

HOT FLUID-APPLIED RUBBERIZED ASPHALT WATERPROOFING

SECTION 07 14 13
W. R. MEADOWS HRM 714

Revision Date: October 26, 2021

Specifier Notes: This guide specification is written according to the Construction Specifications Institute (CSI) 3-part MasterFormat. This specification shall be reviewed and/or modified by the architect, consultant or engineer of record to meet the requirements of the project. Coordinate this specification with the drawings.

Specifier Notes: HRM 714 hot-applied rubberized asphalt membrane is a 100 percent solids blend of asphalts, synthetic rubber polymers, and filler formulated to provide toughness with flexibility and low moisture vapor permeance. HRM 714 forms a continuous elastomeric membrane and is ideal for waterproofing bridge, parking, and plaza decks. HRM 714 is also commonly used for waterproofing of tunnels, pedestrian concourses, and similar types of construction where a monolithic waterproofing membrane is necessary.

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Surface preparation.
- B. Application of 215-mil reinforced hot-applied rubberized asphalt waterproofing membrane.

1.02 RELATED SECTIONS

Specifier Notes: Edit the list of related sections as required for the project. List other sections dealing with work directly related to this section.

- A. Section 03 30 00 – Cast-in-Place Concrete.
- B. Section 07 13 26 – Self-Adhering Sheet Waterproofing.
- C. Section 07 21 00 – Thermal Insulation.
- D. Section 07 60 00 – Flashing and Sheet Metal.
- E. Section 07 92 00 – Joint Sealants.
- F. Section 32 00 00 – Exterior Improvements
- G. Section 33 41 23 – Geosynthetic Drainage Layers.

1.03 REFERENCES

- A. Canadian General Standards Board (CGSB) 37.50-M89: Hot-Applied, Rubberized Asphalt for Roofing and Waterproofing.
- B. ASTM D6622: Standard Guide for Fully Adhered, Hot-Applied Reinforced Waterproofing Systems.

1.04 SUBMITTALS

- A. Comply with Section 01 33 00 - Submittal Procedures.
- B. Submit manufacturer's product data and application instructions.

1.05 QUALITY ASSURANCE

Project Name [12/19/20226/10/2022](#)

07 14 13-1

Hot Fluid Rubberized Asphalt
Waterproofing

- A. Installer Qualifications:
 - a. Use an experienced installer authorized by the manufacturer. Installer shall have an adequate number of skilled personnel thoroughly trained and experienced in the application of hot fluid-applied waterproofing membranes.
- B. Obtain primary waterproofing materials and all requisite accessories from a single manufacturer regularly engaged in manufacturing the product.
- C. Provide products which comply with all state and local regulations controlling use of volatile organic compounds (VOC).

1.06 PRECONSTRUCTION MEETING

- A. Preconstruction Meeting: Convene [one] [] week prior to commencing work of this section, in accordance with Section [XX XX XX] - Project Meetings.

1.07 MOCK-UPS

- A. Prior to installation of hot-applied membrane, apply waterproofing membrane to 100 square feet of deck or wall to demonstrate surface preparation, crack and joint treatment, corner treatment, thickness, and to demonstrate tie-ins with adjoining construction and other termination conditions, as well as qualities of materials and execution.
- B. Coordinate with the Owner's inspection and testing agency. Do not cover any installed waterproofing membrane unless it has been inspected, tested, and approved by Owner's representative.

1.08 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
- B. Store materials in a clean, dry area in accordance with manufacturer's instructions.
- C. Protect materials during handling and application to prevent damage or contamination.

1.09 ENVIRONMENTAL REQUIREMENTS

- A. Product not intended for uses subject to abuse or permanent exposure to the elements.
- B. Do not apply membrane if rainfall is forecast or imminent within 12 hours.
- C. Do not apply waterproofing membrane to any surfaces containing water, frost, snow or ice.

PART 2 PRODUCTS

2.01 MANUFACTURER

- A. W. R. MEADOWS®, INC., 300 Industrial Drive, Hampshire, Illinois 60140-0338.
(800) 342-5976. (847) 683-4500. Fax (847) 683-4544. Website www.wrmeadows.com.

