How Should Surveyors and Floodplain Managers Measure Elevations in Special Flood Hazard Areas (SFHAs) using the North American Vertical Datum of 1988 (NAVD88)?

As a community's Flood Insurance Study (FIS) and Flood Insurance Rate Map (FIRM) are upgraded to NAVD88, it becomes especially important to know the vertical datum whenever working with elevation data. Most of the NAVD88 flood elevations in a new FIS and FIRM were originally calculated based on an older vertical datum and subsequently updated to NAVD88 using a simplified process based on computer software. This process[1] allows either:

1) A uniform offset to be applied to an entire county (when the maximum error in using a uniform offset value is no more than 0.25 foot for that county); or
2) Watershed-by-watershed or stream-by-stream offsets (if the offset from the average conversion factor falls outside of the acceptable range of 0.25 foot from the average).

A vertical datum update has the potential to create confusion and non-uniform survey practices in a community. Therefore, the following guidance is provided.

One should not use a benchmark elevation in National Geodetic Vertical Datum of 1929 (NGVD29) once FEMA has updated the FIS and FIRM's vertical datum to NAVD88. **All new surveys should be done in NAVD88.**

There are three options for measuring elevations (in NAVD88) for the National Flood Insurance Program. All three options below are acceptable to FEMA, with caveat, and a description of benefits and constraints of each is included below.

Approach For Measuring Elevations	Comment and Considerations
1) If an existing building or structure elevation referenced to an older datum (for example, NGVD29) is known, apply the offset[1] used by FEMA to determine the elevation in NAVD88	Easiest method and most applicable to elevation certificates as it emulates FEMA process; however there is potential for elevations to change over time especially in an area subject to subsidence and/or uplift
2) If an existing building or structure elevation referenced to an older datum (for example, NGVD29) is known, apply a site-specific offset determined by computer software (for example, CORPSCON) to determine the elevation in NAVD88	While not as easy as the first method, this approach is straightforward and sometimes more technically correct where the county is large and a community has variable offsets between vertical datums; this approach is less warranted when FEMA applied variable offsets in the new FIS and FIRM
3) Resurvey the elevation in NAVD88 based on NGS monuments	Most precise method but also most costly; may be needed in areas of large subsidence and/or uplift

[1] For more information on the vertical datum update process used by FEMA, as well as the specific offset(s) between vertical datums, refer to Section 3.3 of your community's FIS report.