

OUTSULATION[®] HDCI[™] SYSTEM

A Highly Durable Exterior Cladding System with
Continuous Insulation



DS864

Outsulation HDCI Specifications

INTRODUCTION

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

TAILORING THE DRYVIT MANUFACTURER'S SPECIFICATIONS TO YOUR PROJECT

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

UNITS

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

1/2 in (12.7 mm) 1.0 pcf (16 Kg/m³)

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

WARNING

The Otsulation HDCI 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 insure that all building envelope elements, including without limitations, roof designs, windows, flashings, sealants, etc., are compatible with this system.

DISCLAIMER

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

One Energy Way
West Warwick, RI 02893
(401) 822-4100
www.dryvit.com

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

DRYVIT SYSTEMS, INC.
MANUFACTURER'S SPECIFICATION
CSI MASTERFORMAT SECTION 07 24 19
OUTSULATION® HDCI SYSTEM
A HIGHLY DURABLE EXTERIOR CLADDING SYSTEM WITH
CONTINUOUS INSULATION

PART I GENERAL**1.01 SUMMARY**

A. This document is to be used in preparing specifications for projects utilizing the Dryvit Outsulation HDCI System.

For complete product description and usage refer to:

1. Dryvit Outsulation HDCI System Data Sheet, DS863
2. Dryvit Outsulation HDCI System Application Instructions, DS865
3. Dryvit Outsulation HDCI System Installation Details, DS866

B. Related Sections

1. Unit Masonry – Section 04 20 00
2. Concrete – Sections 03 00 00
3. Cold-Formed Metal Framing – Section 05 40 00
4. Wood Framing – Section 06 11 00
5. Joint Protection – Section 07 90 00
6. Flashing – Section 07 60 00
7. Water-Resistive Barriers – Section 07 25 00
8. Vapor Retarders – 07 26 13
9. Air Barriers – 07 27 26

1.02 REFERENCES

A. Section Includes

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

23. ASTM E 2273 Test Method for Determining the Drainage Efficiency of Exterior Insulation and Finish Systems (EIFS) Clad Wall Assemblies
24. ASTM E 2357 Standard Test Method for Determining Air Leakage of Air Barrier Assemblies
25. ASTM E 2430 Standard Specification for Expanded Polystyrene (EPS) Thermal Insulation Boards for use in Exterior Insulation and Finish Systems (EIFS)
26. ASTM E 2485 (formerly EIMA Std. 101.01) Standard Test Method for Freeze-Thaw Resistance of Exterior Insulation and Finish Systems (EIFS) and Water-Resistive Barrier Coatings
27. 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)
28. ASTM E 2568 Standard Specification for PB Exterior Insulation and Finish Systems
29. ASTM E 2570 Standard Test Method for Evaluating Water-Resistive Barrier (WRB) Coatings Used Under Exterior Insulation and Finish Systems (EIFS) or EIFS with Drainage
30. ASTM G 155 (Federal Test Standard 141A Method 6151) Standard Practice for Operating-Xenon Arc Light Apparatus for Exposure of Nonmetallic Materials
31. DS131, Dryvit Expanded Polystyrene Insulation Board Specification
32. DS151, Custom Brick™ Polymer System Specifications for Use On Vertical Walls
33. DS152, Dryvit Cleaning and Recoating
34. DS153, Dryvit Expansion Joints and Sealants
35. DS159, Dryvit Water Vapor Transmission
36. DS455, Backstop® NT™
37. DS456, Rapidry DM™ 35-50 or DS457, Rapidry DM™ 50-75 Data Sheets
38. DS494, Dryvit AquaFlash® System
39. DS704, Backstop® DMS
40. DS705, Reflectit™
41. Mil Std E5272 Environmental Testing
42. Mil Std 810B Environmental Test Methods
43. NFPA 268 Standard Test Method for Determining Ignitibility of Exterior Wall Assemblies Using a Radiant Heat Energy Source.
44. NFPA 285 Standard Method of Test for the Evaluation of Flammability Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components Using the Intermediate-Scale, Multistory Test Apparatus
45. 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

