ICC-ES Evaluation Report

ESR-5655P

Issued November 2025

Subject to renewal November 2026.

This report also contains:
- City of LA Supplement
- CA Supplement w/ DSA and OSHPD
- FL Supplement

DIVISION: 05 00 00—METALS **Section: 05 40 00—Cold-Formed Metal Framing** **Section: 05 41 00—Structural Metal Stud Framing** **DIVISION: 09 00 00—FINISHES** **Section: 09 22 16.13—Non-Structural Metal Stud Framing**	**REPORT HOLDER:** **IRENE STEEL**	**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)

Property evaluated:

- Structural

2.0 USES

Framing members with a minimum G60, A60, AZ50, or GF30 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.

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

3.1 General:

The cold-formed steel framing members are factory-formed studs and tracks. The studs are manufactured with and without web punchouts. Punchouts are a maximum of $1^1/_2$-inch (38 mm) wide by 4-inch (102 mm) long for members with depth greater than 2.5 inches (64 mm) and a maximum of $^3/_4$-inch (19 mm) wide by 4-inch (102 mm) long for members with 2.5-inch (64 mm) depth and smaller (see Figure 1). The punchouts are located along the centerline of the webs of the studs with a minimum center-to-center spacing of 24 inches (610 mm). The minimum distance between the end of the stud and the near edge of the web punchout is 12 inches (305 mm). The tracks are manufactured without punchouts. The minimum wall thickness is 33 mils for

structural members and 18 mils for non-structural members. Minimum and design thicknesses and inside corner radius of members are:

Thickness (mils)	Gauge	Minimum Thickness (in.)[1]	Design Thickness (in.)	Inside Corner Radius (in.)
18	25	0.0179	0.0188	0.0843
27	22	0.0269	0.0283	0.0796
30	20-INT[2]	0.0296	0.0312	0.0781
33	20-STR[3]	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

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

[1] The provided minimum uncoated base metal thickness represents 95% of the design thickness (per AISI S100)

[2] "INT" is for interior non-structural studs and tracks.

[3] "STR" is for structural studs and tracks.

Refer to Pages 1 and 2 in the attached plans (Appendix A – Product Data v25.07.23) for studs and tracks geometries and designations. Refer to Pages 3 through 27 in the attached plans for the evaluated members and their dimensional properties.

3.2 Material:

The structural studs and tracks members with wall thickness less than or equal to 43 mils are cold-formed from steel coils conforming to ASTM A1003 ST33H. The structural studs and tracks members with wall thickness larger than 43 mils are cold-formed from steel coils conforming to ASTM A1003 ST50H.

Non-structural members with wall thicknesses less than or equal to 43 mils are cold-formed from ASTM A1003, Grades NS 33, NS 40, NS 50, NS 57, NS 60, NS 65, NS 70 or NS 80 steel. Non-structural members with wall thicknesses larger than 43 mils are cold-formed from ASTM A1003, Grades NS 50, NS 57, NS 60, NS 65, NS 70 or NS80 steel.

Structural members have a minimum G60, A60, AZ50, or GF30 coating, while non-structural members have a minimum G40 or equivalent coating.

4.0 DESIGN AND INSTALLATION

4.1 General:

The studs and tracks members and their connections must be designed and installed in accordance with IBC Section 2204 (2021, 2018 and 2015 IBC Section 2210), using the section properties referenced in Section 4.2.

4.2 Design:

The gross section properties, effective section properties, and torsional section properties for the stud and track members are provided in Pages 3 through 27 of the attached plans (Appendix A – Product Data v25.07.23). All properties, except for the allowable shear force in punched web (V_{anet}), were determined for the full, unreduced cross sections, away from swaged ends and punchouts. Stress increase due to cold of forming was incorporated in the provided effective section properties and allowable moment capacities. 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 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. 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.

The structural studs listed in Table 1 qualify for use with prescriptive requirements of the IRC. For use of all other members under the IRC, the cold-formed steel studs and tracks must be limited to engineered structures, in accordance with IRC Section R301.1.3.

4.3 Installation:

The cold-formed steel 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 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 Section 3.1.

