075400 THERMOPLASTIC MEMBRANE ROOFING

PART 1 GENERAL

1.01 SUMMARY

A. Work shall include, but is not limited to, the following:
   1. Preparation of new steel roof deck, and all flashing substrates.
   2. Roof Insulation.
   3. Roofing cover board.
   4. Thermoplastic polyolefin
   5. Roof walkway pads.
   6. All related materials and labor required to complete specified roofing necessary to receive specified manufacturer's warranty.

1.02 ACTION SUBMITTALS

A. Product Data Sheets: Submit manufacturer's product data sheets, installation instructions and/or general requirements for each component.
B. Safety Data Sheets: Submit manufacturer's Safety Data Sheets (SDS) for each component.
C. Sample warranty from the manufacturer and contractor.
D. Provide roof plan and representative detail drawings.

1.03 CLOSEOUT SUBMITTALS

A. Warranty: Provide manufacturer's and contractor's warranties upon project completion.

1.04 QUALITY ASSURANCE

A. CONTRACTOR QUALIFICATIONS:
   1. Contractor shall be authorized by the manufacturer to install specified materials prior to the bidding period through satisfactory project completion.
   2. Applicators shall have completed projects of similar scope using same or similar materials specified.
   3. Contractor shall provide full time, on-site superintendent or foreman experienced with the specified roofing from beginning through satisfactory project completion.
   4. Applicators shall be skilled in the application methods for all materials.
   5. Contractor shall maintain a daily record, on-site, documenting material installation and related project conditions.
   6. Contractor shall maintain a copy of all submittal documents, on-site, available at all times for reference.

1.05 DELIVERY, STORAGE AND HANDLING

A. Refer to each product data sheet or other published literature for specific requirements.
B. Deliver materials and store them in their unopened, original packaging, bearing the manufacturer's name, related standards, and any other specification or reference accepted as standard.
C. Protect and store materials in a dry, well-vented, and weatherproof location. Only materials to be used the same day shall be removed from this location. During cold weather, store materials in a heated location, removed only as needed for immediate use.

1.06 SITE CONDITIONS

A. SAFETY:
   1. The contractor shall be responsible for complying with all project-related safety and environmental requirements.

B. ENVIRONMENTAL CONDITIONS:
   1. Monitor substrate temperature and material temperature, as well as all environmental conditions such as ambient temperature, moisture, sun, cloud cover, wind, humidity, and shade. Ensure conditions are satisfactory to begin work and ensure conditions remain satisfactory during the installation of specified materials. Materials and methods shall be adjusted as necessary to accommodate varying project conditions. Materials shall not be installed when conditions are unacceptable to achieve the specified results.

1.07 PERFORMANCE REQUIREMENTS

A. WIND UPLIFT RESISTANCE:
   1. Performance testing shall be in accordance with ANSI/FM 4474, FM 4450, FM 4470, UL 580 or UL 1897.
      a. Roof System Design Pressures: Calculated in accordance with ASCE 7, or applicable standard, for the specified roof system attachment requirements:
         i. Field of Roof (Zone 1): - 0 psf.
         ii. Perimeter of Roof (Zone 2): - 0 psf.
         iii. Corners of Roof (Zone 3): - 0 psf.

B. IMPACT RESISTANCE:
   1. Performance testing for impact resistance shall be in accordance with FM 4450, FM 4470, ASTM D3746 or CGSB 37-GP 56M to meet the specified impact resistance requirements.
      a. Meets requirements for FM-5H (Severe Hail), ASTM D3746, or CGSB 37-GP 56M.

1.08 WARRANTY

A. Manufacturer's "Red Shield" Warranty. The manufacturer shall provide the owner with the manufacturer's warranty providing labor and materials for 15 years from the date the warranty is issued.
B. The contractor shall guarantee the workmanship and shall provide the owner with the contractor's warranty covering workmanship for a period of 2 years from completion date.