2.02 MATERIALS

- A. Waterproofing Membrane: hot fluid-applied, rubberized asphalt membrane.
 - 1. Basis-of-Design Product:
 - a. HRM 714 Hot-Applied Rubberized Waterproofing Membrane by W. R. MEADOWS, a 100 percent blend of asphalts, synthetic rubber polymers and filler with the following properties.
 - b. Solids Content: 100 percent, ASTM D1353

- c. Resiliency: 65, ASTM D3407
- d. Water Resistance: No delamination, blistering, emulsification or deterioration, CGSB-37.50-M-89
- e. Low Temperature Crack Bridging: Pass at 0 degrees F (-17.8 C), CGSB-37.50-M89
- f. Heat Stability: Pass, CGSB-37.50-M89
- g. Pull-Off Strength: 108 lb./ft., ASTM D4541
- h. Flow: 0.078 inches (0.2 cm)
- i. Penetration at 32, 77, 122 Degrees F: 25 mm, 55 mm, 160 mm, respectfully, CGSB-37.50-M89 (D1191)
- j. VOC Content: 0, ASTM D2369
- k. Water Absorption: 0.2 gm weight gain, CGSB-37.50-M89
- l. Viscosity: 5-7 seconds, CGSB-37.50-M89
- m. Adhesion to Concrete: Pass, CGSB-37.50-M89 (ASTM D3408)
- n. Softening Point: 200 Degrees F (93 C), ASTM D36
- o. Elongation: 1500 percent, ASTM D1191)
- p. Tensile Strength: 26 psi, ASTM D412
- q. Acid Resistance: 50 percent Sulfuric acid without blistering, deterioration, delamination or re-emulsification, ASTM D896-Procedure 7.1 (N-8)
- r. Salt Water Resistance: 20 percent Sodium carbonate; calcium chloride, Pass without blistering, deterioration, delamination or re-emulsification, ASTM D896-similar

2.03 ACCESSORIES

- A. Concrete Repair Materials: MEADOW-PATCH 5 and MEADOW-PATCH 20 Concrete Repair Mortars by W. R. MEADOWS.
- B. Surface Conditioner: MEL-PRIME VOC solvent-based adhesive by W. R. MEADOWS.
- C. Neoprene Flashing: NEOPRENE FLASHING MEMBRANE, a 60-mil uncured neoprene flashing by W. R. Meadows.
- D. Self-Adhered Flashing: DETAIL STRIP, a 65-mil self-adhered flashing membrane by W. R. MEADOWS.
- E. Reinforcing Fabric: REINFORCING FABRIC HCR by W. R. MEADOWS.
- F. Termination Sealant: BEM or POINTING MASTIC by W. R. MEADOWS.
- G. Protection Course: MODIFIED ASPHALT or PC-2 or PC-3 PROTECTION COURSE by W. R. MEADOWS.
- H. Prefabricated Drainage Board: MEL-DRAIN by W. R. MEADOWS.
- J. Termination Bar: TERMINATION BAR by W. R. MEADOWS.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine substrates and conditions for application of membrane and determine each as acceptable prior to start. Notify [architect] [consultant] if substrates are not acceptable.
- B. Do not begin accessory or membrane application until unacceptable conditions have been corrected.

Specifier Notes: Concrete substrates shall be finished via wood float or broom. Steel-trowel finish is not acceptable. Acceptable substrates are normal and lightweight structural concrete, plywood and gypsum roof cover boards. Lightweight non-structural and insulating concrete substrates are not acceptable.

