

Section 08 39 60

Removable Aluminum Flood Barriers

PART 1 GENERAL

1.01 WORK INCLUDED

- Product engineering and fabrication techniques, shop drawings, structural calculations and Professional Engineering Stamps State of Florida in accordance with the FEMA design manual requirements for Non-Residential Flood proofing.
- Factory fabrication of aluminum flood barriers.
- Finish of flood barrier assembly.

1.02 RELATED WORK

- Section 07600 Flashing and Sheet Metal
- Section 07900 Joint Sealers

1.03 REFERENCES

- FEMA Technical Bulletin 3-93 Non-Residential Flood proofing
- FEMA Flood Proofing Non-Residential Structures #102
- FEMA Design Manual for Retrofitting Flood-Prone Residential Structures #114
- American Architectural Manufacturers Association (AAMA) 501, 603.8, 605.2, 607.1
- NFIP Title 44 US Code of Federal Regulations, Section 60.3
- US Army Corps of Engineers 'Flood Proofing Regulations'.
Type 2 Closures in Chapter 7, Section 701.1.1
- ASCE/SEI 24-05, 6.2 Dry Flood proofing

1.04 QUALITY ASSURANCE

- **Important: Building contractor shall see to it that all surfaces to receive Flood Barriers shall be "paper smooth", plumb, true and level before installing.**
- Provide for a flood barrier and application that is structurally sound, impact resistant and conforming to applicable performance requirements described herein.
- 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 701.1.1 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 build-up.
- Base Flood Elevation (BFE) and Building Sub Elevations shall be furnished to Barrier Manufacturer by the Architect or Engineer of Record.
- All Barrier heights shall be finished to 12" above BFE.
- Provide Flood Proofing Certification for compliance and approval.

1.05 PERFORMANCE REQUIREMENTS

- Design Criteria
 - Assembly shall conform to the requirements for A and AE Zones as set by the NFIP.

- Performance
 - 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.
 - 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.
 - 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.
- Manufacturing Criteria
 - Requirements for aluminum flood barriers, terminology, tolerances, standards of performance and workmanship are those specified as Type 2 Closures in Chapter 7, Section 701.1.1 of the US Army Corps of Engineers 'Flood Proofing Regulations'.
 - Manufacturer shall have 5 years history and experience in this product line.
- Egress
 - Provide for a fully removable system including all frame, sill and jamb assembly members. Permanent sub-frame assemblies shall not be permissible.
- Seepage
 - Requirements for aluminum flood barriers, terminology, tolerances, standards of performance and workmanship are those specified as Type 2 Closures in Chapter 7, Section 701.1.1 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 build-up.
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1.06 SUBMITTALS

- Shop Drawings
 - Submit scaled shop drawings including all conditions of construction, location diagrams including identification of and spacing of anchorage, framing members, joinery and sealant details.
- Structural Calculations
 - Provide structural calculations by a licensed structural engineer, P.E State of Florida, demonstrating structural compatibility with project requirements.
- Samples
 - Submit () 6" lengths of aluminum extrusions as requested by A/E..
- Warranties
 - Provide manufacturer's warranty in accordance with the contract documents.
 - Provide installation warranty in accordance with the contract documents.

1.07 WARRANTY

- Stating that flood barriers for above project will be free from defects and workmanship for a period of five (5) years from date of substantial completion.

PART 2 PRODUCTS

2.01 MATERIALS

- Acceptable Flood Barrier Manufacturers
Savannah Flood Protection, Inc.
3567 91st Street North
Suite 4
Lake Park, FL 33403
(toll free) 888-640-0850

Also, equal products by
Press ray Corporation (Series C G 111A)
Pawling, NY
941-723-8755
- Architect Approved Equal
 - Products of other manufacturers must be pre-qualified to bid not less than 10 days prior to bid date.
 - Submit proof of compliance inclusive of supporting technical data, engineering calculation, certification of equivalent experience and samples for comparison.
- Aluminum
 - Extruded aluminum structural frame members, support angles and mullions shall be 6063-T6 alloy and temper and not be less than .125" wall thickness.
 - Aluminum sheet skin shall be 3003-H16 alloy and temper and not less than .125" wall thickness on exterior sheet and not less than .024" on interior sheet.
 - Extruded aluminum brace plates shall be 6063-T6 alloy and temper and not be less than .125" wall thickness.
- Finishes on all components shall be "Mill Finish".
- Gaskets
 - All gaskets shall be a dense 25 durometer rubber neoprene.
- Fasteners
 - All anchor bolts to be galvanized steel in conformance with ASTM A-307 or 304
 - Series Stainless Steel.
- Sealants
 - Use only sealants that are compatible with all substrates and field applied in accordance with the manufacturer's recommendations.

2.02 FABRICATION

- Fabricate flood barriers to comply with requirements indicated for design, dimensions, materials joinery, and performance.
- 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.
- 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.
- Supports, anchorages and accompanying accessories required complete assembly to be supplied by installing contractor.

2.03 REMOVABLE ALUMINUM FLOOD BARRIERS

- Removable Flood Barriers 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.

- 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.
- Attachment anchors to be permanent drop-in threaded type, to accommodate repeatable put up and take down as required for mitigation.
- Building Contractor shall provide for onsite storage of removable flood barrier system for quick access.

PART 3 EXECUTION

3.01 INSTALLATION

- **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.**
- After verification of field conditions and properly prepared openings, install flood barriers in strict accordance with approved submittal drawings.
- Attach only to smooth surfaces providing for proper and compatible infill for gaps in substrate.
- 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.
- Protect all dissimilar metals with a heavy coat of zinc chromate or bituminous paint.
- Install true and plumb without warping or racking.
- Apply appropriate sealants where indicated on shop drawings and in accordance with manufacturers recommendations.
- 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.

3.02 CLEANING, PROTECTION AND STORAGE

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

3.03 CONTINUING MAINTENANCE AND INSTALLATION PROGRAM

- Building contractor shall make the owner and users familiar with installation techniques and storage and handling procedures.
- Owner shall be aware of, and execute, an annual flood barrier inspection program, and installations drill so that the users become familiar with the product and installation procedures.
- Inspect and repair all neoprene seals for optimum performance.