SECTION 071325

Self-Adhering Sheet Wateproofing

BITUTHENE® 8000 Membrane

PART 1 — GENERAL

* 1. SUMMARY

A. The work of this section includes, but is not limited to, the following:

1. Rubberized asphalt sheet membrane waterproofing

2. Prefabricated drainage composite

3. Protection board

B. Related Sections: Other specification sections which directly relate to the work of this section include, but are not limited to, the following:

1. Section 033000 – Cast-In-Place Concrete

2. Section 042000 – Unit Masonry

3. Section 071100 – Dampproofing

4. Section 076000 – Flashing and Sheet Metal

5. Section 079200 – Joint Sealants

6. Section 079500 – Expansion Control

7. Section 334600 – Subdrainage

1.02 SUBMITTALS

A. Product Data: Submit manufacturer’s product data, installation instructions, use limitations and recommendations. Include certification of data indicating VOC (Volatile Organic Compound) content of all components of waterproofing system.

B. Samples: Submit representative samples of the following for approval:

1. Sheet membrane

2. Prefabricated drainage and protection composite

1.03 REFERENCE STANDARDS

A. The following standards and publications are applicable to the extent referenced in the text.

B. American Society for Testing and Materials (ASTM)

C 836 Standard Specification for High Solids, Cold Liquid-Applied Elastomeric Waterproofing Membrane for Use with Separate Wearing Course

D 412 Standard Test Methods for Rubber Properties in Tension

D 570 Standard Test Method for Water Absorption of Plastics

D 882 Standard Test Methods for Tensile Properties of Thin Plastic Sheeting

D 903 Standard Test Method for Peel or Stripping Strength of Adhesive Bonds

D 1876 Standard Test Method for Peel Release of Adhesives (T-Peel)

D1002 Standard Test Method for Apparent Shear Strength of Single-Lap-Joint Adhesively Bonded Metal Specimens by Tension Loading (Metal-to-Metal)

D 1970 Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection

D 3767 Standard Practice for Rubber - Measurements of Dimensions

D 5385 Standard Test Method for Hydrostatic Pressure Resistance of Waterproofing Membranes

E 96 Standard Test Methods for Water Vapor Transmission of Materials

E 154 Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover

F 739 Standard Test Method for Permeation of Liquids and Gases Through Protective Clothing Materials Under Conditions of Continuous Contact

D 1434 Standard Test Method for Determining Gas Permeability Characteristics of Plastic Film and Sheeting

1.04 QUALITY ASSURANCE

A. Manufacturer: Sheet membrane waterproofing shall be manufactured and marketed by a firm with a minimum of 20 years experience in the production and sales of self-adhesive sheet membrane waterproofing. Manufacturers proposed for use but not named in these specifications shall submit evidence of ability to meet all requirements specified, and include a list of projects of similar design and complexity completed within the past 5 years.

B. Installer: A firm which has at least 3 years experience in work of the type required by this section.

C. Materials: For each type of material required for the work of this section, provide primary materials which are the products of one manufacturer.

D. Pre-Installation 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. Agenda for meeting shall include review of special details and flashing.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver materials and products in labeled packages. Store and handle in strict compliance with manufacturer’s instructions, recommendations and material safety data sheets. Protect from damage from sunlight, weather, excessive temperatures and construction operations. Remove damaged material from the site and dispose of in accordance with applicable regulations.

1. Do not double-stack pallets of membrane on the job site. Provide cover on top and all sides, allowing for adequate ventilation.

B. Sequence deliveries to avoid delays, but minimize on-site storage.

C. Safety and Handling
 Users must read and understand the product label and Safety Data Sheets (SDS’s) for each system component before use. All users must acquaint themselves with this information prior to working with the material. Carefully read detailed precaution statements on the product labels and SDS’s before use.

1.06 PROJECT CONDITIONS

A. Perform work only when existing and forecasted weather conditions are within the limits established by the manufacturer of the materials and products used.

B. Proceed with installation only when substrate construction and preparation work is complete and in condition to receive sheet membrane waterproofing.

1.07 WARRANTY

A. Sheet Membrane Waterproofing: Provide written 5 year material warranty issued by the membrane manufacturer upon completion of the work.

PART 2 — PRODUCTS

2.01 MATERIALS

A. Sheet Membrane Waterproofing: BITUTHENE® 8000 Membrane manufactured by GCP Applied Technologies; a self-adhesive, cold-applied composite sheet consisting of a thickness of 1.4 mm (0.056 in.) of specially formulated rubberized asphalt and 0.12 mm (0.0047 in.) of composite, high density polyethylene film. Membrane should be formulated to use in temperature 25F and rising. Provide rubberized asphalt membrane covered with a release sheet, which is removed during installation and no special adhesive or heat shall be required to form laps. Membrane should have pre-marked overlaps to ensure side laps as recommended and to avoid site measurement Provide membrane with the following physical properties including physical properties for vapor and gas resistance:

PHYSICAL PROPERTIES: BITUTHENE® 8000 Membrane

|  |  |  |
| --- | --- | --- |
| PROPERTY | TYPICAL VALUE | TEST METHOD |
| Color | light grey |  |
| Application Temp | >25°F (-4°C) |  |
| Thickness | 60 mils (1.5 mm) |  |
| Low temperature Flexibility, 180° bend over 1 in.(25 mm) mandrel at -25°F (-32°C) | Unaffected/Pass | ASTM D1970 |
| Tensile strength, film | 5,500 psi (38 MPa) | ASTM D412 |
| Elongation, ultimate failure of rubberized asphalt | 300% | ASTM D4121 |
| Crack cycling at -25°F (-32°C), (1/8 inch) 3.2mm | Unaffected/Pass | ASTM C1305 |
| Lap shear | 30 lbf (133 N) | ASTM D10021 |
| Peel strength | 12 lbf/in. (2,100 N/m) | ASTM D9032 |
| Puncture resistance, membrane | 63 lbf (280 N) | ASTM E154 |
| Resistance to hydrostatic head | 230 ft (70m) of water | ASTM D5385 |
| Water Vapor Permeance | <0.03 perms | ASTM E96, Method B |
| Water absorption | <0.05% | ASTM D570 |
| VOC permeance | Not DetectableMembrane, Seam | ASTM F 739Open loop |
| Methane Permeability | <10 mL/day.m2.atm | ASTM D1434-82 |
| Methane Permeability, Overlaps | <10 mL/day.m2.atm | ASTM D1434 |
| Diffusion Coefficient, TCE | <5.1 x10-13 m2/s | Calculated |
| Diffusion Coefficient, PCE | <5.1 x 10-13 m2/s | Calculated |
| Diffusion Coefficient, Benzene | <2.7 x 10-13 m2/s | Calculated |
| Diffusion Coefficient, Toluene | <1.1 x 10-13 m2/s | Calculated |
| Diffusion Coefficient, Ethylbenzene | <2.7 x 10-13 m2/s | Calculated |
| Diffusion Coefficient, Xylene | <1.2 x10-14 m2/s | Calculated |

**Footnotes:**

1. *The test is run at a rate of 2 in. (50 mm) per minute.*
2. *With BITUTHENE ®Primer B2 LVC*
3. *Individual roll length may vary +/- 1%*

*All declared values shown in this property table are based on test results determined under laboratory conditions and with the product sample taken directly from stock in its original packing without any alteration or modification of its component parts.*

 B. APPROVALS:

 Provide membrane with the following approvals:

1. LARR’ – Research Report 26224 - LADBS AC-L137 test report.

2.02 Ancillary Products – (reference gcpat.com for complete technical details)

1. Prefabricated Drainage Composite: HYDRODUCT**®** 220 and/or HYDRODUCT**®** 660 Drainage Composite as manufactured by GCP Applied Technologies to promote positive drainage while serving as a protection course.

NOTE TO SPECIFIER: The following are product selection guidelines for HYDRODUCT**®** Drainage Composites. Consult the “Product Summary” and “System Components” section of the Waterproofing Systems Manual North American Edition for complete information. HYDRODUCT**®** 220: All vertical applications. HYDRODUCT**®**660: All horizontal applications. THE APPROPRIATE HYDRODUCT® DRAINAGE COMPOSITE MAY ALSO SERVE AS PROTECTION FOR ALL BITUTHENE® MEMBRANES.

1. Drainage and Protection composite:
2. Prefabricated Drainage and Protection Composite for Vertical Applications: Hydroduct® 220 Drainage Composite by GCP Applied Technologies Construction Products. Drainage Composite shall be designed to promote positive drainage while serving as a protection course.
3. Waterstop: AdcorTM 500S hydrophilic waterstop manufactured by GCP Applied Technologies for non-moving concrete construction joints.
4. Miscellaneous Materials: Primer, mastic, liquid membrane, tape and accessories specified or acceptable to manufacturer of sheet membrane waterproofing.

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. Do not proceed with work until unsatisfactory conditions are corrected.

3.02 SUBSTRATE PREPARATION

A. Refer to manufacturer’s literature for requirements for preparation of substrates. Surfaces shall be structurally sound and free of voids, spalled areas, loose aggregate and sharp protrusions. Remove contaminants such as grease, oil and wax from exposed surfaces. Remove dust, dirt, loose stone and debris. Use repair materials and methods which are acceptable to manufacturer of sheet membrane waterproofing.

B. Cast-In-Place Concrete Substrates:

1. Do not proceed with installation until concrete has properly cured and dried
(minimum 7 days for normal structural concrete and minimum 14 days for lightweight structural concrete).

2. Fill form tie rod holes with concrete and finish flush with surrounding surface.

3. Repair bugholes over 13 mm (0.5 in.) in length and 6 mm (0.25 in.) 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.

C. Masonry Substrates: Apply waterproofing over concrete block and brick with smooth trowel-cut mortar joints or parge coat.

D. Wood Substrates: Apply waterproofing membrane over securely fastened sound surface. All joints and fasteners shall be flush to create a smooth surface.

E. Related Materials: Treat joints and install flashing as recommended by waterproofing manufacturer.

3.03 INSTALLATION

A. Refer to manufacturer’s literature for recommendations on installation, including but not limited to, the following:

1. Apply primer at rate recommended by manufacturer. Recoat areas not waterproofed if contaminated by dust. Mask and protect adjoining exposed finish surfaces to protect those surfaces from excessive application of primer.

2. Delay application of membrane until primer is completely dry. Dry time will vary with weather conditions.

3. Seal daily terminations with troweled bead of mastic.

4. Apply protection board and related materials in accordance with manufacturer’s recommendations.

3.04 CLEANING AND PROTECTION

1. Protect completed membrane waterproofing from subsequent construction activities as recommended by manufacturer.
2. Inspect for damage just prior to installation of subsequent construction activities and make repairs in accordance with manufacturer’s recommendation.