

## SECTION 08390 WATERTIGHT DOORS

### Part 1. GENERAL

#### 1.1 SECTION INCLUDES

- A. Flood Plank

#### 1.2 RELATED SECTIONS

- A. Section 03300 - Cast-In-Place Concrete.
- B. Section 04810 - Unit Masonry Assemblies.
- C. Section 05120 - Structural Steel.

#### 1.3 REFERENCES

- A. ASTM A 36 - Standard Specification for Carbon Structural Steel.
- B. ASTM B 209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
- C. ASTM B 211 - Standard Specification for Aluminum and Aluminum-Alloy Bar, Rod, and Wire.
- D. Aluminum Association - Specification for Aluminum Structures, 7th Edition.
- E. ASME Structural Welding Code Section IX.
- F. FEMA Technical Bulletin 3-93 - Non-Residential Flood Proofing.
- G. SEI/ASCE 7-02 - Minimum Design Loads for Buildings and Other Structures.
- H. AWS D1.2 - Structural Welding Code - Aluminum.
- I. Aluminum Structures - A Guide to Their Specifications and Design.
- J. U.S. Army Corps of Engineers, EP 1165-2-314 - Flood Proofing Regulations, 15 December 1995.

#### 1.4 DESIGN / PERFORMANCE REQUIREMENTS

- A. Design watertight planks to perform under hydrostatic loads (and hydrodynamic or other loads as specified) to control short-term load pressures indicated. All water pressure loads and operating loads are transferred to the building structure.
- B. Standard loading: Standard Flood Planks are designed for hydrostatic loading, and have no additional allowances included for hydrodynamic loads, wave loads or debris impact loads.

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## 1.5 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. 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.
- C. 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.
- D. Calculations: Submit calculations approved by a qualified engineer, to verify the flood plank's ability to withstand the design loading.
- E. Closeout Submittals: Provide Operation and Maintenance data to include methods for maintaining installed products, precautions against cleaning materials and methods detrimental to finishes and performance.

## 1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer must demonstrate a minimum of five 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. Welder Qualifications: Welders Certified in accordance with American Welding Society Procedures: AWS-1-GMAW-S, WPS No. B2.004.90 for applicable material used in production of specified product.

## 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging container with identification labels intact until ready for installation.
- B. Protect materials from exposure to moisture.
- 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 all other hardware 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 shop drawings or consult with factory for proper lift points.

## 1.8 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 absolute limits.

## 1.9 COORDINATION

- A. Coordinate Work with other operations and installation of adjacent materials to avoid damage.

## Part 2. PRODUCTS

### 2.1 MANUFACTURERS

- A. Acceptable Manufacturer: PS DOORS, which is located at: 1150 S. 48th Street, Grand Forks, ND 58201; Toll Free Tel: 887-446-1519; Tel: 701-746-4519; Fax: 701-746-8340; Email: [4psinfo@psdoors.com](mailto:4psinfo@psdoors.com); Web: [www.psfloodbarriers.com](http://www.psfloodbarriers.com) or [www.psddoors.com](http://www.psddoors.com)
- B. Substitutions: Not permitted.
- C. Obtain all watertight doors and flood plank assemblies from single manufacturer.

### 2.2 EQUIPMENT

- A. Watertight Doors: Provide the following doors:
  - (1) Flood Plank: PS DOORS Model FP-530
- B. Products Details:
  - (1) Sealing Requirements: Flood Plank and gasket design shall provide an effective plank against short-term high water situations, to the protection level indicated on Drawings.
  - (2) Operation: Provide with latching operable from one side only (typical).
  - (3) Mounting/Load Transfer: Anchor to existing structure. Flood Plank designed for specified hydrostatic pressure (and other loads as specified) and will transfer loads to adjacent structure.
  - (4) Frames to be cast-in-place or anchored utilizing mechanical, chemical or other anchor types as designed. Manufacturer to include all anchors, water-stop, and sealants, as designed.
  - (5) Loading Direction Selection:
    - a) Standard: Positive Pressure Loading: (Direction of loading against flood plank so as to further compress gaskets against flood plank frame-"seating").
    - b) Optional: Reverse Pressure Loading: (Direction of loading against flood plank so as to force the flood plank away from the flood plank frame-"unseating").
  - (6) Provide rectangular door opening with square corners to facilitate easy passage.
  - (7) Provide compression gasket which requires no inflation.

### 2.3 MATERIALS

- A. Flood Plank:
  - (1) Aluminum Alloy (6061)
- B. Gaskets to be factory mounted to flood plank assembly. Gaskets to be compressible rubber type, typically EPDM unless otherwise noted, and to be field replaceable.

- C. Frame to include jamb and sill members for field locating and installation on structure. Jamb members to be designed and fabricated with appropriate material as required for the loading.
  - (1) Aluminum of appropriate size and strength with welded or mechanical fastened construction.
- D. Sill:
  - (1) Stainless Steel (304)
  - (2) Mild Carbon Steel – powder coated
- E. Frame Mounting Hardware: Provide anchors, sealant, and water stop, as required.
- F. Operating Hardware: Provide hardware sized for the size and weight of the flood plank and loads. Hardware to be factory located on jambs and plank panels, as practical. All loads are transferred to building structure. Latching hardware to be as indicated on Drawings. Flood plank panel to be factory prepared for applicable latching devices.
- G. Aluminum products to be mill finish, welds are ground smooth, not polished, and are factory acid washed, neutralized and rinsed.
- H. Labeling. Each watertight plank and frame will be individually identified for matched installation.
- I. Instruction Placard: Provide pictorial and written operation instruction placards on flood plank.

## 2.4 FABRICATION

- A. Fit and shop assemble items in largest practical sections, for delivery to site.
- B. Fabricate items with joints tightly fitted and secured.
- C. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

## 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 Architect of unsatisfactory preparation before proceeding.

### 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.

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### 3.3 INSTALLATION

- A. Install in accordance with manufacturer's installations instructions, approved shop drawings, shipping, handling, and storage instructions, and product carton instructions for installation.
- B. Frames shall be installed level, square, plumb, and rigid.
- C. Sealants, water-stop, and grouting to be applied per product application directions and in accordance with manufacturer's instructions.
- D. Field Grouting to be completed by appropriate personnel, and in accordance with product application directions and manufacturer's instructions.
- E. Tolerances: All dimensional requirements must be in accordance with manufacturer's installation instructions and shop drawings.
- F. Field Testing:
  - (1) Perform visual dry test for gasket alignment, continuity contact and pre-compression.
  - (2) Construct temporary water barrier and test installed flood plank.

### 3.4 FIELD QUALITY CONTROL

- A. Products to be operated and field verified including the sealing surfaces to assure that they maintain contact at the correct sealing points.
- B. Verify that latching assemblies operate freely and correctly.
- C. Verify all anchorage is in accordance with manufacture's installation instructions and applicable data sheets.

### 3.5 CLEANING

- A. Repair or replace damaged installed products or components.
- B. Clean all sealing surfaces.
- C. Touch up damaged finish.

### 3.6 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION