Clarifying Contradictions and Gaps in NFIP Regulations, Guidance Documents and Community Policy

SCHWALLS CONSULTING LLC

Engineering & Floodplain Management Solutions
National Expertise – Local Focus

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ASFPM National Conference

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Chair, FFMA

Region 4 Director, ASFPM

Goals of Presentation

- Identify inconsistencies
- Explore implications
- Recommend solutions
- Continue to refine and identify solutions
- Identify additional inconsistencies
  - and solve them!!

Best Available Data

Best Available Data

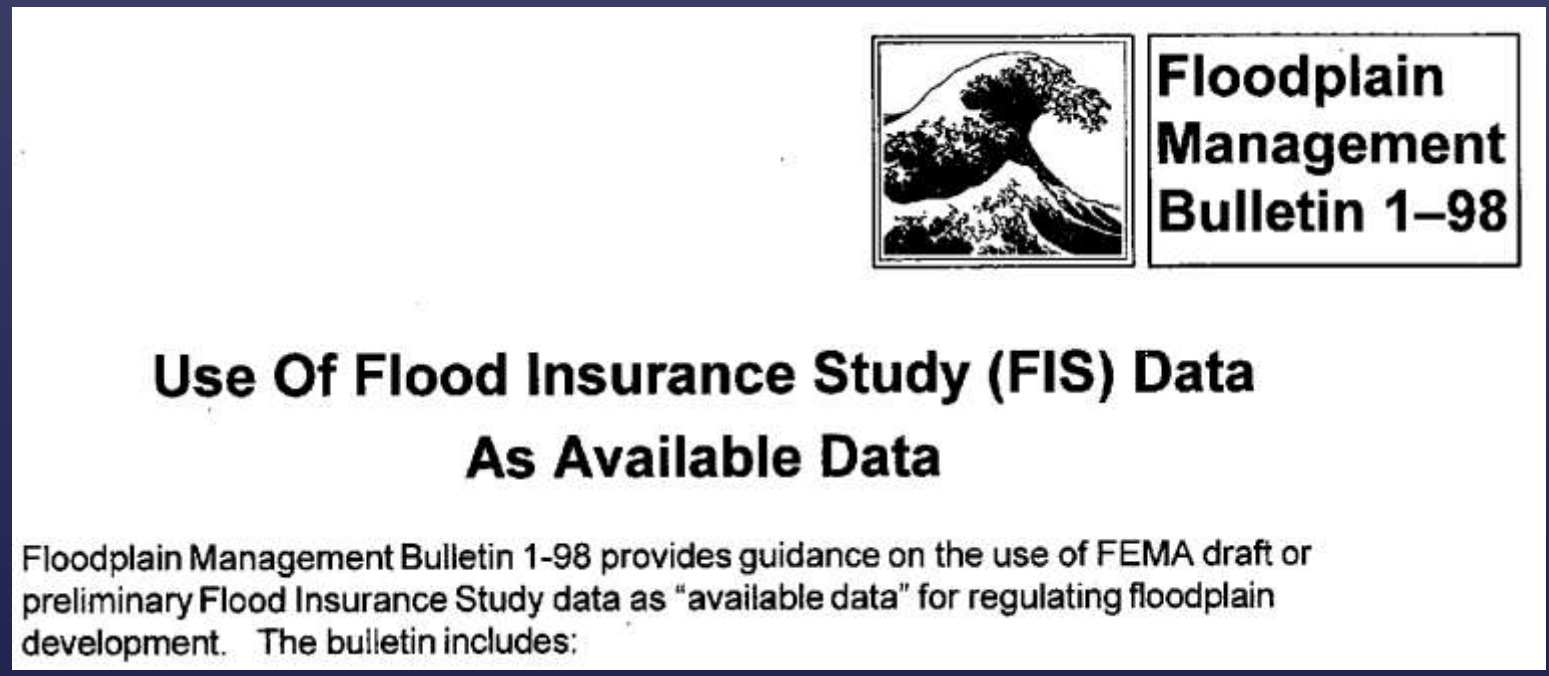
- What is best available data?
- How do we use it?
- When can we use it?
- When are we required to use it?

Best Available Data

- 60.3(b)(4) Obtain, review and reasonably utilize any base flood elevation and floodway data
  - available from a Federal, State, or other source,
  - including data developed pursuant to paragraph (b)(3) of this section,
  - as criteria for requiring that new construction, substantial improvements, or other development in Zone A on the community's FHBM or FIRM
  - meet the standards in paragraphs (c)(2), (c)(3), (c)(5), (c)(6), (c)(12), (c)(14), (d)(2) and (d)(3) of this section;

Best Available Data – Preliminary/Draft Maps

- FMB 1-98



Floodplain Management Bulletin 1–98

Use Of Flood Insurance Study (FIS) Data As Available Data

Floodplain Management Bulletin 1-98 provides guidance on the use of FEMA draft or preliminary Flood Insurance Study data as "available data" for regulating floodplain development. The bulletin includes:

Best Available Data – Preliminary/Draft Maps

- FMB 1-98

For Zone A:

For Zone A areas designated on the community's effective FHBM or FIRM, the BFE and floodway data from a draft or preliminary FIS constitute available data under Subparagraph 60.3(b)(4). The requirement at Subparagraph 60.3(b)(4) is an important floodplain management tool for reducing flood damages in areas where a detailed engineering study to develop BFEs and designate floodways on streams has not been conducted. Communities are required to reasonably utilize the data from a draft or preliminary FIS under the section of their ordinance that applies to this paragraph. A community is allowed discretion in using this data only to the extent that the technical or scientific validity of the data in the draft or preliminary FIS is questioned.

Best Available Data – Preliminary/Draft Maps

- FMB 1-98

For Zones AE, A1-30, AH, AO, VE, and V1-30:

The NFIP floodplain management criteria do not require communities to use BFE and flood way data from a draft or preliminary Flood Insurance Restudy in Zones AE, A1-30, AH, AO, VE, and V1-30 in lieu of using the BFE and floodway data contained in an existing effective FIS and FIRM. Because communities are afforded the opportunity to appeal BFE data from a restudy in accordance with Section 1363 of the National Flood Insurance Act of 1968, as amended, a presumption of validity is given to existing effective BFE data that has gone through the formal statutory appeals process and which has been adopted by the community.

Best Available Data – Preliminary/Draft Maps

- FMB 1-98

However, in cases where BFEs increase in the restudied area, communities have the responsibility to ensure that new or substantially improved structures are protected, particularly if the increases in BFEs are significant. While FEMA can not mandate or require a community to use BFE and floodway data in a draft or preliminary FIS as available data or to use the data at the time FEMA issues the LFD to the community, FEMA encourages communities to reasonably utilize this information in instances where BFEs increase and floodways are revised to ensure that the health, safety, and property of their citizens are protected.

In cases where BFEs decrease, the community should not use this information to regulate floodplain development until the LFD has been issued or at least until all appeals have been resolved. If the draft or preliminary FIS provides information that BFEs are decreasing, but a valid appeal actually results in higher BFEs, the community could place its citizens at a greater flood risk by using the draft or preliminary FIS to regulate floodplain development. Also, these structures could be subject to increased flood insurance premiums.

Best Available Data

- 60.3(b)(2) Require the application of the standards in paragraphs (a) (2), (3), (4), (5) and (6) of this section to development within Zone A on the community's FHBM or FIRM;

For Zone A:

For Zone A areas designated on the community's effective FHBM or FIRM, the BFE and floodway data from a draft or preliminary FIS constitute available data under Subparagraph 60.3(b)(4). The requirement at Subparagraph 60.3(b)(4) is an important floodplain management tool for reducing flood damages in areas where a detailed engineering study to develop BFEs and designate floodways on streams has not been conducted. Communities are required to reasonably utilize the data from a draft or preliminary FIS under the section of their ordinance that applies to this paragraph. A community is allowed discretion in using

Best Available Data

- 60.3(c)(1) Require the standards of paragraph (b) of this section within all A1–30 zones, AE zones, A zones, AH zones, and AO zones, on the community's FIRM

For Zones AE, A1-30, AH, AO, VE, and V1-30:

The NFIP floodplain management criteria do not require communities to use BFE and flood way data from a draft or preliminary Flood Insurance Restudy in Zones AE, A1-30, AH, AO, VE, and V1-30 in lieu of using the BFE and floodway data contained in an existing effective FIS and FIRM. Because communities are afforded the opportunity to appeal BFE data from a restudy in accordance with Section 1363 of the National Flood Insurance Act of 1968, as amended, a presumption of validity is given to existing effective BFE data that has gone through the formal statutory appeals process and which has been adopted by the community.

