

# ICC-ES Evaluation Report

ESR-5210

Reissued March 2025


This report also contains:

- [City of LA Supplement](#)
- [CA Supplement w/ DSA and OSHPD](#)
- [FL Supplement w/ HVHZ](#)

Subject to renewal March 2027

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<p><b>DIVISION: 06 00 00—</b>  <b>WOOD, PLASTICS AND</b>  <b>COMPOSITES</b></p> <p><b>Section: 06 05 23.13—</b>  <b>Nails</b></p>	<p><b>REPORT HOLDER:</b>  <b>AJ2 STEEL, INC.</b></p>	<p><b>EVALUATION SUBJECT:</b>  <b>AJ2 NAILS</b></p>	
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## 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® \(IRC\)](#)

Section number references in this report are for the 2024 IBC and IRC and the standards referenced therein. Corresponding section numbers for earlier code editions are shown in Table 4 at the end of this report.

Properties evaluated:

- Bending yield strength
- Lateral connection strength
- Withdrawal strength
- Use in diaphragms and shear walls
- Use as alternatives to the nails prescribed in fastening schedules in the codes.

## 2.0 USES

The AJ2 Nails described in this report are used for engineered and nonengineered (prescriptive) structural connections.

## 3.0 DESCRIPTION

The AJ2 Nails are manufactured from carbon steel wire and have a proprietary form with full round heads and annular ring shank deformations which extend to within the overall nail length (L) divided by 3 (L/3) of the nail head. The nails are available with a bright finish or a hot-dip galvanized coating complying with the ASTM A153, Class D coating weight. The nails are collated in strips and coils for loading into a power driving tool. The nail materials and dimensional tolerances conform to ASTM F1667. Nails are available in lengths ranging from 1½ inches to 8 inches (38 to 203 mm). See [Table 1](#) for designations, dimensions and additional descriptions of the nails, including minimum specified bending yield strength. See [Figure 1](#) for an image of the AJ2 Nail.

## 4.0 DESIGN AND INSTALLATION

### 4.1 Design:

#### 4.1.1 Engineered Structural Connections:

**4.1.1.1** The AJ2 Nails comply with the requirements of IBC Section 2303.6 and provide equal or better load resistance compared to the code-prescribed nails addressed in [Table 2](#), based on tests of lateral connection strength and withdrawal resistance. Engineered design using the characteristics of the code-prescribed nails included in [Table 2](#) is applicable to the AJ2 nails described in [Table 2](#). The reference head pull-through design values must be determined in accordance with Section 12.2.5 of the NDS.

**4.1.2 Prescribed Framing Connections:** The AJ2 Nails noted in [Table 2](#) comply with the bending yield strength requirements of IBC Section 2303.6 and compare favorably to the indicated code-prescribed nails on the basis of lateral connection strength and withdrawal resistance. The AJ2 nails listed in [Table 2](#) may be used as direct substitutes for the code-prescribed nails indicated in [Table 2](#), in framing connections prescribed in IBC Table 2304.10.2 and IRC Table R602.3(1).

**4.1.3 Use in Treated Lumber:** Hot-dipped galvanized nails may be used in preservative-treated and fire-retardant-treated wood in accordance with IBC Section 2304.10.6 and IRC Section R304.3.

**4.1.4 Engineered Diaphragms:** Diaphragms using AJ2 Nails described in this report have been evaluated for use in all Seismic Design Categories. The AJ2 Nails listed in [Table 3A](#) may be used as direct substitutes for the code-prescribed nails indicated in [Table 3A](#), based on minimum nominal panel thicknesses listed in [Table 3A](#) for sheathed wood-frame diaphragms in accordance with Section 4.2 and Tables 4.2A, 4.2B and 4.2C of the AWC SDPWS. Diaphragm deflection may be determined in accordance with Section 4.2.3 of the AWC SDPWS, using the applicable  $G_a$  value given in Tables 4.2A, 4.2B and 4.2C of AWC SDPWS, as applicable. The diaphragms must be designed and constructed as required by the AWC SDPWS, except for the substitution of the AJ2 Nails.

