

# **OUTSULATION® PE SYSTEM™**

**A Pressure-Equalized Rainscreen Exterior Insulation and Finish System With Moisture Drainage That Incorporated Continuous Insulation and An Air/Water-Resistive Barrier**



**DS844**

## **Outsulation PE System Specifications**

**INTRODUCTION**

This document contains the Manufacturer's Standard Specification for the Outsulation PE System. These specifications follow the Construction Specification Institute's MasterFormat.

**TAILORING THE DRYVIT MANUFACTURER'S SPECIFICATIONS TO YOUR PROJECT**

These specifications cover all the common ways of using the Outsulation PE System. Most projects use only a few of the possible combinations of these materials and methods. To tailor the specifications to your project, simply use those sections which apply. Also, it may be prudent to place certain parts of the Dryvit Outsulation PE Specification in other parts of the project's total specification, such as sealants and framing. The project design professionals are responsible for ensuring that the project specifications are suitable for the project. For assistance in preparing your specification, contact your Dryvit Distributor or Dryvit Systems, Inc.

**UNITS**

Standard International Units (SI) are included in parentheses after the English equivalents thus:

1/2 in (12.7 mm) 1.0 pcf (16 Kg/m<sup>3</sup>)

Please note that the conversions may not be exact but rather represent commonly used equivalents.

**WARNING**

The Outsulation PE System is designed as a pressure-equalized wall system and is detailed to discharge incidental moisture from within the system. Specifications should be followed and proper details adhered to, in order to prevent water intrusion, resulting in possible damage to the system or other building elements. Care should be taken to insure that all building envelope elements, including without limitations, roof designs, windows, flashings, sealants, etc., are compatible with this system.

**DISCLAIMER**

Information contained in this specification conforms to standard detail and product recommendations for the installation of the Dryvit Outsulation PE System products as of the date of publication of this document and is presented in good faith. Dryvit Systems, Inc. assumes no liability, expressed or implied, as to the architecture, engineering or workmanship of any project. To insure that you are using the latest, most complete information, visit our website at [www.dryvit.com](http://www.dryvit.com) or contact Dryvit Systems, Inc., at

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\* The Trained Contractor Certificate referenced in Section 1.06.A.2 and 1.06.A.4 indicates certain employees of the company have been instructed in the proper application of Dryvit products and have received copies of Dryvit's Application Instructions and Specifications. The Trained Contractor Program is not an apprenticeship or endorsement. Each trained contractor is an independent company experienced in the trade and bears responsibility for its own workmanship. Dryvit Systems, Inc. assumes no liability for the workmanship of a trained contractor.

**DRYVIT SYSTEMS, INC.**  
**MANUFACTURER'S SPECIFICATION**  
**CSI MASTERFORMAT SECTION 07 24 19**  
**OUTSULATION® PE SYSTEM**  
**EXTERIOR INSULATION AND FINISH SYSTEM CLASS PB**

**PART I GENERAL****1.01 SUMMARY**

- A. This document is to be used in preparing specifications for projects utilizing the Dryvit Outsulation PE System. For complete product description and usage refer to:
1. Dryvit Outsulation PE System Product Data Sheet, DS843
  2. Dryvit Outsulation PE System Application Instructions, DS845
  3. Dryvit Outsulation PE System Installation Details, DS846
- B. Related Sections
1. Unit Masonry – Section 04 20 00
  2. Concrete – Section 03 00 00
  3. Cold-Formed Metal Framing – Section 05 40 00
  4. Wood Framing – Section 06 11 00
  5. Joint Protection – Section 07 90 00
  6. Flashing – Section 07 60 00
  7. Water-Resistive Barriers – Section 07 25 00
  8. Vapor Retarders – 07 26 13
  9. Air Barriers – 07 27 26

**1.02 REFERENCES**

- A. Section Includes
1. ASTM B 117 (Federal Test Standard 141A Method 6061) Standard Practice for Operating Salt Spray (Fog) Apparatus
  2. ASTM C 150 Standard Specification for Portland Cement
  3. ASTM C 297 Standard Test Method for Flatwise Tensile Strength of Sandwich Constructions
  4. ASTM C 1063 Standard Specification for Installation of Lathing and Furring to Receive Interior and Exterior Portland Cement-Based Plaster
  5. ASTM C 1177 Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing
  6. ASTM C 1396 (formerly C 79) Standard Specification for Gypsum Board
  7. ASTM D 968 (Federal Test Standard 141A Method 6191) Standard Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasive
  8. ASTM D 1784 Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds
  9. ASTM D 1970 Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection
  10. ASTM D 2247 (Federal Test Standard 141A Method 6201) Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity
  11. ASTM D 2898 Standard Test Method for Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing
  12. ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber
  13. ASTM D 4060 Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser
  14. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials
  15. ASTM E 96 Standard Test Methods for Water Vapor Transmission of Materials
  16. ASTM E 119 Standard Method for Fire Tests of Building Construction and Materials
  17. ASTM E 283 Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Differences Across the Specimen
  18. ASTM E 330 Test Method for Structural Performance of Exterior Windows, Doors and Curtain Walls by Uniform Static Air Pressure Difference
  19. ASTM E 331 Test Method for Water Penetration of Exterior Windows, Skylights, Doors and Curtain Walls by Uniform Static Air Pressure Difference
  20. ASTM E 2098 Test Method for Determining the Tensile Breaking Strength of Glass Fiber Reinforcing Mesh for use in Class PB Exterior Insulation and Finish Systems (EIFS), after Exposure to Sodium Hydroxide Solution
  21. ASTM E 2134 Test Method for Evaluating the Tensile-Adhesion Performance of Exterior Insulation and Finish Systems (EIFS)
  22. ASTM E 2178 Standard Test Method for Air Permeance of Building Materials

