

ICC-ES Evaluation Report

ESR-1821

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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 System

REPORT HOLDER:

DRYVIT SYSTEMS, INC.
ONE ENERGY WAY
POST OFFICE BOX 1014
WEST WARWICK, RHODE ISLAND 02893
(401) 822-4100
www.dryvit.com

EVALUATION SUBJECT:

DRYVIT OUTSULATION® MD SYSTEM® EXTERIOR INSULATION AND FINISH SYSTEM (EIFS)

1.0 EVALUATION SCOPE

Compliance with the following codes:

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

Properties evaluated:

PROPERTY	IBC CHAPTER	IRC CHAPTER
Exterior insulation and finish systems (EIFS)	14	R7
Weather resistance	14	R7
Fire-resistance-rated construction	7	R3
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

The Dryvit Outsulation® MD System is an adhesively attached exterior insulation and finish system (EIFS) complying with IBC Section 1408 and IRC Section R703.9. The system complies as an EIFS with drainage in accordance with IBC Section 1408.4.1 and IRC Section R703.9.

The system may be used in fire-resistance-rated Type V construction when installed in accordance with Section 4.6 of this report, and in Types I, II, III and IV construction when installed in accordance with Section 4.5 of this report.

3.0 DESCRIPTION

3.1 System Components:

See Table 1. The system consists of water-resistive barrier coatings, adhesive, expanded polystyrene (EPS) insulation board with vertical grooves for drainage, basecoat, reinforcing mesh and finish.

3.2 Insulation Board:

Insulation boards must be one of the following:

- a. EPS insulation board complying with ASTM C 578, Type I, and ASTM E 2430, produced by a molder with a current ICC-ES evaluation report. The board must be labeled in accordance with the applicable report.
- b. EPS insulation board complying with ASTM C 578, Type I, and ASTM E 2430, produced by a molder who participates in an approved third-party quality assurance program. The board must be labeled in accordance with the applicable code.
- c. Foam-Control EPS boards, Type I-WSG, by AFM, as recognized in ICC-ES evaluation report [ESR-1006](#).
- d. Staccato EIFS by Atlas EPS, as recognized in ICC-ES evaluation report [ESR-1962](#).

EPS insulation board 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:

- Gypsum sheathing board complying with ASTM C 1396 or ASTM C 1177. When used as part of a fire-resistance-rated assembly, the gypsum wallboard must be Type X with a minimum thickness of $\frac{5}{8}$ inch (15.9 mm)
- Brick or concrete masonry complying with the code
- Concrete complying with the code
- Exterior plaster complying with the code
- 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:

The Dryvit Outsulation® MD System must be installed in accordance with IBC Section 1408, IRC Section R703.9 and the manufacturer’s application instructions, specifications and installation details. These are available at:

- <http://www.dryvit.com/filesshare/doc/us/application/ds169.pdf>
- <http://www.dryvit.com/filesshare/doc/us/specification/ds168.pdf>
- <http://www.dryvit.com/filesshare/doc/us/detail/ds167.pdf>

4.2 Drainage:

Drainage is provided by vertically grooved EPS insulation boards, with 1/4-inch-deep-by-1-inch-wide (6.4 mm by 25.4 mm) grooves spaced 12 inches (305 mm) on center.

4.3 Wind Design:

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

4.4 Weather Protection:

The Dryvit Outsulation® MD system complies with IBC Section 1403.2 and IRC Section R703.1.1.

4.5 Types I, II, III and IV Construction:

Table 3 lists assemblies using the Dryvit Outsulation® MD system that are qualified for use in Types I through IV construction.

4.6 Fire-resistance-rated Construction Assemblies:

Table 4 lists assemblies using the Dryvit Outsulation® MD system that are qualified for use in nonload-bearing fire-resistance-rated construction. In Type V construction, the Dryvit Outsulation® MD system may be attached to the surface of combustible exterior fire-resistance-rated assemblies described in 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 Inspection:

For recognition under the IBC, special inspection of the Dryvit Backstop NT Texture or Dryvit Backstop NT Smoothwater-resistive barrier coatings must be conducted

in accordance with Section 1704.14.1 of the code. See the Dryvit Third Party Inspection Guidelines for Owners and General Contractors/Construction Managers: <http://www.dryvit.com/filesshare/doc/us/description/ds150.pdf>.

5.0 CONDITIONS OF USE

The Dryvit Outsulation® MD 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 application instructions, installation details 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 Dryvit Systems, Inc.
- 5.4** Termination of the system 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** Reports of tests in accordance with ASTM E 2568 and ASTM E 2570.
- 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 Water-resistive Coatings Used as Water-resistive Barriers over Exterior Sheathing (AC212), dated October 2009.

7.0 IDENTIFICATION

Each container or package of the coating or reinforcing mesh used as part of the Dryvit Outsulation® MD System must be labeled with the Dryvit Systems, Inc., name and address; the product name; lot or batch number; amount of material; storage instructions; pot life; expiration date; and the evaluation report number (ESR-1821).

EPS insulation boards must be labeled with the manufacturer’s name; manufacturing address or plant identification; name of the inspection agency; and the current ICC-ES evaluation report number.