**4.1.5 Engineered Shear Walls:** Shear walls using AJ2 Nails described in this report have been evaluated for use in all Seismic Design Categories. The AJ2 Nails listed in [Table 3A](#) may be used as direct substitutes for the code-prescribed nails indicated in [Table 3A](#), based on minimum nominal panel thicknesses listed in [Table 3A](#) for sheathed wood-frame shear walls constructed in accordance with Section 4.3 and Table 4.3A of the AWC SDPWS. Shear wall deflection may be determined in accordance with Section 4.3.4 of the AWC SDPWS, using the applicable  $G_a$  value given in Table 4.3A of AWC SDPWS. Shear wall aspect ratio (height-to-length ratio) for wood structural panels (unblocked and blocked) must be in accordance with Table 4.3.3 of the AWC SDPWS. The shear walls must be designed and constructed as required by the AWC SDPWS, except for the substitution of the AJ2 Nails.

**4.1.6 Prescriptive Sheathing Attachment:** AJ2 Nails may be directly substituted for common nails prescribed in IBC Table 2304.10.2 and IRC Table R602.3(1), for attachment of floor sheathing and wall sheathing to framing, as shown in [Table 3B](#).

### 4.2 Installation:

The nails must be installed in accordance with this report, and the report holder's published installation instructions. The nails described in this report are packaged for use in power tools. The nails must be installed using a tool recommended by the nail manufacturer. Individual nails may be manually driven.

Edge distances, end distances, and spacing must be sufficient to prevent splitting of the wood. Installation into sawn lumber must be in accordance with the applicable requirements in Section 12.1.6 of the NDS.

For engineered wood products, edge distances, end distances, and spacing must be sufficient to prevent splitting and must be in accordance with the ICC-ES evaluation report on the engineered wood product.

### 4.3 Special Inspection:

Special inspection of high-load diaphragms is required in accordance with IBC Section 1705.5.1. Periodic inspection of shear walls and diaphragms for wind resistance may be required in accordance with IBC Section 1705.12.1. Periodic inspection of shear walls and diaphragms for seismic resistance may be required in accordance with IBC Section 1705.13.2.

## 5.0 CONDITIONS OF USE:

The AJ2 Nails 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 nails must be installed in accordance with this report, the manufacturer's published installation instructions, and the applicable code. In the case of a conflict amongst these documents, the most restrictive requirements govern.
- 5.2 For engineered structural connections, diaphragms and shear walls, calculations demonstrating that the applied loads do not exceed the applicable design values referenced in this report must be submitted to the code official for approval. Calculations must be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.
- 5.3 Use of the nails to construct shear walls which resist combined shear and uplift from wind in accordance with AWC SDPWS Section 4.4 is outside the scope of this report.
- 5.4 The nails with a bright finish must not be used in preservative-treated or fire-retardant treated wood, except as permitted under the Exception to IBC Section 2304.10.6.1, IBC Section 2304.10.6.4, Exception (3) to IRC Section R304.3.1, and IRC Section R304.3.4.
- 5.5 The nails are manufactured under a quality control program with inspections by ICC-ES.

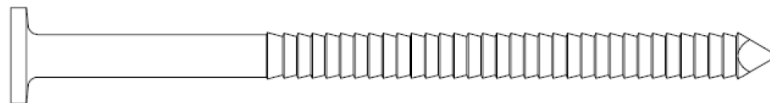
## 6.0 EVIDENCE SUBMITTED

- 6.1 Data in accordance with the [ICC-ES Acceptance Criteria for Nails \(AC116\)](#), dated March 2018 (editorially revised April 2024).
- 6.2 Results of lateral and withdrawal load tests performed in accordance with Section 4.0 of AC116 on AJ2 nails and code-complying nails.
- 6.3 Data, including cyclic load testing of shear walls, in accordance with the [ICC-ES Acceptance Criteria for Wood-frame Horizontal Diaphragms, Vertical Shear Walls and Braced Walls with Alternative Fasteners \(AC120\)](#), dated February 2017 (editorially revised May 2024).

## 7.0 IDENTIFICATION

- 7.1 The ICC-ES mark of conformity, electronic labeling, or the evaluation report number (ICC-ES ESR-5210) along with the name, registered trademark, or registered logo of the report holder must be included in the product label.
- 7.2 In addition, the AJ2 Nails described in this report are identified by labels on the cartons bearing an image of the nail, and the nail length and size designation. Packages of galvanized nails must be labeled "ASTM A153, Class D."
- 7.3 The report holder's contact information is the following:

**AJ2 STEEL, INC.**  
**POST OFFICE BOX 3034**  
**UNION CITY, CALIFORNIA 94587**  
**(844) 942-5252**  
[www.aj2steel.com](http://www.aj2steel.com)