1.03 DEFINITIONS

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

1.04 SYSTEM DESCRIPTION

- A. General: The Dryvit Outsulation HDCI System is a highly durable cladding system consisting of an air/water-resistive barrier, an adhesive, continuous insulation board, base coat, and Panzer 20 reinforcing mesh used in conjunction with Standard reinforcing mesh and finish.
- B. Methods of Installation:
 1. Field Applied: The Outsulation HDCI System is applied to the substrate system in place.
 2. Panelized: The Outsulation HDCI System is shop-applied to the prefabricated wall panels.

C. Design Requirements:

1. Acceptable substrates for the Outsulation HDCI System shall be:
 - a. Exterior grade gypsum sheathing meeting ASTM C 1396 (formerly C 79) requirements for water resistant core or Type X core at the time of application of the Outsulation HDCI System.
 - b. Exterior sheathing having a water-resistant core with fiberglass mat facers meeting ASTM C 1177.
 - c. Exterior fiber reinforced cement or calcium silicate boards.
 - d. APA Exterior or Exposure 1 Rated Plywood, Grade C-D or better, nominal 1/2 in (12.7 mm), minimum, installed with the C face out.
 - e. APA Exterior or Exposure 1 Fire Retardant Treated (FRT) Plywood, Grade C-D or better, nominal 1/2 in (12.7 mm), minimum, installed with the C face out.
 - f. APA Exposure 1 Rated Oriented Strand Board (OSB) nominal 1/2 in (12.7 mm), minimum. **Note: Applications over OSB sheathing requires a minimum of 2 coats of Backstop NT – Smooth or Spray. Backstop NT – Texture is not recommended for the field of wall application over OSB.**
 - g. Unglazed brick, cement plaster, concrete or masonry.
 - h. Pre-engineered metal building panels with an acceptable substrate as noted in Section 1.04.C.1.a through f.
2. Deflection of the substrate systems shall not exceed 1/240 times the span.
3. The substrate shall be flat within 1/4 in (6.4 mm) in a 4 ft (1.2 m) radius.
4. The slope of inclined surfaces shall not be less than 6:12 (27°) and the length shall not exceed 12 in (305 mm).
5. Expansion Joints:
 - a. Design and location of expansion joints in the Outsulation HDCI 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 HDCI System abuts dissimilar materials.
 - 6) Where the substrate type changes.
 - 7) Where prefabricated panels abut one another.
 - 8) In continuous elevations at intervals not exceeding 75 ft (23 m).
 - 9) Where significant structural movement occurs, such as changes in roof line, building shape or structural system.
6. Terminations:
 - a. Prior to applying the Dryvit Outsulation HDCI System, wall openings shall be treated with Dryvit AquaFlash System. Refer to Dryvit Outsulation HDCI Installation Details, DS866.
 - b. The Outsulation HDCI System shall be held back from adjoining materials around openings and penetrations such as windows, doors, and mechanical equipment a minimum of 3/4 in (19 mm) for sealant application. See Dryvit's Outsulation HDCI System Installation Details, DS866.
 - c. The system shall be terminated a minimum of 8 in (203 mm) above finished grade.
 - d. Sealants
 - 1) Shall be manufactured and supplied by others.
 - 2) Shall be compatible with the Outsulation HDCI System materials. Refer to current Dryvit Publication DS153 for listing of sealants tested by sealant manufacturer for compatibility.
 - 3) The sealant backer rod shall be closed cell.
7. Vapor Retarders: The use and location of vapor retarders within a wall assembly is the responsibility of the project designer and shall comply with local building code requirements. The type and location shall be noted on the project drawings and specifications. Vapor retarders may be inappropriate in certain climates and can result in condensation within the wall assembly. Refer to Dryvit Publication DS159 for additional information.
8. 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.
9. 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 HDCI System.

