

ICC-ES Evaluation Report

ESR-5027

Reissued December 2023


This report also contains:

- FBC Supplement

Subject to renewal December 2024

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<p>DIVISION: 07 00 00— THERMAL AND MOISTURE PROTECTION.</p> <p>Section: 07 24 00— Exterior Insulation and Finish Systems</p> <p>Section: 07 24 19— Water-Drainage Exterior Insulation and Finish System</p>	<p>REPORT HOLDER: STO CORP.</p>	<p>EVALUATION SUBJECT: STOTHERM® ci MINERAL</p>	
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1.0 EVALUATION SCOPE

Compliance with the following codes:

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

Properties evaluated:

PROPERTY	IBC Chapter	IRC Chapter
Exterior insulation and finish systems (EIFS)	14	R7
Weather resistance	14	R7
Special inspections	17	N/A
Structural – transverse wind load resistance	16	R6
Types I-IV (noncombustible) construction	26	N/A
Ignition resistance	26	N/A

2.0 USES

StoTherm® ci Mineral is a decorative and protective exterior wall cladding system complying with 2021, 2018 IBC Section 1407 (2015 IBC Section 1408) and IRC Section R703.9. The system complies with the requirements of 2021, 2018 IBC Section 1407.4.1 (2015 IBC Section 1408.4.1) and IRC Section R703.9 as EIFS with drainage.

StoTherm® ci Mineral system may be installed in buildings of any construction type under the IBC (Types I through V) and dwellings under the IRC when installed in accordance with the applicable requirements of Section 4.0.

3.0 DESCRIPTION

3.1 System Components:

StoTherm® ci Mineral system consist of an air and moisture barrier applied to a gypsum or wood-based sheathing, concrete

or concrete masonry, an adhesive, mineral wool insulation board, thermal dowel with fasteners and thermal plugs or caps, a reinforcing mesh, a base coat and a finish coat.

3.2 Insulation Board:

Nominal 7.0 pcf (112 kg/m³) mineral wool insulation board complying with ASTM C612. The insulation board nominal dimensions are 2 feet by 4 feet (610 by 1220 mm) with a thickness of 2, 3 or 4 inches (51, 76 or 102 mm). The insulation board must have a current ICC-ES evaluation report or be listed by an approved certification body as a noncombustible material in accordance with ASTM E136 and ASTM E84 or UL723 having a flame spread index of 0 and a smoke developed index of 0.

3.3 Insulation Board Fasteners: EJOT Thermal Dowels with Fasteners and Thermal Plugs or Caps with 2-³/₈-diameter (60 mm) polyamide/fiberglass dowels and 0.23-inch-diameter (5.8 mm) corrosion resistant steel screws must be used to attach insulation board to wall framing.

3.4 Substrates:

Substrates must be one of the following:

- a. Gypsum sheathing board complying ASTM C1177.
- b. Concrete masonry complying with IBC Chapter 21 or IRC Chapter 6.
- c. Concrete complying with the IBC Chapter 19 or IRC Chapter 6.
- d. Exterior or Exposure 1 wood structural panels complying with DOC PS-1 or PS-2.

3.5 Air and Moisture Barrier: The air and moisture barrier must be StoGuard with Gold Coat described in [ESR-1233](#). It must be applied by airless spray or roller to a thickness of 10-12 mils wet. Installation of the barrier must comply with the requirements described in [ESR-1233](#).

3.6 Sto BTS Plus Adhesive: The Sto adhesive is a polymer modified Portland cement material that is mixed with water. It is applied to the back of the insulation board with a ½-inch-by-½-inch-by-2-inch (12.7 by 12.7 by 51 mm) U-notched trowel. The insulation board is immediately placed over the Sto air and moisture barrier in courses and in a running bond pattern with tightly abutted joints. Firm hand pressure is applied over the surface of the board to secure it to the wall. Care should be taken to keep the air and drain cavities in alignment for the full height of the wall.

3.7 Sto Reinforcing Meshes: The glass fiber reinforcing meshes are embedded in the base coat. The mesh weights correspond to levels of impact resistance that are achieved based on testing in accordance with ASTM E2468. See [Table 1](#).

3.8 Sto BTS Plus Basecoat: The Sto base coat is a polymer modified Portland cement material used to spot the thermal dowels, to embed reinforcing mesh and to level the wall surface. The base coat is applied with a stainless-steel trowel to spot dowels and allowed to dry. The base coat is then applied with a stainless-steel trowel to the entire surface of the insulation board to a rough thickness of 1/₈-inch (3.2 mm) in strips of approximately 40 inches (1016 mm). The mesh is immediately placed in the wet base coat. The base coat is troweled from the center to the edges of the mesh to completely hide the mesh color. Once the base coat dries a second coat is applied (skim coat) to provide a smooth, level wall surface.

3.9 Stolit® Textured Finish Coat: The Sto textured finish is a water-borne acrylic textured finish that provides a decorative and protective finish for the exterior wall surface. The finish is applied with a stainless-steel trowel to the base coat to a rough thickness of approximately 1/₁₆-inch (1.6 mm) and then scraped down with the trowel to the thickness of the aggregate in the finish texture. It is then floated with a plastic float in a circular or figure "8" motion to achieve the final texture.

