SECTION 07 28 00

Guide Specification - DELTA® MAXX - Water Resistive Barrier & Air Barrier

(Specifier Note: The purpose of this performance guide specification is to assist the specifier in correctly specifying high-performance water resistive barrier products and execution. The specifier needs to edit these guide specifications to fit the needs of each specific project. Contact Cosella-Dorken Products, Inc. Technical Service to assist in appropriate product selections. Throughout the guide specification, there are Specifier Notes to assist in the editing of the file.

References have been made within the text of the specification to CSI MasterFormat 2004 Section numbers and titles. The specifier needs to coordinate these numbers and titles with sections included for the specific project. Brackets [ ]; “AND/OR”; and “OR” have been used to indicate when a selection is required.

This guide is for a commercial application using a water resistive barrier assembly. This high-performance barrier is non-perforated, without visible holes or voids, designed to help stop the passage of bulk water yet is vapor permeable. This water resistive barrier assembly offers a balance of properties and protection for the building envelope by providing a lightweight barrier that will resist water, abrasion, tearing, puncturing, and UV exposure. Consult the specific data sheet for the individual specifications.

This commercial water resistive barrier is specifically for above grade, vertical wall surfaces where the wall assembly may consist of any of the following: exterior gypsum sheathing, exterior plywood sheathing, oriented strand board (OSB) sheathing, stud walls with no sheathing and masonry.

PART 1 - GENERAL

1.1 SECTION INCLUDES

(Specifier Note: “Water Resistive Barrier” has been used throughout the document. A water resistive barrier is a membrane for vertical building envelope protection that will maintain liquid water resistance while maintaining moisture vapor permeability. The assembly consists of the following five components.)

A. This section specifies a water-resistive barrier in exterior wall assemblies, including:
   1. Water resistive barrier membrane
   2. Seam tape
   3. Flashing
   4. Fasteners
   5. Sealant

1.2 RELATED SECTIONS

(Specifier Note: Edit the following list of related sections as required for the project. List other sections with work directly related to this section.)

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 06160 – Sheathing
5. Section 07100 - Dampproofing and Waterproofing
6. Section 07210 - Building Insulation; requirements that insulation board has been installed in accordance with industry standards.
7. Section 07260 - Vapor Retarder; requirement that vapor retarder materials are installed in accordance with industry standards.
8. Section 07410 - Metal Roof and Wall Panels
9. Section 07480 - Exterior Wall Systems
10. Section 07500 – Membrane Roofing; requirement for coordination with sequencing of membrane roofing; requirement to seal roof membrane to wall air barrier.
11. Section 07600 – Flashing and Sheet Metal; requirement that sheet metal flashings are installed in accordance with industry standards.
12. Section 13120 - Pre-engineered Structures

1.3 REFERENCES
A. AATCC 127 Water Resistance: Hydrostatic Pressure Test
B. ASTM C920; Standard Specification for Elastomeric Joint Sealants
B. ASTM C1193; Standard Guide for Use of Joint Sealants
C. ASTM D882; Standard Test Method for Tensile Properties of Thin Plastic Sheeting
D. ASTM E84; Standard Test Method for Surface Burning Characteristics of Building Materials
E. ASTM E96; Standard Test Method for Water Vapor Transmission of Materials
F. ASTM E1677; Specification for Air Retarder Material or System for Framed Building Walls
G. ASTM E2178; Standard Test Method for Air Permeance of Building Materials

1.4 SUBMITTALS
A. Comply with Section 01330 - Submittal Procedures.
B. Product Data: Submit manufacturer’s product data, including current written installation instructions, detail drawings, test reports on physical and performance properties, and building code compliance reports.
C. Samples: Submit clearly labeled samples of each material specified
   1. Water resistive barrier membrane, minimum size 3 inches (76 mm) by 5 inches (127 mm)
   2. Tape
   3. Sealant / Caulking
D. Manufacturer’s Instructions: Provide manufacturer’s instructions showing the recommended procedures and sequences of installation of the water resistive barrier product, and storage and handling requirements and recommendations.
E. Installer Qualifications: Include minimum of 5 project references.
F. Manufacturer’s Product Warranty: Manufacturer’s executed warranty form with authorized signatures and endorsements indicating date of Substantial Completion.

