

SECTION 07 13 26.A

SELF-ADHERING SHEET WATERPROOFING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section Includes:
 - 1. Self-adhering modified bituminous sheet waterproofing for positive side basement foundation walls.
 - 2. Drainage materials and protection board required as part of above waterproofing systems.
 - 3. Accessory products required for complete foundation waterproofing system.
- B. Related Documents:
 - 1. Structural documents, drawings and specifications, for structural concrete requirements.
 - 2. Division 07 "Sheet Metal Flashing and Trim" for metal flashings.
 - 3. Division 07 Sections for various additional types of waterproofings, water-resistant barriers and flashings required for this project.
 - 4. Division 33 Section "Foundation Drainage" for foundation drainage provisions.

1.03 REFERENCE STANDARDS

- A. Applicable Standards Include
 - 1. ASTM D412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers--Tension.
 - 2. ASTM D882 - Standard Test Method for Tensile Properties of Thin Plastic Sheeting.
 - 3. ASTM D903 - Standard Test Method for Peel or Stripping Strength of Adhesive Bonds.
 - 4. ASTM D1876 - Standard Test Method for Peel Resistance of Adhesives (T-Peel Test).
 - 5. ASTM D5295/D5295M - Standard Guide for Preparation of Concrete Surfaces for Adhered (Bonded) Membrane Waterproofing Systems.
 - 6. ASTM D5385/D5385M - Standard Test Method for Hydrostatic Pressure Resistance of Waterproofing Membranes.
 - 7. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials.
 - 8. ASTM E154/E154M - Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover.
 - 9. NRCA (WM) - The NRCA (National Roofing Contractors Association) Waterproofing Manual.

1.04 SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Manufacturer's product literature and installation instructions, including instructions for sealing joints, terminations, and protrusions.
 - a. Include manufacturer's written instructions for evaluating, preparing, and treating substrate.
 - 2. Include detailed requirements for preparation of surfaces, application, and protection requirements.
 - 3. Delete inapplicable data from product submittal.
 - 4. Do not submit MSDS sheets; not required for design team and will not be reviewed.
- B. Samples: For each exposed product and for each color and texture specified, including the following products:
 - 1. 8-by-8-inch (200-by-200-mm) square of waterproofing and flashing sheet.
 - 2. 8-by-8-inch (200-by-200-mm) square of drainage panels.
 - 3. 8-by-8-inch (200-by-200-mm) square of protection board.
- C. Warranty: Sample of special warranty.

1.05 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by waterproofing manufacturer.
- B. Source Limitations for Waterproofing System: All waterproofing materials, protection course, and molded-sheet drainage panels shall be as manufactured or recommended by the primary waterproofing manufacturer.
- C. Mockups: Build mockups to verify selections made under Sample submittals and to set quality standards for installation.
 - 1. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 - 2. Locate as agreed by Architect.
 - 3. Mock-up may not remain as part of the Work, unless otherwise allowed in writing by Architect.

1.06 FIELD CONDITIONS

- A. Environmental Limitations: Apply waterproofing within the range of ambient and substrate temperatures recommended by waterproofing manufacturer. Do not apply waterproofing to a damp or wet substrate.
 - 1. Do not apply waterproofing in snow, rain, fog, or mist.
- B. Maintain adequate ventilation during preparation and application of waterproofing materials.

1.07 WARRANTY

- A. Contractor shall correct defective Work within a 5 year period after date of Substantial Completion; remove and replace materials concealing waterproofing at no extra cost to Owner.
- B. Manufacturer's Warranty: Manufacturer's standard materials-only warranty in which 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.
 - 1. Warranty Period: 5 years from date of Substantial Completion.
- C. Installer's Warranty: Provide installer's warranty agreeing to correct leaking waterproofing unless leaking is caused by structural failure, movement of the structure, or other causes beyond the installer's control within the specified warranty period specified from the date of Substantial Completion.
 - 1. Warranty period: 1 year.

PART 2 - PRODUCTS

2.01 MODIFIED BITUMINOUS SHEET WATERPROOFING

- A. Basis-of-Design: "~~Bituthene 3000~~Polyguard 650" as manufactured by ~~GCP Applied Technologies~~Polyguard, www.gepat.com-www.polyguardproducts.com.
- B. Acceptable Products: Subject to compliance with requirements, the following specific products are acceptable:
 - 1. Carlisle Coatings & Waterproofing Inc: MiraDRI 860/861, www.carlisleccw.com.
 - 2. GCP Applied Technologies, formerly W.R. Grace: Bituthene 3000, www.gcpat.com.
 - 3. Henry Company: Blueskin WP 200 or WP 100, www.henry.com.
 - 4. Polyguard; Polyguard 650, www.polyguardproducts.com.
 - 5. W.R. Meadows, Inc.: MEL-ROL, www.wrmeadows.com.
- C. Description: Modified Bituminous Sheet: 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; formulated for application with primer or surface conditioner that complies with VOC limits of authorities having jurisdiction.
 - 1. Physical Properties: As inherent to basis-of-design product.

2.02 AUXILIARY MATERIALS

- A. General: 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. Sheet Strips: Self-adhering, rubberized-asphalt strips of same material and thickness as sheet waterproofing.
- G. Cant Strips: Premolded composition material or Bitumen impregnated fiberboard, or type as recommended in writing by system manufacturer.
- H. Counterflashings: Pre-finished aluminum or stainless steel as specified in Division 07 Section "Sheet Metal Flashing and Trim."
- I. Metal Termination Bars: Aluminum bars, approximately 1 by 1/8 inch (25 by 3 mm) thick, predrilled at 9-inch (229-mm) centers.

2.03 DRAINAGE MATERIALS

- A. Description: Drainage layer with geotextile filter fabric on earth side. Type recommended and approved in writing by system manufacturer for application.
 - 1. Composition: Dimpled polystyrene, polyethylene, polypropylene, or other core; polypropylene filter fabric.
 - a. Products: Type recommended and approved in writing by system manufacturer for application.
- B. Molded Sheet Drainage Panels:
 - 1. Locations: Vertical and horizontal below grade applications.
 - 2. Thickness: As recommended by manufacturer for project conditions.

2.04 PROTECTION BOARD

- A. Protection Board: Provide type capable of preventing damage to waterproofing due to backfilling and construction traffic; approved in writing by manufacturer or from same manufacturer as sheet waterproofing.
 - 1. Polystyrene foam board, 1 inch thick.
 - 2. Recycled or reclaimed closed-cell foam plastic with non-woven filter fabric cover; 1 inch thick.
 - 3. Semi-rigid glass fiber board; unaffected by water, freeze-thaw, fungus, or soil bacteria; containing no formaldehyde, phenol, acrylic, or artificial color; 3/4 inch thick, nominal.
 - 4. Locations: Vertical below grade applications.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the 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 D 4263.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 SURFACE 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 and fill honeycomb, aggregate pockets, holes, and other voids.
- E. Prepare, fill, prime, and treat joints and cracks in substrates. Remove dust and dirt from joints and cracks according to ASTM D 4258.
 - 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).
- F. 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.
- G. Corners: Prepare, prime, and treat inside and outside corners according to ASTM D 6135.
- H. Prepare, treat, and seal vertical and horizontal surfaces at terminations and penetrations through waterproofing and at drains and protrusions according to ASTM D 6135.

3.03 MODIFIED BITUMINOUS SHEET-WATERPROOFING APPLICATION

- A. Install modified bituminous sheets according to waterproofing manufacturer's written instructions and recommendations in ASTM D 6135.

- 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. 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.
- G. Immediately install protection course with butted joints over waterproofing membrane.
 - 1. Molded-sheet drainage panels may be used in place of a separate protection course to vertical applications when approved by waterproofing manufacturer and installed immediately.

3.04 MOLDED-SHEET DRAINAGE-PANEL INSTALLATION

- A. Vertical Waterproofing Conditions: Place and secure molded-sheet drainage panels over properly installed waterproof membrane with geotextile facing away from wall substrate, according to manufacturer's written instructions. Use adhesives or other methods that do not penetrate waterproofing. Lap edges and ends of geotextile to maintain continuity. Protect installed molded-sheet drainage panels during subsequent construction.

3.05 PROTECTION BOARD INSTALLATION

- A. Place protection board directly against drainage panel; butt joints. Scribe and cut boards around projections, penetrations, and interruptions.
- B. Adhere protection board to substrate with compatible adhesive.

3.06 FIELD QUALITY CONTROL

- A. Owner will engage a site representative qualified by waterproofing membrane manufacturer to inspect substrate conditions, surface preparation, membrane application, flashings, protection, and drainage components, and to furnish daily reports to Architect.
- B. Prepare test and inspection reports.

