

ASFPM'S RECOMMENDED UPDATES TO THE DRY FLOODPROOFING CERTIFICATE, WITH SUPPORTING CONTEXT

General

- Machinery and equipment Installations that are outside of dry floodproofed areas of the building, must be elevated or within separate “floodwall” type structures (see FEMA P-936 for component protection). If elevated on platforms or pedestals, then it is important to have the surveyed elevation of the lowest machine or piece of equipment. **Add to Section III a new “D” to capture lowest elevation of machinery and equipment that is located outside of the dry floodproofed areas of the building.**
- Purpose of Certification: This sentence ***“However, to be in compliance with the requirements of American Society of Civil Engineers (ASCE) 24, Flood Resistant Design and Construction, one foot is subtracted from the dry floodproofed elevation.”*** Should be removed because it is only in the commentary section of ASCE 24 and is in there based on NFIP’s old rating methodology.
- Purpose of Certification: This sentence ***“Therefore, a building must be dry floodproofed to one foot above the BFE to be considered for floodproofing credit. For B, C, D, or X flood zones, the building’s dry floodproofed design elevation must be at least two feet above the natural HAG to be considered for floodproofing credit.”*** should be removed as it is no longer correct due to NFIP Risk Rating 2.0’s rating methodology.
- The Certificate needs somewhere for the user to indicate which edition of ASCE 24. Something being built in 2028 will likely/should be certified to 24-24, but if you have 2018 building it was likely design and constructed to 24-14.
- Purpose of Certification: Recommended language changes -
 - *A dry floodproofed building is a building that has been designed and constructed to be watertight (substantially impermeable to floodwaters) below the BFE and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. Before a dry floodproofed building is designed, numerous planning considerations, including flood warning time, uses of the building, mode of entry to and exit from the building and the site in general, floodwater velocities, flood depths, debris impact potential, flood frequency, **evaluation of passive and active flood barriers for opening protection**, and any other State and local requirements must be addressed to ensure that dry floodproofing will be a viable floodplain management measure.*
 - *The minimum NFIP requirement is to dry floodproof a building to the BFE. ~~However, to be in compliance with the requirements of American Society of Civil Engineers (ASCE) 24, Flood Resistant Design and Construction, one foot is subtracted from the dry floodproofed elevation. Therefore, a building must be dry floodproofed to one foot above the BFE to be considered for floodproofing credit. For B, C, D, or X flood zones, the building’s dry floodproofed design elevation must be at least two feet above the natural HAG to be considered for floodproofing credit.~~ **NOTE: Per the latest release of ASCE 24,***

ASCE 24-24, the Flood Hazard Area is expanded to the 500-year floodplain for Flood Design Classes 2, 3, and 4 structures, flood loads for use in design are now calculated in accordance with ASCE 7-22, Supplement 2, and Design Flood Elevation (DFE) requirements are based on the Flood Design Class of the building.

Section I

- Specify what units the velocity should be given in (ft/s, m/s, etc.)
- Adding the following questions:
 - o Does the FIRM have a defined Floodway?
 - o Is the property located adjacent to the Floodway?
 - o With regards to the Alluvial Fans question: Are stormwater pumps used in this area?

Section II

- Remove the following sentence from the first bullet *“For insurance rating purposes in all zones except for B, C, D, or X, the building's dry floodproofed design elevation must be at least one foot above the BFE to be considered for floodproofing credit. For B, C, D, or X Zones, the building's dry floodproofed design elevation must be at least two feet above the natural HAG to be considered for floodproofing credit. If the building is not dry floodproofed to the above-mentioned standards, then the building will be ineligible for floodproofing credit.”*
 - o This should be removed as it is no longer correct due to NFIP Risk Rating 2.0's rating methodology. Consider replacing with *“The certificate along with the documentation found in the instruction section can potentially qualify you for a dry floodproofing credit.”*
- Remove the following sentence from the second bullet: *“Flood damage resistant materials are used for all areas where seepage is intended to collect inside the dry floodproofed areas up to at least 4 inches above the floor.”*
 - o Denver has a more restrictive seepage rate requirement where the seepage in any dry floodproofed area would never reach this 4-inch depth and so does not require flood damage resistant materials up to at least the 4 inches. 4 inches should not be a certification requirement if communities have more restrictive requirements as this could become very costly to a project.
- Recommended language changes:
 - o *Briefly list measures incorporated into the design to meet the performance criteria for dry floodproofing and attach calculations showing the structure is designed with structural components that have the capability of resisting hydrostatic and hydrodynamic loads and the effects of buoyancy and will be watertight and substantially impermeable to the passage of water. Note measures for walls, slabs, and flood barriers. For flood barriers (including flood glazing), list product name, manufacturer name, compliance in certification to performance testing to ANSI/FM 2510 standards (as required by ASCE 24-24), and if it is a passive or active flood protection measure.*

- o *Non-Residential Dry Floodproofed Design Certification: I certify the structure, based upon development and/or review of the design and specifications for construction, has been designed in accordance with the accepted standards of practice (ASCE 24-05, ASCE 24-14, ASCE 24-24 or their equivalent) and the following provisions.*
 - *The structure, together with attendant utilities and sanitary facilities will be watertight to the dry floodproofed design elevation indicated above, will be substantially impermeable to the passage of water, and shall perform in accordance with the 44 Code of Federal Regulations (44 CFR 60.3(c)(3)).*
 - *All structural components are capable of resisting hydrostatic and hydrodynamic flood forces, including the effects of buoyancy, and anticipated debris impact forces up to the dry floodproofed design elevation. Flood damage-resistant materials are used for all areas where seepage is intended to collect inside the dry floodproofed areas up to at least 4 inches above the floor.*
 - *Any flood barriers (including flood glazing) are complying in certification to performance testing to ANSI/FM 2510 standards (as required by ASCE 24-24).*