Best Available Data

- 60.3(d)(1) Meet the requirements of paragraphs (c) (1) through (14) of this section;

For Zones AE, A1-30, AH, AO, VE, and V1-30:

However, if a draft or preliminary FIS has designated floodways where none had previously existed, communities should reasonably utilize this data in lieu of applying the encroachment performance standard of 44 CFR 60.3(c)(10) since the data in the draft or preliminary FIS represents the best data available. By utilizing the floodway data from a draft or Preliminary FIS, communities avoid the expense of conducting the hydraulic analysis necessary to demonstrate compliance with 60.3 (c)(10). In addition, communities can minimize flood damages by ensuring that the flood carrying capacity of the floodway is preserved since obstruction of floodways can significantly increase potential flooding upstream.

Best Available Data

- 60.3(b)(2) Require the application of the standards in paragraphs (a) (2), (3), (4), (5) and (6) of this section to development within Zone A on the community's FHBM or FIRM;

- 60.3(c)(1) Require the standards of paragraph (b) of this section within all A1–30 zones, AE zones, A zones, AH zones, and AO zones, on the community's FIRM

- 60.3(d)(1) Meet the requirements of paragraphs (c) (1) through (14) of this section;

Regulatory BFEs

Regulatory BFEs

- Where do we obtain them?
- FIS and FIRM
- Whole number or tenth of a foot?

Regulatory BFEs

- Guidance Documents

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

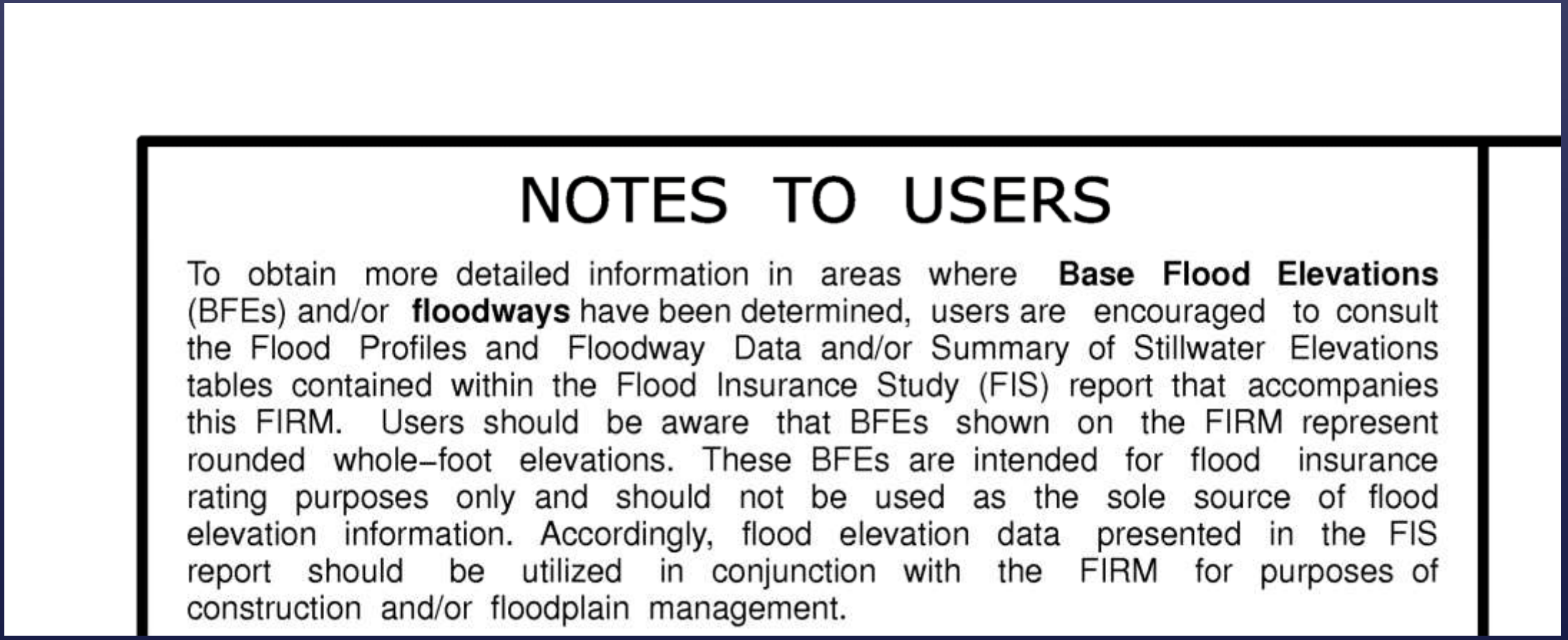
To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole–foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Regulatory BFEs

- Guidance Documents – FIRM Panel



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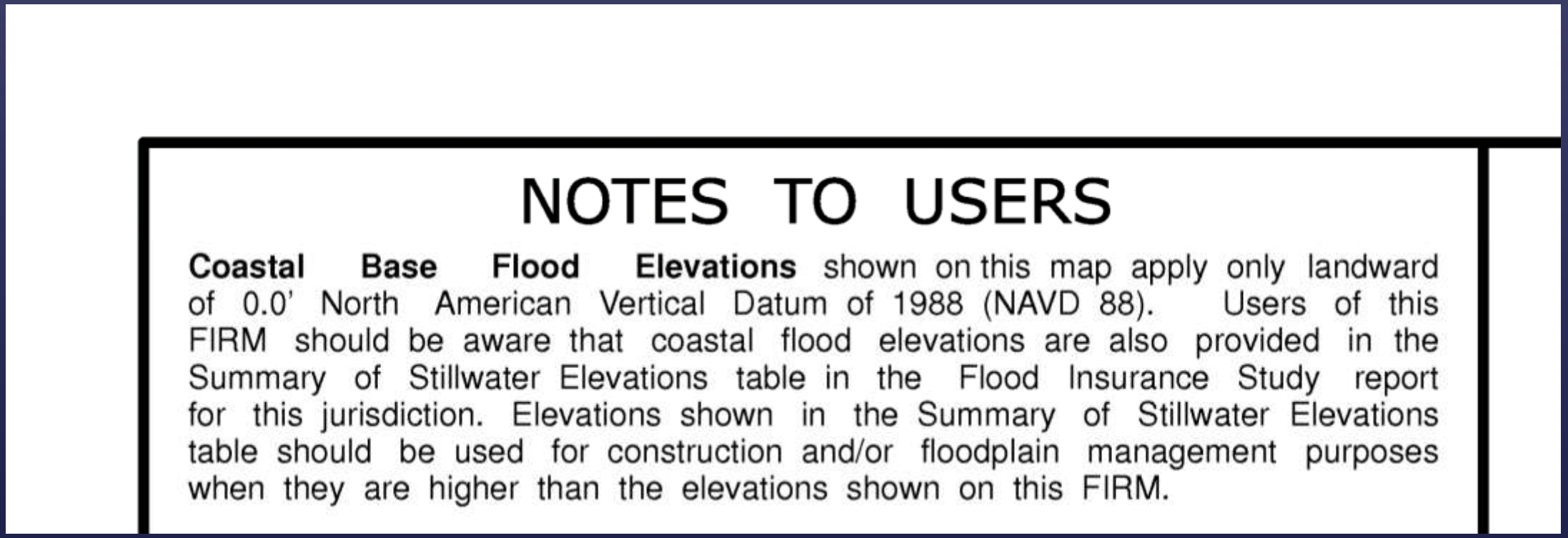
Regulatory BFEs

- Guidance Documents – FIRM Panel



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Regulatory BFEs

- Guidance Documents – FEMA 480

While any interested person may use this study guide and desk reference, it is written specifically for the local official who is responsible for administering his or her community's floodplain management regulations.

Regulatory BFEs

- Guidance Documents - FEMA 480

Lakes

Most lakes have a BFE, shown in parentheses below the flood zone that has been rounded off to the nearest whole number (see Figure 3-13). The actual BFE, to the nearest tenth of a foot, can be obtained from the FIS report. However, many long lakes, especially reservoirs, have a higher BFE at the upstream end than at the outfall. These types of lakes and reservoirs have BFEs shown with wavy lines, the same as riverine BFEs. They also appear on the stream profiles in the FIS report.

