

SECTION 071400 - FLUID-APPLIED WATERPROOFING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Surface preparation.
- B. Installation of a fluid-applied waterproofing membrane system.

1.02 RELATED SECTIONS

- A. Section 03 30 00 - Cast-in-Place Concrete.
- B. Section 07 60 00 – Flashing and Sheet Metal.
- C. Section 07 92 00 – Joint Sealants.
- D. Section 33 46 00 - Subdrainage.

1.03 REFERENCES

- A. ASTM E96/E96M Resistance to Water Vapor Permeance
- B. ASTM D2939 Resistance to Water
- C. ASTM C836/C836M Stay in Place During Application
- D. ASTM C836/C836M Adhesion Strength
- E. ASTM E154/E154M Hydrostatic Pressure over Cracks
- F. ASTM C836/C836M Low Temperature Crack Bridging

1.04 QUALITY ASSURANCE

- A. Contractor will provide the proper equipment, manpower, and supervision at the jobsite to install the membrane in compliance with the project plans and specifications.
- B. The contractor of the material specified herein shall be an approved contractor. Proof of this qualification shall be provided in written form from the supplier.

- C. Codes and Standards: The contractor shall make themselves thoroughly familiar with all codes, regulations, and standards governing the work specified.
- D. Workmanship: All work shall be installed as indicated and in accordance with manufacturers printed instructions.
- E. Deviations: There shall be no deviations from the specification or installation instructions unless the deviation is approved in writing by the supplier of the material herein and submitted to the project architect or engineer.
- F. Installation must be carried out by an experienced contractor with an adequate number of skilled personnel, experienced in the application of the blindside membrane applications.
- G. Maintain a record of the batch numbers of all materials supplied for this project.
- H. Perform work only when existing and forecasted weather conditions are within the limits established by the Manufacturer of the materials and products used.
- I. Proceed with installation only when substrate construction and preparation work is complete and in condition to receive waterproofing.

1.05 PRE-CONSTRUCTION MEETING

- A. Pre-Construction Conference: A pre-installation conference shall be held prior to commencement of field operations to establish procedures to maintain optimum working conditions and to coordinate this work with related and adjacent work.
- B. Convene at least one week prior to commencing work of this section, meeting with all required project participants, including – but not limited to - waterproofing contractor, manufacturer's technical representative, general contractor, technical consultant, architect, and site engineer to review the installation procedures.

1.06 INFORMATIONAL SUBMITTALS

- A. Submit manufacturer's product data, installation instructions, use limitations and recommendations.
- B. Shop Drawings: Submit plans, sections, details, and attachments to other work. Include the following: Details at Terminations and Penetrations.
- C. Submit manufacturer's material samples for all components.
- D. Manufacturer's Installation Instructions: Indicate special procedures for system configuration, attachment to substrate, and perimeter conditions requiring special attention.

- E. Manufacturer's Certificate: Certify that Products delivered to the Project meet or exceed specified requirements for weight and thickness. Certify that materials are acceptable for site conditions.

1.07 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. Store adhesives and primers at temperatures of 40°F (5°C) and above to facilitate handling.
- D. Store membrane cartons on pallets.
- E. Do not store at temperatures above 90°F (32°C) for extended periods.
- F. Keep away from sparks and flames.
- G. Completely cover when stored outside. Protect from rain.
- H. Protect materials during handling and application to prevent damage or contamination.
- I. Avoid use of products which contain tars, solvents, pitches, polysulfide polymers, or PVC materials that may come into contact with waterproofing membrane system.

1.08 ENVIRONMENTAL REQUIREMENTS

- A. Product not intended for uses subject to abuse or permanent exposure to the elements.
- B. Protect rolls from direct sunlight until ready for use
- C. Do not apply membrane when air or surface temperatures are below 40°F (4°C).
- D. Do not apply to frozen concrete.

1.09 WARRANTY

- A. Waterproofing material manufacturer shall provide a 5-year material warranty issued upon completion of each phase of work.
- B. Waterproofing contractor shall provide a 5-year labor and performance warranty issued upon completion of each phase of work. Warranty shall include repair of all defects caused by workmanship. The contractor is responsible for all expenses associated repair of defects that are not due to structural defects or causes deemed to be beyond the contractor's control.