Section III

- Remove the following sentence from the note “For insurance rating purposes in all zones except for B, C, D, or X, the building's dry floodproofed design elevation must be at least one foot above the BFE to be considered for floodproofing credit. For B, C, D, or X Zones, the building's dry floodproofed design elevation must be at least two feet above the natural HAG to be considered for floodproofing credit. If the building is not dry floodproofed to the above-mentioned standards, then the building will be ineligible for floodproofing credit.”
 - o This should be removed as it is no longer correct due to NFIP Risk Rating 2.0's rating methodology. Consider replacing with “The certificate along with the documentation found in the instruction section can potentially qualify you for a dry floodproofing credit.”
- Recommended language changes:
 - o (Note: For insurance rating purposes in all eligible zones inside the SFHA, the building's dry floodproofed design elevation must be at least one foot above the BFE to be considered for floodproofing credit. For B, C, D, or X Zones, the building's dry floodproofed design elevation must be at least two feet above the natural HAG. If the building is not dry floodproofed to the above-mentioned standards, then the building will not be considered for floodproofing credit. See the Instructions section for information on documentation that must accompany this certificate if being submitted for flood insurance rating purposes. Per the latest release of ASCE 24, ASCE 24-24, the Flood Hazard Area is expanded to the 500-year floodplain for Flood Design Classes 2, 3, and 4 structures, flood loads for use in design are now calculated in accordance with ASCE 7-22, Supplement 2, and Design Flood Elevation (DFE) requirements are based on the Flood Design Class of the building.)

Section IV

- Remove the bullet regarding seepage rate requirements. See above comments from Denver
- Recommended language changes:
 - o *I certify the structure, based upon development and/or review of the design, specifications, as-built drawings for construction and physical inspection, has been designed and constructed in accordance with the accepted standards of practice (ASCE 24-05, ASCE 24-14, ASCE 24-24 or their equivalent) and any alterations also meet those standards and the following provisions. Non-controllable factors that could affect the building's floodproofed design performance do not apply.*

^ Reasoning for this above are that there are non-controllable factors that are out of the signer's control such as the deployment of active flood barriers.

- *The structure, together with attendant utilities and sanitary facilities is watertight to the dry floodproofed design elevation indicated above, is substantially impermeable to the passage of water, and shall perform in accordance with the 44 Code of Federal Regulations (44 CFR 60.3(c)(3)).*
- *All structural components are capable of resisting hydrostatic and hydrodynamic flood forces, including the effects of buoyancy, and anticipated debris impact forces up to the dry floodproofed design elevation.*
- *Any flood barriers (including flood glazing) are complying in certification to performance testing to ANSI/FM 2510 standards (as required by ASCE 24-24).*
- *The floodproofed elevation is in accordance with the design and any alteration(s) to the design.*
- *Flood damage-resistant materials have been incorporated/used in all areas where seepage would collect inside the dry floodproofed areas up to at least 4 inches above the floor.*
- *Construction matches the latest approved design drawings.*

Required Documentation

- Comprehensive Flood Emergency Operations Plan (2f): Define conditions, such as Hurricane Watch.
- REQUIRED DOCUMENTATION (page 6 of 8). Modify #4 Building Owner statement to require acknowledgement of the Inspection and Maintenance Plan.

- Comprehensive Flood Emergency Operations Plan recommended language changes:
 - o 2a. The personnel, equipment, tools, and supplies needed to deploy all dry floodproofing system components with sufficient time prior to the onset of flooding or conditions such as high winds that could interfere with efficient deployment of measures. *Identify the single personnel hours needed to deploy all dry floodproofing components and list compliance to ASCE 24-24 requirements based on the Flood Design Class of the building. Identify the flood warning system being utilized (e.g. community warning system or flood warning system that is specific to the facility) per ASCE 24-24.*
 - o 2g. Instructions for installing or deploying each dry floodproofing measure and the order of installation if important for effectiveness. *For structures with permanent automatic passive measures the plan should include an audio or visual device to alert the building owner or designated representative as well as occupants that the measures have been implemented and additional steps in the operations plan may be triggered.*
 - o 2k. Requirements for installation and *full-scale* deployment, drills and training program in the presence of an inspection agency (at least once a year)
 - o 2m. Documentation of all substantially impermeable walls and any other portion of the building required to have protected non-flood openings or penetrations shall be permanently identified with signs or stenciling.
- Comprehensive Inspection and Maintenance Plan (3j) recommended language changes:
 - o Contact information for the manufacturer *and installer* of the shields and other components to determine the availability of replacement gaskets, seals, and other parts and to ask questions.

Instructions

- Recommended language changes for SECTION IV – DRY FLOODPROOFED CONSTRUCTION CERTIFICATION:
 - o Section IV is to be completed by a Registered Professional Engineer or Architect licensed in the state where the building is located to certify the structure, based upon development and/or review of the design, specifications, as-built drawings for construction and physical inspection, has been designed and constructed in accordance with the accepted standards of practice (ASCE 24-05, ASCE 24-14, *ASCE 24-24* or their equivalent) and any alterations also meet those standards and the provisions listed in Section IV.