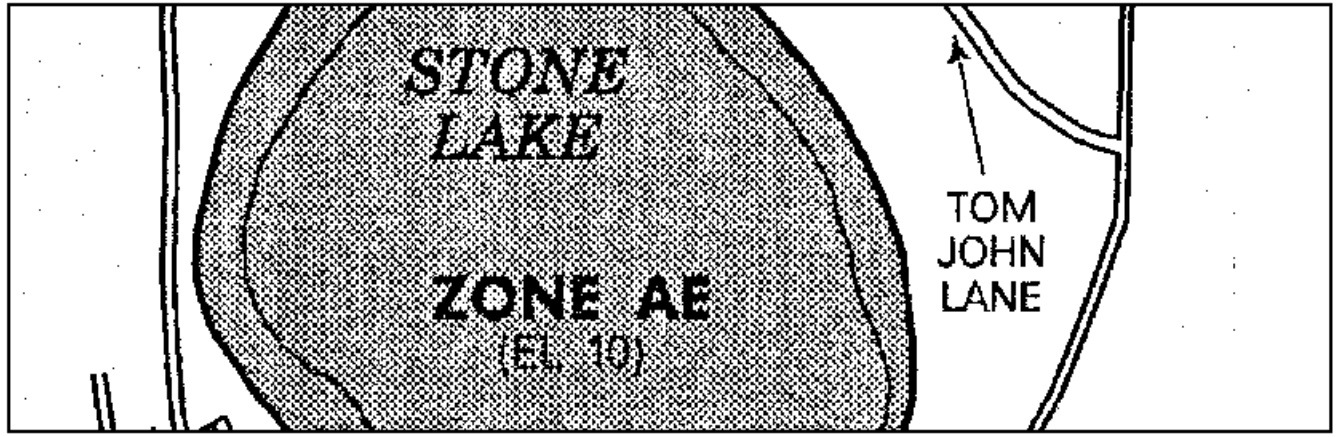

Figure 3-13: FIRM with lake floodplain

Where studies have been carried out for lakes and reservoirs, information on BFEs is contained in Section 3.0 of the FIS report. A *Summary of Stillwater Elevations* table is provided in the FIS report (Figure 3-14). Note that the actual BFEs to the nearest one-tenth of a foot appear in the table, but the BFE on the FIRM is shown in parentheses rounded to the nearest whole number. For the most accurate BFE, use the "100-year flood elevation" from the table, not the FIRM.

Regulatory BFEs

- Guidance Documents
  - FEMA 480

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Most lakes have a BFE, shown in parentheses below the flood zone that has been rounded off to the nearest whole number (see Figure 3-13). The actual BFE, to the nearest tenth of a foot, can be obtained from the FIS report. However, many long lakes, especially reservoirs, have a higher BFE at the upstream end than at the outfall. These types of lakes and reservoirs have BFEs shown with wavy lines, the same as riverine BFEs. They also appear on the stream profiles in the FIS report.

Regulatory BFEs

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Regulatory BFEs

- Guidance Documents
  - FEMA 480

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Regulatory BFEs

- Guidance Documents
  - FEMA 480

COASTAL AND LAKE ELEVATIONS

Coastal flood elevations. Table 4, *Transect Descriptions,* on page 12 in the FIS report for Flood County, shows the stillwater elevations and the maximum wave crest elevations of 100-year flood events along the coast.

Coastal regulatory flood elevations include the increase due to wave height. Therefore, use the BFE from the FIRM, not the stillwater elevations in the table.

Regulatory BFEs

- Guidance Documents - FEMA 480

COASTAL AND LAKE ELEVATIONS

Coastal flood elevations. Table 4, *Transect Descriptions,* on page 12 in the FIS report for Flood County, shows the stillwater elevations and the maximum wave crest elevations of 100-year flood events along the coast.

Coastal regulatory flood elevations include the increase due to wave height. Therefore, use the BFE from the FIRM, not the stillwater elevations in the table.

The base flood elevations on the FIRM are rounded to the nearest foot, which means that if a base flood elevation was actually 8.3 feet, it would show as 8 feet on the FIRM. To correct for this, the recommended rule of thumb is to add 0.4 foot to the rounded BFE on the FIRM. This makes sure that the regulatory elevation you use will be high enough.

For the coast, *use the base flood elevation from the FIRM (plus 0.4 foot), not the table.*

Regulatory BFEs

- Guidance Documents - FEMA 480

UNIT 4 - LEARNING CHECK #1 - ANSWERS

8. What is the regulatory base flood elevation at site F?

13.4 feet, NGVD (13 feet from the FIRM plus 0.4 foot to make sure that the regulatory elevation will be high enough)

Flood Openings

Flood Openings

- Why do we need them?
- What is the requirement?
- What is the science?

Flood Openings

- 60.3(c)(5) Require, for all new construction and substantial improvements, that fully enclosed areas below the lowest floor that are usable solely for parking of vehicles, building access or storage in an area other than a basement and which are subject to flooding shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a registered professional engineer or architect or meet or exceed the following minimum criteria: A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided. The bottom of all openings shall be no higher than one foot above grade. Openings may be equipped with screens, louvers, valves, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.

Flood Openings

- 60.3(c)(5) Require… that fully enclosed areas below the lowest floor… which are subject to flooding shall be
- … designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters.
- … A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided.
- … The bottom of all openings shall be no higher than one foot above grade.