1.5 QUALITY ASSURANCE

A. Source Limitations: Obtain water resistive barrier membrane from a single manufacturer regularly engaged in manufacturing water resistive barrier products. Obtain secondary materials from the same manufacturer or a source acceptable to the primary water resistive barrier manufacturer.

B. The manufacturer of the water resistive barrier product shall have an on-going quality control program with inspections by a nationally recognized independent organization.

C. Accredited Laboratory: A laboratory accredited by International Accreditation Service Inc. (IAS), American Association for Laboratory Accreditation (AALA), or the Standards Council of Canada (SCC) shall perform the required testing of the water resistive barrier.

D. Installer Qualifications: Installer specializing and having experience in performing installation of water resistive barrier assemblies under similar conditions.

E. Manufacturer’s Representative Qualifications: Approved or accredited and employed or authorized by manufacturer of water resistive barrier to perform specified field quality control activities.

Specifier Note: A Pre-installation meeting is recommended for all projects and may be required by manufacturers on projects where special warranties are specified. Verify requirements with manufacturer. DELETE or EDIT pre-installation requirements for specific project.

F. Pre-installation meeting:

1. Conduct meeting a minimum of two weeks prior to commencing work of this Section at project site to comply with requirements in Section 01 31 19 “Project Meetings”.

2. Agenda shall include, at a minimum, review of requirements and submittals for water resistive barrier, including surface preparation requirements specified under other sections, status of substrate work and preparation, compatibility of materials, special details and flashings, wall assembly mock-up drawings, installation procedures, testing and inspection procedures, protection, and repairs, areas of potential conflict, availability of water resistive barrier and components, installer’s training requirements, equipment and scaffolding, and coordinate methods, procedures and sequencing requirements for full and proper installation, integration and protection.

3. Attendance is required by Architect, Engineer, Consultant, Owner’s representative, as well as representatives of related trades including substrate materials, covering materials, and adjacent materials, and Water Resistive Barrier Manufacturer’s representative.

Specifier Note: Mock-ups are recommended for all projects and may be required by manufacturers on projects where special warranties are specified. Verify requirements with manufacturer. DELETE or EDIT mock-up requirements for specific project.

G. Wall Assembly Mock-Up:

1. Build a mock-up representative of primary exterior wall assemblies using approved sheathing and water resistive barrier, including fasteners, flashing, tape and other related accessories per manufacturer’s current printed installation instructions and recommendations. Mock-up shall be approximately 8ft long (2.44 m) by 8ft (2.44 m) high and include all components in the exterior wall assembly, including a window opening.

Specifier Note: Visual inspection by manufacturer’s designated representative is recommended for all projects and may be required by manufacturers on projects where special warranties are specified. Verify requirements with manufacturer. DELETE or EDIT inspection requirements for specific project.

2. Contact manufacturer’s designated representative prior to water resistive barrier assembly installation, to perform required mock-up visual inspection and analysis.
1.6 DELIVERY, STORAGE AND HANDLING
A. Deliver water resistive barrier materials and components to the project site in manufacturer’s original, unopened packaging, labeled with manufacturer’s information, product name, and date of manufacture.
B. Store water resistive barrier materials in its original undamaged packaging or in a clean, dry, protected location and within the temperature range required by Water Resistive Barrier Manufacturer. Protect stored materials from direct sunlight and UV exposure.
C. Handle materials in accordance with manufacturer’s recommendations.

1.7 PROJECT CONDITIONS
A. Temperature: Install water resistive barrier, seam tape and self-adhering flashing materials within range of ambient and substrate temperatures recommended by water resistive barrier manufacturer.
B. Field Conditions: Do not apply seam tape or self-adhering flashings to damp or wet surfaces, or in snow, rain, fog, or mist.

