

SECTION 07141 – COLD FLUID-APPLIED WATERPROOFING

1.1 GENERAL

A. SUMMARY

1. This Section includes but is not limited to the installation of a reinforced (2-layer) cold fluid-applied polymer modified asphaltic waterproofing system with all the materials, labor and supervision necessary to provide a continuous plaza waterproofing system.

B. SUBMITTALS

1. Product Data: Include manufacturer's written instructions for evaluating, preparing, and treating substrate, technical data, and physical properties of waterproofing.
2. Shop Drawings: Show locations and extent of waterproofing. Include details for substrate joints and cracks, sheet flashings, penetrations, inside and outside corners, tie-ins with adjoining waterproofing, and other termination conditions.
3. Product Test Reports shall yield the following results (for liquid adhesive applied at the rate of two gallons per 100 ft²):
 - a. ASTM D529-82, Weathering Daily Cycle B. No Cracking or crazing. No slump. May turn a slightly gray in color.
 - b. Hardness: Attains a Shore Hardness of 60 max.
 - c. Ductility: ASTM D113-79, at 1cm per minute (39.20F – 40C) 125% elongation minimum.
 - d. Water Permeability: ASTM E96 0.005 perms/hr./sq. ft.
 - e. Excellent adhesion to concrete, metals, glass, insulations, wood, coal-tar-pitch, and felts etc. Exceptions: silicones, Teflon, certain acrylics and animal fats.
 - f. Dry Film Thickness (minimum): 9 mils per gallon per 100 sq. ft.

C. QUALITY ASSURANCE

1. Installer Qualifications: A qualified installer, approved by manufacturer to install specified system. Installer is responsible for inspecting project for all relevant field conditions prior to installation. Conditions noted by installer are to be reported to Ownership, Designer of Record, Consultant and the General Contractor.



- a. Installer to submit documentation from Manufacturer indicating the installer is an Approved Contractor in good standing and upon successful completion of the Work will qualify for the specified warranty.
 - b. Installer to submit documentation certifying they have installed a minimum of two (2) projects of similar size and scope within the past three (3) years.
2. Manufacturer Qualifications: Manufacturer shall have been in continuous business producing waterproofing materials as specified for a minimum of 20-years.
- a. Manufacturer must not have filed for bankruptcy protection during any time of continued production.
3. Preinstallation Conference: Conduct conference at Project site. Preinstallation conference shall include but not be limited to the following attendees.
- a. Building Owner or Owners authorized representative.
 - b. Designer of Record
 - c. Consultant
 - d. Waterproofing Contractor
 - e. Manufacturer's authorized technical representative.
 - f. General Contractor, and any other trades having direct impact on the waterproofing system.

D. STORAGE

1. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by waterproofing manufacturer.
2. Remove and replace liquid materials that cannot be applied within the published shelf life. Protect stored materials from direct sunlight.
3. Boxes containing the Waterproofing Sheet must be stored flat at all times, no more than 5 boxes high, on pallets or other means to elevate off the ground.
4. If indoor or trailer storage is not available, tarp with canvas, or breathable tarps only. **DO NOT USE POLYETHYLENE OR OTHER NON-BREATHABLE FILMS TO COVER BOXES.**
5. Remove rolls of Waterproofing Sheet from boxes when ready to use. Do not discard boxes as they will be required for storing any unused or partial rolls.



6. Store in a cool place out of direct sunlight. If trailer or indoor storage is used it should be well ventilated for summer storage and only a maximum of 600F for winter storage.

E. PROJECT CONDITIONS

1. Environmental Limitations: Apply waterproofing within the range of ambient and substrate temperatures recommended by waterproofing manufacturer. Do not apply waterproofing to a potentially contaminated, soiled or unclean substrate without prior written approval from the manufacturer. Do not apply waterproofing to substrates with standing water, frost or ice. Surface dampness is acceptable provided no standing water is present.

