



ICC-ES Evaluation Report

ESR-1720

Reissued October 2022

This report is subject to renewal October 2023.

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION

Section: 07 24 00—Exterior Insulation and Finish Systems

REPORT HOLDER:

STO CORP.

EVALUATION SUBJECT:

STOTHERM® EIFS: STOTHERM CLASSIC, STOTHERM PREMIER, STOTHERM ESSENCE AND STOTHERM LOTUSAN

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)

For evaluation for compliance with codes adopted by Los Angeles Department of Building and Safety (LADBS), see [ESR-1720 LABC and LARC Supplement](#).

Properties evaluated:

PROPERTY	IBC Chapter	IRC Chapter
Exterior insulation and finish systems (EIFS)	14	R7
Fire-resistance-rated construction	7	R3
Weather resistance	14	R7
Special inspections	17	NA
Structural – transverse wind load resistance	16	R6
Types I-IV (noncombustible) construction	26	NA
Surface burning characteristics	26	R3
Ignition resistance	26	NA

2.0 USES

StoTherm® systems are exterior insulation and finish systems (EIFS) complying with 2021 and 2018 IBC Section 1407 (2015 IBC Section 1408) and IRC Section 703.9.

StoTherm systems may be used in fire-resistance-rated construction and IBC Construction Types I through V, other than framed walls in a Type V, Group R1, R2, R3 or R4 Occupancy Group, when installed in accordance with this report. Under the IRC, the system is limited to use on concrete and masonry walls.

3.0 DESCRIPTION

3.1 System Components:

The StoTherm® systems consist of adhesively applied flat insulation board, reinforcing mesh, base coat, and finish coat. See Tables 1 and 2 for system components.

3.2 Insulation board:

The insulation board must be one of the following:

- a. Expanded polystyrene (EPS) complying with ASTM C578, Type I, and ASTM E2430, produced by a molder with a current evaluation report.
- b. EPS insulation board produced by a molder who participates in an approved third-party quality assurance program. EPS must comply with ASTM C578, Type I, and ASTM E2430.
- c. Sto Insulation Board, which is EPS complying with ASTM C578, Type I, and ASTM E2430.

EPS insulation boards must have a flame spread index of 25 or less and a smoke developed index of 450 or less when tested in accordance with UL 723 or ASTM E84.

3.3 Substrates:

Substrates must be one of the following:

- a. Gypsum sheathing complying with ASTM C1396 or ASTM C1177.
- b. Concrete masonry complying with the code.
- c. Concrete complying with the code.
- d. Exterior plaster complying with the code.

- e. Exterior or Exposure 1 wood structural panels complying with DOC PS-1 or PS-2.

3.4 Sealants:

Sealants must comply with ASTM C920, Type S or M, minimum Grade NS, minimum Class 25 and Use O.

4.0 DESIGN AND INSTALLATION

4.1 General:

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

- http://www.stocorp.com/wp-content/uploads/2017/07/Premier-P100_LF.doc
- http://www.stocorp.com/wp-content/uploads/2017/07/Essence-E100_LF.doc
- http://www.stocorp.com/wp-content/uploads/2017/07/Classic-A100_LF.doc
- http://www.stocorp.com/wp-content/uploads/2017/07/LotusAn-L100_SF.doc
- <http://www.stocorp.com/wp-content/uploads/2017/07/Sto-Installation-Guide.pdf>

4.2 Drainage Options:

The StoTherm systems have not been qualified as EIFS with drainage, as described in 2021 and 2018 IBC Section 1407.4.1 (2015 IBC Section 1408.4.1) and IRC Section R703.9.

4.3 Wind Design:

Table 3 presents specific StoTherm EIFS assemblies for which test data has been submitted. Other StoTherm system assemblies may be considered for approval by local officials based on testing and/or calculations provided by a qualified design professional.

4.4 Weather Protection:

The StoTherm systems comply with 2021 and 2018 IBC Section 1402.2 (2015 IBC Section 1403.2) and IRC Section R703.1.1.

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

Table 4 describes the assemblies qualified for use in Types I through IV construction (IBC).

4.6 Fire-resistance-rated Construction:

Table 5 describes the assemblies qualified for use in nonload-bearing fire-resistance-rated construction. (The assemblies are rated from both sides. Therefore the exterior wall does not require a minimum fire separation distance from adjacent construction as specified in IBC Section 705.5).

