

**CSI SECTION 08316 FLOOD BARRIERS****PART 1 - GENERAL****1.01 DESCRIPTION OF WORK**

- A. Provide stackable aluminum flood barriers for exterior openings, complete with fabrication of necessary components and provision of necessary anchors, fittings, and accessories as specified herein.
- B. (Optional) Provide installation of stackable aluminum flood barrier

**1.02 REFERENCES**

- A. FEMA Technical Bulletin 3 2021 Requirements for the Design and Certification of Dry Floodproofed Non-Residential and Mixed-Use Buildings
- B. FEMA Homeowners Guide to Retrofitting Flood P-312
- C. FEMA Design Manual for Retrofitting Flood-Prone Residential Structures #114
- D. NFIP Title 44 US Code of Federal Regulations, Section 60.3
- E. ASCE 24-98, ASCE/SEI 24-05
- F. FIRM (Flood Insurance Rate Map)

**1.03 SUBMITTALS****A. Product Data**

For each flood barrier system include product brochures, specification sheets, installation instructions, FEA test report and a technical drawing of system components.

**B. Shop Drawings**

Provide schedule of barriers to be provided, along with shop drawings, indicating mounting methods employed, sizes, and other installation information.

**1.04 QUALITY ASSURANCE**

- A. Flood barriers shall be structurally sound, easy to deploy by a single individual, impact resistant and conforming to applicable performance requirements.
- B. Except as otherwise indicated, requirements for aluminum flood barriers, terminology, tolerances, standards of performance and workmanship are those specified in NFIP Section 60.3.
- C. Design Flood Elevation (DFE), Base Flood Elevation (BFE) and Building Sub Elevations shall be furnished to barrier manufacturer by the project architect, surveyor, or engineer.
- D. All Barrier heights shall be finished to at least 12" above the BFE.

## 1.05 PERFORMANCE REQUIREMENTS

### A. Design Criteria

Barriers shall conform to the requirements for A and AE Zones as set forth by the NFIP.

### B. Manufacturer Criteria

The manufacturer should have a minimum of 2 years history and experience in the product line.

### C. Performance Criteria

1. Hydrostatic Pressure Resistance - Flood Barriers shall be constructed to resist lateral forces due to hydrostatic pressure from freestanding water as referenced in FEMA Technical Bulletin 3-93.
2. Hydrodynamic Force Resistance - Flood Barriers shall conform to the criteria for resisting lateral forces due to moving flood waters as set forth by FEMA Technical Bulletin 3-93.
3. Debris Impact Force Resistance - Flood Barriers shall conform to the criteria for resisting debris impact as prescribed by FEMA Technical Bulletin 3-93.

### D. Access / Egress Requirement

Provide for a fully removable system including all cross members or panels spanning the opening. Permanent frame assemblies shall be non-removable or removable as determined by manufacturer based on installation requirements.

### E. Finite Element Analysis Testing Requirement

The system shall have been run through Finite Element Analysis testing, to confirm its ability to handle expected hydrostatic pressures. Report shall show maximum height and width loading capabilities equal to or greater than project opening sizes and specified DFE heights.

## PART 2 – PRODUCTS

### 2.01 PRODUCTS

#### A. Flood barrier shall be Hammerhead as manufactured by:

1. Garrison Systems, LLC.  
240 E 74th Street  
New York, NY 10021  
929-299-2099
2. Or - Architect Approved Equal

#### B. Proof of Compliance

Submit proof of compliance inclusive of supporting technical data, engineering calculation using Finite Element Analysis, certification of equivalent experience and samples for comparison if submitting for evaluation of approved equal.

### 2.02 MATERIALS

#### A. Aluminum Extrusions

1. Extruded aluminum spanning members shall be 6063 T-6 alloy and temper.
2. Extruded aluminum support posts shall be 6063 T-6 alloy and temper.
3. Optional center mullions (posts for openings too wide to be supported by a single span) shall be 6063 T-6 alloy and temper.

4. Finishes on all components shall be "Mill Finish".
5. All spanning cross beams shall have internal support ribs.

#### **B. Gaskets**

1. All interior post gaskets shall be a dense rubber.
2. All seals between support posts and walls shall be closed cell neoprene.
3. All upper plank gaskets shall be a dense rubber.
4. The bottom plank gasket shall be a thick closed cell neoprene.

#### **C. Hardware**

Hardware and Mounting Bolts shall be A-307 or 304 stainless steel.

#### **D. Sealants**

Use only sealants that are compatible with all components and materials and field applied in accordance with the manufacturer's recommendations.

### **2.03 FABRICATION**

Fabricate aluminum flood barriers to comply with the requirements for protection to the Design Flood Elevation (DFE), at the specified opening dimensions, using specified materials.

## **PART 3 – EXECUTION**

### **3.01 INSTALLATION**

- A. Contractor shall prepare surfaces to receive flood barriers and provide surfaces that are paper smooth, true, and plumb.
- B. Contractor shall provide field measurements of all openings, "masonry to masonry", and confirm that openings are prepared to receive the necessary flood barrier hardware and components.
- C. Install flood barriers in accordance with manufacturers installation instructions.
- D. Apply sealants where appropriate per the manufacturer's installation instructions.
- E. Installer shall insert all removable flood barrier components to confirm fit and remove said components after initial installation.
- F. Flood barriers shall be transported by the building contractor to the designated inside storage area to be stored in a manner protective of the system gaskets and seal.

## **PART 4 – WARRANTY**

### **4.01 WARRANTY**

2 Year manufacturer's warranty against defects and workmanship from date of shipment.