



## G U I D E - S P E C

# Reinforced EPDM Mechanically Attached Roofing System

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This **GUIDE-SPEC** is a brief outline of WeatherBond®'s Reinforced EPDM Mechanically Attached Roofing System requirements and is intended for use as a submittal with a bid package. Specifiers and the WeatherBond Recognized Roofing Contractor must comply with the WeatherBond Technical Manual prior to design or bid. The "Products" Section included in the WeatherBond technical manual and WeatherBond's Technical Data Bulletins contain information on proper usage of WeatherBond products as well as applicable cautions and warnings. Prior to the installation of this roofing system, this information must be thoroughly reviewed.

### PART I GENERAL

#### 1.01 DESCRIPTION

The **WeatherBond Mechanically Attached Roofing System** incorporates 45, 60 or 75-mil Reinforced EPDM membrane. An acceptable insulation is mechanically attached to the roof deck and, depending on project criteria; the reinforced membrane is mechanically attached with the appropriate WeatherBond fastener and 2" or 2-3/8" diameter Fastening Plates (Polymer Plates required over steel deck) or Fastening Bars at 6" minimum to 12" maximum along the center of the membrane splice.

Adjoining sheets of EPDM membrane are spliced together using 3" or 6" wide Peel & Stick Seam Tape and Primer OR Pre-Applied Peel & Stick Seam Tape and Primer. Field membrane sheets are either 6.5', 8' or 10' wide depending upon wind load requirements, building height and type of roof deck. At the roof perimeter, a heavier fastening density is required utilizing 6.5' wide sheets or 9" wide Quick Applied RPS (Reinforced Perimeter Strip). The maximum roof slope for this roofing system is 18" in one horizontal foot.

This roofing system can also be specified over an existing standing seam, flat seam or corrugated metal roof with the membrane secured to the structural purlins. Refer to the appropriate specification for Metal Retrofit System.

#### 1.02 QUALITY ASSURANCE

- A. Building codes are above and beyond the intended purpose of this specification. The building owner, owner's representative or Specifier should verify local codes for applicable requirements and limitations. It is the responsibility of the specifier to review local, state and regional codes to determine their impact on the specified WeatherBond Roofing System.
- B. For specific code approvals achieved with this system, refer to FM Approvals or UL Fire Resistance Directory for Roofing Materials and Systems.

#### 1.03 SUBMITTALS

- A. Prior to installation, consult the WeatherBond Technical Manual for installation instructions and detailing requirements.

#### 1.04 GENERAL DESIGN CONSIDERATIONS

- A. It is the responsibility of the building owner or his/her designated representative to verify structural load limitation. In addition, a core cut may be taken to verify weight of existing components when the roofing system is to be specified on an existing facility.
- B. On new construction projects, especially in cold climate regions, moisture generated due to the construction process could adversely impact various components within the roofing assembly if not addressed. Refer to Spec Supplement G-01-18 "Construction Generated Moisture" included in the WeatherBond Technical Manual.
- C. On structural concrete decks, when a vapor retarder is not used, gaps in the deck along the perimeter and around penetrations must be sealed along with vertical joints between tilt-up panels, if present, to prevent infiltration of hot humid air and possible moisture contamination resulting from condensation. This is specifically important when adhesive is used to attach the roof insulation.

**CAUTION:** If left unaddressed, collected moisture could weaken insulation boards and facers resulting in a blow-off or increase the probability of mold growth.

- D. Concentrated loads from rooftop equipment may cause deformation of insulation/underlayment and possible damage to the membrane if proper protection is not provided. A protection course or sleepers must be specified.

## 1.06 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to job site in **original**, unopened containers.
- B. When loading materials onto the roof, the WeatherBond Recognized Roofing Contractor must comply with the requirements of the specifier/owner to prevent overloading and possible disturbance to the building structure.
- C. Job site storage temperatures in excess of 90° F (32° C) may affect shelf life of curable materials (i.e., uncured flashing, adhesives, sealants, primers, Peel & Stick Seam Tape, Pourable Sealer and Peel & Stick Flashings).
- D. **When the temperature is expected to fall below 40°F (5°C)**, outside storage boxes should be provided on the roof for temporary storage of liquid adhesives, sealants, primers, P&S Seam Tape and Peel & Stick Flashing/accessories. Containers must be rotated to maintain their temperature above 40° F (5°C).