3.02 SURFACE PREPARATION

- A. Protect adjacent surfaces not designated to receive waterproofing.
- B. Ensure substrates are clean, dry, free of all coatings, dirt, frost, oil, paints, water and any other contaminants detrimental to membrane adhesion.
- C. Patch all holes and voids and remove any ridges, ensuring the surface is smooth and free of depressions, voids, or protrusions.
- D. Remove areas of laitance and evidence of preexisting waterproofing by mechanical abrading or comparable methods.
- E. Clean all metal surfaces to receive waterproofing including flashings, vents, and drains with solvent and dry with clean cloths. After cleaning, sand or mechanically abrade metal surfaces and immediately follow with waterproofing primer.
- F. Treatment of Cracks and Non-Structural Joints
 - 1. Seal cracks up to 1/8-inch in width.
 - a. Apply a 125-mil coating of hot-applied membrane 12 inches wide centered over the crack.
 - b. Immediately embed a 6-inch section of polyester reinforcing fabric into hot membrane.
 - c. Brush fabric into membrane to eliminate wrinkles.
 - 2. Cracks 1/8-inch to 1/4-inches in Width
 - a. Pre-fill cracks with termination sealant or mastic and allow to cure.
 - b. Apply 125 mils of hot-applied membrane 12-inches wide, centered over the crack.
 - c. Immediately embed a 9-inch-wide strip of neoprene flashing or polyester reinforcing fabric into the hot-applied membrane.
 - 3. Sheathing Joints Over Metal Pan Decking
 - a. Apply 125 mils of hot-applied membrane 12 inches wide over flat joints.
 - b. Immediately embed a 6-inch-wide section of polyester reinforcement fabric for static joints onto membrane while hot. Brush fabric into membrane to eliminate wrinkles.
 - c. Over dynamic flat joints, immediately embed a 6-inch section of neoprene reinforcement onto membrane while hot.
 - d. Alternatively, without the need for 125 mil application of hot-applied membrane, apply a 6-inch-wide section of 65-mil self-adhered reinforcement over flat joints.
- G. Pre-cast and Hollow-Core Concrete Decks
 - 1. Pre-fill v-grooves and joints between concrete deck units with waterproofing manufacturer-approved patching mortar or grout.
 - a. Apply 125 mils of hot-applied membrane extending 6 inches past patched deck joints.
 - b. Immediately appropriately-sized neoprene flashing to extend 6 inches past edge of joint.
- H. Treatment of Expansion Joints

Specifier Notes: Where 3rd-party expansion joints are required for conditions exceeding outlined in Part 3.02 H.1., data governing compatibility and integration with the hot-applied membrane system specified herein shall be provided by the expansion joint manufacturer.

1. Expansion Joints up to 1-inch in Width
 - a. Apply 125 mils of hot-applied membrane 9-inches wide-onto substrates on both sides of the joint.
 - b. Immediately loop an appropriately sized section of neoprene flashing into the joint in a bellows fashion to a depth twice the width of the joint.
 - c. Fully embed the neoprene flashing, ensuring a minimum 6- inch contact into the hot-applied membrane on both side of the joint.
 - d. Maintain a 6-inch end overlap, with overlap fully embedded into the hot-applied membrane.
- I. Treatment of Inside and Outside Corners
 1. Apply hot-applied membrane at a thickness of 125 mils extending 8 inches on either side of inside and outside corner conditions.
 2. For static conditions, embed 6-inch strip of reinforcing fabric into hot-applied membrane. Brush reinforcing fabric to ensure complete embedment and eliminate wrinkles.
 3. For non-static cold joints, apply hot-applied membrane at a thickness of 125 mils extending 6 inches out from either side of the corner. Immediately embed 6-inch-wide section of neoprene, centered at the joint. Alternatively, without the need for 125 mils of hot-applied membrane preparation, apply a 6-inch-wide section of 65-mil self-adhered reinforcement, centered at the joint.

3.03 PRIMARY MEMBRANE APPLICATION

- A. Apply surface conditioner to all surfaces to receive hot-applied membrane at a coverage rate of 250 – 300 square feet per gallon (6.14-7.37 square meters per liter).
- B. Allow the surface to become tack-free before beginning application of hot-applied membrane.
- C. Using an insulated, double-shell, oil or air-jacketed kettle, maintain a temperature of hot-applied membrane between 360 degrees F (182 C) and 400 degrees F (205 C). Do not heat the hot rubberized asphalt above 410 degrees F (210 C).