4.0 DESIGN AND INSTALLATION

4.1 General:

4.1.1 StoTherm® ci Mineral: StoTherm® ci Mineral must be installed in accordance with the manufacturer's installation instructions, specifications and details, which are available at www.stocorp.com:

- [Spec 5600 StoTherm ci Mineral](#)
- [IG 5600M StoTherm ci Mineral October 2018 EN.pdf \(stocorp.com\)](#)

4.2 Drainage:

StoTherm® ci Mineral provides drainage through gaps created by the application of the insulation board with adhesive to the air and moisture barrier identified in Section 3.5.

4.2 Wind Design:

[Table 2](#) presents specific StoTherm® ci Mineral assembly for which test data has been submitted. Other StoTherm® ci Mineral assemblies may be considered for approval by local code officials, based on testing and/or calculations provided by the registered design professional.

4.3 Weather Protection:

StoTherm® ci Mineral system complies with 2021 and 2018 IBC Section 1402.2 (2015 IBC Section 1403.2) and IRC Section R703.1.1.

4.4 Use in Types I through IV (Noncombustible) Construction:

[Table 3](#) describes the assemblies qualified to use in Types I through IV construction (IBC).

4.5 Special Inspection:

For recognition under the IBC, special inspections of the water-resistive barrier must be conducted in accordance with 2021 IBC Section 1705.17, 2018 and 2015 IBC Section 1705.16. Refer to STO Corp. third-party inspection guidelines for verifying field preparation of materials.

5.0 CONDITIONS OF USE:

The StoTherm® ci Mineral system described in this report complies with, or is a suitable alternative to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 Installation must comply with this report, the manufacturer's published installation instructions and the applicable code. In the event of a conflict between the manufacturer's instructions and this report, this report governs.

6.0 EVIDENCE SUBMITTED

- 6.1 Data in accordance with ASTM E2568 and ASTM E2273.
- 6.2 NFPA 285 and NFPA 268 test data, including engineering analysis.

7.0 IDENTIFICATION

- 7.1 The ICC-ES mark of conformity, electronic labeling, or the evaluation report number (ICC-ES ESR-5027) along with the name, registered trademark, or registered logo of the report holder must be included in the product label.
- 7.2 In addition, each container or package of the coating or reinforcing mesh used as part of the StoTherm® ci Mineral system components must be labeled with the manufacturer's name (STO Corp.) and address; the product name; lot or batch number; quantity of material; storage instructions; pot life; and expiration date.
- 7.3 The report holder's contact information is the following:

STO CORP.
3800 CAMP CREEK PARKWAY
BUILDING 1400, SUITE 120
ATLANTA, GEORGIA 30331
(800) 221-2397
www.stocorp.com

TABLE 1—REINFORCING MESH PRODUCTS¹

PRODUCT NO.	NOMINAL WEIGHT, oz/yd ² (g/m ²)	IMPACT RESISTANCE, in-lbf
Sto Standard Mesh	4.5	Medium: 50-89
Sto Mesh 6 oz.	6.0	High: 90-150
Sto Intermediate Mesh	11.2	Ultra High: > 150

For SI: 1 oz/yd²= 34 g/m²; 1 in-lbf= 175 m-N.

¹Listed meshes include an alkaline resistant coating.

TABLE 2—ULTIMATE WIND LOAD VALUES^{1,2}

MINERAL WOOL INSULATION BOARD THICKNESS, inches	INSULATION BOARD ANCHORS PER PANEL	FRAMING	ULTIMATE LOAD, psf	MINIMUM FASTENER LENGTH, inches
2 and 3	6	18 gage thick steel framing at 16 inches on center	54.1	3.15 and 3.75
2 and 3	9		77.8	3.15 and 3.75
4	6		95.8	4.75
4	9		126.1	4.75

For SI: 1 inch = 25.4 mm, 1 psf = 0.0479 kPa.

¹See illustrations 1 and 2 below for anchor spacings.

²The ultimate load values do not include a safety factor and must be assigned by the registered design professional.

TABLE 3—ASSEMBLIES FOR USE IN TYPES I THROUGH IV CONSTRUCTION

Framing Members ^{3,6}			Interior Sheathing ^{1,5} (Type X Gypsum)		Exterior Sheathing (Type X Gypsum)		Maximum Mineral Wool Insulation Board Thickness (inches) ⁷
Metal			Min. Thickness (inch)	Max. Fastener Spacing (inches)	Min. Thickness (inch)	Max. Fastener Spacing (inches)	
Min. Depth (inches)	Min. Gage	Max. Spacing (inches)					
3 ½	18	16 ⁴	½	8 at perimeter 12 in field ²	5/8	8 at perimeter 12 in field	4

For SI: 1 inch = 25.4 mm

¹All board joints backed by framing

²Fasteners are minimum No.6 drywall screws having sufficient length to penetrate framing a minimum of 3/8 inch (9.5 mm). Corrosion-resistant fasteners are used for exterior sheathing.

