ICC-ES Evaluation Report

ESR-5417

Reissued September 2024

Revised October 2024

Subject to renewal September 2025

This report also contains:

- CA Supplement

- FL Supplement

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DIVISION: 05 00 00 – METALS Section: 05 05 23 – Metal Fastenings	REPORT HOLDER: GRABBER CONSTRUCTION PRODUCTS, INC.	EVALUATION SUBJECT: GRABBER XDFC FRAMING SCREWS	

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

The Grabber XDFC Framing Screws are used in connections of proprietary cold-formed steel framing members. The screws may be used in structures regulated under the IRC when an engineered design is performed in accordance with IRC Section R301.1.3.

3.0 DESCRIPTION

3.1 Grabber XDFC Framing Screws:

The Grabber XDFC Framing Screws have a proprietary design which deviates from ASTM C1513. Two different screw styles are addressed in this report: a #10 (4.8 mm) sharp point screw and a #10 (4.8 mm) self-drilling screw. Both have a proprietary head style, which has a proprietary driving recess (X-drive) and teeth under the head. The screws all have a nominal length of $^{3}/_{4}$ inch (19 mm). They are manufactured from carbon steel and are hardened. The screws are available loose (in bulk packages) and in collated strips. See Table 1 for product designations and additional descriptions.

3.1.1 #10 (4.8 mm) Sharp Point Screw: These are fine thread screws. The threads near the head are notched. The screws have a sharp point. See Figure 1 for a depiction of these screws. These screws are available with a variety of coatings, as shown in Table 1.

3.1.2 #10 (4.8 mm) Self-drilling Screw: These are fine thread screws. The threads near the head are notched. The screws have a No. 3.5 drill point. See Figure 2 for a depiction of these screws. These screws have a proprietary coating as shown in Table 1.

3.2 Cold-formed Steel Sections:

The connections addressed in Table 3 are made with cold-formed steel sections addressed in ESR-2361, which are produced by the companies listed in ESR-2361. The track flanges each have a prepunched hole through a dimple in the track flange and the C-shape flanges each also have a prepunched hole in a dimple.

4.0 DESIGN AND INSTALLATION

4.1 Design:

4.1.1 Nominal Strengths: The nominal screw shear and tension strengths are shown in Table 2. The screw shear strength is always greater than the shear (bearing) capacity per fastener for the connections addressed in this report. The screw strengths are provided for descriptive purposes only.

Nominal static shear strengths for transfer of load parallel to a proprietary C-shape stud described in Section 3.2 are presented in Table 3. The screws are not expected to be subjected to tension loads, so pull-over and pull-out strengths are outside the scope of this evaluation. Each connection consists of a C-shape and track section with one screw installed through each track flange into the adjacent flange of the C-shape (two screws total).

4.1.2 Available Strengths: Allowable strengths for use in ASD must be determined by dividing the values in Table 3 by a safety factor (Ω) of 3.0. Allowable loads must not be increased for short-duration loads, such as wind and seismic loads. Design strengths for use in LRFD must be determined by multiplying the values in Table 3 by a resistance factor (Φ) of 0.5.

4.2 Installation:

The screws must be installed using a tool recommended by the report holder. For each connection of sections with dimpled flanges, the prepunched holes in the C-shape and the holes in the flange must be aligned prior to installation of the screws through the holes.

5.0 CONDITIONS OF USE:

The Grabber XDFC Framing 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 screws must be manufactured and labeled as described in this report. The cold-formed steel sections must be manufactured and labeled in accordance with ESR-2361.

5.2 Installation must comply with the report holder's published installation instructions, the approved construction documents, and this report. If there is a conflict amongst these documents, the most restrictive requirements apply.

5.3 Construction documents and calculations must be submitted to the code official showing that the expected loads for the connections made with the Grabber XDFC Framing Screws do not exceed the capacities described in this report. These calculations must be prepared by a registered design professional when required by the statutes in the jurisdiction where the project is to be constructed.

5.4 Evaluation of screws subjected to cyclic or fatigue loading is outside the scope of this report. Applicable Seismic Design Categories must be determined in accordance with the code for the entire assembly constructed with the screws.

