.184	5.5	15.3	958
400T150-43	0.645	0.286	5.6	22.9	1740	0.618	0.269	8.0	17.1	2116
400T150-54	0.856	0.387	7.7	25.2	2683	0.818	0.363	10.9	18.8	3372
400T150-68	1.141	0.528	10.4	27.7	3341	1.092	0.494	14.8	20.7	5062
400T150-97	1.747	0.832	16.4	31.2	4650	1.693	0.791	23.7	23.9	7046
400T162-30[NS]	0.423	0.180	3.6	20.7	703	0.375	0.149	4.5	15.2	703
400T162-33	0.480	0.206	4.1	21.7	958	0.444	0.183	5.5	16.1	958
400T162-43	0.666	0.291	5.7	24.1	1740	0.637	0.273	8.2	18.1	2116
400T162-54	0.885	0.395	7.8	26.5	2683	0.845	0.369	11.0	19.8	3372
400T162-68	1.182	0.540	10.7	29.1	3341	1.129	0.504	15.1	21.8	5062
400T162-97	1.832	0.866	17.1	33.4	4650	1.761	0.814	24.4	25.2	7046
400T200-33	0.519	0.214	4.2	24.8	958	0.464	0.181	5.4	18.3	958
400T200-43	0.721	0.303	6.0	27.6	1740	0.688	0.284	8.5	20.7	2116
400T200-54	0.963	0.414	8.2	30.2	2683	0.916	0.385	11.5	22.7	3372
400T200-68	1.296	0.570	11.3	33.2	3341	1.231	0.529	15.8	24.9	5062
400T200-97	2.040	0.934	18.5	38.2	4650	1.945	0.867	26.0	28.7	7046
400T250-43	0.786	0.316	6.2	31.7	1740	0.748	0.295	8.8	23.8	2116
400T250-54	1.054	0.432	8.5	34.7	2683	0.999	0.401	12.0	26.1	3372
400T250-68	1.426	0.600	11.9	38.0	3341	1.349	0.553	16.6	28.6	5062
400T250-97	2.277	0.999	19.7	43.7	4650	2.154	0.918	27.5	32.9	7046
550T125-33	0.863	0.265	5.2	17.0	689	0.785	0.229	6.9	12.5	689
550T125-43	1.255	0.410	8.1	19.3	1524	1.157	0.360	10.8	14.2	1524
550T125-54	1.706	0.586	11.6	21.5	2740	1.597	0.525	15.7	15.9	3027
550T125-68	2.243	0.785	15.5	23.6	4348	2.170	0.747	22.4	17.7	5352
550T125-97	3.260	1.143	22.6	24.4	6538	3.260	1.143	34.2	19.8	9906
550T150-33	0.971	0.306	6.1	19.7	689	0.851	0.249	7.5	14.4	689

TABLE 7 – TRACK EFFECTIVE SECTION PROPERTIES AND ALLOWABLE STRENGTHS [5,6]

