



## SECTION 07281

### WATER-RESISTIVE BARRIERS - RAINSCREEN WALL ASSEMBLIES

GreenGuard® Water-resistive Barrier Building Wraps

GreenGuard® Air Barrier Building Wraps

GreenGuard® DC14 Drainage Mat

#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. This Section specifies rainscreen wall assemblies that are designed to provide a mechanism for management of moisture that penetrates the exterior cladding. These rainscreen wall assemblies typically incorporate the use of one of the following combinations of materials (components):
1. A polyolefin water-resistive barrier (WRB, building wrap) or mechanically-fastened, membrane air barrier (air barrier building wrap) and an extruded polystyrene drainage mat.
  2. A polyolefin water-resistive barrier or air barrier building wrap combined with a water-resistive barrier having a drainage feature.
  3. A polyolefin water-resistive barrier or air barrier building wrap used with a layer of Grade D felt building paper or a Grade D paper-backed metal lath.

SPEC NOTE: COORDINATE RELATED WORK REQUIREMENTS WITH CONTENTS OF REFERENCED SPECIFICATION SECTIONS.

- B. Related Work in other Sections include the following:
1. Section 01400 - Quality Requirements; coordination with Owner's independent testing and inspection agency.
  2. Section 01450 - Mock-Ups; exterior wall mock-ups.
  3. Section 01500 - Temporary Facilities and Controls; requirement to schedule work to prevent sunlight and weather exposure of materials beyond limits established by manufacturer; requirement to protect materials from damage after installation and prior to installation of enclosing work.
  4. Section 04200 – Masonry Units; requirement that backup masonry joints are flush and completely filled with mortar, and that excess mortar on brick ties will be removed; requirement for gap at deflection joints and fillers; coordination with sequencing of through-wall flashing.
  5. Section 07210 – Building Insulation; requirement that insulation board has been installed in accordance with industry standards.

6. Section 07260 – Vapor Retarder; requirement that vapor retarder materials are installed in accordance with industry standards.
7. Section 07267 – Mechanically-Fastened, Membrane Air Barriers; requirement that membrane air barriers are installed in accordance with industry standards.
8. Section 07280 – Water-resistive Barriers; requirement that water-resistive barrier materials are installed in accordance with industry standards.
9. Section 07500 - Membrane Roofing; requirement for coordination with sequencing of membrane roofing; requirement to seal roof membrane to wall air barrier.
10. Section 07600 - Flashing and Sheet Metal; requirement that sheet metal flashings are installed in accordance with industry standards.
11. Section 09253 – Sheathing; requirement that backup gypsum sheathing has been installed with damaged corners repaired, joints filled and surface flush with compatible material as acceptable to the air barrier manufacturer; requirement for gap at deflection joints and fillers.

## **1.2 PERFORMANCE REQUIREMENTS**

### **A. Water-resistive Barriers/Building Wraps**

1. Material Performance: Provide water-resistive barrier material that meets the requirements of Section 07280.

### **B. Water-resistive Barriers/Air Barrier Building Wraps**

1. Material Performance: Provide mechanically-fastened, membrane air barrier material (air barrier building wrap) that meets the requirements of Section 07267.

### **C. Drainage Mat**

1. Material Performance: Provide an extruded polystyrene drainage mat that meets the requirements of the ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12) and ICC-ES Acceptance Criteria for Foam Plastic Panels Used as Water-Resistive Barriers (AC71).
2. Assembly Performance: Provide an assembly that demonstrates drainage of liquid water when tested in accordance with ASTM E 2273.

## **1.3 SUBMITTALS**

### **A. Submittals: Submit in accordance with Division 1 requirements.**

### **B. Quality Assurance – Installer Qualifications:**

1. Installer shall have experience with installation of water-resistive barriers, air barrier materials and insulation materials.
2. Installation shall be in accordance with the rainscreen wall assembly manufacturer's installation guidelines.