**NOTE:** Prolonged exposure of Peel & Stick Flashing and P&S Seam Tape to temperatures below 40°F (5°C) will cause the pre-applied adhesive tape to lose tack and in extreme cases, not bond to the substrate. Refer to Spec Supplement E-02-18 “EPDM Membrane Splicing and Slice Repairs” in WeatherBond’s Technical Manual for application procedures in colder temperatures.

- E. Do not store adhesive containers with opened lids due to the loss of solvent, which will occur from flash off.
- F. Insulation/underlayment must be stored so it is kept dry and is protected from the elements. Store insulation on a skid and completely cover with a breathable material such as a tarp or canvas. If the insulation is lightweight, it should be weighted to prevent possible wind damage.

## 1.05 JOB CONDITIONS

- A. When possible, on multiple level roofs, begin the installation on the highest level to avoid or minimize construction traffic on completed roof sections.
- B. On projects at high altitudes (6,000’ and above) rapid flash off (drying) of substrate adhesive and primers will occur due to low atmospheric pressure.
- C. Wood nailers are required for the securement of metal edgings, scuppers, and insulated pipes. Treated or non-treated wood nailers may be specified and shall be secured per specifier recommendation or in accordance with Factory Mutual’s Property Loss Prevention Data Sheet 1-49. Refer to Design Reference DR-08-11 “Wood Nailers and Securement Criteria” in the WeatherBond Technical Manual.
- D. For fully adhered or mechanically attached systems specified over existing standing seam, flat seam or corrugated metal roofs, refer to the WeatherBond’s Metal Retrofit Roofing System Specifications.
- E. When any of the EPDM Roofing Systems are specified on a portion of a roof, tie-ins to existing roofing membranes will be required. Depending on the type of the existing roofing system, the tie-in method will vary. Total isolation between two roofing systems or weep holes may be required to address moisture migration from one roofing system to the other. Prior to the selection of any tie-in detail, ensure the selected detail will not restrict drainage.

## PART II PRODUCTS

### 2.01 GENERAL

The components of this roofing system are to be products of WeatherBond or accepted by WeatherBond as compatible. The installation, performance or integrity of products by others, **when selected by the specifier and accepted by WeatherBond**, is not the responsibility of WeatherBond.

### 2.02 MEMBRANE

**Reinforced EPDM Membranes:** Cured reinforced EPDM (Ethylene, Propylene, Diene Terpolymer) compounded elastomer and is available in black in 45, 60, or 75-mil thicknesses. White reinforced EPDM is available in 60-mil thickness. Reinforced membrane with polyester fabric conforms to ASTM D4637, Type II (reinforced). All sheets referenced in table are available with 3” or 6” factory applied Peel & Stick Seam Tape.

45 and 60-mil membranes are available in 6.5’ widths, used as perimeter membrane sheets, and 6.5’, 8’ or 10’ widths, used as field membrane sheets. When greater puncture or wind uplift resistance is desired, 10’ wide 75-mil EPDM Reinforced, may be specified.

### 2.03 RELATED MATERIALS

- A. WeatherBond LC-60 EPDM Bonding Adhesive, EPDM X-23 LVOC Bonding Adhesive, Low-VOC or Solvent Free EPDM Bonding Adhesive, Acrylic Water-Based Bonding Adhesive, Aqua Base Bonding Adhesive, Multi-Purpose or Low VOC Primer, P&S Seam Tape, Lap Sealant, Cured Coverstrip, P&S uncured Flashing, Seam Fastening Plates and Peel & Stick Reinforced Perimeter Strip (with the corresponding fasteners) are required for use with this roofing system. Other WeatherBond products, such as, insulation, insulation fasteners, edgings and Termination Bars are also required when specified.
- B. Other Products: Metal Fastening Bars, WeatherBond Walkway Pads, Quick Applied Pipe Flashings, Quick Applied Inside/Outside Corners,