23. ASTM E 2273 Test Method for Determining the Drainage Efficiency of Exterior Insulation and Finish Systems (EIFS) Clad Wall Assemblies
24. ASTM E 2357 Standard Test Method for Determining Air Leakage of Air Barrier Assemblies
25. ASTM E 2430 Standard Specification for Expanded Polystyrene (EPS) Thermal Insulation Boards for use in Exterior Insulation and Finish Systems (EIFS)
26. ASTM E 2485 Standard Test Method for Freeze-Thaw Resistance of Exterior Insulation and Finish Systems (EIFS) and Water-Resistive Barrier Coatings
27. ASTM E 2486 Standard Test Method for Impact Resistance of Class PB and PI Exterior Insulation and Finish Systems (EIFS)
28. ASTM E 2568 Standard Specification for PB Exterior Insulation and Finish Systems
29. ASTM E 2570 Standard Test Method for Evaluating Water-Resistive Barrier (WRB) Coatings Used Under Exterior Insulation and Finish Systems (EIFS) or EIFS with Drainage
30. ASTM G 155 (Federal Test Standard 141A Method 6151) Standard Practice for Operating-Xenon Arc Light Apparatus for Exposure of Nonmetallic Materials
31. DS131, Dryvit Expanded Polystyrene Insulation Board Specification
32. DS151, Custom Brick™ Polymer System Specifications for Use On Vertical Walls
33. DS152, Dryvit Cleaning and Recoating
34. DS153, Dryvit Expansion Joints and Sealants
35. DS159, Dryvit Water Vapor Transmission
36. DS455, Backstop® NT™
37. DS456, Rapidry DM™ 35-50 or DS457, Rapidry DM™ 50-75 Data Sheets
38. DS494, Dryvit AquaFlash® System
39. DS704, Backstop® DMS
40. DS705, Reflectit™
41. Mil Std E5272 Environmental Testing
42. Mil Std 810B Environmental Test Methods
43. NFPA 268 Standard Test Method for Determining Ignitibility of Exterior Wall Assemblies Using a Radiant Heat Energy Source.
44. NFPA 285 Standard Method of Test for the Evaluation of Flammability Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components Using the Intermediate-Scale, Multistory Test Apparatus

**1.03 DEFINITIONS**

- A. Base Coat: Material used to encapsulate one or more layers of reinforcing mesh fully embedded that is applied to the outside surface of the EPS.
- B. Building Expansion Joint: A joint through the entire building structure designed to accommodate structural movement.
- C. Contractor: The contractor that installs the Outsulation PE System to the substrate.
- D. Dryvit: Dryvit Systems, Inc., the manufacturer of the Outsulation PE System, a Rhode Island corporation.
- E. Expansion Joint: A structural discontinuity in the Outsulation PE System.
- F. Finish: An acrylic-based coating, available in a variety of textures and colors that is applied over the base coat.
- G. Insulation Board: Expanded polystyrene (EPS) insulation board, which is affixed to the substrate and creates a layer of continuous insulation.
- H. Panel Erector: The contractor who installs the panelized Outsulation PE System.
- I. Panel Fabricator: The contractor who fabricates the panelized Outsulation PE System.
- J. Reinforcing Mesh: Glass fiber mesh(es) used to reinforce the base coat and to provide impact resistance.
- K. Sheathing: A substrate in sheet form.
- L. Substrate: The material to which the Outsulation PE System is affixed.
- M. Substrate System: The total wall assembly including the attached substrate to which the Outsulation PE System is affixed.

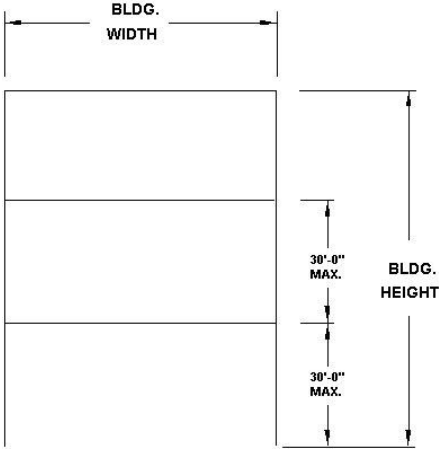
**1.04 SYSTEM DESCRIPTION**

- A. General: The Dryvit Outsulation PE System is an Exterior Insulation and Finish System (EIFS), Class PB with capability for moisture drainage, and utilizing pressure-equalized rainscreen concept. The system consists of an air/water-resistive barrier coating, an adhesive, grooved and beveled expanded polystyrene insulation board, internal vinyl tracks, Dryvit Vent Assembly™, Dryvit Starter Strip™, base coat, reinforcing mesh(es) and finish.
- B. Methods of Installation
  1. Field Applied: The Outsulation PE System is applied to the substrate system in place.
  2. Panelized: The Outsulation PE System is shop-applied to the prefabricated wall panels.