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

5.4 Non-structural members that are cold-formed from ASTM A1003 Type NS steel are limited to purlins, girts and curtain wall studs, with the limitations specified in AISI S100, Section A3.2.1.1.

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-5655P) along with the name, registered trademark, or registered logo of the report holder 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 recognized in this report must be stamped, stenciled or embossed with the report holder's name, the section identification as described in Page 1 of the attached plans (Appendix A – Product Data v25.07.23); the minimum yield strength; and the coating grade. Nonstructural members must have the designation "NS".

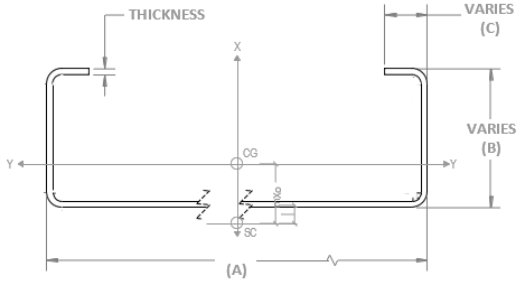
7.3 The report holder's contact information is the following:

IRENE STEEL
11511 EAST CALEY AVENUE
CENTENNIAL, COLORADO 80111
(720) 458-1860
www.irenesteel.com
mail@irenesteel.com

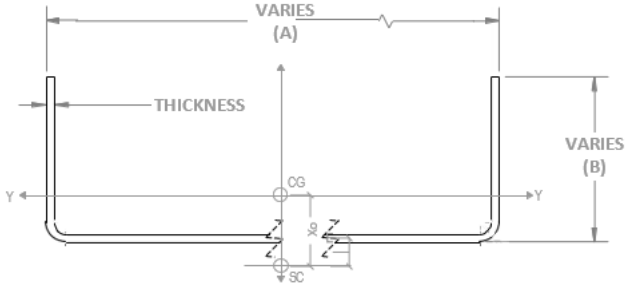
TABLE 1—STRUCTURAL STUDS FOR USE WITH THE IRC[1]

IRC MEMBER DESIGNATION	EQUIVALENT IRENE STEEL STRUCTURAL STUD DESIGNATION			
	t = 33 mils	t = 43 mils	t = 54 mils	t = 68 mils
350S162-t	350S162-33	350S162-43	350S162-54	350S162-68
	350S200-33	350S200-43	350S200-54	350S200-68
362S162-t	362S162-33	---	---	---
	362S200-33	---	---	---
550S162-t	550S162-33	550S162-43	550S162-54	550S162-68
	550S200-33	550S200-43	550S200-54	550S200-68
600S162-t	---	600S162-43	---	---
	---	600S200-43	---	---
800S162-t	800S162-33	800S162-43	800S162-54	800S162-68
	800S200-33	800S200-43	800S200-54	800S200-68

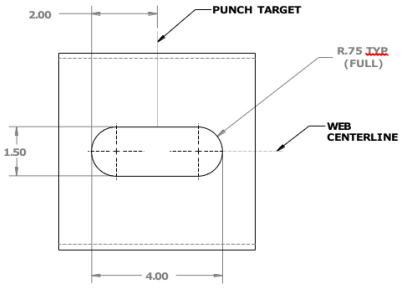
[1] Under the IRC: Minimum Grade 33 ksi steel must be used, wherever 33 mil and 43 mil thicknesses are specified, and Minimum Grade 50 ksi steel must be used wherever 54 mil and 68 mil thicknesses are specified.



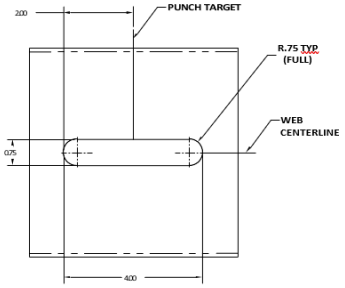
Typical Stud Section



Typical Track Section



Maximum punchout for studs with minimum web height of 3.5 inches



Maximum punchout for studs with web height of 1.625 or 2.5 inches.

