

**SECTION 01394**

**Fluid Applied Reinforced Elastomeric Latex Membrane for Metal Roofs**

# **MIR System**

**(Benchmark,<sup>®</sup> Rapid Roof<sup>®</sup> III or Rapid Roof<sup>®</sup> HV)**



## **PART 1—GENERAL**

### **1.01 Description**

- A. Work included: all labor, materials, equipment and accessories to furnish and install fluid applied Benchmark®, Rapid Roof® III, Rapid Roof® HV, Metal Ready® or Kolor Kote Finish Coat roof coatings over approved protected metal roof decks.
- B. Related work specified elsewhere:
  - 1. Sheetmetal work
  - 2. Prefabricated roof specialties
  - 3. Roof accessories

### **1.02 Quality Assurance**

- A. Certification of materials: Conklin Company Inc. shall furnish upon written request, notarized certification that the material furnished meets the physical properties set forth in this specification.
- B. Requirements of regulatory agencies: furnish and install all roofing materials required to meet regulatory agency standards and appropriate building codes. If changes are required of drawings or specifications in order to meet requirements of regulatory agencies specified or to provide guarantee specified, cost of such changes shall be included. Any changes to drawings or specifications shall be approved by architect before work commences.

### **1.03 Submittals**

- A. Product data: shall include manufacturer's product specifications and installation instructions.
- B. Certified tests: submit copies of certified test reports which indicate compliance with the specified minimum physical properties and performance requirements for materials.

### **1.04 Product Delivery, Storage and Handling**

- A. Delivery of materials:
  - 1. Membrane materials shall be delivered to the job site in Conklin Company's original, unopened containers bearing manufacturer's original label.
  - 2. Related miscellaneous items shall be delivered to job site in new condition, and where applicable, properly labeled.
- B. Storage of materials:
  - 1. Store materials in accordance with manufacturer's recommendations.
  - 2. Store acrylic latex materials so they will not freeze.
- C. Handling and protection of materials: meet requirements of manufacturer's recommendations for handling and protection of materials during installation. Handle materials so that they are not contaminated by foreign materials.
- D. Damaged materials: contaminated or damaged materials shall not be used in the installation and shall be removed from site immediately upon discovery.

### **1.05 Job Conditions**

- A. Environmental requirements:
  - 1. General requirements: application of coatings shall not proceed unless environmental conditions are suitable as prescribed by the manufacturer of the material being supplied.
  - 2. Application temperature requirements:
    - a. Ambient: application shall not proceed when ambient temperature is less than 40°F or greater than 100°F.
    - b. Surface: application shall not proceed when surface temperature is less than 40°F or greater than 120°F.
- B. Protection of unrelated work: take all measures necessary to protect unrelated work and surfaces to avoid overspray from coatings.

### **1.06 Specific Product Guarantee**

- A. Conklin Company's guarantee to the distributor: Conklin Company Inc. guarantees for a period of five (5) years from date of purchase that Benchmark®, Rapid Roof® III and Rapid Roof® HV roof coatings are free of any defects in manufacturing. This guarantee is limited to replacement of product at the expense of the company, when such product proves to be defective in manufacture. Among other things, this guarantee does not apply to coverage failures due to improper application. Proper application includes, but is not limited to, the requirements that the product must be applied in a continuous unbroken (closed seal) film or dry thickness no less than 48 mils\* over the horizontal and vertical seams.

The dry film thickness of Rapid Roof® III or Rapid Roof® HV on horizontal seams is no less than 46 mils\* over vertical seams. Minimum thickness for Benchmark® top coat in the field of the roof is 13 dry mils. Minimum thickness for Rapid Roof III Top Coat or Rapid Roof HV Top Coat in the field of roof is 12 dry mils. Minimum thickness for Kolor Kote Finish Coat in the field of the roof is 3 dry mils.

THE COMPANY SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES FROM ANY CAUSE WHATSOEVER. THIS WARRANTY IS IN LIEU OF THE IMPLIED WARRANTY OF MERCHANTABILITY AND ALL OTHER WARRANTIES EXPRESSED OR IMPLIED.

This guarantee applies only to the Conklin distributor who purchases the product and cannot be extended to any other person.