**FIGURE 1 – AJ2 NAIL (TYPICAL)**

TABLE 1 – AJ2 NAILS

SIZE DESIGNATION	NOMINAL DIAMETER (inch)	HEAD STYLE	NOMINAL HEAD DIAMETER (inch)	SHANK STYLE	POINT STYLE	MATERIAL	COATING	SPECIFIED $F_{yb}$ (psi)
0.115R	0.115	Full Round	0.280	Ring	Blunt Diamond	Carbon Steel	Bright or Hot-Dip Galvanized	120,000
0.115	0.115		0.280					126,000
0.125R	0.125		0.288					110,000
0.125	0.125		0.288					137,000
0.135R	0.135		0.290					100,000
0.135	0.135		0.290					117,000

For SI: 1 inch = 25.4 mm; 1 psi = 6.89 kPa

TABLE 2 – SUBSTITUTION OF AJ2 NAILS FOR NAILS PRESCRIBED FOR USE IN FRAMING CONNECTIONS IN IBC TABLE 2304.10.2 AND IRC TABLE R602.3(1)

AJ2 NAILS	SUBSTITUTION FOR CODE PRESCRIBED NAILS
2¾" x 0.115R	8d common (2 ½" x 0.131")
	3" x 0.131"
	10d box (3" x 0.128")
	16d box (3 ½" x 0.135")
3" x 0.115R	8d common (2 ½" x 0.131")
	3" x 0.131"
	10d box (3" x 0.128")
	16d box (3 ½" x 0.135")
3" x 0.115	10d common (3" x 0.148")
3" x 0.125R	10d common (3" x 0.148")
3" x 0.125	10d common (3" x 0.148")
3" x 0.135R	16d common (3 ½" x 0.162")
3" x 0.135	16d common (3 ½" x 0.162")

For SI: 1 inch = 25.4 mm

TABLE 3A – AJ2 NAIL SUBSTITUTION SCHEDULE FOR NAILS PRESCRIBED IN AWC SDPWS FOR USE IN ENGINEERED DIAPHRAGMS AND SHEAR WALLS

AJ2 NAILS	SHEATHING THICKNESS (inch) <sup>1</sup>	SUBSTITUTION FOR CODE PRESCRIBED NAILS
2 <sup>1</sup> / <sub>8</sub> " x 0.115R <sup>2</sup>	3 <sup>1</sup> / <sub>8</sub> , 7 <sup>1</sup> / <sub>16</sub> , 15 <sup>1</sup> / <sub>32</sub>	8d common (2 <sup>1</sup> / <sub>2</sub> " x 0.131")
	15 <sup>1</sup> / <sub>32</sub> , 19 <sup>1</sup> / <sub>32</sub> , 23 <sup>1</sup> / <sub>32</sub>	10d common (3" x 0.148")
2 <sup>1</sup> / <sub>4</sub> " x 0.125R	15 <sup>1</sup> / <sub>32</sub> , 19 <sup>1</sup> / <sub>32</sub> , 23 <sup>1</sup> / <sub>32</sub>	10d common (3" x 0.148")

For SI: 1 inch = 25.4 mm

<sup>1</sup>Sheathing must be wood structural panels: Structural I, Sheathing, and Single-Floor complying with DOC PS-1 or PS-2, as required by the AWC SDPWS.

<sup>2</sup>2<sup>1</sup>/<sub>8</sub>" x 0.115R nail must have 1<sup>3</sup>/<sub>8</sub>" minimum penetration to the receiving member.

TABLE 3B – AJ2 NAIL SUBSTITUTION SCHEDULE FOR NAILS PRESCRIBED FOR SHEATHING ATTACHMENT IN IBC TABLE 2304.10.2 AND IRC TABLE R602.3(1)

AJ2 NAILS	SHEATHING THICKNESS (inch) <sup>1</sup>	SUBSTITUTION FOR CODE PRESCRIBED NAILS
2 <sup>1</sup> / <sub>8</sub> " x 0.115R <sup>2</sup>	3 <sup>1</sup> / <sub>8</sub> to 3 <sup>1</sup> / <sub>4</sub>	8d common (2 <sup>1</sup> / <sub>2</sub> " x 0.131")
2 <sup>1</sup> / <sub>4</sub> " x 0.125R	1 <sup>1</sup> / <sub>2</sub> to 3 <sup>1</sup> / <sub>4</sub>	8d common (2 <sup>1</sup> / <sub>2</sub> " x 0.131")

For SI: 1 inch = 25.4 mm

<sup>1</sup>Sheathing must be wood structural panels: Structural I, Sheathing, and Single-Floor complying with DOC PS-1 or PS-2.