5.5 The capacities of the screws and the capacities of the screws bearing on the cold-formed steel section are included in this report. However, the adequacy of the cold-formed steel sections (i.e. moment, shear, deflection, etc.) is outside the scope of this report.

5.6 The Grabber XDFC Framing Screws 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 Tapping Screw Fasteners Used in Steel-to-steel Connections (AC118) dated January 2018 (editorially revised February 2024).

6.2 Reports of connection tests of proprietary cold-formed steel sections with dimpled flanges, in general accordance with AISI S905.

7.0 IDENTIFICATION

7.1 The ICC-ES mark of conformity, electronic labeling, or the evaluation report number (ICC-ES ESR-5417) along with the name, registered trademark, or registered logo of the report holder must be included in the product label.

7.2 In addition, packages of Grabber XDFC Framing Screws are identified with the model number.

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

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5255 WEST 11000 NORTH, SUITE 100
HIGHLAND, UTAH 84003
UNITED STATES
(801) 492-3880
info@grabberpro.com
www.grabberpro.com

TABLE 1—GRABBER XDFC FRAMING SCREWS

TIP STYLE	DESIGNATED SIZE x LENGTH	MODEL NUMBER	PACKAGING	COATING	POINT (No.)	HEAD DIAMETER (in.)	NOMINAL SHANK DIAMETERS (in.)		OVERALL LENGTH (in.)
							Minor	Major	
Sharp point	#10 x 3/4 inch	FP101875XSYZ	Loose	Yellow Zinc	n/a	0.344	0.130	0.185	0.750
		CFP101875XSYZ	Collated						
		FP101875XSG	Loose	GrabberGard – Gray					
	4.8 x 19 mm	FP101875XSC35	Loose	GrabberGard - Green					
		CFP101875XSC35	Collated						
Self-drilling	#10 x 3/4 inch	FP101875XDYZ	Loose	Yellow Zinc	3.5	0.344	0.130	0.185	0.750
		CFP101875XDYZ	Collated						
		FP101875XDG	Loose	GrabberGard – Gray					
		FP101875XD	Loose	Phosphate					
	4.8 x 19 mm	FP101875XDC35	Loose	GrabberGard - Green					
		FP101875XDC35	Loose						

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

TABLE 2—NOMINAL SCREW STRENGTHS[1]

SCREW DESIGNATION	NOMINAL SHEAR STRENGTH (lbf)	NOMINAL TENSION STRENGTH (lbf)
#10 (4.8 mm) Sharp Point	1,931	2,070
#10 (4.8 mm) Self-drilling	1,664	1,346

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

[1]To determine the available strength, modify the tabulated nominal strength by the required factor for the applicable design methodology (e.g. ASD). See Section 4.1.2 for factors applicable under the IBC and IRC.

TABLE 3—NOMINAL SHEAR (BEARING) STRENGTHS FOR PREPUNCHED STUD AND TRACK SHEAR CONNECTIONS USING GRABBER XDFC FRAMING SCREWS[1]

SCREW	C-SHAPE DESCRIPTION[2]		NOMINAL CONNECTION STRENGTH[3] (lbf)
	Specified Yield Strength, F_y, (ksi)	Minimum thickness designation (mils)	
#10 (4.8 mm) Sharp Point	50	33	1,221
		43	2,195
#10 (4.8 mm) Self-drilling	50	33	1,294
		43	2,206

For **SI:** 1 inch = 25.4 mm, 1 mil = 0.001 inch, 1 lbf = 4.45 N, 1 ksi =6.89 MPa.

[1]To determine the available strength, modify the tabulated nominal strength by the required factor for the applicable design methodology (e.g. ASD). See Section 4.1.2 for factors applicable under the IBC and IRC.
[2]See Section 3.2.
[3]Strength for complete connection with two screws, one screw through each stud flange.