\*Please note: the film thickness measurement of 48 dry mils indicates the film thickness of the coating and embedded Spunflex II fabric. The MR System does require embedding Spunflex II fabric on all seams. If the optional Butyl Tape is used, refer to section 3.03 C for details.

- B. Optional manufacturer/contractor limited warranty for Rapid Roof III and Benchmark only: please consult with the manufacturer for details and availability of other warranty programs.

## PART 2—PRODUCTS

### 2.01 Fluid Applied Reinforced Elastomeric Latex Membrane for Metal Roofs

A. Acceptable manufacturer: Conklin Company Inc., Shakopee, Minn., “MR System”

B. Description: a seamless membrane system consisting of Benchmark, Rapid Roof III or Rapid Roof HV fluid applied acrylic latex base coat with a fabric embedded over the seams and fluid applied acrylic latex top coat.

C. Physical and performance requirements for acrylic latex coating system: Benchmark,\* Rapid Roof III\* and Rapid Roof HV,\* consisting of an acrylic latex base coat and top coat, shall meet the following minimum requirements when tested with **Spunflex II** in accordance with the standard indicated:

1. Elongation (ASTM D412):

|                  |      |                |      |               |      |
|------------------|------|----------------|------|---------------|------|
| a. MD: Benchmark | 79%  | Rapid Roof III | 85%  | Rapid Roof HV | 85%  |
| b. XD: Benchmark | 246% | Rapid Roof III | 283% | Rapid Roof HV | 221% |

2. Tensile strength (ASTM D412):

|                  |           |                |           |               |           |
|------------------|-----------|----------------|-----------|---------------|-----------|
| a. MD: Benchmark | 1,905 psi | Rapid Roof III | 1,744 psi | Rapid Roof HV | 1,933 psi |
| b. XD: Benchmark | 766 psi   | Rapid Roof III | 547 psi   | Rapid Roof HV | 554 psi   |

3. Fire resistance (ANSI/UL 790 and CAN/ULC – 5107M: Class A

4. Factory Mutual 4470 – pass (Benchmark only)

5. Dade County, Florida Acceptance NO.: 97-0312.02

NOTE: Rapid Roof HV is not classified for exterior fire exposure. Benchmark and Rapid Roof III are classified for exterior fire exposure. Refer to the Underwriters Laboratories Roofing Materials and Systems Directory or contact Conklin Product Services.

\*Refer to Conklin Company Specification Sheet Section 01194 or 07543 (HV) for specific coating properties.

D. Physical and performance requirements of **Spunflex II** polyester fabric:

1. Fabric type: knitted polyester

2. Yarn denier: 150

Construction: 29 x 29 per square inch

3. Nominal weight: 4.75 ounces per square yard

4. Mullen burst: 200+ psi (ASTM D751)

5. Elongation (ASTM 1682):

a. MD: 67% MD = Machine Direction

b. XD: 205% XD = Cross Direction

6. Grab breaking strength (ASTM 1682):

a. MD: 137 pounds

b. XD: 67 pounds

7. Fabric thickness (FTM-5136): .032 inch

### 2.02 Miscellaneous Materials

A. Caulking: Kwik Kaulk® caulking compound as furnished by membrane manufacturer.

B. Primer: Metal Ready® as furnished by membrane manufacturer.

C. Joint tape: fabric reinforcement tape shall be as furnished by membrane manufacturer.

D. Cleaner: Rust Off® cleaner for galvanized surfaces.

E. Butyl Tape as furnished by membrane manufacturer.

## PART 3—EXECUTION

### 3.01 Inspection

A. Inspect roof surface receiving work specified to ensure that the following conditions exist:

1. Metal roof surfaces shall be dry, clean and free of dirt, rust, corrosion and other coatings or conditions which could affect the bond of the roof membrane system.
2. Roof surface shall be free of ponding water. Slope of roof area shall be not less than  $\frac{1}{4}$ " per foot. (This is membrane manufacturer's recommendation.) A roof surface which has 36 or more square feet of water in any area,  $\frac{1}{4}$ " deep or more, 48 hours after a rain, shall be considered unacceptable. All water shall drain off the roof. Small "bird baths" cannot account for more than 5% of the entire roof surface.
3. Roof surfaces which are chalky, friable, waxy or oily are not acceptable to receive membrane.
4. Inspect condition of flashing details adjacent to protrusions, penetrations, curbs, walls, drains and roof edge to ensure that details are acceptable and will maintain a weathertight installation.
5. System can only be applied over factory-applied finishes. **System cannot be applied over field-applied finishes.**
6. All joining metal sections shall be properly closed and mechanically fastened or welded.
7. Acceptable gauge for metal shall be 18 to 26 gauge.
8. Metal Roof System is recommended for bare metal (steel, galvanized steel and aluminum) and prefinished (factory applied coating) metal panels.