TABLE 1—COATING SYSTEM COMPONENTS¹

SYSTEM	WATER-RESISTIVE BARRIER	BASE COAT	REINFORCING MESH	FINISH
Dryvit Outsulation® MD System	Backstop NT Texture or Backstop NT Smooth	Primus, Genesis, Genesis DM or NCB	Standard Reinforcing Mesh, Nominally 4.3 oz/yd ² minimum ²	DPR or PMR

¹Refer to Section 3.2 for insulation boards.

²Higher weight meshes are permitted.

TABLE 2—WIND LOAD DESIGN

FRAMING MEMBERS		SUBSTRATE			WIND LOAD CAPACITY (ULTIMATE) ^{2,3}	
Type, Min. Depth (inches)	Max. Spacing (inches o.c.)	Type	Fastener Type	Max. Fastener Spacing (inches o.c.)	Negative	Positive
2x4 Wood ¹	16	Any sheathing noted in Section 3.3, min. 1/2" thick	No. 6 self-drilling screws, 1 5/8" long	6	40	50
2x6 Wood ¹	16	Glass mat-faced gypsum per ASTM C 1177, min. 5/8" thick	No. 6 self-drilling screws, 1 3/8" long	8	35	See note 2
2x6 Wood ¹	24	Glass mat-faced gypsum per ASTM C 1177, min. 5/8" thick	No. 6 self-drilling screws, 1 3/8" long	8	26	See note 2
3 5/8-inch-by No. 18 gage-steel	16	Glass mat-faced gypsum per ASTM C 1177, min. 1/2" thick	No. 6 self-drilling screws, 1 1/4" long	8	37	See note 2
3 5/8-inch-by No. 18 gage-steel	16	Glass mat-faced gypsum per ASTM C 1177, min. 1/2" thick	No. 6 self-drilling screws, 1 1/4" long	6	43	See note 2
3 5/8-inch-by No. 18 gage-steel	16	Glass mat-faced gypsum per ASTM C 1177, min. 1/2" thick	No. 6 self-drilling screws, 1 1/4" long	4	54	See note 2
3 5/8-inch-by No. 18 gage-steel	16	Any sheathing noted in Section 3.3, min. 1/2" thick	No. 6 self-drilling screws, 1 5/8" long	6	40	60
		Concrete/ Unglazed Brick/ Cement Plaster/ Concrete Masonry	NA		70	See note 2

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

¹Minimum specific gravity 0.43.

²Maximum positive pressure is limited to the capacity of the framing and structural sheathing, or concrete, brick, concrete masonry or portland cement plaster substrate, determined in accordance with the applicable code.

³Framing members must be designed to resist all positive and negative transverse design loads with a maximum allowable deflection of 1/240 of the span.

TABLE 3—ASSEMBLIES FOR USE WITH TYPES I, II, III AND IV CONSTRUCTION²

FRAMING MEMBERS			INTERIOR SHEATHING			EXTERIOR SHEATHING			INSULATION BOARD
Min. Depth (inch)	Min. Gage	Max. spacing (inch)	Type and Min. Thickness (inch)	Fastener Type	Max. Fastener Spacing (inches o.c.)	Type and Min. Thickness (inch)	Fastener Type	Max. Fastener Spacing (inches o.c.)	Thickness Maximum ¹ (inch)
3 5/8	20 (0.033 inch)	16" o.c.	Min. 5/8" Type X gypsum wallboard complying with ASTM C 36 or ASTM C 1396	Minimum No. 6, 1 1/4-inch-long, buglehead, self-drilling Type S screws	8" at board joints, 12" at intermediate framing	Min. 1/2" Water-resistant core gypsum sheathing complying with ASTM C 1396	Minimum No. 8, 1 1/4-inch-long, self-drilling Type S screws	8" o.c. along all studs	13

For SI: 1 inch = 25.4 mm.

¹Combustible content of the foam plastic must not exceed an average potential heat content of 6,000 Btu/ft² (68.2 MJ/m²) in every 20-square-foot wall area.

²Floor levels must be blocked with 4-inch-thick (102 mm), 4 pcf (64.1 kg/m³) Thermafiber insulation (see [ESR-2331](#)).

³Wall openings must be framed with minimum 0.0428-inch-thick (1.09 mm) aluminum or steel framing.

TABLE 4—ONE-HOUR FIRE-RESISTANCE RATED ASSEMBLIES (NONLOADBEARING)

FRAMING MEMBERS		INTERIOR SHEATHING			EXTERIOR SHEATHING			INSULATION BOARD
Type	Max. spacing (inches o.c.)	Type and Min. Thickness (inch)	Fastener Type	Max. Fastener Spacing (inches o.c.)	Type and Min. Thickness (inch)	Fastener Type	Max. Fastener Spacing (inches o.c.)	Max. Thickness (inches)
Min. 3 5/8-inch by No. 25 gage-steel	24	Min. 5/8" Type X gypsum wallboard complying with ASTM C 36 or ASTM C 1396	Minimum No. 6, 1 1/4-inch-long, buglehead, self-drilling Type S screws	8" at board joints, 12" at intermediate framing	Min. 5/8" Type X gypsum wallboard complying with ASTM C 36 or ASTM C 1396	Minimum No. 8, 1 1/4-inch-long, self-drilling Type S screws	8" at board joints, 12" at intermediate framing	4

For SI: 1 inch = 25.4 mm.