

SECTION 071326 - SELF-ADHERING SHEET WATERPROOFING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Modified bituminous sheet waterproofing.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review waterproofing requirements including surface preparation, substrate condition and pretreatment, minimum curing period, forecasted weather conditions, special details and sheet flashings, installation procedures, testing and inspection procedures, and protection and repairs.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, and tested physical and performance properties of waterproofing.
 - 2. Include manufacturer's written instructions for evaluating, preparing, and treating substrate.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Sample Warranties: For special warranties.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by waterproofing manufacturer.

1.7 FIELD CONDITIONS

- A. Environmental Limitations: Apply waterproofing within the range of ambient and substrate temperatures recommended in writing by waterproofing manufacturer. Do not apply waterproofing to a damp or wet substrate.
1. Do not apply waterproofing in snow, rain, fog, or mist.

1.8 WARRANTY

- A. Manufacturer's Warranty:
1. Waterproofing Warranty: Manufacturer agrees to furnish replacement waterproofing material for waterproofing that does not comply with requirements or that fails to remain watertight within specified warranty period.
 - a. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations for Waterproofing System: Obtain waterproofing materials, protection course, and molded-sheet drainage panels from single source from single manufacturer.

2.2 MODIFIED BITUMINOUS SHEET WATERPROOFING

- A. Modified Bituminous Sheet Waterproofing: Minimum 15 mils of HDPE and expandable, granular bentonite. Composite weight up to 1.0 lb/sf dual waterproofing system.
1. Basis-of-Design Product: Subject to compliance with requirements, provide Tremco; Paraseal or approved equal.
 2. Physical Properties:
 - a. Tensile Strength, Membrane: 3,915 psi minimum; ASTM D412.
 - b. Ultimate Elongation: 500 percent minimum; ASTM D412, type 4 dumbbell.
 - c. Puncture Resistance: 112 lbf minimum; ASTM E154/E154M.
 - d. Water Vapor Permeance: 0.029 perm maximum; ASTM E96/E96M, Water Method.
 - e. Hydrostatic-Head Resistance: 231 feet minimum; ASTM D5385.
- ~~B. Modified Bituminous Sheet Waterproofing: Minimum 60 mil (1.5 mm) nominal thickness, self-adhering sheet consisting of 56 mils (1.4 mm) of rubberized asphalt laminated on one side to a 4 mil (0.10 mm) thick, polyethylene film reinforcement, and with release liner on adhesive side.~~
- a.

2. ~~Basis of Design Product:~~ Subject to compliance with requirements, provide ~~Carlisle Coatings & Waterproofing Inc;~~ CCW MiraDRI 860/861 or a comparable product by one of the following:
 - a. ~~American Hydrotech, Inc.~~
 - b. ~~GCP Applied Technologies Inc.~~
 - c. ~~Henry Company.~~
 - d. ~~W.R. Meadows, Inc.~~
3. ~~Physical Properties:~~
 - a. ~~Tensile Strength, Membrane: 250 psi (1.7 MPa) minimum; ASTM D412, Die C, modified.~~
 - b. ~~Ultimate Elongation: 300 percent minimum; ASTM D412, Die C, modified.~~
 - c. ~~Low Temperature Flexibility: Pass at minus 20 deg F (minus 29 deg C); ASTM D1970/D1970M.~~
 - d. ~~Crack Cycling: Unaffected after 100 cycles of 1/8 inch (3 mm) movement; ASTM C836/C836M.~~
 - e. ~~Puncture Resistance: 40 lbf (180 N) minimum; ASTM E154/E154M.~~
 - f. ~~Water Absorption: 0.2 percent weight gain maximum after 48 hour immersion at 70 deg F (21 deg C); ASTM D570.~~
 - g. ~~Water Vapor Permeance: 0.05 perm (2.9 ng/Pa x s x sq. m) maximum; ASTM E96/E96M, Water Method.~~
 - h. ~~Hydrostatic Head Resistance: 200 feet (60 m) minimum; ASTM D5385.~~
4. Sheet Strips: Self-adhering, rubberized-asphalt strips of same material and thickness as sheet waterproofing.

2.3 AUXILIARY MATERIALS

- A. Furnish auxiliary materials recommended by waterproofing manufacturer for intended use and compatible with sheet waterproofing.
 1. Furnish liquid-type auxiliary materials that comply with VOC limits of authorities having jurisdiction.
- B. Primer: Liquid waterborne primer recommended for substrate by sheet waterproofing material manufacturer.
- C. Surface Conditioner: Liquid, waterborne surface conditioner recommended for substrate by sheet waterproofing material manufacturer.
- D. Liquid Membrane: Elastomeric, two-component liquid, cold fluid applied, of trowel grade or low viscosity.
- E. Substrate Patching Membrane: Low-viscosity, two-component, modified asphalt coating.
- F. Metal Termination Bars: Aluminum bars, approximately 1 by 1/8 inch (25 by 3 mm), predrilled at 9-inch (229-mm) centers.