**C. Design Requirements:**

1. Acceptable substrates for the Outsulation PE System shall be:
  - a. Exterior grade gypsum sheathing meeting ASTM C 1396 (formerly C 79) requirements for water resistant core or Type X core at the time of application of the Outsulation PE System.
  - b. Exterior sheathing having a water-resistant core with fiberglass mat facers meeting ASTM C 1177.
  - c. Exterior fiber reinforced cement or calcium silicate boards.
  - d. APA Exterior or Exposure 1 Rated Plywood, Grade C-D or better, nominal 1/2 in (12.7 mm), minimum, installed with the C face out.
  - e. APA Exterior or Exposure 1 Fire Retardant Treated (FRT) Plywood, Grade C-D or better, nominal 1/2 in (12.7 mm), minimum, installed with the C face out.
  - f. APA Exposure 1 Rated Oriented Strand Board (OSB) nominal 1/2 in (12.7 mm), minimum. **Note: Applications over OSB sheathing requires a minimum of 2 coats of Backstop NT – Smooth or Spray. Backstop NT – Texture is not recommended for the field of wall application over OSB.**
  - g. Unglazed brick, cement plaster, concrete or masonry.
2. Deflection of the substrate systems shall not exceed 1/240 times the span.
3. The substrate shall be flat within 1/4 in (6.4 mm) in a 4 ft (1.2 m) radius.
4. The slope of inclined surfaces shall not be less than 6:12 (27 °), and the length shall not exceed 12 in (305 mm).
5. All areas requiring an impact resistance classification higher than "standard," as defined by ASTM E 2486 (formerly EIMA Standard 101.86), shall be as detailed in the drawings and described in the contract documents. Refer to Section 1.04.D.1.d of this specification.
6. Expansion Joints:
  - a. Design and location of expansion joints in the Outsulation PE System is the responsibility of the project designer and shall be noted on the project drawings. As a minimum, expansion joints shall be placed at the following locations:
    - 1) Where expansion joints occur in the substrate system.
    - 2) Where building expansion joints occur.
    - 3) At floor lines in wood frame construction.
    - 4) At floor lines of non-wood framed buildings where significant movement is expected.
    - 5) Where the Outsulation PE System abuts dissimilar materials.
    - 6) Where the substrate type changes.
    - 7) Where prefabricated panels abut one another.
    - 8) In continuous elevations at intervals not exceeding 75 ft (23 m).
    - 9) Where significant structural movement occurs, such as changes in roof line, building shape or structural system.
7. Terminations
  - a. Prior to applying the Dryvit Outsulation PE System, wall openings shall be treated with Dryvit AquaFlash System or Flashing Tape. Refer to Dryvit Outsulation PE Installation Details (DS846).
  - b. The Outsulation PE System shall be held back from adjoining materials around openings and penetrations such as windows, doors, and mechanical equipment a minimum of 3/4 in (19 mm) for sealant application. See Dryvit's Outsulation PE System Installation Details, DS846.
  - c. The system shall be terminated a minimum of 8 in (203 mm) above finished grade.
  - d. Sealants
    - 1) Shall be manufactured and supplied by others.
    - 2) Shall be compatible with the Outsulation PE System materials. Refer to current Dryvit Publication DS153 for listing of sealants tested by sealant manufacturer for compatibility.
    - 3) The sealant backer rod shall be closed cell.
8. Vapor Retarders: The use and location of vapor retarders within a wall assembly is the responsibility of the project designer and shall comply with local building code requirements. The type and location shall be noted on the project drawings and specifications. Vapor retarders may be inappropriate in certain climates and can result in condensation within the wall assembly. Refer to Dryvit Publication DS159 for additional information.
9. Dark Colors: The use of dark colors must be considered in relation to wall surface temperature as a function of local climatic conditions. Use of dark colors in high temperature climates can affect the performance of the system.
10. Flashing: Shall be provided at all roof-wall intersections, windows, doors, chimneys, decks, balconies and other areas as necessary to prevent water from entering behind the Outsulation PE System.
11. Compartmentalization
  - a. Dividing the building into compartments (location zones) is part of the wind load design and is the responsibility of the project designer.
    - 1) Each building face shall be divided into compartments (location zones) which approximate areas of equal wind pressures. Each building is unique and must be individually evaluated by the designer. Compartment boundaries shall coincide with the location zones as defined by ASCE 7-10, or wind tunnel studies or other rational design procedures.

2) Elevations shall be divided with a horizontal separation at intervals not to exceed 30 ft (9.1 m) measured vertically.



**12. Venting**

- a. A minimum vent area of 2.25 in<sup>2</sup> (14.52 cm<sup>2</sup>) is required for every 300 ft<sup>2</sup> (28 m<sup>2</sup>) of wall area.
- b. The Dryvit Vent Assembly is the only acceptable venting system to be used in Outsulation PE System.
- c. Spacing between vents shall not exceed 20 ft (6 m).