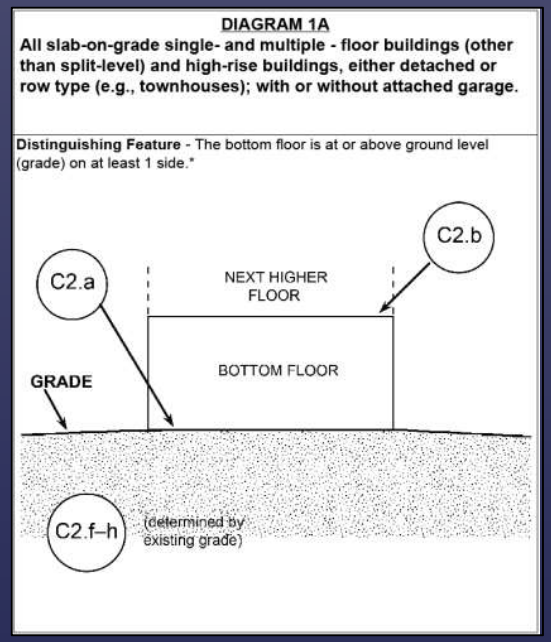
Flood Openings

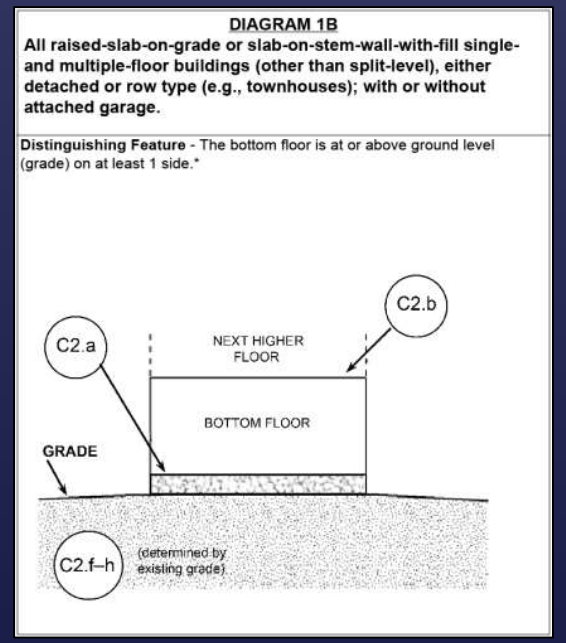
- Insurance Implications?
- Only portion below BFE counts
- Why?
- Does the wall know what we call the flood?