PART 2 PRODUCTS

2.01 MANUFACTURER

A. SINGLE SOURCE MANUFACTURER: All SBS modified bitumen membrane and flashing sheets shall be manufactured by a single supplier.
   1. Comply with the Manufacturer's requirements as necessary to provide the specified warranty.
   2. Roofing cover board shall be approved by manufacturer to be compatible with roofing system.

B. ACCEPTABLE MANUFACTURER:
   1. Firestone Building Products Company.
   2. Acceptable Alternate Manufacturers: Siplast, Johns Manville, GAF.
      a. Submit substitution request under Section 012500.

2.02 ROOFING INSULATION

A. INSULATION: Firestone ISO 95+GL, polyisocyanurate board insulation with fiberglass reinforced facing on both sides.
   1. ASTM C 1289, Type II, class 1.
   2. Compressive Strength: 20 psi.
   3. For installation under a roofing cover board.

2.03 ROOFING COVER BOARD

A. BOARD: Georgia Pacific, Dens Deck Prime, gypsum-based fiber reinforced, for mechanical installation, and to accept thermoplastic polyolefin roofing membrane.
   1. ASTM C 1177.
   2. One-half inch thickness.
   3. Install in conformance with manufactures instructions.
   4. Mechanically fasten to deck using type of fasteners, pattern and location as required by manufacturer for the specified wind speed and uplift criteria.

2.04 MEMBRANE

A. Furnish .060 mil thick white reinforced TPO (Thermoplastic Polyolefin) membrane as needed to complete the roofing system. Membrane thickness over the reinforcing scrim (top-ply thickness) shall be nominal .015 mil or thicker. Membrane sheets in rolls 12', 10', 8' wide by 100' long.

2.05 ACCESSORIES

A. WALKWAY PROTECTION:
   1. Firestone X-Tred Walkway Pad: 100 percent terpolymer olefin, UV resistant, roll stock, for installation over thermoplastic polyolefin roofing membrane.
      a. Thickness: 0.55 inches
      b. Width: 30 inches
      c. Roll Length: 30 feet
      d. Install in accordance with manufacturer's instructions for Design Wind Speed less than 90 mph.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examination includes visual observations, qualitative analysis, and quantitative testing measures as necessary to ensure conditions remain satisfactory throughout the project.
B. The contractor shall examine all roofing substrates including, but not limited to: insulation materials, roof decks, walls, curbs, rooftop equipment, fixtures, and wood blocking.
C. The applicator shall not begin installation until conditions have been properly examined and determined to be clean, dry and, otherwise satisfactory to receive specified roofing materials.
D. During the application of specified materials, the applicator shall continue to examine all project conditions to ensure conditions remain satisfactory to complete the specified roofing system.

3.02 PREPARATION

A. Before commencing work each day, the contractor shall prepare all roofing substrates to ensure conditions are satisfactory to proceed with the installation of specified roofing materials. Preparation of substrates includes, but is not limited to, substrate repairs, securement of substrates, eliminating all incompatible materials, and cleaning.
B. Where conditions are found to be unsatisfactory, work shall not begin until conditions are made satisfactory to begin work. Commencing of work shall indicate contractor's acceptance of conditions.

3.03 PRIMER APPLICATION

A. Examine all substrates, and conduct adhesion peel tests as necessary, to ensure satisfactory adhesion is achieved.
B. Apply the appropriate specified primer to dry, compatible substrates as required to enhance adhesion of new specified roofing materials.
C. Apply primer using brush, roller, or sprayer at the rate published on the product data sheet. Lightly prime for uniform coverage, do not apply heavy or thick coats of primer.
D. Asphalt Primer: Apply primer to dry compatible masonry, metal, wood and other required substrates before applying asphalt and heat-welded membrane plies. Primer is optional for solvent based solvent-based SBS adhesives and cements. Refer to product data sheets.

