

SECTION 01 10 00
SUMMARY

PART 1 GENERAL

1.1 PROJECT

- A. Project Name: City Island Library Building Renovation for Flood Mitigation.
Project Address: City Island Library
105 East Magnolia Avenue
Daytona Beach, Florida 32114
- B. Owner's Name: Volusia County.
Contact: Laura E. Laser, AIA, Senior Architect
Volusia County Engineering & Construction
123 West Indiana Ave, Room 402, Deland, Florida 32720
- C. Architect: Bentley Architect + Engineers, Inc.
Contact: Gary Kranston, R.A.
651 W. Warren Avenue, Suite 200
Longwood, FL 32750
- D. The Project consists of the alteration of the perimeter of the existing library to provide and install pedestrian flood doors and frames, permanent glass flood barriers (storefront system), and a waterproof epoxy coating with a paint topcoat.

1.2 THE SCOPE OF WORK AND TECHNICAL SPECIFICATIONS DESCRIPTION:

- A. Scope of work is summarized below and further detailed on drawings:
 - 1. SECTION 02 41 00 DEMOLITION: Selective demolition and Removal of existing storefront assemblies, doors, and frames and preparation of rough openings for installation of new pedestrian flood doors/ frames and alum/ glass permanent flood barriers. Salvage, Removal and replacement of access control devices. Selective Demolition of walls, ceilings and flooring as required to accommodate new construction. . Installation of new walls, ceilings and flooring where removed or damaged in the installation of new pedestrian flood doors, aluminum/ glass permanent flood barriers and related appurtenances. Salvage, removal and replacement of exterior wall mounted signage, overhead coiling doors and related appurtenances to accommodate waterproofing and exterior painting.
 - 2. SECTION 03 30 00 CAST IN PLACE CONCRETE: Repair of precast concrete panels, reinforced concrete masonry walls and related appurtenances damaged by selective demolition construction work. Formed concrete as may be required to prepare rough openings for new pedestrian flood doors and alum/ glass flood barriers.
 - 3. SECTION 07 16 13 EPOXY WATERPROOFER: Clear two-part 100% solids, thermo setting, self-curing epoxy coating with sand texture finish. Coating shall harden to a ceramic like, clear, non-porous waterproof film for use on exterior concrete, precast concrete, stucco, metal, and similar surfaces. Provide and install epoxy water proofing at all exterior walls of the library. Height of coating is from grade to the underside of blue reveal where occurs and underside of soffits where occur. See plans.

4. SECTION 07 9100 JOINT SEALANTS: Sealants and caulks around perimeter of all existing door frames, windows, louvers, wall penetrations and related appurtenances. Sealant and caulks at new pedestrian flood door frames and new aluminum/ glass flood barriers. Replacement of existing joint sealants and caulks where disturbed by new construction.
5. SECTION 08 39 18 PERMANENT GLASS FLOOD BARRIERS: Aluminum-Framed Storefront Flood Mitigating Entrances for exterior storefront locations as indicated on drawings. Flood barrier system Engineering required to meet the specified flood requirements is included as part of this section. Contractor shall provide and install new door hardware. Contractor also shall provide rewire/ reconnection/relocation of access control devices to the new permanent glass flood barriers.
6. SECTION 08 39 21 PEDESTRIAN FLOOD DOORS AND FRAMES: Single Swing and Paired Swing with removable mullion Pedestrian Flood Doors with Frames for use at exterior door locations as indicated on drawings. Flood barrier system Engineering required to meet the specified flood requirements is included as part of this section. Contractor shall provide and install new door hardware Contractor also shall provide and install rewire/ reconnection/relocation of access control devices to the new pedestrian flood doors and frames.
7. SECTION 09 05 61 GYPSUM BOARD ASSEMBLIES: Provide and install new finished gypsum board walls where damaged during window and door replacement work and relocation of existing access control devices, wiring and related appurtenances. Drywall finish to match existing adjacent finish.
8. SECTION 09 24 00 CEMENT PLASTERING: Stucco materials for repair of walls damaged during window and door replacement work. Match adjacent stucco finish.
9. SECTION 09 51 00 SUSPENDED ACOUSTICAL TILE CEILINGS SYSTEMS: Replace ceiling tiles, grid and suspensions disturbed by new construction with new ceiling tiles, grid and suspensions to match existing.
10. SECTION 09 91 13 EXTERIOR PAINTING: Exterior painting over epoxy waterproofing.
11. SECTION 09 91 13 INTERIOR PAINTING: Interior painting of new and repaired walls surrounding new and relocated construction to match adjacent wall surfaces finish and color.

B. DESCRIPTION OF ALTERNATES

1. Alternates are described below:
 - a. Refer to drawings for alternates.

1.3 OWNER OCCUPANCY

- A. Volusia County intends to continue to occupy portions of the existing building during the entire construction period.
- B. Cooperate with Volusia County to minimize conflict and to facilitate Volusia County's operations.
- C. Schedule the Work to accommodate Volusia County occupancy.

- D. Provide and install temporary barriers to separate the public from construction areas. Provide and install chain link fencing of construction site. Provide and install temporary demising walls and temporary way finding signage inside the library to separate the public from construction areas and maintain access to emergency exits. Provide and install temporary covers over demolished openings for security and weather protection of the library.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 60 00
SUBSTITUTION PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Procedural requirements for proposed substitutions.

1.2 DEFINITIONS

- A. Substitutions: Changes from Contract Documents requirements proposed by Contractor to materials, products, assemblies, and equipment.
 - 1. Substitutions for Cause: Proposed due to changed Project circumstances beyond Contractor's control.
 - a. Unavailability.
 - b. Regulatory changes.
 - 2. Substitutions for Convenience: Proposed due to possibility of offering substantial advantage to the Project.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

- A. A Substitution Request for products, assemblies, materials, and equipment constitutes a representation that the submitter:
 - 1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product, equipment, assembly, or system.
 - 2. Agrees to provide the same warranty for the substitution as for the specified product.
 - 3. Agrees to coordinate installation and make changes to other work that may be required for the work to be complete, with no additional cost to Volusia County .
 - 4. Waives claims for additional costs or time extension that may subsequently become apparent.
- B. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents. Burden of proof is on proposer.
 - 1. Note explicitly any non-compliant characteristics.
- C. Content: Include information necessary for tracking the status of each Substitution Request, and information necessary to provide an actionable response.
 - 1. No specific form is required. Contractor's Substitution Request documentation must include the following:
 - a. Project Information:
 - b. Substitution Request Information:
 - 1) Discrete and consecutive Substitution Request number, and descriptive subject/title.
 - 2) Indication of whether the substitution is for cause or convenience.
 - 3) Issue date.
 - 4) Reference to particular Contract Document(s) specification section number, title, and article/paragraph(s).

- 5) Description of Substitution.
 - 6) Differences between proposed substitution and specified item.
 - 7) Description of how proposed substitution affects other parts of work.
 - c. Attached Comparative Data: Provide point-by-point, side-by-side comparison addressing essential attributes specified, as appropriate and relevant for the item:
 - d. Impact of Substitution:
- D. Limit each request to a single proposed substitution item.
- 1. Submit an electronic document, combining the request form with supporting data into single document.
- 3.2 SUBSTITUTION PROCEDURES DURING PROCUREMENT
- A. Instructions to Bidders specifies time restrictions for submitting requests for substitutions during the bidding period, and the documents required.
 - B. Products: Products specified are basis of design only. The deadline for Contractor's requests for substitution is the last day of bidder questions.
- 3.3 SUBSTITUTION PROCEDURES DURING CONSTRUCTION
- A. Submit request for Substitution for Convenience immediately upon discovery of its potential advantage to the project, but not later than 14 days prior to time required for review and approval by Bentley Architect + Engineers, Inc., in order to stay on approved project schedule.
 - 1. Document means of coordinating of substitution item with other portions of the work, including work by affected subcontractors.
 - B. Substitutions will not be considered under one or more of the following circumstances:
 - 1. When they are indicated or implied on shop drawing or product data submittals, without having received prior approval.
 - 2. Without a separate written request.
- 3.4 RESOLUTION
- A. Bentley Architect + Engineers, Inc. may request additional information and documentation prior to rendering a decision. Provide this data in an expeditious manner.
 - B. Bentley Architect + Engineers, Inc. will notify Contractor in writing of decision to accept or reject request.
- 3.5 ACCEPTANCE
- A. Accepted substitutions change the work of the Project. They will be documented and incorporated into work of the project by Change Order, Construction Change Directive, Architectural Supplementary Instructions, or similar instruments provided for in the Conditions of the Contract.

END OF SECTION

SECTION 07 16 13
EPOXY WATERPROOFER

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Epoxy Waterproofing
- B. Preparation of surfaces to be waterproofed, including plugging active water leaks.