<sup>2</sup>2<sup>1</sup>/<sub>8</sub>" x 0.115R nail must have 1<sup>3</sup>/<sub>8</sub>" minimum penetration to the receiving member.

**TABLE 4 – APPLICABLE SECTIONS UNDER EACH EDITION OF THE IBC AND IRC**

<b>IBC</b>			
<b>2024 IBC</b>	<b>2021 IBC</b>	<b>2018 IBC</b>	<b>2015 IBC</b>
1705.5.1	1705.5.1	1705.5.1	1705.5.1
1705.12.1	1705.12.1	1705.11.1	1705.11.1
1705.13.2	1705.13.2	1705.12.2	1705.12.2
2303.6	2303.6	2303.6	2303.6
Table 2304.10.2	Table 2304.10.2	Table 2304.10.1	Table 2304.10.1
2304.10.6	2304.10.6	2304.10.5	2304.10.5
Exception to Section 2304.10.6.1 2304.10.6.4	Exception to Section 2304.10.6.1 2304.10.6.4	Exception to Section 2304.10.5.1 2304.10.5.4	Exception to Section 2304.10.5.1 2304.10.5.4
<b>Referenced Standards</b>			
AWC NDS-2024 12.1.6	AWC NDS-2018 12.1.6	AWC NDS-2018 12.1.6	AWC NDS-2015 12.2.6
AWC NDS-2024 12.2.5	AWC NDS-2018 12.2.5	AWC NDS-2018 12.2.5	n/a use AWC NDS-2018 12.2.5
AWC SDPWS-2021 4.2	AWC SDPWS-2021 4.2	AWC SDPWS-2021 4.2	AWC SDPWS-2021 4.2
AWC SDPWS-2021 Tables 4.2A, 4.2B and 4.2C	AWC SDPWS-2021 Tables 4.2A, 4.2B and 4.2C	AWC SDPWS-2015 Tables 4.2A, 4.2B and 4.2C	AWC SDPWS-2015 Tables 4.2A, 4.2B and 4.2C
AWC SDPWS-2021 4.2.3	AWC SDPWS-2021 4.2.3	AWC SDPWS-2015 4.2.2	AWC SDPWS-2015 4.2.2
AWC SDPWS-2021 4.3	AWC SDPWS-2021 4.3	AWC SDPWS-2015 4.3	AWC SDPWS-2015 4.3
AWC SDPWS-2021 Table 4.3A	AWC SDPWS-2021 Table 4.3A	AWC SDPWS-2015 Table 4.3A	AWC SDPWS-2015 Table 4.3A
AWC SDPWS-2021 4.3.4	AWC SDPWS-2021 4.3.4	AWC SDPWS-2015 4.3.2	AWC SDPWS-2015 4.3.2
AWC SDPWS-2021 Table 4.3.3	AWC SDPWS-2021 Table 4.3.3	AWC SDPWS-2015 Table 4.3.4	AWC SDPWS-2015 Table 4.3.4
AWC SDPWS-2021 4.4	AWC SDPWS-2021 4.4	AWC SDPWS-2015 4.4	AWC SDPWS-2015 4.4
<b>IRC</b>			
<b>2024 IRC</b>	<b>2021 IRC</b>	<b>2018 IRC</b>	<b>2015 IRC</b>
R304.3	R317.3	R317.3	R317.3
Exception (3) to Section R304.3.1	Exception (3) to Section R317.3.1	Exception (3) to Section R317.3.1	Exception (3) to Section R317.3.1
R304.3.4	R317.3.4	R317.3.4	R317.3.4
Table R602.3(1)	Table R602.3(1)	Table R602.3(1)	Table R602.3(1)

DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES  
Section: 06 05 23.13—Nails

**REPORT HOLDER:**

AJ2 STEEL, INC.

**EVALUATION SUBJECT:**

AJ2 NAILS

**1.0 REPORT PURPOSE AND SCOPE****Purpose:**

The purpose of this evaluation report supplement is to indicate that the AJ2 Nails described in ICC-ES evaluation report [ESR-5210](#), 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 AJ2 Nails, described in Sections 2.0 through 7.0 of the evaluation report [ESR-5210](#), comply with the LABC Chapter 23 and the LARC and are subject to the conditions of use described in this supplement.

