

ICC-ES Evaluation Report

ESR-3264

Reissued August 2026

This report also contains:

- [City of LA Supplement](#)

- [CA Supplement](#)

This report remains under an active [continuous compliance program](#) through the end of August 2028.

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DIVISION: 03 00 00— CONCRETE Section: 03 15 00— Concrete Accessories Section: 03 21 00— Reinforcement Bars	REPORT HOLDER: JOBSITE STUD WELDING, INC.	EVALUATION SUBJECT: JSW STUD RAILS	
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1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2024, 2021, 2018 and 2015 [International Building Code® \(IBC\)](#)

Property evaluated:

- Structural

2.0 USES

The JSW Stud Rails are Type 1 large-headed shear studs (defined in ASTM A1044) that are welded to flat steel bars (base rails) and are used as shear reinforcement in flat concrete slabs to replace stirrups, drop panels or column capitals in increasing the punching shear resistance of the slabs.

3.0 DESCRIPTION

3.1 General:

The JSW Stud Rails are reinforcement assemblies that are formed by welding large-headed shear studs to flat steel base rails. The studs are $\frac{3}{8}$ -, $\frac{1}{2}$ -, $\frac{5}{8}$ - and $\frac{3}{4}$ -inch-diameter (9.5, 12.7, 15.9 and 19.1 mm) studs addressed in ICC-ES evaluation report as described in the manufacturer's quality manual. The stud dimensions and base rail dimensions are given in [Tables 1](#) and [2](#), respectively. The JSW Stud Rails assembly and installation instructions are shown in [Figures 1](#) and [2](#).

The JSW Stud Rails comply with the provisions of ASTM A1044.

3.2 Materials:

3.2.1 Studs: The studs are produced from ASTM A29 Grade 1010 through 1020 steel and must conform to the following physical and mechanical requirements in accordance with the prescribed values in [Table 1](#) of ASTM A1044:

- Tensile strength, min, psi [MPa]: 65,000 [450]
- Yield strength, min, psi [MPa]: 51,000 [350]
- Elongation in 2 in. [50 mm], min, %: 20
- Reduction of area, min, %: 50

3.2.2 Base Rails: The base rails are produced from ASTM A36 steel plates and must conform to the following physical and mechanical requirements in accordance with the prescribed values in [Table 2](#) of ASTM A1044:

- Tensile strength, min, psi [MPa]: 65,000 [450]
- Yield strength, min, psi [MPa]: 44,000 [300]
- Elongation in 8 in. [200 mm], min, %: 20

3.3 Stud Welding: The JSW studs are factory-welded by Jobsite Stud Welding to the flat steel base rails using welding equipment in accordance with procedures recommended by the JSW stud manufacturer. All welding complies with AWS D1.1 requirements.

4.0 DESIGN AND INSTALLATION

4.1 Design:

4.1.1 General: Structural design and installation of JSW Stud Rails used as punching shear reinforcement in reinforced concrete slabs must comply with the applicable provisions of ACI 318-19 for the 2024 and 2021 IBC (ACI 318-14 for the 2018 and 2015 IBC).

4.1.2 Design Considerations: The structural design shall determine and specify the following items, based on design requirements in this report:

- a. The number of studs per rail.
- b. Stud spacing (S).
- c. Shear rail assembly overall height (OAH), which must comply with Section 8.7.7.1.1 of ACI 318.
- d. Stud shank diameter.
- e. Distance between column face and first line of studs (S_o).
- f. Base rail plate length (L).
- g. Arrangement of headed shear stud reinforcement, which must comply with Section 8.7.7.1.2 of ACI 318.

4.1.3 Earthquake Loads: Stud rail reinforcement may be used at slab-to-column connections of structures where a flat concrete slab is used together with primary seismic force-resisting systems in Seismic Categories C, D, E and F, such as concrete shear walls, under the following conditions:

4.1.3.1 General: Lateral force-resisting elements of the structure are designed using the IBC.

4.1.3.2 Shear Strength: The nominal shear strength provided by the concrete in the presence of the shear studs referenced in Section 22.6.6.1 of ACI 318 must not exceed the following:

$$V_c = 1.5\lambda\sqrt{f'_c}b_o d$$

This condition requires revisions to the nominal shear strength, V_n , and the maximum shear stress, v_n .

Two-way slabs without beams designated as part of the seismic force-resisting system, must comply with the provisions in Section 18.4.5.8 of ACI 318, except that V_c must be limited as indicated in this section.