## **PART III EXECUTION**

### **3.01 GENERAL**

- A. Safety Data Sheets (SDS) must be on location at all times during transportation, storage and application of materials. The contractor shall follow all safety regulations as recommended by OSHA and other agencies having jurisdiction.
- B. When feasible, begin the application at the highest point of the highest roof level and work to the lowest point to prevent moisture infiltration and to minimize construction traffic on completed sections. This will include completion of all flashings and terminations.

### **3.02 ROOF DECK CRITERIA**

- A. A proper substrate shall be provided by the building owner. The structure shall be sufficient to withstand normal construction loads and live loads.
- B. Defects in the roof deck must be reported and documented to the specifier, general contractor and building owner for assessment. The WeatherBond Recognized Roofing Contractor shall not proceed unless the defects are corrected.
- C. Refer to WeatherBond Technical Manual for acceptable decks and the applicable WeatherBond Fasteners (when mechanical attachment of insulation is specified).

### **3.03 SUBSTRATE PREPARATION**

- A. On retrofit-recover projects, cut and remove wet insulation, as identified by the specifier, and fill all voids created by such removal with new insulation so that it is relatively flush.
- B. For all projects, substrate must be even without noticeable high spots or depressions and free of accumulated water, ice or snow.
- C. Clear substrate of debris and foreign material. Fresh bitumen based roof cement must be removed or concealed.

### **3.04 INSTALLATION**

Refer to the applicable Safety Data Sheets and Technical Data Bulletins for cautions and warnings.

#### **A. Insulation Attachment**

- 1. WeatherBond DASH or Flexible DASH Adhesive may be specified for insulation securement as outlined in the WeatherBond Technical Manual.
- 2. WeatherBond Fasteners may be used, when specified, to secure WeatherBond Insulation at the specified density outlined in the WeatherBond Technical Manual.

#### **B. Membrane Placement and Attachment**

- 1. Position EPDM membrane over the acceptable substrate without stretching. For Mechanically Attached assemblies, ensure the proper number of perimeter sheets are properly positioned along the perimeter of the roof. And field sheets are positioned perpendicular to the steel deck flutes.
- 2. Allow the membrane to relax approximately 1/2 hour prior to fastening (Mechanically Attached systems).
- 3. Place adjoining membrane sheets in the same manner, overlapping edges appropriately to provide for the minimum splice width (2-1/2"). It is recommended all splices be shingled to avoid bucking of water.
- 4. When mechanical securement is not provided in some of the WeatherBond Universal Details (i.e., pipes and pourable sealer pockets), additional Seam Fastening Plates must be used for membrane securement. The plates must be positioned a maximum of 12" away from the penetration, spaced a maximum of 12" on center and flashed in accordance with the applicable Weatherbond Detail.
- 5. A minimum of one 6.5' wide perimeter membrane sheet or 6" or 9" wide Peel & Stick RPS (positioned beneath the field sheets) shall be installed at the perimeter of each roof level and 6.5', 8' or 10' wide sheets shall be installed over the field of the roof.
- 2. Membrane shall be Mechanically Attached with the appropriate WeatherBond Fasteners and Polymer Seam Plates (required for steel decks) or Seam Fastening Plates spaced 6" minimum to 12" maximum on center, depending on project criteria, within the membrane splice. Refer to the "Design Criteria" section for the required number of perimeter membrane sheets, width of field sheets and required fastener spacing.
- 3. As an option to the use of WeatherBond Fastening Plates, Fastening Bars may be used for membrane securement in conjunction with HPWX Fasteners.
- 4. Overlap adjacent EPDM membrane sheets a minimum of 6 inches at fastener locations (along the length of the membrane sheet) and 3" at end

roll sections (the width of the membrane).