F. WARRANTY

1. Special Warranty: Manufacturer's standard form, signed by manufacturer and owner/owners representative, agreeing to repair or replace waterproofing that does not comply with requirements or that does not remain watertight for a period of XX-years after date of substantial completion.
2. Warranty shall be No-Dollar-Limit inclusive of material, labor and the removal and replacement/remediation of overburden required to access the condition.

2.1 PRODUCTS

A. MANUFACTURERS

1. Available Products: Subject to compliance with requirements, provide one of the following:
 - a. Laurengo Waterproofing System, as manufactured by FBC Chemical Corporation, Mars PA.

B. WATERPROOFING MATERIALS

1. Reinforced, Cold Fluid-Applied Waterproofing System.
2. Primer N/A
3. Adhesive: Specially formulated Asphalt modified with compatible proprietary rubber(s) using long fibers and clean aliphatic solvent.



- a. Solid Content 55% minimum.
 - b. Holding power 150lbs+ per sq.ft. at 900 pull on concrete substrate.
 - c. Meets or exceeds ASTM D2823, Type 1 and Federal Specifications SS-A-694D
4. Reinforcing Sheet: 50 mil (1.3mm) (+/- 5%) proprietary chloroprene rubber modified asphalt.
- a. Specially formulated Asphalt modified with Chloroprene Rubber (Neoprene) and Butyl rubber along with proprietary filler, curing agents and plasticizer.
 - b. Thickness of waterproofing sheet is 50 mil (+/- 5%).
 - c. Tensile Strength of waterproofing sheet = 75 lbf/in. min. (ASTM D146-90, Section 13) and (ASTM E 154-99, Section 9). Two (2) layer waterproofing “system” 180 lbf/in.
 - d. Puncture Resistance of waterproofing sheet = 215 lbs. (ASTM E154-99, Section 10). Two (2) layer waterproofing “system” >450 lbs.
 - e. Ductility of Modified Asphalt for use on waterproofing sheet: (ASTM D113-69) at 39.20F using 1cm per minute pull = 10% to 12.5% +. At 750F utilizing 5cm per minute pull = 100% to 125% +.
 - f. Softening point of modified asphalt used on waterproofing sheet: (ASTM D36-70 using distilled water) = 1600F minimum.
 - g. Penetration of Modified Asphalt used on waterproofing sheet: (ASTM D5-73) = 30 max. @ 770F using 3oz. seamless metal container.
5. Performance Criteria for System (Sheet and Adhesive)
- a. Water Permeability – inverted cup @ 750F, 25-day duration (ASTM E96-95 Procedure BW) 0.005 perms.
 - b. Weather test on Waterproofing “System” (ASTM D529-73 Daily Cycle B) 25-days. Hardness range of 60 +/- 5 pt. variation of a range of 0-99 Shore A hardness and no further changes after 10 cycles – Material stable with no cracking or crazing. Cycling continues for 25 days.
 - c. Pull Test Using 1” thick concrete slab and waterproofing “system”, after cure, at the rate of 2”/minute = 26.39 psi. Slabs fractured due to 1” requirement of test apparatus.
 - d. Waterhead test results: Results incomplete as 210 foot limit of machine was reached at end of 28-days with no leakage.
 - e. Mullen Burst Test: (System) 160 psi minimum

C. FLASHING MEMBRANE ASSEMBLY



1. A flashing membrane assembly consisting of a liquid applied, flexible, polymethyl methacrylate (PMMA) base monolithic, self-terminating membrane formed by the combination of liquid PMMA based resin and fleece fabric reinforcement.
 - a. Laureco PMMA Flashing System by FBC Chemical Corporation, Mars PA.
2. Resin for Flashing Applications: A flexible, polymethyl methacrylate (PMMA) based resin combined with a thixotropic agent for use in combination with non-woven 110 g/m², needle-punched polyester fabric reinforcement to form a monolithic flashing membrane.
 - a. Laureco PMMA Flashing Resin
3. Fleece for Flashing Reinforcement: A non-woven, 110 g/m², needle-punched polyester fabric. Reinforcement as supplied by the membrane system manufacturer.
 - a. Laureco Reinforcing Fleece

D. PROTECTION COURSE: A tough smooth surfaced, premium polymer modified asphaltic protection sheet. Manufactured with a fiberglass mat that is saturated and coated with high quality, asphaltic bitumen and polymer modifiers for a durable, flexible and easily applied sheet.