1.2 REFERENCE STANDARDS

- A. COE CRD-C 48 - Method of Test for Water Permeability of Concrete; 1992.
- B. ASTM C881
- C. ASTM C882
- D. ASTM C883
- E. ASTM C884
- F. ASTM C900
- G. ASTM D570
- H. ASTM D1259

1.3 SUBMITTALS

- A. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Test data showing hydraulic permeability.
 - 2. Preparation instructions and recommendations.
 - 3. Storage and handling requirements and recommendations.
 - 4. Installation methods.
 - 5. Details for waterproofing at joints, intersections, and other special conditions.
- B. Specimen warranty.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacture of products of the type specified.
- B. Installer Qualifications: Acceptable to manufacturer, with documented experience on at least five projects of similar nature within last five years.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Take necessary precautions to keep cementitious materials dry.

1.6 FIELD CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results; do not install products under environmental conditions outside manufacturer's absolute limits.

1.7 WARRANTY

- A. Provide installer's warranty agreeing to correct leaking waterproofing for two years from Date of Substantial Completion, unless leakage is caused by structural failure, movement of the structure, or other causes beyond the installer's control.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Epoxy Waterproofing:
 - 1. Basis of Design: Chargar Corporation; Chargar.com

2.2 APPLICATIONS

- A. Waterproofing for Building Surfaces:
 - 1. Outside of walls.
 - 2. Surfaces indicated on drawings.

2.3 MATERIALS

- A. Epoxy Waterproofer Hot Weather Formula: Heavy bodied thermo setting, self curing, 2 part epoxy resin that forms a clear non-porous, impermeable film that seals porous surfaces, voids, and cracks.
- B. Clean washed 1/4 or 00 sand as recommended by the manufacturer for use in the final wet coat.
- C. Used for:
 - 1. Foundations
 - 2. Precast concrete
 - 3. Balconies and Decks
 - 4. Submerged concrete units
 - 5. Metal or Concrete
- D. TECHNICAL DATA:
 - 1. Percent epoxy resin: 100%
 - 2. Working pot life at 90F: 12-50 minutes
 - 3. Shrinkage: none
 - 4. 24 hour cube compression test: 11,000 psi
 - 5. 7 day compression test: 16,300 psi
 - 6. Tack free time at 90F: 24 hours
 - 7. Final cure at 90F: 5-7 days
 - 8. Color: clear
 - 9. Mixing ratio: 2 parts of resin A to 1 part of activator part B
- E. **COVERAGE RATES**
 - 1. Smooth concrete surfaces: 100 sq. ft per gallon unit
 - 2. Rough concrete surfaces: 80 sq. ft per gallon unit
 - 3. Concrete block: 80 sq. ft per gallon unit
 - 4. Cement plaster: 100 sq. ft per gallon unit
 - 5. Metal surfaces: 100 sq. ft per gallon unit

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Bentley Architect + Engineers, Inc. of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using methods recommended by manufacturer for achieving best result for substrate under project conditions, and use sand blasting as recommended.
- C. Dry out wet surfaces.
- D. Patch holes, construction joints, and cracks; remove defective concrete.
- E. Obtain approval of manufacturer's field representative before beginning installation.

3.3 INSTALLATION

- A. Install in strict accordance with manufacturer's instructions, maintain environmental conditions required and recommended by manufacturer, and keep a copy of manufacturer's instructions on site.
- B. Coordinate installation with installation of products that must penetrate waterproofed surfaces.
- C. Brush or roller apply free of pinholes or voids.
- D. Apply in 2 coats with second coat applied 18-36 hours following the first coat.
 - 1. Second coat can be applied after the first coat has dried to a fingernail like hardness.
- E. Broadcast clean washed sand into the final wet coat in a heavy manner to the wet Epoxy Waterproofer, and allow to cure.
- F. Prevent excessive drying of surface.
 - 1. Cure waterproofing for at least three days, or length of time required by manufacturer, with water spray and adequate air circulation.
 - 2. Do not use chemical curing agents unless explicitly approved by waterproofing manufacturer.

3.4 PROTECTION

- A. Protect from damage by weather; do not cover with impermeable (plastic) sheeting unless air circulation is provided.
- B. Touch-up, repair or replace damaged waterproofing after Date of Substantial Completion.

END OF SECTION

SECTION 08 39 18
PERMANENT GLASS FLOOD BARRIERS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. This Section includes the following:
 - 1. Permanent glass flood barriers
 - 2. Exterior entrance systems.
 - 3. Exterior storefront systems.
 - 4. Engineered Flood Barriers
 - 5. Door Hardware

1.2 Related sections include the following:

- A. Division 7 Section "Joint Sealants" for joint sealants installed as part of glazed aluminum entrances and storefront system.'

1.3 SYSTEM DESCRIPTION

- A. General: Provide (4) four sided structural glazed aluminum FLOOD GLASS system that has the following capabilities based on testing manufacturer's standard units in assemblies similar to those indicated for this project:
 - 1. Withstands loads, thermal and structural movement requirements indicated without failure.
 - a. Air infiltration and water penetration exceeding specified limits.
 - b. Framing members transferring stresses, including those caused by thermal and structural movement, to glazing units.
 - c. Provide operable window as indicted on drawings above the flood barrier elevation for emergency egress during a flood event.
- B. Flood Loads for flood glazing must meet those expressed by FEMA Technical Bulletin 3-93 and P-936, for Non -Residential flood Protection and must be manufactured to US ARMY Corps Of Engineers 'Flood Proofing Regulations' to meet performance for Type 2 Closures as identified in Chapter 7, Section 701.1.1 and ASCE 7-20.
- C. System must be able to be reglazed from the exterior.
- D. Wind Loads: Provide glazed aluminum entrances and storefronts system, including anchorage, capable of withstanding wind-load design pressures calculated according to requirements of authorities having jurisdiction, and the American Society of Civil Engineers' ASCE 7-20, "Minimum Design Loads for Buildings and Other Structures," 6.4.2, "Analytical Procedure, " and the Current Edition of the Florida Building Code, whichever are more stringent.
 - 1. Design wind velocity at the project site is 153 MPH (3 sec gust) per Risk Category IV..
 - 2. Deflection of framing members in a direction normal to wall plain is limited to 1/175 of clear span or 3/4 inches, whichever is smaller, unless otherwise indicated.
 - 3. Deflection of framing members in a direction normal to wall plane is limited to 1/360 of clear span, 3/4 inches maximum, where plaster or gypsum board are subject to bending.

4. Deflection of framing members overhanging an anchor point is limited to 2 times the length of the cantilevered member, divided by 175.
- E. Dead Loads: Provide glazed aluminum entrances and storefronts system members that do not deflect an amount, which will reduce glazing bite below 75 percent of design dimension when carrying full dead load. Provide a minimum 1/8-inch clearance between members and top of fixed panels, glazing or other fixed part immediately below. Provide a minimum 1/16-inch clearance between members and operable windows and doors.
- F. Live Loads: Provide structural glazed aluminum entrances and storefronts system, including anchorage, that accommodates supporting structure's deflection from uniformly distributed and concentrated live loads indicated without failure of materials or permanent deformation.
- G. Air Infiltration: Provide glazed aluminum entrances and storefronts system with permanent resistance to air leakage through system of not more than 0.06 cfm/sq.ft. Have fixed wall area when tested according to ASTM E 283 at a static-air-pressure difference of 6.24 lbf/sq.ft.
- H. Water Penetration: Provide glazed aluminum entrances and storefronts system that does not evidence water leakage when tested according to ASTM E 331 at minimum differential pressure of 25 percent of inward acting wind-load design pressure as defined by ASCE 7, "Minimum Design Loads for Buildings and other structures," but not less than 10 lbf/sq.ft.
- I. Thermal Movements: Provide glazed aluminum entrances and storefronts system, including anchorage, that accommodates thermal movements of system and supporting elements resulting from the following maximum change (range) in ambient and surface temperatures without buckling, damaging stresses on glazing, failure of joint sealants, damaging loads on fasteners, noise or vibration and other detrimental effects.
 1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.
- J. Structural Support Movement: Provide glazed aluminum entrances and storefronts system that accommodates structural movements including, but not limited to, sway, twist, column shortening, long-term creep, and deflection.
- K. Condensation Resistance Factor (CRF): Provide glazed aluminum entrances and storefront system with (CRF) of not less than 55 when tested according to AAMA 1503.1
- L. Average Thermal Conductance: Provide glazed aluminum entrances and storefronts system with an average U-value of not more than 0.66 Btu/sq.ft. x h x deg F when tested according to AAMA 1503.1
- M. Dimensional Tolerances: Provide glazed aluminum entrances and storefronts system, including anchorage that accommodates dimensional tolerances of building frame and other adjacent construction.

1.4 TESTING AND PERFORMANCE REQUIREMENTS

- A. Provide Permanent Glass Flood Barrier System and application that is structurally sound, impact resistance and weather tight conforming to applicable testing and performance requirements described herein.