Two-way slabs without beams, which are not designated as part of the seismic force-resisting system, must comply with the provisions in Section 18.14.5.1 of ACI 318, except that V_c must be limited as indicated in this section and the design story drift ratio specified in Section 18.14.5.1 of ACI 318 must not exceed the drift ratio referenced in Table 12.12-1 of ASCE/SEI 7.

4.2 Installation:

Installation of the JSW Stud Rails must comply with the applicable provisions of the IBC and the approved engineering plans. The JSW Stud Rails must be positioned correctly around columns and set in accordance with the IBC and the approved engineering plans and details. Concrete cover must comply with ACI 318-19 Section 20.5.1.3.6 for the 2024 and 2021 IBC (ACI 318-14 Section 20.6.1.3.5 for the 2018 and 2015 IBC). See [Figure 2](#) for typical installation details.

4.3 Special Inspection:

Special inspection of shear rail reinforcement and its installation at the jobsite must comply with Section 1705.3 of the IBC. The special inspector is responsible for verifying identification of the shear rail assembly per Section 7.0 of this report, along with its condition, positioning, clearances, and concrete cover.

5.0 CONDITIONS OF USE:

The JSW Stud Rails 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 The JSW Stud Rails must be designed, manufactured, and installed in accordance with this report and the approved plans. In the event of a conflict between this report and the approved plans, the more restrictive governs.
- 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 JSW Stud Rails must indicate compliance with this evaluation report and applicable codes and must be submitted to the code official for approval.
- 5.3 Special inspections must be provided in accordance with Section 4.3 of this report.
- 5.4 The JSW Stud Rails are manufactured under an approved quality-control program with third-party inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

Data in accordance with the [ICC-ES Acceptance Criteria for Headed Shear Stud Reinforcement Assemblies for Concrete Slabs and Footings \(AC395\)](#), dated June 2017 (editorially revised March 2024).

7.0 IDENTIFICATION

- 7.1 The ICC-ES mark of conformity, electronic labeling, or the evaluation report number (ICC-ES ESR-3264) along with the name, registered trademark, or registered logo of the report holder (Jobsite Stud Welding, Inc.) must be included in the product identification.
- 7.2 In addition, the JSW Stud Rails are identified on the packaging with the product name, stud size, stud type, manufacturing date, and manufacturer's address.
- 7.3 The report holder's contact information is the following:

JOBSITE STUD WELDING, INC.
15315 FAIRFIELD RANCH ROAD, SUITE 270
CHINO HILLS, CALIFORNIA 91710
(425) 322-5808
www.jobstestud.com
bbrower@jobstestud.com

TABLE 1—JSW STUD RAILS STUD DIMENSIONS

SHANK DIAMETER, D [in. (mm)]	HEAD DIAMETER, H [in. (mm)]	H/D RATIO	SHANK AREA, S _A [in. ² (mm ²)]	HEAD AREA, H _A [in. ² (mm ²)]	H _A /S _A RATIO	HEAD THICKNESS, T [in. (mm)]
³ / ₈ (9.5)	1.19 (30.1)	3.17	0.110 (71)	1.112 (712)	10.1	0.26 (6.6)
¹ / ₂ (12.7)	1.58 (40.2)	3.16	0.196 (127)	1.961 (1269)	10.0	0.33 (8.4)
⁵ / ₈ (15.9)	1.98 (50.2)	3.17	0.307 (199)	3.079 (1979)	10.0	0.40 (10.2)
³ / ₄ (19.1)	2.37 (60.2)	3.16	0.442 (287)	4.412 (2846)	10.0	0.42 (10.7)

TABLE 2—JSW STUD RAILS RECTANGULAR SHEAR REINFORCEMENT PLATE DIMENSIONS

SHANK DIAMETER, D [in. (mm)]	PLATE WIDTH, W [in. (mm)]	PLATE THICKNESS, TH [in. (mm)]	PLATE LENGTH, L
³ / ₈ (9.5)	1.00 (25.4)	³ / ₁₆ (4.8)	Determined by the registered design professional
¹ / ₂ (12.7)	1.25 (31.8)	¹ / ₄ (6.5)	
⁵ / ₈ (15.9)	1.75 (44.5)	⁵ / ₁₆ (7.9)	
³ / ₄ (19.1)	2.00 (50.8)	³ / ₈ (9.5)	