PART 2 PRODUCTS

2.01 MANUFACTURER

- A. Barrett Corporation, 310 Wayto Road Schenectady, New York 12307.
Phone: 800.647.010 www.barrettroofs.com
- B. Or equal as Approved in writing by Architect/Designer.

2.02 MATERIALS

- A. RAM PROOF: asphaltic rubber comprised of the elastic properties of modified rubber with the weatherproofing and waterproofing characteristics of emulsified asphalt. The material forms to a single set, fully adhered, monolithic, and seamless membrane that results in a high-performance membrane that resists hydrostatic pressure, bridges cracks and will move with created expansion and contraction of surfaces.
- B. Waterproofing Protection Course: Asphalt based Protection Board.
- C. Drainage Course: Geotextile Drainage Composite

2.03 PERFORMANCE REQUIREMENTS

A. RAM PROOF

- 1. Compliance: ICC AC-29
- 2. Thickness: 120 mils wet film/100 mils dry film
- 3. Tensile Strength, ASTM D412, Die C: 1,000 %
- 4. Elongation, ASTM D412, Die C: 950 % minimum.
- 5. Adhesion Strength: ASTM C836: 3.51 lbf/in.
- 6. Water Vapor Permeability, ASTM E96, Method B: less than 1%
- 7. Water Absorption, ASTM D570: 0.1 percent, 72 hours maximum.
- 8. Resistance to Hydrostatic Head over Cracks: ASTM E154:
- 9. Puncture Resistance, ASTM E154: 48.2 lbf (214.6 N).
- 10. Exposure to Fungi, Soil Test: ASTM D-4068: Passed
- 11. Low Temperature Crack Bridging: ASTM E836: Passed
- 12. Extensibility after Heat Aging: ASTM E836: Passed

PART 3 EXECUTION

3.01 EXAMINATION

- A. The installer shall examine conditions of substrates and other conditions under which this work is to be performed and notify the contractor, in writing, of circumstances detrimental to the proper completion of the work.
- B. Do not proceed with work until unsatisfactory conditions are corrected.
- C. Commencement of work on any substrate shall be considered full acceptance of all substrate conditions.

3.02 REMOVAL AND SURFACE PREPARATION

- A. Remove Existing Waterproofing System:
 - 1. After removal of all vegetation, plantings, and soil is completed. Remove and dispose of all existing waterproofing system materials down to the existing concrete deck surface. Remove and dispose of all wall flashings and strip-ins, indicated penetrations, and indicated sheet metal work and accessories. Exercise caution to avoid damage to all other building components indicated to remain in place.
- B. Refer to the manufacturer's literature for requirements for preparation of substrates. Surfaces shall be structurally sound and free of voids, spalled areas, loose concrete, and sharp provisions. Remove contaminants such as grease, oil, and wax from exposed surfaces. Remove dust, dirt, loose materials, and debris. Use repair materials and methods which are acceptable to manufacturer of waterproofing materials. Ensure all surfaces are structurally sound.
- C. Concrete and Masonry Substrate Preparation: (Where Applicable)
 - 1. Inspect concrete and masonry substrates and repair in accordance with manufacturer's requirements.
 - 2. Complete mortar tuck-pointing as required at masonry wall.
 - 3. Repair bug holes in concrete over 13 mm (0.5") in length and 6 mm (25") deep and finish flush with surrounding surface.
 - 4. Remove scaling to sound, unaffected concrete, and repair exposed area.
 - 5. Grind irregular construction joints to suitable flush surface.
 - 6. Complete concrete repairs in compliance with ASTM 5295 "Standard Practice of Preparation for Adhered Waterproofing Membranes."
 - 7. Apply surface conditioner to surfaces that will be covered within one working day according to manufacturer's recommended coverage rates.
 - 8. Comply with manufacturers concrete and masonry repair procedures.
 - 9. Apply a 9" (229 mm) strip of self-adhering membrane over construction, control and expansion joints and over cracks greater than 1/16" (1.59 mm) wide.

10. Seal all terminations with trowel grade adhesive.

3.03 SUBSTRATE PREPARATION:

1. Pressure washing: Pressure wash substrate to remove all dirt, dust, and remains of previous paint and/or coatings. Pressure washer to have a minimum working pressure of 3,000 psi.
2. Remove dirt and debris from the deck and walls with a stiff brush or broom. Scrape any debris from the walls and footings with a metal scraper.
3. Fill voids around tie-holes, recessed ties, and other small voids with IWS Water Proof.
4. Adhesion test areas: If there is any question as to the adhesion of product over suspect areas, such as those that may contain oil residue or those that have been previously coated with another product, a test patch area is required for an adhesion test.
5. Material can be applied over damp or green concrete.
6. Material should not be applied over standing water or water film, or ice and snow.
7. Inspection: All preliminary work to be inspected carefully by applicator to ensure that all work meets project planned specifications.