- B. Flood Loads for flood barriers must meet those expressed by FEMA Technical Bulletin 3-93 and P-936, for Non -Residential flood Protection and must be manufactured to US ARMY Corps Of Engineers 'Flood Proofing Regulations' to meet performance for Type 2 Closures as identified in Chapter 7, Section 701.1.1 and ASCE 7-20.
1. Test in accordance with, AND Provide PE Certified test results showing compliance with FEMA 3-93 and FEMA P-936.
 2. Hydrostatic water depth minimum 60 inches of water with 2 GPH max. seepage.
 3. Dynamic Debris Impact Test of 1,000 pound object moving at a speed of 8 FPS. NO GLASS Breakage allowed on impact section of glass during the above Testing.
 4. Building Specific Flood Loads:
 - a. Wind Speed: Risk Catagory IV 153 MPH (3-sec gust)
 - b. Controlling Grade adjacent to structure: 3.6 NAVD88
 - c. Still Water Level: 3.7 NAVD88
 - d. Sea Level Rise Allowance: 2.4 Ft
 - e. Total Design Still Water Level: 6.1 NACD88
 - f. Total Design Still Water Flood Depth: 2.5 Ft.
 - g. Fully reflected wave Crest Elevevation on Structure based on 100-year MRI site Wave Height: 9.1 NAVD88:
 - h. Hydrodynamic Breaking Wave load applied to the building at the total design still water level of 6.1 ft NAVD88: 2,192 lb/lf
 - i. High Velocity Hydrodynamic Load applied to the building at the total design still water level of 6.1 ft NAVD88:40 psf
 - j. Floating Debris Impact Load striking the building at the total design still water level of 6.1 ft NAVD88: 675 psf
- C. Provide certification for compliance with the Current Edition of the Florida Building Code.
- D. Test Units: All tests, unless otherwise noted, shall conform to the impact, static, cyclic, air and water testes as set forth by SBCCI and the Miami-Dade County Building Code Compliance, and/or Florida Building Code Approval.
- E. Test Procedure and performance:
1. Storefront system shall conform to criteria for conducting impact, static, cyclic air and water tests set forth by the SBCCI and the Miami-Dade County Building Code Compliance Office.
 2. Impact Test - PA 201-94 and 1-3023.2
 - a. Missile Impact storefront system with a solid S4S nominal 2 x 4, #2 surface dry, Southern Pine of not less than 8'-6' in length and 9 lbs in weight at a velocity between 50 and 52 ft/sec. Without defined specimen failure.
 3. Cycle Wind Pressure Loading Test - PA203-94 and 302.4 - 302.7.3
 - a. Apply loads to the specimen using the cycles specified in The South Florida Building Code and as in Table 1 of SSTD 12-97 without failure.
 - b. Specified Design Pressure (DP) should not be less than 90 psf.

1.5 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Site Specific Engineering, per FEMA Bulletin 3-93, signed and sealed by a Professional Engineer licensed in the state in which the work is being performed.
- C. Materials Impact testing, certified by an accredited testing laboratory acceptable to the Architect.
- D. D. Test in accordance with FEMA 3-93 and FEMA P-936, AND Provide PE Certified test results showing compliance with for Glass strength and floating debris impact test simulating use of a 1,000 log.
- E. Product Data for each product specified, including details of construction relative to materials, dimensions of components, profiles, silicone strength tests, and finishes.
- F. Detailed Shop Drawings showing fabrication and installation of glazed aluminum entrances and storefront system including plans, elevations, sections, details of components, and attachments to other units of Work.
 - 1. For installed products indicated to comply with certain design loadings, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
 - 2. Samples for initial selection in the form of manufacturer's standard sizes. Where finishes involve normal color and texture variations, include Sample sets showing the full range of variations expected.
- G. Samples for verification of each type of exposed finish required in manufacturer's standard sizes. Where finishes involve normal color and texture variations expected.
- H. Cutaway sample of each vertical-to-horizontal intersection of system, made from 12-inch lengths of full-size components and showing details of the following:
 - 1. Joinery
 - 2. Anchorage
 - 3. Expansion provisions
 - 4. Glazing
 - 5. Flashing and drainage
- I. Welder Certificates indicating that welders comply with requirements specified in "Quality Assurance" Article.
- J. Installer certificates signed by installer certifying that installer comply with requirements in "Quality Assurance" Article.
- K. Manufacturer must submit Product Test Reports from a qualified independent engineering firm evidencing compliance of glazed aluminum entrances and storefront system with requirements based on comprehensive testing of manufacturer's current system.

1.6 QUALITY ASSURANCE

- A. Manufacturer must have 5 years minimum experience manufacturing the Store Front / Curtainwall Permanent Glass Flood Barriers and be able to submit evidence of this to the architects satisfaction.

- B. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in the jurisdiction where project is located and who has a minimum of 5 years experience in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of flood glazed aluminum entrances and storefront systems that are similar to those indicated for this Project in material, design, and extent.
1. Engineering Responsibility: Engage a qualified professional engineer to prepare or supervise the preparation of data for glazed aluminum entrances and storefront systems, including drawings, testing program development, test-result interpretation, and comprehensive engineering analysis that shows systems' compliance with specified requirements.
- C. Installer Qualifications: Engage an experienced installer to assume responsibility and perform work of this Section with a minimum of 5 years experience in installing glazed aluminum storefront / curtainwall systems designed specifically for flood protection similar to those required for this Project and who is acceptable to manufacturer.
- D. Source Limitations: Obtain each type of glazed aluminum entrances and storefront system from one source and by a single manufacturer.
- E. Product Options: Drawings indicate size, profiles, and dimensions of glazed aluminum entrances and Permanent Glass Flood Barrier System and are based on the specific systems indicated.
1. Project's basis of design is Savannah Flood Protection, Inc, Permanent Glass Flood Barrier System with Perimeter blow-in protection devices.
 2. Do not modify intended aesthetic effects, as judged solely by architect, except with Architect's written approval and only to the extent needed to comply with performance requirements. Where modifications are proposed, submit comprehensive explanatory data to architect for review. Architect's determination is final.
- F. Welding Standards: Comply with applicable provisions of AWS D1.2, "Structural Welding Code-Aluminum."
1. Engage welders who have satisfactorily passed AWS qualification tests for welding processes involved and who are currently certified for these processes.
- G. Mockups: Prior to installing glazed aluminum entrances and storefront system, construct mockups for each form of construction and finish required to verify selections made under Sample submittals and to demonstrate aesthetic as well as qualities of materials and execution. Build mockups to comply with the following requirements, using materials indicated for work.
1. Locate mockups on-site in the location and of the size indicated or, if not indicated, as directed by Architect.
 2. Notify Architect 7 days in advance of the dates and times when mockups will be constructed.
 3. Demonstrate the proposed range of aesthetic effects and workmanship.
 4. Obtain Architect's approval of mockups before start of work.
 5. Retain and maintain mockups during construction in an undisturbed condition as a standard for judging the completed work.

- a. Approved mockups in an undisturbed condition at the time of Substantial Completion may become part of the completed work.
- H. Pre-installation Conference: Conduct conference at Project site.
 - 1. Comply with requirements of Division 1 Section "Project Meetings."

1.7 PROJECT CONDITIONS

- A. Field Measurements: Verify dimensions by field measurements before fabrication and show recorded measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
 - 1. Where field measurements cannot be made without delaying the work, General Contractor shall guarantee dimensions to the manufacturer, and fabrication shall proceed without field measurements. Coordinate construction to ensure that actual dimensions correspond to guarantee dimensions.

1.8 WARRANTY

- A. General Warranty: The special warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.
- B. Special Warranty: Submit a written warranty executed by the manufacturer and installer, agreeing to repair or replace components of a glazed aluminum entrances and storefront system that fail in materials or workmanship within the specified warranty period. Failures include, but are not limited to, the following:
 - 1. Structural failures including, but not limited to, excessive deflection
 - 2. Failure of system to meet performance requirements.
 - 3. Deterioration of meals, metal finishes, and other materials beyond normal weathering.
 - a. Include provision for replacement of units with excessive fading, chalking, or flaking.
 - 4. Glazing breakage.
 - 5. Delamination.
 - 6. Warranty Period: 5 years from date of Substantial Completion.

PART 2 PRODUCTS

2.1 MANUFACTURERS / INSTALLERS

- A. Basis of Design Manufacturer: Savannah Trims, Inc. phone 888-640-0850.
 - 1. Subject to compliance with requirements, design intent and these specifications, other manufacturers will be considered for these specifications subject to submission of all testing requirements and Laboratory Certification, and subject to specification section 01 60 00.
- B. Installer must have a minimum of 5 years of field experience installing designed flood glazing and must be approved by the manufacturer.

2.2 MATERIALS

- A. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated, complying with the requirements of standards indicated below.