D. Performance Requirements:

1. The Outsulation PE System shall have been tested as follows:

a. Air/Water-Resistive Barrier Coating

TEST	TEST METHOD	CRITERIA	RESULTS
<b>Tensile Bond</b>	ASTM C 297/E 2134*	Minimum 15 psi (104 kPa)	Substrate: Minimum 19 psi (131 kPa) (Backstop NT) Minimum 24.1 psi (166 kPa) (Backstop DMS)  Flashing: Minimum 431 psi (2970 kPa) (Backstop NT) Minimum 140 psi (967 kPa) (Backstop DMS)
<b>Freeze-thaw</b>	ASTM E 2485 Method B*	No deleterious effects after 10 cycles	Passed - No deleterious effects after 10 cycles
<b>Water Resistance</b>	ASTM D 2247*	No deleterious effects after 14 days exposure <sup>1</sup>	No deleterious effects after 14 days exposure
<b>Water Vapor Transmission</b>	ASTM E 96 Proc. B*	Vapor Permeable	Backstop NT: 7 Perms <sup>2</sup> Backstop NT Spray: 7.9 Perms <sup>2</sup> Backstop DMS: 30 Perms
<b>Air Leakage</b>	ASTM E 283	No ICC or ANSI/EIMA Criteria	0.002 cfm/ft <sup>2</sup> (0.01 l/sec/m <sup>2</sup> ) (Backstop NT)
<b>Air Permeance</b>	ASTM E 2178	No ICC or ANSI/EIMA Criteria	1.2x10 <sup>-4</sup> cfm/ft <sup>2</sup> @ 1.6 psf (0.0006 l/s/m <sup>2</sup> @ 75 Pa) (Backstop NT)
<b>Air Barrier Assembly</b>	ASTM E 2357	No ICC or ANSI/EIMA Criteria	<0.001 cfm/ft <sup>2</sup> @ 6.24 psf (0.05 l/sec m <sup>2</sup> @300 Pa) (Backstop NT)
<b>Nail Sealability</b>	ASTM D 1970	No ICC or ANSI/EIMA Criteria	Passed ABAA Criteria
<b>Structural Performance</b>	ASTM E 1233 Proc. A*	Minimum 10 positive cycles at 1/240 deflection; No cracking in field, at joints or interface with flashing	Passed
<b>Racking</b>	ASTM E 72*	No cracking in field, at joints or interface with flashing at net deflection of 1/8 in (3.2 mm)	Passed
<b>Restrained Environmental</b>	ICC-ES Procedure*	5 cycles; No cracking in field, at joints or interface with flashing	Passed
<b>Water Penetration</b>	ASTM E 331*	No water penetration beyond the inner-most plane of the wall after 15 minutes at 2.86 psf (137 Pa)	Passed
<b>Weathering UV Exposure</b>	ASTM D 2898 Method B*	210 hours of exposure	Passed
<b>Accelerated Aging</b>	ICC-ES Procedure*	25 cycles of wetting and drying	Passed
<b>Hydrostatic Pressure Test</b>	AATCC 127*	ICC: 21.6 in (549 mm) water column for 5 hours	Passed
<b>Surface Burning Characteristics</b>	ASTM E 84	Flame Spread < 25 Smoke Developed < 450	Passed

\* ASTM E 2570 Standard Test Method for Evaluating Water-Resistive Barrier (WRB) Coatings Used Under Exterior Insulation and Finish Systems (EIFS) or EIFS with Drainage, also referred to as AC212 – Acceptance Criteria for Water-Resistive Coatings Used as Water-Resistive Barriers over Exterior Sheathing

1. No cracking, checking, rusting, crazing, erosion, blistering, peeling, or delamination when viewed under 5x magnification

2. Defined as a Class III vapor retarder per the 2009 IBC and IRC

b. Durability

TEST	TEST METHOD	CRITERIA	RESULTS
<b>Abrasion Resistance</b>	ASTM D 968	No deleterious effects after 528 quarts (500 liters)	No deleterious effects after 1056 quarts (1000 liters)
<b>Accelerated Weathering</b>	ASTM G 155 Cycle 1*	No deleterious effects after 2000 hours	No deleterious effects after 5000 hours
	ASTM G 154 Cycle 1* (QUV)		No deleterious effects after 5000 hours
<b>Freeze-Thaw</b>	ASTM E 2485 Method A*	No deleterious effects after 60 cycles	Passed - No deleterious effects after 90 cycles
	ASTM C 67 modified	No deleterious effects after 60 cycles	Passed - No deleterious effects after 60 cycles
	ASTM E 2485 Method B*	No deleterious effects after 10 cycles	Passed - No deleterious effects after 10 cycles
<b>Mildew Resistance</b>	ASTM D 3273	No growth during 28 day exposure period	No growth during 60 day exposure period
<b>Water Resistance</b>	ASTM D 2247*	No deleterious effects after 14 days exposure	No deleterious effects after 42 days exposure
<b>Taber Abrasion</b>	ASTM D 4060	N/A	Passed 1000 cycles
<b>Salt Spray Resistance</b>	ASTM B 117*	No deleterious effects after 300 hours exposure	No deleterious effects after 1000 hours exposure
<b>Water Penetration</b>	ASTM E 331*	No water penetration beyond the inner-most plane of the wall after 15 minutes at 2.86 psf (137 Pa)	Passed
<b>Water Vapor Transmission</b>	ASTM E 96 Procedure B*	Vapor permeable	EPS 5 perm-inch Base Coat <sup>1</sup> 40 Perms Finish <sup>2</sup> 40 Perms
<b>Drainage Efficiency</b>	ASTM E 2273	Minimum Drainage Efficiency of 90%	Passed

\* ASTM E 2568 Standard Specification for PB Exterior Insulation and Finish Systems, also referred to as AC235 – Acceptance Criteria for EIFS Clad Drainage Wall Assemblies  
 1. Base Coat perm value based on Dryvit Genesis®  
 2. Finish perm value based on Dryvit Quarzputz

c. Structural

TEST	TEST METHOD	CRITERIA	RESULTS
<b>Tensile Bond</b>	ASTM C 297/E 2134*	Minimum 15 psi (104 kPa) – substrate or insulation failure	Minimum 31 psi (213.6 kPa)
<b>Transverse Wind Load</b>	ASTM E 330*	Withstand positive and negative wind loads as specified by the building code	Minimum 90 psf (4.3 kPa) <sup>1</sup> 16 inch o.c. framing, 1/2 in sheathing screw attached at 8 in (203 mm) o.c.

