

# **OUTSULATION® PLUS (NC) SYSTEM**

DSC137

An Exterior Insulation and Finish System with a secondary water resistive barrier and an optional non-combustible (NC) protective coating

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

## INTRODUCTION

This document contains the Manufacturer's Standard Specification for the Outsulation Plus 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 Plus 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 that apply. Also, it may be prudent to place certain parts of the Dryvit Outsulation Plus 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 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 Plus System is designed as a drainage 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 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 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 [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 1.6.1 indicates certain employees of the company have been instructed in the proper application of Dryvit products and have received copies of Dryvit's published technical literature, and the owner(s) of the company have signed agreements to apply the Dryvit products in general conformance with Dryvit's specifications, 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® PLUS / OUTSULATION PLUS (NC) SYSTEM  
EXTERIOR INSULATION AND FINISH SYSTEM**

**1. GENERAL**

## 1.1. Summary

1.1.1. This document is to be used in preparing specifications for projects utilizing the Dryvit Outsulation Plus System. For complete product description and usage, refer to:

1.1.1.1. Dryvit Outsulation Plus Data Sheet, DSC445.

1.1.1.2. Dryvit Outsulation Plus System Application Instructions, DSC218.

1.1.1.3. Dryvit Outsulation Plus System Installation Details, DSC110.

## 1.1.2. Related Sections

1.1.2.1. Concrete – Sections 03 30 00

1.1.2.2. Unit Masonry & Mortar – Sections 04 05 12 and 04 22 00

1.1.2.3. Structural Metal Stud Framing – Section 05 41 00

1.1.2.4. Rough Carpentry – Section 06 10 00

1.1.2.5. Flashing – Section 07 62 00

1.1.2.6. Flexible Flashing – Section 07 65 00

1.1.2.7. Sealant – Section 07 92 00

1.1.2.8. Gypsum Board Assemblies – Section 09 21 16

## 1.2. References

## 1.2.1. Section Includes:

1.2.1.1. ANSI FM 4880 Evaluating Insulated Wall or Wall and Roof/Ceiling Assemblies; Plastic Interior *Finish* Materials; Plastic Exterior Building Panels; Wall/Ceiling Coating Systems; Interior or Exterior *Finish* Systems

1.2.1.2. ASTM B 117 (Federal Test Standard 141A Method 6061) Standard Practice for Operating Salt Spray (Fog) Apparatus

1.2.1.3. ASTM C 297 Standard Test Method for Flatwise Tensile Strength of Sandwich Constructions

1.2.1.4. ASTM C 1177 Standard Specification for Glass Mat Gypsum *Substrate* for Use as *Sheathing*

1.2.1.5. ASTM D 968 (Federal Test Standard 141A Method 6191) Standard Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasive

1.2.1.6. ASTM D 2247 (Federal Test Standard 141A Method 6201) Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity

1.2.1.7. ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber

1.2.1.8. ASTM D 4060 Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser

1.2.1.9. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials

1.2.1.10. ASTM E 96 Standard Test Methods for Water Vapour Transmission of Materials

1.2.1.11. ASTM E 119 Standard Method for Fire Tests of Building Construction and Materials

1.2.1.12. 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

1.2.1.13. ASTM E 330 Test Method for Structural Performance of Exterior Windows, Doors and Curtain Walls by Uniform Static Air Pressure Difference

1.2.1.14. ASTM E 331 Test Method for Water Penetration of Exterior Windows, Skylights, Doors and Curtain Walls by Uniform Static Air Pressure Difference

