

Chapter 8

Internal Flooding and Drainage

Section 800.0 Scope

Sec. 800.1 General: The provisions of this chapter shall apply to the intentional flooding of buildings, structures, and spaces with water from potable or floodwater sources for the purpose of balancing internal and external pressures to protect a structure and/or its components from damage or failure during floods up to the RFD. This is also known as wet flood proofing. (See also Sec. 401.7, Wet Flood Proofing and the National Flood Insurance Program).

Section 801.0 Intentional Flooding with Potable Water

Sec. 801.1 Applicability: Spaces to be intentionally flooded (W3 spaces) to maintain a balanced internal and external pressure condition shall be filled automatically with potable water from a source provided by the Owner as required by 801.2 and approved by the Building Official. This level of filling shall be equal to that of the external flood surface unless a reduction in the internal flooding level is requested in writing by the Owner, and such approval is granted by the Building Official. The Owner shall, together with the written request, submit sufficient evidence that full internal flooding is unnecessary to protect the structure. The potable water flooding system shall activate and operate automatically and completely without human intervention and shall act independently of the emergency flooding system utilizing floodwaters as required for these spaces by 801.3. An automatic drainage system shall also be provided that will assure positive drainage of the space(s) at a rate comparable to the reduction of exterior flood height when floodwaters are receding.

Sec. 801.2 Potable Water Sources: At any location where disruption of water supply service from a public utility may occur, or such service may be deemed inadequate, the Building Official shall require the Owner to provide an independent source of potable water that will be stored at the location of the improvement. In areas with history of multiple cresting, the Building Official may require that the supply of stored water be increased by a specified amount to cover this condition.

Sec. 801.3 Safeguard Against Failure of Potable Water Flooding System: Where intentional flooding with a potable water flooding system is used for maintaining the structural integrity of buildings, structures, or spaces during flood events to the RFD, an emergency (back up) flooding system utilizing flood waters shall be provided and maintained in a state of readiness for automatic implementation in the event of failure of the primary potable water flooding system. The emergency flooding system shall comply with all requirements of 802.0.

Section 802.0 Automatic Flooding with Floodwater

Sec. 802.1 Applicability: Spaces to be intentionally flooded with floodwater (W4) shall be provided with the necessary equipment, devices, piping, controls, etc. necessary for automatic flooding during the flood event and drainage of the space(s) when floodwaters recede. The automatic flooding and drainage system(s) shall utilize approved piping materials and have sufficient capacity for raising or lowering the internal water level at a rate comparable to the anticipated rate of rise and fall of a flood that would reach the RFD. These pipe systems shall be directly connected to the external floodwaters to maintain a balanced internal and external water pressure condition. Provisions shall be made for filling the lower portions of the structure first and for interconnections through or around all floors and partitions to prevent unbalanced filling of chambers or parts within the structures. All spaces below the RFD shall be provided with air vents extending to at least ___ feet above the elevation of the RFD to prevent the trapping of air by the rising water surface. All openings to the filling drainage systems shall be protected by screens or grills to prevent the entry or nesting of rodents or birds in the system. The NFIP requires under 44 CFR 60.3 (c) (5) that such openings only be located below the lowest floor of the building, and be no higher than one foot above grade. The lower area must have a minimum of two openings having a total net area of not less than one square inch per foot of enclosed area subject to flooding.

Section 803.0 Emergency Flooding of Waterproofed Spaces

Sec. 803.1 Applicability: Spaces which have been waterproofed (W1 or W2) to the RFD shall be provided with an automatic internal flooding system meeting all requirements of 802.0 to maintain structural integrity during floods which exceed the RFD elevation. Inverts shall be located at the RFD elevation unless an increase in invert elevation(s) above the RFD is requested in writing by the Owner, and approval is granted by the Building Official. Approvals shall not be granted by the Building Official until sufficient evidence has been furnished by the Owner that automatic internal flooding at the RFD elevation is not necessary to maintain structural integrity. Outlets for the drainage of water from waterproofed spaces shall be located to properly drain the water from all parts of the spaces. To prevent the inflow of water at flood levels below the RFD each exterior drainage outlet shall be provided with a device for preventing backflow of water (flood) through the drainage system. Auxiliary outlets shall be provided as required to evacuate all water from upper floor levels before draining the lower spaces. All watertight walls shall be designed for an internal hydrostatic pressure equal to at least two feet of differential head to provide for unknown factors that may cause malfunction of the required drains.