3.07 PROTECTION, REPAIR, AND CLEANING

- A. Protect waterproofing from damage and wear during remainder of construction period.

- B. Correct deficiencies in or remove waterproofing that does not comply with requirements; repair substrates, reapply waterproofing, and repair sheet flashings.
- C. Clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

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SECTION 07 13 29.A

BLINDSIDE WATERPROOFING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section Includes:
 - 1. Composite sheet waterproofing for blindside applications as follows:
 - a. Foundations walls.
 - b. Under concrete slabs.
 - c. Under horizontal and vertical faces of elevator pits.
 - 2. Prefabricated drainage composite sheets and drainage fittings.
 - 3. Applicable accessory products for a complete system.
- B. Related Sections:
 - 1. Division 03 for concrete requirements.
 - 2. Division 07 Sections for various additional types of waterproofing and/or weather-resistive barriers required for this project.
 - 3. Division 33 for storm water drainage systems.

1.03 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 and preparing substrate.
 - 3. Include manufacturer's written instructions for installation of entire system.
- B. Samples: For each exposed product and for each color and texture specified, including the following products:
 - 1. 8-by-8-inch (200-by-200-mm) square (minimum) of waterproofing and drainage composite sheet.
- C. Warranty: Sample of manufacturer's warranty.

1.04 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by waterproofing manufacturer.
- B. Pre-Installation Conference: A pre-installation conference shall be held prior to commencement of field installation to establish procedures to maintain required working conditions and to coordinate this work with related and adjacent work. Verify that final

waterproofing and waterstop details comply with waterproofing manufacturer's current installation requirements and recommendations. Pre-con meeting attendees should include representatives for the owner, architect, inspection firm, general contractor, waterproofing contractor, concrete contractor, site contractor, and mechanical and electrical contractors if work penetrates the waterproofing.

- C. Mockups: Build mockups to verify selections made under Sample submittals and to set quality standards for installation.
 - 1. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.

- D. Independent Inspection: Owner reserves the right to make all arrangements and payments for an independent inspection service to monitor waterproofing material installation compliance with the project contract documents and manufacturer's published literature and site specific details. Independent Inspection Firm shall be an approved company participating with the waterproofing manufacturer's Certified Inspection Program. Inspection service shall produce reports and digital photographs documenting each inspection. Reports shall be made available in a timely manner to the Contractor, waterproofing installer, waterproofing material manufacturer, and Architect. Inspections should include substrate examination, beginning of waterproofing installation, periodic intervals, and final inspection prior to concrete or backfill placement against the waterproofing.

1.05 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Delivery and Handling: Deliver materials in factory sealed and labeled packaging. Sequence deliveries to avoid delays, while minimizing on-site storage. Handle and store following manufacturer's instructions, recommendations and material safety data sheets. Protect from construction operation related damage, as well as, damage from weather, excessive temperatures and prolonged sunlight. Remove damaged material from site and dispose of in accordance with applicable regulations.

- B. Storage: Do not double-stack pallets during shipping or storage. Protect waterproofing materials from moisture, excessive temperatures and sources of ignition. Provide cover, top and all sides, for materials stored on-site, allowing for adequate ventilation.

1.06 PROJECT CONDITIONS

- A. Substrate Condition: Proceed with work only when substrate construction and preparation work is complete and in condition to receive waterproofing system. All plumbing, electrical, mechanical and structural items to be under or passing through the waterproofing shall be positively secured in their proper positions prior to waterproofing system installation. Substrate preparation shall be per waterproofing manufacturer's guidelines.

- B. Weather Conditions: Perform work only when existing and forecasted weather conditions are within the guidelines established by the manufacturer of the waterproofing materials. Do not apply waterproofing materials in areas of standing or active water; or over ice and snow. General Contractor shall maintain site conditions to remove standing water from precipitation or ground water seepage in a timely manner. Should waterproofing sheet be

subjected to pre-hydration as a result of prolonged immersion, inspection of the material and written acceptance from the manufacturer is required prior to concrete placement.

- C. Coordinate drainage connection points with site construction requirements.

1.07 WARRANTY

- A. Warranty eligibility for the project must be validated by Manufacturer, confirming acceptance of the installation and independent inspection reports are in accordance with the manufacturer's quality assurance program requirements.
- B. Waterproofing Material and Labor Warranty: Upon installation completion and manufacturer acceptance of the work required by this section, the waterproofing materials manufacturer will provide to the project Owner, a written non-prorated warranty, covering both materials and labor. Issuance of Manufacturer's Waterproofing Warranty requires the following: (1) Waterproofing System products and drainage composite products shall have been provided by a single manufacturer; (2) Installation of waterproofing products and Expansion Joint by Manufacturer's Approved Applicator in full accordance with the manufacturer's quality assurance program requirements; (3) Installation inspected by an approved and trained Independent Inspection Firm participating with the waterproofing manufacturer's Certified Inspection Program; (4) In Division 03 work, waterproofing manufacturer's approved waterstop must be installed in all applicable concrete cold pour construction joints, including around applicable penetrations. Manufacturer's warranty shall be independent from any other warranties made by the Contractor under requirements of the Contract Documents and may run concurrent with the other warranties
 - 1. Warranty Period: 5 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.01 MATERIALS, GENERAL

- A. Source Limitations for Waterproofing System: Obtain waterproofing materials, prefabricated drainage composites and accessory materials from single source from single manufacturer.

2.02 WATERPROOFING MEMBRANE

- A. Basis-of-Design: "~~Preprufe 300R~~Polyguard Underseal" as manufactured by Polyguard, www.polyguardproducts.com. ~~W.R. Grace.~~
 - 1. Description: Composite sheets comprised of a thick HDPE film, pressure sensitive adhesive, and weather resistant protective coating, and formulated to form an integral bond to poured concrete.
- B. Acceptable Manufacturers: Subject to compliance with requirements, products of the following manufacturers exactly comparable in type and quality are acceptable.
 - 1. GCP Applied Technologies, formerly W.R. Grace.
 - 2. Polyguard ("Polyguard Underslab").
- C. Physical Properties: As inherent to basis-of-design product.

2.03 AUXILIARY MATERIALS

- A. General: Furnish auxiliary materials recommended by waterproofing manufacturer for intended use and compatible with membrane waterproofing.
 - 1. If liquid-type auxiliary materials are required, furnish materials that comply with VOC limits of authorities having jurisdiction.
- B. Liquid Waterproofing: Bituthene, specific type as recommended by manufacturer for conditions.
- C. Tape: Preprufe, specific type as recommended by manufacturer for conditions.

2.04 SHEET DRAINAGE COMPOSITE

- A. Polypropylene Drainage Composite: Roll of a three-dimensional polypropylene drainage core with a nonwoven geotextile adhered to one side to allow water passage while restricting soil particles. Composite shall include a thin polyethylene sheet on the back of the drainage core.
 - 1. Basis-of-Design: Hydroduct as manufactured by GCP Applied Technologies, specific products as follows:
 - a. Vertical Applications: Hydroduct 600.
 - b. Horizontal Applications: Hydroduct 660.
- B. Accessory Products: Provide base drain accessory connectors and outlets as required and as indicated on approved shop drawings.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. The installer, with the Owner's Independent Inspector present, shall examine conditions of substrates and other conditions under which this section work is to be performed and notify the contractor, in writing, of circumstances detrimental to the proper completion of the work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected and are acceptable for compliance with manufacturer's warranty requirements. General substrate conditions acceptable for the waterproofing installation are listed below.

3.02 SURFACE PREPARATION

- A. Remove dirt, debris, loose material, sharp protrusions, or other foreign matter which will impair or negatively affect the performance of the waterproofing and drainage system. Fill voids greater than ½ inch. Grout around all penetrations such as utility conduits.
- B. Protect adjacent work areas and finish surfaces from damage or contamination from waterproofing products during installation operations.

3.03 INSTALLATION, GENERAL:

- A. Perform all work in strict accordance with manufacturer's recommendations and approved Submittals.

3.04 DRAINAGE COMPOSITE APPLICATION

- A. At the base of the lagging wall, install base-drain horizontally oriented with the open core edge up. Secure the bottom edge of base-drain to the lagging wall as recommended. Use couplers and corner fittings, as required, to form a continuous installation. Install discharge outlet fittings to connect with discharge pipes as required for the project. Weep discharge pipes stubbed into drainage composite without proper discharge connection fittings is not acceptable.
- B. Install the bottom course of base-drain sheet (geotextile side against the lagging wall) with the fabric flap tucked as recommended. Bottom edge of typical wall sheet should be in contact with open top core edge of base-drain sheet. Secure drainage sheets as recommended.
- C. Install subsequent courses of sheet drainage to within 12 inches (300 mm) of finished grade or as shown on drawings. Tightly abut adjoining sheet drain core edges and tuck the extra fabric flaps behind the adjacent roll edge to prevent soil from entering the sheet drain. Secure sheet drain to lagging wall as recommended. Where drainage sheet panels are installed overlapped, bottom edge of higher course shall be installed to the outside of the lower course to shed water (shingle style).
- D. Provide for detailing at edges, transitions and penetrations in accordance with manufacturer's recommendations and approved Submittals.