- 1.2.1.15. 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
- 1.2.1.16. ASTM E 2134 Test Method for Evaluating the Tensile-Adhesion Performance of Exterior Insulation and *Finish Systems* (EIFS)
- 1.2.1.17. ASTM E 2178 Standard Test Method for Air Permeance of Building Materials
- 1.2.1.18. ASTM E 2273 Test Method for Determining the Drainage Efficiency of Exterior Insulation and *Finish Systems* (EIFS) Clad Wall Assemblies
- 1.2.1.19. ASTM E 2357 Standard Test Method for Determining Air Leakage of Air Barrier Assemblies
- 1.2.1.20. ASTM E 2430 Standard Specification for Expanded Polystyrene (EPS) Thermal *Insulation boards* for use in Exterior Insulation and *Finish Systems* (EIFS)
- 1.2.1.21. 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
- 1.2.1.22. 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)
- 1.2.1.23. ASTM G 155 (Federal Test Standard 141A Method 6151) Standard Practice for Operating-Xenon Arc Light Apparatus for Exposure of Nonmetallic Materials
- 1.2.1.24. Canadian Construction Materials Centre – Technical Guide for EIFS Evaluation
- 1.2.1.25. CAN/CSA-A3000 - Cementitious materials compendium
- 1.2.1.26. CAN/ULC-S101 Standard Methods of Fire Endurance Test
- 1.2.1.27. CAN/ULC-S102 Surface Burning Characteristics of Building Materials and Assemblies
- 1.2.1.28. CAN/ULC-S114 Standard Method of Test for Determination of Non-combustibility in Building Materials
- 1.2.1.29. CAN/ULC-S134 Fire Test for Exterior Wall Assemblies
- 1.2.1.30. CAN/ULC-S710.1, “Standard for Thermal Insulation – Bead-Applied One Component Polyurethane Air Sealant Foam”, Part 1: Materials Standard for Thermal Insulation - Bead - Applied One Component Polyurethane Air Sealant Foam, Part 1: Materials”
- 1.2.1.31. CAN/ULC-S710.2, “Standard for Thermal Insulation – Bead-Applied One Component Polyurethane Air Sealant Foam, Part 2: Installation”
- 1.2.1.32. CAN/ULC-S716.1. Standard for Exterior Insulation and *Finish Systems* (Materials and Systems)
- 1.2.1.33. CAN/ULC-S716.2 Standard for Exterior Insulation and *Finish Systems* (EIFS) – Installation of EIFS Components and Water Resistive Barrier
- 1.2.1.34. CAN/ULC-S716.3 Standard for Exterior Insulation and *Finish Systems* (EIFS) – Design Application
- 1.2.1.35. DSC110, Dryvit Outsulation Plus System Installation Details
- 1.2.1.36. DSC131, Dryvit Expanded Polystyrene *Insulation board* Specification
- 1.2.1.37. DSC151, Custom Brick™ Polymer System Specifications for Use on Vertical Walls
- 1.2.1.38. DSC152, Dryvit Cleaning and Recoating
- 1.2.1.39. DSC153, Dryvit Expansion Joints and Sealants
- 1.2.1.40. DSC218 Dryvit Outsulation Plus System Application Instructions
- 1.2.1.41. DSC155, Outsulation Plus and Outsulation MD for Residential Construction System Installation Details
- 1.2.1.42. DSC159, Dryvit Water Vapour Transmission
- 1.2.1.43. DSC456, Rapidry DM™ 35-50 or DS457, Rapidry DM™ 50-75 Data Sheets
- 1.2.1.44. DSC494, Dryvit AquaFlash® System
- 1.2.1.45. DS705, Reflectit™
- 1.2.1.46. DSC877, ShieldIt™ Base Coats
- 1.2.1.47. Mil Std E5272 Environmental Testing
- 1.2.1.48. Mil Std 810B Environmental Test Methods

1.2.1.49. NFPA 268 Standard Test Method for Determining Ignitibility of Exterior Wall Assemblies Using a Radiant Heat Energy Source.

1.2.1.50. 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

### 1.3. Definitions

1.3.1. **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.

1.3.2. **Building Expansion Joint:** A joint through the entire building structure designed to accommodate structural movement.

1.3.3. **Dryvit:** Dryvit Systems Canada, the manufacturer of the Outsulation Plus System.

1.3.4. **Expansion Joint:** A structural discontinuity in the Outsulation Plus System.

1.3.5. **Finish:** An acrylic-based coating, available in a variety of textures and colours that is applied over the *base coat*.

1.3.6. **Insulation board:** Expanded polystyrene (EPS) *insulation board*, which is affixed to the *substrate* and creates a layer of continuous insulation.

1.3.7. **Listed Contractor:** The contractor that installs the Outsulation MD System to the *substrate* and has signed an agreement to install the system in general conformance with *Dryvit's* specifications and details.

1.3.8. **Panel erector:** The contractor who installs the panelized Outsulation Plus System.

1.3.9. **Panel fabricator:** The *Listed Contractor* who fabricates the panelized Outsulation Plus System.

1.3.10. **Reinforcing mesh:** Glass fiber mesh(es) used to reinforce the base coat and to provide impact resistance.

1.3.11. **Sheathing:** A *substrate* in sheet form.

1.3.12. **Substrate:** The material to which the Outsulation Plus System is affixed.

1.3.13. **Substrate system:** The total wall assembly including the attached *substrate* to which the Outsulation Plus System is affixed.

### 1.4. System Description

1.4.1. General: The *Dryvit* Outsulation Plus System is an Exterior Insulation and *Finish* System (EIFS) consisting of a liquid applied water resistive barrier coating (LA-WRB), an adhesive, expanded polystyrene *insulation board*, *base coat*, *reinforcing mesh(es)* and *finish*.

1.4.2. The use of the descriptor Outsulation Plus is meant to apply to both Outsulation Plus and Outsulation Plus NC. Where meant to apply specifically to Outsulation Plus NC and not applicable to Outsulation Plus, "NC" will be added.

1.4.2.1. The Outsulation Plus System is considered a combustible exterior wall assembly permitted for use in non-combustible 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.

1.4.2.2. The Outsulation Plus NC System (NC denoting non-combustible) utilizing a non-combustible protective material (as tested to CAN/ULC S114) and satisfying the requirements of Clause 3.2.3.8.(1)(b) and may be used in combustible and non-combustible construction where compliance with that clause is required.

#### 1.4.3. Methods of Installation

1.4.3.1. Field Applied: The Outsulation Plus System is applied to the *substrate system* in place.

1.4.3.2. Panelized: The Outsulation Plus System is made into prefabricated wall panels by the *Listed Contractor*, then erected and anchored to the building.

#### 1.4.4. Design Requirements:

1.4.4.1. Acceptable *substrates* for the Outsulation Plus System shall be:

1.4.4.1.1. Exterior *sheathing* having a water-resistant core with fiberglass mat facers meeting ASTM C 1177.

1.4.4.1.2. Exterior fiber reinforced cement or calcium silicate boards.

1.4.4.1.3. Unglazed brick, cement plaster, unpainted concrete or masonry.

- 1.4.4.1.4. APA Exterior or Exposure 1 Rated Plywood, Grade C-D or better, nominal 12.7 mm (1/2 in) minimum 4-ply\* or Plywood, compliant with CSA O121, CSA O151, and/or CSA O153.
- 1.4.4.1.5. APA Exposure 1 Rated Oriented Strand Board (OSB) nominal 11.1 mm (7/16 in) minimum\* or OSB compliant with CSA O325 and/or CSA O437.
- 1.4.4.1.6. Insulated Concrete forms (ICF). Refer to DSC193 for guidance.  
**\*NOTE:** For all other *substrates*, please contact *Dryvit* Systems Canada.
- 1.4.4.2. Deflection of the *substrate systems* shall not exceed 1/240 times the span.
- 1.4.4.3. The *substrate* shall be flat within 6.4 mm (1/4 in) in a 2.4 m (8 ft) radius.
- 1.4.4.4. The slope of inclined surfaces shall not be less than
  - 1.4.4.4.1. 3:12 and slope length not to exceed 102 mm (4 in); or
  - 1.4.4.4.2. 6:12, and the length shall not exceed 305 mm (12 in).
- 1.4.4.5. 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 1.4.5 of this specification.
- 1.4.4.6. *Expansion Joints:*
  - 1.4.4.6.1. Design and location of *expansion joints* in the Outsulation Plus 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:
    - 1.4.4.6.1.1. Where *expansion joints* occur in the *substrate system*.
    - 1.4.4.6.1.2. Where building *expansion joints* occur.
    - 1.4.4.6.1.3. At floor lines in wood frame construction.
    - 1.4.4.6.1.4. At floor lines of non-wood framed buildings where significant movement is expected.
    - 1.4.4.6.1.5. Where the Outsulation Plus System abuts dissimilar materials.
    - 1.4.4.6.1.6. Where the *substrate* type and behaviour changes.
    - 1.4.4.6.1.7. Where prefabricated panels abut one another.
    - 1.4.4.6.1.8. In continuous elevations at intervals not exceeding 23 m (75 ft).
    - 1.4.4.6.1.9. Where significant structural movement occurs, such as changes in roofline, building shape or structural system.
- 1.4.4.7. Secondary Barriers
  - 1.4.4.7.1. 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.
  - 1.4.4.7.2. All *Dryvit* secondary barriers that meet the requirements for air barrier classification have an air leakage rate of <0.05L/s.m<sup>2</sup> @ 75Pa. 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, provincial or municipal) building code for the given project.
- 1.4.4.8. Terminations:
  - 1.4.4.8.1. Prior to applying the *Dryvit* Outsulation Plus System, wall openings shall be treated with *Dryvit* AquaFlash® System or self-adhering membrane approved by the Design Authority. Refer to *Dryvit* Outsulation Plus System Details (DSC110).



- 1.4.4.8.2. The Outsulation Plus 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 Plus System Installation Details (DSC110).
- 1.4.4.8.3. The system shall be terminated a minimum of 203 mm (8 in) above finished grade.
- 1.4.4.8.4. Sealants
  - 1.4.4.8.4.1. Shall be manufactured and supplied by others and conform with Section 07 92 00.
  - 1.4.4.8.4.2. Shall be compatible with the Outsulation Plus System materials. Refer to current *Dryvit* Publication DSC153 for listing of sealants tested by sealant manufacturer for compatibility.
  - 1.4.4.8.4.3. The sealant backer rod shall be closed cell.
- 1.4.4.9. Vapour Barriers - The use and location of vapour 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. Vapour retarders may be inappropriate in certain climates and can result in condensation within the wall assembly. Refer to *Dryvit* Publication DSC159 for additional information.
- 1.4.4.10. Dark Colours - The use of dark colours must be considered in relation to wall surface temperature as a function of local climatic conditions. Use of dark colours in high temperature climates can affect the performance of the system.
- 1.4.4.11. 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 Plus System.
- 1.4.5. Performance Requirements
  - 1.4.5.1. The Outsulation Plus 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:
    - 1.4.5.1.1. Air/Water-Resistive Barrier Coating

