APPENDIX MAUI-5

Flood Development Permit County of Maui Department of Planning Zoning Administration & Enforcement Division

Permit Packet Includes:

- 1. Process Overview
- 2. Application for Special Flood Hazard Area Development Permit & instructions
- 3. Certification of "No-Rise" Determination
- 4. Coastal High Hazard Area Certification
- 5. Elevation Certificate and Instructions (FEMA)
- 6. Flood Hazard Area Certification
- 7. Flood Permit Checklist and Requirements Chart
- 8. Notice of Mandatory Purchase Requirement

Resources:

- FEMA Flood Insurance Rate Maps
- Hawaii State Flood Hazard Assessment Tool
- Maui County Code, Chapter 19.62 "Flood Hazard Areas"
- National Flood Insurance Program (NFIP)
- NFIP Technical Bulletins

Approval or Permit Required:	To regulate construction in areas subject to flood hazards; protect life and property; reduce public costs for flood control, rescue and relief efforts; promote the safety, health, convenience and general welfare of the community; impose restrictions upon manmade changes to improved and unimproved real estate within flood hazard areas; qualify for federal financial assistance for acquisition and construction purposes; qualify the County of Maui for participation in the National Flood Insurance Program (NFIP); make, secure, extend, and renew loans secured by improved real estate by lending institutions regulated by the federal government.
Contact Information:	Department of Planning Zoning Administration and Enforcement Division 250 South High Street Kalana Pakui Building, 2nd Floor Wailuku, HI 96793 Phone: 808-270-7253
Website:	http://www.co.maui.hi.us/index.aspx?NID=1260 and http://www.fema.gov/business/nfip/elvinst.shtm

APPENDIX MAUI-5

Flood Development Permit County of Maui Department of Planning Zoning Administration & Enforcement Division

NOTE:

- Flood Development Permits needs to be completed by a licensed professional engineer. It is the applicant's responsibility to hire said professional and complete all required forms and documents.
- No expiration date for work described in the application, unless the FEMA Flood Insurance Rate Maps have been revised.

Steps

Time

1.	1. Obtain the "Application for Special Flood Hazard Area Development Permit & instructions" and the five related forms, available from the Maui Department of Planning or the website above. A detailed flowchart/checklist is available online at the website listed above.		
	\checkmark		
2.	Submit completed application and all required forms and related documents to the Department of Planning.	30-90 days	
		_	
3.	Permit approved or denied.		

Total Time Period: TBD

Fees	Amount	Maximum
No fee required.	\$0	
Total Fees:	\$0 (minimum)	\$0 (maximum)

COUNTY OF MAUI

PERMIT NO. FDP

APPLICATION FOR SPECIAL FLOOD HAZARD AREA DEVELOPMENT PERMIT

Project Name/Owner	t Name/Owner Date:	
Project Address:	TMK:	
Flood Zone:	Base Flood Elevation:	NGVD [*]
Plan Maker:	Phone No.	
Address:		
Applicant: (print)	(signature)	
Address:	Phone No.	
Description of Constructio	n:	

FOR EXTG STRUCTURES BUILT PRIOR TO JUNE 1, 1981

Market value of extg structure: ______Value of proposed work: ______If the value of the work is less than fifty percent of the market value or if the work is an alteration to an historic building or if the work is to correct health/safety violations, submit this application to the Planning Department for verification and permit issuance.(FILLING OF THE REMAINING PORTION OF THIS APPLICATION IS NOT REQUIRED) If the value of the proposed or total work equals or exceeds fifty percent of the market value, the construction is considered a substantial improvement. Complete the remaining portion of this application and attach the appropriate attachments as listed below.

Proposed Elevation of Structure(s) Lowest Floor (including basement):	NGVD*
For V Zones only: Elevation of bottom of lowest horizontal member:	_NGVD*

Type of Development:

- _____new construction/structure _____watercourse alteration ___addition/alteration
- ____basement included ____paving ____wall ___grading ____material/equipment storage
- ______substantial improvement ______non-substantial improvement ______subdivision
- ___ other _____

Attachments: (check all that apply)

- __ Drainage Report (2) __ Floodproofing Certificate __Elevation Certificate__Floodway Certification __Flood Hazard Area Certification __Fee_____(See attached Table B)
- Coastal High Hazard Area Certification Conditional Letter of Map Revision **
- ______DLNR Notification of Watercourse Alteration _____Grading and Drainage Plans (2)

Note: Additional information may be required pursuant to Chapter 19.62 of the MCC

Comments:_____

Permit Issuance Date	
BPC Application No.	

S:\ZONING\ZONE_CHK\FLOOD\FHDEVPT.09.wpd

вү:_____

*NATIONAL GEODETIC VERTICAL DATUM OF 1929

**REQUIRES PROCESSING THROUGH FEMA

ACCOUNT	REVENUE SOURCE	FEE, RATE, ASS	ESSMENT OR TAX	HRS	COUNTY	ORDINANCE
		AL FUND				
	Fees - Department of Planning	Table A - Fee Schedule (Publ	ic Hearing Required)	46-4		
		Change of Zoning			19.510.010	
		Conditional Permit			19.40.030	
		Community Plan Amendment			2.80B.110	
		State Land Use District Bounds	ary Amendment		19.68.020	
		Project District Zoning			19.45.040	
		BVA Variance and Appeals Variances - BVA Rules 12-8 Appeals - BVA Rules 12-80	301-69 1-82			
		County Special Use Permit			19.510.010	
		Special Permit within State L Districts	and Use Agricultural and Rural	205-6(a)		
		Project Master Plan Review			19.510.010	
		Shoreline Setback Variances Maui Shoreline Setback Rul Molokai Shoreline Setback I Lanai Shoreline Setback Rul	es 12-203-14(a)(1) Rules 12-4-12(a)(1)\$150 es 12-403-18(a)(1)			
		Environmental Assessments (ne	on-exempt)			
		Special Management Area (SM Maui SMA Rules 12-202-15 Molokai SMA Rules 12-302 Lanai SMA Rules 12-403-15	IA) Permits (non-exempt) (a)(3) -15(a)(3) 5(a)(3)			
		Total Valuation	Fee Per Application (unless otherwise stated and subject to exceptions below)			
	582	\$0 to \$125,000	\$550			
		\$125,001 to \$500,000	\$550 for the first \$125,001, plus \$11 for each additional \$5,000 or fraction thereof, to and including \$500,000			
		Additional review required b time extensions or renewals	y changes, additions, revisions, s:\$165			
		\$500,001 to \$1,000,000	\$1,370 for the first \$500,001, plus \$11 for each additional \$5,000 or fraction thereof, to and including \$1,000,000			
		Additional review required by time extensions or renewal:	y changes, additions, revisions,			
		\$1,000,001 and up	\$2,475 for the first \$1,000,001, plus \$11 for each additional \$5,000 or fraction thereof, to a maximum of \$4,950			
		Additional review required by time extensions or renewals	y ch <mark>anges, additions, revisions,</mark> s:\$550			

