

Rebecca Quinn, CFM

RCQuinn Consulting, Inc.

## **COMMENTS ON ELEVATION CERTIFICATE**

1. **Improved Compliance Tool.** This version of the form represents significant progress by improving the Elevation Certificate as a compliance tool.
2. **FEMA Form number.** Remove date from the form number. It appears the form number will have the date “inside” the number (i.e., “FF-206-FY-22-152, where “FY-22” is taken to mean fiscal year 2022). This is problematic for those communities that explicitly require use of the FEMA certificate because citing the form number in their regulations will lock them into a specific version of the form and thus would require those communities to amend their regulations every time FEMA updates the form. Don’t assume that it’s obvious that the “current” version would always be used – didn’t a court hold that because Houston cited the 1993 edition of Technical Bulletin 1, that the city was required to use that edition for enforcement?
3. **Engineered Openings.** In A8.d, .e., and f – and A9.d. e., and f – modify so there aren’t mixed units (both square inches and square feet) which is complicated when the summation of both nonengineered and engineered is needed. See how this is explained in TB 1. Use that to explain why the rated (or coverage) area of engineered openings should be expressed in square inches. That will help avoid having people convert the coverage area (e.g., 200 sq ft) into square inches (i.e., 28,800 sq in) when both nonengineered and engineered openings are present.
  - a. **However,** a better solution would be to eliminate f) so that the certifier doesn’t need to “combine.” This is a better solution because I think having both nonengineered and engineered openings is a fairly rare occurrence. Yes, it is a bit more of a challenge for local officials determining compliance. A brief explanation could be added to the instructions and FEMA can modified TB 1.
4. **“Regulated areas subject to coastal flooding.”** The meaning of this phrase is unclear and the phrase “regulated areas” is not in 44 CFR Part 60 nor in FEMA publications. FEMA should avoid introducing a new term unless it is absolutely clear what the term means and it is really justified, which seems difficult to understand would be the case after not having that term for decades. Item C2.c bottom of the lowest horizontal structural member refers to instruction, where the phrase appears. It also appears in G9.b and instructions (“bottom of as-built lowest horizontal structural member”; figure illustrating location of C2.c (bottom of Section C instructions); and Building Diagrams (second paragraph). Thus, the expectation is the bottom of the lowest horizontal structural member must be surveyed (C2.c) or measured from grade (G9.b). What is FEMA’s intent?
  - a. A plain reading leads to the conclusion that the intended meaning is the entire SFHA when the source of flooding is a coastal body of water, which would Zone A/AE inland of a Zone V or inland of a shoreline without Zone V. The entire Zone A extends all the

- way inland to where the depth of flooding (BFE minus ground) goes to zero. If this is the intent, then the instructions should very clearly explain the intent and the phrase should be modified as follows: “in V Zones and in Zone A/AE ~~regulated areas~~ subject to coastal flooding.”
- b. Reading between the lines, I think FEMA may be trying to capture the area known as the Coastal A Zone when a Limit of Moderate Wave Action has been delineated on FIRMs by FEMA. This area is subject to waves between 3 ft (the Zone V boundary) and 1.5 feet. The International Codes regulate the CAZ almost like Zone V, with the reference point on the building being the “bottom of the lowest horizontal structural member of the lowest floor.” In Florida, a growing number of communities modify the building code to regulate the CAZ exactly like Zone V (eliminating backfilled stem walls) for increase resilience, largely in anticipation of changing flood conditions, BFEs, and zone boundaries due to climate change. If this is the intent, then the instructions should be changed and the phrase should be modified as follows: “in V Zones and in Zone A/AE seaward of Limit of Moderate Wave Action (if delineated on FIRM). ~~regulated areas subject to coastal flooding.~~”
5. **Photographs.** One benefit of having photos of all sides and aspects of the building is to document as-built conditions. If any unpermitted construction or alterations occur, having a full set of photographs documenting the as-built conditions will be beneficial for the community.

## **COMMENTS ON NONRESIDENTIAL DRY FLOODPROOFING CERTIFICATE**

1. **Distinguishing Design from As-Built.** This version of the form represents significant progress by recognizing and clearly distinguishing the certification of design from certification of the “as-built” condition.
2. **FEMA Form number.** Remove date from the form number. It appears the form number will have the date “inside” the number (i.e., “FF-206-FY-22-153, where “FY-22” is taken to mean fiscal year 2022). This is problematic for those communities that explicitly require use of the FEMA certificate because citing the form number in their regulations will lock them into a specific version of the form and thus would require those communities to amend their regulations every time FEMA updates the form. Don’t assume that it’s obvious that the “current” version would always be used – didn’t a court hold that because Houston cited the 1993 edition of Technical Bulletin 1, that the city was required to use that edition for enforcement?
3. **Machinery and equipment.**
  - a. 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.

- b. But machinery that is inside a separate “floodwall” type structure OR inside the building area that is protected by the dry floodproofing system, there is no need to require the equipment/machinery to be surveyed.

4. **“Lowest protected floor.”**

- a. What is the rationale for asking this to be surveyed to the tenth of a foot? Designers have to certify the design, which means they have to look at hydrostatic loads associated with water above the ground during flooding, below the ground surface caused by saturated conditions during flooding, and below the ground caused by groundwater (if present).
  - b. Local officials do not need surveyed elevation of that lower level to inspect and determine whether construction complies with the plans because they have the design plans and specifications and they know of the presence of lower levels.
  - c. If the NFIP needs to know how far below the lowest protected floor is for insurance purposes, that could be provided by the designer in whole feet (because more than a few feet below grade the difference in load due to half a foot isn’t significant but, in any event, is already accounted for by the designer’s load calculations).
5. **Photographs.** One benefit of having photos of all sides and aspects of the building is to document as-built conditions. If any unpermitted construction occurs – or unpermitted alteration of dry floodproofing features – having a full set of photographs attached by the design professional who certifies the as-built will be beneficial for the community.
6. **Emergency Operations Plan and Inspection and Maintenance Plans.** Some of FEMA’s Mitigation Assessment Team reports document failure of dry floodproofing measures because of lack of maintenance or lack of awareness on the part of facility personnel. They also document successes when personnel maintain measures and are familiar with deployment of shields and other measure. FEMA Technical Bulletin 3 and ASCE 24 commentary explain why the designer should be part of preparing these plans. A designer should not specify features that require human intervention unless there is adequate time (described in TB 3). This means designs might need to be modified from initial concepts, to yield a scheme that won’t require as much time or specialized equipment to deploy. However, it’s important that the owner have those plans and commit to those plans. That can be accomplished by having a section for the owner to acknowledge those plans and attach those plans.