



The U.S. Codes and Standards Environment for MGO Building Products

Presented by:

ICC Evaluation Service

July 16, 2024



Family of Solutions



The Value of Code Compliance

When it comes to building products, code compliance helps save lives

- Builds trust with all stakeholders
- Demonstrates a commitment to quality
- Equips professional designers with useful tools
- Provides peace of mind to AHJs





Paths to Compliance

Benefits of having Evaluation Report (ESR) to a Code Official

- ✓ Improves efficiency and effectiveness through unbiased, standardized assessment of innovative materials or assemblies for Code Official review
- ✓ Reduce additional departmental time and resources
- ✓ Reduce health and safety risks and associated departmental liability
- ✓ Speeds permitting review

ESRs are freely accessible for building departments and the general public.

The screenshot shows the header of an ICC-ES Evaluation Report. The title is "ICC-ES Evaluation Report ESR-0000", issued in March 2023 and subject to renewal in March 2024. It contains a CBC Supplement and a LABC Supplement. The report details the division (Concrete), report holder (Sample, Inc.), and evaluation subject (Sample Screw Anchors for Use in Cracked and Uncracked Concrete). It includes a QR code and a table of codes. The evaluation scope covers compliance with the 2021, 2018, and 2015 International Building Code (IBC) and International Residential Code (IRC). The report also describes the uses of the sample screw anchors and provides a description of the sample screw anchors and concrete requirements.

DIVISION: 03 00 00—CONCRETE Section: 03 16 00—Concrete Anchors	REPORT HOLDER: SAMPLE, INC. 	EVALUATION SUBJECT: SAMPLE SCREW ANCHORS FOR USE IN CRACKED AND UNCRACKED CONCRETE
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1.0 EVALUATION SCOPE
Compliance with the following codes:
■ 2021, 2018, 2015 [International Building Code® \(IBC\)](#)
■ 2021, 2018, 2015 [International Residential Code® \(IRC\)](#)
For evaluation for compliance with codes adopted by the [Los Angeles Department of Building and Safety \(LADBS\)](#), see [ESR-0000 LABC and LARC Supplement](#).

Property evaluated:
Structural

2.0 USES
The Sample screw anchors are used as anchorage in cracked and uncracked normal-weight and lightweight concrete having a specified strength, f'_c of 2,500 psi to 8,500 psi (17.2 MPa to 58.6 MPa); to resist static, wind and seismic (Seismic Design Categories A through F) tension and shear loads.
The Sample screw anchors are an alternative to anchors described in Section 1901.3 of the 2021, 2018 and 2015 IBC. The anchors may also be used where an engineered design is submitted in accordance with Section R301.1.3 of the IRC.

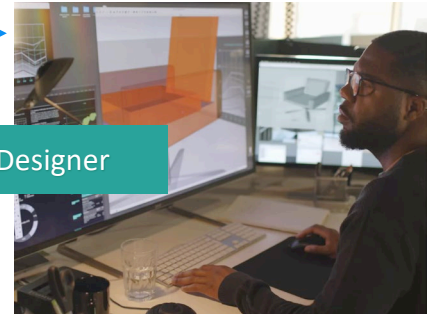
3.0 DESCRIPTION
3.1 Sample screw anchors
The Sample screw anchors are comprised of a body with hex washer head. The anchor is manufactured from carbon steel and is heat-treated. The anchoring system is available in a variety of lengths with nominal diameters of 3/8-inch and 1/2-inch. The Sample screw anchor is illustrated in [Figure 1](#).
3.2 Concrete:
Normal-weight and lightweight concrete must conform to Sections 1903 and 1905 of the IBC.