### 3.02 Preparation

A. Preparation of metal deck:

1. Acid etch surface of galvanized metal with a 1:20 solution of Rust Off® cleaner to remove all conditions which will affect bond of roof membrane and follow with a thorough water rinse. Power wash and scrub all other approved surfaces.
2. Clean rusted areas until free of loose, flaky rust and prime with Conklin's Metal Ready® rust inhibiting primer.
3. Retighten all fasteners and secure substrates firmly. Replace fasteners or washers where missing. When prior movement has enlarged the fastener hole, install a new oversized fastener to effectively tighten and secure the deck substrate.
4. Caulk all exposed fastener heads and seams (wider than  $\frac{1}{8}$ ").
5. Just prior to application, remove all dirt, dust and other contaminants by brushing, vacuuming or power blowing.

### 3.03 Application

A. Application method: both base coat and top coat shall be applied by airless spray, brush or  $\frac{3}{4}$ " to  $1\frac{1}{4}$ " nap roller.

B. Application procedure:

1. Develop a systematic method for application of coating and fabric to metal seams. (Refer to technical bulletin B59234, updated 8/27/97, for standing seam roofs.)
2. *For horizontal (end lap) seams:* apply a 6" wide strip of Benchmark®, Rapid Roof® III or Rapid Roof® HV base coat at a rate of 1.75 gallons per square (200 lineal feet) and immediately embed the 5" wide **Spunflex II** polyester tape into the wet coating with a brush or roller, making sure the tape is flat and wrinkle-free by brushing or rolling from center out at 45° angles.  
*For vertical seams:* apply a 3½" wide strip of Benchmark, Rapid Roof III or Rapid Roof HV base coat at a rate of 1.75 gallons per square (200 lineal feet) and immediately embed the 2¼" wide Spunflex II polyester tape into the wet coating with a brush or roller, making sure the tape is flat and wrinkle-free by brushing or rolling from center out at 45° angles. Do not stretch the fabric to achieve embedment. Please note: 4" wide Spunflex is an acceptable alternate.
3. After the application of base coat and fabric, apply a second coat of Benchmark, Rapid Roof III or Rapid Roof HV base coat at a rate of .75 gallons per square for horizontal (end lap) and vertical seams, for a total of 2.5 gallons per square.
4. After the base coat applications have dried completely, apply a coat of Benchmark, Rapid Roof III or Rapid Roof HV top coat at a rate of 1.9\* gallons per square on all seams.
5. Finish coat: the entire roof surface must be coated with either Benchmark, Rapid Roof III or Rapid Roof HV top coat at a rate of 1.9\* gallons per square or Kolor Kote Finish Coat at a minimum rate of .5\* gallons per square.

\*To achieve minimum requirements, the application rates listed include 15% for application loss and 10% to compensate for surface texture.

### C. Optional Butyl Tape application

1. Develop a systematic method for application of Butyl Tape to metal seams. (Refer to technical bulletin B59234 for standing seam roofs.)
2. *For horizontal (end lap) seams:* apply the 6" wide Butyl Tape over the center of panel seam. Peel back three to four inches of release liner. Press down firmly. While holding roll slightly above surface, peel back five to six inches more of release liner and press down, keeping it centered on seam. Rub or roll tape down firmly and evenly. The use of a hand held roller is recommended. DO NOT stretch the Butyl Tape.

