

---

---

**PART 1 GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 1 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. This Section includes:
  - 1. Polyurethane waterproofing.
- B. Related Requirements:
  - 1. Division 1 Section "Sustainable Design Requirements".
  - 2. Division 7 Section "Traffic Coatings" for exposed, fluid-applied membrane with an integral wearing surface.

**1.3 QUALITY ASSURANCE**

- A. The work of this section shall be performed by a company which specializes in the type of cold fluid-applied waterproofing work required for this Project, with a minimum of 5 years of documented successful experience and shall be performed by skilled workmen thoroughly experienced in the necessary crafts.
  - 1. Work shall be performed in compliance with Owner's insurance underwriters' requirements and UL approvals and testing for materials, assemblies and procedures.
- B. Manufacturer shall specialize in manufacturing the type of cold fluid-applied waterproofing specified in this section, with a minimum of 5 years of documented successful experience, and have the facilities capable of meeting all requirements of Contract Documents as a single-source responsibility and warranty.
- C. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by waterproofing manufacturer.
- D. Manufacturer's identification tags or marks are not acceptable on surfaces which will remain exposed to view after installation.
  - 1. Evidence of "patching" after removal of tags or marks is not acceptable.

**1.4 SUBMITTALS**

- A. Submit the following according to Conditions of the Construction Contract and Division 1 Specification Sections.
- B. 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.
- C. LEED Submittals:
  - 1. Product Certificates for Credit MR 5: For products required to comply with requirements for regional materials, certificates indicating location of manufacturer and point of extraction, harvest, or recovery for each raw material. Include statement indicating distance to Project, cost for each regional material, and fraction by weight that is considered regional.
  - 2. LEED Submittal: EQc4.2 – Provide product data for all paints and coatings used inside the waterproofing system and applied on site with a printed statement of VOC content in g/L.
  - 3. LEED Submittal: EQc4.1 for adhesive and sealants used inside the waterproofing system, include printed statement of VOC content.
- D. Shop Drawings:
  - 1. Show locations and extent of waterproofing.
  - 2. Include details for substrate joints and cracks, sheet flashings, penetrations, inside and outside corners, tie-ins with adjoining waterproofing, and other termination conditions.
  - 3. Include setting drawings showing layout, sizes, sections, profiles, and joint details of pedestal-supported concrete pavers.

- E. Samples: For each exposed product and for each color and texture specified, including the following products:
  - 1. Flashing sheet, 8 by 8 inches (200 by 200 mm).
  - 2. Membrane-reinforcing fabric, 8 by 8 inches (200 by 200 mm).
- F. Certifications:
  - 1. Certification from manufacturer that membrane material is produced at facility having full time quality control, with each batch of material tested to assure conformance with published physical properties.
  - 2. Certification from manufacturer that all waterproofing components are being supplied by a single-source manufacturer.
  - 3. Certification from manufacturer and installer that they have reviewed and approved all waterproofing material systems and specific materials for this project and that they are in agreement that the proposed materials are appropriate for each surface and condition.
- G. Product Test Reports: For waterproofing, based on evaluation of comprehensive tests performed by a qualified testing agency.
- H. Field quality-control reports.
- I. Warranty: Sample of special warranty.
- J. Hazardous Materials Notification: In the event no product or material is available that does not contain asbestos, PCB or other hazardous materials as determined by the Owner, a "Material Safety Data Sheet" (MSDS) equivalent to OSHA Form 20 shall be submitted for that proposed product or material prior to installation.
- K. Asbestos and PCB Certification: After completion of installation, but prior to Substantial Completion, Contractor shall certify in writing that products and materials installed, and processes used, do not contain asbestos or polychlorinated biphenyls (PCB), using format in Article 3 of General Conditions.

#### 1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Field quality-control reports.
- C. Sample Warranties: For special warranties.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Comply with General Conditions and Division 1 Section "Product Requirements".