EC Diagrams 1A & 1B

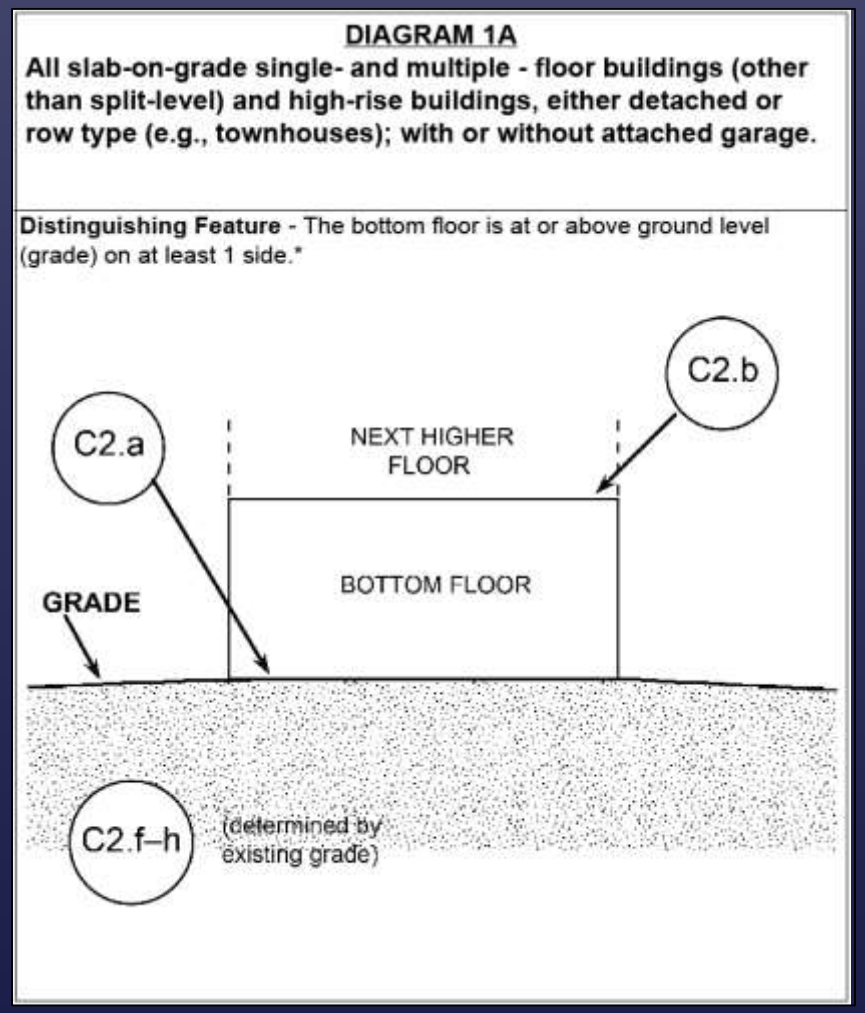
EC Diagrams 1A & 1B

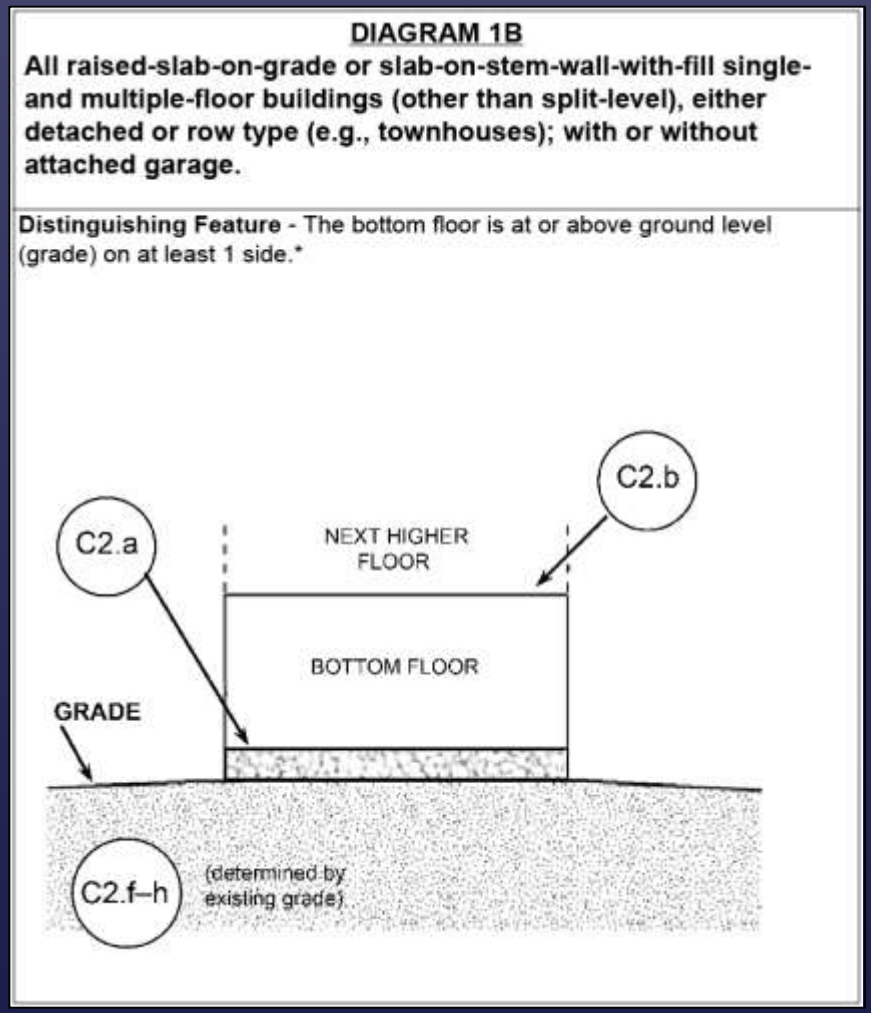
- What is the difference?
- Stem wall construction?





EC Diagrams 1A & 1B





EC Diagrams 1A & 1B

C2. Elevations – Zones A1–A30, AE, AH, A (with BFE), VE, V1–V30, V (with BFE), AR, AR/A, AR/AE, AR/A1–A30, AR/AH, AR/AO. Complete Items C2.a–h below according to the building diagram specified in Item A7. In Puerto Rico only, enter meters.