SECTION	EFFECTIVE PROPERTIES (BASED ON FY = 33 KSI)					EFFECTIVE PROPERTIES (BASED ON FY = 50 KSI)				
	I_{xe}[4]	S_{xe}	$M_{a\text{-}L}$	L_u	V_a	I_{xe}[4]	S_{xe}	$M_{a\text{-}L}$	L_u	V_a
	(in^4)	(in^3)	(kip-in)	(in)	(lbf)	(in^4)	(in^3)	(kip-in)	(in)	(lbf)
550T150-43	1.391	0.459	9.1	22.2	1524	1.321	0.425	12.7	16.5	1524
550T150-54	1.828	0.614	12.1	24.5	2740	1.759	0.581	17.4	18.3	3027
550T150-68	2.415	0.827	16.3	27.0	4348	2.324	0.782	23.4	20.2	5352
550T150-97	3.659	1.283	25.4	30.4	6538	3.558	1.229	36.8	23.2	9906
550T162-30[NS]	0.832	0.248	4.9	19.7	506	0.732	0.205	6.1	14.5	506
550T162-33	0.987	0.306	6.0	20.8	689	0.865	0.249	7.5	15.2	689
550T162-43	1.430	0.467	9.2	23.5	1524	1.342	0.423	12.7	17.4	1524
550T162-54	1.883	0.625	12.4	25.9	2740	1.810	0.591	17.7	19.3	3027
550T162-68	2.493	0.845	16.7	28.5	4348	2.396	0.796	23.8	21.3	5352
550T162-97	3.817	1.331	26.3	32.7	6538	3.686	1.261	37.8	24.6	9906
550T200-33	1.030	0.303	6.0	23.8	689	0.904	0.249	7.5	17.5	689
550T200-43	1.540	0.486	9.6	27.0	1524	1.399	0.419	12.5	20.0	1524
550T200-54	2.035	0.654	12.9	29.7	2740	1.951	0.615	18.4	22.2	3027
550T200-68	2.710	0.889	17.6	32.7	4348	2.593	0.834	25.0	24.5	5352
550T200-97	4.207	1.428	28.2	37.8	6538	4.031	1.339	40.1	28.4	9906
550T250-43	1.671	0.506	10.0	31.3	1524	1.466	0.415	12.4	23.0	1524
550T250-54	2.215	0.683	13.5	34.4	2740	2.118	0.642	19.2	25.7	3027
550T250-68	2.963	0.934	18.5	37.8	4348	2.825	0.872	26.1	28.3	5352
550T250-97	4.654	1.523	30.1	43.6	6538	4.432	1.415	42.4	32.7	9906
600T125-33	1.049	0.293	5.8	16.7	630	0.951	0.252	7.6	12.2	630
600T125-43	1.532	0.455	9.0	19.0	1394	1.407	0.397	11.9	13.9	1394
600T125-54	2.091	0.654	12.9	21.2	2740	1.950	0.583	17.4	15.6	2767
600T125-68	2.774	0.892	17.6	23.3	4348	2.668	0.839	25.1	17.4	5352
600T125-97	4.026	1.298	25.7	24.1	7167	4.026	1.298	38.9	19.6	10860
600T150-33	1.101	0.299	5.9	18.9	630	0.994	0.257	7.7	13.9	630
600T150-43	1.617	0.467	9.2	21.6	1394	1.478	0.406	12.1	15.9	1394
600T150-54	2.222	0.678	13.4	24.1	2740	2.061	0.599	17.9	17.7	2767
600T150-68	2.977	0.939	18.5	26.7	4348	2.841	0.872	26.1	19.9	5352
600T150-97	4.500	1.451	28.7	30.2	7167	4.380	1.393	41.7	23.0	10860
600T162-30[NS]	0.999	0.270	5.3	19.4	462	0.880	0.223	6.7	14.2	462
600T162-33	1.184	0.331	6.5	20.5	630	1.040	0.271	8.1	15.0	630
600T162-43	1.770	0.533	10.5	23.3	1394	1.607	0.458	13.7	17.2	1394
600T162-54	2.325	0.712	14.1	25.6	2740	2.239	0.674	20.2	19.1	2767
600T162-68	3.071	0.958	18.9	28.3	4348	2.956	0.906	27.1	21.1	5352
600T162-97	4.687	1.503	29.7	32.4	7167	4.531	1.428	42.7	24.4	10860
600T200-33	1.236	0.330	6.5	23.5	630	1.086	0.272	8.1	17.2	630
600T200-43	1.903	0.555	11.0	26.8	1394	1.677	0.455	13.6	19.7	1394
600T200-54	2.508	0.744	14.7	29.5	2740	2.409	0.702	21.0	22.0	2767
600T200-68	3.330	1.007	19.9	32.5	4348	3.192	0.947	28.4	24.3	5352
600T200-97	5.150	1.610	31.8	37.6	7167	4.943	1.513	45.3	28.2	10860
600T250-43	2.015	0.557	11.0	31.0	1394	1.758	0.452	13.5	22.7	1394
600T250-54	2.724	0.777	15.4	34.2	2740	2.590	0.723	21.6	25.5	2767
600T250-68	3.633	1.058	20.9	37.6	4348	3.471	0.991	29.7	28.1	5352
600T250-97	5.682	1.715	33.9	43.5	7167	5.421	1.599	47.9	32.6	10860

TABLE 7 – TRACK EFFECTIVE SECTION PROPERTIES AND ALLOWABLE STRENGTHS [5,6]