- C. Product Data: Submit manufacturer's product data, building code compliance reports or test reports and the manufacturer's printed installation guidelines.
  - 1. Submit product literature or a letter from the rainscreen wall assembly manufacturer indicating approval of products not manufactured by the rainscreen wall assembly manufacturer.
  - 2. If a letter is submitted, it must include a statement that materials are compatible with adjacent materials proposed for use.
- D. Samples: Submit clearly labeled samples, 3 by 4 inch (75 mm by 100 mm) minimum size of each material specified.
- E. Shop Drawings of Wall Assembly Mock-Up: Submit shop drawings of proposed wall assembly mock-ups showing the location of the building wrap in the wall assembly and location of all wall window and door openings, penetrations and terminations involving structures attached to the exterior wall, i.e., decks, shelf angles, roof-wall intersections, etc.

#### **1.4 QUALITY ASSURANCE – WATER-RESISTIVE BARRIERS, AIR BARRIERS AND DRAINAGE MATS**

- A. Manufacturer: Obtain the materials described in Section 1.1.A (1, 2, or 3) from a single manufacturer regularly engaged in manufacturing water-resistive barriers, air barrier building wraps and extruded polystyrene drainage mat. Obtain secondary materials from a source acceptable to the primary rainscreen wall assembly manufacturer.
- B. Accredited Laboratory Testing for Rainscreen Wall Assembly Components: Laboratory accredited by International Accreditation Service Inc. (IAS), American Association for Laboratory Accreditation (A2LA), or the Standards Council of Canada (SCC).
- C. Preconstruction Meeting: Convene a minimum of two weeks prior to commencing work of this Section. Agenda shall include, at a minimum, review of wall assembly mock-up drawings, sequence of construction, coordination with substrate preparation, materials approved for use, compatibility of materials, coordination with installation of adjacent and covering materials, and details of construction. Attendance is required by representatives of related trades including covering materials, substrate materials and adjacent materials.
- D. Wall Assembly Mock-Up: Build a mock-up representative of primary exterior wall assemblies using approved water-resistive barrier and/or mechanically-fastened air barrier building wrap and drainage mat including fasteners, flashing, seam tape and other related auxiliary materials per the rainscreen wall assembly manufacturer's installation guidelines. Mock-up shall be approximately 8 feet long by 8 feet high and include all components in the exterior wall assembly.

#### **1.5 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver rainscreen wall assembly components described in Section 1.1.A (1, 2, or 3) to the project site in original packaging, labeled with manufacturer's information, product name, date of manufacture, and directions for storage.

- B. Store rainscreen wall assembly components in the original undamaged packaging or in a clean, dry, protected location and within temperature range required by rainscreen wall assembly manufacturer. Protect stored materials from direct sunlight.
- C. Handle materials in accordance with manufacturer's recommendations.

## 1.6 PROJECT CONDITIONS

- A. Temperature: Install rainscreen wall assembly components, seam tape and self-adhering flashing materials within range of ambient and substrate temperatures recommended by the rainscreen wall assembly manufacturer. Do not apply water-resistive barrier, air barrier building wraps, drainage mats, seam tape or self-adhering flashings to a damp or wet substrate.
- B. Field Conditions: Do not install rainscreen wall assembly components in snow, rain, fog, or mist. Do not install rainscreen wall assembly components or auxiliary materials when the temperature of substrate surfaces and surrounding air temperatures are below those recommended by the manufacturer(s) of the rainscreen wall assembly components and auxiliary materials.

## 1.7 SCHEDULING

- A. Review requirements for sequencing of installation of the rainscreen wall assembly components and auxiliary materials with installation of windows, doors, louvers and flashing materials to ensure a weather-tight air barrier assembly.
- B. Schedule installation of exterior cladding within six months of the rainscreen wall assembly component installation.

## 1.8 WARRANTY

SPEC NOTE: VERIFY WARRANTY LENGTH WITH MANUFACTURERS SPECIFIED. A BUILDING WRAP WARRANTY FOR MORE THAN TEN YEARS IS GENERALLY NOT AVAILABLE.

- A. Material Warranty: Provide manufacturer's water-resistive barrier and/or air barrier building wrap limited warranty for a period of ten years from date of Substantial Completion.