3.05 WATERPROOFING MEMBRANE APPLICATION

- A. Install waterproofing membrane over drainage composite, overlapping waterproofing membrane edges a minimum of 4 inches (102mm).
 - 1. Turn waterproofing membrane with the recommended side in the direction to receive concrete pour.
- B. Secure waterproofing membrane as recommended by the manufacturer, based on type of lagging and actual field conditions.
- C. Install thru-wall flashings (if required) and provide for detailing at edges, transitions and penetrations in accordance with manufacturer's recommendations and approved Submittals.

3.06 FIELD QUALITY CONTROL

- A. Contractor shall coordinate work with Owner's Independent Inspection Service Representative. Do not proceed to cover up work until the Inspector has provided written approval.
- B. Contractor shall retain copies of test and inspection reports as provided by the Owner's Inspection Service.

3.07 PROTECTION, REPAIR, AND CLEANING

- A. Protect waterproofing from damage until concrete foundation wall is poured.
- B. Correct deficiencies in or remove waterproofing that does not comply with requirements; repair substrates, reapply waterproofing, and repair sheet flashings.
- C. Clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION

SECTION 07 14 13.A

HOT FLUID-APPLIED RUBBERIZED ASPHALT WATERPROOFING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section Includes:
 - 1. Reinforced, rubberized-asphalt waterproofing membrane at pool shell and where otherwise indicated on drawings.
 - 2. Molded-sheet drainage panels.
 - 3. Accessory materials.
 - ~~3-4.~~ Alternate for Pricing: EFVM breach detection testing.
- B. Related Sections:
 - 1. Division 07 Sections for additional waterproofing types.
 - 2. Division 07 Section "Roof Decking Pavers" for paver system to be installed over the work of this Section.
 - 3. Division 07 Section "Joint Sealants" for joint-sealant materials and installation.

1.03 SUBMITTALS

- A. Product Data: For each type of product indicated. Include manufacturer's written instructions for evaluating, preparing, and treating substrate, technical data, and tested physical and performance properties of waterproofing.
- B. Shop Drawings: Show locations and extent of waterproofing. Include details for substrate joints and cracks, sheet flashings, penetrations, inside and outside corners, tie-ins to adjoining waterproofing, and other termination conditions.
 - 1. Include setting drawings showing layout, sizes, sections, profiles, and joint details of pedestal-supported concrete pavers.
- C. Samples: For the following products in manufacturer's standard sizes unless otherwise indicated:
 - 1. Flashing sheet.
 - 2. Membrane-reinforcing fabric.
 - 3. Insulation.
 - 4. Drainage panel.
- D. Evidence of compatibility with paver system as specified in Division 07 Section "Roof Decking Pavers."
- E. Qualification Data: For qualified Installer.
- F. Field quality-control reports.

G. Warranties: Sample of special warranties.

1.04 QUALITY ASSURANCE

- A. Installer Qualifications: A firm that is acceptable to manufacturer for installation of waterproofing required for this Project and is eligible to receive special warranties specified.
- B. Source Limitations: Obtain waterproofing materials sheet flashings, protection course, and molded-sheet drainage panels from single source from single manufacturer.
- C. Mockups: Before beginning installation, install waterproofing to 100 sq. ft. (9.3 sq. m) of substrate to demonstrate surface preparation, crack and joint treatment, corner treatment, thickness, texture, and execution quality.
1. If Architect determines mockups do not comply with requirements, reapply waterproofing until mockups are approved.
 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 3. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
- D. 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.
 2. Conference shall include trades involved in materials to be installed over waterproofing.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by waterproofing manufacturer.
- B. Remove and replace liquid materials that cannot be applied within their stated shelf life.
- C. Protect stored materials from direct sunlight.

1.06 PROJECT CONDITIONS

- A. Environmental Limitations: Apply waterproofing within the range of ambient and substrate temperatures recommended by waterproofing manufacturer. Do not apply waterproofing to a damp or wet substrate, or when temperature is below 0 deg F (minus 18 deg C).
1. Do not apply waterproofing in snow, rain, fog, or mist.
- B. Maintain adequate ventilation during application and curing of waterproofing materials.

1.07 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace waterproofing and sheet flashings that do not comply with requirements or that fail to remain watertight within specified warranty period.
 - 1. Warranty includes removing and reinstalling protection board, drainage panels, insulation, and pavers on plaza decks.
 - 2. Warranty Period: 10 years from date of Substantial Completion.
- B. Special Installer's Warranty: Specified form, on warranty form at end of this Section, signed by Installer, covering Work of this Section, for warranty period of two years.
 - 1. Warranty includes removing and reinstalling protection board, drainage panels, insulation, and pavers on plaza decks.

PART 2 - PRODUCTS

2.01 MANUFACTURERS AND SYSTEMS

- A. Acceptable Manufacturers and Systems: Subject to compliance with requirements of Contract Documents as judged by the Architect, provide product by one of manufacturers listed. If not listed, submit as substitution according to the Conditions of the Contract and Division 01 Section "Product Substitution Procedures".
 - 1. American Hydrotech, Inc.; Monolithic Membrane 6125 EV.
 - 2. Henry Company; Elasto-Seal 790-11 EV.
- B. Basis of Design (Product Standard): Contract Documents are based on products and systems specified to establish a standard of quality. Other manufacturers offering products having equivalent characteristics may be considered, provided deviations are minor and comply with requirements of Contract Documents as judged by the Architect.

2.02 PHYSICAL PROPERTIES

- A. A. General: Provide hot fluid-applied rubberized asphalt waterproofing that prevents the passage of liquid water and complies with the following physical requirements of CAN/CGSB-37.50-M89, "Hot Applied, Rubberized Asphalt for Roofing and Waterproofing", as demonstrated by testing performed by an independent testing agency of manufacturer's current waterproofing membrane formulations.
 - 1. Flash Point: Not less than 500 deg F or not less than 77 deg F above manufacturer's maximum recommended application temperature.
 - 2. Low Temperature Crack Bridging Capability: No cracking, splitting, or loss of adhesion.
 - 3. Water-Vapor Permeability: 0.018 perm.
 - 4. Water Resistance: After 5 days at 122 deg F no delamination, blistering, emulsification, or deterioration.
 - 5. Water Absorption: 0.22 g maximum weight gain.
 - 6. Toughness: Not less than 13.0 Joules.
 - 7. Ratio of Toughness to Peak Load: Not less than 0.069.
 - 8. Viscosity: 7 seconds.
 - 9. Heat Stability: No change in viscosity, penetration, flow or low temperature flexibility.

10. Low-Temperature Flexibility: At minus 77 deg F no delamination, flexibility adhesion loss, or cracking.
11. Penetration: 2.95 in at 77 deg F, 4.79 in at 122 deg F.
12. Flow: 0.0 mm at 140 deg F according to ASTM D 5329.
13. Softening Point: 180 deg F according to ASTM D 36.
14. Elongation: 1000 percent minimum according to ASTM D 5329.
15. Resiliency: 40 percent minimum according to ASTM D 3407.
16. Bond to Concrete: At 0 deg F, pass according to ASTM D 3408.
17. Hydrostatic Pressure Resistance: 231 ft head of water at 100 psi according to ASTM D 08.22, Draft 2.

2.03 AUXILIARY MATERIALS

- A. Provide for all components and accessory materials as manufactured or recommended by the waterproofing manufacturer for the basis-of-design “system” specified.
- B. Primer: ASTM D 41, asphaltic primer.
- C. Flashing Sheet Materials: 60-mils minimum, non-staining, uncured sheet neoprene as follows and as approved by primary waterproofing manufacturer:
 1. American Hydrotech, Inc.; Flex-Flash UN.
 2. Barrett Company; Ram-Flash 327 HDR.
 3. Carlisle Coatings & Waterproofing Inc.; CCW Uncured Neoprene Flashing.
 4. Cetco; N-Flash.
 5. Henry Company; Neoflash.
 6. Tremco Incorporated; Elastomeric Sheeting.
- D. Bars: Manufacturer's standard, predrilled stainless-steel or aluminum termination bars; approximately 1 by 1/8 inch (25 by 3 mm) thick; with anchors.
- E. Sealants and Accessories: Manufacturer's recommended sealants and accessories.
- F. Reinforcing Fabric: Manufacturer's recommended, spun-bonded polyester fabric.
- G. Protection Course: Manufacturer's standard, 80- to 90-mil- thick, fiberglass-reinforced rubberized asphalt or modified bituminous sheet or as recommended by waterproofing system manufacturer for intended use.
- H. E. Protection Course: ASTM D6506, semirigid sheets of fiberglass or mineral-reinforced-asphaltic core, pressure laminated between two asphalt-saturated fibrous liners and as follows:
 1. Thickness: 1/8 inch, nominal, for vertical applications; 1/4 inch, nominal, elsewhere.

2.04 MOLDED-SHEET DRAINAGE PANELS

- A. Molded-Sheet Drainage Panels; Vertical Applications:
 1. Description: Pre-fabricated composite with drainage core faced with geotextile filter fabric on dimpled side (facing earth) and protective covering on flat side (facing waterproofing).
 2. Protective Covering: Smooth polymeric film.

3. Drainage Core: Three-dimensional, non-biodegradable, molded polypropylene or polystyrene.
 - a. Minimum Compressive Strength: 15,000 lbf/sf according to ASTM D 1621.
 - b. Minimum In-Plane Flow Rate: 15 gpm/ft of unit width at hydraulic gradient of 1.0 and compressive stress of 25 psi according to ASTM D 4716.
 4. Geotextile Filter Fabric: Non-woven needle-punched geotextile, manufactured for subsurface drainage, made from polypropylene, polyolefin, or polyester; complying with following properties according to AASHTO M 288:
 - a. Survivability: Class 2.
 - b. Permittivity: 0.1 per second, minimum.
 5. Manufacturers and Products:
 - a. American Hydrotech; Hydrodrain 420.
 - b. Carlisle Coatings & Waterproofings; CCW MiraDRAIN 6200.
 - c. Cetco; Aquadrain 15XP.
 - d. Henry Company; DB 520.
 - e. Tremco Commercial Sealants & Waterproofing; TREMDrain 1000.
- B. Molded-Sheet Drainage Panels; Horizontal Applications:
1. Description: Pre-fabricated composite with drainage core faced with geotextile filter fabric on dimpled side (facing earth) and protective covering on flat side (facing waterproofing).
 2. Protective Covering: Smooth polymeric film.
 3. Drainage Core: Three-dimensional, non-biodegradable, molded polypropylene or polystyrene.
 - a. Minimum Compressive Strength: 18,000 lbf/sf according to ASTM D 1621.
 - b. Minimum In-Plane Flow Rate: 18 gpm/ft of unit width at hydraulic gradient of 1.0 and compressive stress of 25 psi according to ASTM D 4716.
 4. Geotextile Filter Fabric: Non-woven needle-punched geotextile, manufactured for subsurface drainage, made from polypropylene, polyolefin, or polyester; complying with following properties according to AASHTO M 288:
 - a. Survivability: Class 2.
 - b. Permittivity: 0.1 per second, minimum.
 5. Manufacturers and Products:
 - a. American Hydrotech; Hydrodrain 700.
 - b. Carlisle Coatings & Waterproofings; CCW MiraDRAIN 9800.
 - c. Cetco; Aquadrain 18H.
 - d. Henry Company; DB 650n with G100/s base/protection sheet.
 - e. Tremco Commercial Sealants & Waterproofing; TREMDrain 2000.

2.05 BOARD INSULATION

- A. Extruded Polystyrene Board Insulation:
 1. Basis-of-Design: “Styrofoam Highload 100” as manufactured by Dow Chemical Company.
 2. Acceptable Products: “Foamular 1000” as manufactured by Owens Corning.
- B. Foam Board Characteristics:

1. ASTM C578 Type V.
2. Compressive Strength: 100 psi per ASTM D1621.
3. Additional physical properties as inherent to basis-of-design product.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
 1. Verify that concrete has cured and aged for minimum time period recommended by waterproofing manufacturer.
 2. Verify that substrate is visibly dry and free of moisture. Test for capillary moisture by plastic sheet method according to ASTM D 4263.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. Provide written acceptance of substrate before proceeding with installation.

3.02 PREPARATION

- A. Clean and prepare substrates according to manufacturer's written instructions. Provide clean, dust-free, and dry substrate 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, form-release agents, paints, curing compounds, 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 D 4259 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 D 4258.
- E. Remove fins, ridges, and other projections and fill honeycomb, aggregate pockets, and other voids.

3.03 JOINTS, CRACKS, AND TERMINATIONS

- A. Prepare and treat substrates to receive waterproofing membrane, including joints and cracks, deck drains, corners, and penetrations according to manufacturer's written instructions.
 1. Rout and fill joints and cracks in substrate. Before filling, remove dust and dirt according to ASTM D 4258.

2. Adhere strip of elastomeric sheet to substrate in a layer of hot rubberized asphalt. Extend elastomeric sheet a minimum of 6 inches (150 mm) on each side of moving joints and cracks or joints and cracks exceeding 1/8 inch (3 mm) thick, and beyond deck drains and penetrations. Apply second layer of hot fluid-applied, rubberized asphalt over elastomeric sheet.
 3. Embed strip of reinforcing fabric into a layer of hot rubberized asphalt. Extend reinforcing fabric a minimum of 6 inches (150 mm) on each side of nonmoving joints and cracks not exceeding 1/8 inch (3 mm) thick, and beyond roof drains and penetrations.
 - a. Apply second layer of hot fluid-applied, rubberized asphalt over reinforcing fabric.
- B. At expansion joints and discontinuous deck-to-wall or deck-to-deck joints, bridge joints with elastomeric sheet extended a minimum of 6 inches (150 mm) on each side of joints and adhere to substrates in a layer of hot rubberized asphalt. Apply second layer of hot fluid-applied, rubberized asphalt over elastomeric sheet.

3.04 FLASHING INSTALLATION

- A. Install elastomeric flashing sheets at terminations of waterproofing membrane according to manufacturer's written instructions.
- B. Prime substrate with asphalt primer.
- C. Install elastomeric flashing sheet and adhere to deck and wall substrates in a layer of hot rubberized asphalt.
- D. Extend elastomeric flashing sheet up walls or parapets a minimum of 8 inches (200 mm) above plaza deck pavers and 6 inches (150 mm) onto deck to be waterproofed.
- E. Install termination bars and mechanically fasten to top of elastomeric flashing sheet at terminations and perimeter of roofing.

3.05 MEMBRANE APPLICATION

- A. Apply primer, at manufacturer's recommended rate, over prepared substrate and allow to dry.
- B. Heat and apply rubberized asphalt according to manufacturer's written instructions.
 1. Heat rubberized asphalt in an oil- or air-jacketed melter with mechanical agitator specifically designed for heating rubberized asphalt.
- C. Start application with manufacturer's authorized representative present.
- D. Reinforced Membrane: Apply hot rubberized asphalt to substrates and adjoining surfaces indicated. Spread to a thickness of 90 mils (2.3 mm); embed reinforcing fabric, overlapping sheets 2 inches (50 mm); spread another 125-mil- (3.2-mm-) thick layer to provide a uniform, reinforced, seamless membrane 215 mils (5.5 mm) thick.
- E. Apply waterproofing over prepared joints and up wall terminations and vertical surfaces to heights indicated or required by manufacturer.

- F. Cover waterproofing with protection course with overlapped joints before membrane is subject to construction or vehicular traffic.

3.06 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 methods that do not penetrate waterproofing. Lap edges and ends of geotextile to maintain continuity. Protect installed molded-sheet drainage panels during subsequent construction.

3.07 INSULATION INSTALLATION

- A. Install in accordance with approved written Submittals.

3.08 PLAZA DECK PAVER INSTALLATION

- A. Refer to Division 07 Section "Roof Decking Pavers."

3.09 FIELD QUALITY CONTROL

- A. Engage a full-time site representative qualified by waterproofing membrane manufacturer to inspect substrate conditions; surface preparation; and application of the membrane, flashings, protection, and drainage components; furnish daily reports to Architect.
- B. Flood Testing: Flood test each deck area for leaks, according to recommendations in ASTM D 5957, after completing and protecting 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 2-1/2 inches (65 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.
 - 2. Flood each area for 48 hours.
 - 3. After flood testing, repair leaks, repeat flood tests, and make further repairs until waterproofing installation is watertight.

C. Alternate for Pricing: Provide for breach detection testing of completed installation as follows:

3-1. Electric Field Vector Mapping (EFVM): Testing agency shall survey entire waterproofing area for potential leaks using EFVM.