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Code Official

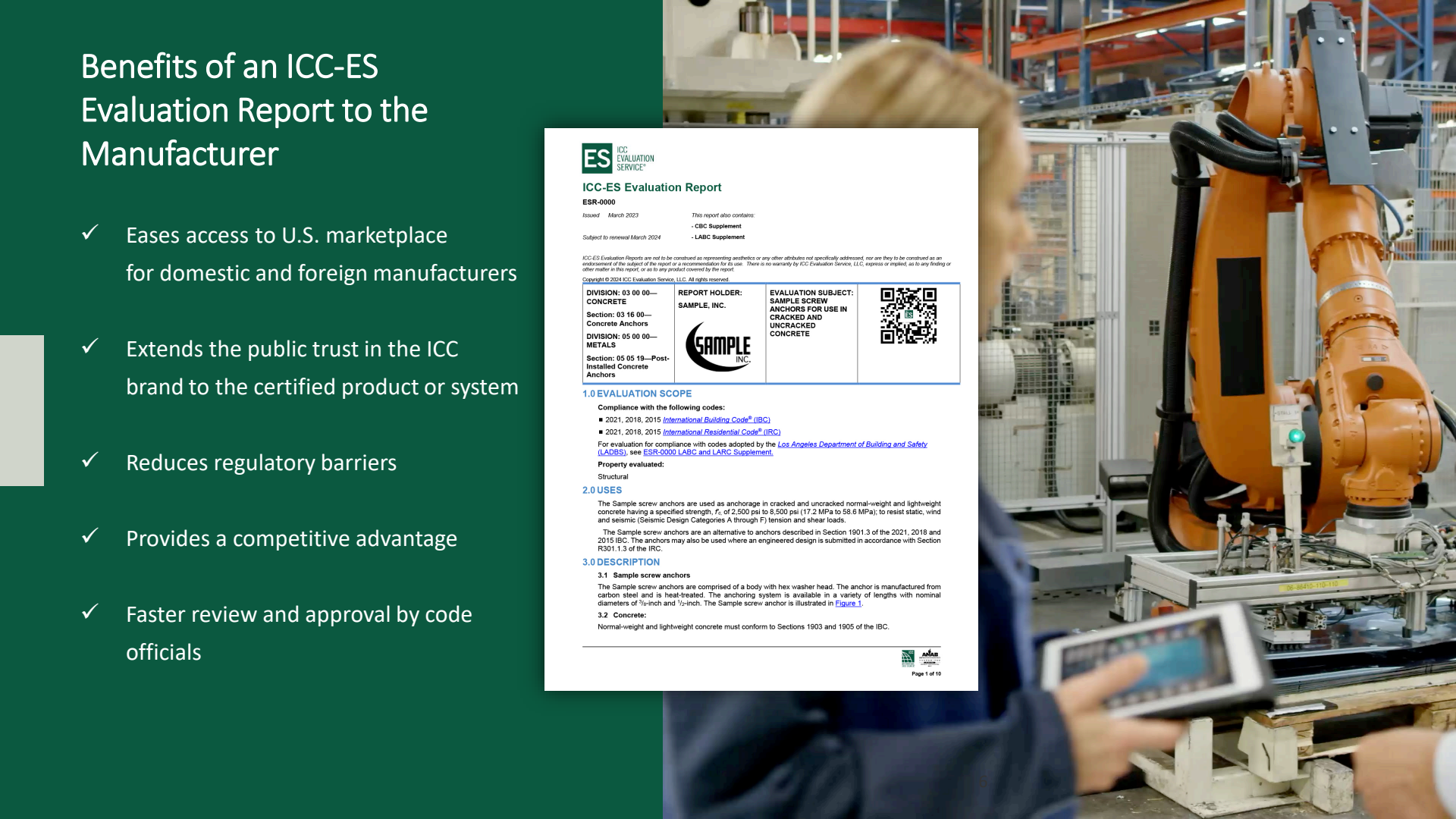
Manufacturer

Designer



Benefits of an ICC-ES Evaluation Report to the Manufacturer

- ✓ Eases access to U.S. marketplace for domestic and foreign manufacturers
- ✓ Extends the public trust in the ICC brand to the certified product or system
- ✓ Reduces regulatory barriers
- ✓ Provides a competitive advantage
- ✓ Faster review and approval by code officials



ES ICC EVALUATION SERVICE



ICC-ES Evaluation Report

ESR-0000

Issued: March 2023 This report also contains:
- CBC Supplement
- LABC Supplement

Subject to renewal March 2024

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DIVISION: 03 00 00— CONCRETE Section: 03 18 00— Concrete Anchors DIVISION: 05 00 00— METALS Section: 05 05 19— Post-Installed Concrete Anchors	REPORT HOLDER: SAMPLE, INC. 	EVALUATION SUBJECT: SAMPLE SCREW ANCHORS FOR USE IN CRACKED AND UNCRACKED CONCRETE 
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Property evaluated:
Structural

2.0 USES

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The Sample screw anchors are an alternative to anchors described in Section 1901.3 of the 2021, 2018 and 2015 IBC. The anchors may also be used where an engineered design is submitted in accordance with Section R301.1.3 of the IRC.


3.0 DESCRIPTION

3.1 Sample screw anchors

The Sample screw anchors are comprised of a body with hex washer head. The anchor is manufactured from carbon steel and is heat-treated. The anchoring system is available in a variety of lengths with nominal diameters of 3/8-inch and 1/2-inch. The Sample screw anchor is illustrated in [Figure 1](#).

3.2 Concrete:

Normal-weight and lightweight concrete must conform to Sections 1903 and 1905 of the IBC.


 **ANAB**
ACCREDITED

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Basis for Evaluation Report

Code Provisions

Acceptance Criteria




ICC-ES Evaluation Report

ESR-0000



Issued March 2023
Subject to renewal March 2024

This report also contains:
- CBC Supplement
- LABC Supplement



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Property evaluated:
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2.0 USES

The Sample screw anchors are used as anchorage in cracked and uncracked normal-weight and lightweight concrete having a specified strength, f_c , of 2,500 psi to 8,500 psi (17.2 MPa to 58.6 MPa); to resist static, wind and seismic (Seismic Design Categories A through F) tension and shear loads.

