SECTION 08 39 19

WATERTIGHT DOORS

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\*\* NOTE TO SPECIFIER \*\* Presray Critical Containment Solutions; watertight doors, hatches, and flood barriers.  
 .  
This section is based on the products of Presray Critical Containment Solutions, which is located at:  
32 Nelson Hill Rd. P. O. Box 200  
Wassaic, NY 12592  
Toll Free Tel: 800-431-3456  
Tel: 845-373-6700   
Fax: 845-855-8034  
Email: [request info (info@presray.com)](https://admin.arcat.com/users.pl?action=UserEmail&company=Presray+Critical+Containment+Solutions&coid=34947&rep=&fax=845-855-8034&message=RE:%20Spec%20Question%20(08392prs):%20%20&mf=)  
Web: <http://www.presray.com>   
  
 [ [Click Here](https://www.arcat.com/arcatcos/cos34/arc34947.html) ] for additional information.  
 .  
 A typical Presray Flood Barrier system consists of a lift-out or hinged barrier with patented inflatable gaskets or compression gaskets on both sides and across the bottom and a conversion frame for connection to the existing door frame. When the gasket is inflated or the compression seal is tightened, the barrier effectively restrains floodwaters, thereby preventing losses to facilities, equipment, and merchandise. Presray Flood Barriers are applicable to both new and existing construction.

1. GENERAL
   1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete items below not required for project.

* + 1. Lift-out flood panels.
    2. Hinged flood gates.
    3. Stop log system.
    4. Hinged watertight doors.
    5. Sliding watertight doors.
    6. Watertight hatches.
  1. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 08 11 13.16 - Custom Hollow Metal Doors and Frames.
    2. Section 08 33 23 - Overhead Coiling Doors.
    3. Section 08 36 16 - Single-Panel Doors.
  1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. ASME BPV - Boiler and Pressure Vessel Code; American Society of Mechanical Engineers; 1998.
    2. ASTM A 36/A 36M - Standard Specification for Carbon Structural Steel; 2000a
    3. AWS D1.1 - Structural Welding Code - Steel; American Welding Society; 2000.
    4. SSPC-SP7 - Brush-Off Blast Cleaning; Society for Protective Coatings; 2000.
  1. PERFORMANCE
     1. System Design: Design and size components to withstand hydrostatic pressure caused by positive loads acting normal to plane of opening without substantial leakage.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs.

* + - 1. Design Loads: Comply with requirements of applicable codes.
      2. Design Loads: Positive \_\_\_\_\_\_\_\_lb/sq ft (\_\_\_\_\_\_\_kPa).
      3. Safety Factor: Design with minimum safety factor of 2:1, based on material yield strength.
  1. SUBMITTALS
     1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
     2. [ Product Data ]: Manufacturer's data sheets on each product to be used, including:
        1. Preparation instructions and recommendations.
        2. Storage and handling requirements and recommendations.
        3. Installation methods.
        4. Maintenance recommendations.
     3. Shop Drawings: Include dimensioned plans and elevations, details of sections, connections, and anchorages, and list of parts.
     4. Test Certificates: Submit certification of test results indicating that products will withstand the design hydrostatic pressure.
  2. QUALITY ASSURANCE
     1. Not less than five years of documented experience in the design and manufacture of barriers and seals of the types required for the project.
     2. Installer Qualifications: Approved by the manufacturer.
     3. Weld Testing: Inspect all welds in potential leak path by liquid penetrant method in accordance with Appendix VIII of Section VIII, Division 1 of ASME Code.
     4. Leak Testing: Perform factory leak test to verify that finished assembly or assembly similar in design will withstand design hydrostatic pressure.
  3. WARANTY
     1. See Section 01 78 23.19 - Preventative Maintenance Instructions.
     2. Provide manufacturer's standard 5-year limited warranty against defects in material and workmanship.