## PART 2 PRODUCTS

### 2.1 PRIMARY RAINSCREEN WALL ASSEMBLY COMPONENT MANUFACTURER

Pactiv Building Products; 2100 RiverEdge Parkway, Suite 175, Atlanta, GA 30328, 1-800-241-4402, [www.green-guard.com](http://www.green-guard.com)

#### A. WATER-RESISTIVE BARRIERS/BUILDING WRAPS

Building Wrap: Polyolefin building wrap. Subject to compliance with requirements described in Section 1.2.A, provide one of the following:

1. GreenGuard® Value Wrap Building Wrap
2. GreenGuard® Classic Wrap Building Wrap
3. GreenGuard® RainDrop Drainage Building Wrap

**B. WATER-RESISTIVE BARRIERS/MECHANICALLY-FASTENED AIR BARRIER BUILDING WRAPS**

Building Wrap: Polyolefin air barrier building wraps. Subject to compliance with requirements described in Section 1.2.B, provide one of the following:

1. GreenGuard® MAX™ Building Wrap
2. GreenGuard® Ultra Wrap Building Wrap
3. GreenGuard® C500 Building Wrap
4. GreenGuard® C2000 Building Wrap

**C. EXTRUDED POLYSTYRENE DRAINAGE MAT**

Drainage Mat: Extruded polystyrene drainage mat. Subject to compliance with requirements described in Section 1.2.C, provide the following:

1. GreenGuard® DC14 Drainage Mat

**2.2 AUXILIARY MATERIALS**

A. Specify auxiliary materials as shown below or other alternative materials approved by the building wrap manufacturer.

1. GreenGuard® Contractor Tape (3-inch wide seam tape).
2. GreenGuard® Flashing and GreenGuard® SuperStretch™ Flashing.
3. 1 3/4-inch diameter GreenGuard® Caps or minimum 1 3/4-inch diameter plastic or corrosion-resistant metal washers.
4. Minimum 1 1/4-inch long corrosion-resistant screws.

**2.3 ADHESIVES/SEALANTS**

Sealants and adhesives compatible with the building wrap may be specified in this section. Specify one of the adhesives/sealants shown in the chart below or other adhesive/sealant approved by the building wrap manufacturer

Adhesive/Sealant Product	Adhesive/Sealant Type	GreenGuard C500	GreenGuard C2000	GreenGuard Flashing and SuperStretch
3M Marine Adhesive Sealant 5200	Silane Terminated	X	X	X
84 Lumber Bond All™ 300	Hydrocarbon	X	X	X
Dow Corning® 732	Silicone	X	X	X
Lexel®	Hydrocarbon	X	X	X
Liquid Nails®	Hydrocarbon	X	X	Do Not Use With SuperStretch

Phenoseal®	Vinyl Acetate	X	X	X
OSI® Quad® Advanced Formula	Hydrocarbon	X	X	X
OSI® Quad® Advanced Formula (VOC Compliant)	Hydrocarbon	X	X	X
Sikaflex® 1a	Polyurethane	X	X	X
Sikaflex® 15 LM	Polyurethane			
Sonolastic® NP 1™	Polyurethane	X	X	X
Tremco® 830	Hydrocarbon	X	X	X
Tremco® Dymonic®	Polyurethane	X	X	X
Tremco® Vulkem® 1	Polyurethane	X	X	X

## 2.4 PRIMERS

Primers compatible with the building wrap may be used to assist in adhesion between the sheathing and the flashing. Specify one of the primers below or other primer approved by the building wrap manufacturer.

1. 3M High Strength 90
2. Denso Butyl Spray
3. Permagri 105
4. SIA 655

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions under which air barrier material will be applied, with installer present, for compliance with requirements. Verify that surfaces and conditions are suitable prior to commencing work of this section. Do not proceed with installation until unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION

*Note: Refer to the rainscreen wall assembly manufacturer's installation guide for detailed information regarding specific details and integration of auxiliary materials.*

- A. Install water-resistive barrier or air barrier building wrap over structural sheathing board, over insulation board, over exterior gypsum board or directly to framing members.
- B. Begin by aligning the bottom edge of the roll with the base of the wall, approximately 12 inches around the inside or outside corner of the wall. The building wrap should overlap through-wall flashing by a minimum of 6 inches. If no through-wall flashing is being used, then the bottom edge of the building wrap should overlap the sill plate by at least 2 inches.
- C. Unroll the building wrap with printed side out, wrapping the entire building, including window and door rough openings. Make sure that subsequent courses overlap lower courses in water-shedding fashion. Vertical and horizontal seams must be overlapped a minimum of 6 inches (vertical) and 2 inches (horizontal) unless otherwise specified for a particular application. All building wrap seams

must be taped using 3-inch wide GreenGuard® Contractor Tape or equivalent tape approved by Pactiv Building Products.

