ICC-ES Evaluation Report

ESR-5043

Reissued May 2024

Revised August 2024

Subject to renewal May 2025

This report also contains:

- CBC Supplement

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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**	**REPORT HOLDER:** **ARIZE PREFAB, LLC.** **ADDITIONAL LISTEE:** **BUILDING FABRICATIONS, LLC.**	**EVALUATION SUBJECT:** **COLD FORMED STEEL FRAMING MEMBERS**	

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2024, 2021, 2018, and 2015 *International Building Code*® (IBC)
- 2024, 2021, 2018, and 2015 *International Residential Code*® (IRC)

Properties evaluated:

- Structural

2.0 USES

Members with a minimum G60 coating may be used as structural members as defined by the North American Standard for Cold-Formed Steel Structural Framing (AISI S240).

3.0 DESCRIPTION

3.1 General:

The cold-formed steel structural framing members are factory-formed from coils of steel. The C-sections (studs) are manufactured with and without web punch-outs. Punchouts are a maximum of 1½ inches (38 mm) wide by 3 inches (76 mm) long. The punch-outs are located along the centerline of the webs of the studs with a minimum center-to-center spacing of 24 inches (610mm). The minimum distance between the end of the stud and the near edge of the web punch-outs is 12 inches (305 mm).

Dimensional properties are provided in Table 1 and Figure 1.

3.2 Materials:

Arize Prefab framing members are cold formed from steel coils conforming to ASTM A653 Grade 37 or ASTM A1003 Grade ST37H. The members have a minimum G60 galvanized coating (for structural members).

4.0 DESIGN AND INSTALLATION

4.1 General:

The stud and track members and their connections must be designed and installed in accordance with IBC Chapter 22 using the section properties referenced in Section 4.2.

4.2 Design:

The section properties and allowable moments, M_a, indicated in Tables 2 through 4 are for structural studs and track members. All values have been determined in accordance with the North American Specification for Design of Cold-formed Steel Structural Members (AISI S100). The allowable moments, M_a, 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. The design of members must address web crippling, combined bending and web crippling, and combined bending and shear, as applicable, in accordance with the AISI S100.

Under the IRC, cold-formed steel members listed in this evaluation report that are the same as the member designations of (and are of same or higher grade than) what is in IRC Sections R505, R603 and R804, qualify for use with prescriptive requirements of the IRC, as applicable. Use of other sections or non-prescriptive design and detailing must conform to IRC Section R301.1.3.

4.3 Installation:

The framing members must be installed in accordance with the 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 made available at the jobsite at all times.

5.0 CONDITIONS OF USE:

The metal framing described in this report complies with, or is 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 The cold-formed steel members are installed in accordance with the code, the approved plans and this report.

5.2 Minimum uncoated base-metal thickness of the cold- formed steel members as delivered to the jobsite are at least 95 percent of the design thickness (design base-metal thickness) noted in Tables 1 through 4.

5.3 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.

5.4 Effective section properties and allowable capacities of members with punchouts (except V_{aPO}, of C-sections) are outside the scope of this evaluation report.

5.5 The cold-formed steel members are manufactured under an approved 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 February 2024).

7.0 IDENTIFICATION

7.1 The ICC-ES mark of conformity, electronic labeling, or the evaluation report number (ICC-ES ESR-5043) along with the name, registered trademark, or registered logo of the report holder (Arize Prefab) must be included in the product label.

7.2 In addition, at a spacing not exceeding 96 inches (2440 mm) on center, each cold-formed steel member is stamped with the report holder's name or initials (AP); the section name as described in Table 1; the evaluation report number (ESR-5043); the minimum uncoated base-metal thickness in mils or decimal inches; the minimum specified yield strength; and the coating designation (CP60 for the G60 galvanized coating).