SECTION	EFFECTIVE PROPERTIES (BASED ON FY = 33 KSI)					EFFECTIVE PROPERTIES (BASED ON FY = 50 KSI)				
	I_{xe}[4]	S_{xe}	$M_{a\text{-}L}$	L_u	V_a	I_{xe}[4]	S_{xe}	$M_{a\text{-}L}$	L_u	V_a
	(in^4)	(in^3)	(kip-in)	(in)	(lbf)	(in^4)	(in^3)	(kip-in)	(in)	(lbf)
800T125-33[1]	1.996	0.402	8.0	15.6	470	1.792	0.344	10.3	11.4	470
800T125-43	2.954	0.634	12.5	17.8	1039	2.683	0.547	16.4	13.0	1039
800T125-54	4.089	0.929	18.3	19.9	2061	3.767	0.814	24.4	14.6	2061
800T125-68	5.578	1.334	26.4	22.1	4143	5.229	1.196	35.8	16.3	4143
800T125-97	8.212	2.002	39.6	22.9	8846	8.212	2.002	59.9	18.6	10888
800T150-33[1]	2.079	0.410	8.1	17.8	470	1.860	0.349	10.5	13.1	470
800T150-43	3.093	0.649	12.8	20.3	1039	2.797	0.558	16.7	14.9	1039
800T150-54	4.305	0.957	18.9	22.8	2061	3.948	0.834	25.0	16.7	2061
800T150-68	5.918	1.389	27.5	25.4	4143	5.515	1.236	37.0	18.7	4143
800T150-97	9.047	2.206	43.6	28.9	8846	8.836	2.130	63.8	22.0	10888
800T162-33[1]	2.117	0.412	8.2	18.9	470	1.891	0.351	10.5	13.9	470
800T162-43	3.156	0.655	12.9	21.5	1039	2.849	0.562	16.8	15.8	1039
800T162-54	4.405	0.969	19.1	24.1	2061	4.031	0.842	25.2	17.7	2061
800T162-68	6.074	1.412	27.9	27.0	4143	5.646	1.252	37.5	19.9	4143
800T162-97	9.377	2.276	45.0	31.2	8846	9.104	2.178	65.2	23.5	10888
800T200-33[1]	2.219	0.419	8.3	21.9	470	1.975	0.356	10.7	16.1	470
800T200-43	3.329	0.669	13.2	24.9	1039	2.991	0.572	17.1	18.3	1039
800T200-54	4.675	0.997	19.7	27.9	2061	4.255	0.861	25.8	20.5	2061
800T200-68	6.496	1.467	29.0	31.3	4143	6.002	1.290	38.6	23.0	4143
800T200-97	10.197	2.423	47.9	36.6	8846	9.824	2.292	68.6	27.3	10888
800T250-43	3.669	0.734	14.5	29.6	1039	3.213	0.603	18.0	21.7	1039
800T250-54	5.413	1.182	23.4	33.3	2061	4.710	0.951	28.5	24.4	2061
800T250-68	7.223	1.616	31.9	36.8	4143	6.949	1.529	45.8	27.4	4143
800T250-97	11.145	2.570	50.8	42.7	8846	10.696	2.419	72.4	31.9	10888
1000T125-33[2]	3.277	0.512	10.1	14.7	374	2.921	0.436	13.1	10.8	374
1000T125-43[1]	4.900	0.813	16.1	16.7	828	4.412	0.697	20.9	12.3	828
1000T125-54	6.856	1.204	23.8	18.7	1641	6.257	1.045	31.3	13.7	1641
1000T125-68	9.467	1.758	34.7	20.8	3296	8.784	1.556	46.6	15.4	3296
1000T125-97	14.499	2.842	56.2	21.7	8846	14.118	2.700	80.9	17.5	9655
1000T150-33[2]	3.397	0.520	10.3	16.9	374	3.018	0.442	13.2	12.4	374
1000T150-43[1]	5.101	0.830	16.4	19.2	828	4.577	0.709	21.2	14.1	828
1000T150-54	7.174	1.238	24.5	21.6	1641	6.519	1.069	32.0	15.8	1641
1000T150-68	9.973	1.823	36.0	24.1	3296	9.204	1.602	47.9	17.8	3296
1000T150-97	15.796	3.096	61.2	27.7	8846	15.050	2.848	85.3	20.9	9655
1000T162-33[2]	3.451	0.524	10.4	17.9	374	3.063	0.445	13.3	13.2	374
1000T162-43[1]	5.193	0.838	16.6	20.4	828	4.652	0.714	21.4	15.0	828
1000T162-54	7.319	1.251	24.7	22.9	1641	6.639	1.078	32.3	16.8	1641
1000T162-68	10.203	1.849	36.5	25.7	3296	9.396	1.620	48.5	18.9	3296
1000T162-97	16.309	3.184	62.9	30.0	8846	15.440	2.901	86.8	22.4	9655
1000T200-43[1]	5.442	0.854	16.9	23.8	828	4.856	0.726	21.7	17.5	828
1000T200-54	7.712	1.283	25.4	26.7	1641	6.964	1.101	33.0	19.6	1641
1000T200-68	10.825	1.912	37.8	29.9	3296	9.915	1.664	49.8	22.0	3296
1000T200-97	17.556	3.361	66.4	35.5	8846	16.489	3.025	90.6	26.2	9655
1000T250-43[1]	5.728	0.870	17.2	27.9	828	5.088	0.737	22.1	20.5	828