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3.0 DESCRIPTION

3.1 Sample screw anchors

The Sample screw anchors are comprised of a body with hex washer head. The anchor is manufactured from carbon steel and is heat-treated. The anchoring system is available in a variety of lengths with nominal diameters of $\frac{3}{16}$ -inch and $\frac{1}{2}$ -inch. The Sample screw anchor is illustrated in [Figure 1](#).

3.2 Concrete:

Normal-weight and lightweight concrete must conform to Sections 1903 and 1905 of the IBC.



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What are Acceptance Criteria?



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ACCEPTANCE CRITERIA FOR FIBER-REINFORCED MAGNESIUM-OXIDE-BASED SHEETS

AC308

Approved October 2023

(Compliance Date - October 2025)

Previously approved July 2023, February 2023, February 2021, April 2019, October 2007

(Previously editorially revised August 2021, May 2021, February 2016)

PREFACE

Evaluation reports issued by ICC Evaluation Service, LLC (ICC-ES), are based upon performance features of the International family of codes. (Some reports may also reference older code families such as the BOCA National Codes, the Standard Codes, and the Uniform Codes, or other codes as designated by the ICC-ES president.) Section 104.11 of the *International Building Code®* reads as follows:

The provisions of this code are not intended to prevent the installation of any materials or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been approved. An alternative material, design or method of construction shall be approved where the building official finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, at least the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability and safety.

This acceptance criteria has been issued to provide interested parties with guidelines for demonstrating compliance with performance features of the codes referenced in the criteria. The criteria was developed through a transparent process involving public hearings of the ICC-ES Evaluation Committee, and/or on-line postings where public comment was solicited.

New acceptance criteria will only have an "approved" date, which is the date the document was approved by the Evaluation Committee. When existing acceptance criteria are revised, the Evaluation Committee will decide whether the revised document should carry only an "approved" date, or an "approved" date combined with a "compliance" date. The compliance date is the date by which relevant evaluation reports must comply with the requirements of the criteria. See the ICC-ES web site for more information on compliance dates.

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ICC-ES AC386: Fiber-reinforced Magnesium-oxide-based Sheets



- This criteria is applicable to mechanically attached, fiber-reinforced, magnesium-oxide-based substrate sheets used as sheathings in walls, roofs, floors, or as backer boards for adhered veneers.
- Physical Property Requirements include but are not limited to:
 - Flexural strength
 - Freeze-thaw cycling
 - Dimensions and tolerances
 - Moisture movement
 - Water absorption
 - *NEW* Corrosion Resistance



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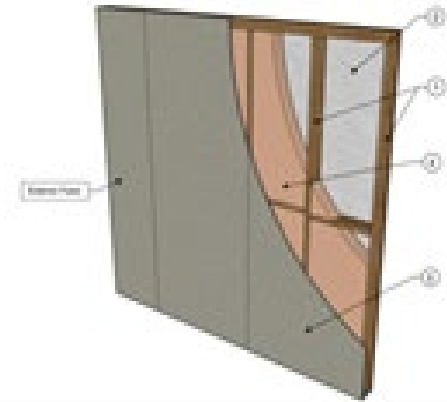
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Design Listings



- Certification reports to meet Code Provisions
- Designs for each variation of construction
- Quickly and efficiently demonstrate assembly compliance



Standards Development



Development of Standards at ASTM International

- Who is ASTM International?
- What is a 'standard'? Why are they important?
- What standards exist for magnesium oxide sheathing?
- What's the purpose of developing MgO standards?



Development of Standards at ICC – ICC 1125

- ICC 1125 Standard for Classification of Magnesium Oxide Boards and Construction
- Developed using ICC's ANSI approved consensus procedures
- A code change proposal (FS113-24) for the 2027 IBC has been submitted referencing ICC 1125.
 - Used AC386 as the draft
 - FS113-24 was disapproved during the first Committee Action Hearing (CAH #1)
 - ICC 1125 must be finalized, published and readily available before the 2026 Public Comment Hearings (April 2026).
 - First draft tentatively scheduled for public comment in Fall 2024

Development of Standards at ICC – ICC 1125

- Development lead by committee
- Meetings open to the public.
- Current working groups
 - Administration and Definitions WG
 - Tile Substrate WG
 - Sheathing (exterior walls, interior walls and sheathing) WG
 - Floor and Subfloor WG

Getting More Involved

- ICC 1125
 - For more information or to be included in the interested parties mailing list you may contact the ICC 1125 secretariats:
 - LaToya Caraway (lcarraway@iccsafe.org)
 - Jason Toves (jtoves@iccsafe.org)
 - Landing Page: https://www.iccsafe.org/products-and-services/i-codes/code-development/cs/mgob_consensus_committee/
- ASTM
 - Become a member: <https://www.astm.org/get-involved/membership.html>
 - Join Committee E06
 - Next In Person Meeting:
 - October 7, 2024 – October 9, 2024
 - Renaissance Orlando at SeaWorld, 6677 Sea Harbor Dr, Orlando, Florida



Questions