7.3 The report holder's contact information is as follows:

ARIZE PREFAB
7000 NORTH 16th STREET #120-328
PHOENIX, ARIZONA 85020
(602) 373-4625
www.arizeprefab.com

7.4 The additional listee's contact information is as follows:

BUILDING FABRICATIONS, LLC.
575 NORTH HOLOKAI PLACE,
HAIKU, HAWAII 96708
(808) 870-5302
(731) 967-2447
www.buildingfabrications.com
buildingfabrications@gmail.com

DEFINITIONS OF SYMBOLS FOR USE WITH TABLES 1 THROUGH 4:

Gross Properties

Area	The cross sectional area of the full un-reduced cross-section of the studs, away from any punch outs.
Weight	The weight per foot of the full un-reduced cross-section of the studs, away from any punch outs.
I_{xx}	Moment of inertia of the gross section about the strong axis (X-X)
S_{xx}	Section modulus of the gross section about the strong axis (X-X)
R_x	Radius of gyration of the gross section about the strong axis (X-X)
I_{yy}	Moment of inertia of the gross section about the weak axis (Y-Y)
S_{yy}	Section modulus of the gross section about the weak axis (Y-Y)
R_y	Radius of gyration of the gross section about the weak axis (Y-Y)

Torsional Properties

J	St. Venant torsional constant
C_w	Torsional warping constant
r_o	Polar radius of gyration about the shear center
x_o	Distance from the shear center to the centroid along the principal X-Axis
m	Distance from the shear center to the mid-plane of the web
j	Section property for torsional-flexural buckling
β	Torsional flexural constant $1 - (x_o/r_o)^2$

Structural Properties

I_{xe}	Moment of inertia for deflection calculations about the strong axis (X-X)
S_{xe}	Effective section modulus about the strong axis (X-X) Stress = F_{ya} based on local buckling
F_{ya}	Average yield stress of section considering the cold work of forming
M_{al}	Allowable bending moment limited by local buckling only about the X-X axis
M_{ad}	Allowable bending moment limited by distortional buckling, assuming $K_\Phi = 0$ (no bracing from sheathing) and $\beta = 1.0$ (no moment gradient)
L_u	Maximum unbraced length for lateral-torsional buckling. Members are considered fully braced when the unbraced length is less than L_u. If the unbraced length exceeds L_u then lateral-torsional buckling must be evaluated independently.
V_a	Allowable strong axis (X-X) shear load, away from punch-out
V_{aPO}	Allowable strong axis (X-X) shear at the punch-out