3.04 MOPPING ASPHALT APPLICATION

A. Mopping asphalt manufacturer and type shall be preapproved by the manufacturer.
B. Refer to mopping asphalt supplier published values for Softening Point, Minimum Flash Point (FP), Finished Blowing Temperature (FBT) and Equiviscous Temperature (EVT).
C. To avoid risk of fire do not heat asphalt at or above the Flash Point temperature.
D. The EVT is the temperature at which the mopping asphalt viscosity is 125 centistokes.
E. Apply mopping asphalt within +/- 25F (14C) of the published EVT to obtain the nominal 23 to 25 pounds per square coverage rate.
F. Refer to the EVT provided by the asphalt supplier.
I. Type IV asphalt application temperature should be within 400 to 475F (204 to 246C) at the point of application when installing roofing materials into the hot asphalt.
G. For SBS modified bitumen membrane applications; ASTM D312 Type IV asphalt is required.
H. For SBS modified bitumen membrane plies, the asphalt temperature shall not fall below 400F (204C) at the point of membrane contact when installing the SBS membrane into the hot asphalt, except consult manufacturer's information sheet when mopping to gypsum-based roofing board.
I. The contractor shall monitor asphalt application temperature, and shall record the temperature during application.

3.05 ASPHALT - ADHERED SBS MODIFIED BITUMEN MEMBRANE APPLICATION

A. Follow manufacturer's material product data sheets and published general requirements for installation instructions.

3.06 WALKWAYS

A. At areas outlined on the drawings, and around the perimeter of all rooftop equipment and at all door and stair landings, install walkway protection.
B. Cut walkway from end of rolls. No piece shall be less than 24 in.
C. Provide a 2 in space between sheets for drainage.

3.07 CLEAN UP

A. Clean-up and properly dispose of waste and debris resulting from these operations each day as required to prevent damages and disruptions to operations.

076200 SHEET METAL FLASHING AND TRIM

A. Performance requirements:Fabricate and install sheet metal flashing and trim to withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failing, rattling, leaking, and fastener disengagement.
   1. Design wind loads: comply with requirements of ASCE 7.
   2. Thermal movement: Allow for following maximum range in ambient and surface temperatures by preventing buckling, opening of joints, hole elongation, overstressing of components, and other detrimental effects.
      a. Temperature range: 120 degree F, ambient; 180 degree F, material surfaces
      b. Provide clips that resist rotation and avoid shear stress resulting from thermal movement of sheet metal and trim.
   3. Coordinate sheet metal flashing and trim installation with interfacing and adjoining construction and to prevent water infiltration into building.
   4. Coordinate metal flashing joints with exterior cladding joints to ensure they do not coincide and result in weak locations in the envelope.
   5. Notify Architect of any instances which will not comply with performance requirements.
B. Pre-finish aluminum for flashing indicated to be pre-finished and at locations exposed to view: ASTM B209 (ASTM B209M); 0.032" thick; plain finish shop pre-coated with fluoropolymer coating.
   1. Fluoropolymer coating: High performance organic finish, AAMA 2604; multiple coat, thermally cured fluoropolymer finish system.
   2. Color Selection: By Owner.
C. Provide miscellaneous materials and accessories required for complete and correct installation.
   1. Fasteners: Same material and finish as flashing metal, with soft neoprene washers. No exposed fasteners allowed.
   2. Clips or Cleats: Same material and gage as sheet metal being installed.
   3. Slip Sheet: Rosin sized building paper.
   4. Primer: Type recommended by finish manufacturer.
   5. Protective backing paint: FS TT-C-494, bituminous.
   6. Sealant: Silicone. Roofer's Mastic is not acceptable.
D. Shop fabricate items to greatest extent practicable. Form sections true to shape, accurate in size, square, and free form distortion or defects. Comply with SMACNA recommendations.
   1. Obtain field measurements for accurate fit before shop fabrication.
   2. Form profiles indicated on drawings and as specified in roof section.
   3. Form flashing and trim pieces in minimum 8' and maximum 10' lengths.
   4. Hem exposed edges on under side 1/2"; miter and seam corners.
   5. Fabricate corners from one piece with minimum 18" long legs; seam for rigidity, seal with sealant.
   6. Drips: Form bottom edges of vertical faces outward 1/4" (6mm), and hem to form drip.
   7. Fabricate flashing to allow toe to extend 2" (50 mm) over roofing membrane at low-slope roofs. Return and brake edges.
   8. Copings and Cap Flashing: Pre-finished; as detailed and as indicated in SMACNA manual figures 3-1 and 3-4A, with E1 edges and J9 and J12 seams, sealed. Slope to roof side and cover blocking with roofing felt. Miter, seam and seal corners.
   9. Flashing and Counterflashing: As detailed, and as indicated in SMACNA manual figure 4-4A. Lock and solder joints and hem exposed edges.
E. Fabricate cleats, attachment devices expansion joints, expansion-joint covers and related accessories from compatible, non-corrosive metal or from same temper and material as item being anchored or joined. Thickness as recommended by SMACNA manual for application, but not less than 1 standard thickness greater than the metal being secured.
F. Fabricate following items from pre-finished aluminum as follows: copings, cap flashing, and fascia: 0.060" thick.

