GNSS In Music City

ALTA Standards
An update

Busman’s Holiday
Surveyors’ time off

User Conference
Optech ILSC
The Elevation Certificate
{translated}

PART 2

In Part 1 of this article we explained Section A of the Elevation Certificate (EC) after underscoring the significance of filling out the form correctly in the big NFIP arena, aside from the surveyor's professional responsibility. In Part 2 we offer guidance for Sections B through E, completing our discussion.

When you arrive at Section B, put on your administrator hat. Dot your i's, cross your t's. Don't leave out any requested information. Answer all items thoroughly. The EC is based on the current Flood Insurance Rate Map (FIRM). Something often overlooked: if the structure was built before the current FIRM and you know the date of construction, enter the date of the map effective at the time of construction (along with its pertinent panel number and letter suffix) in Section D, the comments area of the form. Don't forget that the community number might also have changed since the early mapping, so include that as well. While not on the face of the EC, this request for the original map is included in the EC instruc-

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FEMA's Map Service Center is a central location for current and historic flood maps, as well as for Letters of Map Change and Flood Insurance Study reports. Visit http://msc.fema.gov.

If you are in a community fortunate enough to have developed floodway data, the second method of BFE determination is to look in the FIS for a Floodway Data Table. If you are between two mapped cross-sections you can interpolate a BFE between them, based on the value given on the Floodway Data Table in the sub-column labeled "Regulatory" under the four-column header of "Base Flood Water Surface Elevation".

Unfortunately, not every community has a Floodway Data Table, or even a Flood Insurance Study Report. Even when a study report is available, there may not be a defined floodway (or at least not one for the stream reach of interest), and therefore no floodway data table exists. This is the most common scenario. But if this information is available, it is the best way to go.

Remember that if you are working with an approximate Zone "A", there is no BFE, but do not enter a zero in B9, and don’t leave it blank so that you raise questions about the completeness of your EC. Instead, the appropriate response is Not Applicable (N/A). If you are working in a Zone "AO", an area of...
uniform shallow flooding noted on the FIRM and also lacking a BFE, be sure to add the word “Depth” to the number of 1, 2, or 3 taken from the FIRM (such as “depth 2 feet”). Otherwise the figure in Item B9 will be misinterpreted as an elevation, a definite possibility along low-lying coastal areas where the ground really can be at such elevations.

**Datum: Item B11**

There are a host of floodplain administrators who will tell you that surveyors don’t understand datum. The problem is that we do and they don’t. Always remember to keep the situation simple by keeping your datum consistent. If the map is in NGVD 1929, report your elevations in ’29. The same goes for NAVD 1988. Don’t mix and match. When conversion is necessary, use the National Geodetic Survey free online conversion program called VertCon or the US Army Corps of Engineers’ free online conversion program called CorpsCon. Keep the report with your own records of your EC. Don’t expect lay users of the EC to understand that kind of information; the conversion records are for your own documentation. A memorandum issued in May 2010 instructed insurance agents to assume that elevations in Item B9 and in Section G are in the same elevation datum unless the surveyor’s comments specifically state that a conversion was not performed. To overcome such assumptions, presumptions, and suppositions, just be sure that the BFE in Item B9 and the elevations in Section G are in the same datum. This helps out the insurance writers who have little comprehension of datum and conversions and protects you from accusations in the face of someone else’s lack of understanding.

If a structure is in a Zone “A” or Zone “AO” without a BFE, in the majority of cases one should skip Section G and go to Section “E.” In such instances, simply put “see Section E” in Item B9. However, there are sometimes reasons why Section G might need to be completed, including local ordinances, requirements by clients or lenders, or applications for Letters of Map Amendment or Map Revisions Based on Fill. A carte blanche “no” regarding the need to complete Section G for “A” or “AO” zones is oversimplification and instead should be considered “generally no.” Definitely communication is needed between the surveyor and the client here, which is a weak point for many. Keep in mind, though, that outside of these special circumstances it may be inappropriate to supply elevation information in an approximate “A” zone without BFE.

**Section C**

This is the only portion of this form that requires the surveyor’s input. The rest of the document can be completed by any unlicensed individual willing to learn NFIP regulations.

