**SECTION 107119.16
REMOVABLE FLOOD BARRIERS**

\*\*Note to Specifier\*\* This specification contains component and configuration options. Where indicated

choose the appropriate choice for your specific project requirements. Delete specifier instructions prior to publishing completed specification.

PART 1 – GENERAL

* 1. SUMMARY
1. Work Results:
	1. Installation of Removable Flood Barriers: Factory assembled aluminum
	flood log systems.
2. Principal Products:
	1. Gasketed Aluminum Flood Log System.
3. Section Includes:
4. Gasketed Aluminum Flood Logs.
5. [Aluminum] [Steel] Removable Jamb Support Brackets.
6. [Aluminum] [Steel] Mid-Span Posts.
7. Fasteners.
8. Accessories.
	1. REFERENCES
9. International Building Code (IBC), latest edition as approved by the authorities having jurisdiction.
10. <State> Building Code, latest edition as approved by the authorities having jurisdiction.
11. ASCE/SEI 24 “Flood Resistant Design and Construction”, latest edition.
12. ASCE/SEI 7 “Minimum Design Loads and Associated Criteria for Buildings and Other Structures”, latest edition.
13. Code of Federal Regulations (CFR), Title 44.
14. Federal Emergency Management Agency (FEMA) Regulations, latest.
15. National Flood Insurance Program (NFIP) Regulations, latest.
16. FEMA/NFIP Technical Bulletin 3 “Requirements for the Design and Certification of Dry Floodproofed Non-Residential and Mixed-Use Buildings”, latest edition.
17. FEMA P-936 “Floodproofing Non-Residential Buildings.”
18. ASTM A36/A36M “Standard specification for Carbon Structural Steel.”
19. ASTM A240/A240M “Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.”
20. ASTM B209/B209M “Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.”
	1. ADMINISTRATIVE PROCEDURES
21. Coordination Procedures: Coordinate flood barrier locations with existing architectural finishes.
22. Preinstallation Meeting Attendees and Procedures:
23. Conduct meeting [one week] [one month] [other scheduled time], minimum before starting work in this Section.
24. Additional Attendees: <List Attendees>.
25. Additional Agenda Items:
	1. <Agenda Item>.
	2. <Agenda Item>.
	3. <Agenda Item>.
	4. ACTION SUBMITTALS
26. Product Data: Provide manufacturer’s information on each material and component of the flood barrier.
27. Shop Drawings: Provide dimensioned plans, sections, connections, and anchorage details.

	1. Shop drawings to be signed and sealed by a professional engineer if required by the authorities having jurisdiction.

\*\*Note to Specifier\*\* Paragraph 1.4.C Calculations below can be deleted if not required.

1. Calculations: Provide calculations, signed and sealed by a qualified professional engineer licensed in the state or territory where the project is located, verifying the barrier’s ability to withstand the design pressure loading, based on building code and specified load combinations.
	1. INFORMATIONAL SUBMITTALS
2. Qualification Statements: For the [manufacturer], [installer], and/or [professional engineer].
3. Delegated Design Submittals: Design for installation system, including supports and anchorage to substrate.
4. Test and Evaluation Reports: Manufacturer test results showing resistance to flood water pressures.
5. Manufacturer’s instructions.
6. FEMA Submittals:
7. Dry Floodproofing Certificate for Non-Residential Structures, latest edition.
8. Flood Emergency Operation Plan per FEMA TB 3, latest edition.
9. Inspection and Maintenance Plan per FEMA TB 3, latest edition.
10. Flood Insurance: Documentation that design factored in estimated flood insurance costs for the building per FEMA TB 3, latest edition.
11. Proof of Annual Service Agreement, as required by the authorities having jurisdiction.
12. Proof of Early Warning System, as required by the authorities having jurisdiction.
13. Dry Floodproofing Credit for NFIP Flood Insurance: The above documents should get submitted to apply for a Dry Floodproofing Credit (only available for non-residential buildings). Contact an Insurance Agent for assistance in submitting and for more information.
	1. CLOSEOUT SUBMITTALS
14. Operation and Maintenance Manual.
15. Warranty Documentation.

	1. QUALITY ASSURANCE
16. Qualifications:
17. Manufacturer: Five (5) years of documented experience, minimum, in the manufacture of the products specified in this Section.

\*\*Note to Specifier\*\* Paragraph 1.7.A.2 and 1.7.A.3 below can be deleted if not required.

1. Installer: Three (3) years of experience, minimum, in the installation of the products specified in this Section.
2. Licensed Professional Engineer: A professional engineer specialized in the work specified in this Section and licensed in the State in which the project is located.
	1. DELIVERY, STORAGE, AND HANDLING
3. Deliver products in manufacturer’s unopened packaging with labels undamaged, legible, and readable until ready for installation. Inspect materials for damages.
4. Protect stored materials from moisture exposure.
5. Store materials in a dry, cool, ventilated, and weathertight location.
6. Outdoor Storage Requirements (if necessary): Store materials on an incline to avoid moisture accumulation and facilitate runoff. Cover materials with a tarp set up in a tent-like fashion and raised above the products to allow for air circulation and to avoid UV exposure. Keep all additional hardware in a dry, climate-controlled setting.