079200 SEALANTS

A. Horizontal sealants in floor and paving slabs are to be self-leveling urethane one or two component, gray.
B. Exterior vertical sealants at door frames, window frames, joints in masonry, and joints below grade are to be polyurethane, color to match material being caulked.
C. Interior sealants at door frames are to be acrylic latex, paintable
D. Sanitary sealants at plumbing fixtures are to be clear silicone.

DIVISION 8 - DOORS AND WINDOWS

081113 STEEL DOORS AND FRAMES

1.01 Submittals

A. Shop Drawings:
   1. Submit shop drawings that show elevations of each door design, door construction details, and methods of assembling sections, hardware locations, and installation methods, dimensions, and shapes of materials, anchorage and fastening methods, door frame types and details, wall opening construction details, and finish requirements.
   2. Indicate location of each unit in Project.
   3. Shop drawings submittal shall be coordinated with shop drawings submission of related portions of Work, such as:
      a. Hardware

1.02 Quality Assurance

A. Qualifications:
   1. Single Source Responsibility:
      a. To greatest extent possible, frames, anchors, etc. shall be products of a single manufacturer or items standard With manufacturer of hollow metal products.
      b. Provide secondary materials which are produced or are specifically recommended by hollow metal products manufacturer to ensure compatibility.

2.01 Hollow Metal Doors

A. Non-Rated Doors: Seamless hollow steel doors
   1. Grade: SDI Grade II, Heavy Duty; Model 2
   2. Gauge: 18 gauge
   3. Core Material:Acoustical insulation at interior applications, thermal insulation at exterior applications.

2.02 Hollow Metal Frames

A. Non-Rated Frames:
   1. Gauge: 16 gauge
   2. Frames over 4'-0" (1200 mm) wide: 14 gauge

2.03 Finishes

A. Galvanizing
   1. Doors and frames shall be A60 galvanized in accordance with ASTM A 653/A 653M or G60 galvanized in accordance with ASTM A 653.

2.04 Frame Tolerances:

A. Squareness: +/- 1/16" (1.5 mm)
   1. Measured on a line 90 degrees from one jamb, at upper corner of frame at other jamb.
B. Alignment: +/- 1/16" (1.5 mm)
   1. Measured on jambs on a horizontal line parallel to plane of wall.
C. Twist: +/- 1/16" (1.5 mm)
   1. Measured at face corners of jambs on parallel lines perpendicular to plane of wall.
D. Plumbness: +/- 1/16" (1.5 mm)
   1. Measured on jambs at floor.

2.05 Door Clearances Subject to +/- 1/32" (.08 mm) tolerance:

A. Head and Jambs: 1/8" (3 mm)
B. Undercut doors sufficiently to allow clearance above finish floors and where indicated on Drawings to allow for adequate air transfer.
   1. Where scheduled floor finish material is less than 1/2" (12 mm) thick, allow not more than 5/8" (16 mm) above top of substrate to which it is applied.
   2. Where scheduled floor finish material is more than 1/2" (21 mm) thick, allow not more than 1/4" (6mm) above finish material.
   3. Where a threshold is used, allow not more than 1/4" (6mm) above threshold.