Test	Test Method	Criteria	Results
Tensile Bond	ASTM C 297/E 2134 ICC ES (AC 212)*	Minimum 104 kPa (15 psi)	<i>Substrate</i> : Minimum 131 kPa (19 psi) Flashing: Minimum 2970 kPa (431 psi)
Freeze-Thaw	ASTM E 2485/ICC-ES Proc. ICC ES (AC 212)*	No deleterious effects after 10 cycles	Passed : No deleterious effects after 10 cycles
Water Resistance	ASTM D 2247 ICC ES (AC 212)*	No deleterious effects after 14 days exposure	No deleterious effects after 14 days exposure
Water Vapour Transmission	ASTM E 96 Proc. B ICC ES (AC 212)*	Vapour Permeable	400.5 ng/(s*m <sup>2</sup> *Pa) (7 perms) (Backstop NT)
Air Leakage	ASTM E 283	No Criteria	0.6 l/min/m <sup>2</sup> (0.002 cfm/ft <sup>2</sup> )
Structural Performance	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
Racking	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

Restrained Environmental	ICC-ES Procedure ICC ES (AC 212)*	5 cycles; no cracking in field, at joints, or interface with flashing	Passed
Water Penetration	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
Weathering : UV Exposure	ICC ES Proc. ICC ES (AC 212)*	210 hours of exposure	Passed
Accelerated Aging	ICC ES Proc. ICC ES (AC 212)*	25 cycles of drying and soaking	Passed
Hydrostatic Pressure Test	AATCC 127 ICC ES (AC 212)*	21.6" water column for 5 hours	Passed
Surface Burning Characteristics	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			

1.4.5.1.2. Durability

Test	Test Method	Criteria	Results
Abrasion Resistance	ASTM D 968	No deleterious effects after 500 liters (528 quarts)	No deleterious effect after 1000 liters (1056 quarts)
Accelerated Weathering	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 2000 hours	No deleterious effects after 5000 hours
Freeze-Thaw	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
Mildew Resistance	ASTM D 3273	No growth during 28 day exposure period	No growth during 60 day exposure period
Water Resistance	ASTM D 2247	No deleterious effects after 14 days exposure	No deleterious effects after 42 days exposure
Taber Abrasion	ASTM D 4060	N/A	Passed 1000 cycles
Salt Spray Resistance	ASTM B 117	No deleterious effects after 300 hours exposure	No deleterious effects after 1000 hours exposure
Water Penetration	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)
Water Vapour Transmission	ASTM E 96 Procedure B	Vapour permeable	EPS: 7.30 ng/(m*s*Pa) (5 perm-inch) Base Coat*: 2288.5 ng/(m*s <sup>2</sup> *Pa) (40 Perms) Finish**: 2288.5 ng/(m*s <sup>2</sup> *Pa) (40 Perms)
Drainage Efficiency	ASTM E 2273 ICC ES (AC 235)***	Minimum drainage efficiency of 90%	Passed



\*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

1.4.5.1.3. Structural

Test	Test Method	Criteria	Results
Tensile Bond	ASTM C 297/E 2134	Minimum 104 kPa (15 psi) - <i>substrate</i> or insulation failure	Minimum 213.6 kPa (31 psi)
Transverse Wind Load	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 inch <i>sheathing</i> screw attached at 203 mm (8 inch) o.c.

\*All *Dryvit* components remain intact – for higher wind loads contact *Dryvit Systems Canada*

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

Reinforcing mesh <sup>1</sup> /Weight g/m <sup>2</sup> (oz/yd <sup>2</sup> )	Minimum Tensile Strengths g/cm (lbs/in)	EIMA Impact Classification	EIMA Impact Range		Impact Test Results	
			Joules	(in-lbs)	Joules	(in-lbs)
Standard- 146 (4.3)	27 (150)	Standard	3-6	(25-49)	4	(36)
Standard Plus™ – 203 (6)	36 (200)	Medium	6-10	(50-89)	6	(56)
Intermediate® – 407 (12)	54 (300)	High	10-17	(90-150)	12	(108)
Panzer® 15* - 509 (15)	71 (400)	Ultra High	>17	(>150)	18	(162)
Panzer 20* - 695 (20.5)	98 (550)	Ultra High	>17	(>150)	40	(352)
Detail Short Rolls – 146 (4.3)	27 (150)	N/A	N/A	N/A	N/A	N/A
Corner Mesh – 307 (9.1)	49 (274)	N/A	N/A	N/A	N/A	N/A

\*Shall be used in conjunction with Standard Mesh (recommended for areas exposed to high traffic)  
<sup>1</sup>It shall be coloured blue for product identification bearing the *Dryvit* logo

1.4.5.1.5. Fire performance

Test	Test Method	Criteria	Results
Fire Resistance	ASTM 119	No effect on the fire resistance of a rated wall assembly	Passed 1 hour Passed 2 hours
	CAN/ULC-S101	Stay in place 15 minutes	Passed*
Ignitibility	NFPA 268	No ignition at 12.5 kw/m <sup>2</sup> at 20 minutes	Passed
Noncombustibility**	CAN/ULC-S114	No flaming and retain 80% original test specimen weight	Passed
Full Scale Multi-Story Fire Test	CAN/ULC-S134 <sup>1</sup>	1. Resist vertical spread of flame within the core of the panel from one storey to the next 2. Resist flame propagation over the exterior surface 3. Resist spread of vertical flame over the interior surface from one storey to the next	Passed All

		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*	
Intermediate Multi-Story Fire Test	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 storey to the next 3. Resist vertical spread of flame over the interior surface from one storey to the next 4. Resist lateral spread of flame from the component of fire origin to adjacent spaces	Passed
*Refer to Intertek (Warnock Hersey) Category 2 DesignListing for system description and limitations. **Applies to Primus DM and Genesis DM only and is used as protective material for S101 tested assemblies.			

