

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. **[Single Panel]** Flex-Cover[®] Grate with panel, latching hardware, and optional storage container.

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.
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:** 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, dark, 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 and prevent prolonged UV exposure to softgood material. 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 (UV protection, 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 resistant barriers to withstand the types of short-term flood loads indicated on "Approved for Construction" drawings. Design loads may include hydrostatic, hydrodynamic, debris impact, wave, and wind loading. All flood related loadings are transferred from the flood resistant barriers to the adjacent mounting structure.
- B. Engineer Code Practices: Engineer flood resistant barriers to meet the requirements of the latest published edition of applicable design codes.
- C. Water Density: 64 pcf, unless otherwise noted on drawings.
- D. Deployment: No sealant required on panels during deployment – watertight protection that deploys quickly without mess or drying time.

2.2 MANUFACTURERS

- A. Description: Flex-Cover® Grate with panel, latching hardware, and optional storage container.
 - 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: FCG
- 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: Manually deployed, clamping bars compress perimeter gasket.
3. Mounting/Load Transfer: Anchor to existing structure. Flood Barrier designed for specified hydrostatic pressure and will transfer loads to existing structure directly below flood barrier.
4. Panel and perimeter clamping bars deploy to preinstalled anchor locations (internally threaded anchors). Manufacturer to include all anchors, as designed.
5. Provide continuous perimeter compression gasket which does not require air inflation.
6. Optional: In-ground storage container located at point-of-use. Sized to fit flexible barrier panel and all operational components.

2.4 MATERIALS

A. Exposed flexible water barrier to be of the following material type;

1. Fabric: PS Flood Barriers™ proprietary material, at appropriate size and thickness required to meet the design performance criteria.
- B. Perimeter clamping bars, optional storage container, and other metallic components to be constructed of corrosion resistant materials.
- C. Gaskets: Factory mounted, continuous, compressible rubber type, field replaceable. Gasket does not require air inflation.
- D. Panel Mounting Hardware: Provide anchors, as designed.
- E. Sill:
1. No sill required, bottom gasket to seal to concrete surface. Contractor to ensure concrete sealing surface area is level (+/- 1/16 inch per 10 foot of barrier), smooth, unbroken, without cracks or relief joints.
- F. Operating Hardware: Provide latching hardware to be as indicated on drawings. Flood barrier panel to be factory prepared for applicable latching devices.

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 opening 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. Panels must 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, and "Approved for Construction" drawings.
- D. Field Grouting to be completed by appropriate personnel, and in accordance with product application directions, manufacturer's instructions, and "Approved for Construction" drawings.
- E. Tolerances: All dimensional requirements must be in accordance with manufacturer's installation instructions and "Approved for Construction" drawings.

- F. Products to be operated and field verified that sealing surfaces maintain contact at the correct sealing points.
- G. Inspect gaskets for damage, wear, and adhesion. Replace compromised gaskets immediately.
- H. Verify that latching assemblies operate freely and correctly.
- I. Verify all anchorage is in accordance with manufacture's installation instructions and applicable data sheets.
- J. Inspect installation sealants to ensure a watertight juncture.
- K. Ensure storage location protects the barrier from UV exposure.

3.4 FIELD QUALITY CONTROL

A. Field Testing:

****Note to Specifier** Choose testing method(s) required.**

1. Installer to deploy flood barrier and perform an inspection of all critical parts, dimensional tolerances, and all gasket sealing surfaces.
2. Installer to conduct a factory approved hose test to inspect watertightness of flood barrier and gasket sealing surfaces.
3. 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