

# **Firestone**

**Firestone Building Products**

## **FullForce™ EPDM Application Guide**

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## 1.01 General

This section of Firestone's Technical Database outlines instructions for the installation of Firestone's FullForce EPDM membrane with SecureBond™ Technology. Reference to the EPDM Design and Application Guides, Technical Information Sheets and other sections of Firestone Technical Specifications is necessary to ensure that the involved products and finished roof system are installed in compliance with Firestone requirements and therefore eligible to receive a Firestone Red Shield™ Warranty.

**NOTE:** If a proposed application falls outside this specification, contact Firestone Technical Services for additional information.

## 1.02 Preparation

Approved substrates must be clean, dry and free of foreign material such as grease and any debris which could inhibit adhesion. This may require cleaning with a broom or blower. An acceptable Firestone Primer is required for seam and detail work, but no primers or adhesives are necessary for field membrane attachment.

1. Insulation must be secured per current Firestone technical specifications to provide a proper substrate for membrane application.
2. Install FullForce EPDM membrane only when membrane, substrate and ambient temperatures are minimum 20 °F (-7 °C) and rising. Do not install FullForce EPDM membrane below this minimum temperature.
3. Unroll and position the membrane over the substrate to achieve the desired alignment and overlaps. Allow the membrane to relax a minimum of 30 minutes before final positioning and adhering.
4. Position adjoining sheets in a manner that all side and end laps provide a minimum 3" (76 mm) overlap.
5. An acceptable Firestone Primer (QuickPrime™ Plus, QuickPrime Plus LVOC, Single-Ply QuickPrime Primer or Single-Ply LVOC Primer) shall be applied to all EPDM lap surface areas to receive FullForce EPDM.
6. All lap splices require FullForce Sealant along the seam edge.
7. Position adjoining sheets in a manner that the seams shed water or run parallel to the flow of water.

## 1.03 Membrane Attachment

### A. Membrane Preparation

1. FullForce EPDM membrane may be installed on roofs up to 250' (76.2 m) in height. For heights exceeding 250' (76.2 m), contact Firestone Technical Services.

**NOTE:** This does not mean these systems are approved by the Factory Mutual Research Corporation. Contact Firestone or consult the Factory Mutual Approval Guide for approved assemblies.

2. Insulation must be fastened per current Firestone technical specifications to provide a proper substrate for application.
3. Install FullForce EPDM membrane when membrane, substrate and ambient temperatures are min. 20 °F (-7 °C) and rising. Do not install FullForce EPDM membrane below this minimum temperature.
5. Unroll and position the membrane over the substrate to achieve the desired alignment and overlaps. Allow the membrane to relax a minimum of 30 minutes before final positioning and adhering.

### B. Membrane Positioning and Seam Primer Application

It is important that the seam overlap areas are clean and that no moisture is present on the lap surface.

1. Position adjoining sheets allowing for a minimum 3" (76 mm) side and end lap overlap.
2. Mark the bottom membrane 1" (25 mm) outside the edge of the top membrane with a lumber crayon or similar instrument to note the minimum primer coverage area.
3. Fold the top membrane back along the seam to allow for primer application without disturbing the original position of the membrane.
4. Stir the approved Firestone primer thoroughly before using. **Do not thin.** A minimum of two minutes of vigorous hand mixing is required.
5. Apply the primer along the crayon mark to coat the entire bottom seam area, using the Firestone QuickScrubber™ or QuickScrubber Plus Pad and Handle. **Do not use brushes or rollers to apply priming products to Firestone membranes.** Use back and forth strokes with heavy pressure along the length of the seam area, until the membrane surface becomes uniform in color, with no streaks or puddles.

## B. Membrane Positioning and Seam Primer Application Continued

6. Allow the primer to flash-off appropriately.
7. Fold the membrane back into position at the seam locations, check for proper primer coverage, and complete membrane application as described below.

## C. Field Membrane Application

1. Carefully fold back the leading edge of the FullForce EPDM membrane at one end to expose the release liner. **Do not fold the length of the roll in half to remove the release liner.**
2. Starting from the center split of the exposed release liner, remove the liner on both sides of the split at a 45° angle toward the membrane edge. Be sure to pull enough of the release liner to extend out beyond the membrane edge.
3. Expose minimum 5' (1.5 m) of the SA adhesive at the end of the sheet and back-roll it onto the substrate. (The removed release liner should extend out at an angle beyond both edges of the membrane.) **Do not remove the 4" (102 mm) strip of release liner along the seam edge at this time.**
4. Keeping the membrane flat and secured and the seam overlap aligned, continue to remove the release liner at a 45° angle, parallel to the roof surface, along the entire length of the sheet. Pulling the release liner at an alternate angle may allow the sheet to move or may trap air. The two halves of the release liner are to be removed simultaneously by two people. Keep the release liner as close to the roof surface as possible during removal. **Removal of the liner and handling of the exposed SA adhesive should be completed by two persons minimum.**
5. To initiate adhesion, use a stiff bristled broom and apply downward pressure to broom in the installed membrane across the width of the sheet working from the center toward the edge. Repeat the process for the other half of the sheet.
6. Next, remove the 4" (102 mm) strip of release liner from the edge overlapping the lower sheet of EPDM. Peel the liner at a 45° angle to the seam edge and parallel with the roof surface.
7. Use a 1½" to 2" (38 mm to 51 mm) wide silicone roller or Firestone QuickRoller™ to roll the entire seam, first at a right angle toward the outer seam edge and then along the length of the seam, making sure there is sufficient contact between the two membrane layers. Special attention is needed at the factory seam step-offs.  
**NOTE:** Firestone QuickSeam Joint Covers are required at all T seam intersections and head lap overlaps.
8. Roll across the width of the installed membrane with a weighted roller (5 lb/LI) to ensure full contact with the substrate.  
**NOTE:** Do not roll membrane in place with a weighted roller if installed over ISOGARD™ HD or ISOGARD CG boards.
9. Install Joint Covers as necessary then apply FullForce Sealant to specification along all seam overlaps.

## D. Roof Edge Membrane Application

1. Align the FullForce EPDM membrane into position along the roof edge and allow to relax for a minimum of 30 minutes (longer in colder weather). Consult Firestone specifications and details for minimum roof edge overlap.
2. Carefully fold back the leading edge of the membrane minimum 10' (3.05 m) from one end to expose the release liner. **Do not fold the length of the roll in half to remove the release liner.**
3. Starting with the outside edge (roof edge portion) of the release liner, carefully peel the liner from the sheet, pulling it *underneath* the membrane, toward the field of the roof at a 45° angle to expose the SA adhesive. Take care to not disturb the original positioning of the membrane.
4. Next, pull the remaining section of the liner (inside portion) *underneath* the membrane and toward the field of the roof at a 45° angle. Maintain a minimum 12" (305 mm) separation between the two sections of liner. Pull the 4" (102 mm) strip of release liner with the adjacent section of liner.
5. Expose minimum 10' (3.05 m) of the adhesive backing at the end of the sheet and back-roll it onto the substrate. (All three sections of the removed release liner should extend beyond the field side of the membrane edge at a 45° angle.)

## D. Roof Edge Membrane Application Continued

6. Keeping the FullForce EPDM membrane flat, secured and in proper alignment, remove the three sections of the release liner simultaneously at a 45° angle, keeping parallel to the roof surface, along the entire length of the sheet. Pulling the release liner at an alternate angle may allow the sheet to move or may trap air. The roof edge side of the release liner should be pulled just in front of the field edge side, maintaining a minimum 12" (305 mm) separation between the three sections. The three sections of release liner are to be removed simultaneously by three people. Keep the release liner as close to the roof surface as possible during removal. **Removal of the liner and handling of the exposed SA adhesive should be completed by three persons minimum.**
7. To initiate adhesion, use a stiff bristled broom and apply downward pressure to broom in the installed membrane across the width of the sheet working from the center toward the edge. Repeat the process for the other half of the sheet
8. Roll across the width of the installed membrane sheet with a weighted roller (5 lb/LI) to ensure full contact with the substrate.  
**NOTE:** Do not roll membrane in place with a weighted roller if installed over ISOGARD HD or ISOGARD CG/ RESISTA boards.
9. Install subsequent membrane panels and complete seams using the process outlined above for application of primer and field membrane.