1.4.5.2. The Outsulation Plus components shall be tested for:

1.4.5.2.1. Fire

Test	Test Method	Criteria	Results
Surface Burning Characteristics	ASTM E 84	All components must have Flame Spread ≤25 Smoke Developed <450	Passed

1.4.5.2.2. Durability

Test	Test Method	Criteria	Results
<i>Reinforcing mesh:</i> Alkali Resistance of <i>Reinforcing mesh</i>	ASTM E 2098 (formerly EIMA 105.01)	>21 dN/cm (120 pli) retained tensile strength after exposure	Passed
EPS (Physical Properties): Density Thermal Resistance	ASTM C 303, D 1622 ASTM C 177, C 518	15.2-20.0 kg/m <sup>3</sup> (0.95-1.25 lb/ft <sup>3</sup> ) 4.0 @ 4.4°C (40°F) 3.6 @ 23.9°C (75°F)	Passed Passed Passed
Water Absorption Oxygen Index Compressive Strength Flexural Strength Flame Spread Smoke Developed	ASTM C 272 ASTM D 2863 ASTM D 1621 Proc. A ASTM C 203 ASTM E 84	2.5% max by volume 24% min by volume 69 kPa (10 psi) min 172 kPa (25 psi) min 25 max 450 max	Passed Passed Passed Passed Passed Passed

- 1.5. Submittals
  - 1.5.1. 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.
  - 1.5.2. 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.
  - 1.5.3. Samples: The *contractor* shall submit to the owner/architect two (2) samples of the Outsulation Plus System for each *finish*, texture and colour 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 colour and texture being utilized on the project.
  - 1.5.4. Test Reports: When requested, the *contractor* shall submit to the owner/architect copies of selected test reports verifying the performance of the Outsulation Plus System.
- 1.6. Quality Assurance
  - 1.6.1. Qualifications
    - 1.6.1.1. 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.
      - 1.6.1.1.1. Materials shall be manufactured at a facility covered by a current ISO 9001 and ISO 14001 certification. Certification of the facility shall be done by a registrar accredited by the American National Standards Institute, Registrar Accreditation Board (ANSI-RAB).
    - 1.6.1.2. *Contractor*: Shall be knowledgeable in the proper installation of the *Dryvit* Outsulation Plus System and shall be experienced and competent in the installation of Exterior Insulation and *Finish* Systems. Additionally, shall possess a current Outsulation Plus System *Contractor Listing Certificate\** issued by *Dryvit Systems Canada*.
    - 1.6.1.3. *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 the *Dryvit* Third Party Certification and Quality Assurance Program.
    - 1.6.1.4. *Panel fabricator*: Shall be experienced and competent in the fabrication of architectural wall panels and shall possess a current Outsulation Plus System *Contractor Listing Certificate\** issued by *Dryvit Systems Canada*.
    - 1.6.1.5. *Panel erector*: Shall be experienced and competent in the installation of architectural wall panel systems and shall be:
      - 1.6.1.5.1. The *panel fabricator*,
      - 1.6.1.5.2. An erector approved by the *panel fabricator*, or
      - 1.6.1.5.3. An erector under the direct supervision of the *panel fabricator*.
  - 1.6.2. Regulatory Requirements:
    - 1.6.2.1. The EPS shall be separated from the interior of the building with an appropriate thermal barrier as required by code (e.g., 12.7 mm gypsum *sheathing*).
    - 1.6.2.2. 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).
    - 1.6.2.3. Where compliance to CAN/ULC-S101 in conjunction with non-combustible material can be applied, maximum allowable EPS thickness is 152mm (6 in).
  - 1.6.3. Certification
    - 1.6.3.1. The Outsulation Plus System shall be recognized for the intended use by SCC Accredited Certification Organization.
  - 1.6.4. Mock-Up
    - 1.6.4.1. 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.