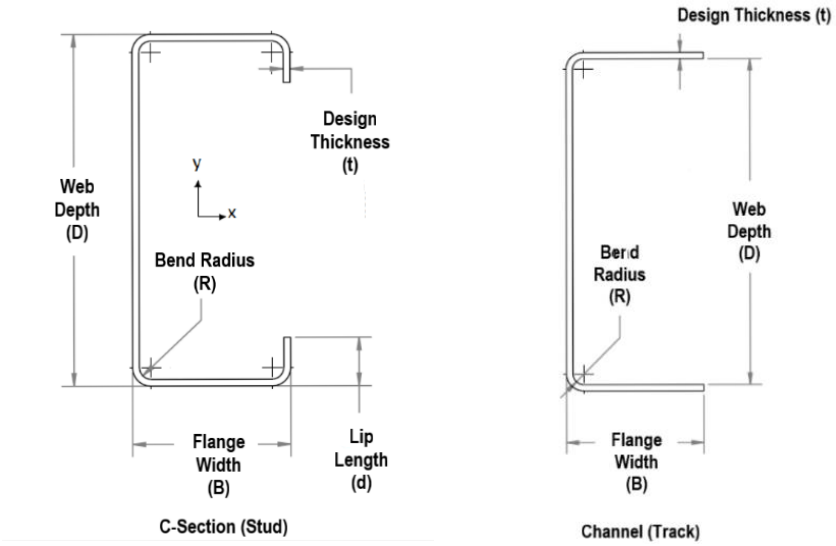

Figure 1: Section Profiles

Table 1: Physical Properties

Designation	Section Geometry					Gross Section Properties[1,2]						
	Web Depth D (in.)	Flange Width B (in.)	Design Thickness t (in.)	Lip Length d (in.)	Bend Radius R (in.)	Area ($in.^2$)	Weight (lbf/ft)	I_{xx} ($in.^4$)	S_{xx} ($in.^3$)	Rx (in.)	I_{yy} ($in.^4$)	S_{yy} ($in.^3$)
STUD (S) GROSS SECTION PROPERTIES												
350S162-33	3.500	1.625	0.0346	0.500	0.0629	0.259	0.880	0.511	0.292	1.405	0.0987	0.0915
350S162-43	3.500	1.625	0.0451	0.500	0.0629	0.335	1.14	0.656	0.375	1.400	0.126	0.117
350S162-54	3.500	1.625	0.0566	0.500	0.0629	0.417	1.42	0.811	0.463	1.395	0.154	0.143
362S162-33	3.625	1.625	0.0346	0.500	0.0629	0.263	0.895	0.554	0.306	1.451	0.0999	0.0919
362S162-43	3.625	1.625	0.0451	0.500	0.0629	0.340	1.16	0.712	0.393	1.446	0.127	0.117
362S162-54	3.625	1.625	0.0566	0.500	0.0629	0.424	1.44	0.880	0.485	1.440	0.156	0.143
400S162-33	4.000	1.625	0.0346	0.500	0.0629	0.276	0.939	0.695	0.346	1.588	0.103	0.0929
400S162-43	4.000	1.625	0.0451	0.500	0.0629	0.357	1.220	0.895	0.447	1.582	0.132	0.118
400S162-54	4.000	1.625	0.0566	0.500	0.0629	0.445	1.52	1.11	0.553	1.576	0.161	0.145
400S200-33	4.000	2.000	0.0346	0.500	0.0629	0.302	1.03	0.797	0.399	1.625	0.169	0.127
400S200-43	4.000	2.000	0.0451	0.500	0.0629	0.391	1.33	1.030	0.513	1.620	0.216	0.162
400S200-54	4.000	2.000	0.0566	0.500	0.0629	0.488	1.66	1.27	0.636	1.615	0.266	0.199
550S162-33	5.500	1.625	0.0346	0.625	0.0629	0.336	1.14	1.51	0.548	2.116	0.126	0.108
550S162-43	5.500	1.625	0.0451	0.625	0.0629	0.436	1.48	1.94	0.706	2.110	0.160	0.138
550S162-54	5.500	1.625	0.0566	0.625	0.0629	0.544	1.85	2.41	0.876	2.103	0.196	0.169
600S162-33	6.000	1.625	0.0346	0.625	0.0629	0.354	1.20	1.85	0.617	2.288	0.129	0.109
600S162-43	6.000	1.625	0.0451	0.625	0.0629	0.459	1.56	2.39	0.796	2.282	0.164	0.139
600S162-54	6.000	1.625	0.0566	0.625	0.0629	0.530	1.95	2.96	0.988	2.275	0.202	0.171
600S200-33	6.000	2.000	0.0346	0.625	0.0629	0.380	1.29	2.08	0.694	2.342	0.210	0.148
600S200-43	6.000	2.000	0.0451	0.625	0.0629	0.493	1.68	2.69	0.896	2.336	0.269	0.189
600S200-54	6.000	2.000	0.0566	0.625	0.0629	0.615	2.09	3.34	1.113	2.330	0.331	0.232
800S200-33	8.000	2.000	0.0346	0.625	0.0629	0.449	1.53	4.11	1.027	3.025	0.228	0.151
800S200-43	8.000	2.000	0.0451	0.625	0.0629	0.583	1.98	5.31	1.328	3.019	0.292	0.194
800S200-54	8.000	2.000	0.0566	0.625	0.0629	0.728	2.48	6.61	1.652	3.012	0.360	0.238