3.10 CLEANING AND PROTECTION

- A. Protect waterproofing from damage and wear during remainder of construction period.
- B. Protect installed assembly from damage due to UV light, harmful weather exposures, physical abuse, and other causes. Provide temporary coverings where surface will be subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

- C. Clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

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SECTION 07 14 19.A

WATERPROOF CEMENT BASED COATING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section Includes:
 - 1. Waterproof cement based waterproofing.
- B. Related Sections:
 - 1. Division 07 Sections for various additional waterproofing and water-resistive materials.
 - 2. Division 09 Section "Painting" for field painted color topcoat, if required.

1.03 SUBMITTALS

- A. Product Data: For each type of product indicated. Include manufacturer's written instructions for evaluating, preparing, and treating substrate, technical data, and tested physical and performance properties of waterproofing.
- B. Samples:
 - 1. Waterproof cement based coating applied to backing of manufacturer's choice, 10 by 8 inches (250 by 200 mm).
- C. Warranty: Sample of special warranty.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in original containers with seals unbroken, labeled with manufacturer's name, product brand name and type, date of manufacture, shelf life, and directions for storing and mixing with other components.
- B. Store materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by waterproofing manufacturer.
- C. Protect stored materials from direct sunlight.

1.05 PROJECT CONDITIONS

- A. Environmental Limitations: Apply waterproofing within the range of ambient and substrate temperatures recommended by waterproofing manufacturer.
 - 1. Do not apply waterproofing in snow, rain, fog or mist, or when such weather conditions are imminent during application and curing period.

1.06 WARRANTY

- A. Standard Manufacturer's Warranty: Manufacturer's standard warranty form.

PART 2 - PRODUCTS

2.01 WATERPROOF CEMENT BASED COATING

- A. Cement Based Waterproof Coating:
 - 1. Basis-of-Design: "Super Thoroseal" as manufactured by BASF, www.thoroproducts.com.
 - 2. Acceptable Manufacturers: Subject to compliance with specified requirements, products of the following manufacturer's comparable in type and quality will be considered:
 - a. BASF (Thoroseal).
 - b. Euclid Chemical Company (Tamoseal).
 - c. W. R. Meadows (Gemite line).
 - 3. Physical Properties: As inherent to basis-of-design product.
 - a. Architect will consider materials with somewhat different properties.

2.02 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials recommended by manufacturer to be compatible with one another and with waterproofing, as demonstrated by waterproofing manufacturer, based on testing and field experience.
- B. Patching Compound: "Thoro Waterplug."

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance.
 - 1. Verify that concrete has cured and aged for minimum time period recommended by waterproofing manufacturer.
 - 2. Verify that surface to be coated has not been previously painted, if so, bring to the attention of the Architect and do not proceed until further direction is given.
 - 3. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 SURFACE PREPARATION

- A. Clean and prepare substrate according to manufacturer's written recommendations. Provide clean, and dust-free substrate for waterproofing application.
- B. Mask off adjoining surfaces not receiving waterproofing to prevent spillage or overspray affecting other construction.

- C. 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 D 4259 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 D 4258.
- D. Remove fins, ridges, and other projections and fill honeycomb, aggregate pockets, and other voids.

3.03 PREPARATION AT TERMINATIONS AND PENETRATIONS

- A. Prepare vertical and horizontal surfaces at terminations and penetrations through waterproofing and at expansion joints, and sleeves according to manufacturer's written instructions.

3.04 JOINT AND CRACK TREATMENT

- A. Prepare, treat, rout, and fill joints and cracks in substrate according to waterproofing manufacturer's written instructions. Remove dust and dirt from joints and cracks, complying with ASTM D 4258, before coating surfaces.

3.05 WATERPROOFING APPLICATION

- A. Apply waterproofing according to manufacturer's written instructions.
- B. Waterproofing Thicknesses/Application Rates: As recommended by manufacturer for job conditions.

3.06 PROTECTION, AND CLEANING

- A. Protect waterproofing from damage and wear during remainder of construction period.
- B. Clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

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SECTION 07 18 16.A

VEHICULAR TRAFFIC COATINGS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section Includes:
 - 1. Traffic coatings for parking deck surfaces where indicated on drawings.
- B. Related Sections:
 - 1. Division 03 Sections for concrete requirements.
 - 2. Division 07 Section "Pedestrian Traffic Coatings" for pedestrian waterproof coatings.
 - 3. Division 07 Sections for additional waterproofing types required for this project.
 - 4. Division 07 Section "Joint Sealants" for elastomeric sealants
 - 5. Division 09 Section "Painting" for paint coatings.

1.03 SUBMITTALS

- A. Product Data: For each product indicated.
- B. Samples for Verification: For each type of traffic coating required, prepared on rigid backing and of same thickness and material indicated for the Work.
 - 1. Provide stepped Samples on backing large enough to illustrate buildup of traffic coatings.
- C. Color selections in manufacturer's standard format.
- D. Installers Qualifications.

1.04 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced installer to perform work of this Section who has specialized in installing coatings similar to that required for this Project and who is approved, authorized or licensed by the system manufacturer to install manufacturer's product.
- B. Mockups: Before beginning installation, install waterproof coating to 50 sq. ft. (4.65 sq. m) of deck surface to demonstrate surface preparation, crack and joint treatment, corner treatment, thickness, texture, and execution quality.
 - 1. If Architect determines mockups do not comply with requirements, reapply waterproof coating until mockups are approved.

2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
3. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.05 WARRANTY

- A. Standard Manufacturer's Warranty: Submit a written warranty, without monetary limitation, signed by coating system manufacturer agreeing to promptly repair leaks resulting from defects in materials or workmanship for the following warranty period:
 1. Warranty Period: Two years from Date of Substantial Completion.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages and containers with seals unbroken and bearing manufacturer's labels showing the following information:
 1. Manufacturer's brand name.
 2. Type of material.
 3. Directions for storage.
 4. Date of manufacture and shelf life.
 5. Lot or batch number.
 6. Mixing and application instructions.
 7. Color.
- B. Store materials in a clean, dry location protected from exposure to direct sunlight. In storage areas, maintain environmental conditions within range recommended in writing by manufacturer.

1.07 PROJECT CONDITIONS

- A. Environmental Limitations: Apply traffic coatings within the range of ambient and substrate temperatures recommended in writing by manufacturer. Do not apply traffic coatings to damp or wet substrates, when temperatures are below 40 deg F (5 deg C), when relative humidity exceeds 85 percent, or when temperatures are less than 5 deg F (3 deg C) above dew point.
 1. Do not apply traffic coatings in snow, rain, fog, or mist, or when such weather conditions are imminent during the application and curing period. Apply only when frost-free conditions occur throughout the depth of substrate.
- B. Do not install traffic coating until items that will penetrate membrane have been installed.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Traffic Coatings: Complying with ASTM C 957.
- B. Material Compatibility: Provide primers; base, intermediate, and topcoats; and miscellaneous materials that are compatible with one another and with substrate under

conditions of service and application, as demonstrated by manufacturer based on testing and field experience.

2.02 TRAFFIC COATING

- A. Basis-of-Design: “Tremco ~~PUMA-Vulkem 350-SL/345/346~~ ~~modified polyurethane polyurethane methacrylate~~ waterproofing system as manufactured by Tremco, Inc., www.tremcosealants.com.
1. Physical characteristics: As inherent to basis-of-design system including accessory materials.
- B. Acceptable Manufacturers: Subject to compliance with requirements, comparable products from the following manufacturers are acceptable:
1. Carlisle Coatings & Waterproofing, Inc. (Carlisle).
 2. Kemper System America, Inc.
 3. Neogard Construction Coatings.
 4. Pecora Corporation.
 5. Tremco Incorporated.
- C. Locations: Parking deck surfaces where indicated on drawings.

2.03 MISCELLANEOUS MATERIALS

- A. The following materials shall be provided in accordance with manufacturer’s written installation instructions. Where a particular material is indicated as optional, it shall be included.
1. Primer: Manufacturer’s standard.
 2. Detailing Material: Manufacturer’s standard.
 3. Abrasives: As furnished or recommended by manufacturer.
 4. Reinforcing Strips: Manufacturer’s standard, required only if recommended by manufacturer for specific application and job conditions.
 5. Edge Flashings: Manufacturer’s standard, required only if recommended by manufacturer for specific application and job conditions.
- B. Joint Sealants: As specified in Division 07 Section "Joint Sealants.”

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements and for other conditions affecting performance of traffic coatings.
1. Verify compatibility with and suitability of substrates.
 2. Begin coating application only after minimum concrete curing and drying period recommended by traffic coating manufacturer has passed, after unsatisfactory conditions have been corrected, and after surfaces are dry.
 3. Verify that substrates are visibly dry and free of moisture.
 - a. Test for moisture vapor transmission by plastic sheet method according to ASTM D 4263.
 - b. Test for moisture content by method recommended in writing by manufacturer.

