

ICC-ES Evaluation Report


ESR-5345

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<p>DIVISION: 05 00 00—METALS</p> <p>Section: 05 40 00—Cold-Formed Metal Framing</p> <p>Section: 05 41 00—Structural Metal Stud Framing</p> <p>Section: 05 42 00—Cold-Formed Metal Joist Framing</p> <p>DIVISION: 09 00 00—FINISHES</p> <p>Section: 09 22 16.13—Non-Structural Metal Stud Framing</p>	<p>REPORT HOLDER:</p> <p>FOUNDRY FABRICATION & SUPPLY, LLC</p>	<p>EVALUATION SUBJECT:</p> <p>PINNACLE X10i</p>	
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1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2021, 2018, 2015 and 2012 [International Building Code® \(IBC\)](#).

Property evaluated:

- Structural

2.0 USES

The Pinnacle X10i framing members (studs and tracks) 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).

The Pinnacle X10i framing members (studs and tracks) with 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.

3.0 DESCRIPTION

The designations and dimensions of studs and tracks are provided in [Table 1](#). [Figure 1](#) includes profiles of the studs and tracks.

The studs are manufactured with and without web punch-outs. When provided, 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 of 3 1/2 inches (89 mm) or greater. The punch-outs are spaced a minimum of 24 inches (610 mm) on center and have a minimum distance between the end of the member and the near edge of the punch-out of 10 inches (254 mm).

The stud and track sections are cold-formed from steel coils conforming to ASTM A653 SS Grade 50 Class 1 or ASTM A1003 Structural Grade 50 Type H (ST50H) with a minimum G40 or G60 galvanized coating.

4.0 DESIGN AND INSTALLATION

4.1 Design:

The structural properties are provided in [Tables 2](#) and [3](#). The web crippling capacities for the studs are provided in [Table 4](#). These values have been determined in accordance with the North American Specification for the Design of Cold-Formed Steel Structural Members (AISI S100). However, additional design considerations per AISI S100 must be considered, such as the design of flexural members must address combined bending and web crippling, and combined bending and shear.

4.2 Installation:

The framing members must be installed in accordance with the applicable code, the approved plans 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 framing members described in this report comply with, or are a suitable alternative to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 Minimum uncoated base-metal thickness of the cold formed steel members as delivered to the jobsite must be at least 95 percent of the design base-metal thickness.
- 5.2 Complete plans and calculations verifying compliance with this report must be submitted to the code official for each project at the time of permit application. The calculations and drawings must be prepared and sealed by a registered design professional, where required by the statutes of the jurisdiction in which the project is to be constructed.
- 5.3 The framing members are manufactured under a quality control program 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 2019 (Editorially revised December 2020).

7.0 IDENTIFICATION

- 7.1 The ICC-ES mark of conformity, electronic labeling, or the evaluation report number (ICC-ES ESR-5345) along with the name, registered trademark, or registered logo of the report holder (Foundry Fabrication & Supply) must be included in the product label.
- 7.2 In additions, at a spacing not exceeding 96 inches (2440 mm) on center, each cold-formed steel member is stamped, stenciled or embossed with the company name or initials; the acronym "ICC-ES"; the evaluation report number (ESR-5345); the minimum uncoated base-metal thickness in mils or decimal inches; the minimum specified yield strength; in addition to the following:
 - For nonstructural members, each member must have the designation "NS".
 - For structural members, a designation for the coating (minimum G60).
- 7.3 The report holder's contact information is the following:

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Definition of Symbols

Gross Properties (away from punch-outs)

I_{xx} = Moment of inertia about the x-axis.
 R_x = Strong axis radius of gyration.
 I_{yy} = Weak axis moment of inertia.
 R_y = Weak axis radius of gyration.

Torsional and Other Properties (away from punch-outs)

J = St. Venant torsion constant.
 C_w = Warping constant.
 X_o = Distance from shear center to neutral axis.
 R_o = Radii of gyration.
 β = Torsional flexural constant.
 L_u = Critical unbraced length for lateral-torsional buckling. Moments are considered fully braced when unbraced length is less than L_u .

Effective Properties (at section with punch-out, except for V_{ag}):

I_{xe} = Effective moment of inertia about the x-axis.
 S_{xe} = Effective section modulus about the x-axis.
 M_{a-L} = Allowable moment based on local buckling.
 M_{a-D} = Allowable moment based on distortional buckling.
 V_{ag} = Allowable strong axis shear away from punch-out.
 V_{aNet} = Allowable strong axis shear at the punch-out.

TABLE 1 – STUD AND TRACK PHYSICAL PROPERTIES¹

STUD DESIGNATION	TRACK DESIGNATION	MILS	DESIGN BASE STEEL THICKNESS (in.)	FLANGE (in.)	LIP ² (in.)	INTERNAL CORNER RADII (in.)
XXXS162-33	---	33	0.0346	1.625	0.500	0.090
XXXS162-43	---	43	0.0451	1.625	0.500	0.090
XXXS162-54	---	54	0.0566	1.625	0.500	0.090
XXXS162-68	---	68	0.0713	1.625	0.500	0.090
XXXS162-97	---	97	0.1017	1.625	0.500	0.110
XXXS200-33	XXXT200-33	33	0.0346	2.00	0.625	0.090
XXXS200-43	XXXT200-43	43	0.0451	2.00	0.625	0.090
XXXS200-54	XXXT200-54	54	0.0566	2.00	0.625	0.090
XXXS200-68	XXXT200-68	68	0.0713	2.00	0.625	0.090
XXXS200-97	XXXT200-97	97	0.1017	2.00	0.625	0.110
XXXS300-54	---	54	0.0566	3.00	0.625	0.090
XXXS300-68	---	68	0.0713	3.00	0.625	0.090
XXXS300-97	---	97	0.1017	3.00	0.625	0.110

For SI Units: 1 inch = 25.4 mm, 1 mil = 0.001 inch

¹XXX = Overall depth in 100's of an inch. For example: 350 = 3.50 inches; 362 = 3.625 inches; and 1000 = 10.0 inches.

²For Tracks at location 2 (see [Figure 1](#)), there are no lips.

TABLE 2 – STUD SECTION PROPERTIES^{1,2,3,4,5,6}

SECTION	GROSS PROPERTIES							EFFECTIVE PROPERTIES (Based on F _y = 50 ksi)						TORSIONAL PROPERTIES						
	Area	Weight	I _{xx}	S _{xx}	R _x	I _{yy}	R _y	I _{xe}	S _{xe}	M _{a-L}	M _{a-D}	V _{ag}	V _{aNet}	Jx1000	C _w	X _o	m	R _o	β	L _u
	(in ²)	(lb/ft)	(in ⁴)	(in ³)	(in)	(in ⁴)	(in)	(in ⁴)	(in ³)	(ft-lb)	(ft-lb)	(lb)	(lb)	(in ⁴)	(in ⁶)	(in)	(in)	(in)		
350S162-33	0.257	0.87	0.506	0.289	1.403	0.097	0.616	0.506	0.225	561.7	545.0	1134	531	0.103	0.277	-1.323	0.796	2.025	0.573	34.7
362S162-33	0.261	0.89	0.548	0.303	1.449	0.099	0.615	0.548	0.234	584.2	566.7	1092	548	0.104	0.297	-1.308	0.789	2.046	0.592	34.6
362S162-43	0.338	1.15	0.705	0.389	1.443	0.126	0.610	0.705	0.323	805.8	803.3	2141	815	0.229	0.376	-1.295	0.782	2.033	0.594	34.5
362S162-54	0.421	1.43	0.871	0.481	1.438	0.154	0.604	0.871	0.443	1105.8	1075.8	3372	1010	0.450	0.457	-1.282	0.774	2.019	0.597	34.4
362S162-68	0.526	1.79	1.076	0.593	1.430	0.187	0.597	1.076	0.577	1439.2	1420.8	4415	1033	0.891	0.552	-1.265	0.765	2.001	0.600	34.3
362S162-97	0.731	2.49	1.460	0.805	1.413	0.247	0.581	1.460	0.790	1970.0	1970.0	6105	946	2.522	0.723	-1.229	0.745	1.960	0.607	34.4
362S200-43	0.383	1.30	0.831	0.458	1.472	0.225	0.766	0.831	0.374	934.2	923.3	2141	815	0.260	0.734	-1.728	1.024	2.396	0.480	43.4
362S200-54	0.478	1.63	1.028	0.567	1.467	0.277	0.761	1.028	0.490	1222.5	1237.5	3372	1010	0.510	0.896	-1.714	1.016	2.381	0.482	43.3
362S200-68	0.597	2.03	1.272	0.702	1.460	0.339	0.754	1.272	0.669	1668.3	1651.7	4415	1033	1.012	1.089	-1.697	1.006	2.362	0.484	43.3
362S200-97	0.833	2.83	1.736	0.958	1.444	0.454	0.738	1.736	0.942	2350.8	2350.8	6105	946	2.872	1.441	-1.660	0.986	2.321	0.488	43.5
600S162-33	0.343	1.17	1.785	0.595	2.280	0.116	0.580	1.785	0.479	1195.8	981.7	641	641	0.137	0.861	-1.071	0.677	2.585	0.828	33.4
600S162-43	0.445	1.52	2.303	0.768	2.274	0.147	0.575	2.303	0.705	1760.0	1415.8	1425	1237	0.302	1.095	-1.060	0.670	2.574	0.830	33.2
600S162-54	0.556	1.89	2.856	0.952	2.267	0.180	0.569	2.856	0.926	2310.0	1927.5	2828	1946	0.594	1.337	-1.048	0.663	2.561	0.832	33.0
600S162-68	0.695	2.37	3.543	1.181	2.258	0.219	0.562	3.543	1.181	2946.7	2619.2	5350	2902	1.178	1.626	-1.033	0.655	2.546	0.835	32.8
600S162-97	0.973	3.31	4.865	1.622	2.236	0.289	0.545	4.865	1.622	4045.8	4022.5	10634	3947	3.354	2.153	-1.000	0.636	2.509	0.841	32.4
600S200-43	0.491	1.67	2.669	0.890	2.333	0.267	0.737	2.669	0.801	1997.5	1617.5	1425	1237	0.333	2.033	-1.445	0.894	2.841	0.741	41.8
600S200-54	0.612	2.08	3.315	1.105	2.326	0.328	0.732	3.315	1.015	2532.5	2198.3	2828	1946	0.654	2.493	-1.432	0.887	2.828	0.744	41.6
600S200-68	0.766	2.61	4.119	1.373	2.318	0.402	0.725	4.119	1.342	3349.2	2983.3	5350	2902	1.299	3.047	-1.416	0.878	2.812	0.746	41.4
600S200-97	1.075	3.66	5.679	1.893	2.299	0.539	0.708	5.679	1.893	4723.3	4660.0	10634	3947	3.705	4.080	-1.381	0.859	2.774	0.752	41.1
600S300-54	0.726	2.47	4.315	1.438	2.438	0.874	1.098	4.009	1.106	2759	2387	2828	1946	0.775	6.452	-2.299	1.372	3.526	0.575	59.1
600S300-68	0.909	3.09	5.372	1.791	2.431	1.081	1.090	5.238	1.447	3611	3273	5352	2904	1.540	7.937	-2.282	1.363	3.508	0.577	58.9
600S300-97	1.278	4.35	7.448	2.483	2.414	1.473	1.074	7.358	2.250	5614	5240	10634	3947	4.406	10.776	-2.244	1.343	3.467	0.581	58.8
800S162-43	0.536	1.82	4.610	1.153	2.934	0.159	0.544	4.409	0.871	2172.5	1901.7	1056	1056	0.363	2.076	-0.925	0.601	3.124	0.912	32.4
800S162-54	0.669	2.28	5.728	1.432	2.926	0.194	0.538	5.593	1.228	3065.0	2621.7	2094	2094	0.714	2.539	-0.914	0.594	3.112	0.914	32.1
800S162-68	0.838	2.85	7.123	1.781	2.916	0.236	0.531	7.099	1.668	4161.7	3617.5	4202	3371	1.420	3.093	-0.900	0.586	3.097	0.916	31.9
800S162-97	1.176	4.00	9.833	2.458	2.891	0.311	0.514	9.833	2.458	6133.3	5809.2	10885	6022	4.056	4.114	-0.869	0.568	3.062	0.919	31.3
800S200-54	0.726	2.47	6.565	1.641	3.008	0.356	0.701	6.565	1.501	3744.2	3010.0	2094	2094	0.775	4.663	-1.264	0.804	3.337	0.856	40.7
800S200-68	0.909	3.09	8.174	2.043	2.999	0.437	0.694	8.174	2.000	4989.2	4130.8	4202	3371	1.540	5.712	-1.249	0.796	3.322	0.859	40.4
800S200-97	1.278	4.35	11.323	2.831	2.976	0.586	0.677	11.323	2.831	7062.5	6595.8	10885	6022	4.406	7.684	-1.217	0.777	3.286	0.863	40.0
1000S200-54	0.839	2.85	11.266	2.253	3.665	0.377	0.670	10.759	1.707	4259.2	3766.7	1663	1663	0.896	7.665	-1.135	0.737	3.895	0.915	39.8
1000S200-68	1.052	3.58	14.046	2.809	3.655	0.463	0.663	13.707	2.423	6044.2	5224.2	3334	3334	1.782	9.401	-1.121	0.729	3.880	0.917	39.6
1000S200-97	1.481	5.04	19.523	3.905	3.630	0.620	0.647	19.523	3.764	9392.5	8513.3	9776	7189	5.108	12.679	-1.090	0.711	3.845	0.920	39.0
1000S300-54	0.952	3.24	14.064	2.813	3.843	1.022	1.036	13.422	1.904	4750.0	4105.0	1663	1663	1.017	19.888	-1.892	1.185	4.407	0.816	58.1