FIGURE 1—STUDS, TRACKS AND PUNCHOUT DETAILS

ICC-ES Evaluation Report

ESR-5655P City of LA 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

DIVISION: 09 00 00—FINISHES
Section: 09 22 16.13—Non-Structural Metal Stud Framing

REPORT HOLDER:

IRENE STEEL

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-5655P, have also been evaluated for compliance with the codes noted below as adopted by the Los Angeles Department of Building and Safety (LADBS).

Applicable code editions:

- 2023 *City of Los Angeles Building Code* (LABC)
- 2023 *City of Los Angeles Residential Code* (LARC)

2.0 CONCLUSIONS

The cold-formed steel framing members, described in Sections 2.0 through 7.0 of the evaluation report ESR-5655P, comply with the LABC Chapter 22, and the LARC, and are subject to the conditions of use described in this supplement.

3.0 CONDITIONS OF USE

The cold-formed steel framing members described in this evaluation report supplement must comply with all of the following conditions:

- All applicable sections in the evaluation report ESR-5655P.
- The design, installation, conditions of use and identification of the cold-formed steel framing members are in accordance with the 2021 *International Building Code*® (IBC) provisions noted in the evaluation report ESR-5655P.
- The design, installation and inspection are in accordance with additional requirements of LABC Chapters 16, 17 and 22, as applicable.
- Under the LARC, design, installation, conditions of use and identification are to be in accordance with the 2021 *International Residential Code*® (IRC) with the additional requirements of LARC Chapters 5, 6 and 8, as applicable, or an engineered design in accordance with the LARC Section R301.1.3 must be submitted.

This supplement expires concurrently with the evaluation report, issued November 2025.

DIVISION: 05 00 00—METALS
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REPORT HOLDER:

IRENE STEEL

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-5655P, have also been evaluated for compliance with the codes noted below.

Applicable code editions:

- 2025 and 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.

- 2025 and 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-5655P, comply with CBC Chapter 22, provided the design and installation are in accordance with the 2024 and 2021 *International Building Code*® (IBC) provisions, as applicable, noted in the evaluation report and the additional requirements of CBC Chapters 16, 17 and 22, as applicable.

2.1.1 OSHPD:

The cold-formed steel framing members, described in Sections 2.0 through 7.0 of the evaluation report ESR-5655P, comply with CBC Chapters 16, 17 and 22 with applicable amendments, and Chapters 16A, 17A and 22A, provided the design and installation are in accordance with the 2024 and 2021 *International Building Code*® (IBC) provisions noted in the evaluation report and the additional requirements in Sections 2.1.1.1, 2.1.1.2 and 2.1.1.3 of this supplement:

2.1.1.1 Conditions of Use:

1. All loads applied to the cold-formed steel members shall be determined by the registered design professional and shall comply with applicable loads from CBC Chapter 16 with applicable amendments [OSHPD 1R, 2, 3, 5 and 6] and Chapter 16A [OSHPD 1, 4 and 6].
2. Cold-formed steel members shall not be part of the lateral resisting elements in light-framed wall shear panels of all other materials and cold-formed steel-special bolted moment frames, unless allowed by the exceptions, in accordance with CBC Section 1617A1.4 [OSHPD 1, 4 and 6].

