

# ICC-ES Evaluation Report

**ESR-1748**

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**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 Systems**

**REPORT HOLDER:**

**STO CORP.**  
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**EVALUATION SUBJECT:**
**STOTHERM® NEXt®**
**1.0 EVALUATION SCOPE**
**Compliance with the following codes:**

- 2012 and 2009 *International Building Code*® (IBC)
- 2012 and 2009 *International Residential Code*® (IRC)

**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, Types I-IV (noncombustible) construction	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® NEXt® systems are exterior insulation and finish systems (EIFS) complying with IBC Section 1408 and IRC Section R703.9. The systems comply with the requirements of IBC Section 1408.4.1 and IRC Section R703.9 as EIFS with drainage.

StoTherm® NEXt® systems may be used in fire-resistance-rated construction when installed in accordance with Section 4.6 of this report; and in any construction type (IBC Types I through V) when installed in accordance with Section 4.5.

**3.0 DESCRIPTION**
**3.1 System Components:**

StoTherm® NEXt® systems consist of a water-resistive barrier, adhesively applied flat insulation board, reinforcing mesh, base coat, and finish coat. See Table 1 for system components.

**3.2 Insulation Board:**

The insulation boards must be one of the following:

- a. Expanded polystyrene (EPS) complying with ASTM C 578, Type I, and ASTM E 2430, produced by a molder with a current ICC-ES 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 C 578, Type I, and ASTM E 2430.
- c. Sto Insulation Board, EPS complying with ASTM C 578, Type I, and ASTM E 2430.

EPS insulation boards must have a flame spread index of 75 or less and a smoke developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723, except in Types I, II, III or IV construction, where the insulation board must have a flame spread index of 25 or less.

**3.3 Substrates:**

Substrates must be one of the following:

- a. Gypsum sheathing board complying with ASTM C 1396 or ASTM C 1177. When used as part of a fire-resistance-rated assembly, the gypsum board must be Type X with a minimum thickness of  $\frac{5}{8}$  inch (15.9 mm).
- 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 C 920, Type S or M, minimum Grade NS, minimum Class 25 and Use O.

## 4.0 DESIGN AND INSTALLATION

### 4.1 General:

StoTherm NExT 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):

- [Installation Guide – click on StoTherm EIFS Installation Guide – S118](#)
- [Specifications](#)
- [Details](#)

### 4.2 Drainage:

StoTherm NExT provides drainage through the application of vertical ribbons of adhesive over the water-resistive barrier coating system identified in Table 1.

Additional installation and compliance information for the StoGuard water-resistive barrier system is provided in [ESR-1233](#) and at [www.stocorp.com](http://www.stocorp.com).

### 4.3 Wind Design:

Table 3 presents specific StoTherm NExT assemblies for which test data has been submitted. Other StoTherm NExT 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:

StoTherm NExT systems comply with 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.

In addition, in Type V construction, any StoTherm NExT system listed in this report may be attached to the surface of combustible exterior fire-resistance-rated assemblies described in 2009 IBC Table 720.1(2) [2012 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 recognition under the IBC, special Inspections of the water-resistive barrier must be conducted in accordance with 2009 IBC Section 1704.14 (2012 IBC Section 1704.15). Refer to Sto Corp. third-party inspection guidelines for verifying field preparation of materials.

## 5.0 CONDITIONS OF USE

The StoTherm NExT 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 Installation must be by applicators listed by Sto Corp.
- 5.4 Termination of the systems must not be less than 6 inches (152 mm) above finished grade in accordance with 2009 IBC Section 2603.8 (2012 IBC Section 2603.9) and IRC Section R318.4.

## 6.0 EVIDENCE SUBMITTED

- 6.1 Data in accordance with ASTM E 2568 and ASTM E 2273.
- 6.2 Data in accordance with the ICC-ES Acceptance Criteria for EIFS Clad Drainage Wall Assemblies (AC235), dated October 2009.
- 6.3 Data in accordance with the ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12), dated June 2009.

## 7.0 IDENTIFICATION

Each container or package of the coating or reinforcing mesh used as part of the StoTherm EIFS NExT 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-1748).

Sto insulation board must be labeled on the edge of each board with the Sto Corp. name, the plant identification number, the name of the inspection agency (RADCO) and the evaluation report number (ESR-1748).

Other foam plastic insulation must be labeled in accordance with the current ICC-ES evaluation report in which it is recognized, or in accordance with IBC Section 2603.2 or IRC Section R316.2, as applicable.

TABLE 1—STOTHERM NEX T SYSTEM COMPONENTS<sup>1,2</sup>

SYSTEM	WATER-RESISTIVE BARRIER	ADHESIVES	BASE COATS	FINISH
StoTherm Classic NEX T	StoGuard (see <a href="#">ESR-1233</a> )	Sto BTS Plus Sto BTS Silo	Sto BTS Plus Sto BTS Silo Sto RFP	Stolit
StoTherm Premier NEX T	StoGuard (see <a href="#">ESR-1233</a> )	Sto BTS Plus Sto BTS Silo	Sto BTS Plus Sto BTS Silo Sto RFP	StoSilco Lit
StoTherm Essence NEX T	StoGuard (see <a href="#">ESR-1233</a> )	Sto Primer/Adhesive Sto Primer/Adhesive-B	Sto Primer/Adhesive Sto Primer/Adhesive-B	Sto DPR Finish
StoTherm Lotusan NEX T	Sto Guard (see <a href="#">ESR-1233</a> )	Sto BTS Plus Sto BTS Silo	Sto BTS Plus Sto BTS Silo Sto RFP	Stolit Lotusan

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

<sup>2</sup>Sto Primer is an optional component of the systems listed above.

