SECTION 083919 - WATERTIGHT DOORS AND FLOOD BARRIERS

PART 1 - GENERAL

0.1 SUMMARY

A. Section includes:

1. Exterior hinged pedestrian doors, frames and hardware permanently installed to provide flood protection.
2. Removable, stackable plank flood protection systems for parking garage overhead door openings.

0.2 DEFINITIONS

A. FEMA: Federal Emergency Management Agency.

0.3 ACTION SUBMITTALS

A. Product Data: For each type of product. Include information substantiating compliance with standards and performance indicated.

1. For flood planks, include preparation instructions, storage and handling requirements, and installation instructions.

B. Shop Drawings: Include the following:

1. Elevations and dimensioned plans of each door and flood plank type.
2. Details of doors and flood planks, including profiles, components, anchorage, hardware and finishes.
3. Frame details and sections for each frame type, including dimensioned profiles.
4. For flood planks, include mounting methods and connections, and load diagrams.

C. Calculations: For flood planks, submit calculations prepared by or approved by a qualified engineer to demonstrate ability of flood planks to withstand design loads.

D. Product Schedule: For watertight doors and flood planks, prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings.

0.4 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For flood doors and planks, to include in product maintenance manuals.

PART 2 - PRODUCTS

0.1 PERFORMANCE REQUIREMENTS

A. Flood Protection Doors and Planks: Provide products that comply with applicable provisions of the following standards:

1. FEMA No. 114, Engineering Principles and Practices of Retrofitting Flood-Prone Residential Structures.
2. FEMA Technical Bulletin 3-93, Non-Residential Flood Proofing.
3. U.S. Army Corps of Engineers, EP 1165-2-314, Flood Proofing Regulations (15 December 1995).

B. Flood Planks: Design watertight planks to perform under hydrostatic loads and hydrodynamic loads calculated by the FEMA consultant and structural engineer to control short-term load pressures indicated; with all water pressure loads and operating loads transferred to building structure.

1. Hydrostatic Water Load: 64 pcf.
2. Water Height: Design to the **Regulatory Flood Elevation** as indicated on Drawings.
3. Load Direction: Positive pressure loading; direction of load against flood planks compresses gaskets to seat panel in frame

0.2 PEDESTRIAN FLOOD DOORS

A. Basis-of-Design Products: Subject to compliance with requirements, provide PS DOORS, Grand Forks ND (psdoors.com); PS Flood Barriers™ Model PD-520 and Model PD-520P.

B. Hinged Flood Doors and Frames: Manufacturer's standard assembly including door and frame factory-prepared for hardware, complete with operating hardware indicated; designed for use as a normal pedestrian door and also FM Approved to act as a flood protection door.
1. Metal Type: Metallic-coated (galvanized)
2. Door Construction: Welded internal structural frame.
3. Frame Construction: Full profile welded.
4. Door Sills: Manufacturer's standard sill.
5. Door Hardware: Manufacturer's standard hardware for hinged pedestrian flood doors, including the following:

a. Hanging Device: Continuous hinge.
b. Exit Device: Von Duprin, Allegion plc; 98/99 Series; mounted on interior side of door; on active leaf for paired doors.
c. Lever Lockset: Von Duprin, Allegion plc; 996L classroom function; mounted on exterior side of door; on active leaf for paired doors.
d. Closer: LCN Closers, Allegion plc; 4111 H-CUSH AL689; on active leaf for paired doors.
e. Deadbolt latch. Additional hardware required by owner TBD at direction of owner.
f. Inactive Leaf Hardware: Top and bottom slide bolts.
g. Seals: Perimeter compression seals and bottom seal.
h. Drip Cap: Mounted on exterior side of door frame.

0.3 FLOOD PLANKS

A. Basis-of-Design Product: Subject to compliance with requirements, provide PS DOORS, Grand Forks ND (psdoors.com); PS Flood Barriers™ Model FP-530.

B. Stackable Flood Protection Planks: Manufacturer's standard assembly consisting of permanently installed frames and stacking panel modules stored remotely for installation by a single individual to produce a watertight barrier in front of the opening at time of flooding; designed and testing for compliance with ANSI 2510 and FM 2510 Approval standards.

1. Plank Panel Construction: Aluminum with factory-mounted gaskets forming compression seals; weighing approximately 3 lbs./lin. Ft.
2. Frames: Extruded aluminum, anchored to structure; with removable jamb cover.

a. Frame Mounting: Between jamb mount.
b. Frame Anchorage: Cast-in-place or anchored using mechanical, chemical or other anchor types; complete with anchors, waterstops and sealants.

3. Labels: Provide individual identification for each plank and frame for matched installation.

4. Instruction Placard: Provide pictorial and written operation instruction placards on each floor plank.
5. Latches: Operable from one side; removable from jambs and equipped with threaded knob that is tightened to secure planks.
6. Sill: Surface-mounted plate. Floor must be level +/- 1/16” for proper contact between gasket and floor.

    a. Sill Material: Type 304 stainless-steel

0.4 MATERIALS

A. Steel Door Members: For welded construction, of appropriate size and strength, fabricated from one or more of the following:

1. Structural or formed steel shapes; ASTM A 36.
2. Tubing; ASTM A 500, Grade B, or ASTM A 513.
3. Bars; ASTM A 36, M1020.

B. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B.

C. Flood Plank Gaskets: UV-resistant EPDM.

0.5 METAL FINISHES

A. Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.

1. Shop Primer: Manufacturer's standard primer; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.

PART 3 - EXECUTION

0.1 INSTALLATION

A. General: Install flood protection doors and planks according to manufacturer’s installations instruction and approved shop drawings.

B. Permanently-Installed Frames: Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces without damage to completed Work.

C. Doors: Fit and adjust doors accurately in frames, within appropriate clearances for perimeter compression seals.

0.2 FIELD QUALITY CONTROL

A. Field Testing of Flood Planks: Perform visual dry test for gasket alignment, continuity of contact, and pre-compression.

1. Verify that gaskets and sealing surfaces maintain contact at the correct sealing points.
2. Verify that latching mechanism operate freely and properly.
3. Construct temporary water barrier according to manufacturer’s recommendations and test installed floor plank assemblies at each opening.

0.3 CLEANING, TOUCHUP AND PROTECTION

A. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.

B. Metallic-Coated Surface Touchup: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.

C. Factory-Finish Touchup: Clean abraded areas and repair with same material used for factory finish according to manufacturer's written instructions.

D. Clean and protect installed products for remainder of construction period.

END OF SECTION