### 1.04 Install Patches at T-Joint Overlaps and Substrate Transitions

1. Wherever three or more layers of FullForce membrane overlap, install a QuickSeam Joint Cover or minimum 5" (127 mm) section of QuickSeam Flashing, set in an acceptable Firestone primer.
2. Also install Joint Covers at all steps or changes in plane in the FullForce membrane (onto crickets, at wall and curb transitions, etc).
3. It is important that areas to receive flashing are clean and that no moisture is present.
4. Stir the approved Firestone primer thoroughly before using. **Do not thin.** A minimum of two minutes of vigorous hand mixing is required.
5. Apply primer to surface of the FullForce membrane using the Firestone QuickScrubber Pad and Handle. **Do not use brushes or rollers to apply priming products to Firestone membranes.** Use back and forth strokes with heavy pressure in an area larger than the flashing membrane, until membrane surfaces become uniform in color, with no streaks or puddles.
6. Allow the primer to flash-off appropriately.
7. After the primer has flashed-off, remove the release paper from the Joint Cover or Flashing material, being careful not to contaminate the tape portion of the flashing.
8. Position the flashing over the center of the t-joint area and mate to the primed FullForce membrane.
9. Roll the flashing with a 1.5" (38 mm) silicone roller, from the center outwards, working the flashing into seam step-offs or irregularities.
10. Apply FullForce Sealant to all flashing edges per specification.

### 1.05 FullForce Sealant Application

1. All completed FullForce EPDM membrane seam overlaps require FullForce Sealant over the seam edge. Apply an acceptable Firestone primer to the seam edge before installing sealant.
2. Surfaces to which sealant is applied must be clean, dry, and free from loose or foreign materials, oil, and grease.
3. Apply FullForce Sealant to all seam and flashing edges by the end of each working day. If inclement weather is threatening, apply an acceptable Firestone Primer to the edge of the membrane splice before leaving the project.
4. Prior to application of the primer, if the seam edge has been contaminated with dirt or debris, clean the seam edge a minimum of 1" (25.4 mm) on each side of the step-off with Firestone Splice Wash, and allow to dry.
5. Apply a continuous bead of FullForce Sealant approximately  $\frac{3}{8}$ " x  $\frac{1}{4}$ " (9.5 mm x 6.3 mm), centered over the seam or flashing edge. Be sure to keep the applicator tip centered over the lap step-off. Refer to current Firestone FullForce EPDM seam details for additional information.

## 1.06 Base Tie-In, Wall and Curb Flashing

Firestone offers numerous options for base tie-in and flashing on EPDM roofing systems. Consult standard details for additional information.

An acceptable Firestone Primer (QuickPrime Plus, QuickPrime Plus LVOC, Single-Ply QuickPrime Primer or Single-Ply LVOC Primer) is required for vertical applications of FullForce EPDM.

### A. Base Tie-In and Vertical Flashing using Firestone QuickSeam Reinforced Perimeter Fastening Strip (QSRPF).

1. Unroll and position the QSRPF strip with the release paper facing up and the tape portion oriented away from the wall or curb.
2. Anchor the side of the QSRFP without tape to the roof deck or to the wall 12" (305 mm) o.c. using Firestone 2" (51 mm) Metal Seam Plates or Firestone batten strip and approved Firestone fasteners, per current base tie-in details. Refer to current published specifications for product selection and attachment requirements.
3. Position membrane, mark the horizontal and vertical overlaps and apply primer to vertical substrates and seam overlaps as noted in the primer application section above.
4. Proceed with installation of FullForce EPDM membrane as described in the field membrane application section of this specification. Remove the release liner from the QSRPF before mating the membrane to the tape side of the QSRPF. No primer is necessary at the splice between FullForce EPDM and QSRPF tape.
4. Tuck the membrane carefully into the angle change then continue to roll the membrane up the wall and broom into place with a stiff push broom. Roll the vertical flashing to ensure permanent adhesion.
5. Roll the membrane over the QSRPF with a 1½" to 2" (38 mm to 51 mm) wide silicone roller or Firestone QuickRoller, first along the backside of the QSRPF near the angle change, then over the tape at a right angle toward the outer tape edge, then along the length of the tape.
6. Remove the 4" (102 mm) section of release liner from the vertical lap and roll the overlap with a 1½" to 2" (38 mm to 51 mm) wide silicone roller, first at a right angle to the seam, then along the length of the seam. NOTE: Firestone QuickSeam Joint Covers are required wherever vertical splices extend through angle changes.
7. Apply FullForce Sealant to specification at all seam and flashing overlaps.

**End of Section**