TABLE 7 – TRACK EFFECTIVE SECTION PROPERTIES AND ALLOWABLE STRENGTHS [5,6]

SECTION	EFFECTIVE PROPERTIES (BASED ON FY = 33 KSI)					EFFECTIVE PROPERTIES (BASED ON FY = 50 KSI)				
	I_{xe}[4]	S_{xe}	M_{a-L}	L_u	V_a	I_{xe}[4]	S_{xe}	M_{a-L}	L_u	V_a
	(in^4)	(in^3)	(kip-in)	(in)	(lbf)	(in^4)	(in^3)	(kip-in)	(in)	(lbf)
1000T250-54	8.166	1.314	26.0	31.2	1641	7.337	1.122	33.6	22.9	1641
1000T250-68	11.544	1.973	39.0	35.0	3296	10.512	1.706	51.1	25.7	3296
1000T250-97	18.976	3.528	69.7	41.7	8846	17.695	3.144	94.1	30.7	9655
1200T125-33[3]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1200T125-43[2]	7.390	0.992	19.6	15.9	688	6.609	0.847	25.3	11.6	688
1200T125-54[1]	10.429	1.480	29.2	17.7	1364	9.445	1.277	38.2	13.0	1364
1200T125-68	14.542	2.184	43.2	19.7	2737	13.380	1.915	57.3	14.6	2737
1200T125-97	22.678	3.630	71.7	20.6	8004	21.848	3.390	101.5	16.6	8004
1200T150-33[3]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1200T150-43[2]	7.662	1.012	20.0	18.3	688	6.831	0.861	25.8	13.4	688
1200T150-54[1]	10.862	1.518	30.0	20.5	1364	9.800	1.303	39.0	15.0	1364
1200T150-68	15.242	2.258	44.6	23.0	2737	13.955	1.967	58.9	16.9	2737
1200T150-97	24.544	3.933	77.7	26.5	8004	23.160	3.562	106.6	19.9	8004
1200T162-33[3]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1200T162-43[2]	7.786	1.020	20.2	19.5	688	6.932	0.866	25.9	14.3	688
1200T162-54[1]	11.059	1.533	30.3	21.8	1364	9.961	1.314	39.3	16.0	1364
1200T162-68	15.557	2.288	45.2	24.5	2737	14.215	1.988	59.5	18.0	2737
1200T162-97	25.259	4.032	79.7	28.7	8004	23.701	3.622	108.4	21.3	8004
1200T200-54[1]	11.592	1.570	31.0	25.6	1364	10.399	1.340	40.1	18.7	1364
1200T200-68	16.407	2.360	46.6	28.7	2737	14.918	2.038	61.0	21.1	2737
1200T200-97	26.985	4.231	83.6	34.1	8004	25.144	3.763	112.7	25.1	8004
1200T250-54[1]	12.205	1.605	31.7	30.1	1364	10.901	1.364	40.8	22.1	1364
1200T250-68	17.384	2.427	48.0	33.7	2737	15.727	2.086	62.4	24.8	2737
1200T250-97	28.947	4.421	87.4	40.2	8004	26.793	3.897	116.7	29.6	8004
1200T300-54[1]	12.738	1.629	32.2	34.2	1364	11.335	1.381	41.3	25.2	1364
1200T300-68	18.237	2.476	48.9	38.4	2737	16.429	2.119	63.5	28.2	2737
1200T300-97	30.660	4.560	90.1	45.8	8004	28.233	3.994	119.6	33.7	8004

For **SI** Units: 1 inch = 25.4 mm; 1 lbf = 4.448 N; 1 kip-in. = 112.99 N.m; 1 ksi = 6.895 MPa.

[1] Web height-to-thickness ratio (h/t) exceeds 200 and is less than or equal to 260 per AISI S100. Bearing stiffeners are required at all support points and concentrated loads in accordance with Section B4 and Table B4.1-1 of AISI S100-16 w/S2-20.

[2] Web height-to-thickness ratio, h/t, exceeds 260 and is less than or equal to 300. Bearing (at support points and concentrated loads) and intermediate stiffeners are required in accordance with Section B4 and Table B4.1-1 of AISI S100-16 w/S2-20.