In Type V construction, any StoTherm system listed in this report may be attached to the surface of combustible exterior fire-resistance-rated assemblies described in IBC Table 721.1(2) without changing the assigned hourly rating of the assembly. The exterior wall must have a minimum 10-foot (3048 mm) separation distance from adjacent construction.

4.7 Special Inspection:

For 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 EIFS systems 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 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.
- 5.2 The insulation board must be separated from the building interior by a thermal barrier complying with the applicable code.
- 5.3 Use is not permitted in Type V framed construction in Occupancy Groups R1, R2, R3 and R4.
- 5.4 Installation must be by applicators listed by Sto Corp.
- 5.5 Termination of the systems must not be less than 6 inches (152 mm) above finished grade in accordance with IBC Section 2603.8 and IRC Section R318.4.

6.0 EVIDENCE SUBMITTED

- 6.1 Data in accordance with ASTM E2568.
- 6.2 Data in accordance with the ICC-ES Acceptance Criteria for Exterior Insulation and Finish Systems (AC219), dated October 2009 (editorially revised March 2021).
- 6.3 Data in accordance with ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12), dated June 2015 (editorially revised December 2020).

7.0 IDENTIFICATION

- 7.1 Each container or package of the coating or reinforcing mesh used as part of the StoTherm EIFS systems 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; expiration date; and the evaluation report number (ESR-1720).

Sto Insulation Board must be labeled on the edge of each board with the Sto Corp. name, the plant identification number and the evaluation report number (ESR-1720).

Other foam plastic insulation must be labeled in accordance with the current ICC-ES evaluation report in which it is recognized, or as described in Section 3.2.

- 7.2 The report holder's contact information is the following:

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

TABLE 1—STOTHERM EIFS SYSTEM COMPONENTS^{1,2}

SYSTEM	ADHESIVES	BASE COATS	FINISH
StoTherm Classic	Sto BTS Plus Sto BTS Silo Sto BTS Xtra	Sto BTS Plus Sto BTS Silo Sto RFP Sto BTS Xtra	Stolit
StoTherm Premier	Sto BTS Plus Sto BTS Silo Sto BTS Xtra	Sto BTS Plus Sto BTS Silo Sto RFP Sto BTS Xtra	StoSilco Lit
StoTherm Essence	Sto Primer/Adhesive Sto Primer/Adhesive-B	Sto Primer/Adhesive Sto Primer/Adhesive-B	Sto DPR Finish
StoTherm Lotusan	Sto BTS Plus Sto BTS Silo Sto BTS Xtra	Sto BTS Plus Sto BTS Silo Sto RFP Sto BTS Xtra	StoTherm Lotusan

¹All base coats are reinforced with the appropriate Sto Mesh product listed in Table 2.

²Sto Primer is an optional component of the systems listed above.

TABLE 2—REINFORCING MESH PRODUCTS

PRODUCT NO.	PRODUCT NAME ¹	NOMINAL WEIGHT, oz/yd ² (g/m ²)
80920E	Sto Mesh	4.5 (153)
80919	Sto Detail Mesh	4.2 (142)
80985	Sto 6-oz. (170 g) Mesh	6.0 (170)
80918	Sto Intermediate Mesh	11.0 (373)
80921	Sto Armor Mat	15.0 (509)
80922	Sto Armor Mat XX	20.0 (678)
80921A	Sto Corner Mat	7.6 (258)

¹Other listed mesh products may be used for detail construction or to supplement impact resistance of the EIFS.

TABLE 3—WIND LOAD DESIGN¹

FRAMING MEMBERS ²				SHEATHING			ALLOWABLE WIND LOAD CAPACITY, psf		SYSTEM
Wood, min. size (inches)	Metal		Maximum Spacing (inches)	Type	Thickness, (inch)	Maximum Fastener Spacing ³ , (inches)	Neg.	Pos.	
	Min. Depth (inches)	Min. Gage							
2x4 (nominal)	--	--	16	Wood-based	3/8	8	20	36	Classic Premier
--	3 1/2	18	16	Wood-based	3/8	8	38	60	Essence
--	3 1/2	18	16	Gypsum	1/2	8	20	35	Classic Premier Essence
--	3 1/2	18	16	Gypsum	5/8	8	38	60	Essence
--	6	18	16	Gypsum	5/8	8	45	100	Classic Premier Lotusan
Concrete or masonry substrates							54	54	Classic Premier

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

¹Applicable to all StoTherm materials listed in Tables 1 and 2.

²Deflection limitation 1/240, designed in accordance with applicable code.

³Fasteners must be No. 6, flathead, corrosion-resistant screws [minimum 0.292-inch (7.4 mm) head diameter].