The bottom floor of a structure is not necessarily the lowest floor for insurance rating purposes. An insurance agent or FEMA will determine the “lowest floor” based on the elevations and information you provide as a surveyor. Ordinarily, the bottom floor is the crawl space or basement of the structure or the top of the concrete slab depending on the structure. In the crawl space, multiple elevation readings may be required if the outside grade and inside grade differ at proper
openings. If all sides of the crawl space are lower than the LAG (even by a tenth of a foot), a basement has been created. If the homeowner can bring in gravel or compacted fill to eliminate the basement situation, it will be worth the time and money. A quick glance at the rating tables in the Insurance Agent’s Manual will be very informative about the extent of the savings possible by avoiding basements and floors below BFE.

We stress once again, enter “N/A” in all cases where you are not providing an answer. Unless you are in a “V” zone, answer C2.e with “N/A,” rating these coastal hazard zones is based on appropriate elevation and lack of obstruction for free flow of water, rather than on the use of vents and flood openings. As for machinery, make a list of any machinery servicing the building and an approximate location of each (“furnace on a platform in the basement, 3.2 feet above basement floor”, “heat exchange unit on a concrete slab on the ground beneath elevated portion of building”, “electrical conduits in PVC pipe suspended beneath elevated portion of structure, bottom of pipe is at elevation 12.8”). Get the elevation of each piece of machinery servicing the structure. If you can’t access it, explain why not and take photos. You may need to make approximations in some unusual instances where you have no clear access (such as equipment in crawl spaces only snakes can fit into) but if so, document everything thoroughly. The instructions for Section C offer some suggestions on handling difficult access situations.

Lowest adjacent grade (LAG), highest adjacent grade (HAG), and lowest support are fairly self-explanatory. A below-grade loading ramp is the LAG, unless it is completely freestanding. LAGs and HAGs are seldom at the building corners. Take multiple elevation observations. The same applies to lowest structural supports (C2.h). Remember that LAG is used in support of a request for any LOMC, and that line C2.h (what FEMA staff sometimes refers to as “LOMA LAG”) may represent a different LAG location and elevation from the traditional LAG at the building’s foundation.

The first part of Section D is where you certify to the elevation information. The second part of Section D is your forgiving angel. If there is anything you don’t understand about the Elevation Certificate or the process of filling one out, here is your chance to proclaim your ignorance of NFIP nuances without fear of reprisal. Explain in the comment section any qualms you have about what you have just certified to. It’s also an opportunity to add more complete and full explanation than the EC form provides space for in its body. If there’s not enough room in the comments area, attach another sheet (or five) of paper, and make sure to note in Section D on the EC itself that the form is to be considered incomplete without that addendum. Provide your name and contact information one more time and invite any reviewer to contact you. Communication is key.

This brings us to Section “E” specifically for a Zone “A” or Zone “AO” situation when no published Base Flood Elevation exists. Ratings for these two zones require no elevations, and instead are based on relative distances between LAG, HAG, main floor, bottom floor and machinery. These are special circumstances and Section E almost always harms the post-FIRM homeowner in terms of premium payments. (See the Insurance Agent’s Manual, RATE, to compare post-FIRM Zone AE and Zone A rates; pre-FIRM rates are more equal. See page RATE-19 in this manual for background on how Zone AO structures are rated.) If the enclosed crawlspace elevation is just one foot below the HAG, a FEMA administrator must make the rate quote rather than your local insurance agent. The simplest method to lessen this negative impact on the homeowner is installation of proper flood openings. The one condition where an elevation is necessary in Zone “A” or “AO” is if the EC is being used to support a request for a Letter of Map Change (either an Amendment or Revision Based on Fill). Determining BFE in approximate Zone “A” is a separate and complicated matter beyond the scope of this paper, but we do refer you to The Zone A Manual: Managing Floodplain Development in Approximate Zone A Areas, available for free downloading from FEMA’s website.

We surveyors know numbers, real property law, tree identification, complex nuances in diplomacy, history, declination, weather, whims of judges, statistics, physics of wavelengths and any number of esoteric items defining our profession. But many of us don’t know how to correctly complete an Elevation Certificate. We hope this little contribution sheds some light on the NFIP and your role. Take advantage of your local floodplain official’s knowledge. Don’t be afraid to ask the important questions. But if you don’t ask, don’t be surprised to find yourself in hot water when the high water comes. The mark of a true professional is to admit when something is beyond his or her knowledge or abilities and decide either to learn more about the subject or to refer the job to someone who is more able to perform it.

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