

ICC-ES Evaluation Report

ESR-5422

Reissued April 2025

This report also contains:

- **City of LA Supplement**
- **CA Supplement w/ DSA and OSHPD**
- **FL Supplement w/ HVHZ**

Subject to renewal April 2027



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DIVISION: 05 00 00— METALS Section: 05 05 23—Metal Fastenings DIVISION: 09 00 00— FINISHES Section: 09 22 16.23— Fasteners	REPORT HOLDER INTERNATIONAL FASTENERS, INC.	EVALUATION SUBJECT: DAGGERZ™ EYE-LAG SCREWS (SELF-DRILLING)	
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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® \(IRC\)](#)

Property evaluated:

- Structural

2.0 USES

Daggerz™ Eye-Lag screws are used to provide a means of attaching steel wire to the underside of unfilled steel deck for installation of suspended ceiling systems complying with IBC Section 808.1. The screws may be used in buildings regulated under the IRC where an engineered design is submitted in accordance with IRC Section R301.1.3.

3.0 DESCRIPTION

3.1 General:

Daggerz™ Eye-Lag screws are self-drilling tapping screws. The screws have a self-drilling point and a self-tapping threaded shank below a washer-like collar. The threaded portion is nominally 1/4 inch (6.4 mm) in diameter with 14 threads per inch. Above the collar, the smooth, straight shank transitions to a flattened portion with an eye for attaching the ceiling wire. See [Figure 1](#). See [Table 1](#) for screw dimensions.

3.2 Screw Material:

Daggerz™ Eye-Lag screws are manufactured from carbon steel wire complying with the manufacturer's specifications, heat-treated to obtain a minimum Rockwell C case hardness of 50 and a Rockwell C core hardness of 32 to 40. The screws are zinc-plated in accordance with the report holder's specifications.

3.3 Base Material:

Daggerz™ Eye-Lag screws are installed into cold-formed steel deck panels, which must have a minimum specified tensile strength, F_u , of 45 ksi (310 MPa). The deck panels must have a minimum rib (flute) width of 1½ inches (38 mm) and a thickness within the range addressed in [Table 3](#). Drilling capacity has been verified for steel with a maximum thickness of 0.062 inch (1.6 mm).

4.0 DESIGN AND INSTALLATION

4.1 Design:

The available screw tensile strengths are shown in [Table 2](#). The available tension strengths shown in [Table 3](#) are based on the screw strength and pull-out capacity of the screws. Minimum base-metal thickness and material strength requirements for the steel supports are also given in [Table 3](#). Capacity of the ceiling wires used with the eye lag fasteners must be considered in the connection design.

4.2 Installation:

The Daggerz™ Eye-Lag screws must be installed in accordance with this report and the manufacturer's published installation instructions. A copy of these instructions must be available on the jobsite at all times during installation.

The screws and ceiling wire must be installed vertically to ensure that the tension load is applied along the axis of the screw. The screws must be installed perpendicular to the supporting steel deck material, through the upper or lower flute. The screws may also be installed with a variable-speed drill with a maximum speed of 1,800 rpm, by using a special driver provided by the report holder.

The screws must be spaced a minimum of ¾ inch (19.1 mm) on center along the length of the deck panel, and must be installed a minimum of ¾ inch (19.1 mm) from the deck web. After installation, a minimum of three threads must protrude through the steel deck panel.

Ceiling wire shall comply with and be installed in accordance with ASTM C636, referenced in IBC Section 808.1.1.1.

5.0 CONDITIONS OF USE:

The Daggerz™ Eye-Lag screws 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 fasteners are manufactured and identified in accordance with this report.
- 5.2 Fastener installation complies with this report and the manufacturer's published installation instructions. In the event of conflict between this report and the published instructions, this report governs.
- 5.3 Available tension strengths are as noted in [Table 3](#). The stress increases and load reductions described in IBC Section 1605.2 (Section 1605.3.2 of the 2018 and 2015 IBC) are not allowed. No adjustments for duration of load are allowed.
- 5.4 Use of the screws to attach bracing wire to the supports is outside the scope of this report.
- 5.5 The allowable loads noted in Section 4.1 apply to the fasteners and their connection to the steel only. Adequacy of the steel deck to support the suspended loads must be justified to the satisfaction of the code official.
- 5.6 Calculations demonstrating that the applied loads are less than the allowable loads described in this report must be submitted to the code official for approval. The 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.
- 5.7 Use of the fasteners is limited to dry, interior locations.
- 5.8 The fasteners 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 Self-drilling Tapping Screws Used to Attach Miscellaneous Building Materials to Steel Base Material \(AC500\)](#), dated October 2017 (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-5422) 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 Daggerz™ Eye-Lag screws are embossed with the “DZ” on the top portion of the collar, as shown in [Figure 1](#). The packaging is labeled with the fastener type and part number.