TABLE 4—ASSEMBLIES FOR USE IN TYPES I THROUGH IV CONSTRUCTION

FRAMING MEMBERS ^{5,8}			INTERIOR SHEATHING ^{1,7} (TYPE X GYPSUM)		EXTERIOR SHEATHING (TYPE X GYPSUM)		INSULATION BOARD THICKNESS, MAX. (inches)	SYSTEM
Metal		Max. Spacing (inches)	Min. Thickness (inch)	Max. Fastener Spacing (inches)	Min. Thickness (inch)	Max. Fastener Spacing (inches)		
Min. Depth (inches)	Min. Gage							
3 ¹ / ₂	18	16	1 ¹ / ₂	8 at perimeter 12 in field ²	1 ¹ / ₂	6 at perimeter 8 in field ³	12	Essence
3 ¹ / ₂	18	16 ⁶	1 ¹ / ₂	6 ⁴	5 ⁵ / ₈	6 at perimeter 8 in field ³	12	Classic Premier

For SI: 1 inch = 25.4 mm.

¹All board joints backed by framing.

²Fasteners are minimum No. 8, Type S, corrosion-resistant screws, with sufficient length to penetrate framing a minimum of 3/8 inch (9.5 mm).

³Fasteners are No. 6 drywall screws having sufficient length to penetrate framing a minimum of 3/8 inch (9.5 mm).

⁴Fasteners are No 6 by 1¹/₄-inch-long (31.7 mm), buglehead drywall screws.

⁵Stud cavities at floor levels are blocked with Thermafiber insulation (as described in a current ICC-ES evaluation report), 4 lb/ft³ (64 kg/m³) density, 4 inches (102 mm) thick and 2 feet (610 mm) wide.

⁶Stud cavities must be filled with R-11 fiberglass insulation.

⁷All joints must be taped and treated with joint compound. Intermediate fastener heads are treated with joint compound in accordance with ASTM C840 or GA216.

⁸Openings must be framed with minimum 0.0428-inch-thick steel framing.

TABLE 5—FIRE-RESISTANCE-RATED ASSEMBLIES^{1,2}

FIRE-RESISTANCE RATING (hrs)	FRAMING MEMBERS			INTERIOR SHEATHING			EXTERIOR SHEATHING			MAXIMUM INSULATION BOARD THICKNESS (inches)
	Min Depth (inches)	Min Gage	Max Spacing (inches)	Type	Min. Thickness (inch)	Max. Fastener Spacing (inches)	Type	Min. Thickness (inch)	Max. Fastener Spacing ⁵ (inches)	
1	3 ¹ / ₂	18	16	Type X gypsum ⁵	5 ⁵ / ₈	8 o.c. on perimeter 12 o.c. in field ³	Type X gypsum	5 ⁵ / ₈	6 at perimeter 8 in field ⁴	4
2	3 ¹ / ₂	18	16	Two layers of Type X gypsum ⁵	5 ⁵ / ₈	Base layer at 24 o.c. Face layer at 8 o.c. ⁶	Two layers of Type X gypsum	5 ⁵ / ₈	Base layer at 24 o.c. Face layer at 8 o.c. ⁶	4

For SI: 1 inch = 25.4 mm.

¹Applicable to all StoTherm EIFS materials listed in Table 1.

²All board joints must be blocked.

³Fasteners are minimum No. 6, 1¹/₄-inch-long (32 mm), self-tapping, corrosion-resistant, bugle head screws.

⁴Fasteners are No. 6 drywall screws having sufficient length to penetrate framing a minimum of 3/8 inch (9.5 mm).

⁵Interior wallboard joints must be covered with tape and joint compound. Interior fastener heads are covered with joint compound in accordance with ASTM C840 or GA 216.

⁶Fasteners for the base layer of gypsum board are No. 6, 1¹/₄-inch-long, self-tapping, corrosion-resistant, bugle-head screws. Fasteners for the face layer are 1⁷/₈-inch-long, self-tapping, corrosion-resistant, bugle-head screws.

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
Section: 07 24 00—Exterior Insulation and Finish Systems

REPORT HOLDER:

STO CORP.