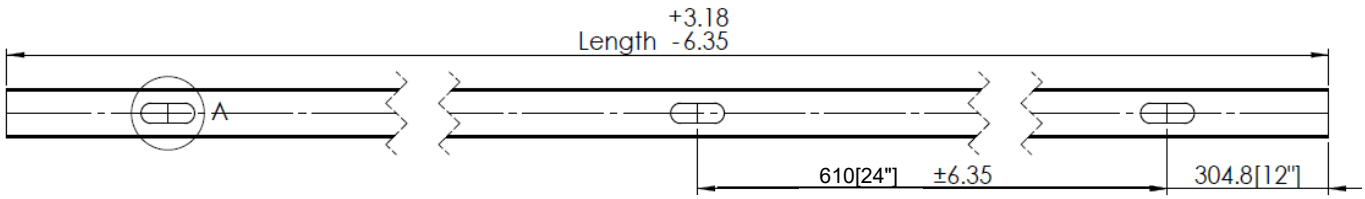
[3] Web height-to-thickness ratio, h/t, exceeds 300 or flange width-to-thickness ratio (b/t or d/t), exceeds 60. Effective section properties are outside the scope of this evaluation report, reported "N/A". Bearing and intermediate stiffeners are required for members with web height-to-thickness ratio exceeding 260.

[4] Use the effective moment of inertia, I_{xe}, for deflection calculations.

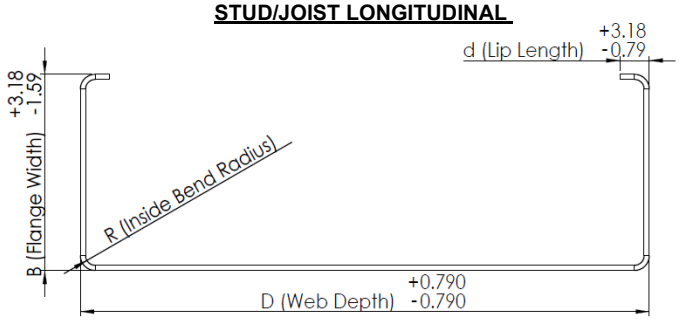
[5] M_{a-L} applies where the compression flange is braced at intervals not exceeding L_u. For other bracing conditions, the allowable moment must be determined in accordance with AISI S100.

[6] For definition of symbols, see page 3.

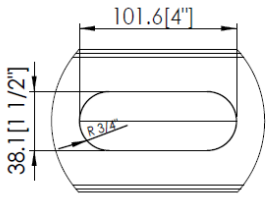
" NS" denotes nonstructural track members.



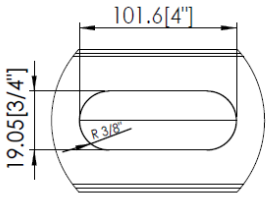
STUD/JOIST LONGITUDINAL



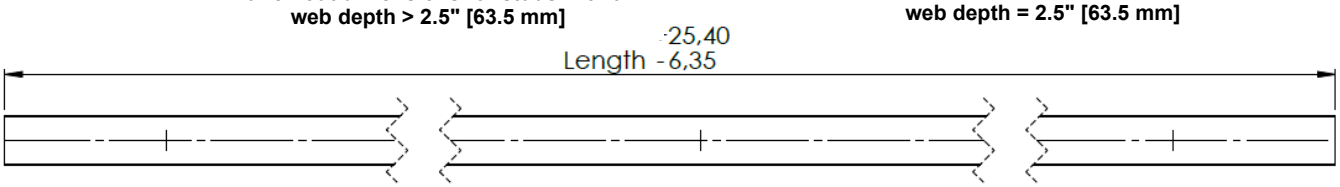
STUD/JOIST SECTION



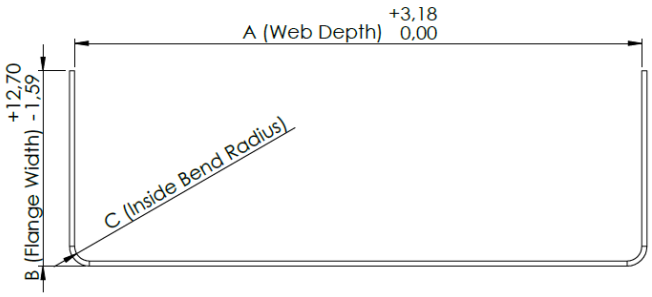
DETAIL A
Punch out dimensions for studs with a web depth > 2.5" [63.5 mm]



DETAIL B
Punch out dimensions for studs with a web depth = 2.5" [63.5 mm]



TRACK LONGITUDINAL SECTION



TRACK SECTION PROFILE

FIGURE 1 – STUD/JOIST AND TRACK SECTION PROFILES