#### 1.7 FIELD CONDITIONS

- A. Environmental Limitations: Apply waterproofing within the range of ambient and substrate temperatures recommended in writing by waterproofing manufacturer.
  - 1. Do not apply waterproofing to a damp or wet substrate, when relative humidity exceeds 85 percent, or when temperatures are less than 5 deg F (3 deg C) above dew point.
  - 2. Do not apply waterproofing in snow, rain, fog or mist, or when such weather conditions are imminent during application and curing period.
- B. Maintain adequate ventilation during application and curing of waterproofing materials.

#### 1.8 WARRANTY

- A. Comply with General Conditions and Division 1 Section "Product Requirements".
- B. Manufacturer's Special Warranty: Manufacturer agrees to repair or replace waterproofing that fails in materials or workmanship within specified warranty period.
  - 1. Warranty Period: 10 years from date of Substantial Completion.
- C. Installer's Special Warranty: Specified form, signed by Installer, covering Work of this Section, for warranty period of two years.

**PART 2 PRODUCTS****2.1 UNAUTHORIZED MATERIALS**

- A. Materials and products required for work of this section shall not contain asbestos, polychlorinated biphenyls (PCB) or other hazardous materials identified by the Owner.

**2.2 MATERIALS, GENERAL**

- A. Regional Content: For material that is extracted, harvested or recovered as well as manufactured within 500 miles of the project site – 101 First Street, San Francisco, CA, contractor shall document the cost and percentage (by weight) of each material that is regional.
- B. VOC Content: Adhesive and sealants used inside the waterproofing system and applied on site shall have VOC content equal to or less than the applicable VOC limits. Refer to Division 1 Section "Sustainable Design Requirements" for additional information.
- C. VOC Content: Paints and coatings used inside the waterproofing system and applied on site shall have VOC content equal to or less than the applicable VOC limits. Refer to Division 1 Section "Sustainable Design Requirements" for additional information.

**2.3 ACCEPTABLE MANUFACTURERS**

- A. Products of the manufacturers specified in this section establish the minimum functional, aesthetic and quality standards required for work of this section.
- B. Substitutions: Comply with General Conditions using form in Division 1 Section "Substitution Request Form".

**2.4 SINGLE-COMPONENT POLYURETHANE WATERPROOFING**

- A. Single-Component, Modified Polyurethane Waterproofing: ASTM C836/C 836M and coal-tar free.
1. Products: Subject to compliance with requirements, provide one of the following:
    - a. Carlisle Coatings & Waterproofing Inc; CCW-525.
    - b. Pacific Polymers International, Inc; Elasto-Deck B.T.
    - c. Tremco Incorporated; Tremproof 201/60.

**2.5 AUXILIARY MATERIALS**

- A. General: Provide auxiliary materials recommended in writing by waterproofing manufacturer for intended use and compatible with one another and with waterproofing.
1. Furnish liquid-type auxiliary materials that comply with VOC limits of authorities having jurisdiction.
- B. Primer: Manufacturer's standard primer, sealer, or surface conditioner; factory-formulated acrylic latex, polyurethane, or epoxy.
- C. Joint Sealant: Multicomponent polyurethane sealant, compatible with waterproofing; ASTM C920, Type M, Class 25 or greater; Grade NS for sloping and vertical applications and Grade P for deck applications; Use NT exposure; and as recommended by manufacturer for substrate and joint conditions.
1. Backer Rod: Closed-cell polyethylene foam.

**PART 3 EXECUTION****3.1 EXAMINATION**

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.
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.
- 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. Close off deck drains and other deck penetrations to prevent spillage and migration of waterproofing fluids.
- D. Remove grease, oil, bitumen, form-release agents, paints, curing compounds, acid residues, and other penetrating contaminants or film-forming coatings from concrete.
  - 1. Abrasive blast clean concrete surfaces uniformly to expose top surface of fine aggregate according to ASTM D4259 with a self-contained, recirculating, blast-cleaning apparatus. Remove material to provide a sound surface free of laitance, glaze, efflorescence, curing compounds, concrete hardeners, or form-release agents. Remove remaining loose material and clean surfaces according to ASTM D4258.
- E. Remove fins, ridges, and other projections, and fill honeycomb, aggregate pockets, holes, and other voids.