1. Sheet and plate: ASTM B 209
 2. Extruded Bars, Rods, Shapes, and tubes: ASTM B 221.
 3. Extruded Structural Pipe and Tubes: ASTM B 429.
 4. Welding Rods and Bare Electrodes: AWS A5.10.
- B. Steel Reinforcement: ASTM A 36 for structural shapes, plates, and bars; ASTM A 611 for cold-rolled sheet and strip; or ASTM A 570 for hot-rolled sheet and strip.
1. Provide only where required by manufacturer to meet engineering requirements.
 2. Back paint concealed metal surfaces and surfaces in contact with dissimilar metals with protective backing paint to a minimum dry film thickness of 15 mil.
- C. Glass: Shall be tinted 'Flood Glass', manufactured to the specifications of Savannah Flood Protection consisting of two layers of 1/4 inch thick, heat - strengthened glass separated by a hi-bred laminated as specified by Savannah Flood Protection, that is designed to meet the performance specifications outlined in this specification.
1. Thermal and Optical Performance: Provide exterior glazing products with performance properties as indicated. Performance properties are in accordance with manufacturer's published data as determined with the following procedures and/or test methods:
 - a. Center of Glass U-Value: Comply with NFRC 100 using Lawrence Berkeley National Laboratory (LBNL) WINDOW 6.3 computer program.
 - b. Center of Glass Solar Heat Gain Coefficient (SHGC): Comply with NFRC 200 using Lawrence Berkeley National Laboratory (LBNL) WINDOW 6.3 computer program.
 - c. Solar Optical Properties: Comply with NFRC 300 test method.
- D. Glazing Gaskets: Manufacturer's standard sealed-corner pressure-glazing system of black, resilient elastomeric glazing gaskets, and shims or spacers; in hardness recommended by manufacturer.
- E. Glazing sealants and fillers as manufactured by Dow Corning specifically for this application.
- F. Framing system gaskets and joint fillers as recommended by Savannah Flood Protection, Inc.
- G. Sealants and joint fillers for joints within glazed aluminum entrances and storefront system as tested and approved by manufacturer.
- H. Firesafing materials as specified in Division 7 Section " Building Insulation."
- I. Bituminous Paint: Cold-applied asphalt-mastic paint complying with SSPC- Paint 12 requirements, except containing no asbestos, formulated for 30-mil thickness per coat.

2.3 COMPONENTS

- A. Storefront: Savannah Trims model CTC SG9 framing system with 9/16" laminated (outer lite) 1/2" IG glazing. - Coatings to be determined.
1. Provide swing out doors where indicated
 2. Provide operable window where indicated
 3. Provide sliding doors with removable flood panels where sliding doors are indicated.

- B. Doors: Provide manufacturer's standard 1 ¾ - inch - thick glazed doors with minimum 0.125 - inch - thick, extruded tubular rail and stile members. Mechanically fasten corners with reinforcing brackets that are deep penetration and fillet welded or that incorporate concealed tie-rods.
 - 1. Glazing stops and gaskets: Provide manufacturer's standard snap-on extruded-aluminum glazing stops and performed gaskets.
 - 2. Stile Design: Medium stiles: 3 ½ - inch nominal width, with 4 ½ - inch center rail.
- C. Brackets and Reinforcements: Provide manufacturers' standard high-strength aluminum brackets and reinforcements. Provide nonstaining, nonferrous shims for aligning system components.
- D. Fasteners and Accessories: Manufacturer's standard corrosion-proof, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials. Finish exposed portions to match glazed aluminum entrances and storefront.
 - 1. At movement joints, use slip-joint linings, spacers, and sleeves of material and type recommended by manufacturer.
 - 2. Where fasteners anchor into aluminum less than 0.125 inches thick, provide reinforcement to receive fastener threads.
 - 3. Use exposed fasteners with countersunk Phillips screw heads finished to match framing members, unless otherwise indicated.
- E. Anchors: 3-way adjustable anchors that accommodate fabrication and installation tolerances in materials and finish compatible with adjoining materials and recommended by manufacturer.
 - 1. Concrete and Masonry Inserts: Hot-dip galvanized cast-iron, malleable-iron, or steel inserts complying with ASTM A 123 or ASTM A 153 requirements.
 - 2. Back paint concealed metal surfaces and surfaces in contact with dissimilar metals with protective backing paint to a minimum dry film thickness of 15 mil.
- F. Concealed Flashing: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding flashing, compatible with adjacent materials, and of type recommended by manufacturer.
- G. Glass Units: 9/16" Laminated Glass.
 - 1. Glazing materials from Outboard Lite to Inboard Lite:
 - a. 1/4" Glass
 - b. .120 interlayer
 - c. 1/4" Glass
 - 2. Tint: Bronze Reflective #2.
 - 3. Thermal Transmittance (U-Value), Summer - Center of Glass: 0.85, nominal.
 - 4. Visible Light Transmittance (VLT): 24 percent, nominal.
 - 5. Shading Coefficient: 0.52, nominal.
 - 6. Solar Heat Gain Coefficient (SHGC): 0.45, nominal.
 - 7. Visible Light Reflectance, Outside: 11 percent, nominal.
- H. Weather Stripping: Manufacturers' standard replaceable weather stripping as follows:
 - 1. Compression Weather Stripping: Molded neoprene complying with ASTM D 2000 requirements or molded PVC complying with ASTM D 2287 requirements.

2. Sliding Weather Stripping: Wool , polypropylene, or nylon woven pile with nylon-fabric or aluminum-strip backing complying with AAMA 701 requirements.
- I. Hardware shall be manufacturers standard package for a complete installation,
1. Provide hardware required for the size and weight of the flood loads including but not limited to the following:
 - a. Swinging doors
 - 1) Hinges - continuous type.
 - 2) Standard Latching/Locking Hardware: Keyed cylinder - Schlage Primus. County standard
 - 3) ADA Panic/exit device
 - 4) Door pull
 - 5) Closer
 - 6) ADA Threshold
 - 7) Refer to drawings for new door bell, new alarm will sound lockset, existing card reader, or existing keypad, new push button exit device. Work associated with these devices shall include removal of existing devices and wiring and installation of new wiring as required. Factory prep door as required for existing and new devices to be installed.
 - b. Automatic Sliding Doors
 - 1) In the event of power failure, provide for manual open, close, and break-away operation of door leaves.
 - 2) Provide manufacturers standard Removable Aluminum Flood-Log System in front of automatic Sliding flood doors. See section 08 39 60.
 - 3) Sliding Automatic Door: Bi-parting double leaf track-mounted, electric operation, extruded aluminum glazed door, with frame, and operator concealed overhead.
 - (a) Operation: Power open, power boost operation.
 - (b) Exterior-Side Actuator/Safety: Motion sensor.
 - (c) Interior-Side Actuator/Safety: Motion sensor.
 - (d) Provide Latching/Locking Hardware: Keyed cylinder
 - 4) Controllers, actuators, and safeties
 - (a) Controller: Provide microprocessor operated controller for each door with latching/locking function.
 - (b) Comply with BHMA A156.10 for actuator and safety types and zones.
 - (c) Photo-Electric Actuator/Safety: Horizontal single ray device, with aluminum housing for light source and relay units.
 - (d) Disconnect Switch: Factory mount disconnect switch in control panel. Provide signage on door to turn off door controller during flood event.
 - c. Hardware finish to be selected by owner form manufacturer's standard finishes.
 - d. Factory install hardware to greatest extent feasible.

2.4 FABRICATION

- A. General: Fabricate glazed aluminum entrances and storefront systems according to shop Drawings. Fabricate components that, when assembled, will have accurately fitted joints with ends coped or mitered to produce hairline joints of burrs and distortion. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.
 - 1. Fabricate components for head - and sill-receptor frame construction with shear-block construction at intermediate horizontal components.
 - 2. Provide method(s) indicated above as standard with manufacturer for frame construction assemblies applicable to this Project.
- B. Forming: Form shapes with sharp profiles, straight and free of defects or deformations, before finishing.
- C. Prepare components to receive concealed fasteners and anchor and connection devices.
- D. Fabricate components to drain water-passing joints, condensation occurring in glazing channels, condensation occurring within framing members, and moisture migrating within the system to the exterior.
- E. Welding: Weld components to comply with referenced standard and Shop Drawings, unless otherwise indicated. Weld before finishing components. Weld in concealed locations to greatest extent possible to minimize distortion or discoloration of finish. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.
- F. Glazing Pockets: Provide minimum clearances for thickness and type of glass indicated.
- G. Metal Protection: Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surfaces finished paint, or by applying sealant or tape recommended by manufacturer for this purpose. Where aluminum will contact concrete or masonry, protect against corrosion by painting contact surfaces with zinc-chromate paint.
- H. Frame Units: Factory assemble frame units according to Shop Drawings to greatest extent possible. Rigidly secure nonmovement joints. Seal joints watertight, unless otherwise indicated. Assemble components to drain water passing joints, condensation occurring within framing members, and moisture migrating within the system to exterior.
- I. Install glazing in the manufacturers shop, prior to shipment and according to Shop Drawings.

2.5 ALUMINUM FINISHES

- A. General: Comply with NAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations relative to applying and designating finishes.
- B. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other

components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

- C. Class I, Dark Bronze Anodic Finish: AA- M12C22A41 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I clear coating 0.018mm or thicker) complying with AAMA 607.1.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine areas, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of glazed aluminum entrances and storefront system. Do not proceed with installation until unsatisfactory conditions have been corrected or accommodations acceptable to architect have been made.