EVALUATION SUBJECT:

STOTHERM® EIFS: STOTHERM CLASSIC, STOTHERM PREMIER, STOTHERM ESSENCE AND STOTHERM LOTUSAN

1.0 REPORT PURPOSE AND SCOPE**Purpose:**

The purpose of this evaluation report supplement is to indicate that STOTHERM® EIFS: STOTHERM CLASSIC, STOTHERM PREMIER, STOTHERM ESSENCE AND STOTHERM LOTUSAN, described in ICC-ES evaluation report [ESR-1720](#), 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:

- 2020 *City of Los Angeles Building Code* (LABC)
- 2020 *City of Los Angeles Residential Code* (LARC)

2.0 CONCLUSIONS

The STOTHERM® EIFS: STOTHERM CLASSIC, STOTHERM PREMIER, STOTHERM ESSENCE AND STOTHERM LOTUSAN, described in Sections 2.0 through 7.0 of the evaluation report [ESR-1720](#), comply with the LABC Chapters 7, 14 and 26, and the LARC Sections R316 and R703, and are subject to the conditions of use described in this supplement.

3.0 CONDITIONS OF USE

The STOTHERM® EIFS: STOTHERM CLASSIC, STOTHERM PREMIER, STOTHERM ESSENCE AND STOTHERM LOTUSAN described in this evaluation report supplement must comply with all of the following conditions:

- All applicable sections in the evaluation report [ESR-1720](#).
- The design, installation, conditions of use and identification of the STOTHERM® EIFS: STOTHERM CLASSIC, STOTHERM PREMIER, STOTHERM ESSENCE AND STOTHERM LOTUSAN are in accordance with the 2018 *International Building Code*® (IBC) or 2018 *International Residential Code*® (IRC) provisions noted in the evaluation report [ESR-1720](#).
- The design, installation and inspection are in accordance with additional requirements of LABC Chapters 16 and 17, as applicable.

This supplement expires concurrently with the evaluation report, reissued October 2022.

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION**Section: 07 24 00—Exterior Insulation and Finish Systems****REPORT HOLDER:**

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1.0 REPORT PURPOSE AND SCOPE**Purpose:**

The purpose of this evaluation report supplement is to indicate that StoTherm® EIFS, described in ICC-ES evaluation report ESR-1720, has also been evaluated for compliance with the codes noted below.

Applicable code edition(s):

- 2022 and 2019 *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 Division of State Architect (DSA), see Sections 2.1.1 and 2.1.2 below.

- 2022 and 2019 *California Residential Code (CRC)*

2.0 CONCLUSIONS**2.1 CBC:**

The StoTherm® EIFS, described in Sections 2.0 through 7.0 of the evaluation report ESR-1720, complies with CBC Chapter 14, provided the design and installation are in accordance with the 2021 and 2018 *International Building Code*® (IBC) provisions noted in the evaluation report and the additional requirements of CBC Chapters 14 and 17, as applicable.

2.1.1 OSHPD:

The applicable OSHPD Sections of the CBC are beyond the scope of this supplement.

2.1.2 DSA:

The applicable DSA Sections of the CBC are beyond the scope of this supplement.

2.2 CRC:

The StoTherm® EIFS, described in Sections 2.0 through 7.0 of the evaluation report ESR-1720, complies with CRC Chapter 7, provided the design and installation are in accordance with the 2021 and 2018 *International Residential Code*® (IRC) provisions noted in the evaluation report.

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1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that the StoTherm systems described in ICC-ES evaluation report ESR-1720 have also been evaluated for compliance with the codes noted below.

Applicable code editions:

- 2020 and 2017 *Florida Building Code—Building*
- 2020 and 2017 *Florida Building Code—Residential*

2.0 CONCLUSIONS

The StoTherm systems described in Sections 2.0 through 7.0 of ICC-ES evaluation report ESR-1720 comply with the *Florida Building Code—Building* and the *Florida Building Code—Residential*, provided the design is in accordance with the *Florida Building Code—Building* and the *Florida Building Code—Residential* as applicable. The installation requirements noted in the ICC-ES evaluation report ESR-1720 for the 2018 and 2015 *International Building Code*® meet the requirements of the *Florida Building Code—Building* and the *Florida Building Code—Residential*, as applicable, with the following conditions:

1. Installation must meet the requirements of Section 1403.8 of the *Florida Building Code—Building* or Section R318.7 of the *Florida Building Code—Residential*, as applicable.
2. Flashing must be in accordance with Section 1405.4 of the *Florida Building Code—Building* or Section R703.4 of the *Florida Building Code—Residential*, as applicable.
3. Installation of foam plastic must be in accordance with Section 2603.8 of the *Florida Building Code—Building* or Section R316.8 of the *Florida Building Code—Residential*, as applicable.

Use of the StoTherm EIFS systems 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 evaluation 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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