TABLE 2 – STUD SECTION PROPERTIES^{1,2,3,4,5,6}

SECTION	GROSS PROPERTIES							EFFECTIVE PROPERTIES (Based on $F_y = 50$ ksi)						TORSIONAL PROPERTIES						
	Area	Weight	I_{xx}	S_{xx}	R_x	I_{yy}	R_y	I_{xe}	S_{xe}	M_{a-L}	M_{a-D}	V_{ag}	V_{aNet}	$Jx1000$	C_w	X_o	m	R_o	β	L_u
	(in ²)	(lb/ft)	(in ⁴)	(in ³)	(in)	(in ⁴)	(in)	(in ⁴)	(in ³)	(ft-lb)	(ft-lb)	(lb)	(lb)	(in ⁴)	(in ⁶)	(in)	(in)	(in)		
1000S300-68	1.194	4.06	17.561	3.512	3.835	1.264	1.029	17.153	2.793	6969.2	5709.2	3334	3334	2.024	24.551	-1.876	1.176	4.391	0.818	57.8
1000S300-97	1.685	5.73	24.505	4.901	3.814	1.724	1.011	24.182	4.503	11235.8	9392.5	9776	7189	5.809	33.570	-1.842	1.158	4.354	0.821	57.3
1200S200-54 ⁷	0.952	3.24	17.644	2.941	4.305	0.393	0.642	16.320	2.076	5179.2	4435.0	1379	---	1.017	11.550	-1.031	0.681	4.473	0.947	39.0
1200S200-68	1.194	4.06	22.022	3.670	4.294	0.482	0.635	20.919	2.964	7396.7	6213.3	2763	2763	2.024	14.176	-1.018	0.673	4.459	0.948	38.7
1200S200-97	1.685	5.73	30.685	5.114	4.268	0.645	0.619	30.405	4.683	11683.3	10315.8	8087	7419	5.809	19.150	-0.989	0.656	4.424	0.950	38.1
1200S300-54 ⁷	1.065	3.62	21.681	3.614	4.511	1.073	1.003	21.022	2.274	5674.2	4922.5	1379	---	1.138	30.051	-1.742	1.111	4.939	0.876	57.5
1200S300-68	1.337	4.55	27.095	4.516	4.502	1.326	0.996	26.598	3.307	8250.8	6890.0	2763	2763	2.265	37.126	-1.727	1.103	4.924	0.877	57.2
1200S300-97	1.888	6.43	37.884	6.314	4.479	1.808	0.979	37.387	5.837	14562.5	11472.5	8087	7419	6.510	50.853	-1.695	1.085	4.888	0.880	56.6
1400S200-68	1.337	4.55	32.386	4.627	4.922	0.497	0.610	29.865	3.505	8745.8	7080.8	2359	2359	2.265	20.083	-0.933	0.625	5.047	0.966	37.9
1400S200-97	1.888	6.43	45.218	6.460	4.894	0.665	0.594	43.906	5.602	13976.7	11953.3	6896	6896	6.510	27.156	-0.907	0.609	5.012	0.967	37.3
1400S300-68	1.479	5.03	39.303	5.615	5.154	1.376	0.965	36.391	3.645	9093.3	7998.3	2359	2359	2.507	52.772	-1.602	1.038	5.483	0.915	56.5
1400S300-97	2.092	7.12	55.040	7.863	5.130	1.877	0.947	53.749	6.341	15820.8	13474.2	6896	6896	7.211	72.365	-1.571	1.020	5.448	0.917	55.9