D. Performance Requirements:

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

a. Air/Water-Resistive Barrier Coating

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

Outsulation HDCI System Specifications

DS864

b. Durability

TEST	TEST METHOD	CRITERIA	RESULTS
Abrasion Resistance	ASTM D 968	No deleterious effects after 528 quarts (500 liters)	No deleterious effects after 1056 quarts (1000 liters)
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 5000 hours
Freeze-Thaw	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
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*	No water penetration beyond the inner-most plane of the wall after 15 minutes at 2.86 psf (137 Pa)	Passed 15 minutes at 2.86 psf (137 Pa)
Water Vapor Transmission	ASTM E 96 Procedure B*	Vapor permeable	EPS 5 perm-inch Base Coat ¹ 40 Perms Finish ² 40 Perms
Drainage Efficiency	ASTM E 2273	Minimum Drainage Efficiency of 90%	Passed
Large Missile Impact	Dade County TAS 201, 202, 203	Withstand 9 pound 2x4 at a speed of 50 ft/sec	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
Tensile Bond	ASTM C 297/E 2134*	Minimum 15 psi (104 kPa) – substrate or insulation failure	Minimum 31 psi (213.6 kPa)
Transverse Wind Load	ASTM E 330*	Withstand positive and negative wind loads as specified by the building code	Minimum 90 psf (4.3 kPa) ¹ 16 inch o.c. framing, 1/2 in sheathing screw attached at 8 in (203 mm) o.c.

* ASTM E 2568 Standard Specification for PB Exterior Insulation and Finish Systems.
 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 ² (g/m ²)	Minimum Tensile Strengths	EIMA Impact Classification	EIMA Impact Range		Impact Test Results	
			in-lbs	(Joules)	in-lbs	(Joules)
Standard – 4.3 (146)	150 lbs/in (27 g/cm)	Standard	25-49	(3-6)	36	(4)
Panzer 20 ¹ – 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 for product identification bearing the Dryvit logo.
 1. Shall be used in conjunction with Standard Mesh

e. Fire performance

TEST	TEST METHOD	CRITERIA	RESULTS
Fire Resistance	ASTM E 119	No effect on the fire resistance of a rated wall assembly	Passed 1 hour
Ignitability	NFPA 268*	No ignition at 12.5 kw/m ² at 20 minutes	Passed
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 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
Full Scale Multi-Story¹ (corner test)	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 HDCI System components shall be tested for:

a. Fire

TEST	TEST METHOD	CRITERIA	RESULTS
Surface Burning Characteristics	ASTM E 84*	All components shall have a: Flame Spread \leq 25 Smoke Developed \leq 450	Passed
* ASTM E 2568 Standard Specification for PB Exterior Insulation and Finish Systems.			

b. Durability

TEST	TEST METHOD	CRITERIA	RESULTS
Reinforcing Mesh Alkali Resistance of Reinforcing Mesh	ASTM E 2098*	>120 pli (21dN/cm) retained tensile strength after exposure	Passed
EPS (Physical Properties) Density	ASTM C 303, D 1622	0.95-1.25 lb/ft ³ (15.2-20.0 kg/m ³)	Passed
Thermal Resistance	ASTM C 177, C 518	4.0 @ 40 °F (4.4 °C) 3.6 @ 75 °F (23.9 °C)	Passed Passed
Water Absorption	ASTM C 272	2.5 % max. by volume	Passed
Oxygen Index	ASTM D 2863	24% min. by volume	Passed
Compressive Strength	ASTM D 1621 Proc. A	10 psi (69 kPa) min.	Passed
Flexural Strength	ASTM C 203	25 psi (172 kPa) min.	Passed
Flame Spread	ASTM E 84*	25 max.	Passed
Smoke Developed	ASTM E 84*	450 max.	Passed
* ASTM E 2568 Standard Specification for PB Exterior Insulation and Finish Systems.			