Table 1 (cont.): Physical Properties

Designation	Section Geometry					Gross Section Properties[1,2]						
	Web Depth D (in.)	Flange Width B (in.)	Design Thickness t (in.)	Lip Length d (in.)	Bend Radius R (in.)	Area ($in.^2$)	Weight (lbf/ft)	I_{xx} ($in.^4$)	S_{xx} ($in.^3$)	Rx (in.)	I_{yy} ($in.^4$)	S_{yy} ($in.^3$)
TRACK (T) GROSS SECTION PROPERTIES												
350T162-33	3.500	1.625	0.0346	--	0.0629	0.229	0.778	0.447	0.255	1.397	0.6090	0.0500
350T162-43	3.500	1.625	0.0451	--	0.0629	0.297	1.01	0.576	0.329	1.393	0.0785	0.0648
350T162-54	3.500	1.625	0.0566	--	0.0629	0.371	1.26	0.715	0.409	1.388	0.0975	0.0807
362T162-33	3.625	1.625	0.0346	--	0.0629	0.233	0.793	0.484	0.267	1.441	0.0615	0.0503
362T162-43	3.625	1.625	0.0451	--	0.0629	0.303	1.03	0.625	0.345	1.437	0.0794	0.0651
362T162-54	3.625	1.625	0.0566	--	0.0629	0.378	1.29	0.775	0.428	1.432	0.0985	0.0811
400T162-33	4.000	1.625	0.0346	--	0.0629	0.246	0.837	0.608	0.304	1.571	0.0633	0.0509
400T162-43	4.000	1.625	0.0451	--	0.0629	0.320	1.09	0.785	0.392	1.567	0.0817	0.0659
400T162-54	4.000	1.625	0.0566	--	0.0629	0.400	1.36	0.974	0.487	1.562	0.101	0.0821
400T200-33	4.000	2.000	0.0346	--	0.0629	0.272	0.926	0.710	0.355	1.615	0.112	0.0754
400T200-43	4.000	2.000	0.0451	--	0.0629	0.353	1.20	0.917	0.458	1.611	0.144	0.0977
400T200-54	4.000	2.000	0.0566	--	0.0629	0.442	1.50	1.14	0.570	1.606	0.180	0.122
550T162-33	5.500	1.625	0.0346	--	0.0629	0.298	1.01	1.28	0.467	2.075	0.0690	0.0528
550T162-43	5.500	1.625	0.0451	--	0.0629	0.387	1.32	1.66	0.604	2.071	0.0891	0.0683
550T162-54	5.500	1.625	0.0566	--	0.0629	0.484	1.65	2.07	0.751	2.065	0.111	0.0851
600T162-33	6.000	1.625	0.0346	--	0.0629	0.315	1.07	1.58	0.527	2.239	0.0705	0.0532
600T162-43	6.000	1.625	0.0451	--	0.0629	0.410	1.39	2.05	0.682	2.234	0.0910	0.0689
600T162-54	6.000	1.625	0.0566	--	0.0629	0.513	1.74	2.55	0.849	2.229	0.113	0.0859
600T200-33	6.000	2.000	0.0346	--	0.0629	0.341	1.16	1.81	0.604	2.304	0.126	0.0793
600T200-43	6.000	2.000	0.0451	--	0.0629	0.444	1.51	2.35	0.782	2.299	0.162	0.103
600T200-54	6.000	2.000	0.0566	--	0.0629	0.555	1.89	2.92	0.974	2.294	0.202	0.128
800T200-33	8.000	2.000	0.0346	--	0.0629	0.410	1.40	3.60	0.899	2.960	0.135	0.0816
800T200-43	8.000	2.000	0.0451	--	0.0629	0.534	1.82	4.66	1.165	2.955	0.174	0.106
800T200-54	8.000	2.000	0.0566	--	0.0629	0.668	2.27	5.81	1.454	2.949	0.217	0.132

For **SI:** 1 inch= 25.4 mm, 1 lb/ft= 1.49 kg/m.

