



# Thermoplastic Single Ply and Multi-Ply Roofing Systems

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## **FLEX CTEM (coal tar elastomeric membrane) ROOF SYSTEMS** **INSTALLATION GUIDE**

### **Material Handling**

- 1) All materials shall be delivered and stored in their original unopened containers or packaging.
- 2) Store materials in a dry, well ventilated area.
- 3) Store roll goods, adhesives, and mastics between 40°F and 80°F.
- 4) Roll goods must be stored on end. If the material has a selvedge edge, the selvedge edge should be up.

### **Deck Requirements**

- 1) A properly designed and constructed roof deck is the responsibility of the building owner and the building owner's representative.
- 2) The surface of the roof deck shall be dry, clean, smooth, firm, properly constructed, properly attached, and properly designed for anticipated loads with deflection not to exceed 1/240 of the span at mid-span.
- 3) Flex has no minimum slope requirement for the coal tar elastomeric roof membranes. Consult local Building Codes for minimum slope compliance.
- 4) All penetrations through the roof deck should be completed prior to installation of the roofing systems. Penetrations shall not be placed closer than 24" from the base of adjoining walls.
- 5) Perimeter wood nailers, wood blocking at curbs, and cants are required. The wood nailers are to be installed at the same height as the insulation. The nailers should be fastened in a manner to resist a minimum of 200 lbs. per lineal foot in any direction.

### **Membrane General Application**

- 1) Care must be taken to place very little or no stress on the membrane during the application.
- 2) Unroll the Flex CTEM and allow it to relax prior to the application. The membrane should be laid flat and allowed to relax until there is no noticeable curl. The time required for this is dependent of the job site weather conditions.
- 3) After the CTEM has relaxed it may be loosely re-rolled prior to application.
- 4) The installation of the Flex CTEM begins at the low point of the roof and progresses in the up slope directions. Laps must be shingled away from the flow of water.
- 5) Phased construction is not recommended. The base ply or intermediate plies as well as the cap sheet should be installed and made water tight the same working day.

- 6) All roof areas covered with the Flex CTEM system require the installation of picture frame sheets.
- 7) The picture frame is created by installing a full width roll of the membrane parallel to all perimeters. On the perimeters that are perpendicular to the field sheets the framing sheet should overlap the field sheet by a minimum of 12”.

### **Hot Asphalt CTEM Application**

- 1) All masonry, metal, and wood surfaces that will come into contact with hot asphalt must be primed with Flex CTEM primer prior to the application of the asphalt.
- 2) Asphalt may be Type III or Type IV ASTM D312 hot steep asphalt. The temperature of the asphalt at the point of application may be no less than 425° F.
- 3) Base ply, interply, and cap sheet application of hot asphalt shall be at the rate of 25 lbs per 100 square feet.
- 4) All fiberglass plies shall be broomed in place immediately after application to insure firm embedment. Allow the asphalt to set up before permitting foot traffic.
- 5) The entire Flex CTEM must be totally embedded in asphalt with no skips or voids in the mopping. There should be a small amount of asphalt exuding from the side laps and end laps to ensure full adhesion of the lap. If the seams are to be completed by the hot air welding method do not apply any asphalt to 3” of the side lap or end laps of both the top and bottom sheet.
- 6) Side laps are to be 3” at the factory provide lay line along the 50’ length of the membrane. End laps are to be 9” and all end laps are staggered a minimum of 24” from adjoining end laps.

### **Self Adhered Membrane (SAM) CTEM Application**

- 1) All masonry, metal, and wood surfaces that will come into contact with the Flex CTEM roof system must be primed with Flex CTEM primer prior to the application of the roofing membranes.
- 2) Unroll the Flex SAM CTEM and allow it to relax prior to the application. The membrane should be laid flat and allowed to relax until there is no noticeable curl. The time required for this is dependent of the job site weather conditions.
- 3) Once the Flex SAM has relaxed loosely reroll the membrane and place it in its proper position with the release film still adhered to the adhesive coating.
- 4) Fold approximately ½ the length of the Flex SAM back upon the remaining half.
- 5) Remove the release film from the exposed back of the Flex SAM.
- 6) Carefully roll the half of the roll with the exposed adhesive from the center out to the end.
- 7) Do not allow air to become trapped under the membrane.
- 8) Repeat the process with the other half of the Flex SAM.
- 9) After installing roll the membrane with a heavy roller 100 lb. minimum.
- 10) The seams of the Flex SAM are completed by the hot air welding method. End laps are capped with a 6” trim strip of the SAM hot air welded to the field membrane.

### **Hot Air Welding**

- 1) All Flex CTEM can be hot air welded.
- 2) Hot air welding of the seams is optional if the finished roof specification calls for a flood coat of asphalt and gravel surface.
- 3) All other Flex CTEM roof surfaces the seams must be hot air welded.

- 4) End laps are covered with a 6" CTEM end lap splice strip which is hot air welded around its entire perimeter to the field membrane.

### **Cant Strips**

- 1) Cant strips are required at the intersections of the roof and all walls, parapets, curbs or angle changes greater than 45° that require flashing.
- 2) Cant strips may be installed mechanically attached, set in hot asphalt, or set in an approved adhesive.
- 3) Cant strips may be made of wood, perlite, fiberglass or concrete. Metal cant or metal curb strips are not acceptable.
- 4) Cant strips are to be a minimum of 4" in horizontal and vertical dimensions. The angle of the cant with the roof shall have an incline no greater than 45°.
- 5) Cant strips are to be installed on top of the roof insulation or wood nailers.
- 6) Cant strips are to be neatly fitted at joints and mitered at inside and outside corners.

### **Flashings**

- 1) All masonry, metal, and wood surfaces that will come into contact with hot asphalt must be primed with Flex CTEM primer prior to the application of the asphalt.
- 2) Flashing membranes are required at all roof penetrations and perimeters to properly seal the edges of the roof system.
- 3) Flashing height is to be a minimum of 8" vertical above the surface of the roof.
- 4) Flex CTEM base flashing membranes are not to exceed 12" vertical above the surface of the roof.
- 5) Flex CTEM flashing membrane are to be installed adhered with Type III or IV hot steep asphalt or adhered with Flex CTEM flashing cement.
- 6) The top edge of all Flex CTEM flashing membranes must be secured with Flex Termination bar fastened 6" on center. An approved sealant is applied to the top of the termination bar.

### **Flood Coat and Gravel**

- 1) The asphalt is to be either Type III or Type IV hot steep asphalt in compliance with ASTM D 312.
- 2) The asphalt is to be applied at the rate of 60 pounds per 100 square feet.
- 3) The aggregate is to be in compliance with ASTM D1863. The aggregate must be dry before it is embedded into the asphalt.
- 4) The aggregate is to be applied at the rate of 400 pounds per 100 square feet.

### **Weather Restrictions**

- 1) Do not install Flex CTEM roof system components if any water, dew, frost or snow is present at the time of application.
- 2) Do not install Flex CTEM hot applied roof systems if the ambient temperature is less than 40°F.
- 3) Do not install Flex CTEM hot applied roof systems unless the appropriate asphalt temperature can be maintained.
- 4) Do not install Flex CTEM SAM roof systems if the ambient temperature is less than 50 °F.