1. PRODUCTS
   1. MANUFACTURERS
      1. Acceptable Manufacturer: Presray Critical Containment Solutions, which is located at: 32 Nelson Hill Rd. P. O. Box 200; Wassaic, NY 12592; Toll Free Tel: 800-431-3456; Tel: 845-373-6700 ; Fax: 845-855-8034; Email: [request info (info@presray.com)](https://admin.arcat.com/users.pl?action=UserEmail&company=Presray+Critical+Containment+Solutions&coid=34947&rep=&fax=845-855-8034&message=RE:%20Spec%20Question%20(08392prs):%20%20&mf=); Web: <http://www.presray.com>

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
    2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.
  1. MATERIALS

\*\* NOTE TO SPECIFIER \*\* Delete materials not required, based on product selections in articles below.

* + 1. Structural Steel Shapes and Plates: ASTM A 36 steel, brush-off blast cleaned per SSPC-SP7 and prime painted with one coat of Sherwin Williams Kem Flash rust inhibitive, lead-free red primer E61-R-26.
    2. Stainless Steel Shapes and Plates: Type 304 stainless steel, hot rolled annealed and pickled.
    3. Stainless Steel Shapes and Plates: Type 316 stainless steel, hot rolled annealed and pickled.
    4. Aluminum Shapes and Plates: Type 6061 aluminum, abrasive cleaned.
    5. Gaskets: Molded 25 durometer neoprene gaskets, with fully molded corners. Mitered corners are not permitted.
    6. Gaskets: Molded Viton(R) gaskets, with fully molded corners. Mitered corners are not permitted.
  1. WATERTIGHT DOORS AND HATCHES

\*\* NOTE TO SPECIFIER \*\* Delete the product types not required. Be sure to indicate where each type is to be used on the drawings.

* + 1. Hinged Watertight Doors:
       1. Single Doors for Infrequent Access: Presray Model D3C.
       2. Double Doors for Infrequent Access: Presray Model D3CD, with removable mullion.
       3. Quick Acting Doors for Frequent Access: Presray Model D3DQA.

\*\* NOTE TO SPECIFIER \*\* Delete all but one frame type below.

* + - 1. Frame: Provide anchors suitable for embedment in concrete.
      2. Frame: Provide epoxy anchors for mounting in new masonry block walls.
      3. Frame: Provide gaskets, bolts, and inserts for attachment to existing concrete or block.
      4. Frame: Provide frame ready for welding to steel structure.
      5. Opening: Rectangular, with square corners to facilitate easy passage.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following three paragraphs.

* + - 1. Dimensions:As indicated on drawings.
      2. Dimensions: As scheduled.
      3. Dimensions: \_\_\_\_\_\_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following three paragraphs.

* + - 1. Material: Structural steel.
      2. Material: Stainless steel.
      3. Material: Aluminum.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs. Neoprene gaskets are standard. Viton gaskets are available as an option.

* + - 1. Gaskets: Neoprene.
      2. Gaskets: Viton.
      3. Hinges: Stainless steel hinge pins.

\*\* NOTE TO SPECIFIER \*\* Paragraph below is for Models D3C and D3CD.

* + - 1. Dogs for Infrequent Use Doors: Include stainless steel rollers to minimize closing force. Provide means for adjusting seal compression after field installation.

\*\* NOTE TO SPECIFIER \*\* Paragraph below is for Model D3DQA.

* + - 1. Door Latch System for Frequent Use Doors: Provide system that latches door with minimum effort and time, by rotating lever 90 degrees from either side, with lever actuating a minimum of six arms, each of which is equipped with stainless steel rollers that are adjustable for stroke length and position to achieve optimum compression.
    1. Sliding Watertight Doors:
       1. Doors for Frequent Access: Presray Model D5B, designed for manual operation from either side.
       2. Frame: Include provisions for continuous support of all four edges of the door when in the closed position. At sill, provide members forming trench, with inflatable seal mounted on back surface.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs.

* + - * 1. Configure trench to be recessed in the floor.
        2. Configure trench to form raised threshold.

\*\* NOTE TO SPECIFIER \*\* Delete all but one of the following frame anchor descriptions.

