

# OUTSULATION® MD (NC) SYSTEM

**DSC168**

A commercial Exterior Insulation and Finish System with Moisture Drainage and an optional Non-Combustible (NC) Base Coat

## **Outsulation MD / Outsulation MD (NC) Non-Combustible System Specifications**

## INTRODUCTION

This document contains the Manufacturer's Standard Specification for the Outsulation MD System(s). These specifications follow the Construction Specification Institute's 3-part format.

## TAILORING THE DRYVIT® MANUFACTURER'S SPECIFICATIONS TO YOUR PROJECT.

These specifications cover all the common ways of using the Outsulation MD System(s). 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 Outsulation MD Specification(s) 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 Canada.

## UNITS

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

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

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

## WARNING

The Outsulation MD System(s) are designed as drainage wall systems and are detailed to discharge incidental moisture from within the System(s). Specifications should be followed and proper details adhered to, in order to prevent water intrusion, resulting in possible damage to the System(s) or other building elements. Care should be taken to ensure that all building envelope elements, including without limitations, roof designs, windows, flashings, sealants, etc., are compatible with the System(s).

## DISCLAIMER

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

**129 Ringwood Drive  
Stouffville, ON  
L4A 8C1  
Tel: 800-263-3308**

*\*The Contractor Listing 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, and the owner(s) of the Listed Contractor firm have signed agreements to apply the Outsulation MD (NC) System in general conformance with Dryvit's specifications, guide-details and application instructions. The Contractor Listing Program is not an apprenticeship or endorsement. Each Listed Contractor is an independent company experienced in the trade and bears responsibility for its own workmanship. Dryvit Systems Canada assumes no liability for the workmanship.*

**DRYVIT SYSTEMS CANADA  
MANUFACTURER'S SPECIFICATION  
SECTION 07 24 00  
OUTSULATION MD / OUTSULATION MD (NC) SYSTEM  
EXTERIOR INSULATION AND FINISH SYSTEM**

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

- A. This document is to be used in preparing specifications for projects utilizing the Dryvit Outsulation MD System. For complete product description and usage refer to:
1. Dryvit Outsulation MD System Product Data Sheet, DSC443.
  2. Dryvit Outsulation MD System Application Instructions, DSC169.
  3. Dryvit Outsulation MD System Installation Details, DSC167.
- B. Related Sections
1. Concrete – Sections 03 30 00
  2. Unit Masonry & Mortar – Sections 04 05 12 and 04 22 00
  3. Structural Metal Stud Framing – Section 05 41 00
  4. Rough Carpentry – Section 06 10 00
  5. Flashing – Section 07 62 00
  6. Flexible Flashing – Section 07 65 00
  7. Sealant – Section 07 92 00
  8. Gypsum Board Assemblies – Section 09 21 16

**1.02 REFERENCES**

- A. Section Includes
1. CAN/ULC-S101 Standard Methods of Fire Endurance Test
  2. CAN/ULC-S102 Surface Burning Characteristics of Building Materials and Assemblies
  3. CAN/ULC-S114 Standard Method of Test for Determination of Non-combustibility in Building Materials
  4. CAN/ULC-S134 Fire Test for Exterior Wall Assemblies
  5. Canadian Construction Materials Centre – Technical Guide for EIFS Evaluation
  6. CAN/ULC-S701 Standard for Thermal Insulation, Polystyrene, Boards, and Pipe Covering
  7. CAN/ULC-S716.1 Standard for Exterior Insulation and Finish Systems (Materials and Systems)
  8. CAN/ULC-S716.2 Standard for Exterior Insulation and Finish Systems (EIFS) – Installation of EIFS Components and Water Resistive Barrier
  9. CAN/ULC-S716.3 Standard for Exterior Insulation and Finish Systems (EIFS) – Design Application
  10. ASTM B 117 (Federal Test Standard 141A Method 6061) Standard Practice for Operating Salt Spray (Fog) Apparatus
  11. ASTM C 150 Standard Specification for Portland Cement
  12. ASTM C 297 Standard Test Method for Flatwise Tensile Strength of Sandwich Constructions
  13. ASTM C 1177 Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing
  14. ASTM D 968 (Federal Test Standard 141A Method 6191) Standard Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasive
  15. ASTM D 2247 (Federal Test Standard 141A Method 6201) Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity
  16. ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber
  17. ASTM D 4060 Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser
  18. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials
  19. ASTM E 96 Standard Test Methods for Water Vapor Transmission of Materials
  20. ASTM E 119 Standard Method for Fire Tests of Building Construction and Materials
  21. 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
  22. ASTM E 330 Test Method for Structural Performance of Exterior Windows, Doors and Curtain Walls by Uniform Static Air Pressure Difference
  23. ASTM E 331 Test Method for Water Penetration of Exterior Windows, Skylights, Doors and Curtain Walls by Uniform Static Air Pressure Difference
  24. 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.
  25. ASTM E 2134 Test Method for Evaluating the Tensile-Adhesion Performance of Exterior Insulation and Finish Systems (EIFS)