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

INTERNATIONAL FASTENERS, INC.
1341 MASSARO BOULEVARD
TAMPA, FLORIDA 33619
(888) 241-0203
www.daggerz.com

TABLE 1—DAGGERZ™ EYE-LAG SCREWS

ITEM NUMBER	NOMINAL FASTENER SIZE (dia-tpi)	LENGTH FROM UNDERSIDE OF COLLAR TO TIP (inch)	FASTENER “HEAD” LENGTH ¹ (inch)	EYE DIAMETER (inch)	COLLAR DIAMETER (inch)	COLLAR THICKNESS (inch)
ELSDZ1420	1/4-14	3/4	1 1/4	0.18	0.50	0.07
ELSDZ1430	1/4-14	1 15/16	1 1/4	0.18	0.50	0.07

For SI: 1 inch = 25.4 mm.

¹Length from the underside of the collar to edge of the driving end of the fastener.

TABLE 2 — DAGGERZ™ EYE-LAG SCREW FASTENER TENSION STRENGTHS (lbf)

ITEM NUMBER	NOMINAL FASTENER SIZE	NOMINAL STRENGTH	ALLOWABLE STRENGTH (ASD)	DESIGN STRENGTH (LRFD)
		Tension, P_{ts}	Tension, (P_{ts}/Ω)	Tension, (ΦP_{ts})
ELSDZ1420	1/4-14	1967	656	984
ELSDZ1430	1/4-14	1967	656	984

For SI: 1 inch = 25.4 mm, 1 lbf = 4.45 N.

TABLE 3 —AVAILABLE TENSION LOADS FOR DAGGERZ™ EYE-LAG SCREWS INSTALLED IN STEEL DECK PANELS (lbf)^{1,2}

ITEM NUMBER	MINIMUM DESIGN BASE METAL THICKNESS (inch)			
	0.030	0.036	0.047	0.062
Allowable Strength (ASD)				
ELSDZ1420	99	145	197	239
Design Strength (LRFD)				
ELSDZ1420	148	232	315	382
ELSDZ1430				

For SI: 1 inch = 25.4 mm, 1 lbf = 4.45 N, 1 ksi = 6.895 MPa.

¹The tabulated allowable load values are for the screws only, based on fastener strength and pullout capacity. Ceiling wire capacity is outside the scope of this report. Deck capacity is also outside the scope of this report.

²Values are based on installation into steel having a minimum tensile strength, F_u , of 45 ksi.

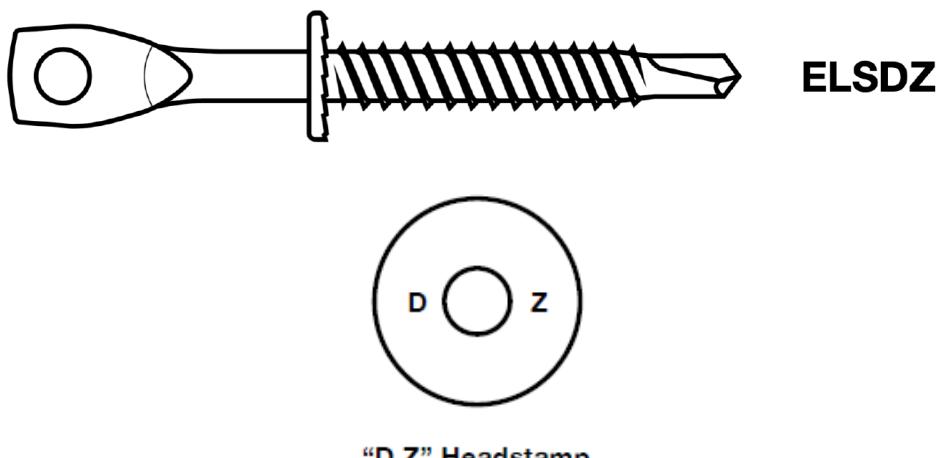


FIGURE 1 – DAGGERZ™ EYE-LAG SCREW

DIVISION: 05 00 00—METALS**Section: 05 05 23—Metal Fastenings****DIVISION: 09 00 00—FINISHES****Section: 09 22 16.23—Fasteners****REPORT HOLDER:****INTERNATIONAL FASTENERS, INC.****EVALUATION SUBJECT:****DAGGERZ™ EYE-LAG SCREWS (SELF-DRILLING)****1.0 REPORT PURPOSE AND SCOPE****Purpose:**

The purpose of this evaluation report supplement is to indicate that Daggerz™ Eye-lag screws, described in ICC-ES evaluation report [ESR-5422](#), 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 Daggerz™ Eye-lag screws, described in Sections 2.0 through 7.0 of the evaluation report [ESR-5422](#), comply with the LABC Chapters 8 and 22, and the LARC, and are subject to the conditions of use described in this supplement.