* + - * 1. Frame Anchors: Provide anchors suitable for embedment in concrete.
        2. Frame Anchors: Provide epoxy anchors for mounting in new masonry block walls.
        3. Frame Anchors: Provide gaskets, bolts, and inserts for attachment to existing concrete or block.
        4. Frame Anchorage: Provide frame ready for welding to steel structure.
      1. Opening: Rectangular, with square corners to facilitate easy passage.

\*\* NOTE TO SPECIFIER \*\* Delete two of the following three paragraphs.

* + - 1. Dimensions: As indicated on drawings.
      2. Dimensions: As scheduled.
      3. Dimensions:\_\_\_\_\_\_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* Delete two of the following three paragraphs.

* + - 1. Material: Structural steel.
      2. Material: Stainless steel.
      3. Material: Aluminum.
      4. Door Hardware: Manufacturer's standard trolley track, mounting brackets, ball bearing hangers, and door pulls.

\*\* NOTE TO SPECIFIER \*\* Paragraph below is optional feature.

* + - 1. Vision Panel: Manufacturer's standard Type PRS817.
      2. Door Seals: Manufacturer's Type 1 dual inflatable gaskets of fabric-reinforced high-strength synthetic rubber.
      3. Seal Controls:Control valve, pressure regulator, pressure gauges, and mounting panel for location on both interior and exterior wall to facilitate sealing and unsealing of the door from either side. Design valves to ensure that, in the event of damage to either seal, the other will remain inflated to keep the door sealed.

\*\* NOTE TO SPECIFIER \*\* Paragraph below is optional feature.

* + - * 1. Provide push button panic dump valve mounted on interior of door panel for quick release of seal pressure.
    1. Watertight Hatches:
       1. Raised Hatches: Presray Model D3HA.
       2. Flush Hatches: Presray Model D3HA.

\*\* NOTE TO SPECIFIER \*\* Delete three of the following four paragraphs.

* + - 1. Frame: Provide anchors suitable for embedment in concrete.
      2. Frame: Provide epoxy anchors for mounting in new masonry block walls.
      3. Frame: Provide gaskets, bolts, and inserts for attachment to existing concrete or block.
      4. Frame: Provide frame ready for welding to steel structure.
      5. Opening: Rectangular, with square corners to facilitate easy passage.

\*\* NOTE TO SPECIFIER \*\* Delete two of the following three paragraphs.

* + - 1. Dimensions: As indicated on drawings.
      2. Dimensions: As scheduled.
      3. Dimensions: \_\_\_\_\_\_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* Delete two of the following three paragraphs.

* + - 1. Material:Structural steel.
      2. Material: Stainless steel.
      3. Material: Aluminum.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs. Neoprene gaskets are standard. Viton gaskets are available as an option.

* + - 1. Gaskets:Neoprene.
      2. Gaskets: Viton.
      3. Dogs: Include stainless steel rollers to minimize closing force. Provide means for adjusting seal compression after field installation.

\*\* NOTE TO SPECIFIER \*\* Paragraph below is optional feature.

* + - 1. Provide gas spring to facilitate opening hatch.

\*\* NOTE TO SPECIFIER \*\* Paragraph below is optional feature.

* + - 1. Provide counterweight to facilitate opening hatch.
  1. FLOOD BARRIERS

\*\* NOTE TO SPECIFIER \*\* Delete the product types not required. Be sure to indicate where each type is to be used on the drawings.

* + 1. Lift-Out Flood Panels with Inflatable Seals:
       1. Lightweight Panels 24 sq ft (2.23 sq m) or Less: Presray Model FB11.
       2. Panels Over 24 sq ft (2.23 sq m): Presray Model FB22.
       3. Barrier Material: Aluminum plate.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs.

* + - 1. Conversion Frame: Low carbon steel.
      2. Conversion Frame: Stainless steel.

\*\* NOTE TO SPECIFIER \*\* Delete two of the following three paragraphs.

