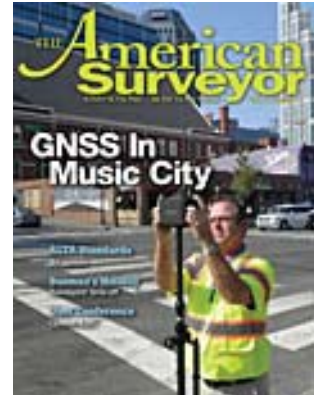


## The Elevation Certificate { translated } Part 2

Written by C. Barton Crattie, LS, CFM and Wendy Lathrop, LS, CFM

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 instructions for Section B. Note that this is not a mandatory piece of information; the instructions acknowledge that you may not have it. The reason for the request is to establish if the building is pre- or post-FIRM construction, as well as the building's conformance with floodplain regulations at the time it was built.



Whenever possible, do not take the BFE from the FIRM. Those numbers are rounded up or down to the nearest foot and ignore subtleties in the topography and stream profile. In Item B9, first choice is always to use one of two methods, but only if you have a detailed study with a published Flood Insurance Study (FIS) report, which is available through FEMA's Map Service Center on the Internet. This document is where the true numbers reside, from which the flood maps are derived in an attempt to convey the same information graphically. We can't stress this enough: if it is at all possible, avoid reliance on any source for BFE other than the Flood Insurance Study.

The first method of BFE determination is to pull the flood profile for your stream from the FIS and read the BFE to

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The current and selected past issues are also available at:

[www.hawaiiifip.org](http://www.hawaiiifip.org)

We welcome your comments and suggestions, as well as, newsworthy articles. Your submissions may be sent to the Department of Land and Natural Resources, Engineering Division, P.O. Box 373, Honolulu, Hawaii 96809.

If you'd like to receive the Wai Halana via email or wish to be removed from our mailing list, contact Jerome Acadimia at (808) 587-0254.

Upcoming Events

Floodplain Management Association 2012 Annual Conference



FMA is the premier venue for floodplain management professionals in the United States, with a focus on California, Nevada and Hawaii.

FMA is a recognized voice in floodplain management and flood hazard reduction in the region, providing an unbiased forum for government, industry, science and communities to coordinate and educate themselves and each other about best practices, legal strategies and disaster control needs at the local, state and regional level.

FMA's leadership is tasked with connecting policy makers and regulators with scientists, planners, engineers, educators and researchers to develop effective laws, technological solutions, and methods for reducing flood risk and creating sustainable floodplains.

Join other floodplain management professionals at the 2012 annual conference on September 4 - 7, 2012 in Sacramento, California.

For more info, visit: <http://www.floodplain.org/conference.php>

New Elevation and Floodproofing Certificate Coming Soon

The current versions of the NFIP Elevation Certificate (FEMA Form 81-13) and the Floodproofing Certificate (FEMA Form 81-65) show an expiration date of March 31, 2012. Newly revised editions of these two forms are undergoing review by the Office of Management and Budget (OMB); however, approval of the revised forms is not expected until after March 31, 2012. While FEMA is awaiting OMB approval for the forms, the current versions that show the March 31, 2012, OMB expiration dates may continue to be used.

When the new forms are approved, FEMA will permit a "phase-in" of the new Elevation Certificate and Floodproofing Certificate on a voluntary basis. During a 12-month transition period following the introduction of the new forms, we will accept either the new form or the old form. This voluntary transition period will allow for sufficient time for coordination and training of all affected NFIP stakeholders. Elevations and floodproofing certified after the last day of the transition period must be submitted on the new Elevation Certificate or Floodproofing Certificate.

The proposed changes to the forms are minor. The new forms will be available on the Hawaii NFIP Website ([www.hawaiiifip.org](http://www.hawaiiifip.org)) upon OMB approval.



the nearest tenth of a foot directly. To perform a proper interpolation for your site's location, a scaled distance between two locations on the FIRM must be compared with the scaled distance between those same points on the profile. If the two distances differ, proration is appropriate within reason. Use your professional judgment to decide if the two documents differ too radically for you to feel comfortable in relying on this method. A big difference in documents may indicate an error in the mapping or in the plotting of the profile, and you probably can't tell which one is more (in)correct.

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 B 11

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 C 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 C 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 C and go to Section "E". In such instances, simply put "see Section E" in Item B9. However, there are sometimes reasons Section C 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 C 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 base-

ment has been created. If the homeowner can bring in gravel or compacted fill to eliminate the basement situation, it will be well 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.c with "N/A"; rating in 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 made 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.



# President Declares Disaster For Hawaii

Declared April 18, 2012 (DR-4062)

WASHINGTON -- The U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) announced that federal aid has been made available for the state of Hawaii and ordered federal aid to supplement state and local recovery efforts in the area affected by severe storms, flooding, and landslides during the period of March 3-11, 2012.



Federal funding is available to state and eligible local governments and certain private nonprofit organizations on a cost-sharing basis for emergency work and the repair or replacement of facilities damaged by the severe storms, flooding, and landslides in Kauai County.

Federal funding is also available on a cost-sharing basis for hazard mitigation measures statewide. Mark H. Armstrong has been named Federal Coordinating Officer for federal recovery operations in the affected area. Armstrong said additional designations may be made at a later date if requested by the state and warranted by the results of further damage assessments.

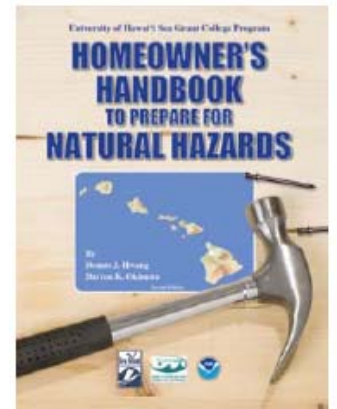
## Community Hazard Preparedness Workshops

*Are you prepared for the next natural hazard?*

Visit one of the upcoming workshop at a location near you and learn how you can prepare your family and home against the next natural disaster.

### FAIRS & WORKSHOP TOPICS

- **County Civil Defense** - Emergency Management and Evacuation Planning
- **Pacific Tsunami Warning Center** - Tsunami Warnings
- **National Weather Service** - Hurricane Forecasts
- **UH Sea Grant** - *Homeowners Handbook to Prepare for Natural Hazards*
- **Department of Land and Natural Resources** - National Flood Insurance Program
- Home Hurricane Retrofit Measures



### Statewide Schedule of Workshops and Fairs

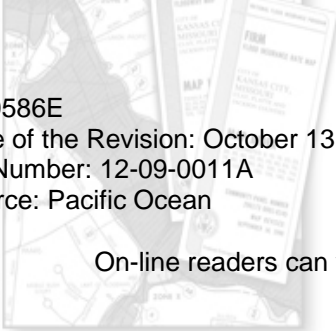
Island	Date	Location	Address	Time
Oahu Community Fair	May 26, 2012	Windward Mall	46-056 Kam Hwy Kaneohe, Hawaii	10 am - 2 pm
Maui Fair & Workshop	June 2, 2012	Queen Kaahumanu Center	275 W. Kaahumanu Ave #1200 Kahului, Maui	10 am - 2 pm
Hilo Workshop	June 9, 2012	Pahoa High School Cafeteria	15-3038 Puna Road Pahoa, Hawaii	9 am - 11:30 am
Kona Workshop	June 16, 2012	West Hawaii Civic Center	74-5044 Ane Keohokalole Hwy Kailua-Kona, Hawaii	9 am - 11:30 am
Oahu Community Fair	June 23, 2012	Town Center of Mililani	95-1249 Meheula Parkway #193 Mililani, Hawaii	10 am - 2 pm
Kauai Workshop	June 30, 2012	Kauai Veteran's Center	3215 Kapule Hwy Lihue, Kauai	9 am - 10:15 am 10:30 am - 11:45 am

# Flood Insurance Rate Maps *Updates*

Are you currently doing work in the Counties listed here? If so, please take note that FEMA has approved the following Letter of Map Changes to the flood hazard information shown on the effective Flood Insurance Rate Maps.

## Maui County

Type: LOMA  
FIRM Panel 0586E  
Effective Date of the Revision: October 13, 2011  
FEMA Case Number: 12-09-0011A  
Flooding Source: Pacific Ocean



On-line readers can view LOMC [here](#)

Type: LOMA  
FIRM Panel 0393E  
Effective Date of the Revision: October 12, 2011  
FEMA Case Number: 11-09-3554A  
Flooding Source: Waikapu Stream

On-line readers can view LOMC [here](#)

Type: LOMA  
FIRM Panel 0586E  
Effective Date of the Revision: February 2, 2012  
FEMA Case Number: 12-09-0160A  
Flooding Source: Kulanihakoi Gulch

On-line readers can view LOMC [here](#)

## City and County of Honolulu

Type: LOMA  
FIRM Panel 0391G  
Effective Date of the Revision: August 23, 2011  
FEMA Case Number: 11-09-3279A  
Flooding Source: Kuapa Pond; Pacific Ocean

On-line readers can view LOMC [here](#)

Type: LOMR-FW  
FIRM Panel 0360G  
Effective Date of the Revision: January 31, 2012  
FEMA Case Number: 12-09-0194A  
Flooding Source: Manoa Stream

On-line readers can view LOMC [here](#)

Type: LOMR-VZ  
FIRM Panel 0369G  
Effective Date of the Revision: March 1, 2012  
FEMA Case Number: 12-09-1102A  
Flooding Source: Pacific Ocean

On-line readers can view LOMC [here](#)

## Kauai County

Type: LOMA  
FIRM Panel 0254F  
Effective Date of the Revision: August 30, 2011  
FEMA Case Number: 11-09-3393A  
Flooding Source: Kekaha Drainageway; Cox Ditch

On-line readers can view LOMC [here](#)

Type: LOMA  
FIRM Panel 0328F  
Effective Date of the Revision: March 8, 2012  
FEMA Case Number: 12-09-0772A  
Flooding Source: Puali Stream

On-line readers can view LOMC [here](#)

## Hawaii County

Type: LOMA  
FIRM Panel 0926E  
Effective Date of the Revision: November 17, 2011  
FEMA Case Number: 12-09-0111A  
Flooding Source: Local Flooding

On-line readers can view LOMC [here](#)

Type: LOMA  
FIRM Panel 0167C  
Effective Date of the Revision: December 20, 2011  
FEMA Case Number: 12-09-0622A  
Flooding Source: Paikuli Reservoir Tributary

On-line readers can view LOMC [here](#)

Type: LOMA  
FIRM Panel 0277C  
Effective Date of the Revision: February 14, 2012  
FEMA Case Number: 12-09-0952A  
Flooding Source: Gulch 3 - Hapuna; Waialea Bay; Pacific Ocean

On-line readers can view LOMC [here](#)

Type: LOMA  
FIRM Panel 0890C  
Effective Date of the Revision: March 6, 2012  
FEMA Case Number: 12-09-1104A  
Flooding Source: Waiakea Stream Tributary; Waiakea Stream

On-line readers can view LOMC [here](#)





## Photovoltaic Installations in High Risk Flood Zones

With most families looking for ways to make ends meet in these hard economic times, many are turning to Photovoltaic (PV) systems to help reduce soaring household utility expenses. This growing popularity has taken root in Hawaii and more and more property owners are installing these systems to their existing homes.

It is important to understand that for on-roof installation of these PV panels, the cost of the system must be included in “Substantial Improvement (SI) calculations” for structures located in a high risk flood zone. Also known as the “50% Rule”, this often overlooked floodplain management regulation requires the evaluation of the improvement cost against the market value of the structure. If the improvement cost exceeds 50% or more of the structure’s market value (excluding land value), then it is considered a “Substantial Improvement” and thus the entire structure must comply with current county floodplain management regulations.

In an effort to avoid triggering the Substantial Improvement designation and the subsequent requirement to bring an existing building into compliance with current codes, property owners may opt to install the PV panels as a separate free-standing system.

The following policy guidance on free-standing solar/photovoltaic panels was provided by Jennifer Tylander, Program Specialist, FEMA Mitigation Directorate, Washington D.C. :

*“If free standing solar/photovoltaic panels (outside the footprint of a structure) are proposed in the floodplain, it is considered development. Since free standing solar/photovoltaic panels are considered development, permits are required [60.3(a)(1)]\*. In addition, local officials are to review proposed development to assure all necessary permits have been received from those governmental agencies from which approval is required by Federal or State law [60.3(a)(2)]\*. In addition, the local official is to determine whether the proposed development is reasonably safe from flooding. If the free-standing solar/photovoltaic panels are in a flood-prone area, the proposal for free standing solar/photovoltaic panels should be reviewed to assure that all such proposals are consistent with the need to minimize flood damage. [60.3(a)(4)]\*. Ways to minimize food damage to free-standing solar/ photovoltaic panels include, but are not limited to, being adequately anchored to prevent flotation or collapse, constructed with flood resistant materials below the Base Flood Elevation, and be designed or located such that floodwater is prevented from entering or accumulating in the components that are not flood resistant during flooding events.”*



If your existing home is located in a high risk flood zone, be sure to discuss your proposed plans to install a solar/ photovoltaic system with your local floodplain managers. Each county has floodplain management regulations that may have more stringent than the minimum NFIP regulations. Contact information for local floodplain managers can be found at: [www.hawaiiinfip.org](http://www.hawaiiinfip.org)

\* Title 44, Code of Federal Regulations



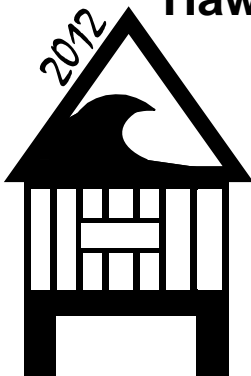


*Make Hawaii a Great  
Place to Live !*

Dept. of Land and Natural Resources  
Engineering Division  
P.O. BOX 373  
Honolulu, Hawaii 96809

Board of Land and Natural Resources

William J. Aila Jr., Chairperson  
John Morgan  
Robert Pacheco  
Ron Agor  
Jerry Edlao  
David Goode  
Dr. Samuel M. Gon III



## Hawaii Floodplain Managers Conference

The Department of Land and Natural Resources is hosting the 8th annual Hawaii Floodplain Manager's Conference on August 15 and 16, 2012 at the Ala Moana Hotel. This conference is aimed towards increasing awareness about the National Flood Insurance Program, review programmatic issues and regulations, and discuss mitigation strategies against flooding. If you would like to attend the conference, please complete the online registration form at: <http://www.surveymonkey.com/s/JF2PWGF> by August 3, 2012. Seating is limited so don't delay.

If you have any questions, please call Kristen Akamine at (808) 587-0281 or Jerome Acadimia at (808) 587-0254.

Target Audience: NFIP Stakeholders, Government Officials, Engineers and Architects.

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## 2012 Hawaii Dam Safety Seminars: Operation and Maintenance of Dams

DLNR is holding a series of one-day seminars on the Operation and Maintenance of Dams. The purpose of the seminars is to provide information, guidelines, and tools to assist dam practitioners in maintaining safe dams and minimizing risks and liability.

Dates and Locations:

July 16, 2012 (Monday)	Hawaii (Waimea) – Waimea Civic Center
July 17, 2012 (Tuesday)	Oahu – Manoa Grand Ballroom
July 19, 2012 (Thursday)	Kauai – Kauai War Memorial Convention Hall
July 20, 2012 (Friday)	Maui – UH Maui College, Rm: Kalama 103



Be on the lookout for more information. If you are interested please email [denise.m.manuel@hawaii.gov](mailto:denise.m.manuel@hawaii.gov).