ICC-ES Evaluation Report

ESR-1878*

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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:

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EVALUATION SUBJECT:

SENERGY SENERFLEX® CHANNELED ADHESIVE DESIGN AND CHANNELED INSULATION DESIGN EXTERIOR INSULATION AND FINISH SYSTEMS (EIFS)

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

2.0 USES

The Senergy Senerflex Channeled Adhesive Design and Channeled Insulation Design 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.

The systems may be used in fire-resistance-rated construction and any construction type (IBC Types I through V), when installed in accordance with this report.

3.0 DESCRIPTION

3.1 System Components:

The Senerflex Channeled Adhesive Design and Channeled Insulation Design Systems consist of a water-resistive barrier coating, adhesively applied flat or channeled insulation board, reinforcing mesh, base coat and finish coat. See Table 1 for system components.

3.2 Insulation Board:

The insulation board must be one of the following:

a. Senergy Senerflex Channeled Adhesive Design and Channeled Insulation Design insulation board is expanded polystyrene (EPS) complying with ASTM C578, Type I and ASTM E2430; has a flame spread of 25 or less and a smoke developed index of 450 or less when tested in accordance with ASTM E84 or UL 723; is produced by a molder that participates in an approved third-party quality assurance program; and is labeled in accordance with Section 7.0 of this report. Channeled Insulation Design insulation board is a channeled insulation board with vertical channels 1 inch wide by $^1/_4$ inch deep (25.4 mm by 6.4 mm) spaced 11 inches (279 mm) apart.

b. EPS insulation board must comply with ASTM C578, Type I, and ASTM E2430, and must be produced by a molder with a current evaluation report.

c. EPS insulation board may be produced by a molder that participates in an approved third-party quality assurance program. The board must comply with ASTM C578, Type I and ASTM E2430; demonstrate a flame spread index of 25 or less and a smoke developed index of 450 or less when tested in accordance with ASTM E84 or UL 723; and be labeled in accordance with Section 7.0.

3.3 Substrates:

- Gypsum sheathing complying with ASTM C1396 or ASTM C1177
- Fiber cement panels complying with the ICC-ES Acceptance Criteria for Fiber Cement Siding Used as Exterior Wall Siding (AC90), and ASTM C1186
- Fiber cement panels complying with the ICC-ES Acceptance Criteria for Reinforced Cementitious Sheets Used as Wall and Ceiling Sheathing and Floor Underlayment (AC376), and ASTM C1325

***Revised October 2012**

- Concrete masonry complying with the code
- Concrete complying with the code
- Exterior Plaster complying with the code
- Exterior or Exposure 1 wood structural panels complying with DOC PS-1 or PS-2
- Brick masonry complying with the code

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 Senerflex Channeled Adhesive Design and Channeled Insulation Design Systems must be installed in accordance with the manufacturer's installation instructions, specifications and details available at www.senergy.basf.com.

4.2 Drainage Options:

- Senergy Senerflex Channeled Adhesive Design: vertical ribbons of adhesive with flat insulation board.
- Senergy Senerflex Channeled Insulation Design: vertical ribbons of adhesive with channeled insulation board.

4.3 Wind Design:

Table 2 describes specific assemblies for which test data has been submitted. Other assemblies may be considered for approval by local officials based on testing and/or calculations of a qualified design professional.

4.4 Weather Protection:

The Senerflex Channeled Adhesive Design and Channeled Insulation Design Systems comply with IBC Section 1403.2 and IRC Section R703.1.1.

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

Table 3 describes the assemblies qualified for use in Types I through IV construction (IBC).

4.6 Fire-resistance-rated Construction:

Table 4 describes the assemblies qualified for use in nonload-bearing fire-resistance-rated construction.

In addition, in Type V construction, the Senerflex Channeled Adhesive Design and Channeled Insulation Design Systems may be attached to the surface of combustible exterior fire-resistance-rated assemblies described in 2012 IBC Table 721.1(2) [IBC Table 720.1(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 Inspections:

For recognition under the IBC, special Inspections of the water-resistive barrier coating must be conducted in accordance with 2012 IBC Section 1705.15 (2009 Section 1704.14).

5.0 CONDITIONS OF USE

The Senerflex Channeled Adhesive Design and Channeled Insulation Design 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 BASF Corporation.

5.4 Termination of the systems must not be less than 6 inches (152 mm) above finished grade in accordance with 2012 IBC Section 2603.9 (2009 Section 2603.8) and 2012 IRC Section R318.4 (2009 Section 318.4).

6.0 EVIDENCE SUBMITTED

6.1 Reports of tests in accordance with ASTM E2568 and ASTM E2273.

6.2 Data in accordance with the ICC-ES Acceptance Criteria for EIFS Clad Drainage Wall Assemblies (AC235), dated October 2009, (editorially revised January 2012).

6.3 Data in accordance with the ICC-ES Acceptance Criteria for Water-resistive Coatings Used as Water-resistive Barriers over Exterior Sheathing (AC212), dated June 2011.