1.8 SCHEDULING
(Specifier Note: The preferred order of installation for water resistive barrier is prior to the installation of windows and doors.)
A. Review requirements for sequencing of installation of water resistive barrier assembly with installation of windows, doors, louvers and flashing materials to ensure a weather-tight barrier assembly.
B. Schedule installation of exterior cladding as soon as possible after the installation of water resistive barrier assembly installation.
(Specifier Note: Consult data sheet for the water resistive barrier’s specific UV exposure limits)

1.9 WARRANTY
A. Material Warranty: Provide manufacturer’s water resistive barrier standard product warranty for materials.

PART 2 – PRODUCTS

2.1 WATER RESISTIVE BARRIER MANUFACTURERS
A. Subject to compliance with requirements, provide product manufactured by one of the following manufacturers:
   2. Others may be approved by Addendum.
2.2 MATERIALS

A. Water Resistive Barrier: Product shall be furnished in standard rolls of 1 m wide by 50 m long (3’3” x 164’). Subject to compliance with requirements, provide the following product:

1. DELTA®-MAXX, manufactured by Cosella-Dörken Products, Inc.;
   Phone: +1 (888) 433-5824 – www.cosella-dorken.com

Typical properties are listed below:

a. Vapor permeable water resistive and air barrier is a highly tear resistant polyester felt with a vapor permeable polyurethane coating that resists bulk water and wind driven rain and acts as a drainage plane for water to be channeled to the outside of the building envelope. The water resistive barrier can be mechanically attached directly to the framing members or over exterior sheathing materials as detailed in drawings.

b. Basis Weight: Minimum: Approx 3.7 lbs/100 sf (182 g/m2)

c. Water vapor permeance: 14 perms (ASTM E96, Method A)
   50 perms (ASTM E96, Method B)

d. Water Resistance: Hydrostatic Pressure Test: >5 hours (AATC 127-1985)

e. Breaking Strength:     MD 40.4 lb (311 N) (ASTM D5034-95)
   CD 20.3 lb (299 N) (ASTM D5034-95)

f. Elongation at Break:     MD 59% (ASTM D5034-95)
   CD 86% (ASTM D5034-95)

g. Bent Test: No cracking (ICC AC38 (February 2008) Sect. 3.3.4)

h. Flame Spread: 20 (NFPA Class A) (ASTM E84-09)

i. Smoke Developed: 90 (NFPA Class A) (ASTM E84-09)

j. Air Permeance: <0.02 L/s/m² at 75 Pa (ASTM E2178-03)

k. Ultra Violet Light Exposure Limit: cover within 4 months

2. Others as may be approved by Addendum.

   Note: The Architect is not aware of any other material that has the vapor permeability and water penetration resistance of the specified product.

B. Auxiliary Materials: Specify auxiliary materials as shown below, or other alternative materials approved by the manufacturer of the water resistive barrier.

   (Specifier Note: Fasteners are dependent upon substrate construction. More than one type of fastener may be required on a single project. REVIEW construction conditions and DELETE fasteners that are unnecessary.)

1. Fasteners:
   a. Water resistive barrier manufacturer’s recommended fasteners as applicable to the project, including
      (Specifier Note: Steel Frame Construction)
      i. 1-5/8” (41.27 mm) corrosion-resistant screw with 2-inch (50 mm) diameter plastic caps or manufacturer approved 1-1/4” (31.75 mm) or 2” (50 mm) metal gasketed washer
      (Specifier Note: Wood Frame Construction)
      ii. #4 nails with 1-inch (25.4 mm) diameter plastic caps
      (Specifier Note: Masonry Construction)
      iii. Masonry tap-con fasteners with 2-inch (50 mm) diameter plastic caps

2. Seam Tape: Water resistive barrier manufacturer’s recommended materials for sealing seams.
   (Specifier Note: Flashing is dependent upon construction conditions. DELETE flashing products that are unnecessary and inappropriate for specific project.)
3. Self-Adhering Flashing Membrane: Water resistive barrier manufacturer’s recommended membrane materials for flashing window and door openings and sealing penetrations such as masonry ties, etc.