- D. Install fasteners based on the required minimum spacing as shown in the chart below. Fasteners must penetrate the stud a minimum of ¾ inch. Do not install fasteners within 6 inches of the sill at window openings and around door openings. In addition, do not install fasteners within 9 inches of a window or door head.

	GreenGuard Water-Resistive Barrier Building Wraps			GreenGuard MAX/Ultra WRB/ Air Barrier Building Wraps		
	Metal	Wood	Masonry	Metal	Wood	Masonry
Minimum Required						
Screw Type	1 ¼ in.	1 ¼ in.	1 ¾ in. Tap Con	1 ¼ in.	1 ¼ in.	1 ¾ in. Tap Con
GreenGuard Caps or other (see Section 2.2.A.3)	1 ¾ in.	1 ¾ in.	1 ¾ in.	1 ¾ in.	1 ¾ in.	1 ¾ in.
Maximum Fastener Spacing (on every other stud)	16 in.	16 in.	16 in.	16 in.	16 in.	16 in.

	GreenGuard C500 Water-Resistive Barrier/ Air Barrier Building Wrap			GreenGuard C2000 Water-Resistive Barrier/ Air Barrier Building Wrap		
	Metal	Wood	Masonry	Metal	Wood	Masonry
Minimum Required						
Screw Type	1 ¼ in.	1 ¼ in.	1 ¾ in. Tap Con	1 ¼ in.	1 ¼ in.	1 ¾ in. Tap Con
GreenGuard Caps or other (see Section 2.2.A.3)	1 ¾ in.	1 ¾ in.	1 ¾ in.	1 ¾ in.	1 ¾ in.	1 ¾ in.
Maximum Fastener Spacing	30	30	30	24	24	24

Note: When attaching wall ties for anchoring masonry exterior claddings, first install a small 2 inch x 2 inch patch of GreenGuard® Flashing at the penetration site before installing the wall tie.

- E. Seal around all wall penetrations using GreenGuard® Flashings or other self-adhering flashing approved by Pactiv Building Products. Refer to the building wrap manufacturer's installation guide for proper integration of building wrap and flashing at wall openings, terminations and other wall penetrations.
- F. For rainscreen wall assemblies that incorporate the GreenGuard® DC14 Drainage Mat, install the drainage mat as follows:
1. Starting at a corner of the building, install the first, lower course of GreenGuard® DC14 so that the bottom of the sheet is aligned with the bottom of the sill plate.
  2. Continue unfolding the GreenGuard® DC14 bundle and attach the sheet to the wall using minimum 1 ¼ inch long, corrosion-resistant screws with plastic or metal washers having a minimum diameter of 1 ¾ inch. Fasteners must penetrate the stud a minimum of ¾ inch and should be spaced approximately 2 feet apart along vertical framing member locations.
  3. Trim GreenGuard® DC14 to fit tight around all wall penetrations such as electrical boxes, mounting blocks, pipes, etc.
  4. Install upper courses of GreenGuard® DC14 so that upper courses overlap the flat edge of the lower courses by 2 inches.

G. Install the exterior siding or cladding in accordance with the manufacturer's installation instructions.

### **3.3 FIELD QUALITY CONTROL**

Owner's Inspection and Testing: Cooperate with Owner's testing agency. Allow access to work areas and staging. Notify Owner's testing agency in writing of schedule for work of this section to allow sufficient time for testing and inspection. Daily inspection and testing may be required. Do not cover work of this section until testing and inspection is accepted.

### **3.4 PROTECTING AND CLEANING**

- A. Protect rainscreen wall assembly components from damage during application and remainder of construction period, according to manufacturer's written instructions.
1. Coordinate with installation of materials which cover rainscreen wall assembly components, to ensure exposure period does not exceed that recommended by the rainscreen wall assembly component manufacturer.

**END OF SECTION**