* + - 1. Dimensions: As indicated on drawings.
      2. Dimensions: As scheduled.
      3. Dimensions: \_\_\_\_\_\_\_\_\_\_.
      4. Design and Fabrication: Provide panels and conversion frames with radiused lower corners to optimize sealing. Fabricate frame to straightness tolerance of 1/8 inch (3.2 mm) over entire length.

\*\* NOTE TO SPECIFIER \*\* Delete two of the following three paragraphs.

* + - 1. Frame Anchors: Provide countersunk mounting holes for expansion anchors and bolts.
      2. Frame Anchors: Provide epoxy anchors for block walls.
      3. Frame Anchors: Provide welded studs for embedment in concrete.
      4. Seals: Dual Presray Type 1 inflatable gaskets with extruded aluminum retainer; provide each seal with automotive type air inflation stem and independent 0-60 psi (0-413 kPa) pressure gage.
      5. Hardware:
         1. Handles: Welded aluminum hand grips on top edge and/or side of panel for ease of handling.
         2. Latch Bolts: Quick acting manually operated bolts located at each jamb to lock panel in position.
      6. Accessories:

\*\* NOTE TO SPECIFIER \*\* Paragraphs below are optional features.

* + - * 1. Floor mounted storage rack for flood panels.
        2. Wall mounted storage rack for flood panels.
        3. Transport dolly sized to accommodate flood panels.
        4. Removable mullions for openings too wide for a single panel.

\*\* NOTE TO SPECIFIER \*\* Paragraph below is for facilities where compressed air is not available. Portable compressors are also available for facilities with multiple flood barrier installations.

* + - * 1. Air Source: Presray Type PR4934 compressed air tank to fill seals.
    1. Lift-Out Flood Panels with Compression Gaskets:
       1. Panels with Flush Threshold: Presray Model CG11FS, equipped with neoprene gaskets.

\*\* NOTE TO SPECIFIER \*\* Paragraph below is for windows, louvers, and other openings requiring sealing at both sides and across the bottom, or around the whole perimeter.

* + - 1. Lightweight Removable Panels: Presray Model CG22, equipped with low compression set type PRS 933 molded gaskets; extruded gaskets are not acceptable.

\*\* NOTE TO SPECIFIER \*\* Delete two of the following three paragraphs.

* + - 1. Barrier Material: Aluminum plate.
      2. Barrier Material: Carbon steel.
      3. Barrier Material: Stainless steel.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs.

* + - 1. Conversion Frame: Low carbon steel.
      2. Conversion Frame: Stainless steel.

\*\* NOTE TO SPECIFIER \*\* Delete two of the following three paragraphs.

* + - 1. Frame Anchors: Provide countersunk mounting holes for expansion anchors and bolts.
      2. Frame Anchors: Provide epoxy anchors for block walls.
      3. Frame Anchors: Provide welded studs for embedment in concrete.
      4. Handles: Welded aluminum hand grips on top edge and/or side of panel for ease of handling.

\*\* NOTE TO SPECIFIER \*\* Delete two of the following three paragraphs.

* + - 1. Dimensions: As indicated on drawings.
      2. Dimensions: As scheduled.
      3. Dimensions: \_\_\_\_\_\_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* This type of flood gate is suitable for openings of any width and offers flood protection up to 8 feet (with higher protection also available on special order). When not in use, the gate is recessed into the floor, with the diamond plate surface exposed for traffic passage. Make choices from options below, as applicable. Delete options not required.

* + 1. Bottom-Hinged Flip-Up Flood Gate: With Inflatable Gaskets; Presray Model FB55.

\*\* NOTE TO SPECIFIER \*\* Delete two of the following three paragraphs.

* + - 1. Barrier Material: Steel diamond tread plate.
      2. Barrier Material: Aluminum.
      3. Barrier Material: Stainless steel.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs.

* + - 1. Conversion Frame: Low carbon steel.
      2. Conversion Frame: Stainless steel.