26. ASTM E 2273 Test Method for Determining the Drainage Efficiency of Exterior Insulation and Finish Systems (EIFS) Clad Wall Assemblies
27. ASTM E 2430 Standard Specification for Expanded Polystyrene (EPS) Thermal Insulation Boards for use in Exterior Insulation and Finish Systems (EIFS)
28. ASTM E 2485 (formerly EIMA Std. 101.01) Standard Test Method for Freeze-Thaw Resistance of Exterior Insulation and Finish Systems (EIFS) and Water-Resistive Barrier Coatings
29. ASTM E 2486 (formerly EIMA Std. 101.86) Standard Test Method for Impact Resistance of Class PB and PI Exterior Insulation and Finish Systems (EIFS)
30. ASTM G 155 (Federal Test Standard 141A Method 6151) Standard Practice for Operating-Xenon Arc Light Apparatus for Exposure of Nonmetallic Materials
31. DSC131, Dryvit Expanded Polystyrene Insulation Board Specification
32. DSC151, Custom Brick™ Polymer System Specifications for Use On Vertical Walls
33. DSC152, Dryvit Cleaning and Recoating
34. DSC153, Dryvit Expansion Joints and Sealants
35. DSC159, Dryvit Water Vapor Transmission
36. DSC167 Dryvit Outsulation MD System Installation Details
37. DSC169, Outsulation MD / Outsulation MD (NC) Non-Combustible System Application Instructions
38. DSC413, Reinforcing Mesh
39. DSC456, Rapidry DM™ 35-50 or DS457, Rapidry DM™ 50-75 Data Sheets
40. DSC494, Dryvit AquaFlash® System
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. Listed Contractor: The contractor that installs the Outsulation MD System(s) to the substrate, and has signed an agreement to install the system in general conformance with Dryvit's specifications and details.
- D. Dryvit: Dryvit Systems Canada, the manufacturer of the Outsulation MD System(s).
- E. Expansion Joint: A structural discontinuity in the Outsulation MD System(s).
- 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.
- H. Panel Erector: The contractor who installs the panelized Outsulation MD System(s).
- I. Panel Fabricator: The Listed Contractor who fabricates the panelized Outsulation MD System(s).
- 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 MD System(s) are affixed.
- M. Substrate System: The total wall assembly including the attached substrate to which the Outsulation MD System(s) are affixed.