3. Prescriptive framing is not permitted in accordance with the 2025 CBC Section 2206A.1.2 (2022 CBC Section 2211A.1.2) [OSHPD 1 and 4].
4. In accordance with the 2025 CBC Section 2204.2 (2022 CBC Section 2210.2), cold-formed steel structures shall be designed and detailed in accordance with the requirements of AISI S100 and AISI S400 [OSHPD 1R, 2 and 5].
5. In accordance with the 2025 CBC Section 2206.1.1.1 (2022 CBC Section 2211.1.1.1), the design of cold-formed steel light-frame construction to resist seismic forces in Seismic Design Categories B and C shall be in accordance with the requirements of AISI S400, with the exceptions of "Steel systems not specifically detailed for seismic resistance, excluding cantilever columns" as designated in ASCE 7, Table 12.2-1, in which design and detailing in accordance with AISI S240 is permitted [OSHPD 1R, 2 and 5].
6. In accordance with the 2025 CBC Section 2206A.1.1.1 (2022 CBC Section 2211A.1.1.1), the design of cold-formed steel light-frame construction to resist seismic forces in Seismic Design Categories B and C is not permitted [OSHPD 1 and 4].
7. In accordance with the 2025 CBC Sections 2206.1.1.2 and 2206A.1.1.2 (2022 CBC Sections 2211.1.1.2 and 2211A.1.1.2), the design of cold-formed steel light-frame construction to resist seismic forces in Seismic Design Categories D through F, shall be determined and detailed in accordance with AISI S400 and comply with the following requirements [OSHPD 1, 1R, 2, 4 and 5]:
    - Cold-formed steel stud foundation plates or sills shall be bolted or fastened to the foundation or foundation wall in accordance with CBC Section 2304.3.4, Item 2.
    - Shear wall assemblies in accordance with Sections E5, E6 and E7 of AISI S400 are not permitted within the seismic force-resisting system of the buildings.
8. In accordance with the 2025 CBC Sections 2206.2 and 2206A.2 (2022 CBC Sections 2211.2 and 2211A.2), for cold-formed steel light-frame construction, the design and installation of nonstructural members and connections shall be in accordance with AISI S220 for noncomposite assembly design. Where nonstructural members do not qualify for design under AISI S220, the design and installation of nonstructural members and connections, shall be in accordance with AISI S240 or S100 [OSHPD 1, 1R, 2, 4 and 5].

2.1.1.2 Verification Test Requirements: In accordance with the 2025 Sections 2216A.2 and 2216.2 (2022 CBC Sections 2213A.2 and 2213.2), end-welded studs shall be tested in accordance with the requirements of the AWS D1.1-20, Sections 9.7 and 9.8 (AWS D1.1-15, Sections 7.7 and 7.8), as applicable [OSHPD 1, 1R, 2, 4 and 5].

2.1.1.3 Special Inspection Requirements:

1. In accordance with CBC Section 1704.2 Exception 3, special inspection is required for portions of structures designed and constructed in accordance with the cold-formed steel light-frame construction provisions of the 2025 CBC Section 2206.1.2 (2022 CBC Section 2211.1.2) [OSHPD 1R, 2 and 5].
2. Periodic special inspections shall be required in accordance with CBC Sections 1705A.12.2, 1705A.13.3 and 1705A.13.5 [OSHPD 1 and 4].

2.1.2 DSA:

The cold-formed steel framing members, described in Sections 2.0 through 7.0 of the evaluation report ESR-5655P, comply with CBC Chapters 16 and 22 with applicable amendments, and Chapters 16A, 17A and 22A, provided the design and installation are in accordance with the 2024 and 2021 *International Building Code*® (IBC) provisions noted in the evaluation report and the additional requirements in Sections 2.1.2.1, 2.1.2.2 and 2.1.2.3 of this supplement:

2.1.2.1 Conditions of Use:

1. All loads applied to the cold-formed steel members shall be determined by the registered design professional and shall comply with applicable loads from CBC amended sections in Chapter 16 [DSA-SS/CC] and Chapter 16A [DSA-SS].
2. Cold-formed steel members shall not be part of the lateral resisting elements in light-framed wall shear panels of all other materials and cold-formed steel-special bolted moment frames, unless allowed by the exceptions, in accordance with CBC Sections 1617.11.3 [DSA-SS/CC] and 1617A.1.4 [DSA-SS].
3. Prescriptive framing is not permitted in accordance with the 2025 CBC Section 2206A.1.2 (2022 CBC Section 2211A.1.2) [DSA-SS].
4. In accordance with the 2025 CBC Section 2215.5.2 (2022 CBC Section 2212.5.2), cold-formed steel stud foundation plates or sills shall be bolted or fastened to the foundation or foundation wall in accordance with CBC Section 2304.3.2, Item 2 [DSA-SS/CC].
5. In accordance with the 2025 CBC Section 2215.5.3 (2022 CBC Section 2212.5.3), cold-formed steel stud shear wall assemblies in accordance with Sections E5, E6 and E7 of AISI S400 are not permitted within the seismic force resisting system of buildings or structures assigned to Occupancy Category II, III, IV, or buildings designed to be relocatable [DSA-SS/CC].
6. In accordance with the 2025 CBC Section 2206A.1.1.1 (2022 CBC Section 2211A.1.1.1), the design of cold-formed steel light-frame construction to resist seismic forces in Seismic Design Categories B and C is not permitted [DSA-SS].