- 1.6.4.2. The mock-up shall be of suitable size as required to accurately represent the products being installed, as well as each colour and texture to be utilized on the project.
- 1.6.4.3. The mock-up shall be prepared with the same products, tools, equipment and techniques required for the actual application. The *finish* used shall be from the same batch that is being used on the project.
- 1.6.4.4. The approved mock-up shall be available and maintained at the jobsite.
- 1.6.4.5. For panelized construction, the mock-up shall be available and maintained at the panel fabrication location.
- 1.7. Delivery, Storage and Handling
  - 1.7.1. All *Dryvit* materials shall be delivered to the job site in the original, unopened packages with labels intact.
  - 1.7.2. Upon arrival, materials shall be inspected for physical damage, freezing or overheating. Questionable materials shall not be used.
    - 1.7.2.1. Materials shall be stored at the jobsite in a cool, dry location, out of direct sunlight, protected from weather and other sources of damage. Minimum storage temperature shall be as follows:
      - 1.7.2.1.1. Demandit™ Smooth and Demandit Sanded: 7 °C (45 °F)
      - 1.7.2.1.2. Stone Mist™, Ameristone™, TerraNeo™, Limestone™, and Reflectit™: 10 °C (50 °F)
      - 1.7.2.1.3. AquaFlash, Backstop NT, Backstop NT-VB, DPR, PMR™ and E™ *Finishes*, Color Prime™, Primus®, Genesis® and NCB™: 4 °C (40 °F)
      - 1.7.2.1.4. Custom Brick™ *Finish*: refer to Custom Brick Polymer Specification, DSC151.
      - 1.7.2.1.5. For other products, refer to specific product data sheets.
    - 1.7.2.2. 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.
  - 1.7.3. Protect all products from inclement weather and direct sunlight.
- 1.8. Project Conditions
  - 1.8.1. Environmental Requirements
    - 1.8.1.1. 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.
    - 1.8.1.2. At the time of application, the minimum air and wall surface temperatures shall be as follows:
      - 1.8.1.2.1. Demandit Smooth and Demandit Sanded: 7 °C (45 °F)
      - 1.8.1.2.2. Stone Mist, Ameristone, TerraNeo, Limestone, and Reflectit: 10 °C (50 °F)
      - 1.8.1.2.3. AquaFlash, Backstop NT, Backstop NT-VB, DPR, PMR and E *Finishes*, Color Prime, Primus, Primus DM, Genesis, Genesis DM, Rapidry DM™ 35-50 or Rapidry DM 50-75 and NCB: 4 °C (40 °F)
      - 1.8.1.2.4. Custom Brick *Finish*: refer to Custom Brick Polymer Specification, DSC151.
      - 1.8.1.2.5. These temperatures shall be maintained with adequate air ventilation and circulation for a minimum of 24 hours (48 hours for Stone Mist, Ameristone, TerraNeo and Limestone; (12 hours for Reflectit) thereafter, or until the products are completely dry. Refer to published product data sheets for more specific information.
    - 1.8.1.3. At the time of application, the maximum air and wall surface temperatures shall be as follows:
      - 1.8.1.3.1. Backstop NT and Backstop NT-VB: 38 °C (100 °F) maximum and must remain so for a minimum of 12 hours.

- 1.8.1.4. For other products, refer to specific product data sheets.
- 1.8.2. Existing Conditions: The *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.
- 1.9. Sequencing and Scheduling
  - 1.9.1. Installation of the Outsulation Plus System shall be coordinated with other construction trades.
  - 1.9.2. Sufficient manpower and equipment shall be employed to ensure a continuous operation, free of cold joints, scaffold lines, texture variations, etc.
- 1.10. Warranty
  - 1.10.1. *Dryvit* Systems Canada shall provide a written moisture drainage and limited materials warranty 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.
  - 1.10.2. The applicator shall warrant workmanship separately. *Dryvit* shall not be responsible for workmanship associated with installation of the Outsulation Plus System.
- 1.11. Design Responsibility
  - 1.11.1. 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
  - 1.12.1. Maintenance and repair shall follow the procedures noted in the *Dryvit* Outsulation Plus System Application Instructions, DSC218.
  - 1.12.2. 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 DSC152 on Cleaning and Recoating.
  - 1.12.3. Sealants and Flashings shall be inspected on a regular basis and repairs made as necessary.

## 2. PRODUCTS

- 2.1. Manufacturer
  - 2.1.1. All components of the Outsulation Plus System shall be supplied or obtained from *Dryvit* or its authorized distributors. Substitutions or additions of materials other than specified will void the warranty.
- 2.2. Materials
  - 2.2.1. Portland Cement: Shall be Type 10 meeting ASTM C 150 (or GU as per CSA A3000), white or gray in colour, fresh and free of lumps.
  - 2.2.2. Water: Shall be clean and free of foreign matter.
- 2.3. Components
  - 2.3.1. Air/Water-Resistive Barrier Components:
    - 2.3.1.1. *Dryvit* Backstop® NT: A flexible, polymer-based non-cementitious water-resistive coating and air barrier. This air/water resistive barrier can be used with wood-based *sheathings*.
    - 2.3.1.2. *Dryvit* Backstop NT-VB: A flexible polymer-based water resistive barrier and possessing vapour barrier properties. This air/water resistive barrier can be used with wood-based *sheathings*.
    - 2.3.1.3. *Dryvit* Dryflex™: A polymer based cementitious material for use on masonry type *substrates* (or gypsum-based *sheathings*). This air/water resistive barrier shall not be used with wood-based *sheathings*.