2.06 Adjustments

A. Prime Coat Touch-up:
   1. Sand smooth all rusted or damaged areas of prime coat and touch-up with compatible air-drying primer
   2. Touch-up areas shall not be obvious.
B. Final Adjustments:
   1. Check and re-adjust operating finish hardware just prior to final inspection and after painting hinges if hinges are indicated to be painted.
   2. Remove and replace defective work.

087100 HARDWARE

A. Product Data:
   1. Submit manufacturer's literature describing products to be provided.
B. Shop Drawings:
   1. Submit a minimum of 3 copies of hardware schedule. Indicate location of hardware set, cross-referenced to indications on Drawings, manufacturer's name and product number, finish, and other similar information describing hardware to be provided.

C. Regulatory Requirements:
   1. Federal Accessibility Regulations:
      a. Americans with Disabilities Act - ADA
      b. Uniform Federal Accessibility Standards - UFAS

D. General Requirements:
   1. Items of hardware not definitely specified,but needed for satisfactory installation of hardware shall be provided. Such items shall be of type and quality suitable for service needed and comparable to adjacent hardware.
   2. Doors with locksets shall be furnished with non-removable pins hinges.
   3. Securely install finish hardware items in compliance with accepted schedule and templates furnished with hardware.
   4. Install locksets, surface mounted closers, and trim after finishing of doors and frames is complete.
   5. Verify keying requirements with Owner. Furnish 2 keys per lock with a maximum of 8 keys per keyed alike set.
   6. Before final completion, adjust hardware so that doors operate in perfect order. Test and adjust hardware for quiet, smooth operation,free of sticking, binding, or rattling. Adjust closers for proper, smooth operation.
   7. At final completion, properly tag and identify keys and deliver to Owner.

088000 GLAZING

A. Insulated glass units - low E - type SG-B - ASTM E774 and E773 double pane with glass elastomer edge seal; outer pane of clear glass, inner pane of low E clear glass on clear color glass.
B. Thickness to be 1" (inner pane 1/4", outer pane 1/4") unless noted otherwise on plans.
C. Provide tempered (safety) glass units where indicated with a "T" on elevation or as required by jurisdictional codes.
D. Glazing should meet the minimum requirements for deflection under ASTM E1300 "Standard practice for determining load resistance of glass in buildings"

DIVISION 9 - FINISHES

09000 GENERAL FINISH NOTES

A. Submittals:
   1. The Contractor shall submit a minimum of three (3) 12" x 12" square samples of each scheduled finish for review by the Architect. The Architect shall retain two (2) samples of finishes for record and return a minimum of one sample to Contractor.
   2. The Contractor shall advise the Architect of locations of changes in dye lots, batches or similar
B. Quality Assurance:
   1. Before proceeding with procurement of finishes, the Contractor shall field verify dimensions to assure that sufficient quantities of materials are ordered to complete the work.
   2. The Contractor shall refer to the Drawings for specific locations of finishes. Should the Contractor find any discrepancies,- omissions, ambiguities or conflicts on the plans, the Contractor shall bring the item(s) to the attention of the Architect for direction, before ordering materials or proceeding with any work in question.
   3. Finishes to be installed in strict accordance with the manufacturer's specifications and instructions and in a manner consistent with the highest quality standards of workmanship.
   4. Where there is a question as to the acceptable level of quality for the installation of any materials, the Architect shall act as mediator.
   5. Upon receipt from the manufacturer, inspect materials for defects, flaws, shipping damage, correct color and pattern. Prior to beginning work; damaged or wrong materials shall be returned to the manufacturer for immediate replacement to prevent delays in the completion of the work.
   6. Compliance with the manufacturer's requirements for handling, storage, installation and protection is the exclusive responsibility of the Contractor.
   7. Finishes shall extend over, under and/or behind any item of built-in millwork, equipment, mirrors, etc., as indicated on the drawings.

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L2M ARCHITECTS

I certify that these documents were prepared or approved by me, and that I am a duly licensed architect under the laws of the state of Maryland Lic.: 8539 Exp.: 07 December 2017.

DASH IN

STORE #079

QUARTERFIELD RD - SEVERN, MD

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