7. In accordance with the 2025 CBC Section 2206A.1.1.2 (2022 CBC Section 2211A.1.1.2), the design of cold-formed steel light-frame construction to resist seismic forces in Seismic Design Categories D through F, shall be determined and detailed in accordance with AISI S400 and comply with the following requirements [DSA-SS]:

   - Cold-formed steel stud foundation plates or sills shall be bolted or fastened to the foundation or foundation wall in accordance with CBC Section 2304.3.4, Item 2.
   - Shear wall assemblies in accordance with Sections E5, E6 and E7 of AISI S400 are not permitted within the seismic force-resisting system of the buildings.

8. In accordance with the 2025 CBC Section 2206A.2 (2022 CBC Section 2211A.2), for cold-formed steel light-frame construction, the design and installation of nonstructural members and connections shall be in accordance with AISI S220 for noncomposite assembly design. Where nonstructural members do not qualify for design under AISI S220, the design and installation of nonstructural members and connections, shall be in accordance with AISI S240 or S100 [DSA-SS].

2.1.2.2 Verification Test Requirements: In accordance with the 2025 CBC Section 2215.6.2 (2022 CBC Section 2212.6.2) [DSA-SS/CC] or the 2025 CBC Section 2215A.2 (2022 CBC Section 2213A.2) [DSA-SS], end-welded studs shall be tested in accordance with the requirements of the AWS D1.1-20, Sections 9.7 and 9.8 (AWS D1.1-15, Sections 7.7 and 7.8).

2.1.2.3 Special Inspection Requirements: Periodic special inspections shall be required in accordance with CBC Sections 1705A.12.3, 1705A.13.3 and 1705A.12.5 [DSA-SS/CC].

2.2 CRC:

The cold-formed steel framing members, described in Sections 2.0 through 7.0 of the evaluation report ESR-5655P, comply with CRC Chapters 3, 5, 6 and 8, provided the design and installation are in accordance with the 2024 and 2021 *International Residential Code*® (IRC) provisions noted in the evaluation report, as applicable.

This supplement expires concurrently with the evaluation report, issued November 2025.

DIVISION: 05 00 00—METALS
Section: 05 40 00—Cold-Formed Metal Framing
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REPORT HOLDER:

IRENE STEEL

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-5655P, have also been evaluated for compliance with the codes noted below.

Applicable code editions:

- 2023 *Florida Building Code—Building*
- 2023 *Florida Building Code—Residential*

2.0 CONCLUSIONS

The cold-formed steel framing members, described in Sections 2.0 through 7.0 of ICC-ES evaluation report ESR-5655P, comply with the *Florida Building Code—Building* and the *Florida Building Code—Residential.* The design requirements must be determined in accordance with the *Florida Building Code—Building* or the *Florida Building Code—Residential,* as applicable. The installation requirements noted in ICC-ES evaluation report ESR-5655P for the 2021 *International Building Code®* meet the requirements of the *Florida Building Code—Building* or the *Florida Building Code—Residential,* as applicable.

Use of the cold-formed steel framing members for compliance with the High-Velocity Hurricane Zone provisions of the *Florida Building Code—Building* or the *Florida Building Code—Residential* has not been evaluated, and is outside the scope of this supplemental report.

For products falling under Florida Rule 61G20-3, verification that the report holder's quality assurance program is audited by a quality assurance entity approved by the Florida Building Commission for the type of inspections being conducted is the responsibility of an approved validation entity (or the code official when the report holder does not possess an approval by the Commission). Florida Rule 61G20-3 is appliable to products and/or systems which comprise the building envelope and structural frame for compliance with the structural requirements of the Florida Building Code.

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