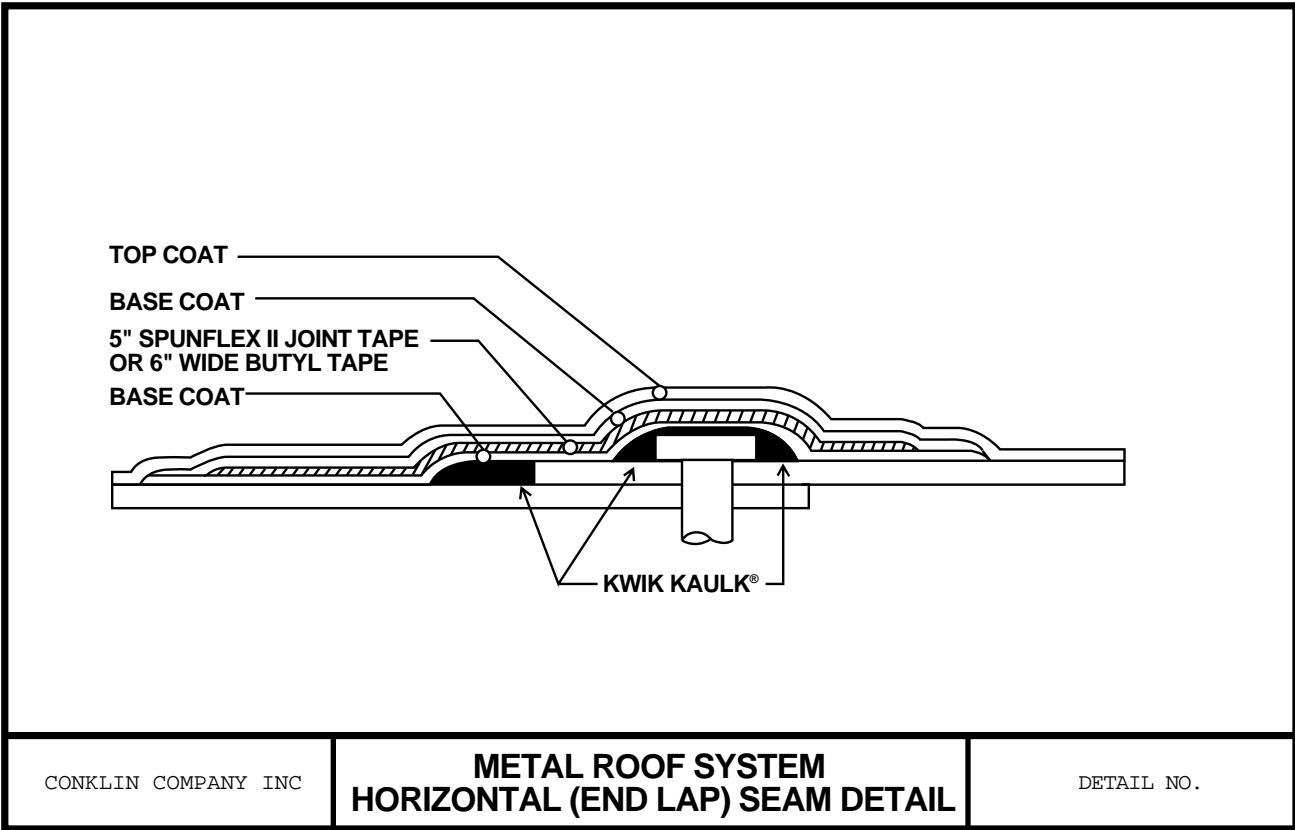
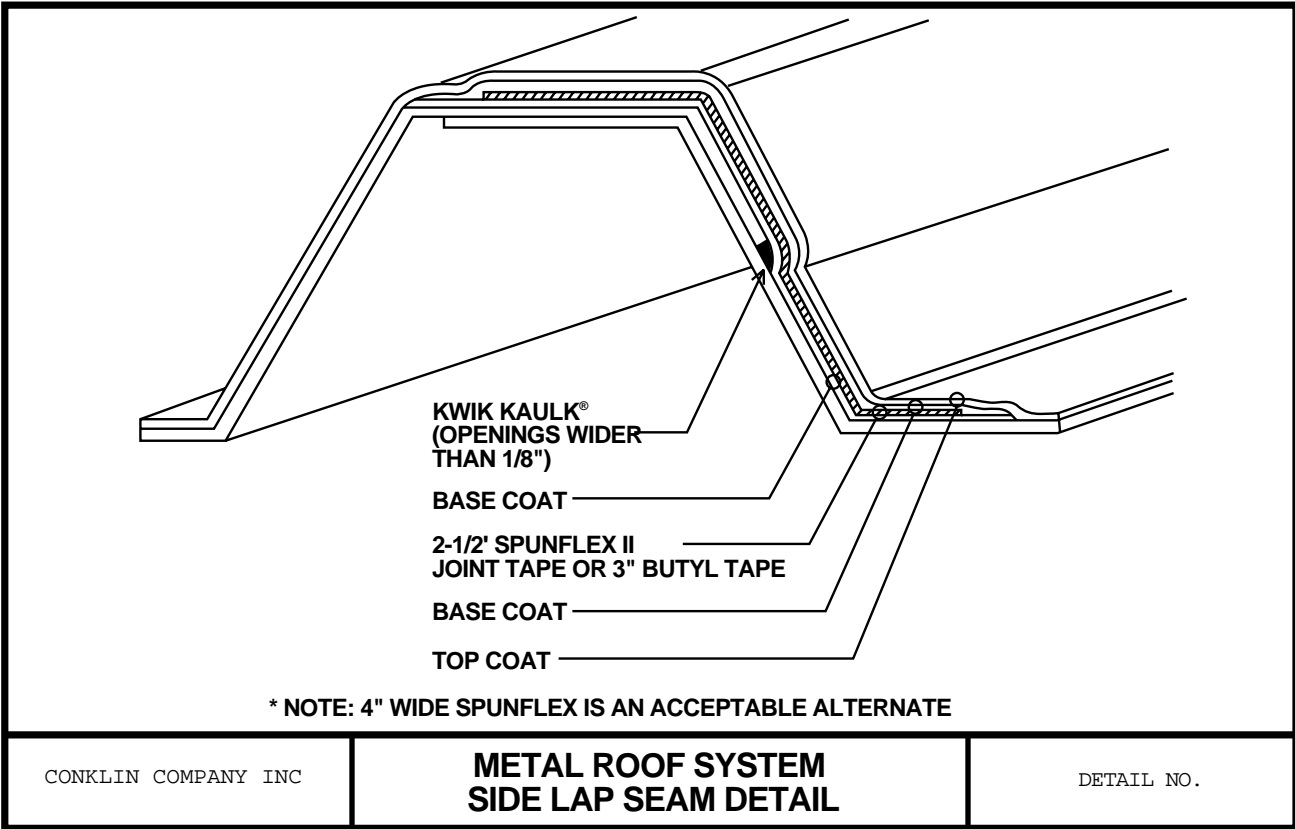
*For vertical seams:* apply the 3" wide Butyl Tape over the metal panel seam. Peel back three to four inches of release liner. Press down firmly. While holding roll slightly above surface, peel back five to six inches more of release liner and press down, keeping it over the seam. Roll tape down firmly and evenly. The use of a hand held roller is recommended. DO NOT stretch the Butyl Tape. The Butyl Tape should not over lap onto the 6" wide tape. Cut the tape to ensure it ends tightly adjacent to all horizontal tape.

After the tape has been applied over the metal roof seams, apply Conklin Kwik Kaulk® along both edges of the 6" wide tape (horizontal seams). The use of Kwik Kaulk along these edges reduces potential "water damming" on horizontal seams. Kwik Kaulk is recommended at all details where "T" shaped intersections occur with the Butyl Tape. This will eliminate potential "fish mouths" and keep the tape adhered tightly to roof surface.

### D. Finish coat application

1. After the Butyl Tape has been installed over the metal roof seams, apply either Benchmark®, Rapid Roof® III or Rapid Roof® HV top coat directly over the tape at a rate of .5 gallons per square. Allow the coating to thoroughly dry before proceeding to step 2 below. The purpose of this step is to ensure the Butyl Tape and **Spunflex II** fabric are thoroughly embedded in coating.
2. The entire roof surface must be coated with either Benchmark, Rapid Roof III or Rapid Roof HV top coat at a rate of 1.9\* gallons per square. Ensure all Butyl Tape is thoroughly covered in top coat.

\*To achieve minimum requirements, the application rates listed include 15% for application loss and 10% to compensate for surface texture.





**Conklin Company Inc.**  
**Building Products Division**  
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