\* ASTM E 2568 Standard Specification for PB Exterior Insulation and Finish Systems, also referred to as AC235 – Acceptance Criteria for EIFS Clad Drainage Wall Assemblies  
 1. All Dryvit components remain intact – for higher wind loads contact Dryvit Systems, Inc.

d. Impact Resistance: In accordance with ASTM E 2486\* (formerly EIMA Standard 101.86):

Reinforcing Mesh <sup>1</sup> /Weight oz/yd <sup>2</sup> (g/m <sup>2</sup> )	Minimum Tensile Strengths	EIMA Impact Classification	EIMA Impact Range		Impact Test Results	
			in-lbs	(Joules)	in-lbs	(Joules)
Standard - 4.3 (146)	150 lbs/in (27 g/cm)	Standard	25-49	(3-6)	36	(4)
Standard Plus - 6 (203)	200 lbs/in (36 g/cm)	Medium	50-89	(6-10)	56	(6)
Intermediate™ - 12 (407)	300 lbs/in (54 g/cm)	High	90-150	(10-17)	108	(12)
Panzer® 15 <sup>2</sup> - 15 (509)	400 lbs/in (71 g/cm)	Ultra High	>150	(>17)	162	(18)
Panzer 20 <sup>2</sup> - 20.5 (695)	550 lbs/in (98 g/cm)	Ultra High	>150	(>17)	352	(40)
Detail Mesh® Short Rolls - 4.3 (146)	150 lbs/in (27 g/cm)	n/a	n/a	n/a	n/a	n/a
Corner Mesh™ - 7.2 (244)	274 lbs/in (49 g/cm)	n/a	n/a	n/a	n/a	n/a

\* ASTM E 2568 Standard Specification for PB Exterior Insulation and Finish Systems.  
 1. It shall be colored blue and bear the Dryvit logo for product identification  
 2. Shall be used in conjunction with Standard Mesh (recommended for areas exposed to high traffic)



e. Fire performance

TEST	TEST METHOD	CRITERIA	RESULTS
<b>Fire Resistance</b>	ASTM E 119	No effect on the fire resistance of a rated wall assembly	Passed 1 hour
<b>Ignitability</b>	NFPA 268	No ignition at 12.5 kw/m <sup>2</sup> at 20 minutes	Passed
<b>Intermediate Multi-Story Fire Test</b>	NFPA 285 (UBC 26-9)	1. Resist flame propagation over the exterior surface 2. Resist vertical spread of flame within combustible core/component of panel from one story to the next 3. Resist vertical spread of flame over the interior surface from one story to the next 4. Resist lateral spread of flame from the compartment of fire origin to adjacent spaces	Passed

2. The Outsulation PE components shall be tested for:

a. Fire

TEST	TEST METHOD	CRITERIA	RESULTS
<b>Surface Burning Characteristics</b>	ASTM E 84*	All components shall have a: Flame Spread $\leq$ 25 Smoke Developed $<$ 450	Passed

\* ASTM E 2568 Standard Specification for PB Exterior Insulation and Finish Systems, also referred to as AC235 – Acceptance Criteria for EIFS Clad Drainage Wall Assemblies

b. Durability

TEST	TEST METHOD	CRITERIA	RESULTS
<b>Reinforcing Mesh Alkali Resistance of Reinforcing Mesh</b>	ASTM E 2098*	$>$ 120 pli (21dN/cm) retained tensile strength after exposure	Passed
<b>EPS (Physical Properties) Density</b>	ASTM C 303, D 1622	0.95-1.25 lb/ft <sup>3</sup> (15.2-20.0 kg/m <sup>3</sup> )	Passed
<b>Thermal Resistance</b>	ASTM C 177, C 518	4.0 @ 40 °F (4.4 °C) 3.6 @ 75 °F (23.9 °C)	Passed Passed
<b>Water Absorption</b>	ASTM C 272	2.5 % max. by volume	Passed
<b>Oxygen Index</b>	ASTM D 2863	24% min. by volume	Passed
<b>Compressive Strength</b>	ASTM D 1621 Proc. A	10 psi (69 kPa) min.	Passed
<b>Flexural Strength</b>	ASTM C 203	25 psi (172 kPa) min.	Passed
<b>Flame Spread</b>	ASTM E 84*	25 max.	Passed
<b>Smoke Developed</b>	ASTM E 84*	450 max.	Passed

\* ASTM E 2568 Standard Specification for PB Exterior Insulation and Finish Systems, also referred to as AC235 – Acceptance Criteria for EIFS Clad Drainage Wall Assemblies

**1.05 SUBMITTALS**

- A. Product Data: The contractor shall submit to the owner/architect the manufacturer’s product data sheets describing products, which will be used on this project.
- B. Shop Drawings for Panelized Construction: The panel fabricator shall prepare and submit to the owner/architect complete drawings showing: wall layout, connections, details, expansion joints, and installation sequence.
- C. The contractor shall provide placement drawings to the project designer for review and approval indicating the placement of horizontal and vertical compartments, and the location of compartment vents.
- D. Samples: The contractor shall submit to the owner/architect two (2) samples of the Outsulation PE System for each finish, texture and color to be used on the project. The same tools and techniques proposed for the actual installation shall be used. Samples shall be of sufficient size to accurately represent each color and texture being utilized on the project.
- E. Test Reports: When requested, the contractor shall submit to the owner/architect copies of selected test reports verifying the performance of the Outsulation PE System.

**1.06 QUALITY ASSURANCE**

A. Qualifications

- 1. System Manufacturer: Shall be Dryvit Systems, Inc. All materials shall be manufactured or sold by Dryvit and shall be purchased from Dryvit or its authorized distributors.

- a. Materials shall be manufactured at a facility covered by a current ISO 9001:2008 and ISO 14001:2004 certification. Certification of the facility shall be done by a registrar accredited by the American National Standards Institute, Registrar Accreditation Board (ANSI-RAB).
2. Contractor: Shall be knowledgeable in the proper installation of the Dryvit Outsulation PE System and shall be experienced and competent in the installation of Exterior Insulation and Finish Systems. Additionally, the contractor shall possess a current Outsulation PE System Trained Contractor Certificate\* issued by Dryvit Systems, Inc.
3. Insulation Board Manufacturer: Shall be listed by Dryvit Systems, Inc., shall be capable of producing the expanded polystyrene (EPS) in accordance with the current Dryvit Specification for Insulation Board, DS131, and shall subscribe to the Dryvit Third Party Certification and Quality Assurance Program.
4. Panel Fabricator: Shall be a contractor experienced and competent in the fabrication of architectural wall panels and shall possess a current Outsulation PE System Trained Contractor Certificate\* issued by Dryvit Systems, Inc.
5. Panel Erector: Shall be experienced and competent in the installation of architectural wall panel systems and shall be:
  - a. The panel fabricator or
  - b. An erector approved by the panel fabricator or
  - c. An erector under the direct supervision of the panel fabricator
6. Sealant Contractor
  - a. Installation of sealants shall be performed by a trained waterproofing contractor.
- B. Regulatory Requirements:
  1. The EPS shall be separated from the interior of the building by a minimum 15-minute thermal barrier.
  2. The use and maximum thickness of EPS shall be in accordance with the applicable building code(s).
- C. Certification
  1. The Outsulation PE System shall be recognized for the intended use by the applicable building code(s).
- D. Mock-Up
  1. The contractor shall, before the project commences, provide the owner/architect with a mock-up for approval.
  2. The mock-up shall be of suitable size as required to accurately represent the products being installed, as well as each color and texture to be utilized on the project.
  3. The mock-up shall be prepared with the same products, tools, equipment and techniques required for the actual applications. The finish used shall be from the same batch that is being used on the project.
  4. The approved mock-up shall be available and maintained at the jobsite.
  5. For panelized construction, the mock-up shall be available and maintained at the panel fabrication location.

**1.07 DELIVERY, STORAGE AND HANDLING**

- A. All Dryvit materials shall be delivered to the job site in the original, unopened packages with labels intact.
- B. Upon arrival, materials shall be inspected for physical damage, freezing or overheating. Questionable materials shall not be used.
  1. Materials shall be stored at the job site, and at all times, in a cool, dry location, out of direct sunlight, protected from weather and other sources of damage. Minimum storage temperature shall be as follows:
    - a. DPR, PMR™, HDP™, Weatherlastic® and E™ Finishes, Color Prime™, Primus®, Genesis® and NCB™, 40 °F (4 °C).
    - b. For other products, refer to specific product data sheets.
  2. Maximum storage temperature shall not exceed 100 °F (38 °C). **NOTE: Minimize exposure of materials to temperatures over 90 °F (32 °C). Finishes exposed to temperatures over 110 °F (43 °C) for even short periods may exhibit skinning, increased viscosity and should be inspected prior to use.**
- C. Protect all products from inclement weather and direct sunlight.

**1.08 PROJECT CONDITIONS**

- A. Environmental Requirements
  1. Application of wet materials shall not take place during inclement weather unless appropriate protection is provided. Protect materials from inclement weather until they are completely dry.
  2. At the time of Dryvit product application, the air and wall surface temperatures shall be from 40 °F (4 °C) minimum to 100 °F (38 °C) maximum for the following products:
    - a. DPR, PMR, HDP, Weatherlastic and E Finishes, Color Prime, Primus, Genesis and NCB.
    - b. For other products, refer to specific product data sheets.
3. These temperatures shall be maintained with adequate air ventilation and circulation for a minimum of 24 hours (48 hours for Weatherlastic Finishes, Ameristone, TerraNeo and Limestone) thereafter, or until the products are completely dry. Refer to published product data sheets for more specific information.

**1.09 SEQUENCING AND SCHEDULING**

- A. Installation of the Outsulation PE System shall be coordinated with other construction trades.
- B. Sufficient manpower and equipment shall be employed to ensure a continuous operation, free of cold joints, scaffold lines, texture variations, etc.

**1.10 WARRANTY**

- A. Dryvit Systems, Inc. shall provide a written moisture drainage and limited materials warranty against defective material upon written request. Dryvit shall make no other warranties, expressed or implied. Dryvit does not warrant workmanship. Full details are available from Dryvit Systems, Inc.
- B. The applicator shall warrant workmanship separately. Dryvit shall not be responsible for workmanship associated with installation of the Outsulation PE System.

**1.11 DESIGN RESPONSIBILITY**

- A. It is the responsibility of both the specifier and the purchaser to determine if a product is suitable for its intended use. The designer selected by the purchaser shall be responsible for all decisions pertaining to design, detail, structural capability, attachment details, shop drawings and the like. Dryvit has prepared guidelines in the form of specifications, installation details, and product data sheets to facilitate the design process only. Dryvit is not liable for any errors or omissions in design, detail, structural capability, attachment details, shop drawings, or the like, whether based upon the information prepared by Dryvit or otherwise, or for any changes which purchasers, specifiers, designers, or their appointed representatives may make to Dryvit's published comments.

**1.12 MAINTENANCE**

- A. Maintenance and repair shall follow the procedures noted in the Dryvit Outsulation PE System Application Instructions, DS845.
- B. All Dryvit products are designed to require minimal maintenance. However, as with all building products, depending on location, some cleaning may be required. See Dryvit publication DS152 on Cleaning and Recoating.
- C. Sealants and flashings shall be inspected on a regular basis and repairs made as necessary.

**PART II PRODUCTS**

**2.01 MANUFACTURER**

- A. All components of the Outsulation PE System shall be supplied or obtained from Dryvit Systems, Inc. or its authorized distributors. Substitutions or additions of materials other than specified will void the warranty.

**2.02 MATERIALS**

- A. Portland Cement: Shall be Type I or II, meeting ASTM C 150, white or gray in color, fresh and free of lumps.
- B. Water: Shall be clean and free of foreign matter.