[1] Definitions of structural properties:

- Area The cross sectional area of the full un-reduced cross-section of the studs, away from any punch outs.
- Weight The weight per foot of the full un-reduced cross-section of the studs, away from any punch outs.
- I_{xx} Moment of inertia of the gross section about the strong axis (X-X)
- S_{xx} Section modulus of the gross section about the strong axis (X-X)
- R_x Radius of gyration of the gross section about the strong axis (X-X)
- I_{yy} Moment of inertia of the gross section about the weak axis (Y-Y)
- S_{yy} Section modulus of the gross section about the weak axis (Y-Y)
- R_y Radius of gyration of the gross section about the weak axis (Y-Y)

[2] Tabulated gross properties are based on the full un-reduced cross section of the studs, away from any punch-outs.

Table 2: Effective Section Properties[1, 2, 3, 4]

Designation	Design Thickness (in.)	F_y =37 ksi, F_u =52 ksi							
		I_{xe} (in.^{4})	S_{xe} (in.3)	F_{ya} (ksi)	M_{al} (kip-in.)	M_{ad} (kip-in.)	L_u (in.)	V_a (lb)	V_{aPO} (lb)
STUD (S) EFFECTIVE SECTION PROPERTIES									
350S162-33	0.0346	0.511	0.275	37.0	6.10	5.67	41.1	1084	524
350S162-43	0.0451	0.656	0.372	37.0	8.23	7.97	40.8	1841	674
350S162-54	0.0566	0.811	0.463	41.7	11.6	11.5	38.2	2561	738
362S162-33	0.0346	0.554	0.288	37.0	6.39	5.90	41.1	1075	555
362S162-43	0.0451	0.712	0.389	37.0	8.62	8.30	40.8	1841	722
362S162-54	0.0566	0.880	0.485	41.7	12.1	12.0	38.2	2659	820
400S162-33	0.0346	0.695	0.329	37.0	7.28	6.58	41.2	969	598
400S162-43	0.0451	0.895	0.443	37.0	9.82	9.30	40.9	1841	864
400S162-54	0.0566	1.11	0.553	41.7	13.8	13.5	38.3	2900	1073
400S200-33	0.0346	0.789	0.343	37.0	7.60	6.92	49.5	969	598
400S200-43	0.0451	1.03	0.455	37.0	10.1	9.85	49.3	1841	864
400S200-54	0.0566	1.27	0.604	37.0	13.4	13.2	48.9	2900	1073
550S162-33	0.0346	1.51	0.512	37.0	11.3	10.1	42.4	695	695
550S162-43	0.0451	1.94	0.706	37.0	15.6	14.3	42.1	1545	1200
550S162-54	0.0566	2.41	0.876	41.7	21.9	20.8	39.4	2900	1784
600S162-33	0.0346	1.85	0.558	37.0	12.4	11.0	42.4	635	635
600S162-43	0.0451	2.39	0.796	37.0	17.6	15.7	41.9	1411	1241
600S162-54	0.0566	2.96	0.988	41.7	24.7	23.0	39.2	2801	1952
600S200-33	0.0346	2.05	0.587	37.0	13.0	11.6	51.3	635	635
600S200-43	0.0451	2.69	0.859	37.0	19.0	16.6	50.6	1411	1241
600S200-54	0.0566	3.34	1.11	37.0	24.6	22.5	50.3	2801	1952
800S200-33	0.0346	4.09	0.774	37.0	17.2	15.6	51.0	472	472
800S200-43	0.0451	5.16	1.12	37.0	24.7	22.6	50.5	1049	1049
800S200-54	0.0566	6.61	1.65	37.0	36.5	30.9	49.7	2079	2079
TRACK (T) EFFECTIVE SECTION PROPERTIES									
350T162-33	0.0346	0.352	0.160	37.0	3.55	3.55	35.3	1084	524
350T162-43	0.0451	0.487	0.226	37.0	5.01	5.01	35.1	1841	674
350T162-54	0.0566	0.641	0.306	37.0	6.77	6.77	35.0	2561	738
362T162-33	0.0346	0.383	0.169	37.0	3.75	3.75	35.2	1075	555
362T162-43	0.0451	0.529	0.238	37.0	5.28	5.28	35.1	1841	722
362T162-54	0.0566	0.696	0.321	37.0	7.12	7.12	35.0	2659	820
400T162-33	0.0346	0.485	0.196	37.0	4.35	4.35	35.1	969	598
400T162-43	0.0451	0.668	0.276	37.0	6.11	6.11	35.0	1841	864
400T162-54	0.0566	0.877	0.371	37.0	8.21	8.21	34.9	2900	1073
400T200-33	0.0346	0.525	0.204	37.0	4.51	4.51	43.6	969	598
400T200-43	0.0451	0.727	0.287	37.0	6.36	6.36	43.4	1841	864
400T200-54	0.0566	0.962	0.387	37.0	8.58	8.58	43.2	2900	1073
550T162-33	0.0346	1.07	0.281	37.0	6.23	6.23	34.7	695	695
550T162-43	0.0451	1.44	0.447	37.0	9.91	9.91	34.3	1545	1200
550T162-54	0.0566	1.88	0.595	37.0	13.2	13.2	34.2	2900	1784
600T162-33	0.0346	1.33	0.305	37.0	6.76	6.76	34.5	635	635
600T162-43	0.0451	1.78	0.512	37.0	11.40	11.40	34.1	1411	1241
600T162-54	0.0566	2.32	0.679	37.0	15.00	15.00	33.9	2801	1952
600T200-33	0.0346	1.44	0.305	37.0	6.75	6.75	43.5	635	635
600T200-43	0.0451	1.93	0.522	37.0	11.6	11.6	42.8	1411	1241
600T200-54	0.0566	2.52	0.709	37.0	15.7	15.7	42.6	2801	1952
800T200-33	0.0346	3.00	0.406	37.0	9.00	9.00	42.6	472	472
800T200-43	0.0451	3.78	0.630	37.0	14.0	14.0	42.3	1049	1049
800T200-54	0.0566	5.10	1.100	37.0	24.3	24.3	41.6	2079	2079

