

MODIFIED BITUMINOUS SHEET WATERPROOFING

PART 1- GENERAL

1.01 DESCRIPTION

- A. This Section describes the requirements for furnishing and installing modified bituminous sheet waterproofing at the following locations:
 - 1. Below grade vertical walls, retaining walls adjacent to Parking Structure, planter and site retaining walls at new exit Stair Grid Line 1 between D & F, and as required by the Program.
- B. Related Sections:
 - 1. Cast-in-place concrete is specified in Section 03 30 00.
 - 2. Elastomeric liquid waterproofing is specified in Section 07 14 16.
 - 3. Crystalline waterproofing is specified in Section 07 16 16.
 - 4. Bentonite waterproofing is specified in Section 07 17 00.

1.02 SUBMITTALS

- A. Product Data: Manufacturer's recommended installation details, installation, and maintenance procedures.
- B. Applicator's Qualification Letter: Furnish a letter from the manufacturer certifying that the applicator is qualified to install modified bituminous sheet membrane waterproofing and has a minimum of 5 installations of similar scope.
- C. Warranty.

1.03 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Regularly engaged in the manufacture of modified bituminous sheet membrane waterproofing for at least 5-years; capable of furnishing a list of five satisfactory installations of the material which have been in service for at least 5-years.
- B. Applicator's Qualifications: Minimum of 5 installations of similar size and complexity to this Project.
- C. Each component of modified bituminous sheet membrane waterproofing system shall comply with applicable Volatile Organic Compound (VOC) regulations.

1.04 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in unopened containers, clearly marked with manufacturer's name and address and date of manufacture.
- B. Store materials away from sparks or flames, protected from rain and physical damage, and within temperature range recommended by manufacturer.

1.05 PROJECT CONDITIONS

- A. Prior to application, manufacturer's representative, County's Representative, Developer Design/Builder, and applicator shall make site inspection to review related conditions affecting performance requirements of the specified system.
- B. Environmental Conditions:
 - 1. The temperature of the air and surfaces to receive waterproofing shall be within the range recommended by the manufacturer.
 - 2. The concrete surface has cured for a minimum of 7-days and is dry at application.
 - 3. Provide adequate ventilation during application of material in enclosed areas.

- C. Take precautions and provide protection as required when using products which produce offensive odors and physically irritating pollutants.

1.06 WARRANTY

- A. Furnish a written warranty that the installed systems will be free of defects related to workmanship or material deficiency for a 5-year period from the date of Substantial Completion. The following problems shall be specifically covered under the warranty:
 - 1. Cohesive or adhesive failure of the system.
 - 2. Weathering deficiencies resulting in failure of the system.
 - 3. Abrasion or tear failure of the system resulting from normal use.
- B. This warranty shall be in addition to and not a limitation of other rights the County may have against the Developer Design/Builder under the Contract Documents.

PART 2 - PRODUCTS

2.01 APPROVED MANUFACTURERS

- A. Grace Construction Products "Bituthene 4000" or approved equal.

2.02 MATERIALS

- A. Membrane: Cold-applied, self-adhering, preformed membrane, 0.060-inch thick with a 0.004-inch-thick polyethylene film coated on one side with a layer of adhesive-consistency rubberized asphalt.
 - 1. Tensile Strength, Film: 5,000-psi in accordance with ASTM D882.
 - 2. Tensile Strength, Membrane: 325-psi in accordance with ASTM D412.
 - 3. Resistance to Hydrostatic Head: 231-feet of water in accordance with ASTM D5385.
 - 4. Permeance: 0.05-grains/sq. ft./hr./in. Hg in accordance with ASTM E96, Method B.
 - 5. Water Absorption: 0.1-percent (weight/72-hours) in accordance with ASTM D570.
 - 6. Pliability, 180-deg. bend over 1-inch mandrel: -45-deg. F. in accordance with ASTM D1970.
- B. Surface Conditioner: Styrene Butadine Rubber water based; "Bituthene" 4000 Surface Conditioner.
- C. Mastic: Rubberized asphalt-based mastic; "Bituthene" Mastic.
- D. Liquid Membrane: Two-component, elastomeric, cold-applied trowel grade urethane material; "Bituthene" Liquid Membrane.
- E. Provide materials recommended by manufacturer for detailing corners, joints, drains, and protrusions.
- F. Protection Board: Grace Construction Products "Hydroduct 220" or approved equal.
- G. Termination Bar: As recommended by membrane manufacturer.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Concrete surfaces to receive modified bituminous sheet membrane waterproofing shall be free of dirt and debris, void, spalled areas, loose-aggregate, and sharp protrusions, with no coarse aggregate visible. Immediately prior to application, broom clean and blow off all dust.
- B. Pipes, vents, drains, and other penetrations of surface shall be covered to prevent entry of waterproofing material.

- C. Concrete shall have cured for a minimum of 7-days using acceptable curing methods.

3.02 PREPARATION OF SURFACES

- A. Follow recommendations of modified bituminous sheet membrane waterproofing materials manufacturer.
- B. Provide a fillet of liquid membrane at internal corners in accordance with manufacturer's instructions.
- C. Reinforce external corners in accordance with manufacturer's instructions.
- D. Expansion joints shall be sealed and covered in accordance with manufacturer's recommendations.
- E. Mask off adjoining surfaces not to receive waterproofing.

3.03 APPLICATION

- A. Apply materials in accordance with manufacturer's instructions.
- B. Spray-apply diluted surface conditioner uniformly to substrate at a rate of 500- to 600-sq. ft. per gallon and allow to dry for a minimum of 30-minutes or until substrate returns to original color prior to application of waterproofing membrane. If conditioned areas are not covered on the same day, recondition if significant dust or dirt accumulate.
- C. Vertical Surfaces:
 - 1. Corners:
 - a. Prepare inside corners by installing a 3/4-inch fillet of liquid membrane and extend 6-inches in each direction from the corner.
 - b. Outside corners shall be free of sharp edges. Prepare outside corners by installing a 12-inch wide strip of waterproofing material centered on the corner. At installer's option, outside corners may be formed by using the alternating lap method with each layer of membrane continuing around the corner a minimum of 6-inches.
 - c. Install membrane over treated inside and outside corners.
 - 2. Membrane:
 - a. Apply membrane vertically in lengths of 7-feet or less. On higher walls, apply two or more lengths of membrane with upper length overlapping lower length by a minimum of 2-1/2-inches. Roll membrane with a handroller immediately after application.
 - b. Extend membrane over the top of the foundation wall.
 - c. Terminate membrane with mastic or liquid membrane and termination bar.
 - d. At the base of the foundation wall, provide liquid membrane material 6-inches up the wall over vapor retarder termination. Extend, lap membrane over liquid membrane and terminate at base of the foundation wall.
 - e. Seal laps within 12-inches of corners with a troweling of mastic.
 - f. Apply a troweling of mastic or liquid membrane to vertical and horizontal membrane terminations.
 - 3. Edges: Seal vertical and horizontal terminations with mastic or liquid membrane material.
 - 4. Seams: Overlap edge and end laps a minimum of 2-1/2-inches. Patch misaligned or inadequately lapped seams with membrane material extending 6-inches beyond the defect and seal edges of patches with a trowel application of mastic or liquid membrane.
 - 5. Protection: Install protection board in accordance with manufacturer's recommendations.

END OF SECTION