5. Membrane Splicing with P&S Seam Tape (membrane is available with factory applied tape).
  - a. Apply WeatherBond EPDM Primer to the splice area. When tape is not factory-applied, position P&S Seam Tape onto bottom membrane sheet with the edge of the release film along a line marked 1/2" out from the top sheet. Press tape onto sheet using hand pressure, overlapping tape roll ends a minimum of 1". Remove the release film and press top sheet onto tape using hand pressure. Roll the splice with a 2" wide steel roller or WeatherBond's Stand-Up Seam Roller.
  - b. Install a Peel & Stick T-Joint Cover or a 6" wide section of Uncured EPDM Flashing over all field splice intersections. The use of Lap Sealant with tape splices is optional except at tape overlaps and cut edges of reinforced membrane.

#### C. Additional Membrane Securement

Securement must be provided at the perimeter of each roof level, roof section, expansion joint, curb flashing, skylight, interior wall, penthouse, etc., at any inside angle change where slope exceeds 2" in one horizontal foot, and at other penetrations in accordance with WeatherBond's details and securement options as listed below:

1. **Peel & Stick RPS (Reinforced Perimeter Strip):** P&S RPS is a 6" wide strip of reinforced EPDM membrane with factory-applied 3" wide P&S Seam Tape and is installed in conjunction with WeatherBond EPDM Fasteners and 2" diameter Metal Membrane Plates spaced a maximum of 12" on center below the EPDM deck membrane (Polymer Seam Plates or Polymer Fastening Strips are required for Mechanically Attached Roofing Systems over steel decks). The securement strip can be fastened horizontally to the structural deck or vertically at walls and curbs.
  - a. Loose lay the 6" wide Peel & Stick RPS along parapet walls and fasten with Metal Membrane Plates and the appropriate WeatherBond fastener to the roof deck or into the parapet wall. Spacing of the Metal Membrane Plates shall be a maximum of 12" on center.
    - 1) For horizontal attachment, the reinforced strip must be positioned a minimum of 1/8" to a maximum of 6" away from the angle change with pressure sensitive side facing away from the parapet and towards the roof plane.
    - 2) For vertical attachment, the reinforced strip must be attached to the vertical wall with pressure sensitive side extending onto the roof surface.

**CAUTION:** Horizontal RPS attachment is required when insulation is attached with adhesives to a vapor barrier or an existing asphalt based roof. For various options, Refer to Spec Supplement G-07-19 "Application Procedures for VapAir Seal 725TR Air and Vapor Barrier".

- b. Adjoining sections of the reinforced strip need not be overlapped; however, gaps between adjoining sections must not exceed 1".

**CAUTION:** When RPS is used for membrane securement along metal edgings, refer to the appropriate detail for applicable installation criteria. For some metal edge details, adjoining sections of the reinforced strip must be overlapped and spliced.

- c. When using Peel & Stick RPS, clean the underside of the membrane with WeatherBond Primer and allow proper flash-off prior to removing the release film from the RPS.
2. **Metal Membrane Plates:** When the use of Peel & Stick RPS is not feasible (at smaller curbs or skylights), 2" diameter Metal Membrane Plates may be used.
    - a. Metal Membrane Plates may be installed horizontally into the structural deck or into walls or curbs.
    - b. Securement of the EPDM membrane with the approved WeatherBond Fasteners and Metal Membrane Plates must be a maximum of 12" on center starting 6" minimum to 9" maximum from inside and outside corners.
    - c. If horizontal wood nailers are provided, secure the Metal Membrane Plates to the wood nailer with WeatherBond HPW Fasteners. Nails (i.e. ringshank, roofing, etc.) are not acceptable for securement.
    - d. After securing the Metal Membrane Plates, flash in accordance with the appropriate WeatherBond Detail.

#### D. Membrane Flashing

1. Refer to WeatherBond Technical Manual for membrane flashing.

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**Physical properties of Reinforced EPDM Membrane can be referenced in Part II, "Products" of the EPDM Specification. Attach copies of the applicable WeatherBond Details that pertain to the individual project conditions to complete a bid package submittal.**