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SECTION 10 71 19

FLOOD BARRIERS

Note to Specifier This specification contains component and configuration options. Where indicated, choose the appropriate choice for your specific project requirements.

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Self-Closing Flood Barriers with Frame.
2. Panel Hardware.

B. Related Sections:

1. Division 03 – Cast-In-Place Concrete.
2. Division 04 – Concrete Unit Masonry
3. Division 05 – Structural Steel Framing.

1.2 SUBMITTALS

A. 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.

1. Contractor to provide manufacturer with field measurements and mounting structure prior to commencement of shop drawings.

C. Calculations: Upon signed finalization and approval of dimensions, mounting location material and configuration, and load requirements;

Note to Specifier Choose one (1) of the following statements.

1. Engineering calculations are not required for this barrier.

PS Access Solutions® PS Safety Access® PS Flood Barriers® PS Public Protection®

2. Submit calculations approved by a qualified engineer, to verify the flood barrier's ability to withstand the design loading.
3. 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 barrier 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 Standard Warranty: Product to be free from defects in material and workmanship for a period of one (1) year from date of shipment.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Design flood resistance barriers 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, jamb anchorage and direct pressure contact to structural walls or other structural elements.

Note to Specifier Delete any loading types that do not apply.

1. Hydrostatic Loading
2. Hydrodynamic Loading
3. Debris Impact Loading
4. Wave Loading (Dynamic/ Non-Breaking or Broken Wave)
5. Wave Loading (Impact/ Breaking Wave – Below & Above DFE)
6. Wind Loading

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 alignwith specific project specifications and/or limited published material data.

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

2.2 SELF-CLOSING FLOOD BARRIER WITH FRAME

A. Description: Self-Closing, Flood Barrier including jambs, panel, basin, and/or hardware.

1. Approved Manufacturer: PS Flood Barriers®, which is located at: 1150 S. 48th Street, Grand Forks, ND 58201; Toll Free Tel: 877.446.1519; Email: 4psinfo@psindustries.com; Web: www.psfloodbarriers.com or www.psindustries.com

a. Basis of Design Product: Model: SCFB-570.

B. Substitutions: Not permitted.

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

2.3 EQUIPMENT

A. Products Details:

1. Sealing Requirements: Flood Barrier 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 one side only (typical).
3. Mounting/Load Transfer: Anchor to existing structure. Flood Barrier 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:

Note to Specifier Choose one (1) of the following materials.

a. Positive Pressure Loading, (direction of loading against flood barrier so as to further compress gaskets against flood barrier frame - "seating").
b. Reverse Pressure Loading, (direction of loading against flood barrier so as to force the flood barrier away from the flood barrier frame - "unseating").

6. Provide rectangular, rough opening with square corners to facilitate easy passage.
7. Provide continuous, compression gasket which does not require air inflation.

2.4 MATERIALS

A. Exposed sheet metal of barrier panel and frame to be formed of the following material type;

Note to Specifier Choose one (1) of the following materials.

1. Steel: Commercial quality, low carbon steel of appropriate size and strength, welded and structurally bonded.

2. Stainless Steel: Type 316- **[No. 2b] [No. 4] [No. 6]** stainless steel of appropriate size and strength, welded and structurally bonded.
3. Aluminum: 6063 alloy conforming to ASTM B 209.

B. Flood panel internal structure to be structural tubes, plates, and formed shapes of the following material type;

Note to Specifier Choose one (1) of the following materials.

1. Steel: Commercial quality, low carbon steel of appropriate size and strength with welded construction.
2. Stainless Steel Type 304 or 316: stainless steel of appropriate size and strength with welded construction.
3. Aluminum: 6063 alloy conforming to ASTM B 211.

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

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

D. Frame to be manufactured of the same material type and finish as barrier panel. Frame to include jambs, and/or sill members for field locating and installation on structure. Jamb members to be designed and fabricated with appropriate material as required for the loading.

E. Threshold:

1. Steel: Commercial quality, low carbon steel of appropriate size and strength with welded construction.
2. Stainless Steel Type 304 or 316: stainless steel of appropriate size and strength with welded construction.
3. Aluminum: 6063 alloy conforming to ASTM B 26.
4. Aluminum: 6061 alloy conforming to ASTM B 209.

F. Basin:

Note to Specifier Choose one (1) of the following.

1. Steel: Commercial quality, low carbon steel of appropriate size and strength, welded and structurally bonded.
   a. Steel Shop Finish: Apply Powder Coat Finish in accordance with manufacturer recommendations and instructions.
2. Stainless Steel: Type 316- **[No. 2b] [No. 4] [No. 6]** stainless steel of appropriate size and strength, welded and structurally bonded.
3. Aluminum: 6063 alloy conforming to ASTM B 209.

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

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

I. Finish:

1. Steel Shop Finish: Apply the following paint system in accordance with manufacturer recommendations and instructions;

a. Topcoat Finish: One (1) shop coat of manufacturer's standard shop primer (S-W DTM Epoxy Primer) with one (1) shop coat of manufacturer's standard two-component polyurethane (S-W Genesis® Lustral™ Single Stage System – LST3).

Note to Specifier The following Steel Shop Finish is offered as an option. Delete if not required.

b. Topcoat Finish: One (1) coat epoxy (Macropoxy 646) with two (2) shop coats of Acrylic Polyurethane (S-W Acrolon 218 HS).

Note to Specifier The following Steel Shop Finish is offered as an option for heavier Gauged Steel Barriers *ONLY*. Delete if not required.

c. Topcoat Finish: One (1) shop coat of Zinc-Rich Epoxy Primer (Zinc Clad 4100) with two (2) shop coats of Acrylic Polyurethane (S-W Acrolon 218 HS).

2. Stainless Steel products to be mill finish, welds are ground smooth, not polished.

a. No. 2b, products to be mill finish, welds are ground smooth, not polished.
b. No. 4 brushed, welds chemically passivated and cleaned.
c. No. 6 polished, welds chemically passivated and cleaned.

3. Aluminum products to be mill finish, welds are ground smooth, not polished.

J. Labeling: Each watertight panel will be individually identified for matched installation.

K. Compliant with Federal Acquisition Regulation (FAR) – Subpart 25.2 – Buy American-Construction Materials (BAA).

1. The end-product or construction material must be manufactured in the United States; **and**

2. A certain percentage of all component parts (determined by the cost of the components) must also be mined, produced, or manufactured in the United States, a requirement known as the "domestic content test".

a. For an end-product or construction material that consists wholly or predominantly of iron or steel or a combination of both, the cost of foreign iron and steel must constitute less than 5 percent of the cost of all the components.

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 panel 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 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 manufacturer's installation instructions and applicable data sheets.

K. Inspect installation sealants to ensure a watertight juncture.

3.4 FIELD QUALITY CONTROL

A. Field Testing:

Note to Specifier Choose testing method(s) required.

1. Installer to perform hose test of panel to frame in accordance with manufacturer’s standard Hose Test Procedure.
2. Installer to construct temporary water barrier and test installed flood barrier under hydrostatic conditions.

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