For SI Units: 1 lbf = 4.448 N, 1 kip = 4448 N, 1 inch = 25.4 mm, 1 lb/ft = 14.5939 N/m, 1 ft-lb = 1.3558 N-m

¹ Gross and torsional properties are based on the full-unreduced cross section of the studs, away from web punch-outs.

² Effective properties, except for V_{ag} , are based on studs with or without punchouts. Cold work of forming has not been considered.

³ Use the effective moment of inertia, I_{xe} , for deflection calculations.

⁴ M_{a-L} and M_{a-D} are based on the compression flange fully braced. For other conditions of compression flange bracing, the allowable moment must be determined in accordance with AISI S100.

⁵ M_{a-D} is calculated without the beneficial effect of sheathing to rotational stiffness. $K_o = 0$.

⁶ For definition of symbols, see page 2.

⁷ Web height-to-thickness ratio (h/t) exceeds 200 and is less than or equal to 260 per AISI S100. Web stiffeners are required at all support points and concentrated loads.

TABLE 3 – TRACK SECTION PROPERTIES AT LOCATION 2^{1,2,3,4,5}

SECTION	GROSS PROPERTIES							EFFECTIVE PROPERTIES (Based on $F_y = 50$ ksi)				TORSIONAL PROPERTIES					
	Area	Weight	I_{xx}	S_{xx}	R_x	I_{yy}	R_y	I_{xx}	S_{xx}	M_{a-L}	V_{ag}	$Jx1000$	C_w	X_o	m	R_o	β
	(in ²)	(lb/ft)	(in ⁴)	(in ³)	(in)	(in ⁴)	(in)	(in ⁴)	(in ³)	(in-kip)	(lb)	(in ⁴)	(in ⁶)	(in)	(in)	(in)	
362T200-43	0.335	1.14	0.730	0.403	1.475	0.140	0.645	0.556	0.237	7.11	2141	0.227	0.316	-1.285	0.760	2.060	0.611
362T200-54	0.419	1.43	0.906	0.500	1.470	0.174	0.643	0.735	0.320	9.58	3372	0.448	0.390	-1.282	0.757	2.054	0.610
600T200-43	0.443	1.51	2.336	0.779	2.297	0.162	0.605	1.894	0.454	13.60	1425	0.300	1.032	-1.057	0.658	2.600	0.835
600T200-54	0.554	1.88	2.910	0.970	2.292	0.202	0.603	2.441	0.683	20.44	2828	0.591	1.279	-1.054	0.656	2.594	0.835
600T200-68	0.695	2.37	3.631	1.210	2.286	0.251	0.601	3.207	0.912	27.31	5350	1.178	1.586	-1.049	0.653	2.586	0.835
800T200-54	0.667	2.27	5.793	1.448	2.947	0.217	0.570	5.027	0.943	28.24	2094	0.712	2.515	-0.920	0.590	3.139	0.914
800T200-68	0.838	2.85	7.242	1.810	2.940	0.270	0.567	6.482	1.421	42.55	4202	1.420	3.124	-0.916	0.587	3.131	0.914
1000T200-68	0.980	3.34	12.528	2.506	3.575	0.283	0.537	11.140	1.626	48.68	3334	1.661	5.265	-0.814	0.533	3.705	0.952
1200T200-68	1.123	3.82	19.774	3.296	4.196	0.293	0.511	17.153	1.997	59.78	2763	1.903	8.039	-0.733	0.488	4.290	0.971
1400T200-68	1.266	4.31	29.267	4.181	4.809	0.300	0.487	24.662	2.367	70.87	2359	2.145	11.468	-0.668	0.450	4.879	0.981