3.04 INSTALLATION OF FLUID APPLIED WATERPROOFING

A. Horizontal Fluid Applied Membrane Application:

1. Ensure accessory materials are compatible with membrane and approved by membrane Prior to horizontal sheet application, apply manufacturers approved flashing material from horizontal surface to all vertical surfaces. Application shall be in accordance with the manufacturer's instructions.
2. Apply waterproofing membrane system in accordance with manufacturer's instructions.
3. Ensure accessory materials are compatible with membrane and approved by membrane manufacturer.
4. The fluid-applied material shall be applied at a wet film thickness of 120 mils to result in a dry film thickness of 100 mils.
5. Begin application of the fluid-applied application (Brush/Roller/Spray) from the lowest point of the area to the highest. Applying material to all vertical and horizontal intersections, such as wall turn ups and all expansion and construction joints, fillets, and details. Apply over entire height of planter boxes walls, and at drains, light stands, etc.
6. Apply in a full and even application. Application pattern should consist of an

interlocking weave pattern as this technique will help to optimize the coverage rate and ensure a uniform mil thickness.; Brush/Roller apply one pass.

7. Equipment: Brush/Roller Application: Brush, Squeegee or Roller with a minimum 3/8" nap.
8. Check fluid-applied for correct thickness in a grid pattern that incorporates sections not greater than 100 sq. ft.
9. Apply manufacturer approved protection course immediately after successful water test to protect membrane from other trades. Apply protection course in compliance with manufacturer's instructions.
10. After application of drainage composite (Section 3.05) Apply approved surfacing.

3.05 INSTALLATION OF DRAINAGE COMPOSITE

- A. Drainage Composite can be applied in vertical and horizontal applications. Drainage Composite shall extend from the perimeter discharge pipe to a point approximately 150 mm (6") below the anticipated grade line.
- B. Substrate and jobsite conditions will determine the attachment requirements and pattern. Attachment shall be in compliance with the manufacturer's requirements. Abut adjacent rolls with excess fabric overlapping in shingle fashion.
- C. For inside and outside corners, abut adjoining drainage composite at the corner. Cover open core with extra geotextile filter fabric.
- D. The exposed core along the top terminations should be covered with a strip of geotextile to prevent intrusion of soil into the core. At the bottom termination extend the drainage composite out from the structure so that it passes behind and under the perimeter discharge pipe. Additional geotextile should be wrapped over the pipe to prevent soil intrusion.
- E. To secure the drainage composite around protrusions, apply approved tape around the protrusion to picture frame configuration. Cut the drainage composite to fit snugly around the protrusion. Press the drainage composite edge firmly into tape for added adhesion.
- F. Properly cover drainage composite within two weeks of application and do not leave exposed to sunlight. Protect the drainage composite from construction and vehicle traffic.

3.06 INTERFACE WITH OTHER MATERIALS

- A. Complete all terminations, penetrations, drains, and flashings in compliance with the manufacturer's requirements using manufacturer approved materials for full system warranty.
- B. Ensure compatibility of the waterproofing material with all interface waterproofing treatment materials such as sealants, coatings, plaster, stuccos, tiles or pavers or other surface applied materials.

3.07 FIELD QUALITY CONTROL

- A. Observation: Do not conceal installed waterproofing system before it has been observed by Architect/Engineer, waterproofing manufacturers representative and other designated entities.
- B. Flood Testing:
 - 1. Where applicable, perform flood test on completed horizontal waterproofing installation for a minimum of 72 hours before placement of other construction.
 - 2. Plug or dam drains and fill area with water to a depth of at least 100 mm.
 - 3. If leaks are discovered, make repairs, and repeat tests until no leaks are observed.

3.08 CLEANING AND PROTECTION

- A. Clean spillage and soiling from adjacent surfaces using appropriate cleaning agents and procedures.
- B. Protect completed waterproofing from subsequent construction activities as recommended by the manufacturer.
- C. Ensure membrane is not damaged prior to soil application.

END OF SECTION 076200