6.4 Data in accordance with the ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12), dated June 2012.

7.0 IDENTIFICATION

Each container or package of the coating or reinforcing mesh used as part of the Senerflex Channeled Adhesive Design and Channeled Insulation Design Systems must be labeled with the manufacturer's name (BASF Corporation) and address; the product name; lot or batch number; quantity of material; storage instructions; pot life; expiration date; and the evaluation report number (ESR-1878).

Senerflex Channeled Adhesive Design and Channeled Insulation Design Systems insulation board must be labeled on the edge of each board with the BASF Corporation name, the plant identification number, the name of the inspection agency (RADCO) and the evaluation number (ESR-1878).

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 Sections 2603.2 and 2603.5.6, or IRC Section 316.2, as applicable.

TABLE 1—SYSTEM COMPONENTS

SYSTEM	WATER-RESISTIVE BARRIER OPTIONS	ADHESIVE OPTIONS	BASE COAT OPTIONS	REINFORCING MESH	FINISH OPTIONS
Channeled Adhesive Design	Senershield Senershield-R Enershield-HP	Standard Base Alpha Base Alpha Dry Base	Standard Base Alpha Base Alpha Dry Base	Flexguard 4, 4.2 oz/yd^2, minimum[1]	Senerflex Silcoat Senerlastic Senerlastic Plus ASAP[2]
Channeled Insulation Design					

[1]Higher weight meshes are allowable.
[2]For aesthetic conditions, ASAP is applied over dry base coat at joints before installation of sealant.

TABLE 2—WIND LOAD DESIGN

FRAMING[3]		SUBSTRATE	EPS		
Type	Maximum Spacing (inches)		EPS Min. Thickness (inch)	Coating	Allowable Wind Load (psf)
2x4 Wood[1]	16	Min $^7/_{16}$ inch wood structural panel, attached in accordance with the code	1	Systems described in Table 1 using Senershield-R	25 positive 67 negative
$3^5/_8$-inch by No. 20 gage steel		ASTM C1396 gypsum sheathing or ASTM C177 glass-mat gypsum sheathing, attached with #6 x $1^1/_4$-inch buglehead screws at 8 inches on center	1	Systems described in Table 1 using Senershield-R	18 positive 21 negative
$3^5/_8$-inch by No. 20 gage steel		ASTM C1325 cement board, ASTM C1396 gypsum sheathing or ASTM C1177 glass-mat gypsum sheathing, attached with #8 x $1^1/_4$- inch buglehead screws at 8 inches on center on edges and 12 inches on center in the field	1	Systems described in Table 1 using Senershield	31 positive 23 negative
N/A	N/A	Concrete or concrete-masonry	1	Systems described in Table 1	Positive – see note 2 30 negative

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

[1]Minimum 2x4 wood framing, minimum specific gravity 0.42.
[2]Maximum positive pressure is limited to the capacity of the concrete or concrete masonry substrate, determined in accordance with the applicable code.
[3]The framing members must be designed to resist all positive and negative transverse loads with a maximum allowable deflection of 1/240 of the span.

TABLE 3—ASSEMBLIES[2,3] FOR USE IN TYPES I THROUGH IV CONSTRUCTION

FRAMING MEMBERS			INTERIOR SHEATHING			EXTERIOR SHEATHING			INSULATION BOARD THICKNESS MAXIMUM (inches)
Steel		Max. Spacing (inches)	Type[1]	Min. Thickness (inch)	Max Fastener Spacing (inches)	Type[1]	Min. Thickness (inch)	Max. Fastener Spacing (inches)	
Min. Depth (inches	Min. Gage								
$3^5/_8$	20	16 oc	ASTM C36 or ASTM C1396	$^1/_2$	8 oc along edges, 12 oc in field	ASTM C79 or ASTM C1396	$^1/_2$	8 oc	12

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

[1]The fasteners are #6 x $1^1/_4$- inch-long bugle head screws.
[2]Coating system is as described in Table 1.
[3]When applied directly to concrete or masonry, the walls may be considered noncombustible construction.

TABLE 4—FIRE-RESISTANCE RATED ASSEMBLIES[2, 3]

FRAMING MEMBERS			INTERIOR SHEATHING			EXTERIOR SHEATHING			INSULATION BOARD THICKNESS MAXIMUM (inches)
Steel		Max Spacing (inches)	Type[1]	Min Thickness (inch)	Max Fastener Spacing (inches)	Type[1]	Min Thickness (inch)	Max Fastener Spacing (inches)	
Min Depth (inches	Min Gage								
$3^5/_8$	18	16 oc	ASTM C36 or ASTM C1396 Type X	$^5/_8$	8 oc along edges, 12 oc in field	ASTM C79 or ASTM C1396 Type X	$^5/_8$	8 oc along edges, 12 oc in field	4

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

[1]The fasteners are #6 x $1^1/_4$- inch-long bugle head screws.
[2]Coating system is as described in Table 1.
[3]Rated from both sides.