3.2 INSTALLATION

- A. General: Install product in openings prepared by the General Contractor to accept this application of Permanent Glass Flood Barrier System.
 - 1. Start of installation shall signify acceptance of conditions.
- B. Comply with manufacturer's written instructions for protecting, handling, and installing glazed aluminum entrances and storefront system. Do not install damaged components. Fit joints to produce hairline joints free of burrs and distortion. Rigidly secure nonmovement joints. Seal joints watertight, unless otherwise indicated. Provide means to drain water to the exterior to produce a permanently weatherproof system.
- C. Perimeter of all openings must be protected against water pressure blow-in by manufacturers certified device as patented by Savannah Trims, Inc.
- D. Metal Protection: Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surfaces with primer or by applying sealant or tape recommended by manufacturer for this purpose. Where aluminum will contact concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.
- E. Install components to drain water-passing joints, condensation occurring in glazing channels, condensation occurring within framing members, and moisture migrating within the system to the exterior.
- F. Install framing members plumb and true in alignment with established lines and grades.
- G. Install factory-assembled frame units plumb and true alignment with established lines and grades.
- H. Anchorage: After system components are positioned, fix connections to build structure as indicated on Shop Drawings.
 - 1. Provide separators and isolators to prevent metal corrosion and electrolytic deterioration and to prevent impeding movement of moving joints.
- I. Welding: Weld components to comply with referenced standard and Shop Drawings, unless otherwise indicated. Weld in concealed locations to minimize distortion or discoloration of finish. Protect glazing surfaces from welding.
- J. Install glazing according to Shop Drawings.

- K. Install sealant according to Shop Drawings.
- L. Erection Tolerances: Install pre-glazed aluminum entrances and storefront to comply with the following maximum tolerances:
 - 1. Plumb: 1/8 inch in 10 feet; 1/4 inch in 40 feet.
 - 2. Level: 1/8 inch in 20 feet; 1/4 inch in 40 feet.
 - 3. Alignment: Where surfaces abut in line, limit offset from true alignment to 1/16 inch; where a reveal or protruding element separates aligned surfaces by less than 2 inches, limit offset to 1/2 inch.
 - 4. Location: Limit variation from plane or location shown on Shop Drawings to 1/8 inch in 12 feet; 1/2 inch over total length.
- M. Installer shall furnish certification, signed by an officer of the Company, certifying that all work is installed per the contract documents and the manufacturers shop drawings, and agreeing to the conditions and terms of the warranty.
- N. Installer shall maintain a daily work log for each day worked on the jobsite, noting manpower, installation progress, problems encountered and all other issues of note.
- O. Install entrances plumb and true in alignment with established lines and grades without warp or rack. Lubricate operating hardware and other moving parts according to hardware manufacturers' written instructions.
 - 1. Install surface-mounted hardware according to manufacturers' written instructions.

3.3 FIELD QUALITY CONTROL

- A. Field Testing:
 - 1. Test at least three permanent glass flood barrier locations selected by the counties project manager. If failure occurs test all permanent glass flood barriers installed as part of this project.
 - 2. Installer to construct temporary water barrier and test installed flood barrier under hydrostatic conditions.
 - 3. Hydrostatic Test-Field Procedure:
 - a. Ensure flood barrier is installed according to manufacturer's installation instructions and tolerances.
 - b. Construct a test enclosure apparatus to subject the wet-side of the flood barrier and adjacent installation interface to hydrostatic loading.
 - 1) Design the apparatus in a way to minimize the volume of water required to reach the water height required for the test.
 - 2) The apparatus can be constructed of various materials including wood, metal, sandbags, or other materials to support the water loading up to the desired water test level.
 - 3) Poly sheet, tapes, expanding foam, and seasonal sealant (removable) may assist in waterproofing the test apparatus.
 - c. Fill the test apparatus with water to the determined test level and no greater than the maximum design water protection height as specified by the manufacturer.
 - 1) The test will require water submersion above door hardware elevation, the sealed hardware compartment must be manually emptied of water

- after the test by removing the door hardware and siphoning, vacuuming, and air drying prior to re-installing door hardware.
- d. Commence test: With the test apparatus filled with water to the test level, remove all prior leakage on dryside of flood barrier and begin a timed 15 minute leakage collection test if leakage is present.
 - 1) Use a wet vacuum or other means to collect water leakage for a 15 minute interval and measure volume with a device capable of precision to the nearest ounce.
 - e. Calculate resulting leakage rate in terms of (Gallons)/(Minute)/(Feet of wetted perimeter).
 - 1) The wetted opening perimeter is defined as the length of the opening width plus two times the water depth.
 - 2) The formula for leakage rate is provided below:
 - f. $(\text{Gallons} / \text{Minute}) / \text{foot} = (\text{Ounces Leakage} / 128 \text{ oz. per gal}) \times (1/15 \text{ minutes}) \times (1/ \text{feet of wettted perimeter})$.
 - g. Determine if the calculated leakage rate is less than the predetermined allowable leakage rate.
 - 1) Document test results. If leakage exceeds the acceptable level adjust latching, remove debris, verify gaskets are sealing properly and retest.
4. PROTECTION
- a. General Contractor shall provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer that ensure that the Glass flood Barrier System, and the glazed aluminum entrances and storefront system is protected without damage or deterioration for the remainder of the project until the time of Substantial Completion.

END OF SECTION

SECTION 08 39 21

PEDESTRIAN FLOOD DOORS AND FRAMES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Single Swing and Paired Swing with removable mullion Pedestrian Flood Doors with Frames.
 - 2. Door Hardware.

1.2 SUBMITTALS

- A. 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 instructions.
- B. Shop Drawings: Provide shop drawings showing layout, profiles, and product components, including anchorage, hardware, and finishes. Include dimensional plans, applicable material specifications, elevations and sections detailing mounting and connections, and load diagrams.
- C. Calculations: Upon signed finalization and approval of dimensions, mounting location material and configuration, and load requirements;
 - 1. Submit stamped calculations by a registered professional engineer from within the state or territory where the project will be constructed or substantially improved, to verify the flood door's ability to withstand the design loading.

1.3 CLOSEOUT SUBMITTALS

- A. Provide Operation and Maintenance data to include methods for maintaining installed products, precautions against cleaning materials and methods detrimental to finishes and performance.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer must demonstrate a minimum of five (5) years successful experience in design and manufacture of similar flood related closures. Upon request, provide supporting evidence including list of installations, descriptions, name and method of contact.
- B. Minimum Qualifications: Manufacturer must demonstrate compliance and certification of a Quality Management System administered by the International Organization for Standardization (ISO). Documentation of current certification status to be provided upon request.
- C. Welder Qualifications: Welders Certified in accordance with American Welding Society Procedures for applicable material used in production of specified product.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging container with identification markings intact until ready for installation.
- B. Protect materials from exposure to moisture during storage.

- C. Store materials in a dry, warm, ventilated weathertight location. If outdoor storage is required, block materials to store at an incline, to prevent pooling of any moisture and promote runoff. Tarp materials in a tent-like arrangement, elevated above the product with open sides to allow airflow. Store loose or high value components in a dry, controlled environment.
- D. Use caution when unloading and handling product to avoid bending, denting, crushing, or other damage to the product.
- E. When using forklifts, use forks of proper length to fully support product being moved. Consult "Approved for Construction" drawings or consult with factory for proper lift points.

1.6 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's indicated limits.

1.7 COORDINATION

- A. Conduct site survey and provide to flood door manufacturer, prior to manufacturer's commencement of shop drawings, the actual site conditions of the mounting location, to include; material type, dimensions and configuration, interferences with mounting surface, or any other condition that may impact the ability of the flood door to be properly installed.
- B. Coordinate work with other operations and installation of adjacent materials to avoid damage.

1.8 WARRANTY

- A. Manufacturer's Warranty: Product to be free from defects in material and workmanship for a period of five (5) years from date of substantial completion.
 - 1. Warranty shall include degradation of metal finish and failure of watertightness or seals.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Design flood resistance doors to support, solely or in combinations of, temporary super-imposed live loads as indicated below. All applied types of flood related loadings are transferred from the flood product barriers, solely or in combinations of, by mullion anchorage to structural floor slabs and/or jamb anchorage and direct pressure contact to structural walls or other structural elements.
 - 1. Hydrostatic Loading
 - a. Building Specific Hydrostatic water depth minimum 60 inches of water with 2 GPH max. seepage.
 - 2. Hydrodynamic Loading
 - a. Building Specific High Velocity Hydrodynamic Load applied to the building at the total design still water level of 6.1 ft NAVD88:40 psf
 - 3. Debris Impact Loading

- a. Building Specific Floating Debris Impact Load striking the building at the total design still water level of 6.1 ft NAVD88: 675 psf
- 4. Wave Loading (Impact/ Breaking Wave - Below & Above DFE)
 - a. Building Specific Hydrodynamic Breaking Wave load applied to the building at the total design still water level of 6.1 ft NAVD88: 2,192 lb/lf
- 5. Wind Loading
 - a. Design wind velocity at the project site is 153 MPH (3 sec gust) per Risk Category IV.
- 6. Building Specific Flood Loads:
 - a. Wind Speed: Risk Category IV 153 MPH (3-sec gust)
 - b. Controlling Grade adjacent to structure: 3.6 NAVD88
 - c. Still Water Level: 3.7 NAVD88
 - d. Sea Level Rise Allowance: 2.4 Ft
 - e. Total Design Still Water Level: 6.1 NAVD88
 - f. Total Design Still Water Flood Depth: 2.5 Ft.
 - g. Fully reflected wave Crest Elevation on Structure based on 100-year MRI site Wave Height: 9.1 NAVD88:
 - h. Hydrodynamic Breaking Wave load applied to the building at the total design still water level of 6.1 ft NAVD88: 2,192 lb/lf
 - i. High Velocity Hydrodynamic Load applied to the building at the total design still water level of 6.1 ft NAVD88: 40 psf
 - j. Floating Debris Impact Load striking the building at the total design still water level of 6.1 ft NAVD88: 675 psf
- 7.