COUNTY OF MAUI REVENUES - FEES, RATES, ASSESSMENTS AND TAXES

ACCOUNT	COUNT REVENUE SOURCE FEE, RATE, ASSESSMENT OR TAX		HRS	COUNTY CODE	ORDINANCI
		GENERAL FUND			
		Table B - Fee Schedule (No Public Hearing Required)	46-4		
		All other permits or reviews for which no public hearing is required, unless otherwise specified herein (such as Special Management Area Assessments for Exemptions, Minor Permits and Emergency Permits [*]).			
		Total Valuation Fee Per Application (unless otherwise stated and subject to exceptions below)			
		\$0 to \$10,000\$55			
		\$10,001 to \$125,000\$110			
		\$125,001 and up\$165			
		Additional review required by changes, additions, or revisions\$55			
		*Maui SMA Rules 12-202-12(c)(2)(m), Molokai SMA Rules 12-302-12(c)(2)(L)			
		Bed and Breakfast Permits: 1. New Permit: Application Fee. \$400 If Public Hearing Required Additional \$550 If B&B Permit approved for: 1 year. 1 year. No Additional \$200 3 years Additional \$400 2. Time Extension: Application Fee. Application Fee. \$300 If B&B Extension approved for: 1 year. No Additional \$200 3 years Additional \$200 3 years Additional \$200 \$300 If B&B Extension approved for: 1 year. No Additional \$200 \$300 3 years Additional \$400 4 years Additional \$400 4 years Additional \$400 5 years Additional \$400 6 years Additional \$400 7 years Additional \$400 800 5 years 600 5 years 600 5 years		19.64.040(A)	
		Other Permits and Approvals: \$330 Sign Variances \$330 Other Sign Permits \$55 Other Promotional Signs \$25 Parking Approvals (Non-Administrative) \$110 Parking Approvals (Administrative) \$55 Historic District Commission Applications \$110 Historic District Administrative Applications \$55 Historic District Signs \$55 Historic District Banners \$25 Planned Development \$110 Maui Redevelopment Agency Approval \$110 Existing Permit Review, Time Extension, etc. \$110 Landscape Planting Approvals \$25		16.13.170(B) 16.13.160(B)(1)(g) 16.13.160(B)(3) 19.510.010(B) 19.510.000(B) 19.510.000(B) 19.510.000(B) 19.510(B) 19.510(B) 19.510(B) 19.510(B) 1	

COUNTY OF MAUI REVENUES - FEES, RATES, ASSESSMENTS AND TAXES

CCOUNT REVENUE SOURCE FEE, RATE, ASSESSMENT OR TAX HRS CODE	REVENUE SOURCE FEE, RATE, ASSESSMENT OR TAX HRS CODE	ORDINANCE
---	--	-----------

GENERAL FUND

EXCEPTIONS TO FEES:

A

Concurrent Processing: Permit or development applications which are being processed concurrently with other permit or development applications processed by the Department of Planning shall be charged the full fee for the first application and 50% of the normal fee for each additional application to the extent processed at the same time as the first application.

After-the-fact permit and assessment fees: Minimum fee of \$1,000, plus 10% to 50% of project valuation as determined by the planning director.

Government Fees: A filing fee of \$550 shall be required for development or permit applications filed by or on behalf of any Federal, State, or County agency.

Affordable Housing: Projects built and offered for sale or rental in accordance with Chapter 2.96, Maui County Code, shall be exempt from the fees set forth in Table A and Table B by the percentage of fee waived per the percentage of affordable housing units above those required by Chapter 2.96, Maui County Code.

Other Fees (not subject to exceptions above):

- 1. Special Management Area Appeal of Director's Decision......\$55 Maui SMA Rules 12-202-30 Molokai SMA Rules 12-302-26(a)
- 2. Shoreline Setback Appeal......\$250 Maui Shoreline Setback Rules 12-203-22 Lanai Shoreline Setback Rules 12-403-24(2)(a)

Maui Planning Commission Rules of Practice and Procedures 12-201-92(c)(1)(D)

Molokai Planning Commission Rules of Practice and Procedures 12-301-63(c)(1)(D)

Lanai Planning Commission Rules of Practice and Procedures 12-401-92(c)(1)(D)

4. Petition to Intervene.....\$50

Maui Planning Commission Rules of Practice and Procedures 12-201-40(b)

Federal Emergency Management Agency



Washington, D.C. 20472

CERTIFICATION REQUIREMENTS FOR SIMPLE FLOODWAY ENCROACHMENTS

Introduction

This document is intended to provide guidance to local floodplain administrators in evaluating requests for the placement of fill at a single location, a building, or another simple encroachment within an adopted The procedure contained in this document is not regulatory floodway. intended to evaluate complex encroachments, such as extensive fills, multiple structures, bridges, or levees, where flow expansion and contraction losses In such cases, full hydraulic analyses by computer may be significant. The minimum floodplain management backwater models should be employed. requirements for communities participating in the National Flood Insurance Program (NFIP) in which a regulatory floodway has been designated prohibit any floodway development that would result in an increase in flood levels within the community during the occurrence of the base (100-year) flood discharge. This requirement is outlined in Paragraph 60.3(d)(3) of the NFIP regulations.

Because floodway development is contradictory to the tenets of sound floodplain management, such development is discouraged by the Federal Emergency Management Agency (FEMA). Therefore, these certification requirements assume that all practical alternatives to floodway development have been investigated thoroughly and have been deemed not feasible.

In accordance with the NFIP regulations, it is ultimately the responsibility of each community participating in the NFIP to prohibit floodway development that would result in increases in 100-year flood levels. Communities must make determinations of this type and maintain backup calculations and certifications in their files for review by FEMA personnel upon request.

This document also does not address the many cases and situations requiring the actual revision of the floodway via redelineation of the floodway boundary, the criteria for which are presented in Section 65.7 of the NFIP regulations. A FEMA document, entitled "Conditions and Criteria for Floodway Revisions," and dated August 27, 1984, addresses these issues.

Definition of "No-Rise"

It is important that the concept of "no rise" be clarified and understood. The actual wording of Paragraph 60.3(d)(3) of the NFIP regulations is that the community shall "prohibit ... any increase in flood levels during the occurrence of the base flood discharge." If an adopted regulatory floodway has been computed and is displayed on the effective NFIP map, all areas within the floodway are considered to be effective in conveying the 100-year flood discharge. Therefore, no obstruction, regardless of size, can be placed within the floodway without obstructing flow and causing some increase in the base flood elevation (BFE). Such increases may be localized and may seem insignificant; if modeled, they may yield changes on the order of hundredths or thousandths of a foot.

There has been a tendency to misinterpret the "no-rise" criterion to include rounding allowances and also to conclude that an increase in computed watersurface elevation of 0.01 foot or less, as determined by a backwater computer model, is sufficient evidence to support the acceptability of development in a floodway.

Although the backwater computer model output may show little change in water-surface elevation, closer examination will, in all likelihood, reveal changes in other variables (e.g., topwidth, flow area, velocity). These changes can be translated into increases in water-surface elevation that may not be considered significant by themselves. However, the long-term cumulative effects of such increases will eventually result in significant changes. Therefore, no development in the floodway should occur without proper compensation for the lost conveyance. This is the intent of Paragraph 60.3(d)(3) of the NFIP regulations.

It is FEMA's position that this regulation is to be interpreted exactly, and <u>strictly</u>, as written; that is, "<u>no</u>" rise above the BFE will be permitted. Therefore, nothing that offers any resistance to the flow of floodwaters may be placed within a regulatory floodway unless compensatory action is taken to restore the lost conveyance.

Loss of Conveyance

In the case of a simple floodway encroachment, as discussed previously, a "no-rise" determination can usually be made based on consideration of conveyance only. In such a situation, it is the difference in the conveyance before and after encroachment, or the aforementioned loss of conveyance, that must be addressed if the effects of development are to be compared against the "no-rise" criterion. The computation of loss of conveyance is most appropriately accomplished on a micro scale by isolating a portion of a cross section, separate from the backwater computer model, and performing hand computations. Examples of typical hand computations for proposed fill and bridge pier construction are attached for reference. However, it is appropriate to incorporate one or more new cross sections at the site of the proposed construction that reflect existing conditions into the unencroached and encroached backwater computer models. This is done to establish the base flood conditions at that location, which are to be used in the hand computations. The formula used to determine conveyance (K) is

$$K = 1.49/n AR^{2/3}$$

where

n = Manning's roughness coefficient A = Flow area R = Hydraulic radius

The loss of conveyance is computed using the "n" value and hydraulic radius at the site of the encroachment as applied in the computer model.

Compensation

Once a determination has been made as to the amount of conveyance lost as a result of the proposed development, the designer or engineer is required to adequately compensate for this loss. This compensation is accomplished by including some means or measures within the proposed floodway development for providing an increase in effective conveyance, at some point on the cross section, equal to or greater than that lost. Equal area exchanges are only valid if the "n" value and hydraulic radius remain unchanged between the encroachment site and the compensation site. It is also important that the flow area provided be truly effective; that is, open to inflow and outflow and not just an isolated low spot or depression. This increased effective conveyance could be computed by hand in a manner similar to that used to compute the loss of conveyance.

The means or measures used to provide this effective conveyance (e.g., excavation, roughness coefficient reduction) would be at the discretion of the designer or engineer but must be approved by the community. Where these means and measures require some form of maintenance, the community must assume ultimate responsibility for their maintenance.

Data Requirements

The items identified below are necessary to document and demonstrate compliance with the "no-rise" criterion for simple floodway encroachments.

- 1. Hydraulic backwater models of the 100-year flood and floodway water-surface profiles for the following:
 - a. Duplicate of the effective Flood Insurance Study (FIS) model.
 - b. Existing-conditions (effective FIS) model modified to include cross sections through the project site. Cross sections must reflect conditions prior to construction of the project.
 - c. Post-project conditions model. This model must include cross sections through the project site reflecting floodplain conditions after construction of the project. The 100-year flood (without floodway) and floodway elevations for this model must not be greater than those in the existing-conditions model described at letter "b" above. This hydraulic backwater model is necessary to ensure that any changes in transition losses, which are based on velocity heads rather than conveyance, do not cause increases in water-surface elevations. Also, a hydraulic backwater model provides a means of evaluating effective flow areas upstream and downstream of the encroachment and compensation sites.
- 2. A copy of the appropriate NFIP map showing the existing floodway and indicating the project area
- 3. Topographic mapping of the entire project area indicating the locations of all cross sections used in the modified hydraulic model and a plan view of all project elements

3

- 4. Construction plans, certified by a registered professional engineer, for all project elements, including those measures employed to provide additional effective conveyance
- 5. The following information, to be obtained by hand computation using the cross section and 100-year encroached hydraulic data in the modified existing-conditions computer model output provided under Item 1b:
 - a. Calculation of the reduction in conveyance (K) caused by the proposed obstruction, assuming no change in floodway water-surface elevation, and using the "n" value appropriate for the site of the proposed obstruction
 - b. Calculation of the increase in conveyance (K) obtained by the proposed offsetting measure, using the "n" value appropriate for the site of this measure
 - c. Comparison showing that the conveyance increase computed in 5b equals or exceeds the loss computed in 5a
- 6. Evidence that the increase in effective conveyance provided for in Item 5b will be maintained perpetually. This should be in the form of a self-maintaining measure or certified maintenance plans for the measure provided.
- 7. An executed copy of the attached certification statement signed and sealed by a registered professional engineer

A copy of the hydraulic computer model for the effective FIS for the specified stream and community may be obtained by written request to the following address:

Federal Emergency Management Agency Federal Insurance Administration Risk Studies Division 500 C Street, SW Washington, D.C. 20472

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Federal Emergency Management Agency

Washington, D.C. 20472

CERTIFICATION OF A "NO-RISE" DETERMINATION

FOR A PROPOSED FLOODWAY DEVELOPMENT

Community Name

Development Name

Lot/Property Designation

Property Owner

I hereby certify that the proposed remedial measures, in combination with the property development designated above, will result in no loss of flow conveyance during the occurrence of the 1 percent annual chance of exceedence (100-year flood) discharge.

I further certify that the data submitted herewith in support of this request are accurate to the best of my knowledge, that the analyses have been performed correctly and in accordance with sound engineering practice, and that the proposed structural works are designed in accordance with sound engineering practice.

Date

Registered Professional Engineer

-3

Seal

EXAMPLE NO. 1

RIGHT OVERBANK CONVEYANCE (EXISTING CONDITION)

- Assumptions: 1. Portion of Fill in Floodway Fringe is Allowable and is Accounted for in Floodway Surcharge
 - 2. Existing Condition Conveyance Should Assume Existence of Wetted Perimeter Along Floodway Boundary
 - 3. Maximum Conveyance Loss Will Occur in Conjunction with Floodway Depth, Therefore, Use Floodway Water Surface Elevation in Computation
 - 4. Conveyance Losses Computed with Floodway Water Surface Elevation and Properly Compensated for Will Not Increase 100-year (Base Flood) Elevation

Therefore:

 $K_{\text{Exist}} = \frac{1.49}{\text{n A R}^{2/3}}$ $A = 50x6 = 300 \text{ FT}^{2}$ WP = 50 + 6 = 56 FT $R = 300/56 = 5.36 \quad R^{2/3} = 3.06$ $K_{\text{Exist}} = \frac{1.49}{.050}(300)(3.06) = 27356.40$



3



(D)

RIGHT OVERBANK CONVEYANCE (PROPOSED CONDITION)

Assumptions: 1. All Previous

2. Proposed Fill Slopes Above Floodway Water Surface Elevation and Outside Floodway Limit Do Not Contribute to Wetted Perimeter

Therefore:

$$K_{Proposed} = \frac{1.49}{n} A R^{2/3}$$

$$A = (1) (50) + 1/2 (5) (50 + 37.5) = 268.75 FT^{2}$$

$$WP = 37.5 + (12.5^{2} + 5^{2})^{1/2} + 0 = 50.96$$

$$R = \frac{268.75}{50.96} = 5.27 \qquad R^{2/3} = 3.03$$

$$K_{Proposed} = \frac{1.49}{.050} (268.75) (3.03) = 24266.51$$

TOTAL CONVEYANCE LOSS IN FLOODWAY

 $K_{Exist} - K_{Proposed} = 27356.40 - 24266.51 = 3089.89$



DESIGN OF CONVEYANCE COMPENSATION MEASURE



 $K_{Compensated} = \frac{1.49}{.050}(308.75)(3.26) = 29994.45$

TOTAL CONVEYANCE GAIN IN FLOODWAY

Kcompensated - Kproposed = 29994.45 - 24266.51 = 5727.94

COMPARISON

Gain (5727.94) > Loss (3089.89)

Therefore: COMPENSATION MEASURE OKAY

NOTE: Fill Slope Would Require Adequate Protection Against Velocities and Checks for Stability

3

EXAMPLE NO. 2

RIGHT OVERBANK CONVEYANCE (EXISTING CONDITION)

Same As Example No. 1 = <u>27356.40</u>

RIGHT OVERBANK CONVEYANCE (PROPOSED CONDITION)

 $K_{Proposed} = \frac{1.49}{n} A R^{2/3}$

 $A = (6)(50) - (6)(5) = 300 - 30 = 270 \text{ FT}^2$

$$WP = (50-5) + 2(6) + 6 = 63 FT$$

R = 270/63 = 4.29 $R^{2/3} = 2.64$

Weighted "n" "n" ROB = .050 WP = (50-5) + 6 = 51 FT

"n" Concrete = .013 WP = 2(6) = 12 FT

"n" Weighted = $\frac{51}{63}$ (.050) + $\frac{12}{63}$ (.013) = .043

 $K_{Proposed} = \frac{1.49}{.043}(270)(2.64) = 24,699.35$

TOTAL CONVEYANCE LOSS IN FLOODWAY



DESIGN OF CONVEYANCE COMPENSATION MEASURE

Trial No. 1 Placement of Dumped Riprap Across Entire Right Overbank* Beneath Bridge (n = .035)

3

* Excavated and Prepared

Weighted "n"

"n" Weighted = $\frac{51}{63}(.035) + \frac{12}{63}(.013) = .031$

 $K_{Compensated} = \frac{1.49}{.031(270)(2.64)} = 34260.39$

TOTAL CONVEYANCE GAIN IN FLOODWAY

Kcompensated - Kproposed = 34260.39 - 24699.35 = <u>9561.04</u>

COMPARISON

Gain (9561.04) > Loss (2657.05)

Therefore: COMPENSATION MEASURE OKAY

COUNTY OF MAUI

(FOR NEW CONSTRUCTION AND SUBSTANTIAL IMPROVEMENTS)

This form is to certify that the plans for any new structures, construction and improvements that will be constructed within the Coastal High Hazard Area conforms to the requirements of Section 19.62.060.G.6.a of the Maui County Code.

PROJECT NAME				TMK	
DESCRIPTION OF W	ORK:				
STREET ADDRESS	OR P.O. ROUTE AN	ID BOX NUMB	ER		
		IS	LAND	ZIP CODE_	
Provide the fo	llowing from	n the prop	er Flood Insura	ince Rate Map	o (FIRM)
COMMUNITY NO.	PANEL NO.	SUFFIX	DATE OF FIRM	FIRM ZONE	BASE FLOOD ELEV./NGVD '29

CERTIFICATION BY A LICENSED PROFESSIONAL ENGINEER OR ARCHITECT

I certify that based upon development and /or review of structural design, specifications, and plans for construction that the design and methods of construction are in accordance with accepted standards of practice for meeting the following provisions:

All new construction and substantial improvements will be elevated on adequately anchored pilings or columns and securely anchored to such pilings or columns so that the lowest horizontal portion of the structural members of the lowest floor is elevated to or above the base flood level. The pile or column foundation and the structure attached thereto will be anchored to resist floatation, collapse, and lateral movement due to the simultaneous action of wind and water loads on all building components. Water loading values used for purposes of meeting this requirement are those associated with the base flood. Wind loading values used are those required by the uniform building code, as amended. All new construction and substantial improvements will be located on the landward side of the reach of mean high tide.

All new construction and substantial improvements will have the space below the lowest floor free of obstructions or constructed with breakaway walls. Such space will not be used for human habitation, but will be useable solely for vehicular parking, building access or storage. Breakaway walls have a safe design loading resistance of not less than ten and no more than twenty pounds per square foot. Breakaway wall collapse is designed to result from a water load less that which would occur during a base flood and the elevated portion of the building is designed so as not to incur any structural damage from wind and water loads acting simultaneously during a base flood. Fill will not used for structural support of any building.

Any man-made alterations of sand dunes will not increase potential flood damage.

CERTIFIER'S NAME	TIFIER'S NAME		LICENSE NO. (or Affix Seal)		
TITLE		IAME			
ADDRESS		STATE			
SIGNATURE	DA	TE	PHONE		

S:\ALL\FORMS\ZAED\FloodDeveImntPermts\CoastalCertificate.doc





ELEVATION CERTIFICATE

AND

INSTRUCTIONS

NATIONAL FLOOD INSURANCE PROGRAM ELEVATION CERTIFICATE

PAPERWORK REDUCTION ACT NOTICE

Public reporting burden for this data collection is estimated to average 3.75 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and submitting this form. You are not required to respond to this collection of information unless a valid OMB control number is displayed on this form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing the burden to: Information Collections Management, Department of Homeland Security, Federal Emergency Management Agency, 500 C Street SW, Washington DC 20472, Paperwork Reduction Project (1660-0008). **NOTE: Do not send your completed form to this address.**

PURPOSE OF THE ELEVATION CERTIFICATE

The Elevation Certificate is an important administrative tool of the National Flood Insurance Program (NFIP). It is to be used to provide elevation information necessary to ensure compliance with community floodplain management ordinances, to determine the proper insurance premium rate, and to support a request for a Letter of Map Amendment (LOMA) or Letter of Map Revision based on fill (LOMR-F).

The Elevation Certificate is required in order to properly rate Post-FIRM buildings, which are buildings constructed after publication of the Flood Insurance Rate Map (FIRM), located in flood insurance Zones A1-A30, AE, AH, A (with BFE), VE, V1-V30, V (with BFE), AR, AR/A, AR/AE, AR/A1-A30, AR/AH, and AR/AO. The Elevation Certificate is not required for Pre-FIRM buildings unless the building is being rated under the optional Post-FIRM flood insurance rules.

As part of the agreement for making flood insurance available in a community, the NFIP requires the community to adopt floodplain management regulations that specify minimum requirements for reducing flood losses. One such requirement is for the community to obtain the elevation of the lowest floor (including basement) of all new and substantially improved buildings, and maintain a record of such information. The Elevation Certificate provides a way for a community to document compliance with the community's floodplain management ordinance.

Use of this certificate does not provide a waiver of the flood insurance purchase requirement. Only a LOMA or LOMR-F from the Federal Emergency Management Agency (FEMA) can amend the FIRM and remove the Federal mandate for a lending institution to require the purchase of flood insurance. However, the lending institution has the option of requiring flood insurance even if a LOMA/LOMR-F has been issued by FEMA. The Elevation Certificate may be used to support a LOMA or LOMR-F request. Lowest floor and lowest adjacent grade elevations certified by a surveyor or engineer will be required if the certificate is used to support a LOMA or LOMR-F request. A LOMA or LOMR-F request must be submitted with either a completed FEMA MT-EZ or MT-1 package, whichever is appropriate.

This certificate is used only to certify building elevations. A separate certificate is required for floodproofing. Under the NFIP, non-residential buildings can be floodproofed up to or above the Base Flood Elevation (BFE). A floodproofed building is a building that has been designed and constructed to be watertight (substantially impermeable to floodwaters) below the BFE. Floodproofing of residential buildings is not permitted under the NFIP unless FEMA has granted the community an exception for residential floodproofed basements. The community must adopt standards for design and construction of floodproofed basements before FEMA will grant a basement exception. For both floodproofed non-residential buildings and residential floodproofed basements in communities that have been granted an exception by FEMA, a floodproofing certificate is required.

Additional guidance can be found in FEMA Publication 467-1, Floodplain Management Bulletin: Elevation Certificate, available on FEMA's website at <u>http://www.fema.gov/library/viewRecord.do?id=1727</u>.

ELEVATION CERTIFICATE

OMB No. 1660-0008 Expires March 31, 2012

Important: Read the instructions on pages 1-9.

SECTION A - PROPERTY INFORMATION	For Insurance Company Use:
A1. Building Owner's Name	Policy Number
A2. Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No.	Company NAIC Number
City State Z	IP Code
A3. Property Description (Lot and Block Numbers, Tax Parcel Number, Legal Description, etc.)	
A4. Building Use (e.g., Residential, Non-Residential, Addition, Accessory, etc.)	tum: NAD 1927 NAD 1983 NAD 1927 NAD 1983 Ned garage sq ft openings in the attached garage jacent grade sq in penings in A9.b sq in ngs? Yes No
	22 State
B1. NETE Community Name & Community Number B2. County Name	os. State
B4. Map/Panel Number B5. Suffix B6. FIRM Index B7. FIRM Panel B8. Flood Date Effective/Revised Date Zone(s)	B9. Base Flood Elevation(s) (Zone AO, use base flood depth)
B11. Indicate elevation datum used for BFE in Item B9: NGVD 1929 NAVD 1988 Other (Describe) B12. Is the building located in a Coastal Barrier Resources System (CBRS) area or Otherwise Protected Area (OPA)? Designation Date CBRS OPA	Yes No
SECTION C - BUILDING ELEVATION INFORMATION (SURVEY REQUIRI	ED)
C1. Building elevations are based on: Construction Drawings* Building Under Construction* *A new Elevation Certificate will be required when construction of the building is complete. 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 below according to the building diagram specified in Item A7. Use the same datum as the BFE. Benchmark Utilized	Finished Construction , AR/AO. Complete Items C2.a-h ent used. rrs (Puerto Rico only) rs (Puerto Rico only)
This certification is to be signed and sealed by a land surveyor, engineer, or architect authorized by law to certify elevation information on this Certificate represents my best efforts to interpret the data available	n
I understand that any false statement may be punishable by fine or imprisonment under 18 U.S. Code, Section 1001. Check here if comments are provided on back of form. Were latitude and longitude in Section A provided by a licensed land surveyor? Certifier's Name	PLACE SEAL HERE
Title Company Name	
Address City State ZIP Code	—
Signature Date Telephone	

IMPORTANT: In these spaces, copy the corresponding information from Section A.			For Insurance Company Use:
Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No.			Policy Number
City	State	ZIP Code	Company NAIC Number
SECTION D	- SURVEYOR, ENGINEER, OR ARCHITI	ECT CERTIFICATION (CON	TINUED)
Copy both sides of this Elevation Certificat	te for (1) community official, (2) insurance ager	t/company, and (3) building own	er.
Comments			
Signature	Date		
SECTION E - BUILDING ELEVA	TION INFORMATION (SURVEY NOT RE	QUIRED) FOR ZONE AO AI	ND ZONE A (WITHOUT BFE)
			<u></u>
For Zones AO and A (without BFE), comp and C. For Items E1-E4, use natural grac	lete Items E1-E5. If the Certificate is intended de, if available. Check the measurement used.	In Puerto Rico only, enter mete	equest, complete Sections A, B, rs.
E1. Provide elevation information for the	e following and check the appropriate boxes to s	show whether the elevation is ab	ove or below the highest adjacent
a) Top of bottom floor (including bas	sement, crawlspace, or enclosure) is	feetmetersabo	ove or below the HAG.
 b) Top of bottom floor (including bas E2. For Building Diagrams 6-9 with perm 	ement, crawlspace, or enclosure) is nanent flood openings provided in Section A Ite	[feet]meters [above and set in the set of the set	ove or below the LAG.
(elevation C2.b in the diagrams) of t	he building is feet me	ters above or below th	e HAG.
E3. Attached garage (top of slab) is E4. Top of platform of machinery and/or	equipment servicing the building is	feet meters ab	ove or 🗌 below the HAG.
E5. Zone AO only: If no flood depth num	nber is available, is the top of the bottom floor e	elevated in accordance with the c	community's floodplain management
	John John Jack Control official must certify this info	EDDESENITATIVEL CEDTIE	
The property owner or owner's authorized	representative who completes Sections A. B.	and E for Zone A (without a FEM	A-issued or community-issued BFE)
or Zone AO must sign here. The statemen	nts in Sections A, B, and E are correct to the be	est of my knowledge.	
Property Owner's or Owner's Authorized F	Representative's Name		
Address	City	State	ZIP Code
Signature	Date	Telephon	e
Comments			
			Check here if attachments
	SECTION G - COMMUNITY INFORM	ATION (OPTIONAL)	
The local official who is authorized by law of	r ordinance to administer the community's floor	Iplain management ordinance ca	In complete Sections A, B, C (or E),
G1. The information in Section C was is authorized by law to certify elev	taken from other documentation that has been vation information. (Indicate the source and da	signed and sealed by a licensed te of the elevation data in the Co	I surveyor, engineer, or architect who meens area below)
G2. A community official completed S	ection E for a building located in Zone A (witho	ut a FEMA-issued or community	-issued BFE) or Zone AO.
G3. The following information (Items C	34-G9) is provided for community floodplain ma	anagement purposes.	
G4. Permit Number G	5. Date Permit Issued	G6. Date Certificate Of Compl	iance/Occupancy Issued
G7. This permit has been issued for:	New Construction Substantial Improve	ement	
G8. Elevation of as-built lowest floor (inclu-	ding basement) of the building	feet meters (PF	R) Datum
G10. Community's design flood elevation	at the building site	feet meters (PF	R) Datum
			,
Community Name	Tele	pnone	
Signature	Date		
Comments			
			Check here if attachments

Building Photographs See Instructions for Item A6.

			For Insurance Company Use:
Building Street Address (including	Apt., Unit, Suite, and/or Bldg. No.) or	P.O. Route and Box No.	Policy Number
City	State	ZIP Code	Company NAIC Number
-			

If using the Elevation Certificate to obtain NFIP flood insurance, affix at least two building photographs below according to the instructions for Item A6. Identify all photographs with: date taken; "Front View" and "Rear View"; and, if required, "Right Side View" and "Left Side View." If submitting more photographs than will fit on this page, use the Continuation Page on the reverse.

Building Photographs Continuation Page

			For Insurance Company Use:
Building Street Address (including Apt., U	Init. Suite. and/or Bldg. No.)	or P.O. Route and Box No.	Policy Number
City	State	ZIP Code	Company NAIC Number

If submitting more photographs than will fit on the preceding page, affix the additional photographs below. Identify all photographs with: date taken; "Front View" and "Rear View"; and, if required, "Right Side View" and "Left Side View."

INSTRUCTIONS FOR COMPLETING THE ELEVATION CERTIFICATE

The Elevation Certificate is to be completed by a land surveyor, engineer, or architect who is authorized by law to certify elevation information when elevation information is required for Zones A1-A30, AE, AH, A (with BFE), VE, V1-V30, V (with BFE), AR, AR/AE, AR/AI-A30, AR/AH, or AR/AO. Community officials who are authorized by law or ordinance to provide floodplain management information may also complete this form. For Zones AO and A (without BFE), a community official, a property owner, or an owner's representative may provide information on this certificate, unless the elevations are intended for use in supporting a request for a LOMA or LOMR-F. Certified elevations must be included if the purpose of completing the Elevation Certificate is to obtain a LOMA or LOMR-F.

The property owner, the owner's representative, or local official who is authorized by law to administer the community floodplain ordinance can complete Section A and Section B. The partially completed form can then be given to the land surveyor, engineer, or architect to complete Section C. The land surveyor, engineer, or architect should verify the information provided by the property owner or owner's representative to ensure that this certificate is complete.

In Puerto Rico only, elevations for building information and flood hazard information may be entered in meters.

SECTION A – PROPERTY INFORMATION

Items A1-A4. This section identifies the building, its location, and its owner. Enter the name(s) of the building owner(s), the building's complete street address, and the lot and block numbers. If the building's address is different from the owner's address, enter the address of the building being certified. If the address is a rural route or a Post Office box number, enter the lot and block numbers, the tax parcel number, the legal description, or an abbreviated location description based on distance and direction from a fixed point of reference. For the purposes of this certificate, "building" means both a building and a manufactured (mobile) home.

A map may be attached to this certificate to show the location of the building on the property. A tax map, FIRM, or detailed community map is appropriate. If no map is available, provide a sketch of the property location, and the location of the building on the property. Include appropriate landmarks such as nearby roads, intersections, and bodies of water. For building use, indicate whether the building is residential, non-residential, an addition to an existing residential or non-residential building, an accessory building (e.g., garage), or other type of structure. Use the Comments area of the appropriate section if needed, or attach additional comments.

Item A5. Provide latitude and longitude coordinates for the center of the front of the building. Use either decimal degrees (e.g., 39.5043°, -110.7585°) or degrees, minutes, seconds (e.g., 39° 30' 15.5", -110° 45' 30.7") format. If decimal degrees are used, provide coordinates to at least 4 decimal places or better. When using degrees, minutes, seconds, provide seconds to at least 1 decimal place or better. The latitude and longitude coordinates must be accurate within 66 feet. When the latitude and longitude are provided by a surveyor, check the "Yes" box in Section D and indicate the method used to determine the latitude and longitude in the Comments area of Section D. If the Elevation Certificate is being certified by other than a licensed surveyor, engineer, or architect, this information is not required. Provide the type of datum used to obtain the latitude and longitude. FEMA prefers the use of NAD 1983.

Item A6. If the Elevation Certificate is being used to obtain flood insurance through the NFIP, the certifier must provide at least two photographs showing the front and rear of the building taken within 90 days from the date of certification. The photographs must be taken with views confirming the building description and diagram number provided in Section A. To the extent possible, these photographs should show the entire building including foundation. If the building has split-level or multi-level areas, provide at least two additional photographs showing side views of the building. In addition, when applicable, provide a photograph of the foundation showing a representative example of the flood openings or vents. All photographs must be in color and measure at least 3"x3". Digital photographs are acceptable.

Item A7. Select the diagram on pages 7-9 that best represents the building. Then enter the diagram number and use the diagram to identify and determine the appropriate elevations requested in Items C2.a-h. If you are unsure of the correct diagram, select the diagram that most closely resembles the building being certified.

Item A8.a Provide the square footage of the crawlspace or enclosure(s) below the lowest elevated floor of an elevated building with or without permanent flood openings. Take the measurement from the outside of the crawlspace or enclosure(s). Examples of elevated buildings constructed with crawlspace and enclosure(s) are shown in Diagrams 6-9 on pages 8-9. Diagram 2, 4, or 9 should be used for a building constructed with a crawlspace floor that is below the exterior grade on all sides.