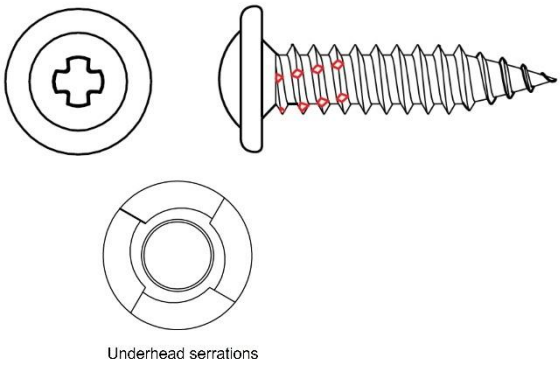

FIGURE 1—#10 (4.8mm) SHARP POINT XDFC FRAMING SCREW

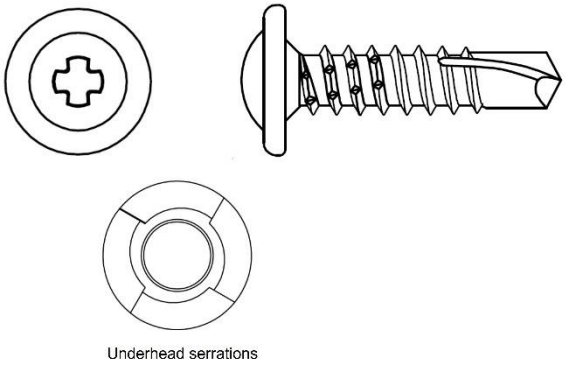

FIGURE 2—#10(4.8 mm) SELF-DRILLING XDFC FRAMING SCREW

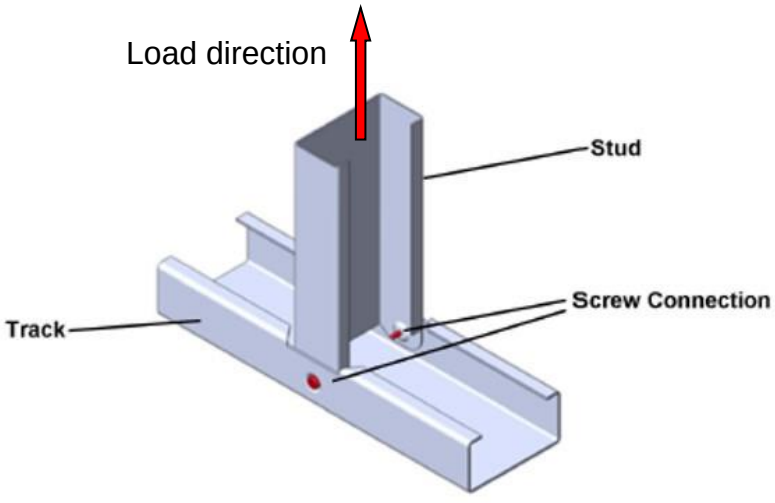

FIGURE 3—TYPICAL PREPUNCHED STUD AND TRACK CONNECTION – ONE SCREW EACH FLANGE

DIVISION: 05 00 00—METALS
Section: 05 05 23—Metal Fastenings

REPORT HOLDER:

GRABBER CONSTRUCTION PRODUCTS, INC.

EVALUATION SUBJECT:

GRABBER XDFC FRAMING SCREWS

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that the Grabber XDFC Framing Screws, described in ICC-ES evaluation report ESR-5417, 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 Grabber XDFC Framing Screws, described in Sections 2.0 through 7.0 of the evaluation report ESR-5417, 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 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.

2.2 CRC:

The Grabber XDFC Framing Screws, described in Sections 2.0 through 7.0 of the evaluation report ESR-5417, comply with CRC Chapter 3, 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, issued September 2024 and revised October 2024.

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DIVISION: 05 00 00—METALS
Section: 05 05 23—Metal Fastenings

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GRABBER CONSTRUCTION PRODUCTS, INC.

EVALUATION SUBJECT:

GRABBER XDFC FRAMING SCREWS

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that the Grabber XDFC Framing Screws, addressed in ICC-ES evaluation report ESR-5417, 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 Grabber XDFC Framing Screws, described in Sections 2.0 through 7.0 of ICC-ES evaluation report ESR-5417, comply with the *Florida Building Code-Building* or 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-5417 for the 2021 *International Building Code*® meet the requirements of the *Florida Building Code-Building* and the *Florida Building Code-Residential*.

Use of the Grabber XDFC Framing Screws 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).

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