

SPECIFICATION : ALUMINUM LIFT-HINGED FLOODGATE

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Aluminum Lift-Hinged Floodgate to work on level thresholds with no step.

1.02 SUBMITTALS

- A. Submit the following:

- 1. Manufactures data including installation and maintenance instructions
- 2. Calculations prepared by a Licensed Professional Engineer registered in the RELEVANT STATE proving the barriers' ability to withstand the design pressure loading
- 3. Dimensional plans and elevations, sections, connections and anchorage, and parts list

1.03 REFERENCE STANDARDS

- A. ASCE/ SEI 24-05, 6.2 Dry Proofing
- B. ASCE 24-05 (Flood Resistant Design and Construction)
- C. FEMA Technical Bulletin 3-93 Non-Residential Flood proofing
- D. FEMA Flood Proofing Non-Residential Structures #102
- E. FEMA Recommendations on Dry Proofing
- G. NFIP Title 44 US Code of Federal Regulations, Section 60.3
- H. SEI / ASCE 7-02 – Minimum Design Loads for Buildings and other Structures.
- I. AISE Manual and Specifications.
- J. Aluminum Construction Manual (USA).
- K. BS EN 1990 (UK National Annex for Eurocode – Basis of Structural Design)
- L. BS EN 1999-1-1:2009 (Design of Aluminium Structures) (See here for full listings and <http://eurocodes.jrc.ec.europa.eu/showpage.php?id=133>)
- M. BS EN 1993-1-8 (Design of Joints).
- N. BS EN 1993-1-9 (Fatigue)
- O. BS 8539:2012 Code of practice for the selection and installation of post-installed anchors in concrete and masonry.

1.04 QUALIFICATIONS

- A. The manufacturer of the flood gates shall have provided removable stop plank flood barriers on at least five (5) installations similar to the requirements of this project
- 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.

PART 2 – PRODUCTS

2.01 – ALUMINIUM LIFT-HINGED GATES

A. Manufacturers

1 Basis of Design is ‘Demountable Flood Barrier’ as manufactured by Flood Control International Inc, 7 Elk Street, Lower Level, New York, NY10007; Email enquiries@floodcontrolint.com Web: www.floodcontrolinternational.com

2.Or as equal approved by the Project Architect

B Equipment

1. Basis of Design is ‘Lift Hinged Gate’ as manufactured by Flood Control International Inc
2. Floodgate shall provide an effective seal against short term and long term high water situations, to the protection level indicated on the drawings.
3. The floodgate shall swing freely to open/ close, and then be lowered to compress the base seal and form a watertight seal.
4. The floodgate is to operate on a level threshold – no ramp, trough or step is to be allowed.
5. The lifting/ lowering of the floodgate is to be by handle or ratchet wrench at the hinge end of the gate.
6. The floodgate is to be pad-lockable in the open and closed positions
7. All operating mechanisms are to be operable from either side of the gate.
8. The gate is to be able to withstand flooding from either direction (on-seating or off-seating).
9. Floodgate gaskets shall be easily replaceable.

2.02 - DESIGN

A. 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

B. 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

C. 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 3-9

2.03 - MATERIALS

1. Aluminum Gate Panel: Made up from bolted Grade 6063-T6 Aluminum alloy and temper and not less than 0.125” wall thickness
2. End Post Frames: Grade ST37 (S235 JR) or galvanized steel or Grade 6063-T6 Aluminum alloy and temper
3. Sills: Grade ST37 (S235 JR) galvanized steel not less than 0.25” in thickness
4. Finish on gate ends and panel to be polyester powder coat
5. Gaskets: Base gaskets shall be EPDM medium compression set gasket retained mechanically in the bottom of the flood gate panel. Vertical gaskets in the jambs shall be mechanically retained. All gaskets shall be field replaceable
6. Fasteners: all anchor bolts shall be stainless steel
7. Sealants: Sealants shall be a one part polysulphide gun-applied sealant and shall be compatible with all substrates and field applied in accordance with the manufacturers recommendations

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PART 3 – PERFORMANCE

3.01 PERFORMANCE

- A. The floodgates are to withstand the design forces as outlined in this document
- B. The maximum amount of leakage to be permitted through the floodgate is to be in accordance with PAS1188-4 equating to 2.7gallons per linear ft of barrier per hour

3.02 Examination / Preparation

- A. Do not begin installation until substrates have been properly prepared
- B. Surfaces to be clean solid and free from water and grease prior to fitting.
- C. Base materials shall be checked to be able to withstand the forces applied by the gate

3.03 Installation

- A. Install in accordance with manufacturer's installation instructions, approved shop drawings, shipping, handling and storage instructions
- B. Gates shall be installed level, square, plumb and rigid.
- C. Only the designed and provided fixings are to be used in accordance with manufacturers installation instructions.
- D. Sealants to be applied per product application directions and in accordance with manufacturers instructions.

3.04 Field Quality Control

- A. Floodgate to be operated and field verified including the sealing surfaces to check they maintain the correct level of contact at all points.
- B. A 'paper pull-out test' to be performed on all sealing surfaces to ensure a tight fit
- C. Verify that the gate assembly operates freely without undue force in swinging in both directions, raising, lowering and sealing.
- D. Verify all anchors are installed correctly