Table 2 (cont): Effective Section Properties[1, 2, 3, 4]

For **SI:** 1 inch=25.4 mm, 1 kip-in= 113 N-m, 1 ksi= 6.89 MPa, 1 lb= 4.448 N

[1] Definitions of structural properties:

- I_{xe} Moment of inertia for deflection calculations about the strong axis (X-X)
- S_{xe} Effective section modulus about the strong axis (X-X) Stress = F_{ya} based on local buckling
- F_{ya} Average yield stress of section considering the cold work of forming
- M_{al} Allowable bending moment limited by local buckling only about the X-X axis
- M_{ad} Allowable bending moment limited by distortional buckling, assuming $K\phi = 0$ (no bracing from sheathing) and $\beta = 1.0$ (no moment gradient)
- L_u Maximum unbraced length for lateral-torsional buckling. Members are considered fully braced when the unbraced length is less than L_u. If the unbraced length exceeds L_u then lateral-torsional buckling must be evaluated independently.
- V_a Allowable strong axis (X-X) shear load, away from punch-out
- V_{aPO} Allowable strong axis (X-X) shear at the punch-out, see limitations in note 3

[2] For deflection calculations, use the effective moment of inertia

[3] Where *h/t* values exceed 200, bearing stiffeners satisfying the requirements of AISI S100, Section F5.1, must be provided and the shear strengths provided do not apply.

[4] Members evaluated using the direct strength analysis method.

Table 3: Web Depth-to-Thickness Ratios[1, 2] (h/t)

Designation	Web Depth, D (in.)	Thickness						
		23 mil 0.0239 in.	27 mil 0.0283 in.	33 mil 0.0346 in.	43 mil 0.0451 in.	54 mil 0.0566 in.	68 mil 0.0713 in.	97 mil 0.1017 in.
350S	3.500	139	117	96	73	58	45	31
362S	3.625	144	122	99	76	60	47	32
400S	4.000	160	135	110	84	66	52	36
550S	5.500	223	188	153	117	93	73	51
600S	6.000	244	206	168	128	102	80	56
800S	8.000	-	-	226	173	137	108	75

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

[1] *h* value used for *h/t* calculations is the flat width of the web, which is the out-to-out size, minus twice the thickness, minus twice the inside bend radius.