**2.03 COMPONENTS**

- A. Air/Water-Resistive Barrier Components
  - 1. Dryvit Backstop NT: A flexible, polymer-based, noncementitious air/water-resistive coating and air barrier available in Texture, Smooth and Spray.
  - 2. Dryvit Grid Tape™: An open weave fiberglass mesh tape with pressure sensitive adhesive available in rolls 4 in (102 mm) wide by 100 yds (91 m) long.
  - 3. Dryvit Backstop DMS: A sprayable, single step air/water-resistive barrier and adhesive.

**NOTE: Backstop DMS is not approved for use over wood based substrates.**
- B. Flashing Materials: Used to protect substrate edges at terminations.
  - 1. Liquid Applied: An extremely flexible water-based polymer material, ready for use.
    - a. Shall be AquaFlash and AquaFlash Mesh
  - 2. Sheet Type:
    - a. Shall be Flashing Tape and Surface Conditioner
      - 1) Dryvit Flashing Tape™: A high density, polyethylene film backed with a rubberized asphalt adhesive available in rolls 4 in (102 mm), 6 in (152 mm) and 9 in (229 mm) wide by 75 ft (23 m) long.
      - 2) Dryvit Flashing Tape Surface Conditioner™: A water-based surface conditioner and adhesion promoter for the Dryvit Flashing Tape.
- C. Adhesives: Used to adhere the EPS to the air/water-resistive barrier, shall be compatible with the air/water-resistive barrier and the EPS. (Not required when Backstop DMS is specified.)
  - 1. Cementitious: A liquid polymer-based material, which is field mixed with Portland cement.
    - a. Shall be Primus or Genesis

2. Ready mixed: A dry blend cementitious, copolymer-based product, field mixed with water.
  - a. Shall be Primus® DM, Genesis® DM, Genesis® DMS, Rapidry DM 35-50 or Rapidry DM 50-75
- D. Insulation Board: Expanded Polystyrene meeting Dryvit Specification for Insulation Board, DS131
  1. The insulation board shall measure maximum 2 ft (0.6 m) by 4 ft (1.2 m) with a minimum thickness of 2 in (51 mm). The board perimeter shall have factory cut bevels on a 45° angle as shown in Outsulation PE System Details DS 846.
  2. The back side of the insulation board shall have factory cut vertical grooves measuring 1/4 in x 1 in (6.4 mm x 25 mm) spaced 12 in (305 mm) on center (see Detail Outsulation PE System 0.0.05.)
  3. The insulation board shall be manufactured by a board supplier listed by Dryvit Systems, Inc.
- E. Insulation Board Closure Blocks: Expanded Polystyrene meeting Dryvit Specification for Insulation Board, DS131. The Closure Blocks shall measure a minimum of 6 in (152 mm) in height.
- F. Dryvit Starter Strip
  1. A 2 in x 6 in x 4 ft (51 mm x 152 mm x 1.2 m) piece of aged expanded polystyrene configured to receive the Dryvit Track™ and Vent Track™. It is required at the base of all walls, at base of horizontal terminations, and heads of windows and other openings.
- G. Dryvit Vent Assembly:
  1. A 2 in x 6 in x 12 in (51 mm x 152 mm x 305 mm) piece of aged expanded polystyrene, which is configured to contain a formed aggregate matrix material and receive the Dryvit Vent Track. It is required at the base of walls and the base of horizontal terminations and is capable of draining water.
- H. Dryvit AP Adhesive™: A moisture cure urethane-based adhesive used to attach the Dryvit Track and Vent Track to the air/water-resistive barrier coating.
- I. Dryvit Track:
  1. A “J” shaped track complying with ASTM D 1784 and ASTM C 1063 located above the Dryvit Starter Strip.
- J. Dryvit Vent Track:
  1. A “J” shaped track complying with ASTM D 1784 and ASTM C 1063 containing a slot for drainage and located above the Dryvit Vent Assembly, along the base of walls and horizontal terminations.
- K. Base Coat: Shall be compatible with the EPS insulation board and reinforcing mesh(es).
  1. Cementitious: A liquid polymer-based material, which is field mixed with Portland cement.
    - a. Shall be Primus or Genesis
  2. Noncementitious: A factory-mixed, fully formulated, water-based product.
    - a. Shall be NCB
  3. Ready mixed: A dry blend cementitious, copolymer-based product, field mixed with water.
    - a. Shall be Primus DM, Genesis DM, Genesis DMS, Rapidry DM 35-50 or Rapidry DM 50-75.
- L. Reinforcing Mesh: A balanced, open weave, glass fiber fabric treated for compatibility with other system materials.
 

**NOTE: Reinforcing meshes are classified by impact resistance and specified by weight and tensile strength as listed in Section 1.04.D.1.d.**

  1. Shall be Standard, Standard Plus, Intermediate, Panzer 15, Panzer 20, Detail and Corner Mesh
  2. Shall be colored blue for product identification bearing the Dryvit logo.
- M. Finish: Shall be the type, color and texture as selected by the architect/owner and shall be one or more of the following:
  1. Standard DPR (Dirt Pickup Resistance): Water-based, acrylic finish with integral color and texture, and formulated with DPR chemistry:
    - a. Quarzputz® DPR: Open-texture.
    - b. Sandblast® DPR: Medium texture.
    - c. Freestyle® DPR: Fine texture.
    - d. Sandpebble® DPR: Pebble texture.
    - e. Sandpebble® Fine DPR: Fine pebble texture.
  2. Hydrophobic (HDP™) Finishes: 100% acrylic coating with integral color and texture and formulated with hydrophobic properties:
    - a. Quarzputz® HDP
    - b. Sandblast® HDP
    - c. Sandpebble® HDP
    - d. Sandpebble® Fine HDP
    - e. Limestone™ HDP
    - f. Finesse™ HDP
  3. **E**: Water-based, lightweight acrylic finish with integral color and texture, and formulated with DPR chemistry:
    - a. Quarzputz® **E**
    - b. Sandpebble® **E**
    - c. Sandpebble® Fine **E**

4. Specialty: Factory mixed, water-based acrylic:
  - a. Ameristone: Multi-colored quartz aggregate with a flamed granite appearance.
  - b. Stone Mist®: Ceramically colored quartz aggregate.
  - c. Custom Brick: Acrylic polymer-based finish used in conjunction with a proprietary template system to create the look of stone, brick, slate or tile.
  - d. TerraNeo: 100% acrylic-based finish with large mica chips and multi-colored quartz aggregates.
  - e. Limestone: A premixed, 100% acrylic-based finish designed to replicate the appearance of limestone blocks.
  - f. Reflectit™: 100% acrylic coating providing a pearlescent appearance.
  - g. Finesse™: A smooth 100% acrylic-based dirt pickup resistance finish.
5. Elastomeric DPR (Dirt Pickup Resistance): Water-based, elastomeric acrylic finish with integral color and texture, and formulated with DPR chemistry:
  - a. Weatherlastic® Quarzputz
  - b. Weatherlastic® Sandpebble
  - c. Weatherlastic® Sandpebble Fine
  - d. Weatherlastic® Adobe
6. Medallion Series PMR™ (Proven Mildew Resistance): Water-based, acrylic finish with integral color and texture and formulated with PMR chemistry:
  - a. Quarzputz® PMR
  - b. Sandblast® PMR
  - c. Freestyle® PMR
  - d. Sandpebble® PMR
  - e. Sandpebble® Fine PMR
7. Coatings, Primers and Sealers:
  - a. Demandit Smooth
  - b. Demandit Sanded
  - c. HDP Water-Repellent Coating
  - d. Weatherlastic® Smooth
  - e. Tuscan Glaze™
  - f. Color Prime
  - g. Prymit®
  - h. SealClear™

**PART III EXECUTION**

**3.01 EXAMINATION**

- A. Prior to installation of the Outsulation PE System, the contractor shall verify that the substrate:
  1. Is of a type listed in Section 1.04.C.1.
  2. Is flat within 1/4 in (6.4 mm) in a 4 ft (1.2 m) radius.
  3. Is sound, dry, connections are tight; has no surface voids, projections, or other conditions that may interfere with the Outsulation PE System installation or performance.
- B. Prior to installation of the Outsulation PE System, the architect or general contractor shall insure that all needed flashings and other waterproofing details have been completed, if such completion is required prior to the Outsulation PE application. Additionally, the contractor shall ensure that:
  1. Metal roof flashing has been installed in accordance with the manufacturer's requirements, Asphalt Roofing Manufacturers Association (ARMA) Standards and Dryvit Outsulation PE Installation Details, DS846, or as otherwise necessary to maintain a watertight envelope.
  2. Openings are flashed in accordance with the Outsulation PE System Installation Details, DS846, or as otherwise necessary to prevent water penetration.
  3. Chimneys, balconies and decks have been properly flashed.
  4. Windows, doors, etc. are installed and flashed per manufacturer's requirements and the Outsulation PE System Installation Details, DS846.
- C. Prior to the installation of the Outsulation PE System, the contractor shall notify the general contractor, and/or architect, and/or owner of all discrepancies.

**3.02 PREPARATION**

- A. The Outsulation PE materials shall be protected by permanent or temporary means from inclement weather and other sources of damage prior to, during, and following application until completely dry.
- B. Protect adjoining work and property during Outsulation PE installation.
- C. The substrate shall be prepared as to be free of foreign materials, such as oil, dust, dirt, form-release agents, efflorescence, paint, wax, water repellants, moisture, frost, and any other condition that may inhibit adhesion.

**3.03 INSTALLATION**

- A. The system shall be installed in accordance with the Dryvit Outsulation PE System Application Instructions, DS845.
- B. The overall minimum base coat thickness shall be sufficient to fully embed the mesh. The recommended method is to apply the base coat in two (2) passes.
- C. Sealant shall not be applied directly to textured finishes or base coat surfaces. Dryvit Outsulation PE System surfaces in contact with sealant shall be coated with Demandit or Color Prime.
- D. High impact meshes shall be installed as specified at ground level, high traffic areas and other areas exposed to or susceptible to impact damage.

**3.04 FIELD QUALITY CONTROL**

- A. The contractor shall be responsible for the proper application of the Outsulation PE materials.
- B. Dryvit assumes no responsibility for on-site inspections or application of its products.
- C. If required, the contractor shall certify in writing the quality of work performed relative to the substrate system, details, installation procedures, workmanship and as to the specific products used.
- D. If required, the EPS supplier shall certify in writing that the EPS meets Dryvit's specifications.
- E. If required, the sealant contractor shall certify in writing that the sealant application is in accordance with the sealant manufacturer's and Dryvit's recommendations.

**3.05 CLEANING**

- A. All excess Outsulation PE System materials shall be removed from the job site by the contractor in accordance with contract provisions and as required by applicable law.
- B. All surrounding areas, where the Dryvit Outsulation PE System has been applied, shall be left free of debris and foreign substances resulting from the contractor's work.

**3.06 PROTECTION**

- A. The Outsulation PE System shall be protected from inclement weather and other sources of damage until dry and permanent protection in the form of flashings, sealants, etc. are installed.