	1. FIELD CONDITIONS
7. Ambient Conditions: Perform work within manufacturer’s recommended weather and temperature limitations.
8. Existing Conditions: Verify field measurements before fabrication. Show field measurements on Shop Drawings.
	1. Have flood barrier manufacturer, installer, or qualified person(s) conduct site survey to document the conditions at the installation site to detail the type of materials, dimensions, configuration, potential interferences with the mounting surface, and any other contributing factors for proper installation.
	2. WARRANTY
9. Manufacturer Warranty:
10. Warrant product to be free from defects in material and workmanship for a period of one (1) year from date of shipment.
11. Contact manufacturer regarding extended warranty options.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. Approved Manufacturer: Floodproofing.com, Inc., which is located at 19 Mantua Road, Mount Royal, NJ, 08061; Telephone: 800-507-0865; Email: info@floodproofing.com; Website: [www.floodproofing.com](https://www.floodproofing.com/).

* 1. Basis of Design Product: Flood Panel Super Flood Log System by Floodproofing.com.
1. Substitutions: Not permitted.
2. Single Source Responsibilities: Obtain all flood log system assemblies from single manufacturer.

2.2 MATERIALS

* + 1. Flood Logs: ASTM B209/B209M, Alloy 6065, Temper T6.
		2. Intermediate or End Posts:
			1. ASTM B209/B209M, Alloy 6061, Temper T6.
			2. Primed Steel: Grade ST37 (S235 JR).
			3. Galvanized Steel.
			4. Below Ground Supports: [Galvanized Steel] [Stainless-Steel Grade 304].
		3. Mid-Span and Corner Supports:
1. ASTM B209/B209M, Alloy 6061, Temper T6.
2. Primed Steel: Grade ST37 (S235 JR).
3. Galvanized Steel.
	* 1. Base Gaskets: Sandwich composite combination low/high compressed gaskets mechanically retained in the flood logs; 40D medium compression set gaskets retained mechanically in the top of each log and low compression gaskets in the jambs and mid-span supports.
		2. Primer on Steel Products: Rust inhibitive and lead free.
			1. Manufacturers and Products:
				1. Sherwin-Williams Corp.; Kern Flash.
				2. Or approved equal.
		3. Joint Sealant:
			1. Manufacturers and Products:
				1. 3M; 4000 Sealant.
				2. Or approved equal.

2.3 PERFORMANCE REQUIREMENTS

1. Engineering Code Practices: Engineer flood products to conform to the design requirements that are based on the latest adopted editions of ASCE 24, ASCE 7, and the International Building Code (IBC).
2. Design Criteria: Conform to the requirements for A and AE Zones as set forth by the National Flood Insurance Program (NFIP).
	1. Design flood logs to support, either individually or in combination, temporary superimposed live loads as specified in the latest editions of ASCE 24 and ASCE 7.
	2. Ensure all types of flood-related loads from the flood protection barriers are transferred either through mullion anchorage to structural floor slabs and/or jamb anchorage, and directly via pressure contact with structural walls or other structural elements.
3. Product Criteria:
	1. Flood Log: 12-inch-high x 3-inch-deep with a top interlocking gasket slot system which includes gaskets and gasket channels between sections and full height in the jamb channels. The bottom flood log includes an additional bottom gasket for compression at the ground. For flood protection heights in between 12-inch increments, there is a 6-inch-high x 3-inch-deep flood log topper available to be placed as the top log in the stacked configuration.

		1. Stack multiple logs to meet or exceed base flood elevation plus 12 or more inches for wave action and freeboard requirements.
		2. Embed wall plates may be required at jambs based on the condition at the opening and the loads imposed on the system.
		3. Jamb supports to be continuous structural aluminum or steel channels and are to be anchored and sealed to the condition with embeds or mechanical anchors.
		4. Frames and posts to provide mounting holes for connecting anchors and bolts. Anchor type, size, and method dependent on load capabilities of the structure.

PART 3 – EXECUTION

3.1 EXAMINATION

1. Verify that substrates are as required by the manufacturer.
2. Verify that substrate surfaces against which the sealing gasket presses are “paper-smooth.”
3. Verify that substrates are plumb, square, and level before installation can begin.
4. Notify Architect if substrates are damaged or deficient per manufacturer’s requirements.
5. Begin installation once damaged or deficient substrates have been repaired to the manufacturer’s satisfaction.

3.2 PREPARATION

1. Existing slabs, walls, and columns adjacent to openings where flood barriers are to be installed shall be structural for loading requirements and waterproofed with a waterproof membrane or a waterproof sealer surface treatment prior to the installation of flood barriers.

3.3 INSTALLATION

1. Consult with manufacturer regarding installation costs and service options or self-install.
2. Install flood barriers in accordance with manufacturer’s instructions and approved shop drawings.
3. Install embed plates using an immersible sealant or waterproof grout at back of support covering full height and width of support and producing squeeze out on all sides assuring a proper seal.
4. Provide bituminous paint between finished aluminum supports and concrete or masonry and dissimilar metals.
5. Install supports true and plumb without racking or warping.

3.4 FIELD QUALITY CONTROL

1. Field Tests and Inspections: Installer to perform visual dry test for gasket alignment, continuity contact and pre-compression.

3.5 CLEANING AND STORAGE

* + 1. Inspect components for damages.
		2. Touch-up minor damages to components to the satisfaction of the Architect. Replace components that are beyond repair.
		3. Clean exposed surfaces and let dry before storing.
		4. Consult with manufacturer on options for storage racks, storage shelving systems, and deployment storage carts.

3.6 PROTECTION

1. Locate dismantled barriers to a storage location designated by the Owner.
2. Stack barriers in a manner that does not damage the gaskets.
3. Position gaskets away from high traffic areas in the storage area to prevent damage to the barriers.
4. Protect installed product and finished surfaces during normal and general operation.

END OF SECTION