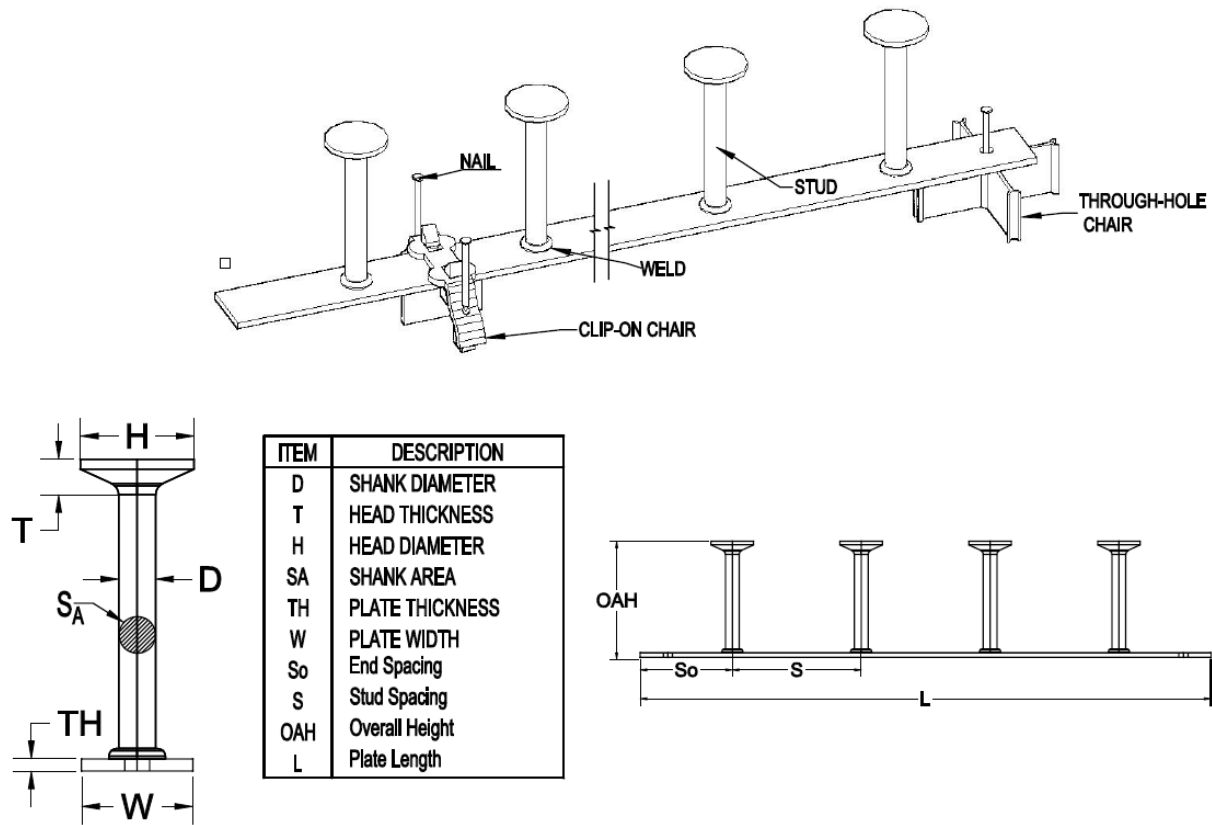


FIGURE 1—TYPICAL JSW STUD RAILS REINFORCEMENT SYSTEM ASSEMBLY

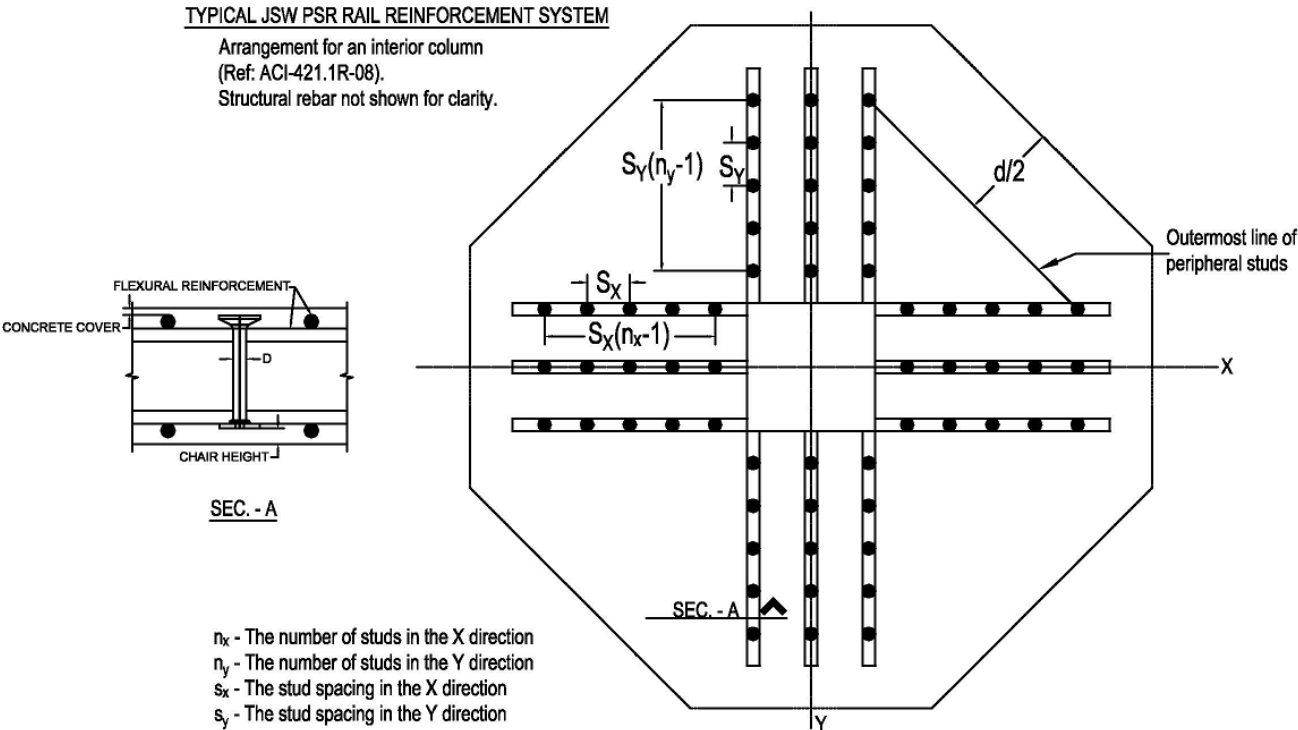


FIGURE 2—TYPICAL JSW STUD RAILS REINFORCEMENT SYSTEM DETAILS

ICC-ES Evaluation Report

ESR-3264 City of LA Supplement

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DIVISION: 03 00 00—CONCRETE
Section: 03 15 00—Concrete Accessories
Section: 03 21 00—Reinforcement Bars

REPORT HOLDER:

JOBSITE STUD WELDING, INC.

EVALUATION SUBJECT:

JSW STUD RAILS

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that JSW Stud Rails, described in ICC-ES evaluation report [ESR-3264](#), have also been evaluated for compliance with the codes noted below as adopted by Los Angeles Department of Building and Safety (LADBS).

Applicable code editions:

- 2023 City of Los Angeles Building Code ([LABC](#))

2.0 CONCLUSIONS

The JSW Stud Rails, described in Sections 2.0 through 7.0 of the evaluation report [ESR-3264](#), comply with LABC Chapter 19, and are subjected to the conditions of use described in this report.

3.0 CONDITIONS OF USE

The JSW Stud Rails described in this evaluation report supplement must comply with all of the following conditions:

- All applicable sections in the evaluation report [ESR-3264](#).
- The design, installation, conditions of use and labeling of the JSW Stud Rails are in accordance with the 2021 *International Building Code*® (IBC) provisions noted in the evaluation report [ESR-3264](#).
- The design, installation and inspection are in accordance with additional requirements of LABC Chapters 16 and 17, as applicable.

This supplement expires concurrently with the evaluation report, reissued August 2026.

ICC-ES Evaluation Report

ESR-3264 CA Supplement

Reissued August 2026

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DIVISION: 03 00 00 - CONCRETE

Section: 03 15 00 – Concrete Accessories

Section: 03 21 00 – Reinforcing Steel

REPORT HOLDER:

JOBSITE STUD WELDING, INC.

EVALUATION SUBJECT:

JSW STUD RAILS

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that JSW Stud Rails, described in ICC-ES evaluation report [ESR-3264](#), have also been evaluated for compliance with the code noted below.

Applicable code edition:

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.

2.0 CONCLUSIONS

2.1 CBC:

The JSW Stud Rails, described in Sections 2.0 through 7.0 of the evaluation report [ESR-3264](#), comply with CBC Chapter 19, 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 of CBC Chapters 16 and 17, 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.

This supplement expires concurrently with the evaluation report, reissued August 2026.