1.05 SUBMITTALS

- A. Product Data: The contractor shall submit to the owner/architect the manufacturer’s product data sheets describing products, which will be used on this project.
- B. Shop Drawings for Panelized Construction: The panel fabricator shall prepare and submit to the owner/architect complete drawings showing: wall layout, connections, details, expansion joints, and installation sequence.
- C. Samples: The contractor shall submit to the owner/architect two (2) samples of the Outsulation HDCI 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 contractor shall submit to the owner/architect copies of selected test reports verifying the performance of the Outsulation HDCI System.
- E. Environmental Product Declaration: When requested, the contractor shall submit to the owner/architect copies of the Environmental Product Declaration (EPD) describing the estimated environmental impacts of the Outsulation HDCI System.

1.06 QUALITY ASSURANCE

A. Qualifications

1. System Manufacturer: Shall be Dryvit Systems, Inc. All materials shall be manufactured or sold by Dryvit and shall be purchased from Dryvit or its authorized distributors.
 - a. Materials shall be manufactured at a facility covered by a current ISO 9001:2008 and ISO 14001:2004 certification. Certification of the facility shall be done by a registrar accredited by the American National Standards Institute, Registrar Accreditation Board (ANSI-RAB).
2. Contractor: Shall be knowledgeable in the proper installation of the Dryvit Outsulation HDCI System and shall be experienced and competent in the installation of Exterior Insulation and Finish Systems. Additionally, the contractor shall possess a current Trained Contractor Certificate* issued by Dryvit Systems, Inc.
3. Insulation Board Manufacturer: Shall be listed by Dryvit Systems, Inc., shall be capable of producing the Expanded Polystyrene (EPS) in accordance with the current Dryvit Specification for Insulation Board, DS131, and shall subscribe to the Dryvit Third Party Certification and Quality Assurance Program.
4. Panel Fabricator: Shall be a contractor experienced and competent in the fabrication of architectural wall panels and shall possess a current Trained Contractor Certificate* issued by Dryvit Systems, Inc.
5. Panel Erector: Shall be experienced and competent in the installation of architectural wall panel systems and shall be:
 - a. The panel fabricator or
 - b. An erector approved by the panel fabricator or
 - c. An erector under the direct supervision of the panel fabricator

B. Regulatory Requirements:

1. The EPS shall be separated from the interior of the building by a minimum 15-minute thermal barrier.
2. The use and maximum thickness of EPS shall be in accordance with the applicable building code(s).

C. Certification

1. The Outsulation HDCI System shall be recognized for the intended use by the applicable building code(s).

D. Mock-Up

1. The contractor shall, before the project commences, provide the owner/architect with a mock-up for approval.
2. The mock-up shall be of suitable size as required to accurately represent the products being installed, as well as each color and texture to be utilized on the project.
3. The mock-up shall be prepared with the same products, tools, equipment and techniques required for the actual applications. The finish used shall be from the same batch that is being used on the project.
4. The approved mock-up shall be available and maintained at the jobsite.
5. For panelized construction, the mock-up shall be available and maintained at the panel fabrication location.

1.07 DELIVERY, STORAGE AND HANDLING

A. All Dryvit materials shall be delivered to the job site in the original, unopened packages with labels intact.

B. Upon arrival, materials shall be inspected for physical damage, freezing or overheating. Questionable materials shall not be used.

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

C. Protect all products from inclement weather and direct sunlight.

1.08 PROJECT CONDITIONS

A. Environmental Requirements

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

- B. 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.

1.09 SEQUENCING AND SCHEDULING

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

1.10 WARRANTY

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

1.11 DESIGN RESPONSIBILITY

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

1.12 MAINTENANCE

- A. Maintenance and repair shall follow the procedures noted in the Dryvit Outsulation HDCI System Application Instructions, DS865.
 B. All Dryvit products are designed to require minimal maintenance. However, as with all building products, depending on location, some cleaning may be required. See Dryvit publication DS152 on Cleaning and Recoating.
 C. Sealants and Flashings shall be inspected on a regular basis and repairs made as necessary.