B. Engineer Code Practices: Engineer flood products to conform to the design requirements that are based on the latest adopted edition of the International Building Code (IBC). LFRD and/or ASD methodologies are applied as appropriate to align with specific project specifications and/or limited published material data.

C. Water Density: 64 pcf, unless otherwise noted on drawings.

2.2 PEDESTRIAN FLOOD DOOR WITH FRAME

A. Description: Hinged, Pedestrian Flood Door including door frame, door panel, threshold, and door hardware.

- 1. Basis of Design Manufacturer: PS Flood Barriers™, which is located at: 1150 S. 48th Street, Grand Forks, ND 58201; Toll Free Tel: 877.446.1519; Email: 4info@psindustries.com; Web: www.psfloodbarriers.com or www.psindustries.com
 - a. Basis of Design Product: Model: PD 520.

B. Substitutions:

- 1. Requests for substitutions will be considered in accordance with provisions of Section 016000.

C. Single Source Responsibilities: Obtain all watertight doors and flood protection barriers from single manufacturer.

2.3 EQUIPMENT

A. Products Details:

1. Sealing Requirements: Flood Door and compression gasket design shall provide an effective barrier against short-term high water situations, to the protection level indicated on drawings.
2. Operation: Provide with latching operable from both sides.
3. Mounting/Load Transfer: Anchor to existing structure. Flood Door designed for specified hydrostatic pressure (and other loads as specified) and will transfer loads to adjacent structure.
4. Frames to be anchored utilizing mechanical, chemical or other framing methods as designed. Manufacturer to include all anchors, water-stop, and sealants, as designed.
5. Loading Direction:
 - a. Positive Pressure Loading, (direction of loading against flood door so as to further compress gaskets against flood door frame - "seating").
6. Provide rectangular door opening with square corners to facilitate easy passage.
7. Provide compression gasket which do not require air inflation.

2.4 MATERIALS

A. Flood Door to be fabricated from the following type of material;

1. Stainless Steel: primed and painted structural or formed shapes, tubing, and bars of appropriate size and strength with welded construction.

B. Door Panel to be sheeted with sheeting or plate of the following type;

1. Stainless Steel: primed and painted of appropriate size and strength, structurally bonded.

C. Gaskets: Factory mounted, compressible rubber type, field replaceable. Gasket does not require air inflation.

1. Material: UV resistant EPDM, neoprene and rubber unless otherwise noted.

D. Door Frame to be manufactured of the same material type and finish as door panel. Frame to include jambs, header jamb, and threshold members for field locating and installation on structure. Jamb members to be designed and fabricated with appropriate material as required for the loading.

E. Thresholds to be PS Flood Barriers™ proprietary threshold:

F. Frame Mounting Hardware: Provide anchors, sealant, and water stop, as required.

G. Operating Hardware: Provide hardware appropriate for the size and weight of the flood door and loads. Hardware to be factory located on jambs and door panels, as practical. Latching hardware to be as indicated below. Flood door panel to be factory prepared for applicable latching devices.

1. Aluminum (AL689 finish) Hinge to be continuous type.
 - a. Back paint concealed metal surfaces and surfaces in contact with dissimilar metals with protective backing paint to a minimum dry film thickness of 15 mil.

2. Standard Latching/Locking Hardware: Interior: Von Duprin 98/99 series Rim exit device. Exterior: Von Duprin 996L Lever, classroom function (verify function with owner during shop drawings submittal phase).
 - a. (Note: this hardware has been specifically chosen and tested on the PD-520, substitutions require manufacturer's engineering review.)
 3. Deadbolt latch (Elevation above max design water height only).
 - a. Schlage Primus. County standard
 4. Closer; Retrolock RDC4000 H-CUSH, Heavy Duty Grade 1 (AL689 finish)
 5. Refer to drawings for new door bell, new alarm will sound lockset, existing card reader, or existing keypad, new push button exit device. Work associated with these devices shall include removal of existing devices and wiring and installation of new wiring as required. Factory prep door as required for existing and new devices to be installed.
 6. Hardware finish to be selected by owner from manufacturer's standard finishes.
- H. Finish:
1. Steel Shop Finish: Apply the following paint system in accordance with manufacturer recommendations and instructions;
 - a. Finish: Two shop coats of Standard Industrial Enamel (S-W Industrial and Marine Coatings B54 Series)
- I. Labeling: Each watertight door and frame will be individually identified for matched installation.

2.5 FABRICATION

- A. Fit and factory assemble items in largest practical sections, for shipment to site.
- B. Fabricate items with joints tightly fitted and secured.
- C. Supply components required for anchorage of fabrications, unless otherwise noted.
- D. Conduct shop operational test with factory installed gaskets to verify flood door assembly components operate as designed and flood protective gasket alignment and contact surfaces interact as intended.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until mounting substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another subcontractor, notify Architect of uncompleted preparation before proceeding.
- C. Inspect opening for compliance with door manufacturer requirements. Verify open conditions are within required tolerances.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

- A. Install in accordance with manufacturer's installation instructions, "Approved for Construction" drawings, shipping, handling, and storage instructions, and product carton instructions for installation.
- B. Frames must be installed level, square, plumb, and rigid.
- C. Perform light or chalk test for gasket alignment, continuity contact and pre-compression prior to field grouting.
- D. Sealants, water-stop, and grouting to be applied per product application directions and in accordance with manufacturer's instructions, and "Approved for Construction" drawings.
- E. Field Grouting to be completed by appropriate personnel, and in accordance with product application directions, manufacturer's instructions, and "Approved for Construction" drawings.
- F. Tolerances: All dimensional requirements must be in accordance with manufacturer's installation instructions and "Approved for Construction" drawings.
- G. Products to be operated and field verified that sealing surfaces maintain contact at the correct sealing points.
- H. Inspect gaskets for damage, wear, and adhesion. Replace compromised gaskets immediately.
- I. Verify that latching assemblies operate freely and correctly.
- J. Verify all anchorage is in accordance with manufacture's installation instructions and applicable data sheets.
- K. Inspect installation sealants to ensure a watertight juncture.

3.4 FIELD QUALITY CONTROL

- A. Field Testing:
 - 1. Test at least three pedestrian flood door locations selected by the counties project manager. If failure occurs test all pedestrian flood doors installed as part of this project.
 - 2. Installer to construct temporary water barrier and test installed flood barrier under hydrostatic conditions.
 - 3. Hydrostatic Test-Field Procedure:
 - a. Ensure flood barrier is installed according to manufacturer's installation instructions and tolerances.
 - b. Construct a test enclosure apparatus to subject the wet-side of the flood barrier and adjacent installation interface to hydrostatic loading.
 - 1) Design the apparatus in a way to minimize the volume of water required to reach the water height required for the test.
 - 2) The apparatus can be constructed of various materials including wood, metal, sandbags, or other materials to support the water loading up to the desired water test level.
 - 3) Poly sheet, tapes, expanding foam, and seasonal sealant (removable) may assist in waterproofing the test apparatus.

- c. Fill the test apparatus with water to the determined test level and no greater than the maximum design water protection height as specified by the manufacturer.
 - 1) The test will require water submersion above door hardware elevation, the sealed hardware compartment must be manually emptied of water after the test by removing the door hardware and siphoning, vacuuming, and air drying prior to re-installing door hardware.
- d. Commence test: With the test apparatus filled with water to the test level, remove all prior leakage on dryside of flood barrier and begin a timed 15 minute leakage collection test if leakage is present.
 - 1) Use a wet vacuum or other means to collect water leakage for a 15 minute interval and measure volume with a device capable of precision to the nearest ounce.
- e. Calculate resulting leakage rate in terms of (Gallons)/(Minute)/(Feet of wetted perimeter).
 - 1) The wetted opening perimeter is defined as the length of the opening width plus two times the water depth.
 - 2) The formula for leakage rate is provided below:
- f. $(\text{Gallons} / \text{Minute}) / \text{foot} = (\text{Ounces Leakage} / 128 \text{ oz. per gal}) \times (1/15 \text{ minutes}) \times (1/ \text{feet of wettted perimeter})$.
- g. Determine if the calculated leakage rate is less than the predetermined allowable leakage rate.
 - 1) Document test results. If leakage exceeds the acceptable level adjust latching, remove debris, verify gaskets are sealing properly and retest.

3.5 CLEANING

- A. Touch-up, repair or replace damaged products or components before Substantial Completion.
- B. Clean all sealing surfaces.

3.6 PROTECTION

- A. Protect installed products until completion of project.

END OF SECTION

SECTION 08 39 60

REMOVABLE ALUMINUM FLOOD-LOG SYSTEM

PART 1 GENERAL

1.1 WORK INCLUDED

- A. Product engineering and fabrication techniques, shop drawings, structural calculations and Professional Engineering Stamps, State of project location in accordance with the FEMA design manual requirements for Non-Residential Flood proofing.
- B. Factory fabrication of aluminum flood barriers.
- C. Finish of flood barrier assembly.
- D. Provide at automatic sliding door locations

1.2 REFERENCES

- A. FEMA Technical Bulletin 3-93 / FEMA P-936 Non-Residential Flood proofing
- B. FEMA Flood Proofing Non-Residential Structures #102
- C. FEMA Design Manual for Retrofitting Flood-Prone Residential Structures #114
- D. American Architectural Manufacturers Association (AAMA) 501, 603.8, 605.2, 607.1
- E. NFIP Title 44 US Code of Federal Regulations, Section 60.3
- F. US Army Corps of Engineers 'Flood Proofing Regulations'.
 - 1. Type 2 Closures in Chapter 7, Section 702.2.1
- G. ASCE/SEI 7-10 / ASCE - 24 Dry Flood proofing

1.3 QUALITY ASSURANCE

- A. Important: Building contractor shall see to it that all surfaces to receive Flood Barriers shall be "paper smooth", plumb, true and level before installing.
- B. Provide for a Flood Barrier-Log type application that is structurally sound, impact resistant and conforming to applicable performance requirements described herein.
- C. Except as otherwise indicated, requirements for aluminum flood barriers, terminology, tolerances, standards of performance and workmanship are those specified as Type 2 Closures in Chapter 7, Section 702.2.1 of the US Army Corps of Engineers 'Flood Proofing Regulations'.
- D. These Type 2 Flood Closures/Barriers will allow 'Slight Seepage' during hydrodynamic and hydrostatic pressure flood conditions. Seepage amounts will vary with conditions encountered. This issue should be addressed by the design professional and usage of sump or bilge type pumps should be used to off set potential water build-up.
- E. Base Flood Elevation (BFE) and Building Sub Elevations shall be furnished to Barrier Manufacturer by the Architect or Engineer of Record.
- F. All Barrier heights shall be finished to 12" above BFE.

1.4 PERFORMANCE REQUIREMENTS

- A. Design Criteria

1. Assembly shall conform to the requirements for A and AE Zones as set by the NFIP.
- B. Performance
1. Hydrostatic Pressure Resistance - Flood Barriers shall conform to the criteria for resisting lateral forces due to hydrostatic pressure from Freestanding Water as set forth by FEMA Technical Bulletin 3-93 / FEMA P-936
 2. Hydrodynamic Force Resistance - Flood Barriers shall conform to the criteria for resisting lateral forces due to moving flood waters at a minimum Velocity of 8 Feet per second, unless otherwise noted, as set forth by FEMA Technical Bulletin 3-93 / FEMA P-936
 3. Debris Impact Force Resistance - Flood Barriers shall conform to the criteria for resisting a 1000 pound object at minimum Velocity of 8 Feet per second unless otherwise noted, as prescribed by FEMA Technical Bulletin 3-93 / FEMA P-936
 4. Building Specific Flood Loads:
 - a. Wind Speed: Risk Category IV 153 MPH (3-sec gust)
 - b. Controlling Grade adjacent to structure: 3.6 NAVD88
 - c. Still Water Level: 3.7 NAVD88
 - d. Sea Level Rise Allowance: 2.4 Ft
 - e. Total Design Still Water Level: 6.1 NACD88
 - f. Total Design Still Water Flood Depth: 2.5 Ft.
 - g. Fully reflected wave Crest Elevation on Structure based on 100-year MRI site Wave Height: 9.1 NAVD88:
 - h. Hydrodynamic Breaking Wave load applied to the building at the total design still water level of 6.1 ft NAVD88: 2,192 lb/lf
 - i. High Velocity Hydrodynamic Load applied to the building at the total design still water level of 6.1 ft NAVD88: 40 psf
 - j. Floating Debris Impact Load striking the building at the total design still water level of 6.1 ft NAVD88: 675 psf
- C. Manufacturing Criteria
1. Requirements for aluminum flood barriers, terminology, tolerances, standards of performance and workmanship are those specified as Type 2 Closures in Chapter 7, Section 702.2.1 of the US Army Corps of Engineers 'Flood Proofing Regulations'.
 2. Manufacturer shall have 5 years history and experience in this product line.
- D. Egress
1. Provide for a fully removable system including all frame, sill and jamb assembly members. Permanent sub-frame assemblies shall not be permissible.
- E. Seepage
1. Requirements for aluminum flood barriers, terminology, tolerances, standards of performance and workmanship are those specified as Type 2 Closures in Chapter 7, Section 702.2.1 of the US Army Corps of Engineers 'Flood Proofing Regulations'. These Type 2 Flood Closures/Barriers will allow 'Slight Seepage' during hydrodynamic and hydrostatic pressure flood conditions. Seepage amounts will vary with conditions encountered. This issue should be addressed by the

design professional and usage of sump or bilge type pumps should be used to off set potential water seepage and accumulation..

1.5 SUBMITTALS

A. Shop Drawings

1. Submit scaled shop drawings including all conditions of construction, location diagrams including identification of and spacing of anchorage, framing members, joinery and sealant details.

B. Structural Calculations

1. Provide structural calculations by a licensed structural engineer, P.E. State of New York, demonstrating flood panels structural compatibility with project requirements on a site-specific basis, per FEMA Technical Bulletin 3-93

C. Samples

1. Submit (4) 6” lengths of aluminum extrusions if requested by A/E..

D. Warranties

1. Provide manufacturer’s standard 1 year warranty in accordance with the contract documents.
2. Provide 1 year installation warranty.

1.6 WARRANTY

- A. Stating that flood barriers for above project will be free from defects and workmanship for a period of five (3) years from date of substantial completion.

PART 2 PRODUCTS

2.1 MATERIALS

A. Basis of Design:

1. Savannah Flood Protection, Inc.
3567 91st Street North
Suite 4
Lake Park, FL 33403
(toll free) 888-640-0850
2. Subject to compliance with requirements, design intent and these specifications, other manufacturers will be considered for these specifications subject to submission of all testing requirements and Laboratory Certification, a minimum of 10 calendar days prior to the project bid date.

B. Aluminum

1. Extruded aluminum structural frame members, support angles and mullions shall be 6063-T6 alloy and temper and not be less than .125” wall thickness.
2. Extruded aluminum brace plates shall be 6063-T6 alloy and temper and not be less than .125” wall thickness.

C. Finishes on all components shall be “Mill Finish”.

D. Gaskets

1. All gaskets shall be a dense 20 / 25 durometer neoprene rubber or equal.

E. Fasteners

1. All anchor bolts to be galvanized steel in conformance with ASTM A-307 or 304
2. Series Stainless Steel, Minimum 3/8-16 inch threads.

F. Sealants

1. Use only sealants that are compatible with all substrates and field applied in accordance with the manufacturer's recommendations.

2.2 FABRICATION

- A. Fabricate flood barriers to comply with requirements indicated for design, dimensions, materials joinery, and performance.
- B. Assemble flood barriers at manufacturer's factory where feasible. Assemble in the largest possible sections according to job site conditions and clearly mark units for reassembly assuring a coordinated installation.
- C. Fabricate frames including integral sills to fit in openings of size indicated with allowances made for fabrication and installation tolerances of barriers, adjoining construction and perimeter rubber gasket joints.
- D. Supports, anchorages and accompanying accessories required complete assembly to be supplied by installing contractor.

2.3 REMOVABLE ALUMINUM FLOOD-LOG SYSTEM

- A. Removable Flood-Log System and Frames are to be designed to restrain the force of water and debris by means of structural tubular and cladding members in a compression set against a smooth substrate utilizing rubber gasket seals in either an inset or face mounted application.
 1. Flood barriers shall be specifically engineered and designed to meet a minimum safety factor based on yield strength to provide for an effective seal against site specific and specified flood forces.
 2. Attachment anchors to be permanent drop-in threaded type, to accommodate repeatable put up and take down as required for mitigation.
 3. Building Contractor shall provide for onsite storage of removable flood barrier system for quick access.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Very Important: Building contractor shall see to it that all surfaces to receive Flood Barriers shall be "paper smooth", plumb, true and level before installation can begin.
- B. After verification of field conditions and properly prepared openings, install flood barriers in strict accordance with approved submittal drawings.
- C. Attach only to smooth surfaces providing for proper and compatible infill for gaps in substrate.
- D. Existing slabs and walls adjacent to openings where flood barriers are to be installed shall be given a water proof sealer surface treatment prior to installation of flood barriers by the building contractor.
- E. Protect all dissimilar metals with a heavy coat of zinc chromate or bituminous paint.
- F. Install true and plumb without warping or racking.

- G. Apply appropriate sealants where indicated on shop drawings and in accordance with manufacturers recommendations.
- H. Flood shield installer shall install barriers one time, for fitting and anchoring. Installer shall uninstall, and building contractor shall then move barriers to storage location or as directed by architect or owner's representative.

3.2 CLEANING, PROTECTION AND STORAGE

- A. Clean all exposed surfaces and remove all labels from barriers.
- B. Building contractor shall move all flood barrier components to location as designated, and shall store in such a manner as to protect the sealing gaskets from any damage.

