SECTION 07 13 00

SHEET MEMBRANE WATERPROOFING

PART 1 – GENERAL

1.1 PURPOSE

A. This guideline is intended to provide useful information to the Professional Service Provider (PSP) to establish a basis of design. PSP is to apply the principles of this section such that the University of Texas at Arlington (UTA) may achieve a level of quality and consistency in the design and construction of their facilities. Deviations from these guidelines must be approved by UTA and may require justification through Life Cycle Cost (LCC) analysis and submitted to UTA for approval.

1.2 LESSONS LEARNED AND DESIGN CONSIDERATIONS

A. Provide photography documentation for project record.

B. Rolled-on application is preferred.

C. Inspection by UTA / Consultants is required prior to backfill.

1.3 RELATED DOCUMENTS

A. All of the Contract Documents, including General and Supplementary Conditions and Division 01 General Requirements, apply to the work of this section.

1.4 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

1.5 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):
   1. C 836 - Standard Specification for High Solids, Cold Liquid-Applied Elastomeric Waterproofing Membrane for Use with Separate Wearing Course; current edition.
   2. D 412 - Standard Test Methods for Rubber Properties in Tension; current edition.
   3. D 570 - Standard Test Method for Water Absorption of Plastics; current edition.
   4. D 882 - Standard Test Methods for Tensile Properties of Thin Plastic Sheeting; current edition.
   5. D 903 - Standard Test Method for Peel or Stripping Strength of Adhesive Bonds; current edition.
   6. D 1876 - Standard Test Method for Peel Release of Adhesives (T-Peel); current edition.
   7. D 1970 - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection; current edition.
   8. D 3767 - Standard Practice for Rubber - Measurements of Dimensions; current edition.
   9. D 5385 - Standard Test Method for Hydrostatic Pressure Resistance of Waterproofing Membranes; current edition.
   10. E 96 - Standard Test Methods for Water Vapor Transmission of Materials; current edition.
   11. E 154 - Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover; current edition.

1.6 SUBMITTALS

A. See Division 01 for submittal procedures.

B. 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.

C. Samples: Submit representative samples of the following for approval:
   1. Sheet membrane
   2. Protection board
   3. Prefabricated drainage composite

1.7 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.

1.8 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.
   2. Protect mastic and adhesive from moisture and potential sources of ignition.
   3. Store drainage composite or protection board flat and off the ground. Provide cover on top and all sides.
B. Sequence deliveries to avoid delays, but minimize on-site storage.

1.9 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.

1.10 WARRANTY

A. Warranty includes removing and reinstalling protection board, drainage panels, insulation, and related work disturbed by removal procedures.
B. Sheet Membrane Waterproofing: Provide written 5 year material warranty issued by the membrane manufacturer upon completion of the work.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. WR Grace**:** Bituthene® 3000
B. Polyguard Products, Inc.: Product: 650 Membrane Systems
C. MiraDRi Moisture Protection Products: Product: MiraDRi 860/861 Waterproofing System MiraDri

2.2 MATERIALS

A. Sheet Membrane Waterproofing: Bituthene® 3000/Low Temperature Membrane by Grace Construction Products; a self-adhesive, cold-applied composite sheet consisting of a thickness of 1.4 mm (0.056") of rubberized asphalt and 0.1 mm (0.004") of cross-laminated, high density polyethylene film. Provide rubberized asphalt membrane covered with a release sheet, which is removed during installation. No special adhesive or heat shall be required to form laps.
B. Prefabricated Drainage Composite: (Hydroduct® 220) (Hydroduct® 660) Drainage Composite by Grace Construction Products. Drainage Composite shall be designed to promote positive drainage while serving as a protection course.
C. Waterstop: Adcor ES hydrophilic non-bentonite waterstop by Grace Construction Products for non- moving concrete construction joints.
D. Miscellaneous Materials: Surface conditioner, mastic, liquid membrane, tape and accessories specified or acceptable to manufacturer of sheet membrane waterproofing.

PART 3 – EXECUTION

3.1 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.

3.2 PREPARATION OF SUBSTRATES

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 bug holes over 13 mm (0.5") in length and 6 mm (0.25") 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.

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.

3.3 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.

3.4 CLEANING AND PROTECTION

A. Remove any masking materials after installation. Clean any stains on materials which would be exposed in the completed work.

B. Protect completed membrane waterproofing from subsequent construction activities as recommended by manufacturer.

3.5 TESTING AND INSPECTION

A. Flood Testing: Flood test each deck area for leaks, according to recommendations in ASTM D 5957, after completing waterproofing but before overlaying construction is placed. Install temporary containment assemblies, plug or dam drains, and flood with potable water.
   1. Flood to an average depth of 2½" (64 mm) with a minimum depth of 1" (25 mm) and not exceeding a depth of 4" (100 mm). Maintain 2" (50 mm) of clearance from top of sheet flashings.
   2. Flood each area for 72 hours.
   3. After flood testing, repair leaks, repeat flood tests, and make further repairs until waterproofing installation is watertight.

END OF SECTION