PART II PRODUCTS

2.01 MANUFACTURER

- A. All components of the Outsulation HDCI 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 I or II, meeting ASTM C 150, white or gray in color, fresh and free of lumps.
 B. Water: Shall be clean and free of foreign matter.

2.03 COMPONENTS

- A. Air/Water-Resistive Barrier Components:
1. Dryvit Backstop NT: A flexible, polymer-based noncementitious water-resistive and air barrier coating available in Texture, Smooth, and Spray.
 2. Dryvit Grid Tape™: An open weave fiberglass mesh tape with pressure sensitive adhesive available in rolls 4 in (102 mm) wide by 100 yds (91 m) long.
 3. Dryvit Backstop DMS: A sprayable single step water-resistive membrane/air barrier and adhesive.
NOTE: Backstop DMS is not approved for use over wood based substrates.
- B. Flashing Materials: Used to protect substrate edges at terminations.
1. Liquid Applied: An extremely flexible water-based polymer material, ready for use.
 - a. Shall be AquaFlash Liquid and AquaFlash Mesh
- C. Dryvit AP Adhesive™: A moisture cure, urethane-based adhesive used to adhere the Dryvit Drainage Strip™ and Drainage Track.
- D. Drainage Track: UV treated PVC "J" channel perforated with weep holes, complying with ASTM D 1784 and ASTM C 1063. **Drainage track usage is limited to the base of the system at finished grade level when installing system in noncombustible construction. All other horizontal terminations shall utilize the Dryvit Drainage Strip as shown in Outsulation HDCI Installation Details, DS866.** Shall be one of the following:
1. Starter Trac STWP – without drip edge by Plastic Components, Inc.
 2. Starter Trac STDE – with drip edge by Plastic Components, Inc.
 3. Universal Starter Track by Wind-lock Corporation
 4. Sloped Starter Strip with Drip by Vinyl Corp.
- E. Dryvit Drainage Strip: A corrugated plastic sheet material, which provides drainage.

- F. 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, Genesis or Genesis FM
 2. Ready mixed: A dry blend cementitious, copolymer-based product, field mixed with water.
 - a. Shall be Primus[®] DM, Genesis[®] DM, Genesis[®] DMS, Rapidry DM 35-50 or Rapidry DM 50-75
- G. Insulation Board: Expanded Polystyrene meeting Dryvit Specification for Insulation Board, DS131.
1. Thickness of insulation board shall be minimum 1 in (25 mm).
 2. The insulation board shall be manufactured by a board supplier listed by Dryvit Systems, Inc.
- H. 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, Genesis or Genesis FM
 2. Noncementitious: A factory-mixed, fully formulated, water-based product.
 - a. Shall be NCB
 3. Ready mixed: A dry blend cementitious, copolymer-based product, field mixed with water.
 - a. Shall be Primus DM, Genesis DM, Genesis DMS, Rapidry DM 35-50 or Rapidry DM 50-75.
- I. Reinforcing Mesh: A balanced, open weave, glass fiber fabric treated for compatibility with other system materials.
1. Shall be the combination of Panzer[®] 20 and Standard mesh in the field of the wall. All corners and exposed edges of insulation boards, such as returns at openings, require Corner Mesh[™]. Detail Mesh[®] is used to wrap boards at terminations and over intricate shapes.
 2. Shall be colored blue for product identification bearing the Dryvit logo.
- J. 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 coating with integral color and texture and formulated with DPR chemistry:
 - a. Quarzputz[®] DPR: Open-texture
 - b. Sandblast[®]DPR: Medium texture
 - c. Freestyle[®] DPR: Fine texture
 - d. Sandpebble[®] DPR: Pebble texture
 - e. Sandpebble[®] Fine DPR: Fine pebble texture
 2. Hydrophobic (HDP[™]) Finishes: 100% acrylic coating with integral color and texture and formulated with hydrophobic properties:
 - a. Quarzputz[®] HDP
 - b. Sandblast[®] HDP
 - c. Sandpebble[®] HDP
 - d. Sandpebble[®] Fine HDP
 - e. Limestone[™] HDP
 - f. Finesse[™] HDP
 3. E: Water-based, lightweight acrylic coating with integral color and texture and formulated with DPR chemistry:
 - a. Quarzputz[®] E
 - b. Sandpebble[®] E
 - c. Sandpebble[®] Fine E
 4. FM: Water-based, acrylic coating with integral color and texture, formulated with PMR chemistry:
 - a. Sandpebble[®] FM
 - b. Sandpebble[®] Fine FM
 5. Specialty: Factory mixed, water-based acrylic:
 - a. Ameristone: Multi-colored quartz aggregate with a flamed granite appearance.
 - b. Stone Mist[®]: Ceramically colored quartz aggregate.
 - c. Custom Brick: Acrylic polymer-based finish used in conjunction with a proprietary template system to create the look of stone, brick, slate or tile.
 - d. TerraNeo: 100% acrylic-based finish with large mica chips and multi-colored quartz aggregates.
 - e. Limestone: A premixed, 100% acrylic-based finish designed to replicate the appearance of limestone blocks.
 - f. Reflectit: 100% acrylic coating providing a pearlescent appearance.
 - g. Finesse[™]: A smooth 100% acrylic-based dirt pickup resistance finish.
 6. Elastomeric DPR (Dirt Pickup Resistance): Water- based, elastomeric acrylic coating with integral color and texture and formulated with DPR chemistry:
 - a. Weatherlastic[®] Quarzputz
 - b. Weatherlastic[®] Sandpebble\
 - c. Weatherlastic[®] Sandpebble Fine
 - d. Weatherlastic[®] Adobe