Items A8.b-d Enter in Item A8.b the number of permanent flood openings in the crawlspace or enclosure(s) that are no higher than 1.0 foot above the higher of the exterior or interior grade or floor immediately below the opening. (A permanent flood opening is a flood vent or other opening that allows the free passage of water automatically in both directions without human intervention.) If the interior grade elevation is used, note this in the Comments area of Section D. Estimate the total <u>net</u> area of all such permanent flood openings in square inches, excluding any bars, louvers, or other covers of the permanent flood openings, and enter the total in Item A8.c. If the net area cannot be reasonably estimated, provide the size of the flood openings without consideration of any covers and indicate in the Comments area the type of cover that exists in the flood openings. Indicate in Item A8.d whether the flood openings are engineered. If applicable, attach a copy of the Individual Engineered Flood Openings Certification or an Evaluation Report issued by the International Code Council Evaluation Service (ICC ES), if you have it. If the crawlspace or enclosure(s) have no permanent flood openings, or if the openings are not within 1.0 foot above adjacent grade, enter "0" (zero) in Items A8.b-c.

Item A9.a Provide the square footage of the attached garage with or without permanent flood openings. Take the measurement from the outside of the garage.

Items A9.b-d Enter in Item A9.b the number of permanent flood openings in the attached garage that are no higher than 1.0 foot above the higher of the exterior or interior grade or floor immediately below the opening. (A permanent flood opening is a flood vent or other opening that allows the free passage of water automatically in both directions without human intervention.) If the interior grade elevation is used, note this in the Comments area of Section D. This includes any openings that are in the garage door that are no higher than 1.0 foot above the adjacent grade. Estimate the total <u>net</u> area of all such permanent flood openings in square inches and enter the total in Item A9.c. If the net area cannot be reasonably estimated, provide the size of the flood openings without consideration of any covers and indicate in the Comments area the type of cover that exists in the flood openings. Indicate in Item A9.d whether the flood openings are engineered. If applicable, attach a copy of the Individual Engineered Flood Openings Certification or an Evaluation Report issued by the International Code Council Evaluation Service (ICC ES), if you have it. If the garage has no permanent flood openings, or if the openings are not within 1.0 foot above adjacent grade, enter "0" (zero) in Items A9.b-c.

SECTION B - FLOOD INSURANCE RATE MAP (FIRM) INFORMATION

Complete the Elevation Certificate on the basis of the FIRM in effect at the time of the certification.

The information for Section B is obtained by reviewing the FIRM panel that includes the building's location. Information about the current FIRM is available from the Federal Emergency Management Agency (FEMA) by calling 1-800-358-9616. If a Letter of Map Amendment (LOMA) or Letter of Map Revision (LOMR-F) has been issued by FEMA, please provide the letter date and case number in the Comments area of Section D or Section G, as appropriate.

For a building in an area that has been annexed by one community but is shown on another community's FIRM, enter the community name and 6-digit number of the annexing community in Item B1, the name of the county or new county, if necessary, in Item B2, and the FIRM index date for the annexing community in Item B6. Enter information from the actual FIRM panel that shows the building location, even if it is the FIRM for the previous jurisdiction, in Items B4, B5, B7, B8, and B9.

If the map in effect at the time of the building's construction was other than the current FIRM, and you have the past map information pertaining to the building, provide the information in the Comments area of Section D.

Item B1. NFIP Community Name & Community Number. Enter the complete name of the community in which the building is located and the associated 6-digit community number. For a newly incorporated community, use the name and 6-digit number of the new community. Under the NFIP, a "community" is any State or area or political subdivision thereof, or any Indian tribe or authorized native organization, that has authority to adopt and enforce floodplain management regulations for the areas within its jurisdiction. To determine the current community number, see the NFIP *Community Status Book*, available on FEMA's web site at http://www.fema.gov/fema/csb.shtm, or call 1-800-358-9616.

Item B2. County Name. Enter the name of the county or counties in which the community is located. For an unincorporated area of a county, enter "unincorporated area." For an independent city, enter "independent city."

Item B3. State. Enter the 2-letter state abbreviation (for example, VA, TX, CA).

Items B4-B5. Map/Panel Number and Suffix. Enter the 10-character "Map Number" or "Community Panel Number" shown on the FIRM where the building or manufactured (mobile) home is located. For maps in a county-wide format, the sixth character of the "Map Number" is the letter "C" followed by a four-digit map number. For maps not in a county-wide format, enter the "Community Panel Number" shown on the FIRM.

Item B6. FIRM Index Date. Enter the effective date or the map revised date shown on the FIRM Index.

Item B7. FIRM Panel Effective/Revised Date. Enter the map effective date or the map revised date shown on the FIRM panel. This will be the latest of all dates shown on the map. The current FIRM panel effective date can be determined by calling 1-800-358-9616.

Item B8. Flood Zone(s). Enter the flood zone, or flood zones, in which the building is located. All flood zones containing the letter "A" or "V" are considered Special Flood Hazard Areas. The flood zones are A, AE, A1-A30, V, VE, V1-V30, AH, AO, AR, AR/A, AR/AE, AR/A1-A30, AR/AH, and AR/AO. Each flood zone is defined in the legend of the FIRM panel on which it appears.

Item B9. Base Flood Elevation(s). Using the appropriate Flood Insurance Study (FIS) Profile, Floodway Data Table, or FIRM panel, locate the property and enter the BFE (or base flood depth) of the building site. If the building is located in more than one flood zone in Item B8, list all appropriate BFEs in Item B9. BFEs are shown on a FIRM or FIS Profile for Zones A1-A30, AE, AH, V1-V30, VE, AR, AR/A, AR/AE, AR/A1-A30, AR/AH, and AR/AO; flood depth numbers are shown for Zone AO. Use the AR BFE if the building is located in any of Zones AR/A, AR/AE, AR/A1-A30, AR/AH, or AR/AO. In A or V zones where BFEs are not provided on the FIRM, BFEs may be available from another source. For example, the community may have established BFEs or obtained BFE data from other sources for the building site. For subdivisions and other developments of more than 50 lots or 5 acres, establishment of BFEs is required by the community's floodplain management ordinance. If a BFE is obtained from another source, enter the BFE in Item B9. In an A Zone where BFEs are not available, complete Section E and enter N/A for Section B, Item B9. Enter the BFE to the nearest tenth of a foot (nearest tenth of a meter, in Puerto Rico).

Item B10. Indicate the source of the BFE that you entered in Item B9. If the BFE is from a source other than FIS Profile, FIRM, or community, describe the source of the BFE.

Item B11. Indicate the elevation datum to which the elevations on the applicable FIRM are referenced as shown on the map legend. The vertical datum is shown in the Map Legend and/or the Notes to Users on the FIRM.

Item B12. Indicate whether the building is located in a Coastal Barrier Resources System (CBRS) area or Otherwise Protected Area (OPA). (OPAs are portions of coastal barriers that are owned by Federal, State, or local governments or by certain non-profit organizations and used primarily for natural resources protection.) Federal flood insurance is prohibited in designated CBRS areas or OPAs for buildings or manufactured (mobile) homes built or substantially improved after the date of the CBRS or OPA designation. For the first CBRS designations, that date is October 1, 1983. Information about CBRS areas and OPAs may be obtained on the FEMA web site at http://www.fema.gov/business/nfip/cbrs/cbrs.shtm.

SECTION C - BUILDING ELEVATION INFORMATION (SURVEY REQUIRED)

Complete Section C if the building is located in any of Zones A1-A30, AE, AH, A (with BFE), VE, V1-V30, V (with BFE), AR, AR/A, AR/AE, AR/A1-A30, AR/AH, or AR/AO, or if this certificate is being used to support a request for a LOMA or LOMR-F. If the building is located in Zone AO or Zone A (without BFE), complete Section E instead. To ensure that all required elevations are obtained, it may be necessary to enter the building (for instance, if the building has a basement or sunken living room, split-level construction, or machinery and equipment).

Surveyors may not be able to gain access to some crawlspaces to shoot the elevation of the crawlspace floor. If access to the crawlspace is limited or cannot be gained, follow one of these procedures.

- Use a yardstick or tape measure to measure the height from the floor of the crawlspace to the "next higher floor," and then subtract the crawlspace height from the elevation of the "next higher floor." If there is no access to the crawlspace, use the exterior grade next to the structure to measure the height of the crawlspace to the "next higher floor."
- Contact the local floodplain administrator of the community in which the building is located. The community may have documentation of the elevation of the crawlspace floor as part of the permit issued for the building.
- If the property owner has documentation or knows the height of the crawlspace floor to the next higher floor, try to verify this by looking inside the crawlspace through any openings or vents.

In all three cases, provide the elevation in the Comments area of Section D on the back of the form and a brief description of how the elevation was obtained.

Item C1. Indicate whether the elevations to be entered in this section are based on construction drawings, a building under construction, or finished construction. For either of the first two choices, a post-construction Elevation Certificate will be

required when construction is complete. If the building is under construction, include only those elevations that can be surveyed in Items C2.a-h. Use the Comments area of Section D to provide elevations obtained from the construction plans or drawings. Select "Finished Construction" only when all machinery and/or equipment such as furnaces, hot water heaters, heat pumps, air conditioners, and elevators and their associated equipment have been installed and the grading around the building is completed.

Item C2. A field survey is required for Items C2.a-h. Most control networks will assign a unique identifier for each benchmark. For example, the National Geodetic Survey uses the Permanent Identifier (PID). For the benchmark utilized, provide the PID or other unique identifier assigned by the maintainer of the benchmark. For GPS survey, indicate the benchmark used for the base station, the Continuously Operating Reference Stations (CORS) sites used for an On-line Positioning User Service (OPUS) solution (also attach the OPUS report), or the name of the Real Time Network used.

Also provide the vertical datum for the benchmark elevation. All elevations for the certificate, including the elevations for Items C2.a-h, must use the same datum on which the BFE is based. Show the conversion from the field survey datum used if it differs from the datum used for the BFE entered in Item B9 and indicate the conversion software used. Show the datum conversion, if applicable, in this section or in the Comments area of Section D.

For property experiencing ground subsidence, the most recent reference mark elevations must be used for determining building elevations. However, when subsidence is involved, the BFE should not be adjusted. Enter elevations in Items C2.a-h to the nearest tenth of a foot (nearest tenth of a meter, in Puerto Rico).

Items C2.a-d Enter the building elevations (excluding the attached garage) indicated by the selected building diagram (Item A7) in Items C2.a-c. If there is an attached garage, enter the elevation for top of attached garage slab in Item C2.d. (Because elevation for top of attached garage slab is self-explanatory, attached garages are not illustrated in the diagrams.) If the building is located in a V zone on the FIRM, complete Item C2.c. If the flood zone cannot be determined, enter elevations for all of Items C2.a-h. For buildings in A zones, elevations a, b, d, and e should be measured at the top of the floor. For buildings in V zones, elevation c must be measured at the bottom of the lowest horizontal structural member of the floor (see drawing below). For buildings elevated on a crawlspace, Diagrams 8 and 9, enter the elevation of the top of the crawlspace floor in Item C2.a, whether or not the crawlspace has permanent flood openings (flood vents). *If any item does not apply to the building, enter "N/A" for not applicable.*



Item C2.e Enter the lowest platform elevation of at least one of the following machinery and equipment items: elevators and their associated equipment, furnaces, hot water heaters, heat pumps, and air conditioners in an attached garage or enclosure or on an open utility platform that provides utility services for the building. Note that elevations for these specific machinery and equipment items are required in order to rate the building for flood insurance. Local floodplain management officials are required to ensure that <u>all</u> machinery and equipment servicing the building are protected from flooding. Thus, local officials may require that elevation information for all machinery and equipment, including ductwork, be documented on the Elevation Certificate. If the machinery and/or equipment its mounted to a wall, pile, etc., enter the platform elevation of the machinery and/or equipment type and its general location, e.g., on floor inside garage or on platform affixed to exterior wall, in the Comments area of Section D or Section G, as appropriate. *If this item does not apply to the building, enter "N/A" for not applicable*.

Items C2.f-g Enter the elevation of the ground, sidewalk, or patio slab immediately next to the building. For Zone AO, use the natural grade elevation, if available. This measurement must be to the nearest tenth of a foot (nearest tenth of a meter, in Puerto Rico) if this certificate is being used to support a request for a LOMA or LOMR-F.

Item C2.h Enter the lowest grade elevation at the deck support or stairs. For Zone AO, use the natural grade elevation, if available. This measurement must be to the nearest tenth of a foot (nearest tenth of a meter, in Puerto Rico) if this certificate is being used to support a request for a LOMA or LOMR-F.

SECTION D - SURVEYOR, ENGINEER, OR ARCHITECT CERTIFICATION

Complete as indicated. This section of the Elevation Certificate may be signed by only a land surveyor, engineer, or architect who is authorized by law to certify elevation information. Place your license number, your seal (as allowed by the State licensing board), your signature, and the date in the box in Section D. You are certifying that the information on this certificate represents your best efforts to interpret the data available and that you understand that any false statement may be punishable by fine or imprisonment under 18 U.S. Code, Section 1001. Use the Comments area of Section D, on the back of the certificate, to provide datum, elevation, openings, or other relevant information not specified on the front.

SECTION E - BUILDING ELEVATION INFORMATION (SURVEY NOT REQUIRED) FOR ZONE AO & ZONE A (WITHOUT BFE)

Complete Section E if the building is located in Zone AO or Zone A (without BFE). Otherwise, complete Section C instead. Explain in the Section F Comments area if the measurement provided under Items E1- E4 is based on the "natural grade."

Items E1.a and b Enter in Item E1.a the height to the nearest tenth of a foot (tenth of a meter in Puerto Rico) of the top of the bottom floor (as indicated in the applicable diagram) above or below the highest adjacent grade (HAG). Enter in Item E1.b the height to the nearest tenth of a foot (tenth of a meter in Puerto Rico) of the top of the bottom floor (as indicated in the applicable diagram) above or below the lowest adjacent grade (LAG). For buildings in Zone AO, the community's floodplain management ordinance requires the lowest floor of the building be elevated above the highest adjacent grade at least as high as the depth number on the FIRM. Buildings in Zone A (without BFE) may qualify for a lower insurance rate if an engineered BFE is developed at the site.

Item E2. For Building Diagrams 6-9 with permanent flood openings (see pages 8-9), enter the height to the nearest tenth of a foot (tenth of a meter in Puerto Rico) of the next higher floor or elevated floor (as indicated in the applicable diagram) above or below the highest adjacent grade (HAG).

Item E3. Enter the height to the nearest tenth of a foot (tenth of a meter in Puerto Rico), in relation to the highest adjacent grade next to the building, for the top of attached garage slab. (Because elevation for top of attached garage slab is self-explanatory, attached garages are not illustrated in the diagrams.) *If this item does not apply to the building, enter "N/A" for not applicable.*

Item E4. Enter the height to the nearest tenth of a foot (tenth of a meter in Puerto Rico), in relation to the highest adjacent grade next to the building, of the platform elevation that supports the machinery and/or equipment servicing the building. Indicate machinery/equipment type in the Comments area of Section F. *If this item does not apply to the building, enter* "N/A" for not applicable.

Item E5. For those communities where this base flood depth is not available, the community will need to determine whether the top of the bottom floor is elevated in accordance with the community's floodplain management ordinance.

SECTION F - PROPERTY OWNER (OR OWNER'S REPRESENTATIVE) CERTIFICATION

Complete as indicated. This section is provided for certification of measurements taken by a property owner or property owner's representative when responding to Sections A, B, and E. The address entered in this section must be the actual mailing address of the property owner or property owner's representative who provided the information on the certificate.