3.3 CONTINUING MAINTENANCE AND INSTALLATION PROGRAM

- A. Building contractor shall make the owner and users familiar with installation techniques and storage and handling procedures.
- B. Owner shall be aware of, and execute, an annual flood barrier system inspection program, and installations drill so that the users become familiar with the product and installation procedures. Records of inspections and drills shall be kept and drills shall always be available for inspections by local authorities.
- C. Inspect and repair all neoprene seals for optimum performance.

END OF SECTION

SECTION 09 24 00
PORTLAND CEMENT PLASTERING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Note: This section is intended for repair of damaged stucco materials at new door and window locations.
- B. Portland cement plaster for installation over masonry and concrete.

1.2 RELATED REQUIREMENTS

- A. Section 09 91 13 - Exterior Painting.

1.3 REFERENCE STANDARDS

- A. ASTM C91/C91M - Standard Specification for Masonry Cement; 2012.
- B. ASTM C150/C150M - Standard Specification for Portland Cement; 2018.
- C. ASTM C206 - Standard Specification for Finishing Hydrated Lime; 2014.
- D. ASTM C926 - Standard Specification for Application of Portland Cement-Based Plaster; 2015b.

1.4 SUBMITTALS

- A. Product Data: Provide data on plaster materials, characteristics and limitations of products specified.

1.5 QUALITY ASSURANCE

- A. Perform Work in accordance with ASTM C 926.
 - 1. Maintain one copy on site.

PART 2 PRODUCTS

2.1 PORTLAND CEMENT PLASTER ASSEMBLIES

- A. Exterior Stucco: Portland cement plaster system, made of finish, brown, and scratch coat and reinforcing mesh.

2.2 PLASTER MATERIALS

- A. Portland Cement, Aggregates, and Other Materials: In accordance with ASTM C 926.
- B. Portland Cement: ASTM C150/C150M, Type I.
 - 1. For finish coat: Gray color.
- C. Masonry Cement: ASTM C91 Type N.
- D. Lime: ASTM C 206, Type S.
- E. Aggregate: In accordance with ASTM C 926.
- F. Water: Clean, fresh, potable and free of mineral or organic matter that could adversely affect plaster.

2.3 PLASTER MIXES

- A. Over Solid Bases: Two-coat application, mixed and proportioned in accordance with ASTM C926.

- B. Mix only as much plaster as can be used prior to initial set.
- C. Mix materials dry, to uniform color and consistency, before adding water.
- D. Protect mixtures from freezing, frost, contamination, and excessive evaporation.
- E. Do not retemper mixes after initial set has occurred.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify the suitability of existing conditions before starting work.
- B. Masonry: Verify joints are cut flush and surface is ready to receive work of this section. Verify no bituminous or water repellent coatings exist on masonry surface.

3.2 PREPARATION

- A. Dampen masonry surfaces to reduce excessive suction.
- B. Clean concrete surfaces of foreign matter. Clean surfaces using acid solutions, solvents, or detergents. Wash surfaces with clean water.
- C. Roughen smooth concrete surfaces and apply bonding agent in accordance with manufacturer's instructions.

3.3 PLASTERING

- A. Apply plaster in accordance with ASTM C926.
- B. Three-Coat Application Over Solid Bases:
 - 1. Apply first coat to a nominal thickness of 1/4 inch.
 - 2. Apply second coat to a nominal thickness of 1/4 inch.
 - 3. Apply finish coat to a nominal thickness of 1/8 inch.
- C. Moist cure base coats.
- D. Apply second coat immediately following initial set of first coat.
- E. After curing, dampen previous coat prior to applying finish coat.
- F. Finish Texture: Float to a consistent and smooth finish for all trims
- G. Finish Texture: Match existing adjacent materials..
- H. Avoid excessive working of surface. Delay troweling as long as possible to avoid drawing excess fines to surface.
- I. Moist cure finish coat for minimum period of 48 hours.

3.4 TOLERANCES

- A. Maximum Variation from True Flatness: 1/8 inch in 10 feet.

END OF SECTION

SECTION 09 65 00
RESILIENT FLOORING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Resilient sheet flooring.
- B. Resilient tile flooring.
- C. Resilient base.
- D. Transition strip
- E. Installation accessories.

1.2 REFERENCE STANDARDS

- A. ASTM F1861 - Standard Specification for Resilient Wall Base; 2008 (Reapproved 2012).
- B. ASTM F1913 - Standard Specification for Vinyl Sheet Floor Covering Without Backing; 2004 (Reapproved 2014).

1.3 SUBMITTALS

- A. Product Data: Provide data on specified products, describing physical and performance characteristics; including sizes, patterns and colors available; and installation instructions.
- B. Verification Samples: Submit two samples, 2 by 2 inch in size illustrating color and pattern for each resilient flooring product specified.
- C. Certification: Prior to installation of flooring, submit written certification by flooring manufacturer and adhesive manufacturer that condition of sub-floor is acceptable.
- D. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning, stripping, and re-waxing.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Upon receipt, immediately remove any shrink-wrap and check materials for damage and the correct style, color, quantity and run numbers.
- B. Store all materials off of the floor in an acclimatized, weather-tight space.
- C. Maintain temperature in storage area between 55 degrees F and 90 degrees F.
- D. Protect roll materials from damage by storing on end.

1.5 FIELD CONDITIONS

- A. Maintain temperature in storage area between 55 degrees F and 90 degrees F.
- B. Store materials for not less than 48 hours prior to installation in area of installation at a temperature of 70 degrees F to achieve temperature stability. Thereafter, maintain conditions above 55 degrees F.

PART 2 PRODUCTS

2.1 SHEET FLOORING

- A. Vinyl Sheet Flooring: Homogeneous without backing, with color and pattern throughout full thickness.
 - 1. Minimum Requirements: Comply with ASTM F1913.
 - 2. Thickness: 0.080 inch nominal.
 - 3. Sheet Width: 72 inch minimum.
 - 4. Seams: Chemically bonded using seam sealer.
 - 5. Color: Refer to drawings for existing floor colors to match at each door location.

2.2 RESILIENT BASE

- A. Resilient Base: ASTM F1861, Type TP, rubber, thermoplastic; top set Style A, Straight.
 - 1. Height: 4 inch
 - 2. Thickness: 0.125 inch.
 - 3. Finish: Satin.
 - 4. Length: Roll.
 - 5. Color: to match existing base.
 - 6. Accessories: Premolded external corners and internal corners.

2.3 ACCESSORIES

- A. Primers, Adhesives, and Seam Sealer: Waterproof; types recommended by flooring manufacturer.
- B. Moldings, Transition and Edge Strips: Same material as flooring.
 - 1. Transition strip:
 - 2. Resilient to carpet adaptor: color to match adjacent resilient flooring.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that surfaces are flat to tolerances acceptable to flooring manufacturer, free of cracks that might telegraph through flooring, clean, dry, and free of curing compounds, surface hardeners, and other chemicals that might interfere with bonding of flooring to substrate.
- B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive resilient base.
- C. Cementitious Subfloor Surfaces: Verify that substrates are ready for resilient flooring installation by testing for moisture and alkalinity (pH).
 - 1. Obtain instructions if test results are not within limits recommended by resilient flooring manufacturer and adhesive materials manufacturer.

3.2 PREPARATION

- A. Prepare floor substrates as recommended by flooring and adhesive manufacturers.
- B. Remove subfloor ridges and bumps. Fill minor low spots, cracks, joints, holes, and other defects with subfloor filler to achieve smooth, flat, hard surface.

- C. Prohibit traffic until filler is fully cured.
 - D. Clean substrate.
- 3.3 Installation - General
- A. Starting installation constitutes acceptance of sub-floor conditions.
 - B. Install in accordance with manufacturer's written instructions.
 - C. Adhesive-Applied Installation:
 - 1. Fit joints and butt seams tightly.
 - 2. Set flooring in place, press with heavy roller to attain full adhesion.
 - D. Install transition strips at unprotected or exposed edges, where flooring terminates, and where indicated.
 - 1. Resilient Strips: Attach to substrate using adhesive.
 - E. Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.
- 3.4 Installation - Sheet Flooring
- A. Lay flooring with joints and seams parallel to longer room dimensions, to produce minimum number of seams. Lay out seams to avoid widths less than 1/3 of roll width; match patterns at seams.
 - B. Chemically bond seams using seam sealer where indicated.
- 3.5 Installation - Resilient Base
- A. Fit joints tightly and make vertical. Maintain minimum dimension of 18 inches between joints.
 - B. Miter internal corners. At external corners, 'V' cut back of base strip to 2/3 of its thickness and fold. At exposed ends, use premolded units.
 - C. Install base on solid backing. Bond tightly to wall and floor surfaces.
 - D. Scribe and fit to door frames and other interruptions.
- 3.6 CLEANING
- A. Remove excess adhesive from floor, base, and wall surfaces without damage.
 - B. Clean in accordance with manufacturer's written instructions.
- 3.7 PROTECTION
- A. Prohibit traffic on resilient flooring for 48 hours after installation.

END OF SECTION