- 2.3.1.4. *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 application on joints in *sheathing*. For Backstop NT and NT-VB, AquaFlash Mesh may be used on flat joints.
- 2.3.2. Flashing Materials: Used to protect *substrate* edges at terminations.
  - 2.3.2.1. Liquid Applied: An extremely flexible water-based polymer material, ready for use.
    - 2.3.2.1.1. Shall be AquaFlash® and AquaFlash Mesh.
    - 2.3.2.1.2. Backstop NT/Backstop NT-VB can be used to line the rough opening of window and door jambs and heads.
  - 2.3.2.2. Sheet Type:
    - 2.3.2.2.1. Shall be: Self-Adhering Membrane (EIFS Tape, with surface conditioner if required) approved by the Design Authority (option for cool weather application).
- 2.3.3. Adhesives: Used to adhere the EPS to the air/water-resistive barrier, shall be compatible with the water-resistive barrier and the EPS.
  - 2.3.3.1. Cementitious: A liquid polymer-based material, which is field mixed with Portland cement.
    - 2.3.3.1.1. Shall be Primus or Genesis.
  - 2.3.3.2. Factory Blended: A dry blend cementitious, copolymer-based product, field mixed with water.
    - 2.3.3.2.1. Shall be Primus DM, Genesis DM, Genesis DMS, Rapidry DM™ 35-50 or Rapidry DM™ 50-75.
- 2.3.4. *Insulation board*: Expanded Polystyrene meeting *Dryvit* Specification for *Insulation board*, DSC131.
  - 2.3.4.1. Thickness of *insulation board* shall be minimum 25 mm (2 in).
  - 2.3.4.2. The *insulation board* shall be manufactured by a board supplier listed by *Dryvit* Systems Canada.
- 2.3.5. *Dryvit* AP Adhesive™: A moisture cure, urethane-based adhesive used to adhere the *Dryvit* Drainage Strip.
- 2.3.6. *Dryvit* Drainage Strip: A corrugated plastic sheet material, which provides drainage.
- 2.3.7. *Base Coat*: Shall be compatible with the EPS *insulation board* and *reinforcing mesh(es)*.
  - 2.3.7.1. Cementitious: A liquid polymer-based material, which is field mixed with Portland cement.
    - 2.3.7.1.1. Shall be Primus or Genesis.
  - 2.3.7.2. Non-cementitious: A factory-mixed, fully formulated, water-based product.
    - 2.3.7.2.1. Shall be NCB™ (for use in combustible construction only).
  - 2.3.7.3. Factory Blended: A dry blend cementitious, copolymer-based product, field mixed with water.
    - 2.3.7.3.1. Shall be Primus DM, Genesis DM, Genesis DMS, Rapidry DM 35-50 or Rapidry DM 50-75.
  - 2.3.7.4. Non-combustible: Non-combustible material as per CAN/ULC-S114; for use with Outsulation Plus NC.
    - 2.3.7.4.1. Shall be Primus DM or Genesis DM.
- 2.3.8. *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 the table in Section 1.4.5.2.2.
  - 2.3.8.1. Shall be Standard, Standard Plus, Intermediate, Panzer 15, Panzer 20, Detail and Corner Mesh.
    - 2.3.8.1.1. At minimum Standard mesh shall be used over the entire wall area in accordance with Outsulation Plus Application Instructions (DSC218). Minimum mesh/mesh overlap shall be 75 mm (3.0 in).
  - 2.3.8.2. Shall be coloured blue for product identification bearing the *Dryvit* logo.
- 2.3.9. *Finish*: Shall be the type, colour and texture as selected by the architect/owner and shall be one or more of the following:



- 2.3.9.1. Standard DPR (Dirt Pickup Resistance): Water-based, acrylic coating with integral colour and texture and formulated with DPR chemistry:
  - 2.3.9.1.1. Quarzputz® DPR: Open-texture
  - 2.3.9.1.2. Sandblast® DPR: Medium texture
  - 2.3.9.1.3. Freestyle® DPR: Fine texture
  - 2.3.9.1.4. Sandpebble™ DPR: Pebble texture
  - 2.3.9.1.5. Sandpebble Fine DPR: Fine pebble texture
- 2.3.9.2. Water-based, lightweight acrylic coating with integral colour and texture and formulated with DPR chemistry:
  - 2.3.9.2.1. Quarzputz E
  - 2.3.9.2.2. Sandpebble E
  - 2.3.9.2.3. Sandpebble Fine E
- 2.3.9.3. Specialty: Factory mixed, water-based acrylic:
  - 2.3.9.3.1. Ameristone™: Multi-coloured quartz aggregate with a flamed granite appearance.
  - 2.3.9.3.2. Stone Mist™: Ceramically coloured quartz aggregate.
  - 2.3.9.3.3. Custom Brick™: Acrylic polymer-based *finish* used in conjunction with a proprietary template system to create the look of stone, brick, slate or tile.
  - 2.3.9.3.4. TerraNeo™: 100% acrylic-based *finish* with large mica chips and multi-coloured quartz aggregates.
  - 2.3.9.3.5. Limestone™: A premixed, 100% acrylic-based *finish* designed to replicate the appearance of limestone blocks.
  - 2.3.9.3.6. Reflectit™: 100% acrylic coating providing a pearlescent appearance designed to replicate the appearance of metal panels.
- 2.3.9.4. Elastomeric DPR (Dirt Pickup Resistance): Water-based, elastomeric acrylic coating with integral colour and texture, and formulated with DPR chemistry:
  - 2.3.9.4.1. Weatherlastic™ Quarzputz
  - 2.3.9.4.2. Weatherlastic Sandpebble
  - 2.3.9.4.3. Weatherlastic Sandpebble Fine
  - 2.3.9.4.4. Weatherlastic Adobe
- 2.3.9.5. Medallion Series PMR™ (Proven Mildew Resistance): Water-based, acrylic coating with integral colour and texture, and formulated with PMR chemistry:
  - 2.3.9.5.1. Quarzputz PMR
  - 2.3.9.5.2. Sandblast PMR
  - 2.3.9.5.3. Freestyle® PMR
  - 2.3.9.5.4. Sandpebble PMR
  - 2.3.9.5.5. Sandpebble Fine PMR
- 2.3.9.6. Coatings, Primers and Sealers:
  - 2.3.9.6.1. Demandit Smooth and Demandit Sanded
  - 2.3.9.6.2. Weatherlastic™ Smooth
  - 2.3.9.6.3. Tuscan Glaze™
  - 2.3.9.6.4. Color Prime™
  - 2.3.9.6.5. Sanded Color Prime (Primer with Sand)
  - 2.3.9.6.6. Prymit™
  - 2.3.9.6.7. SealClear™

### 3. EXECUTION

#### 3.1. Examination

- 3.1.1. Prior to installation of the Outsulation Plus System, the *contractor* shall verify that the *substrate*:
  - 3.1.1.1. Is of a type listed in Section 1.4.4.1.
  - 3.1.1.2. Is flat within 6.4 mm (1/4 in) in a 1.2 m (4 ft) radius.

- 3.1.1.3. Is sound, dry, connections are tight; has no surface voids, projections, or other conditions that may interfere with the Outsulation Plus System installation or performance.
    - 3.1.2. Prior to installation of the Outsulation Plus 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 Plus application. Additionally, the *Contractor* shall ensure that:
      - 3.1.2.1. Metal roof flashing has been installed in accordance with Asphalt Roofing Manufacturers Association (ARMA) Standards.
      - 3.1.2.2. Openings are flashed in accordance with the Outsulation Plus System Installation Details, DSC110, or as otherwise necessary to prevent water penetration.
      - 3.1.2.3. Chimneys, balconies and decks have been properly flashed.
      - 3.1.2.4. Windows, doors, etc. are installed and flashed per manufacturer's requirements and the Outsulation Plus System Installation Details, DSC110.
    - 3.1.3. Prior to the installation of the Outsulation Plus System, the *Listed Contractor* shall notify the general contractor, and/or design authority, and/or owner of all discrepancies.
  - 3.2. Preparation
    - 3.2.1. The Outsulation Plus 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.
    - 3.2.2. Protect adjoining work and property during Outsulation Plus installation.
    - 3.2.3. 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.
  - 3.3. Installation
    - 3.3.1. The system shall be installed in accordance with the *Dryvit* Outsulation Plus System Application Instructions, DSC218.
    - 3.3.2. The overall minimum *base coat* thickness shall be sufficient to fully embed the mesh and no less than 2 mm (1/12 in). The recommended method is to apply the *base coat* in two (2) passes.
    - 3.3.3. Sealant shall not be applied directly to textured *finishes*. *Dryvit* Outsulation Plus System surfaces (*base coat*) in contact with sealant shall be coated with Demandit or Color Prime.
    - 3.3.4. When installing the Outsulation System, the notched trowel method of adhesive application shall be used.
    - 3.3.5. High impact meshes shall be installed as specified at ground level, high traffic areas and other areas exposed to or susceptible to impact damage.
  - 3.4. Field Quality Control
    - 3.4.1. The *contractor* shall be responsible for the proper application of the Outsulation Plus materials.
    - 3.4.2. *Dryvit* assumes no responsibility for on-site inspections or application of its products.
    - 3.4.3. 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.
    - 3.4.4. If required, the EPS supplier shall certify in writing that the EPS meets *Dryvit's* specifications.
    - 3.4.5. 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.
  - 3.5. Cleaning
    - 3.5.1. All excess Outsulation Plus System materials shall be removed from the job site by the *contractor* in accordance with contract provisions and as required by applicable law.

- 3.5.2. All surrounding areas, where the *Dryvit* Outsulation Plus System has been applied, shall be left free of debris and foreign substances resulting from the *contractor's* work.
- 3.6. Protection
  - 3.6.1. The Outsulation Plus 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.