



Legacy Manufacturing Flood Barrier Testing Procedure

Doors and other openings that are at grade

Testing of the barriers is to follow FM Approval Standard 2510, Section 4.3, Performance Testing for opening barriers, which was developed in conjunction with the US Army Corp of Engineers and the Association of State Floodplain Managers. The maximum allowable leakage rate is **0.08 GPM per Lineal Foot of gasketed perimeter**. Lineal Foot of gasketed perimeter is the height of the units to the flood height plus the length of the barrier at the base.

Testing Apparatus: Construct a test basin reservoir to subject the wet-side of the flood barrier and adjacent installation interface to hydrostatic loading. Design the apparatus to be 6" wider on each side of the flood barrier width and 2'-0" away from the building structure and at a height to the top of the flood barrier to reach the water height required for the test. The apparatus can be constructed of various materials including wood, metal, sandbags or other materials to support the water loading up to the desired water test level. Poly sheet, tapes, expanding foam, and seasonal sealant (removable) may assist in waterproofing the test apparatus.

Testing Procedure:

1. Water is filled in the reservoir at a rate of 8" per hour. Contractor must have the equipment to suck up the water to maintain the building in a dry condition.
2. When the water meets the required height, the official test begins. Remove all prior leakage on dry-side of flood barrier. Water leakage is collected with a shop vac and measured in fifteen-minute increments for a minimum of an hour. This will likely require multiple shop vacs. The collected leakage water volume shall be measured to the nearest ounce.
3. Calculate the resulting leakage rate in terms of (Gallons)/(Minute)/(Feet of wetted perimeter). The wetted opening perimeter is defined as the length of the opening width plus two times the water depth. The formula for leakage rate is provided below.
4. The test is deemed successful if the final 15 minutes meets the allowed 0.08gpm/LF of gasket. If the manufacturer believes a longer period is needed for the test to be successful, the test may continue. Maximum for the test is 22 hours to meet the leakage criteria.

Windows and other openings where the bottom of the opening is several feet above grade (where installation of a reservoir assembly would be impractical)

There is no industry standardized test procedure for conditions where the FM 2510 test is not practical. A hose test method suggested by one of the flood barrier manufacturers is to be used. The same maximum allowable leakage rate as used in the FM 2510 procedure of **0.08 GPM per Lineal Foot of gasketed perimeter** is to be used.



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Testing Procedure:

1. Perform the hose test on the barrier and frame to structure installation, from the bottom of the assembly up to the maximum design water protection height.
2. The water shall be applied to the assembly including frame with a smooth bore nozzle with an internal exit diameter of 7/16" at a rate of **4.0 GPM**.
3. Test water shall be sprayed perpendicularly to the panel surface at a distance of no less than 12 inches and no greater than 18" for the entire flood barrier and frame surface for a period of 15 minutes.
4. Water leakage is collected with a shop vac. The collected leakage water volume shall be measured to the nearest ounce. Leakage shall not exceed the maximum rate of 0.08 PM per Lineal Foot of gasketed perimeter when two or more barrier logs are part of the barrier system and there should be no leakage at all when a solid one piece barrier is used for the barrier system.

Troubleshooting Leakage

1. Refer to the installation drawings to ensure product is installed properly and within manufacturer's acceptable tolerance.
2. Adjust latching to allow for continuous gasket contact.
3. Ensure opening are and gaskets are free of debris.
4. Localized leakage at joining gasket junctures or corners of door can often be remedied with the use of manufacturer approved sealants to create a smooth sealing surface for gaskets and fill small imperfections in the gasket contacting surfaces. Closely observe leakage to determine the leakage path. Leakage often occurs when a gasket sealing interface transitions from one material to another or where gaskets are required to seal to the existing building structure. With the barrier open or un-deployed, apply sealant using discretion to create a smooth surface for gasket contact near observed leakage region. Where gaskets and jambs contact floor, use a finger or caulk smoothing tool to create a small radiused sealant bead along base of jamb perimeters and floor. Allow sealants time to partially cure prior to using flood barrier. Most minor localized leakage can be remedied with sealant.