³Stud cavities at floor levels are blocked with Owens Corning Thermafiber insulation, 4 lb/ft³ (64 kg/m³) density, 4 inches (102 mm) thick and 2 feet (610 mm) wide.

⁴Stud cavities must be filled with R-11 fiberglass insulation.

⁵All joints must be tape and treated with joint compound. Intermediate fastener heads are treated with joint compound in accordance with ASTM C840 or GA216.

⁶Openings must be framed with minimum 0.0428-inch-thick steel framing.

⁷Minimum thickness for mineral wool insulation board is 1-inch (25.4 mm).

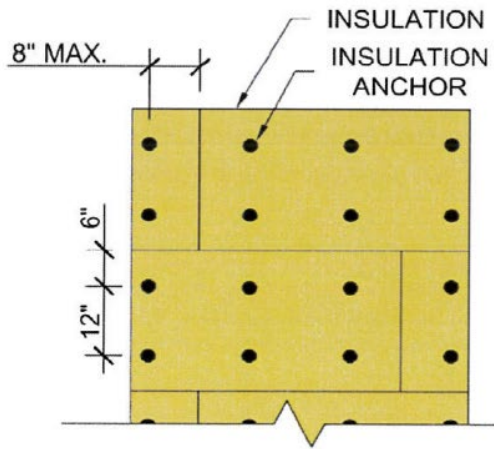


Figure 1
6 anchors per insulation board

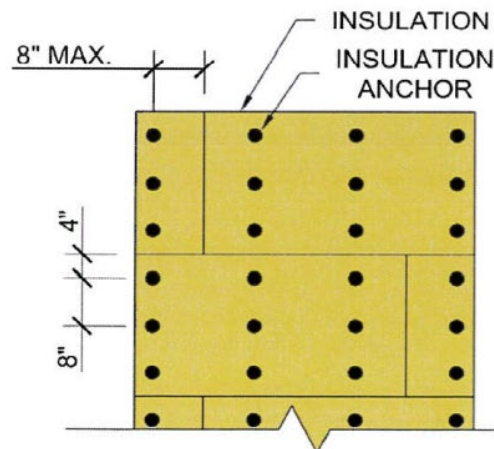


Figure 2
9 anchors per insulation board

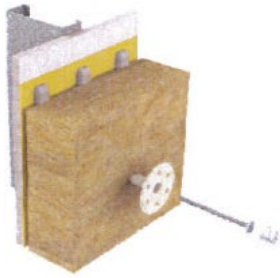


Figure 3
Surface Mount Anchor for up to 2" thick Mineral Wool Insulation Board

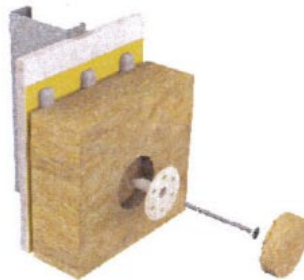


Figure 4
Countersunk Anchor for 3" and 4" thick Mineral Wool Insulation Board



Figure 6- Anchor Screw

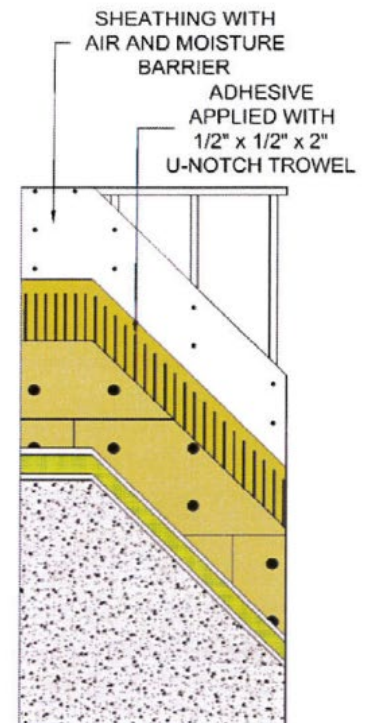


Figure 5- Assembly Details

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION

Section: 07 24 00—Exterior Insulation and Finish Systems

Section: 07 24 19—Water-Drainage Exterior Insulation and Finish System

REPORT HOLDER:

STO CORP.

EVALUATION SUBJECT:

STOTHERM® ci MINERAL

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that StoTherm® ci Mineral, described in ICC-ES evaluation report ESR-5027, has also been evaluated for compliance with the codes noted below.

Applicable code editions:

- 2020 Florida Building Code—Building
- 2020 Florida Building Code—Residential

2.0 CONCLUSIONS

The StoTherm® ci Mineral, described in Sections 2.0 through 7.0 of ICC-ES evaluation report ESR-5027, 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-5027 for the 2018 *International Building Code*® meet the requirements of the *Florida Building Code—Building* and the *Florida Building Code—Residential*, as applicable, with the following condition:

Installation must meet the requirements of Section 1403.8 of the *Florida Building Code—Building* and Section R318.7 of the *Florida Building Code—Residential*, as applicable.

Use of the StoTherm® ci Mineral for compliance with the High-Velocity Hurricane Zone provisions of the *Florida Building Code—Building* and 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).

This supplement expires concurrently with the evaluation report, reissued December 2023.