4. Application of coating indicates acceptance of surfaces and conditions.

3.02 PREPARATION

- A. Clean and prepare substrates according to ASTM C 1127 and manufacturer's written recommendations to produce clean, dust-free, dry substrate for traffic coating application.
- B. Mask adjoining surfaces not receiving traffic coatings, deck drains, and other deck substrate penetrations to prevent spillage, leaking, and migration of coatings.
- C. Concrete Substrates: Mechanically abrade concrete surfaces to a uniform profile according to ASTM D 4259. Do not acid etch.
 1. Remove grease, oil, paints, and other penetrating contaminants from concrete.
 2. Remove concrete fins, ridges, and other projections.
 3. Remove laitance, glaze, efflorescence, curing compounds, concrete hardeners, form-release agents, and other incompatible materials that might affect coating adhesion.
 4. Remove remaining loose material to provide a sound surface, and clean surfaces according to ASTM D 4258.

3.03 TERMINATIONS AND PENETRATIONS

- A. Prepare vertical and horizontal surfaces at terminations and penetrations through traffic coatings and at expansion joints, drains, and sleeves according to manufacturer's written recommendations.

3.04 JOINT AND CRACK TREATMENT

- A. Prepare, treat, rout, and fill joints and cracks in substrates according to ASTM C 1127 and manufacturer's written recommendations. Before coating surfaces, remove dust and dirt from joints and cracks according to ASTM D 4258.
 1. Comply with recommendations in ASTM C 1193 for joint-sealant installation.

3.05 TRAFFIC COATING APPLICATION

- A. Apply traffic coating material according to manufacturer's written recommendations.
 1. Thickness: Each coat shall be applied at rate to achieve thickness as recommended by manufacturer for substrate and service conditions indicated.
- B. Apply traffic coating waterproofing to prepared wall terminations and vertical surfaces to height indicated.
- C. Aggregate: As recommended by manufacturer to achieve skid resistance for intended application.
- D. Sealer Coat: Apply sealer coat according to manufacturer's written recommendations.
- E. Cure traffic coating adhesives according to manufacturer's written recommendations. Prevent contamination and damage during application and curing stages.

3.06 PROTECTING AND CLEANING

- A. Protect traffic coatings from damage and wear during remainder of construction period.
- B. Clean spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

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SECTION 07 92 00.A

JOINT SEALANTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This section includes sealants for the following applications, including those specified by reference to this Section:
 - 1. Building exterior.
 - 2. Building interior.
- B. This section does not include sealants for the following applications:
 - 1. Division 07 Sections for waterproofing and roofing systems requiring sealants as indicated for those systems.
 - 2. Division 07 Section “Exterior Insulation and Finish System (EIFS)” for exterior EIFS finish system except at the perimeter, where the EIFS finish transitions to a different material.
 - 3. Division 08 Sections covering doors and windows for sealants required for the installation of glazing into the window and door systems.
 - 4. Divisions 21 through 28 Sections for sealants required for mechanical, electrical, and plumbing systems.

1.03 PERFORMANCE REQUIREMENTS

- A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.

1.04 REFERENCES

- A. Standards of the following as referenced:
 - 1. American Society for Testing and Materials (ASTM).
 - 2. Federal Specifications (Fed. Spec.).
 - 3. Sealant, Waterproofing and Restoration Institute (SWRI).
- B. Industry Standards:
 - 1. SWRI: Association quality standard guidelines for sealant installation.
 - 2. ASTM C-1193-05a Standard Guide for use of joint sealants.

1.05 DEFINITIONS

- A. Terms:
 - 1. Caulk: Process of filling joints, without regard to type of material, typically Class 25 or less.

2. Caulking compound: Material used in filling joints and seams, having properties of adhesion and cohesion; not be required to have extensibility and recovery properties, usually applied to joints at interior of structures.
3. Joint failure: Caulked joint exhibiting one or more of the following characteristics:
 - a. Leaks air or water.
 - b. Sealant:
 - 1) migrates.
 - 2) loses adhesion or cohesion.
 - 3) does not cure.
 - 4) discolors.
 - 5) stains adjacent Work.
 - 6) develops bubbles, air pockets, or voids.
4. Sealant: Weatherproof elastomer used in filling and sealing joints, having properties of adhesion, cohesion, extensibility under tension, compressibility, and recovery; designed to make joints air and watertight. Material is designed generally for application to joints at exterior of structures and for other joints subject to movement, typically Class 50 or higher.

1.06 SUBMITTALS

- A. Product data: Submit manufacturer's technical product data, indicating conformance with specified requirements and installation instructions for each type sealant. Indicate preparation requirements for each substrate condition.
 1. Indicate all locations where each product is to be used.
 2. Evidence that proposed products are based on the manufacturer's review of drawings.
- B. Color samples:
 1. Submit samples of manufacturer's standard colors and special colors indicated at least 30 days prior to application.
 2. Samples: Actual materials or literature depicting actual material colors. Architect reserves right to reject Work not in accord with selected colors, based upon samples submitted and mock-up materials.
 3. Select manufacturer meeting specified requirements. He shall be responsible for furnishing special colors within color range requirements. Submit special color samples for Architect's acceptance.
- C. Test Reports:
 1. Preconstruction Compatibility and Adhesion Test Reports: From sealant manufacturer, indicating the following:
 - a. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.
 - b. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.
 2. Preconstruction Field-Adhesion Test Reports: Indicate which sealants and joint preparation methods resulted in optimum adhesion to joint substrates based on testing specified in "Preconstruction Testing" Article.
 3. Field-Adhesion Test Reports: For each sealant application tested.
- D. Warranties: Sample of special warranties.

1.07 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of sealants required for this Project.
- B. Mock-ups:
 - 1. Prepare and install one sample of each exterior joint condition.
 - 2. Obtain Architect's approval of sample joints prior to beginning Installation: retain approved samples as standard for Work.
- C. Coordination: Coordinate sealant type for use with each exterior finish.
- D. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review joint sealant requirements including surface preparation, substrate condition and pretreatment, minimum curing period, forecasted weather conditions, special details, installation procedures, testing and inspection procedures, and protection and repairs.
 - 2. Conference shall include trades involved in materials to be installed relating to joint sealants.

1.08 PROJECT CONDITIONS

- A. Weather Conditions:
 - 1. Installation of materials under adverse weather conditions is prohibited; install only within manufacturer recommended temperature range.
 - 2. Proceed with Work only when forecasted weather conditions are favorable for joint cure and development of high early bond strength.
 - 3. Install materials only when temperatures are in lower third of manufacturer's recommended installation temperature, wherever joint width is affected by ambient temperature variations.

1.09 WARRANTY

- A. Contractor shall warrant sealant installation to be free from defects in workmanship, including joint failure, for period indicated, beginning at Date of Substantial Completion.
 - 1. Warranty Period: 5 years.
- B. Manufacturer shall warrant sealant materials in exterior wall applications to be free of material defects including joint failure period indicated:
 - 1. Warranty Periods:
 - a. Silicones: 20 years.
 - b. Urethanes: 10 years.
 - c. Interior Caulk: 1 year.

PART 2 - PRODUCTS

2.01 MATERIALS, GENERAL

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and

application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.

- B. Stain-Test-Response Characteristics: Where sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.
- C. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.02 SEALANTS

- A. Basis-of-Design: Specific sealants listed in this Sub-Article (“A”) shall be considered basis of design for the applications listed. Contractor may choose from other Sub-Articles that follow for applications not listed and/or for additional sealants to be considered as acceptable.
 - 1. Glazing to Window Framing: As specified in Division 08 Section “Glass and Glazing.”
 - 2. Glazing Framing to Masonry: Dow Corning 795.
 - 3. Glazing System to Metal: Dow Corning 795.
- B. Silicone bath sealant:
 - 1. Acceptable products:
 - a. Dow Corning Corp.; #786 Mildew Resistant Silicone Sealant.
 - b. Momentive; SCS1700 Sanitary.
 - c. Pecora Corp.; #898.
 - d. Tremco, Inc.; Tremsil 200 White/Clear.
 - 2. Characteristics:
 - a. Type: One part silicone rubber; mildew and stain resistant, meeting ASTM C920-01, Type S, Grade NS, Class 25.
 - b. Color: White and Clear colors.