**3.3 PREPARATION AT TERMINATIONS, PENETRATIONS, AND CORNERS**

- A. Prepare surfaces at terminations and penetrations through waterproofing and at expansion joints, drains, sleeves, and corners according to waterproofing manufacturer's written instructions and to recommendations in ASTM C898/C 898M and ASTM C1471.
- B. Apply waterproofing in two separate applications, and embed a joint reinforcing strip in the first preparation coat when recommended by waterproofing manufacturer.

**3.4 JOINT AND CRACK TREATMENT**

- A. Prepare, treat, rout, and fill joints and cracks in substrate according to waterproofing manufacturer's written instructions and to recommendations in ASTM C898/C 898M and ASTM C1471. Before coating surfaces, remove dust and dirt from joints and cracks according to ASTM D4258.
  - 1. Comply with ASTM C1193 for joint-sealant installation.
  - 2. Apply bond breaker on sealant surface, beneath preparation strip.
  - 3. Prime substrate along each side of joint and apply a single thickness of preparation strip at least 6 inches (150 mm) wide along each side of joint. Apply waterproofing in two separate applications and embed a joint reinforcing strip in the first preparation coat.
- B. Install sheet flashing and bond to deck and wall substrates where required according to waterproofing manufacturer's written instructions.
  - 1. Extend sheet flashings for 4 inches (100 mm) minimum onto perpendicular surfaces and items penetrating substrate.

**3.5 WATERPROOFING APPLICATION**

- A. Apply waterproofing according to manufacturer's written instructions and to recommendations in ASTM C898/C 898M and ASTM C1471.
- B. Start installing waterproofing in presence of manufacturer's technical representative.
- C. Apply primer over prepared substrate unless otherwise instructed in writing by waterproofing manufacturer.
- D. Unreinforced Waterproofing Applications: Mix materials and apply waterproofing by spray, roller, notched squeegee, trowel, or other application method suitable to slope of substrate.
  - 1. Apply one or more coats of waterproofing to obtain a seamless membrane free of entrapped gases and pinholes, with a dry film thickness of 120 mils (3 mm).
  - 2. Apply waterproofing to prepared wall terminations and vertical surfaces.
  - 3. Verify manufacturer's recommended wet film thickness of waterproofing every 100 sq. ft. (9.3 sq. m).
- E. Cure waterproofing, taking care to prevent contamination and damage during application and curing.

**3.6 FIELD QUALITY CONTROL**

- A. Testing Agency: Owner will engage testing agency to perform tests and inspections:
1. Testing agency shall verify thickness of waterproofing during application for each 600 sq. ft. (56 sq. m) of installed waterproofing or part thereof.
  2. Flood Testing: Flood test each planter area for leaks, according to recommendations in ASTM D5957, after completing waterproofing but before overlaying construction is placed. Install temporary containment assemblies, plug or dam drains, and flood with potable water.
    - a. Flood to an average depth of 2-1/2 inches (64 mm) with a minimum depth of 1 inch (25 mm) and not exceeding a depth of 4 inches (100 mm). Maintain 2 inches (50 mm) of clearance from top of sheet flashings.
    - b. Flood each area for 48 hours.
    - c. After flood testing, repair leaks, repeat flood tests, and make further repairs until waterproofing installation is watertight.
- B. If test results or inspections show waterproofing does not comply with requirements, remove and replace or repair the waterproofing as recommended in writing by manufacturer, and make further repairs after retesting and inspecting until waterproofing installation passes.
- C. Prepare test and inspection reports.

**3.7 PROTECTION**

- A. Do not permit foot or vehicular traffic on unprotected membrane.
- B. Protect waterproofing from damage and wear during remainder of construction period.
- C. Correct deficiencies in or remove waterproofing that does not comply with requirements; repair substrates, reapply waterproofing, and repair sheet flashings.
- D. Clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended in writing by manufacturer of affected construction.

**3.8 SCHEDULE OF LOCATIONS**

- A. Fire Water Storage Room.
- B. Rain Water and Gray Water Recovery Storage Tank.

**END OF SECTION**