For **SI** Units: 1 lbf = 4.448 N, 1 kip = 4448 N, 1 inch = 25.4 mm, 1 lb/ft = 14.5939 N/m, 1 inch-kip = 112.98 N-m

¹ Gross and torsional properties are based on the full-unreduced cross section of the tracks (no punch-outs).

² Use the effective moment of inertia, I_{xe} , for deflection calculations.

³ Cold-work of forming has not been considered.

⁴ M_{a-L} is based on the compression flange fully braced. For other conditions of compression flange bracing, the allowable moment must be determined in accordance with AISI S100.

⁵ For definition of symbols, see page 2.

TABLE 4 – ALLOWABLE WEB CRIPPLING VALUES (lbs)
 (Based on $F_y = 50$ ksi)^{1,2}

STUD		FLANGE IS FASTENED TO SUPPORTS															
Depth	Thick.	Condition 1 – End One-Flange Loading or Reaction				Condition 2 – Interior One-Flange Loading or Reaction				Condition 3 - End Two-Flange Loading or Reaction				Condition 4 - Interior Two-Flange Loading or Reaction			
(in.) x 100	(mils)	Bearing Length (inches)				Bearing Length (inches)				Bearing Length (inches)				Bearing Length (inches)			
		1	3.5	4	6	1	3.5	4	6	1	3.5	4	6	1	3.5	4	6
350	33	246	386	407	479	470	645	671	762	197	264	274	308	574	724	747	824
362	33	245	384	405	477	469	644	670	760	193	259	269	303	569	718	740	817
362	43	409	630	663	777	820	1104	1146	1292	355	466	483	540	1007	1247	1282	1406
362	54	631	958	1006	1175	1314	1738	1801	2020	587	758	783	872	1629	1986	2039	2224
362	68	977	1460	1532	1781	2110	2742	2835	3162	968	1229	1268	1402	2644	3175	3254	3528
362	97	1881	2738	2865	3307	4210	5329	5495	6072	2043	2530	2602	2853	5472	6427	6569	7062
600	33	227	355	374	441	453	622	647	735	140	188	195	220	493	622	641	707
600	43	383	590	621	728	796	1072	1113	1255	278	365	378	423	894	1107	1139	1249
600	54	595	904	950	1109	1280	1693	1755	1968	481	621	642	715	1472	1795	1843	2009
600	68	929	1389	1457	1694	2062	2679	2771	3090	822	1043	1076	1191	2424	2911	2983	3234
600	97	1805	2627	2749	3173	4130	5228	5390	5957	1803	2232	2295	2517	5103	5995	6127	6587
800	43	365	562	591	693	780	1050	1090	1229	225	296	306	343	816	1011	1040	1140
800	54	571	867	911	1064	1257	1663	1723	1932	408	528	545	607	1364	1663	1708	1862
800	68	897	1339	1405	1634	2029	2637	2727	3040	721	916	945	1045	2273	2729	2797	3033
800	97	1753	2551	2670	3082	4076	5158	5319	5878	1638	2028	2086	2287	4852	5699	5825	6262
1000	54	550	835	877	1024	1237	1636	1695	1901	345	446	460	512	1270	1548	1589	1733
1000	68	868	1296	1360	1581	2000	2599	2688	2997	633	804	830	918	2141	2571	2634	2856
1000	97	1707	2485	2601	3002	4028	5098	5257	5809	1494	1850	1902	2086	4631	5440	5560	5978
1200	68	842	1258	1319	1534	1974	2565	2653	2958	554	704	726	803	2022	2428	2488	2697
1200	97	1666	2426	2538	2930	3985	5043	5200	5747	1364	1689	1737	1905	4433	5207	5322	5722
1400	68	818	1222	1282	1491	1950	2534	2621	2923	482	612	631	698	1912	2296	2353	2551
1400	97	1629	2371	2481	2864	3945	4993	5149	5690	1246	1542	1586	1739	4251	4994	5104	5487