\*\* NOTE TO SPECIFIER \*\* Delete two of the following three paragraphs.

* + - 1. Dimensions: As indicated on drawings.
      2. Dimensions: As scheduled.
      3. Dimensions: \_\_\_\_\_\_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* Delete two of the following three paragraphs.

* + - 1. Frame Anchors: Provide countersunk mounting holes for expansion anchors and bolts.
      2. Frame Anchors:Provide epoxy anchors for block walls.
      3. Frame Anchors: Provide welded studs for embedment in concrete.
      4. Seals: Dual Presray Type 1 inflatable gaskets with extruded aluminum retainer; provide each seal with automotive type air inflation stem and independent 0-60 psi (0-413 kPa) pressure gage.

\*\* NOTE TO SPECIFIER \*\* Paragraph below is for facilities where compressed air is not available. Portable compressors are also available for facilities with multiple flood barrier installations.

* + - * 1. Air Source: Presray Type PR4934 compressed air tank to fill seals.
      1. Design and Fabrication: Provide panels and conversion frames with radiused lower corners to optimize sealing. With panel down and stowed in recess, provide hinged diamond plate cover that automatically drops in place to span gap between bottom edge of flood gate and adjacent surface of recessed frame. Fabricate frame to straightness tolerance of 1/8 inch (3.2 mm) over entire length.
      2. Hardware:
         1. Manufacturer's heavy-duty low friction precision hinges.
         2. Latches: Slide bolts with lockable feature, to hold panel in upright position.

\*\* NOTE TO SPECIFIER \*\* Two paragraphs below are optional. Presray also offers winch lift system.

* + - 1. Lift System: Provide hydraulic lift system sized for weight of flood gate.
      2. Control System: Provide system that includes programmable controller, switch for raising and lowering flood gate, limit switches, and pneumatic valves to automatically stop hydraulic actuator system, lock the gate into position, and inflate the seals. Provide switch that also automatically controls seal deflation, unlocking and lowering the gate.

\*\* NOTE TO SPECIFIER \*\* This type of flood gate is suitable for openings of any width and offers flood protection up to 12 feet (with higher protection also available on special order).

* + 1. Side-Hinged Flood Gate:With inflatable gaskets; Presray Model FB44.
       1. Barrier Material: Aluminum.
       2. Conversion Frame: Low carbon steel.

\*\* NOTE TO SPECIFIER \*\* Delete two of the following three paragraphs.

* + - 1. Dimensions: As indicated on drawings.
      2. Dimensions: As scheduled.
      3. Dimensions: \_\_\_\_\_\_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* Delete two of the following three paragraphs.

* + - 1. Frame Anchors: Provide countersunk mounting holes for expansion anchors and bolts.
      2. Frame Anchors: Provide epoxy anchors for block walls.
      3. Frame Anchors: Provide welded studs for embedment in concrete.
      4. Seals: Dual Presray Type 1 inflatable gaskets with extruded aluminum retainer; provide each seal with automotive type air inflation stem and independent 0-60 psi (0-413 kPa) pressure gage.

\*\* NOTE TO SPECIFIER \*\* Paragraph below is for facilities where compressed air is not available. Portable compressors are also available for facilities with multiple flood barrier installations.

* + - * 1. Air Source: Presray Type PR4934 compressed air tank to fill seals.
      1. Design and Fabrication: Provide panels and conversion frames with radiused lower corners to optimize sealing. Fabricate frame to straightness tolerance of 1/8 inch (3.2 mm) over entire length.
      2. Hardware:
         1. Hinges: Manufacturer's six way adjustable hinges for panels over 24 sq ft (2.33 sq m).
         2. Hinges: Manufacturer's Series PR9000 low friction hinges with oil impregnated bronze bushing for radial and thrust loads for panels 24 sq ft (2.33 sq m) and under.
         3. Latches: Slide bolts to hold panel in closed position.

\*\* NOTE TO SPECIFIER \*\* Paragraph below is optional, for extra-wide openings.