### 1.04 SYSTEM DESCRIPTION

- A. General: The Dryvit Outsulation MD System(s) are Exterior Insulation and Finish Systems (EIFS), utilizing a cavity wall concept with capability for moisture drainage. The systems consist of a water-resistive barrier coating (air/water-resistive barrier), an adhesive, grooved expanded polystyrene insulation board, base coat, reinforcing mesh(es), finish and internalized moisture egress detailing, along with one of three drainage options that may or may not include Dryvit Vent Assemblies™, Dryvit AquaDuct, Dryvit Starter Strip and drainage strips. The use of the descriptor Outsulation MD is meant to apply to both Outsulation MD and Outsulation MD NC. Where meant to apply specifically to Outsulation MD NC and not applicable to Outsulation MD, "NC" will be added.
- B. Code Related:
  1. The Outsulation MD System is considered a combustible exterior wall assembly permitted for use in noncombustible construction as per the National Building Code of Canada Article 3.1.5.5. and may also be used in combustible construction as per Section 3.1.4.
  2. The Outsulation MD NC System (NC denoting non-combustibility) utilizing a noncombustible protective material and satisfying the requirements of Sentence 3.2.3.8.(2) may be used in applications where compliance with this sentence is applicable as per the provisions of Code Article 3.2.3.7. It is otherwise not required for noncombustible

construction through system compliance to Article 3.1.5.5. Certain exceptions may apply. Contact Dryvit for more details.

#### C. Methods of Installation

1. Field Applied: The Outsulation MD System is applied to the substrate system in place.
2. Panelized: The Outsulation MD System is made into prefabricated wall panels by the Listed Contractor, then erected and anchored to the building.

#### D. Design Requirements:

1. Acceptable substrates for the Outsulation MD System shall be:
  - a. Exterior sheathing having a water-resistant core with fiberglass mat facers meeting ASTM C 1177.
  - b. Exterior fiber reinforced cement or calcium silicate boards.
  - c. Unglazed brick, cement plaster, unpainted concrete or masonry.
  - d. Plywood, compliant with CSA O121, CSA O151, and/or CSA O153
  - e. Oriented strand board (OSB), compliant with CSA O325 and/or CSA O437.

**NOTE:** For all other substrates, please contact Dryvit Systems Canada.

2. Deflection of the substrate systems shall not exceed 1/240 times the span.
3. The substrate shall be flat within 6.4 mm (1/4 in) in a 1.2 m (4 ft) radius.
4. The slope of inclined surfaces shall not be less than
  - a. 3:12 and slope length not to exceed 102 mm (4 in); or
  - b. 6:12, and the length shall not exceed 305 mm (12 in).
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 Table 1.04.E.1.d of this specification.
6. Expansion Joints:
  - a. Design and location of expansion joints in the Outsulation MD 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 MD 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 23 m (75 ft).
    - 9) Where significant structural movement occurs, such as changes in roofline, building shape or structural system.
7. Secondary Barriers:
  - a. The use of secondary barriers is a design requirement of this system and EIFS assemblies as governed by conformance to CCMC evaluation and the provisions of CAN/ULC-S716.1 Standard for Exterior Insulation and Finish Systems Materials and Systems. This secondary barrier may also be used to provide the plane of air tightness as part of an air barrier system.
  - b. All Dryvit secondary barriers meet the requirements for air barrier classification having an air leakage rate of  $<0.05\text{L/s.m}^2 @ 75\text{Pa}$ . Use, location and performance characteristics of the air barrier system shall be determined by the design professional and shall meet the requirements of Part 5 of the applicable Canadian (national or provincial) building code for the given project.
8. Terminations:
  - a. Prior to applying the Dryvit Outsulation MD System, wall openings shall be treated with Dryvit AquaFlash System or self-adhering membrane approved by the Design Authority. Refer to Dryvit Outsulation MD System Installation Details (DSC167).
  - b. The Outsulation MD System shall be held back from adjoining materials around openings and penetrations such as windows, doors, and mechanical equipment a minimum of 19 mm (3/4 in) for sealant application. See Dryvit's Outsulation MD System Installation Details, DSC167.
  - c. The system shall be terminated a minimum of 203 mm (8 in) above finished grade.
  - d. Sealants
    - 1) Shall be manufactured and supplied by others and conform with Section 07 92 00.
    - 2) Shall be compatible with the Outsulation MD System materials. Refer to current Dryvit Publication DSC153 for listing of sealants tested by sealant manufacturer for compatibility.
    - 3) The sealant backer rod shall be closed cell.
9. Compartmentalization:

- a. If made part of the Design Authority's contract documents, compartment sizes for pressure moderation can be devised by placement of solid pieces of EPS to close the cavity in increments to achieve the ideal compartment size, typically these shall not exceed 27.8 m<sup>2</sup> (300 ft<sup>2</sup>).
- b. For compartment size calculations, vent area per vent assembly is considered to be 14.5 cm<sup>2</sup> and cavity size of 0.0025 m<sup>3</sup>/m<sup>2</sup> of wall area. Refer to NRC Construction Technology Update #17 for further guidance.
- 10. Vapour Barriers - The use and location of vapor retarders within a wall assembly is the responsibility of the project designer and shall comply with the requirements of Part 5 of the applicable building code. 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 DSC159 for additional information.
- 11. 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.
- 12. 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 MD System.

E. Performance Requirements

- 1. The Outsulation MD System has been evaluated by CCMC and is listed in CCMC Report 12874-R. Please refer to report for applicable materials and components used. In addition, the system has been tested as follows:
  - a. Air/Water-Resistive Barrier Coating

TEST	TEST METHOD	CRITERIA	RESULTS
<b>Tensile Bond</b>	ASTM C 297/E 2134 ICC ES (AC 212)*	Minimum 104 kPa (15 psi)	Substrate: Minimum 131 kPa (19 psi) Flashing: Minimum 2970 kPa (431 psi)
<b>Freeze-thaw</b>	ASTM E 2485/ICC-ES Proc. ICC ES (AC 212)*	No deleterious effects after 10 cycles	Passed - No deleterious effects after 10 cycles
<b>Water Resistance</b>	ASTM D 2247 ICC ES (AC 212)*	No deleterious effects after 14 days exposure	No deleterious effects after 14 days exposure
<b>Water Vapor Transmission</b>	ASTM E 96 Proc. B ICC ES (AC 212)*	Vapor Permeable	7 perms (Backstop NT)
<b>Air Leakage</b>	ASTM E 283	No Criteria	0.6 l/min/m <sup>2</sup> (0.002 cfm/ft <sup>2</sup> )
<b>Structural Performance</b>	ASTM E 1233 Proc. A ICC ES (AC 212)*	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 ICC ES (AC 212)*	No cracking in field, at joints or interface with flashing at net deflection of 3.2 mm (1/8 inch)	Passed
<b>Restrained Environmental</b>	ICC-ES Procedure ICC ES (AC 212)*	5 cycles; No cracking in field, at joints or interface with flashing	Passed
<b>Water Penetration</b>	ASTM E 331 ICC ES (AC 212)*	No water penetration beyond the inner-most plane of the wall after 15 minutes at 137 Pa (2.86 psf)	Passed
<b>Weathering UV Exposure</b>	ICC ES Proc. ICC ES (AC 212)*	210 hours of exposure	Passed
<b>Accelerated Aging</b>	ICC ES Proc. ICC ES (AC 212)*	25 cycles of drying and soaking	Passed
<b>Hydrostatic Pressure Test</b>	AATCC 127 ICC ES (AC 212)*	21.6" water column for 5 hours	Passed
<b>Surface Burning Characteristics</b>	ASTM E 84	Flame Spread < 25 Smoke Developed < 450	Passed

\*AC 212 – Acceptance Criteria for Water-Resistive Coatings Used as Water-Resistive Barriers Over Exterior Sheathing

b. Durability

TEST	TEST METHOD	CRITERIA	RESULTS
<b>CCMC Durability under Environmental Cyclic Conditions</b>	CCMC EIFS Technical Guide Section 5.6.1 as per Appendix A2	No water penetration. No cracking, crazing, blistering	Passed

		or sagging of finish or base coat. Etc. Min 60 cycles	
<b>Abrasion Resistance</b>	ASTM D 968	No deleterious effects after 500 liters (528 quarts)	No deleterious effects after 1000 liters (1056 quarts)
<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 (formerly EIMA 101.01)	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/ICC-ES Proc. ICC ES (AC 235)***	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 ICC ES (AC 235)***	No water penetration beyond the inner-most plane of the wall after 15 minutes at 137 Pa (2.86 psf)	Passed 15 minutes at 137 Pa (2.86 psf)
<b>Water Vapor Transmission</b>	ASTM E 96 Procedure B	Vapor permeable	EPS 5 perm-inch Base Coat* 40 Perms Finish** 40 Perms
<b>Drainage Efficiency</b>	ASTM E 2273 ICC ES (AC 235)***	Minimum Drainage Efficiency of 90%	Passed
<p>* Base Coat perm value based on Dryvit Genesis™                  ** Finish perm value based on Dryvit Quarzputz®                  *** AC 235 – Acceptance Criteria for EIFS Clad Drainage Wall Assemblies</p>			

c. Structural

TEST	TEST METHOD	CRITERIA	RESULTS
<b>Tensile Bond</b>	ASTM C 297/E 2134	Minimum 104 kPa (15 psi) – substrate or insulation failure	Minimum 213.6 kPa (31 psi)
<b>Transverse Wind Load</b>	ASTM E 330	Withstand positive and negative wind loads as specified by the building code	Minimum 4.3 kPa (90 psf)* 16 inch o.c. framing, ½ in sheathing screw attached at 203 mm (8 inch) o.c.
* All Dryvit components remain intact – for higher wind loads contact Dryvit Systems Canada.			

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

Reinforcing Mesh/Weight g/m <sup>2</sup> (oz/yd <sup>2</sup> )	Minimum Tensile Strengths g/cm (lbs/in)	EIMA Impact Classification	EIMA Impact Range Joules (in-lbs)	Impact Test Results Joules (in-lbs)
Standard - 145 (4.3)	27 (150)	Standard	3-6	(25-49)
Standard Plus - 200 (5.9)	36 g/cm (200)	Medium	6-10	(50-89)
Intermediate - 376 (11.1)	54 g/cm (300)	High	10-17	(90-150)
Panzer® 15* - 522 (15.4)	71 g/cm (400)	Ultra High	>17	(>150)
Panzer 20* - 702 (20.7)	98 g/cm (550)	Ultra High	>17	(>150)

Detail Short Rolls - 145 (4.3)	27 g/cm (150)	Standard	3-6	(25-49)
Corner Mesh - 307 (9.1)	49 g/cm (274)	Used in combination with Panzer 15 and/or Panzer 20.		
*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 119	No effect on the fire resistance of a rated wall assembly	Passed 1 hour Passed 2 hour
	CAN/ULC-S101	Stay in place 15 minutes	Passed*
<b>Ignitability</b>	NFPA 268	No ignition at 12.5 kw/m <sup>2</sup> at 20 minutes	Passed
<b>Noncombustibility**</b>	CAN/ULC-S114	No flaming and retain 80% original test specimen weight	Passed
<b>Full Scale Multi-Story Fire Test</b>	UBC Std. 26-4 (formerly 17-6)  CAN/ULC-S134 <sup>1</sup>	1. Resist vertical spread of flame within the core of the panel from one story to the next 2. Resist flame propagation over the exterior surface 3. Resist spread of vertical flame over the interior surface from one story to the next 4. Resist significant lateral spread of flame from the compartment of fire origin to adjacent spaces <sup>1</sup> As per NBCC Article 3.1.5.5	Passed All
<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

\* See ITS-WH Category II Design Listing for system and material description, \*\*Primus<sup>®</sup> DM Only

2. The Outsulation MD 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 ≤ 25 Smoke Developed ≤ 450	Passed

b. Durability

TEST	TEST METHOD	CRITERIA	RESULTS
<b>Reinforcing Mesh Alkali Resistance of Reinforcing Mesh</b>	ASTM E 2098 (formerly EIMA 105.01)	> 21dN/cm (120 pli) retained tensile strength after exposure	Passed
	CCMC Mesh Criteria	> 35 N/mm Initial Strength and no less than 60% Strength loss following 90 day exposure	Passed
<b>EPS (Physical Properties) Density</b>	ASTM C 303, D 1622	15.2-20.0 kg/m <sup>3</sup> (0.95-1.25 lb/ft <sup>3</sup> )	Pass
<b>Thermal Resistance</b>	ASTM C 177, C 518	4.0 @ 4.4 °C (40 °F)	Pass
	ASTM C 272	3.6 @ 23.9 °C (75 °F)	Pass



<b>Water Absorption</b>	ASTM D 2863	2.5 % max. by volume	Pass
<b>Oxygen Index</b>	ASTM D 1621 Proc. A	24% min. by volume	Pass
<b>Compressive Strength</b>	ASTM C 203	69 kPa (10 psi) min.	Pass
<b>Flexural Strength</b>	ASTM E 84	172 kPa (25 psi) min.	Pass
<b>Flame Spread</b>		25 max.	Pass
<b>Smoke Developed</b>		450 max.	Pass

**1.05 SUBMITTALS**

- A. Product Data: The Listed 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. Samples: The Listed Contractor shall submit to the owner/architect two (2) samples of the Outsulation MD 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.
- D. Test Reports: When requested, the Listed Contractor shall submit to the owner/architect copies of selected test reports verifying the performance of the Outsulation MD System.

**1.06 QUALITY ASSURANCE**

A. Qualifications

- 1. System Manufacturer: Shall be Dryvit Systems Canada. 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 and 14001 registration. Certification of the facility shall be done by a registrar accredited by the American National Standards Institute, Registrar Accreditation Board (ANSI-RAB).
- 2. Listed Contractor: Shall be knowledgeable in the proper installation of the Dryvit Outsulation MD System and shall be experienced and competent in the installation of Exterior Insulation and Finish Systems. Additionally, the Listed Contractor shall possess a current Outsulation MD System Contractor Listing Certificate\* issued by Dryvit Systems Canada.
- 3. Insulation Board Manufacturer: Shall be listed by Dryvit Systems Canada, shall be capable of producing the expanded polystyrene (EPS) in accordance with the current Dryvit Specification for Insulation Board, DSC131, and shall subscribe to a Dryvit-approved third party certification and quality assurance program.
- 4. Panel Fabricator: Shall be a Listed Contractor experienced and competent in the fabrication of architectural wall panels and shall possess a current Outsulation MD System Contractor Listing Certificate\* issued by Dryvit Systems Canada.
- 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.

B. Regulatory Requirements:

- 1. The EPS shall be separated from the interior of the building as required by code (e.g. 12.7mm Gypsum Sheathing).
- 2. The use and maximum thickness of EPS shall be in accordance with the applicable building code limitations and Dryvit’s related test configuration. Where CAN/ULC-S134 is applicable, maximum allowable thickness is 152 mm (6 in).
- 3. Where compliance to CAN/ULC-S101 in conjunction with noncombustible material can be applied, maximum allowable EPS thickness is 152mm (6 in).

C. Certification

- 1. The Outsulation MD System shall be recognized for the intended use by SCC Accredited Certification Organization.

D. Mock-Up

- 1. At the direction of the Design Authority, and according to the requirements of the contract documents the Listed 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 jobsite in a cool, dry location, out of direct sunlight, protected from inclement weather and other sources of damage. Minimum storage temperature shall be as follows:
    - a. Demandit™ Smooth, Demandit™ Sanded: 7 °C (45 °F)
    - b. Stone Mist™, Ameristone™, TerraNeo™ and Limestone™: 10 °C (50 °F)
    - c. DPR, PMR™ and **E**™ Finishes, Color Prime™, Primus, Genesis and NCB™: 4 °C (40 °F)
    - d. Custom Brick™ Finish: refer to Custom Brick Polymer Specification, DSC151
    - e. For other products, refer to specific product data sheets
  - 2. Maximum storage temperature shall not exceed 38 °C (100 °F). **NOTE: Minimize exposure of materials to temperatures over 32 °C (90 °F). Finishes exposed to temperatures over 43 °C (110 °F) for even short periods may exhibit skinning, increased viscosity and should be inspected prior to use.**

### 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 application, the minimum air and wall surface temperatures shall be as follows:
    - a. Demandit Smooth, Demandit Sanded: 7 °C (45 °F)
    - b. Stone Mist, Ameristone, TerraNeo and Limestone: 10 °C (50 °F)
    - c. AquaFlash, Backstop NT, Backstop NT-VB, DPR, PMR and **E** Finishes, Color Prime, Primus, Genesis and NCB: 4 °C (40 °F)
    - d. Custom Brick Finish: refer to Custom Brick Polymer Specification, DS151
    - e. 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 Stone Mist, Ameristone, and TerraNeo) thereafter, or until the products are completely dry. Refer to published product data sheets for more specific information.
- B. Existing Conditions: The Listed Contractor shall have access to electric power, clean water and a clean work area at the location where the Dryvit materials are to be applied.

### 1.09 SEQUENCING AND SCHEDULING

- A. Installation of the Outsulation MD 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 LIMITED MATERIALS WARRANTY

- A. Dryvit Systems Canada 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 Canada.
- B. The applicator shall warrant workmanship separately. Dryvit shall not be responsible for workmanship associated with installation of the Outsulation MD 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 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 MD System Application Instructions, DSC169.
- B. All Dryvit products are designed to minimize maintenance. However, as with all building products, depending on location, some cleaning may be required. See Dryvit publication DSC152 on Cleaning and Recoating.
- C. Sealants and flashings should be inspected on a regular basis and repairs made as necessary.

## PART II PRODUCTS

### 2.01 MANUFACTURER

A. All components of the Outsulation MD System shall be supplied or obtained from Dryvit 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 10, 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: Used as a secondary barrier over sheathing type substrates and may be utilized as part of an air barrier system.
1. Noncementitious air /moisture and vapour barrier
    - a. Backstop NT-VB: a factory mixed, fully formulated water-based material for use over approved substrates where a vapour barrier material is desired. Use over uneven and porous masonry type substrates will require leveling using Genesis (wet) prior to application.
  2. Noncementitious air and moisture barrier (vapour permeable)
    - a. Backstop™ NT: a factory mixed, fully formulated water-based material for use over all sheathing types. May be used over masonry type substrates following leveling coat of Genesis (wet).
  3. Cementitious: A liquid polymer based admixture field mixed with equal parts Type 10 Portland cement
    - a. Dryflex: May be used over gypsum and cement based sheathings as well as masonry and concrete where desired.
  4. Dryvit Grid Tape™: An open weave fiberglass mesh tape with pressure sensitive adhesive available in rolls 102 mm (4 in) wide by 91 m (100 yds) long. For Backstop NT and NT-VB, AquaFlash Mesh may be used on flat joints.
- 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
    - b. Backstop NT/Backstop NT-VB can be used to line the rough opening of window and door jambs and heads.
  2. Sheet Type (option for cool weather application):
    - a. Self-Adhering Membrane approved by the Design Authority.
- C. Adhesives: Used to adhere the EPS to the air/water-resistive barrier, shall be compatible with the water-resistive barrier and the EPS.
1. Cementitious: A liquid polymer-based material, which is field mixed with Portland cement.
    - a. Shall be Primus or Genesis
  2. Factory Blended: 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, DSC131
1. Thickness of insulation board shall be minimum 51 mm (2 in).
  2. The back side of the insulation board shall have 10 mm x 25 mm (0.4 in x 1 in) grooves running vertically and spaced 305 mm (12 in) on center and chamfered on all outside edges.
  3. The insulation board shall be manufactured by a board supplier listed by Dryvit Systems Canada.
- E. Insulation Board Closure Blocks: Expanded Polystyrene meeting Dryvit Specification for Insulation Board, DSC131. The Closure Blocks shall measure a minimum of 152 mm (6 in) in height.
- F. Dryvit Starter Boards
1. A 152 mm high by 2.4 m long (6 in x 8 ft) piece of aged expanded polystyrene configured to receive the Dryvit AquaDuct. It is required at the base of all walls, at base of horizontal terminations, and heads of windows and other openings.
- G. Dryvit AquaDuct:
1. Located on top of the Dryvit Starter Strip within the “V” shaped chamfer and fabricated in-situ using Dryvit AquaFlash® and AquaFlash Mesh.
- H. Dryvit Drainage Strip
1. A corrugated plastic sheet material, which provides drainage.
- I. 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™ (for use in combustible construction only).
  3. Factory Blended: 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.