[2] Where *h/t* values exceed 200, bearing stiffeners satisfying the requirements of AISI S100, Section F5.1, must be provided and holes in the web are not permitted unless evaluated independently.

TABLE 4: Torsional Properties [1, 2]

Designation	Design Thickness (in.)	J (in.^{4})	C_w (in.^{6})	r_0 (in.)	x_0 (in.)	m (in.)	j (in.)	β
STUD (S) EFFECTIVE TORSIONAL PROPERTIES								
350S162-33	0.0346	0.000103	0.277	2.03	-1.325	0.796	2.07	0.573
350S162-43	0.0451	0.000227	0.350	2.02	-1.313	0.789	2.06	0.575
350S162-54	0.0566	0.000445	0.426	2.00	-1.300	0.782	2.05	0.578
362S162-33	0.0346	0.000105	0.297	2.05	-1.309	0.789	2.11	0.592
362S162-43	0.0451	0.000231	0.376	2.04	-1.297	0.782	2.10	0.594
362S162-54	0.0566	0.000453	0.457	2.02	-1.284	0.774	2.10	0.597
400S162-33	0.0346	0.000110	0.363	2.12	-1.264	0.768	2.25	0.644
400S162-43	0.0451	0.000242	0.460	2.11	-1.252	0.761	2.24	0.647
400S162-54	0.0566	0.000475	0.560	2.09	-1.239	0.754	2.24	0.650
400S200-33	0.0346	0.000120	0.587	2.40	-1.598	0.953	2.45	0.556
400S200-43	0.0451	0.000265	0.746	2.39	-1.586	0.947	2.45	0.558
400S200-54	0.0566	0.000521	0.911	2.37	-1.572	0.939	2.44	0.560
550S162-33	0.0346	0.000134	0.827	2.50	-1.190	0.742	2.92	0.774
550S162-43	0.0451	0.000296	1.05	2.49	-1.179	0.736	2.92	0.776
550S162-54	0.0566	0.000581	1.28	2.48	-1.166	0.792	2.93	0.779
600S162-33	0.0346	0.000141	0.994	2.63	-1.147	0.721	3.22	0.810
600S162-43	0.0451	0.000311	1.26	2.62	-1.135	0.714	3.23	0.812
600S162-54	0.0566	0.000611	1.54	2.61	-1.123	0.707	3.24	0.814
600S200-33	0.0346	0.000152	1.59	2.86	-1.458	0.901	3.24	0.740
600S200-43	0.0451	0.000334	2.03	2.85	-1.447	0.894	3.24	0.742
600S200-54	0.0566	0.000657	2.49	2.83	-1.434	0.887	3.24	0.744
800S200-33	0.0346	0.000179	2.97	3.37	-1.269	0.817	4.49	0.853
800S200-43	0.0451	0.000395	3.80	3.35	-1.278	0.811	4.51	0.855
800S200-54	0.0566	0.000778	4.66	3.34	-1.266	0.804	4.52	0.856

Table 4 (cont.): Torsional Properties[1, 2]