TABLE 2—REINFORCING MESH PRODUCTS

PRODUCT NO.	PRODUCT NAME <sup>1</sup>	NOMINAL WEIGHT, oz/yd <sup>2</sup> (g/m <sup>2</sup> )
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)

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

TABLE 3—WIND LOAD DESIGN<sup>1</sup>

FRAMING MEMBERS <sup>2</sup>				SHEATHING			WIND LOAD CAPACITY, psf (Pa)		SYSTEM
Wood, min. size (inches)	Metal		Maximum Spacing (inches)	Type	Thickness (inch)	Maximum Fastener Spacing <sup>3</sup> , (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 Lotusan
--	3 1/2	18	16	Gypsum	5/8	8	38	60	Essence
Concrete or masonry substrates							54	54	Classic Premier Lotusan

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

<sup>1</sup>Applicable to all StoTherm materials listed in Tables 1 and 2.

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

<sup>3</sup>Fasteners 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 <sup>5,8</sup>			INTERIOR SHEATHING <sup>1,7</sup> (TYPE X GYPSUM)		EXTERIOR SHEATHING (TYPE X GYPSUM)		MAX. INSULATION BOARD THICKNESS, (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 <sup>1</sup> / <sub>2</sub>	18	16	1 <sup>1</sup> / <sub>2</sub>	8 at perimeter 12 in field <sup>2</sup>	1 <sup>1</sup> / <sub>2</sub>	6 at perimeter 8 in field <sup>3</sup>	12	Essence
3 <sup>1</sup> / <sub>2</sub>	18	16 <sup>6</sup>	1 <sup>1</sup> / <sub>2</sub>	6 <sup>4</sup>	5 <sup>5</sup> / <sub>8</sub>	6 at perimeter 8 in field <sup>3</sup>	12	Classic Premier

For SI: 1 inch = 25.4 mm.

<sup>1</sup>All board joints backed by framing.

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

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

<sup>4</sup>Fasteners are No. 6 by 1<sup>1</sup>/<sub>4</sub>-inch-long (31.7 mm), buglehead drywall screws.

<sup>5</sup>Stud cavities at floor levels are blocked with Thermafiber insulation (as described in a current ICC-ES evaluation report), 4 lb/ft<sup>3</sup> (64 kg/m<sup>3</sup>) density, 4 inches (102 mm) thick and 2 feet (610 mm) wide.

<sup>6</sup>Stud cavities must be filled with R-11 fiberglass insulation.

<sup>7</sup>All joints must be taped and treated with joint compound. Intermediate fastener heads are treated with joint compound in accordance with ASTM C 840 or GA216.

<sup>8</sup>Openings must be framed with minimum 0.0428-inch-thick steel framing.

TABLE 5—FIRE-RESISTANCE-RATED ASSEMBLIES<sup>1,2</sup>

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 <sup>5</sup> (inches)	
1	3 <sup>1</sup> / <sub>2</sub>	18	16	Type X gypsum <sup>5</sup>	5 <sup>5</sup> / <sub>8</sub>	8 o.c. on perimeter 12 o.c. in field <sup>3</sup>	Type X gypsum	5 <sup>5</sup> / <sub>8</sub>	6 at perimeter 8 in field <sup>4</sup>	4
2	3 <sup>1</sup> / <sub>2</sub>	18	16	Two layers of Type X gypsum <sup>5</sup>	5 <sup>5</sup> / <sub>8</sub>	Base layer at 24 o.c. Face layer at 8 o.c. <sup>6</sup>	Two layers of Type X gypsum	5 <sup>5</sup> / <sub>8</sub>	Base layer at 24 o.c. Face layer at 8 o.c. <sup>6</sup>	4

For SI: 1 inch = 25.4 mm.

<sup>1</sup>Applicable to all StoTherm NExT materials listed in Table 1.

<sup>2</sup>All board joints must be blocked.

<sup>3</sup>Fasteners are minimum No. 6, 1<sup>1</sup>/<sub>4</sub>-inch-long (32 mm), self-tapping, corrosion-resistant bugle head screws.

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

<sup>5</sup>Interior wallboard joints must be covered with tape and joint compound. Interior fastener heads are covered with joint compound in accordance with ASTM C 840 or GA 216.

<sup>6</sup>Fasteners for the base layer of gypsum board are No. 6, 1<sup>1</sup>/<sub>4</sub>-inch-long, self-tapping, corrosion-resistant bugle-head screws. Fasteners for the face layer are 1<sup>7</sup>/<sub>8</sub>-inch-long, self-tapping, corrosion-resistant bugle-head screws.