4. Noncombustible material as per CAN/ULC-S114: For use with Outsulation MD NC
  - a. Shall be Primus DM.
- M. 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.E.1.d.**

  1. Shall be Standard, Standard Plus, Intermediate, Panzer® 15, Panzer 20, Detail and Corner Mesh.
    - a. At minimum Standard mesh shall be used over the entire wall area in accordance with Outsulation MD Application Instructions DSC169. Minimum mesh/mesh overlap shall be 75 mm (3.0 in).
- N. 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. **E**: Water-based, lightweight acrylic coating with integral color and texture, and formulated with DPR chemistry:
    - a. Quarzputz **E**
    - b. Sandpebble **E**
    - c. Sandpebble Fine **E**
  3. 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: A specially formulated smooth coating designed to replicate the appearance of metal panels.
  4. 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
  5. 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
  6. Coatings, Primers and Sealers:
    - a. Demandit Smooth
    - b. Demandit Sanded
    - c. Weatherlastic Smooth
    - d. Tuscan Glaze™
    - e. Color Prime™
    - f. Sanded Color Prime (Primer with Sand)
    - g. Prymit™
    - h. SealClear™

## PART III EXECUTION

### 3.01 EXAMINATION

- A. Prior to installation of the Outsulation MD System, the Listed Contractor shall verify that the substrate:
  1. Is of a type listed in Section 1.04.D.1.
  2. Is flat within 6.4 mm (1/4 in) in a 1.2 m (4 ft) radius.
  3. Is sound, dry, connections are tight; has no surface voids, projections, or other conditions that may interfere with the Outsulation MD System installation or performance.

- B. Prior to installation of the Outsulation MD System, the architect or general contractor shall ensure that all needed flashings and other waterproofing details have been completed, if such completion is required prior to the Outsulation MD application. Additionally, the Listed Contractor shall ensure that:
1. Metal roof flashing has been installed in accordance with Asphalt Roofing Manufacturers Association (ARMA) Standards,
  2. Openings are flashed in accordance with the Outsulation MD System Installation Details, DSC167, 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 MD System Installation Details, DSC167.
- C. Prior to the installation of the Outsulation MD System, the Listed Contractor shall notify the general contractor, and/or architect, and/or owner of all discrepancies.

### 3.02 PREPARATION

- A. The Outsulation MD 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 MD 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 MD System Application Instructions, DSC169.
- 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. Dryvit Outsulation MD 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 Listed Contractor shall be responsible for the proper application of the Outsulation MD materials.
- B. Dryvit assumes no responsibility for on-site inspections or application of its products.
- C. If required, the Listed 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 MD System materials shall be removed from the job site by the Listed Contractor in accordance with contract provisions and as required by applicable law.
- B. All surrounding areas, where the Dryvit Outsulation MD System has been applied, shall be left free of debris and foreign substances resulting from the Listed Contractor's work.

### 3.06 PROTECTION

- A. The Outsulation MD 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.