**3.0 CONDITIONS OF USE**

The AJ2 Nails described in this evaluation report supplement must comply with all of the following conditions:

- All applicable sections in the evaluation report [ESR-5210](#).
- The design, installation, conditions of use and identification of the nails are in accordance with the 2021 *International Building Code*® (IBC) provisions noted in the evaluation report [ESR-5210](#).
- The design, installation and inspection are in accordance with additional requirements of LABC Chapters 16 and 23, and LARC Chapters 5, 6 and 8, as applicable.
- Nails made from bright steel wire must not be used in exterior or exposed conditions.

This supplement expires concurrently with the evaluation report, reissued March 2025.

# ICC-ES Evaluation Report ESR-5210 CA Supplement w/ DSA and OSPHD

Reissued March 2025

This report is subject to renewal March 2027.

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**DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES**  
**Section: 06 05 23.13—Nails**

## REPORT HOLDER:

AJ2 STEEL, INC.

## EVALUATION SUBJECT:

AJ2 NAILS

## 1.0 REPORT PURPOSE AND SCOPE

### Purpose:

The purpose of this evaluation report supplement is to indicate that the AJ2 Nails described in ICC-ES evaluation report ESR-5210 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 AJ2 Nails, described in Sections 2.0 through 7.0 of the evaluation report ESR-5210, comply with CBC Chapter 23, 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 23, as applicable.

#### 2.1.1 OSHPD:

**2.1.1.1** The AJ2 Nails, described in Sections 2.0 through 7.0 of the evaluation report ESR-5210, comply with CBC Chapter 16 and amendments [OSHPD 1R, 2, 3 and 5], Chapters 16A [OSHPD 1 and 4], Chapter 17 and amendments [OSHPD 1R, 2, 3 and 5], Chapter 17A [OSHPD 1 and 4], and Chapter 23 and amendments [OSHPD 1, 1R, 2, 3, 4 and 5], provided the design and installation are in accordance with the 2021 IBC provisions noted in the evaluation report and the additional requirements in Section 2.1.1.2 of this supplement.

**2.1.1.2 Conditions of Use:** Fasteners used for the attachment of exterior wall coverings shall be of hot-dipped zinc-coated galvanized steel in accordance with Section 2304.10.2.1 [OSHPD 1, 1R, 2B, 4 and 5].

#### 2.1.2 DSA:

**2.1.2.1** The AJ2 Nails, described in Sections 2.0 through 7.0 of the evaluation report ESR-5210, comply with CBC Chapter 16 and amendments [DSA-SS/CC], Chapters 16A [DSA-SS], Chapter 17A [DSA-SS and DSA-SS/CC], and Chapter 23 and amendments [DSA-SS and DSA-SS/CC], provided the design and installation are in accordance with the 2021 IBC provisions noted in the evaluation report and the additional requirements in Section 2.1.2.2 of this supplement.

**2.1.2.2 Conditions of Use:** Fasteners used for the attachment of exterior wall coverings shall be of hot-dipped zinc-coated galvanized steel in accordance with Section 2304.10.2.1 [DSA-SS].

### 2.2 CRC:

The AJ2 Nails, described in Sections 2.0 through 7.0 of the evaluation report ESR-5210, comply with CRC Chapters 5, 6, 7 and 8, 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 March 2025.

**DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES**  
**Section: 06 05 23.13—Nails**

**REPORT HOLDER:**

AJ2 STEEL, INC.

**EVALUATION SUBJECT:**

AJ2 NAILS

**1.0 REPORT PURPOSE AND SCOPE****Purpose:**

The purpose of this evaluation report supplement is to indicate that AJ2 Nails described in ICC-ES evaluation report ESR-5210, 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 AJ2 Nails, described in Sections 2.0 through 7.0 and Appendix B of ICC-ES evaluation report ESR-5210, 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-5210 for the 2021 *International Building Code*® (IBC) meet the requirements of the *Florida Building Code—Building* or the *Florida Building Code—Residential*, as applicable.

Use of the AJ2 Nails has also been found to be in compliance with the High-Velocity Hurricane Zone provisions of the *Florida Building Code—Building* and the *Florida Building Code—Residential*.

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).

This supplement expires concurrently with the evaluation report, reissued March 2025.