Designation	Design Thickness (in.)	J ($in.^4$)	C_w ($in.^6$)	r_0 (in.)	x_0 (in.)	m (in.)	j (in.)	β
TRACK (T) TORSIONAL PROPERTIES								
350T162-33	0.0346	0.0000913	0.129	1.78	-0.982	0.591	1.98	0.697
350T162-43	0.0451	0.000201	0.165	1.78	-0.979	0.589	1.97	0.697
350T162-54	0.0566	0.000396	0.204	1.77	-0.976	0.587	1.96	0.697
362T162-33	0.0346	0.0000930	0.140	1.81	-0.970	0.586	2.03	0.713
362T162-43	0.0451	0.000205	0.180	1.81	-0.967	0.584	2.03	0.713
362T162-54	0.0566	0.000404	0.222	1.80	-0.963	0.582	2.02	0.713
400T162-33	0.0346	0.000098	0.177	1.90	-0.933	0.570	2.21	0.758
400T162-43	0.0451	0.000217	0.227	1.89	-0.930	0.568	2.20	0.758
400T162-54	0.0566	0.000427	0.280	1.88	-0.927	0.566	2.20	0.758
400T200-33	0.0346	0.000109	0.309	2.14	-1.244	0.744	2.32	0.661
400T200-43	0.0451	0.000240	0.398	2.13	-1.241	0.742	2.31	0.661
400T200-54	0.0566	0.000472	0.492	2.13	-1.237	0.739	2.30	0.661
550T162-33	0.0346	0.000119	0.373	2.28	-0.813	0.513	3.15	0.873
550T162-43	0.0451	0.000263	0.480	2.27	-0.810	0.511	3.14	0.873
550T162-54	0.0566	0.000517	0.594	2.27	-0.807	0.509	3.14	0.873
600T162-33	0.0346	0.000126	0.458	2.42	-0.780	0.497	3.54	0.896
600T162-43	0.0451	0.000278	0.589	2.41	-0.777	0.495	3.54	0.896
600T162-54	0.0566	0.000548	0.729	2.41	-0.774	0.493	3.53	0.896
600T200-33	0.0346	0.000136	0.801	2.61	-1.059	0.660	3.35	0.835
600T200-43	0.0451	0.000301	1.03	2.60	-1.056	0.658	3.34	0.835
600T200-54	0.0566	0.000593	1.28	2.60	-1.053	0.656	3.33	0.835
800T200-33	0.0346	0.000164	1.57	3.15	-0.925	0.594	4.90	0.914
800T200-43	0.0451	0.000362	2.03	3.15	-0.922	0.592	4.90	0.914
800T200-54	0.0566	0.000714	2.52	3.14	-0.919	0.590	4.89	0.914

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

[1] Definitions of torsional properties:

- J St. Venant torsional constant
- C_w Torsional warping constant
- r_o Polar radius of gyration about the shear center
- x_o Distance from the shear center to the centroid along the principal X-Axis
- m Distance from the shear center to the mid-plane of the web
- j Section property for torsional-flexural buckling
- β $1 – (x_o/r_o)^2$

[2] Tabulated torsional properties are based on the full un-reduced cross section of the studs, away from any punch-outs.

DIVISION: 05 00 00—METALS
Section: 05 40 00—Cold Formed Metal Framing
Section: 05 41 00—Structural Metal Stud Framing

REPORT HOLDER:

ARIZE PREFAB, LLC.

EVALUATION SUBJECT:

COLD FORMED STEEL FRAMING MEMBERS

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that the Cold Formed Steel Framing Members, described in ICC-ES evaluation report ESR-5043, have also been evaluated for compliance with the code*(s)* noted below.

Applicable code edition*(s)*:

- 2022 *California Building Code* (CBC)

For evaluation of applicable Chapters adopted by the California Office of Statewide Health Planning and Development (OSHPD) AKA: California Department of Health Care Access and Information (HCAI) and the Division of State Architect (DSA), see Sections 2.1.1 and 2.1.2 below.

- 2022 *California Residential Code* (CRC)

2.0 CONCLUSIONS

2.1 CBC:

The Cold Formed Steel Framing Members, described in Sections 2.0 through 7.0 of the evaluation report ESR-5043, comply with CBC Chapter 22, provided the design and installation are in accordance with the 2021 *International Building Code®* (IBC) provisions noted in the evaluation report and the additional requirements of CBC Chapters 16, 17 and 22, as applicable.

2.1.1 OSHPD:

The applicable OSHPD Sections and Chapters of the CBC are beyond the scope of this supplement.

2.1.2 DSA:

The applicable DSA Sections and Chapters of the CBC are beyond the scope of this supplement.

2.2 CRC:

The Cold Formed Steel Framing Members, described in Sections 2.0 through 7.0 of the evaluation report ESR-5043, comply with CRC Chapter 6, provided the design and installation are in accordance with the 2021 *International Residential Code®* (IRC) provisions noted in the evaluation report.

This supplement expires concurrently with the evaluation report, reissued May 2024 and revised August 2024.