3.0 CONDITIONS OF USE

The Daggerz™ Eye-lag screws described in this evaluation report supplement must comply with all of the following conditions:

- All applicable sections in the evaluation report [ESR-5422](#).
- The design, installation, conditions of use and identification of the Daggerz™ Eye-lag screws are in accordance with the 2021 *International Building Code*® (IBC) provisions noted in the evaluation report [ESR-5422](#).
- The design, installation and inspection are in accordance with additional requirements of LABC Chapters 16 and 17, as applicable.
- Under the LARC, an engineered design in accordance with LARC Section R301.1.3 must be submitted.

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

ICC-ES Evaluation Report ESR-5422 CA Supplement w/DSA and OSHPD

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This report is subject to renewal April 2027.

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DIVISION: 05 00 00—METALS

Section: 05 05 23—Metal Fastenings

DIVISION: 09 00 00—FINISHES

Section: 09 22 16.23—Fasteners

REPORT HOLDER:

INTERNATIONAL FASTENERS, INC.

EVALUATION SUBJECT:

DAGGERZ™ EYE-LAG SCREWS (SELF-DRILLING)

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that Daggerz™ Eye-lag screws, described in ICC-ES evaluation report ESR-5422, have also been evaluated for compliance with the code(s) noted below.

Applicable code editions:

- 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 Daggerz™ Eye-lag screws, described in Sections 2.0 through 7.0 of the evaluation report ESR-5422, comply with CBC Chapters 8 and 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 8, 16, 17 and 22, as applicable.

2.1.1 OSHPD:

The Daggerz™ Eye-lag screws, described in Sections 2.0 through 7.0 of the evaluation report ESR-5422, comply with CBC Chapter 8, amended Chapter 22 and 22A, 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 Chapter 8 [OSHPD 1, 1R, 2, 3, 4 and 5] Chapter 16 and amendments [OSHPD 1R, 2, 3 and 5], Chapter 16A [OSHPD 1 and 4], amended Chapter 17 [OSHPD 1R, 2, 3 and 5], Chapter 17A [OSHPD 1 and 4], amended Chapter 22 [OSHPD 1R, 2, 3 and 5], and Chapter 22A [OSHPD 1 and 4], as applicable.

2.1.2 DSA:

The Daggerz™ Eye-lag screws, described in Sections 2.0 through 7.0 of the evaluation report ESR-5422, comply with CBC Chapters 8, 16, 16A, 17A, 22 and 22A, 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 Chapter 8 [DSA-SS and DSA-SS/CC] amended Chapter 16 [DSA-SS/CC], Chapter 16A [DSA-SS], Chapter 17A [DSA-SS and DSA-SS/CC], amended Chapter 22 [DSA-SS/CC], and Chapter 22A [DSA-SS], as applicable.

2.2 CRC:

The Daggerz™ Eye-lag screws, described in Sections 2.0 through 7.0 of the evaluation report ESR-5422, comply with the CRC Chapter 3, provided the design and installation are in accordance with the 2021 *International Residential Code*® (IRC) provisions noted in the evaluation report.

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INTERNATIONAL FASTENERS, INC.

EVALUATION SUBJECT:**DAGGERZ™ EYE-LAG SCREWS (SELF DRILLING)****1.0 REPORT PURPOSE AND SCOPE****Purpose:**

The purpose of this evaluation report supplement is to indicate that Daggerz™ Eye-lag screws, described in ICC-ES evaluation report ESR-5422, has 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 Daggerz™ Eye-lag screws, described in Sections 2.0 through 7.0 of ICC-ES evaluation report ESR-5422, complies 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-5422 for the 2021 *International Building Code*® meet the requirements of the *Florida Building Code—Building* and the *Florida Building Code—Residential*, as applicable.

Use of the Daggerz™ Eye-lag screws has also been found to be in compliance with the High-Velocity Hurricane Zone provisions of the *Florida Building Code—Building* or 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).

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