- ~~C. One part polyurethane sealant:~~
 - ~~1. Acceptable products:~~
 - ~~a. BASF; MasterSeal NP 125~~
 - ~~b. Pecora Corp.; Dynatrol I.~~
 - ~~c. Sika Corp.; Sikaflex 1a.~~
 - ~~d. Tremco, Inc.; Dymonic FC.~~
 - ~~2. Characteristics:~~
 - ~~a. Meet ASTM C920, Type S, Grade NS, Class 25.~~
 - ~~b. UV resistant.~~
 - ~~c. Colors: Selected by Architect from manufacturer’s standard colors.~~

- ~~D. Multi-Component Non-Sag Polyurethane Sealant:~~
 - ~~1. Acceptable products:~~
 - ~~a. BASF; NP 2.~~
 - ~~b. Pecora Corp.; Dynatrol II. NT, M, G, A, O~~
 - ~~c. Sika Corp.; Sikaflex 2 e NS/SL.~~
 - ~~d. Tremco, Inc.; Dymeric, Dymeric 240/240 FC.~~
 - ~~2. Characteristics:~~
 - ~~a. Type: Multi-Component polyurethane based sealant with separate prepackaged color agent to achieve special colors required.~~

- ~~b. Meets ASTM C920, Type M, Grade NS, Class 25.~~
- ~~e. UV resistant.~~
- ~~d. Colors: Selected by Architect from manufacturer's standard colors.~~

~~E.C.~~ Two-Part Polyurethane Sealant:

1. Acceptable products:
 - a. BASF; NP 2.
 - b. Tremco, Inc.; THC 900/ THC 901
 - c. Pecora Corp.; Dynatred.
 - d. Sonneborn; Sonolastic SL2.
2. Characteristics:
 - a. Type: Two-part polyurethane for horizontal, traffic bearing surfaces.
 - b. Meets Fed Spec. TT-S-00227E, Class A, Type I, II; ASTM C920, Type M, Grade P, NS, Class 25, use T, M, and O.
 - c. UV resistant.
 - d. Colors: Selected by Architect from manufacturer's standard colors.

~~F.D.~~ Acrylic-latex Caulking Compound:

1. Acceptable products:
 - a. Bostik Construction Products Division; Chem-Caulk 600.
 - b. W. R. Meadows, Inc.; Easaply.
 - c. Pecora Corp.; AC-20.
 - d. Tremco, Inc.; Acrylic Latex Caulk.
2. Characteristics:
 - a. Flexible, paintable, non-staining, non-bleeding, acrylic emulsion meeting ASTM C834-00.
 - b. Colors: Selected by Architect from manufacturer's standard selection.

~~G.E.~~ Butyl Caulk:

1. Acceptable products:
 - a. Pecora Corp.; BC-158.
 - b. Tremco, Inc.; Butyl Sealant.
2. Characteristics:
 - a. Type: One part butyl rubber caulk meeting Fed. Spec. TT-S-001657, Type I.
 - b. Color: Black.

~~H.F.~~ Multi-Component Silicone Sealant:

1. Acceptable Products:
 - a. Tremco, Inc., Spectrem4 TS.
2. Characteristics:
 - a. Type: Multi-component silicone building sealant, meeting ASTM C920, Type M, Class 25, Grade NS, Use NT, G, M, A, and O.

~~I.G.~~ Medium Modulus - Single Component Silicone Sealant:

1. Acceptable Products:
 - a. Dow Corning Corp.; #791 Silicone Perimeter Sealant.
 - b. Momentive; SCS2000 SilPruf
 - c. Pecora Corp.; #895.
 - d. Tremco, Inc.; Spectrem 2.

2. Characteristics:
 - a. Type: Neutral cure, single component, medium modulus, silicone building sealant.
 - b. Meets ASTM C-920 and ASTM C-719, Type S, Grade NS, Class 50.
 - c. Colors: Selected by Architect from manufacturers standard or special colors.

J.H. Low Modulus - Single Component Silicone Pavement Sealant:

1. Acceptable Products:
 - a. Dow Corning Corp.; NS Parking Structure Sealant
 - b. Tremco, Inc.; Spectrem Parking Structure Sealant (Self Leveling or Gun Grade).
2. Characteristics:
 - a. Type: Neutral cure, single component, low modulus, silicone parking structure sealant.
 - b. Meets ASTM C-920 and ASTM C-719, Type S, Grade NS, Class 100/-50 movement capability.
 - c. Colors limited to light concrete gray color.

K.I. Low Modulus - Single Component Silicone Sealant:

1. Acceptable Products:
 - a. Dow Corning Corp.; #790 Silicone Perimeter Sealant.
 - b. Momentive; SCS2700 SilPruf LM.
 - c. Pecora Corp.; #890 NST.
 - d. Tremco, Inc.; Spectrem 1.
2. Characteristics:
 - a. Type: Neutral cure, single component, low modulus, silicone building sealant.
 - b. Meets ASTM C-920 and ASTM C-719, Type S, Grade NS, Class 100/-50 movement capability.
 - c. Colors: Selected by Architect from manufacturers standard or special colors.

2.03 ACCESSORIES

- A. Joint cleaner: Type recommended by sealant manufacturer for substrates indicated.
- B. Joint primer/sealer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- C. Bond breaker tape: Plastic tape applied to contact surfaces where bond to substrate or joint filler must be avoided for sealant material performance.
- D. Sealant backer rod:
 1. Type: Compressible rod stock polyethylene foam, polyethylene jacketed polyurethane foam, butyl rubber foam, or neoprene foam; open or closed cell; type recommended by sealant manufacturer for compatibility with material.
 2. Provide size and shape of rod to control joint depth, break bond at joint bottom, form optimum shape of bead on back side, and minimize possibility of extrusion when joint is compressed. Oversize backing materials 25% larger than opening.

- E. Tooling agent: Agent recommended by sealant or caulk manufacturer to ensure contact of material with inner joint faces.
- F. Divider strips: Synthetic rubber or closed cell synthetic foam not less than 1/16” thick and full depth of caulking material; approved by manufacturers of dissimilar materials as being compatible with each other.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Protection of adjacent surfaces:
 - 1. Protect by applying masking material or manipulating application equipment to keep materials in joint. Allowing tape to touch cleaned surfaces to receive sealant if masking materials are used is prohibited.
 - 2. Remove misapplied caulking materials from surfaces using solvents and methods recommended by manufacturer. Remove masking tape and any residual masking adhesive.
 - 3. Restore surfaces to original condition and appearance where caulking materials have been removed.
- B. Surface protection:
 - 1. Clean joint surfaces immediately before caulking joints. Remove dirt, insecure coatings, moisture, and other substances interfering with bond.
 - 2. Etch concrete and masonry joint surfaces to remove alkalinity, unless caulking material manufacturer’s product data indicates alkalinity does not interfere with bond and performance. Etch with sealant manufacturer’s recommended materials in accord with sealant manufacturer’s reviewed installation instructions and product data.
 - 3. Roughen joint surfaces on vitreous coated and similar non-porous materials, unless caulking material manufacturer’s data indicates equal bond strength as porous surfaces. Rub with fine abrasive cloth or scotch brite pad to produce dull sheen.

3.02 FIELD QUALITY CONTROL

- A. Field-Adhesion Testing: Field test joint-sealant adhesion to joint substrates as follows:
 - 1. Extent of Testing: Test completed and cured sealant joints as follows:
 - a. Perform 10 tests for the first 1000 feet (300 m) of joint length for each kind of sealant and joint substrate.
 - b. Perform 1 test for each 1000 feet (300 m) of joint length thereafter or 1 test per each floor per elevation.
 - 2. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.
 - a. For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.
 - 3. Inspect tested joints and report on the following:
 - a. Whether sealants filled joint cavities and are free of voids.

- b. Whether sealant dimensions and configurations comply with specified requirements.
- c. Whether sealants in joints connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each kind of product and joint substrate. Compare these results to determine if adhesion passes sealant manufacturer's field-adhesion hand-pull test criteria.
- 4. Record test results in a field-adhesion-test log. Include dates when sealants were installed, names of persons who installed sealants, test dates, test locations, whether joints were primed, adhesion results and percent elongations, sealant fill, sealant configuration, and sealant dimensions.
- 5. Repair sealants pulled from test area by applying new sealants following same procedures used originally to seal joints. Ensure that original sealant surfaces are clean and that new sealant contacts original sealant.
- 6. Evaluation of Field-Adhesion Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

3.03 APPLICATION

- A. General: Comply with sealant material manufacturer's printed installation instructions, except where more stringent requirements are required, indicated, or specified.
- B. Primer: Prime or seal joint surfaces where recommended by caulking material manufacturer. Do not allow primer/sealer to spill or migrate onto adjacent surfaces.
- C. Backer rod: Install for all caulking materials, except where recommended to be omitted by material manufacturer for application indicated.
- D. Sealant:
 - 1. Employ installation techniques which will insure caulking materials are deposited in uniform, continuous ribbons without gaps or air pockets, with complete wetting of joint bond surfaces.
 - 2. Fill joint to form slight cove, so joint will not trap moisture and debris where horizontal joints are between horizontal and vertical surface.
 - 3. Do not allow materials to overflow or spill onto adjacent surfaces. Use masking tape or other precautionary devices to prevent staining of adjacent surfaces.
 - 4. Remove excess and misplaced materials as Work progresses. Clean adjoining surfaces to eliminate evidence of misplaced materials, without damage to adjacent surfaces or finishes.
 - 5. Cure caulking materials in accord with manufacturer's product data to obtain high early bond strength, internal cohesive strength, and surface durability.