(Specifier Note: Sealants compatible with water resistive barrier assembly may be specified in this section or in Division 07 sealants section. DELETE paragraph 4 when sealants are specified in Division 07.)

4. Sealants/Adhesives: Manufacturer’s recommended sealants/adhesives.

5. Primers: Flashing manufacturer’s recommended primer to assist in adhesion between substrate and flashing.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Prior to installation of the water resistive barrier examine substrates, areas and surface conditions under which water resistive barrier will be applied, with installer present, for compliance with requirements. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION OF WATER RESISTIVE BARRIER

Note: Refer to the water resistive barrier manufacturer’s current installation guide for detailed information regarding specific details and integration of auxiliary materials.

A. Install water resistive barrier over exterior face of structural sheathing board, insulation board, exterior gypsum board, or directly to framing members in accordance with manufacturer recommendations.

B. Install water resistive barrier prior to installation of windows and doors.

C. Start water resistive barrier installation at a building corner, leaving 6-12 inches (150 mm-300 mm) of water resistive barrier extended beyond corner to overlap.

D. Install water resistive barrier in a horizontal manner starting at the lower portion of the wall surface with subsequent layers installed in a shingling manner to overlap lower layers in a water-shedding fashion. Maintain water resistive barrier plumb and level.

E. Sill Plate Interface: Extend lower edge of water resistive barrier over sill plate interface 3-6 inches (75 mm-150 mm). Secure to foundation with elastomeric sealant as recommended by Water Resistive Barrier Manufacturer.

F. Unroll the water resistive barrier with printed side out, wrapping the entire building, including window and door rough openings.

G. Window and Door Openings: Extend water resistive barrier completely over openings.

H. Overlap water resistive barrier

1. Exterior Corners: minimum 12 inches (300 mm).

2. Vertical Seams: minimum 6 inches (150 mm).

3. Horizontal Seams: minimum 2 inches (50 mm).

I. Water Resistant Barrier Attachment:

(Specifier Note: Attachment method is dependent upon substrate construction. DELETE methods that are unnecessary and inappropriate for specific project.)
1. Attach water resistive barrier to studs through exterior sheathing. Secure using water resistive barrier manufacturer recommend fasteners, space 12-18 inches (300 mm-450 mm) vertically on center along stud line, and 24 inch (600 mm) on center, maximum horizontally. Fasteners must penetrate the wood studs a minimum of ¾ inch (19 mm). Do not install fasteners within 6 inches (150 mm) of the sill at window openings and around door openings. In addition, do not install fasteners within 9 inches (225 mm) of a window or door head.

AND/OR

2. Attach water resistive barrier to masonry. Secure using water resistive barrier manufacturer recommend fasteners, space 12-18 inches (300 mm -450 mm) vertically on center and 24 inches (600 mm) maximum horizontally. Water resistive barrier may be temporarily attached to masonry using recommended adhesive, placed in vertical strips spaced 24 inches (600 mm) on center, when coordinated on the project site. Do not install fasteners within 6 inches (150 mm) of the sill at window openings and around door openings. In addition, do not install fasteners within 9 inches (225 mm) of a window or door head.

3. First apply a small patch of self-adhering flashing to water resistive barrier membrane prior to installing cladding anchors. The patch should be of a size to seal only the penetration points.

3.3 SEAMING

A. Seal seams of water resistive barrier with approved seam tape at all vertical and horizontal overlapping seams.

B. Seal any tears or cuts as recommended by Water Resistive Barrier Manufacturer.

3.4 OPENING PREPARATION (for use with non-flanged windows - all cladding types)

A. Flush cut water resistive barrier at edge of sheathing around full perimeter of opening.

B. Cut a head flap at 45-degree angle in the water resistive barrier at window head to expose 8 inches (200 mm) of sheathing. Temporarily secure water resistive barrier flap away from sheathing with tape.