For SI Units: 1 inch = 25.4 mm, 1 pound = 4.448 N

¹ Values are based on full-unreduced cross section of the member away from punch-outs.

² See AISI S100 for definitions of Conditions 1, 2, 3, and 4

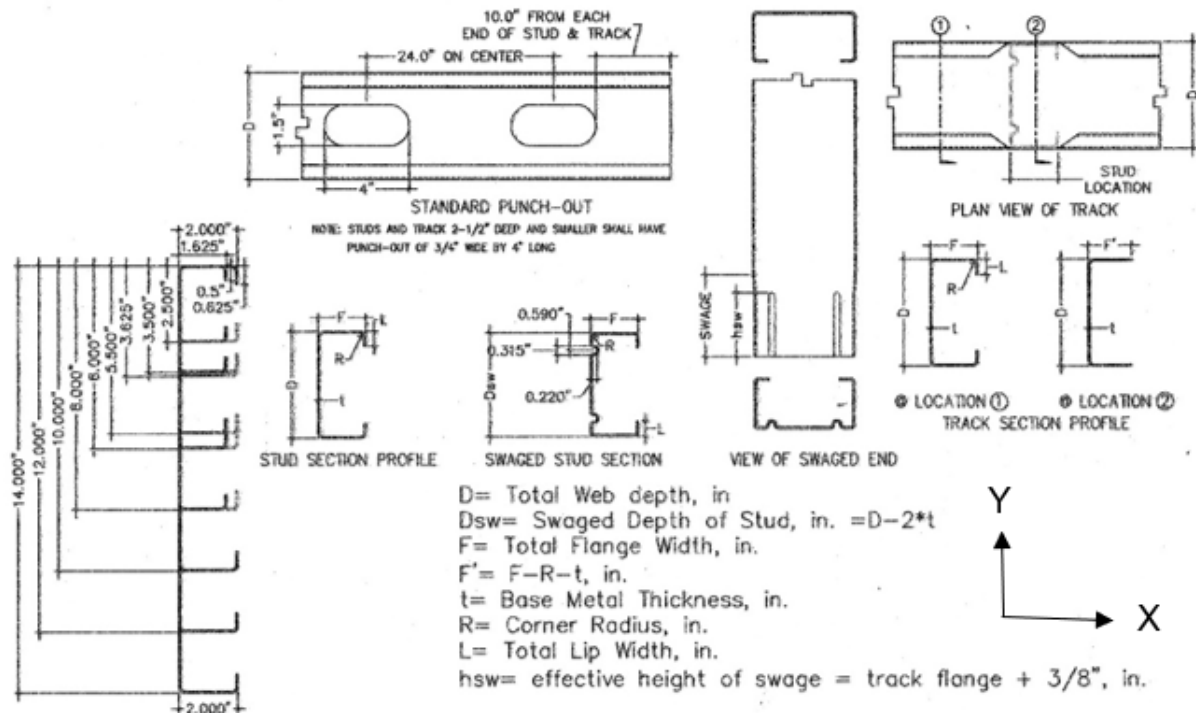


FIGURE 1 – STUD AND TRACK SECTION PROFILES