Benchmark Utilized: _____ Vertical Datum: _____

Indicate elevation datum used for the elevations in items a) through h) below.

☐ NGVD 1929 ☐ NAVD 1988 ☐ Other/Source: _____

Datum used for building elevations must be the same as that used for the BFE.

		Check the measurement used.	
a) Top of bottom floor (including basement, crawlspace, or enclosure floor)	_____. _____	☐ feet	☐ meters
b) Top of the next higher floor	_____. _____	☐ feet	☐ meters

EC Diagrams 1A & 1B

C2. Elevations – Zones A1–A30, AE, AH, A (with BFE), VE, V1–V30, V (with BFE), AR, AR/A, AR/AE, AR/A1–A30, AR/AH, AR/AO. Complete Items C2.a–h below according to the building diagram specified in Item A7. In Puerto Rico only, enter meters.

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Datum used for building elevations must be the same as that used for the BFE.

		Check the measurement used.	
a) Top of bottom floor (including basement, crawlspace, or enclosure floor)	_____. _____	☐ feet	☐ meters
b) Top of the next higher floor	_____. _____	☐ feet	☐ meters

DIAGRAM 1A

All slab-on-grade single- and multiple - floor buildings (other than split-level) and high-rise buildings, either detached or row type (e.g., townhouses); with or without attached garage.

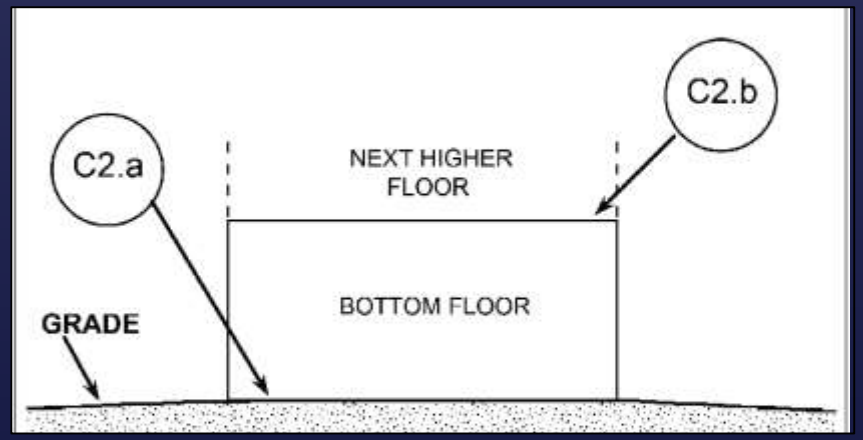
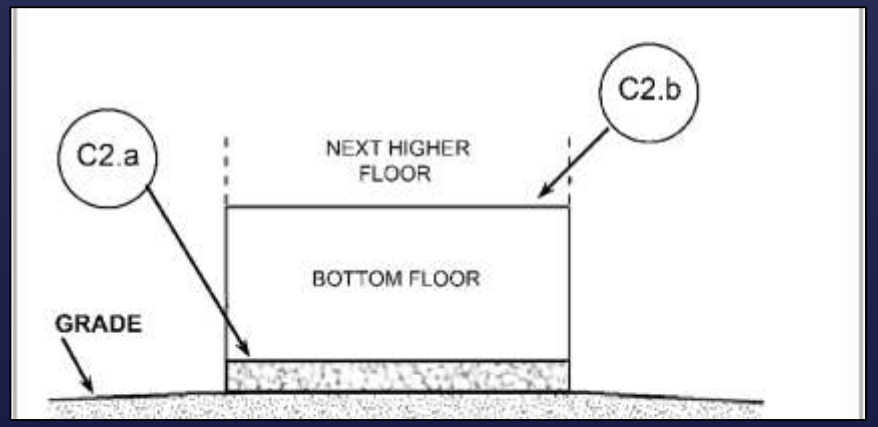


DIAGRAM 1B

All raised-slab-on-grade or slab-on-stem-wall-with-fill single- and multiple-floor buildings (other than split-level), either detached or row type (e.g., townhouses); with or without attached garage.



Change Our Approach

- Identify inconsistencies
- Explore implications
- Recommend solutions
- Continue to refine and identify solutions
- Identify additional inconsistencies
  - and solve them!!

What Are We Doing and Why?

Questions?

Del Schwalls, PE*, CFM

* PE in FL, AL, GA & SC

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Chair, Florida Floodplain Managers Association
Region 4 Director, Association of State Floodplain Managers

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