3.5 FLASHING (for use with non-flanged windows - all cladding types)

A. Cut self-adhering flashing a minimum of 12 inches (300 mm) longer than width of sill rough opening.

B. Cover horizontal sill by aligning flexible flashing edge with inside edge of sill. Adhere to rough opening across sill and up jambs a minimum of 6 inches (150 mm). Secure flashing tightly into corners by working in along the sill before adhering up the jambs.
C. Fan flexible flashing at bottom corners onto face of wall. Firmly press in place. Mechanically fasten fanned edges.

D. Apply 9-inch wide (225 mm) strips of flashing at jambs. Align flashing with interior edge of jamb framing. Start flashing at head of opening and lap sill flashing down to the sill.

E. Install flexible flashing at opening head using same installation procedures used at sill. Overlap jamb flashing a minimum of 2 inches (50 mm).

F. Coordinate flashing with window installation.

G. On exterior, install backer-rod in joint between window frame and flashed rough framing. Apply sealant at jambs and head, leaving sill unsealed. Apply sealants in accordance with sealant manufacturer’s instructions and ASTM C1193.

H. Position water resistive barrier head flap across head flashing. Adhere using flashing over the 45-degree seams.

I. Tape top of window in accordance with manufacturer recommendations.

J. On interior, install backer rod in joint between frame of window and flashed rough framing. Apply sealant around entire window to create air seal. Apply sealant in accordance with sealant manufacturer’s instructions and ASTM C1193.

(Specifier Note: MAINTAIN the following open preparation and flashing articles when used in conjunction with flanged windows and doors.)

3.6 OPENING PREPARATION (for use with flanged windows)

A. Cut water resistive barrier in a modified “I-cut” pattern.
   1. Cut water resistive barrier horizontally along the bottom of the header.
   2. Cut water resistive barrier vertically 2/3 of the way down from top center of window opening.
   3. Cut water resistive barrier diagonally from bottom of center vertical cut to the left and right corners of the opening.
   4. Fold side and bottom water resistive barrier flaps into window opening and fasten.

B. Cut a head flap at 45-degree angle in the water resistive barrier at window head to expose 8 inches (200 mm) of sheathing. Temporarily secure water resistive barrier flap away from sheathing with tape.

3.7 FLASHING (for use with flanged windows)

A. Cut flexible flashing a minimum of 12 inches (300 mm) longer than width of sill rough opening.

B. Cover horizontal sill by aligning flexible flashing edge with inside edge of sill. Adhere to rough opening across sill and up jambs a minimum of 6 inches (150 mm). Secure flashing tightly into corners by working in along the sill before adhering up the jambs.

C. Fan flexible flashing at bottom corners onto face of wall. Firmly press in place. Mechanically fasten fanned edges.

D. On exterior, apply continuous bead of sealant to wall or backside of window mounting flange across jambs and head. Do not apply sealant across sill.

E. Install window according to manufacturer’s instructions.

F. Apply strips of flashing at jambs overlapping entire mounting flange. Extend jamb flashing 1-inch above top of rough opening and below bottom edge of sill flashing.

G. Apply strip of flashing as head flashing overlapping the mounting flange. Head flashing should extend beyond outside edges of both jamb flashings.
H. Position water resistive barrier head flap across head flashing. Adhere flashing over the 45-degree seams.

I. Tape head flap in accordance with manufacturer recommendations.

J. On interior, install backer rod in joint between frame of window and flashed rough framing. Apply sealant around entire window to create air seal. Apply sealant in accordance with sealant manufacturer’s instructions and ASTM C 1193.

3.8 FIELD QUALITY CONTROL

Specifier Note: Field observation by a manufacturer designated representative is recommended for all commercial projects and may be required by manufacturers on projects where special warranties are specified. Verify requirements with manufacturer. DELETE or EDIT field quality control requirements for specific project.)

A. Notify manufacturer’s designated representative to obtain periodic observations of water resistive barrier assembly installation. Do not cover work of this section until testing and inspection is accepted.

3.9 PROTECTION

A. Protect installed water resistive barrier from damage during application and remainder of construction period, according to manufacturer’s written instructions.

B. Coordinate with installation of materials which cover the water resistive barrier, to ensure exposure period does not exceed that recommended by the manufacturer.

END OF SECTION