1. Protection sheet shall be a minimum 2.4 mm thick (94mils) and supplied in 39-3/8” by 49’-1” rolls.
 - a. Laureco SPC

E. MOLDED SHEET DRAINAGE PANELS

1. Composite drainage panels, 3 dimensional, non-biodegradable, manufactured with a permeable geotextile bonded to molded plastic-sheet drainage core and designed to effectively convey water.
 - a. Laureco Drain10 or Manufacture Approved Drainage Panel

F. ROOT BARRIER (if/where required)

1. High density polyethylene sheet manufactured for use as a mechanical barrier and root deflector to prevent vegetative roots from damaging waterproofing at planters. Root barrier is to be installed directly above the protection layer.



- a. Laurenco Root Barrier
- b. Laurenco Approved Root Barrier.

G. INSULATION (where required)

1. Horizontal – Extruded Polystyrene minimum 40 psi compressive strength with integrated drainage channels, complying with ASTM C578
2. Vertical – Expanded Polystyrene minimum 1” & 1lb density or Extruded Polystyrene minimum 20 psi compressive strength complying with ASTM C578.

3.1 EXECUTION

A. SURFACE PREPARATION

1. Clean and prepare substrate according to manufacturer’s written recommendations. Provide clean, dust free, and surface dry (minimum) substrate for waterproofing application.
2. Remove grease, oil, form release agents, paints, curing compounds, and other penetrating contaminants or film forming coatings from concrete. For manufacturer approved recover application remove all loose or damaged material from substrate.
3. Remove fins, ridges, and other projections and fill honeycomb, aggregate pockets and other voids.
4. Prepare vertical and horizontal surfaces at terminations and penetrations through waterproofing and at expansion joints, drains, and sleeves according to ASTM C898 and manufacturers written instructions.
 - a. Apply a double thickness of waterproofing and embed a joint reinforcing strip in preparation coat when recommended by waterproofing manufacturer.
5. Prepare, treat, rout, and fill joints and cracks in substrate according to ASTM C898 and waterproofing manufacturer’s written instructions. Remove dust and dirt from joints and cracks complying with ASTM D4258 before coating surfaces.
6. Repair damaged or spalling substrates for roughness with epoxy repair mortar patches or one component cementitious parge coatings rated for vertical and overhead use that



have high early strengths and are resistant to freeze-thaw. Provide a finish suitable for waterproofing installation, broom finish recommended.

- B. INSTALL PMMA LIQUID FLASHING and bond to wall and deck where indicated or required according to waterproofing manufacturer's instructions. (Deck to have strip of waterproofing membrane applied prior to the installation of PMMA. This allows encapsulation of the horizontal PMMA flashing liquid with the field waterproofing layers.)
- C. WATERPROOFING APPLICATION: Apply waterproofing in strict accordance with the manufacturer's written instructions or as directed by the manufacturer's on-site technical representative.
- D. FLOOD TESTING:
 - 1. All waterproofing work, is to be flood tested prior to the installation of protection sheet. (Flood testing can be completed after the installation of Laureco SPC Protection Course however it will make repairs, if required, more time consuming and costly.)
 - 2. Flood testing is to be conducted in compliance with ASTM D5957 with the following modification. Water depth is to be a minimum 2" maintained for a minimum 48 hours.
- E. ELECTRONIC FIELD VECTOR TESTING (EFVM) may be conducted in addition to, or in lieu of standard flood testing.
- F. PROTECTION SHEET & DRAINAGE PANEL INSTALLATION
 - 1. Follow waterproofing manufacturer's installation instructions for placement of protection sheet and drainage panels.

END