# SECTION 10 71 19.16 REMOVABLE FLOOD BARRIERS

# Part 1. GENERAL

# 1.1 SECTION INCLUDES

## Flood Panels

# 1.2 RELATED SECTIONS

## Section 03300 - Cast-In-Place Concrete

## Section 04810 - Unit Masonry Assemblies

## Section 05120 - Structural Steel

# 1.3 REFERENCES

## ASTM B 209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.

## ASTM B 211 - Standard Specification for Aluminum and Aluminum-Alloy Bar, Rod, and Wire.

## Aluminum Association - Specification for Aluminum Structures, 7th Edition.

## ASME Structural Welding Code Section IX.

## FEMA Technical Bulletin 3-93 - Non-Residential Flood Proofing.

## SEI/ASCE 7-16 - Minimum Design Loads for Buildings and Other Structures.

## ASCE 24-14 AWS D1.2 - Structural Welding Code - Aluminum.

## Aluminum Structures - A Guide to Their Specifications and Design.

## U.S. Army Corps of Engineers, EP 1165-2-314 - Flood Proofing Regulations, 15 December 1995.

# 1.4 DESIGN / PERFORMANCE REQUIREMENTS

## Design watertight panels to perform under load criteria as set forth is standards noted above. All water pressure loads and operating loads are transferred to the building structure.

## Standard loading: Standard Flood Panels are designed for hydrostatic loading, hydrodynamic loads, wave loads and debris impact loads.

# 1.5 SUBMITTALS

## Submit under provisions of Section 01300.

## Manufacturer's data sheets on each product to be used, including:

## Preparation instructions and recommendations,

## Storage and handling requirements and recommendations,

## Installation instructions.

## 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.

## Calculations: Submit calculations approved by a qualified engineer to verify the flood panel’s ability to withstand the design loading.

## 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

## Manufacturer Qualifications: Manufacturer must demonstrate previous 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.

## 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

## Store products in manufacturer's unopened packaging container with identification labels intact until ready for installation.

## Protect materials from exposure to moisture.

## Store materials in a dry, warm, ventilated, weather-tight location. If outdoor storage is required, block materials to store at an incline, to prevent pooling of any moisture and pro-mote 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.

## Store materials so that no damage occurs to gaskets and attached hardware.

## Use caution when unloading and handling product to avoid bending, denting, crushing, or other damage to the product.

## 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

## 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

## Coordinate work with other trades, operations, and installation of adjacent materials to avoid damage.

# 1.10 WARRANTY

## Watertight closure shall operate satisfactorily and be free of defects in material and workmanship for a period of not less than one year from the date of delivery

# Part 2. PRODUCTS

# 2.1 MANUFACTURERS

## Acceptable Manufacturer:

## Flood Risk America720 Lucerne Avenue, Suite 567 Lake Worth, FL 33460

## Contact:

## Flood Risk America, 561- 578- 4220

## Substitutions:

## Not Permitted

## Obtain all watertight doors and window panel assemblies from single manufacturer

# 2.2 EQUIPMENT

## Watertight Door and window panels: Provide the following panels:

## FRA Door Panel: Flood Risk America

## FRA Window Panel: Flood Risk America

## Product Details:

## Sealing Requirements: Flood Panel and gasket design shall provide an effective seal for short-term high water situations, to the protection level indicated on drawings.

## Operation: Panels are non-operable.

## Mounting/Load Transfer: Anchor to existing structure. Flood Panel designed for specified hydrostatic pressure (and other loads as specified) and will transfer loads to adjacent structure.

## Panels to be anchored utilizing mechanical, anchor types as designed. Manufacturer to include all anchors, water-stop, and sealants, as designed.

## Loading Direction Selection:

## Standard: Positive Pressure Loading: (Direction of loading against flood panel so as to further compress gaskets against flood panel frame-"seating").

## Optional: Reverse Pressure Loading: (Direction of loading against flood panel so as to force the flood panel away from the structure-"unseating").

## Provide compression gasket, which requires no inflation.

## Provide anchoring to all structural elements.

# 2.3 MATERIALS

## A. Flood Panel:

## Composite FRP / IPN chemical structure panels

## B. Gaskets to be factory mounted to flood panel assembly. Gaskets to becompressible closed cell type, and to be field replaceable.

## Jamb members to be designed and fabricated with appropriate material as required for the loading.

## Aluminum 6061 of appropriate size and strength with welded or mechanical fastened construction.

## Polyfiber of appropriate size and strength with epoxied or mechanical fastened construction.

## Sill members to be designed and fabricated with appropriate material as required for the loading:

## Aluminum 6160 of appropriate size and strength with welded or mechanical fastened construction.

## Polyfiber of appropriate size and strength with epoxied or mechanical fastened construction.

## Panel Mounting Hardware: Provide hardware sized for the size and weight of  the flood panel and loads. Hardware to be factory located on panels, as  practical. All loads are transferred to building structure.

## Anchors: Manufacturer p­­rovided stainless steel 304 anchors as noted on shop drawings.

## Aluminum products to be mill finish, welds are ground smooth, not polished, and are factory acid washed, neutralized and rinsed.

## Labeling. Each watertight panel and frame will be individually identified for matched installation.

# 2.4 FABRICATION

## Fit and shop assemble items in largest practical sections, for delivery to site.

## Fabricate items with joints tightly fitted and secured.

## 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

## Do not begin installation until substrates have been properly prepared.

## If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

# 3.2 PREPARATION

## Clean surfaces thoroughly prior to installation.

## Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

# 3.3 INSTALLATION

## Install in accordance with manufacturer's installations instructions, approved shop drawings, shipping, handling, and storage instructions, and product carton instructions for installation.

## Panels shall be installed level, square, plumb, and rigid.

## Sealants, water-stop, and grouting to be applied per product application directions and in accordance with manufacturer's instructions.

## Tolerances: All dimensional requirements must be in accordance with manufacturer's installation instructions and shop drawings.

# 3.4 FIELD QUALITY CONTROL

## Products to be operated and field verified including the sealing surfaces to assure that they maintain contact at the correct sealing points.

## Verify all anchorage is in accordance with manufacture's installation instructions and applicable data sheets.

# 3.5 CLEANING

## Repair or replace damaged installed products or components.

## Clean all sealing surfaces.

## Touch up damaged finish.

# Part 4.

# 3.6 PROTECTION

## Protect installed products until completion of project.

## Touch-up, repair, or replace damaged products before substantial completion.

# END OF SECTION