7. Medallion Series PMR™ (Proven Mildew Resistance): Water-based, acrylic coating 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
8. Coatings, Primers and Sealers:
 - a. Demandit® Smooth
 - b. Demandit® Sanded
 - c. HDP™ Water-Repellent Coating
 - d. Weatherlastic® Smooth
 - e. Tuscan Glaze™
 - f. Color Prime
 - g. Prymit®
 - h. SealClear™

PART III EXECUTION

3.01 EXAMINATION

- A. Prior to installation of the Outsulation HDCI System, the contractor shall verify that the substrate:
 1. Is of a type listed in Section 1.04.C.1.
 2. Is flat within 1/4 in (6.4 mm) in a 4 ft (1.2 m) radius.
 3. Is sound, dry, connections are tight; has no surface voids, projections, or other conditions that may interfere with the Outsulation HDCI System installation or performance.
- B. Prior to installation of the Outsulation HDCI System, the architect or general contractor shall insure that all needed flashings and other waterproofing details have been completed, if such completion is required prior to the Outsulation HDCI application. Additionally the Contractor shall ensure that:
 1. Metal roof flashing has been installed in accordance with the manufacturer's requirements, Asphalt Roofing Manufacturers Association (ARMA) Standards and Dryvit Outsulation HDCI Installation Details, DS866, or as otherwise necessary to maintain a watertight envelope.
 2. Openings are flashed in accordance with the Outsulation HDCI System Installation Details, DS866, 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 HDCI System Installation Details, DS866.
- C. Prior to the installation of the Outsulation HDCI System, the contractor shall notify the general contractor, and/or architect, and/or owner of all discrepancies.

3.02 PREPARATION

- A. The Outsulation HDCI System 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 HDCI 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 HDCI System Application Instructions, DS865.
- B. The overall minimum base coat thickness shall be sufficient to fully embed the mesh.
- C. Sealant shall not be applied directly to textured finishes or base coat surfaces. Dryvit Outsulation HDCI System base coat surfaces in contact with sealant shall be coated with Demandit Smooth or Color Prime.

3.04 FIELD QUALITY CONTROL

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

3.05 CLEANING

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

3.06 PROTECTION

- A. The Outsulation HDCI 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.