2.4 MOLDED-SHEET DRAINAGE PANELS

- A. Nonwoven-Geotextile-Faced, Molded-Sheet Drainage Panel with Polymeric Film: Composite subsurface drainage panel acceptable to waterproofing manufacturer and consisting of a studded, nonbiodegradable, molded-plastic-sheet drainage core; with a nonwoven, needle-punched geotextile facing with an apparent opening size not exceeding **No. 70 (0.21-mm)** sieve laminated to one side of the core and a polymeric film bonded to the other side; and with a vertical flow rate through the core of **9 to 21 gpm per ft. (112 to 261 L/min. per m)**.
1. Basis-of-Design Product: Subject to compliance with requirements, provide Carlisle Coatings & Waterproofing Inc; CCW MiraDRAIN 6200XL or comparable product by one of the following:
 - a. American Hydrotech, Inc.; Hydrodrain 400.
 - b. GCP Applied Technologies Inc.; Hydroduct 220.
 - c. Henry Company; Henry DB520.
 - d. WR Meadows; Mel-Drain 5035-B.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer, Owner, and Architect present, for compliance with requirements and other conditions affecting performance of waterproofing.
1. Verify that concrete has cured and aged for minimum time period recommended in writing by waterproofing manufacturer.
 2. Verify that substrate is visibly dry and within the moisture limits recommended in writing by manufacturer. Test for capillary moisture by plastic sheet method according to ASTM D4263.
 3. Verify that compacted subgrade is dry, smooth, sound, and ready to receive waterproofing sheet.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean, prepare, and treat substrates according to manufacturer's written instructions. Provide clean, dust-free, and dry substrates for waterproofing application.
- B. Mask off adjoining surfaces not receiving waterproofing to prevent spillage and overspray affecting other construction.
- C. Remove grease, oil, bitumen, form-release agents, paints, curing compounds, and other penetrating contaminants or film-forming coatings from concrete.
- D. Remove fins, ridges, mortar, and other projections.

- E. Fill form tie holes, honeycomb, aggregate pockets, holes, and other voids.
- F. Prepare, fill, prime, and treat joints and cracks in substrates. Remove dust and dirt from joints and cracks according to ASTM D4258.
 - 1. Install sheet strips of width according to manufacturer's written instructions and center over treated construction and contraction joints and cracks exceeding a width of **1/16 inch (1.6 mm)**.
- G. Bridge and cover isolation joints, expansion joints, and discontinuous deck-to-wall and deck-to-deck joints with overlapping sheet strips of widths according to manufacturer's written instructions.
 - 1. Invert and loosely lay first sheet strip over center of joint. Firmly adhere second sheet strip to first and overlap to substrate.
- H. Corners: Prepare, prime, and treat inside and outside corners in accordance with manufacturer's instructions.
 - 1. Install membrane strips centered over vertical inside corners. Install **3/4-inch (19-mm)** fillets of liquid membrane on horizontal inside corners and as follows:
 - a. At footing-to-wall intersections, extend liquid membrane in each direction from corner or install membrane strip centered over corner.
- I. Prepare, treat, and seal vertical and horizontal surfaces at terminations and penetrations through waterproofing and at drains and protrusions.

3.3 INSTALLATION OF MODIFIED BITUMINOUS SHEET WATERPROOFING

- A. Install modified bituminous sheets according to waterproofing manufacturer's written instructions.
- B. Apply primer to substrates at required rate and allow it to dry. Limit priming to areas that will be covered by sheet waterproofing in same day. Reprime areas exposed for more than 24 hours.
- C. Apply and firmly adhere sheets over area to receive waterproofing. Accurately align sheets and maintain uniform **2-1/2-inch- (64-mm-)** minimum lap widths and end laps. Overlap and seal seams, and stagger end laps to ensure watertight installation.
 - 1. When ambient and substrate temperatures range between **25 and 40 deg F (minus 4 and plus 5 deg C)**, install self-adhering, modified bituminous sheets produced for low-temperature application. Do not use low-temperature sheets if ambient or substrate temperature is higher than **60 deg F (16 deg C)**.
- D. Apply continuous sheets over already-installed sheet strips, bridging substrate cracks, construction, and contraction joints.
- E. Seal edges of sheet waterproofing terminations with mastic.

- F. Install sheet waterproofing and auxiliary materials to tie into adjacent waterproofing.
- G. Repair tears, voids, and lapped seams in waterproofing not complying with requirements. Slit and flatten fishmouths and blisters. Patch with sheet waterproofing extending **6 inches (150 mm)** beyond repaired areas in all directions.

3.4 MOLDED-SHEET DRAINAGE-PANEL INSTALLATION

- A. Place and secure molded-sheet drainage panels, with geotextile facing away from wall or deck substrate, according to manufacturer's written instructions. Use adhesive or another method that does not penetrate waterproofing. Lap edges and ends of geotextile to maintain continuity. Protect installed molded-sheet drainage panels during subsequent construction.

3.5 FIELD QUALITY CONTROL

- A. Waterproofing will be considered defective if it does not pass tests and inspections.

3.6 PROTECTION, REPAIR, AND CLEANING

- A. Do not permit foot or vehicular traffic on unprotected membrane.
- B. Protect waterproofing from damage and wear during remainder of construction period.
- C. Protect installed insulation drainage panels from damage due to UV light, harmful weather exposures, physical abuse, and other causes. Provide temporary coverings where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.
- D. Correct deficiencies in or remove waterproofing that does not comply with requirements; repair substrates, reapply waterproofing, and repair sheet flashings.
- E. Clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended in writing by manufacturer of affected construction.

END OF SECTION 071326