Specifier Notes: Recommended pouring temperature range is 360 – 400 degrees F (182 – 205 C). Do not hold material at pouring temperature for longer than five hours. If pouring is to be delayed, the temperature shall be reduced to a range between 270 – 320 degrees F (132 – 160 C) and held until pouring is resumed. Prolonged heating beyond five hours) or heating above 410 degrees F (210 C) may cause the compound to gel in the melter. A rapid increase in viscosity of the material, accompanied by stringiness, indicates that gelling has begun. The compound temperature must be reduced promptly or the material should be removed promptly from the kettle.

Specifier Notes: Where high point loads are anticipated, use of semi-rigid, mineral-fortified protection course sheets shall be required. Bridge deck applications and use of asphaltic concrete paving shall default to use of 1/8-inch (3.175 mm) ¼-inch (6.35 mm) semi-rigid, mineral-reinforced protection course sheets as the final protection layer over the 2-ply, 215-mil reinforced system.

- D. Horizontal Application
 1. Concrete Deck
 - a. Apply hot-applied membrane by evenly pouring onto the deck and spreading with a squeegee to a minimum recommended thickness of 90 mils, covering all previously placed flashings.
 - b. Fully embed a layer of polyester reinforcing fabric into base ply of hot-applied membrane, ensuring a minimum ¼-inch (6.35 mm) overlap at side

- and end laps. Brush reinforcing fabric to ensure complete embedment and eliminate wrinkles.
- c. Upon full set of previous hot-applied membrane and polyester fabric installation, apply 125 mils of hot-applied membrane.
- d. Immediately apply modified asphalt protection course onto second application of hot-applied membrane while still hot and tacky. Ensure 6-inch (152 mm) end laps and 2-inch (51 mm) side laps, with staggered end laps with successive courses.
- e. Alternatively, set mineral-reinforced protection board into hot-applied membrane with all edges in tight contact with adjacent sheets.

Specifier Notes: Where substantial vertical application of hot-applied membrane is required, a discussion regarding the use of hot membranes to vertical conditions is advised for all project participants, including all prospective contractors. In the absence of specifying the 2-ply, 215-mil reinforced system on vertical conditions, contact manufacturer for recommendations.

- E. Vertical Application
 - 1. Install a single-ply, non-reinforced application of hot-applied [125 mils] [180 mils], covering all previously placed material.
 - 2. Where greater robustness is required on substantial vertical surfaces, apply 90 mils of hot-applied membrane. Immediately embed polyester reinforcement fabric and brush to ensure complete embedment and eliminate wrinkles. Apply final 125 mils of hot-applied membrane onto previous membrane and reinforcement fabric to a total of 215 mils.
 - 3. Apply modified asphalt, neoprene protection or rigid protection board as protection course into membrane while still hot.
 - 4. Terminate membrane into termination bar or reglet in accordance with the drawings.

3.04 MEMBRANE INTEGRITY TESTING

- A. Block all drains and scuppers prior to testing.
- B. Using traditional flood method, flood membrane to a minimum depth of 2 inches for 48 hours. Examine membrane for any leaks and repair in accordance with manufacturer's requirements.
- C. Alternative membrane integrity testing may be performed by electronic leak detection. Low or high voltage methods are acceptable.
- D. Upon detection of membrane breach, repair areas in accordance with manufacturer's requirements then re-test using the selected method.

3.05 INSTALLATION OF OVERBURDEN

- A. Coordinate installation of overburden in accordance with Section 32 00 00 Exterior Improvements and with the guidance of landscape architects and contractors involved in this scope. Installation of overburden items may include but are not limited to rigid insulation, drainage mats, filter fabric, concrete pavers and growing media.

3.06 PROTECTION

- A. Protect completed membrane assembly from UV exposure in accordance with manufacturer's requirements. Prior to overburden installation, protect installed membrane through appropriate means from physical damage.

END OF SECTION