* + - 1. Nose Wheels: Provide manufacturer's heavy duty nose wheels on leading edge of door more than 8 feet (2.43 m) wide.

\*\* NOTE TO SPECIFIER \*\* This type of flood gate is suitable for openings of any width and offers flood protection up to 12 feet (with higher protection also available on special order).

* + 1. Single Hinged Flood Gate: With compression gasket; Presray Model CG11HA.

\*\* NOTE TO SPECIFIER \*\* Delete three of the following two paragraphs.

* + - 1. Frame: Provide anchors suitable for embedment in concrete.
      2. Frame: Provide epoxy anchors for mounting in new masonry block walls.
      3. Frame: Provide gaskets, bolts, and inserts for attachment to existing concrete or block.
      4. Frame:Provide frame ready for welding to steel structure.
      5. Opening: Rectangular, with square corners to facilitate easy passage.

\*\* NOTE TO SPECIFIER \*\* Delete two of the following three paragraphs.

* + - 1. Dimensions: As indicated on drawings.
      2. Dimensions: As scheduled.
      3. Dimensions: \_\_\_\_\_\_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* Delete two of the following three paragraphs.

* + - 1. Material: Structural steel.
      2. Material: Stainless steel.
      3. Material: Aluminum.
      4. Design and Fabrication: Machine edge coming in contact with door gasket. to maximize sealing.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs. Neoprene gaskets are standard. Viton gaskets are available as an option.

* + - 1. Gaskets: Neoprene.
      2. Gaskets: Viton.
      3. Hinges: Manufacturer's Type PRS804, with stainless steel hinge pins, stainless steel mounting bolts, and slotted hinge blades to protect hinges from pressure load; provide lower hinge with bronze oil-impregnated thrust bearing.
      4. Compression Handles: Manufacturer's Type PRS831 with stainless steel rollers and provisions for adjusting seal compression after installation.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs.

* + - * 1. Provide handles on one side of opening.
        2. Provide handles on both sides of opening.

\*\* NOTE TO SPECIFIER \*\* Paragraph below is optional.

* + - 1. Sill: Provide removable sill.

\*\* NOTE TO SPECIFIER \*\* This type of barrier is suitable for wide openings where installation equipment is not available and a moderate degree of leakage can be accommodated. Heavy-duty compression gaskets afford reasonable protection with minimum maintenance. The design features a flat threshold.

* + 1. Stop Log System: Presray Model CGSL.
       1. Stop Logs: Manufacturer's standard aluminum channels.
       2. Conversion Frame: Jambs of low carbon steel, aluminum sills.

\*\* NOTE TO SPECIFIER \*\* Delete two of the following three paragraphs.

* + - * 1. Frame Anchors: Provide mounting holes for expansion anchors and bolts.
        2. Frame Anchors:Provide anchors suitable for embedment in concrete.
        3. Frame Anchors: Provide epoxy anchors for mounting in new masonry block walls.

\*\* NOTE TO SPECIFIER \*\* Delete two of the following three paragraphs.

* + - 1. Dimensions: As indicated on drawings.
      2. Dimensions: As scheduled.
      3. Dimensions: \_\_\_\_\_\_\_\_\_\_.
      4. Gaskets: Presray PR18085 low compression set gaskets mechanically retained in stop logs; PR17496 low compression set gaskets on jambs.
      5. Protection: Provide aluminum covers for jambs to protect jamb gaskets when stop logs are not in place.
  1. FABRICATION
     1. Welding: Comply with applicable provisions of AWI D1.1.
     2. Prepare surfaces that will be in contact with inflatable seals to finish level of 63 mils (1.587 mm) to maximize efficiency of sealing.

1. EXECUTION
   1. EXAMINATION
      1. Do not begin installation until substrates have been properly prepared.
      2. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
   2. PREPARATION
      1. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
   3. INSTALLATION
      1. Install in accordance with manufacturer's instructions and approved shop drawings.
   4. PROTECTION
      1. Protect installed products until completion of project.
      2. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION