

## Performance Criteria

### An Exterior Wall Insulation and Finish System With Moisture Drainage That Incorporates Continuous Insulation and An Air/Water-Resistive Barrier

Outsulation Plus MD is a fully tested, code compliant system consisting of an air/water-resistive barrier, adhesive/drainage medium, continuous insulation (CI), reinforced base coat and a durable exterior finish. The below tables represent the numerous tests that this wall assembly has been subjected to, as well as the results.

1. The Outsulation Plus MD 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*	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 2 hours at 6.24 psf (299 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.  
 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 in o.c. framing, 1/2in sheathing screw attached at 8 in (203 mm) o.c.

\* ASTM E 2568 Standard Specification for PB Exterior Insulation and Finish Systems.  
 1. All Dryvit components remain intact – for higher wind loads contact Dryvit Systems, Inc.

d. Impact Resistance: In accordance with ASTM E 2486:

Reinforcing Mesh* Weight: oz/yd <sup>2</sup> (g/m <sup>2</sup> )	Minimum Tensile Strengths	EIMA Impact Classification	EIMA Impact Range in-lbs (Joules)		Impact Test Results 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>1</sup> - 15 (509)	400 lbs/in (71 g/cm)	Ultra High	>150	(>17)	162	(18)
Panzer 20 <sup>1</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

\* It shall be colored blue and bear the Dryvit logo for product identification  
 1. 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
<b>Full Scale Multi-Story<sup>1</sup> (corner test)</b>	ANSI FM 4880	Resist flame propagation over the exterior surface	Passed; No height restrictions*
* ASTM E 2568 Standard Specification for PB Exterior Insulation and Finish Systems. 1. Dryvit FM Products must be specified			

2. The Outsulation Plus MD components have been 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
* ASTM E 2568 Standard Specification for PB Exterior Insulation and Finish Systems.			

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.			

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