3.04 SCHEDULE

- A. Schedule below indicates general sealant locations and usage type. Reviewed submittals shall indicate exact location proposed for each sealant. Where more than one sealant is indicated for a given application, the Contractor may choose between the sealants specified.

1. For exterior joints, choose silicone sealant in lieu of urethane/polyurethane where the schedule lists both types.
 - ~~a. Exception to above: For exterior and interior applications, choose a sealant other than silicone where sealant is at edge of a material to receive field painted finish or similar coating.~~
- B. Silicone bath sealant:
 1. Perimeter of all plumbing fixtures mounted on walls and adjacent materials.
 2. Top and edges of backsplashes at all countertops.
 3. Locations requiring NSF, USDA, or other sanitary code requirements.
- ~~C. One part polyurethane sealant:
 1. Exterior vertical working expansion and control joints.
 2. Exterior door and window frames perimeter to adjacent materials.~~
- ~~D.C. Two part non-sag polyurethane sealant:
 1. Exterior, non-traffic, expansion and control joints.
 2. Exterior coping joints, steps and risers, window and door perimeters.~~
- ~~E.D. Acrylic Latex Caulk:
 1. All interior non-working joints between dissimilar adjacent materials.~~
- ~~F.E. Butyl caulk:
 1. Use double bead at sill or threshold of all exterior swinging or sliding doors.~~
- ~~G. Multi Component Polyurethane Sealant:
 1. For all exterior non-working joints between similar and dissimilar adjacent materials including E.I.F.S.~~
- ~~H.F. Low-Modulus Silicone Building Sealant:
 1. Exterior vertical working expansion and control joints.~~
- ~~I.G. Medium-Modulus Silicone Building Sealant:
 1. Exterior door and window frame perimeter to adjacent materials.
 2. Use double bead at sill or threshold of all exterior swinging or sliding doors, window frames and louver vents.~~
- ~~J.H. Low-Modulus Silicone Pavement Sealant:
 1. Exterior, non-traffic, expansion and control joints (horizontal).
 2. Exterior curb and gutter joints, step and risers.
 3. Exterior, foot and vehicular traffic bearing, joints in treads and risers, parking decks, ramps and walkways. (Recess joints from traffic.)~~
- ~~K.I. One Part Medium Modulus Clean Silicone Building Sealant:
 1. Sensitive stone surfaces such as granite, marble or limestone and metal composite panels.~~

L.J. Two Part Polyurethane Sealant:

1. Horizontal, traffic bearing concrete surfaces. Exterior foot and vehicular traffic bearing joints in treads and risers, parking decks, ramps and walkways.

END OF SECTION

SECTION 07 95 13.A

EXPANSION JOINT COVER ASSEMBLIES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section Includes:
 - 1. Joint covers for horizontal expansion and building movement joints.
 - 2. Joint covers for vertical expansion and building movement joints.
- B. Related Requirements:
 - 1. Division 07 Section "Penetration Firestopping" for firestopping materials and assemblies.
 - 2. Division 07 Section "Joint Sealants" for elastomeric sealants and caulking.

1.03 RELATED WORK

- A. Preparation of joint, setting and joint cover into adjacent work, non-shrink grout for block outs, and adjacent finishes.

1.04 SYSTEM DESCRIPTION

- A. Joint covers shall permit restrained movement of joint without disengagement of cover.
- B. Fire rated joint covers shall have been tested in accordance with ASTM E119, including hose stream test at full rated period. Covers shall be classified by Underwriters Laboratories or listed by Warnock Hersy. Fire rating shall be 2 hours. Materials shall be inorganic and shall not create smoke or contribute fuel during a fire.
- C. Allowable load on floor joint cover plate shall be 200 psf uniform load and 300 pounds concentrated load with 1/16 inch deflection at normal position. Allowable load on floor cover plate shall be 200 psf uniform load and 300 pounds concentrated load with maximum 12,000 psi stress (6063-T5 aluminum extrusions) or 28,000 psi stress (6061-T631 aluminum plate) full open position.
- D. Spherical and Pin Type Centering Bars must be fully engaged with the base member.

1.05 SUBMITTALS

- A. Submit shop drawings and product data indicating joint cover profile, details, dimensions, location within the Work, affected adjacent construction, anchorage, finishes, splices, and accessories.
- B. Submit manufacturer's installation instructions.

- C. Fire Rated Joint Covers: Submit copies of UL Classification or Warnock Hersey Listing.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Provide temporary protective cover on anodized aluminum finished surfaces.

1.07 WARRANTY

- A. Provide manufacturer's warranty that all materials furnished by it and will be free from defects in materials and/or workmanship for a period of one year following substantial completion of the project..

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Basis-of-Design: Specific manufacturer, profile, installation type, and finish as indicated on drawings, or if not indicated, as selected by Architect.
- B. Acceptable Manufacturers: Subject to compliance with requirements, products of the following manufacturers comparable in type and quality are acceptable:
 1. Architectural Art Mfg., a division of Pittcon Architectural Metals, LLC.
 2. ~~_____~~ Balco, Inc.
 - 2.3. ~~_____~~ Emseal.
 - 3.4. ~~_____~~ InPro Corporation.
 - 4.5. ~~_____~~ MM Systems Corporation.
 - 5.6. ~~_____~~ Nystrom, Inc.
 - 6.7. ~~_____~~ Watson Bowman Acme, a BASF company.
 - 7.8. ~~_____~~ W.P. Hickman (roof joints only).

2.02 MATERIALS

- A. Aluminum: 6063-T5 extrusions; 6061-T6 plate; 5052-H32 sheet.
- B. Water Barrier: Flexible polyvinyl chloride, E.P.D.M.
- C. Fire Barrier: Provide type for indicated fire resistance and fabricated of layers of ceramic fiber insulation, metallic insulation.
- D. Flame Sealant: Sealant shall remain resilient to permit joint movement and shall upon exposure to heat, increase in volume to resist penetration of fire through voids in construction.
- E. Fireproofing: Type required by fire rating; asbestos not acceptable.
- F. Provide fasteners, accessories, and materials for complete installation to manufacturer's instructions.
- G. Centering Bars to be ASTM C-1074 tempered steel with protective coating.

2.03 FABRICATION

- A. Flexible Floor Joint Covers:
 - 1. Joint covers shall consist of cover plate fastened through center of spring steel centering bars. Bars shall have corrosion resistant coating and shall be attached to nylon spheres which are retained in tracks in extruded base members. Set centering bars diagonally at 20 inches on center maximum. Spherical Type Centering Bars must be fully engaged with the base member.
 - 2. Cover Plates: Aluminum with fluted surface.
- B. Fire Rated Joint Covers: Provide for fire barrier and flame sealant to provide fire rating indicated on drawings.
- C. Fabricate special transitions, corner fittings, and end closures or fabricated as specified on shop drawing. Miter and weld joints.
- D. Shop assemble components and package with anchors and fittings. Provide components in single lengths; minimize site splicing.

2.04 FINISHES

- A. Aluminum:
 - 1. Floors: As indicated on drawings, or if not indicated, as selected by Architect.
 - 2. Walls and Ceilings: As indicated on drawings, or if not indicated, as selected by Architect.
 - 3. Roofs: Mill finish.
- B. Vinyl: Black color.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that field measurement and block out dimensions are as shown on shop drawings.

3.02 INSTALLATION

- A. Install joint covers to manufacturer's instructions. Align work plum, level, and flush with adjacent surfaces. Anchor to substrate. Make allowances for change in joint size due to difference between installation and building operating temperatures.
- B. Fire Rated Joint Covers: Install to requirements of fire rated design. Install fire barriers and flame sealant.

3.03 ADJUSTING AND PROTECTION

- A. Adjust joint cover to freely accommodate joint movement.

- B. Protect installation from damage by work of other Sections. Remove and store cover plate and install temporary protection over joints; reinstall cover plate before completion of work.

END OF SECTION