SECTION G - COMMUNITY INFORMATION (OPTIONAL)

Complete as indicated. The community official who is authorized by law or ordinance to administer the community's floodplain management ordinance can complete Sections A, B, C (or E), and G of this Elevation Certificate. Section C may be

filled in by the local official as provided in the instructions below for Item G1. If the authorized community official completes Sections C, E, or G, complete the appropriate item(s) and sign this section.

Check **Item G1** if Section C is completed with elevation data from other documentation, including elevations obtained from the Community Rating System Elevation Software, that has been signed and sealed by a licensed surveyor, engineer, or architect who is authorized by law to certify elevation information. Indicate the source of the elevation data and the date obtained in the Comments area of Section G. If you are both a community official and a licensed land surveyor, engineer, or architect authorized by law to certify elevation information, and you performed the actual survey for a building in Zones A1-A30, AE, AH, A (with BFE), VE, V1-V30, V (with BFE), AR, AR/A, AR/A1-A30, AR/AE, AR/AH, or AR/AO, you must also complete Section D.

Check **Item G2** if information is entered in Section E by the community for a building in Zone A (without a FEMA-issued or community-issued BFE) or Zone AO.

Check **Item G3** if the information in Items G4-G10 has been completed for community floodplain management purposes to document the as-built lowest floor elevation of the building. Section C of the Elevation Certificate records the elevation of various building components but does not determine the lowest floor of the building or whether the building, as constructed, complies with the community's floodplain management ordinance. This must be done by the community. Items G4-G10 provide a way to document these determinations.

Item G4. Permit Number. Enter the permit number or other identifier to key the Elevation Certificate to the permit issued for the building.

Item G5. Date Permit Issued. Enter the date the permit was issued for the building.

Item G6. Date Certificate of Compliance/Occupancy Issued. Enter the date that the Certificate of Compliance or Occupancy or similar written official documentation of as-built lowest floor elevation was issued by the community as evidence that all work authorized by the floodplain development permit has been completed in accordance with the community's floodplain management laws or ordinances.

Item G7. New Construction or Substantial Improvement. Check the applicable box. "Substantial Improvement" means any reconstruction, rehabilitation, addition, or other improvement of a building, the cost of which equals or exceeds 50 percent of the market value of the building before the start of construction of the improvement. The term includes buildings that have incurred substantial damage, regardless of the actual repair work performed.

Item G8. As-built lowest floor elevation. Enter the elevation of the lowest floor (including basement) when the construction of the building is completed and a final inspection has been made to confirm that the building is built in accordance with the permit, the approved plans, and the community's floodplain management laws or ordinances. Indicate the elevation datum used.

Item G9. BFE. Using the appropriate FIRM panel, FIS Profile, or other data source, locate the property and enter the BFE (or base flood depth) of the building site. Indicate the elevation datum used.

Item G10. Community's design flood elevation. Enter the elevation (including freeboard above the BFE) to which the community requires the lowest floor to be elevated. Indicate the elevation datum used.

Enter your name, title, and telephone number, and the name of the community. Sign and enter the date in the appropriate blanks.

BUILDING DIAGRAMS

The following diagrams illustrate various types of buildings. Compare the features of the building being certified with the features shown in the diagrams and select the diagram most applicable. Enter the diagram number in Item A7, the square footage of crawlspace or enclosure(s) and the area of flood openings in square inches in Items A8.a-c, the square footage of attached garage and the area of flood openings in square inches in Items A9.a-c, and the elevations in Items C2.a-h.

In A zones, the floor elevation is taken at the top finished surface of the floor indicated; in V zones, the floor elevation is taken at the bottom of the lowest horizontal structural member (see drawing in instructions for Section C).



* A floor that is below ground level (grade) on all sides is considered a basement even if the floor is used for living purposes, or as an office, garage, workshop, etc



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** An "opening" is a permanent opening that allows for the free passage of water automatically in both directions without human intervention. Under the NFIP, a minimum of two openings is required for enclosures or crawlspaces. The openings shall provide a total net area of not less than one square inch for every square foot of area enclosed, excluding any bars, louvers, or other covers of the opening. Alternatively, an Individual Engineered Flood Openings Certification or an Evaluation Report issued by the International Code Council Evaluation Service (ICC ES) must be submitted to document that the design of the openings will allow for the automatic equalization of hydrostatic flood forces on exterior walls. A window, a door, or a garage door is not considered an opening; openings may be installed in doors. Openings shall be on at least two sides of the enclosed area. If a building has more than one enclosed area, each area must have openings to allow floodwater to directly enter. The bottom of the openings must be no higher than one foot above the higher of the exterior or interior grade or floor immediately below the opening. For more guidance on openings, see NFIP Technical Bulletin 1.



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COUNTY OF MAUL

FLOOD HAZARD AREA CERTIFICATION

This form is to ce constructed within County Code.	ertify that the pla a Special Flood I	ans for any Hazard Area	new structures, conforms to the re	construction a equirements of	nd improvements that will be Section 19.62.060 of the Maui
PROJECT NAME				//K	
DESCRIPTION OF WOR	K:				
STREET ADDRESS OR P.	O. ROUTE AND BOX NU	JMBER			
CITY		ISL/	AND	STATE	ZIP CODE
Provide the fo	llowing from	the prop	er Flood Insu	rance Rate	Map (FIRM)
COMMUNITY NO.	PANEL NO.	SUFFIX	DATE OF FIRM	FIRM ZONE	BASE FLOOD ELEV./NGVD '29

CERTIFICATION BY A LICENSED PROFESSIONAL ENGINEER OR ARCHITECT

I certify that based upon development and /or review of the structural and engineering design, specifications, and plans for construction that the design and methods of construction are in accordance with accepted standards of practice for meeting the following provisions: (INITIAL ALL THAT **DO NOT** APPLY)

__Where base flood elevations have been determined but a floodway has not been designated, the cumulative effect of the proposed development when combined with all other existing and anticipated development will not increase the water surface elevation of the base flood by more than one foot at any point.

___New construction and substantial improvements will be adequately anchored to prevent floatation, collapse or lateral movement resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy.

_New construction and substantial improvements will be constructed with:

- a. materials and utility equipment resistant to flood damage and,
- b. electrical, heating, ventilation, plumbing, air conditioning, wastewater, and other service facilities designed or located so as to prevent impairment and the entry, accumulation or contamination of flood waters.

New construction and substantial improvements will be constructed using methods and practices that minimize flood damage.

___New construction and substantial improvements within zones AH or A0 includes adequate drainage paths to guide flood waters around and away from structures on slopes.

__New construction and substantial improvements (except those in A0) will have its lowest floor, including basement, elevated to, or above, the base flood elevation.

__New construction and substantial improvements in zone A0 will have its lowest floor, including basement, elevated above the highest adjacent grade at least as high as the depth number specified in feet on the FIRM, or at least two feet if no depth number is specified.

__Nonresidential construction will be elevated to, or above the base flood elevation or, together with attendant utility and sanitary facilities, be floodproofed so that walls below the base flood level are substantially impermeable to the passage of water and have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.

___New construction and substantial improvements of fully enclosed areas below the lowest floor that are usable solely for vehicular parking, building access, or storage in an area other than a basement and which are subject to flooding are designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of flood water or, provide a minimum of two openings with a total net area of not less than one square inch for every square foot of enclosed area subject to flooding with the bottom of all openings no higher than one foot above grade.

___The proposed subdivision identifies the base flood elevation and any special flood hazard areas affecting the development. The elevation of proposed structures and pads are noted in the development plans. The subdivision will provide adequate drainage to reduce exposure to flood hazards and will have utilities, such as sewer, gas, electric and water systems, located and constructed to minimize flood damage.

___The subdivision will be filled above the base flood elevation and a certification by an engineer or surveyor will be provided for the final first floor and pad elevations.

CERTIFIER'S NAME	LICENSE NO. (or Affix Seal)			
TITLE				
ADDRESS	CITY	STATEZIP CODE		
SIGNATURE	DATE	PHONE		

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County of Maui DEPARTMENT OF PLANNING

NOTICE OF FLOOD INSURANCE MANDATORY PURCHASE REQUIREMENT

<u>NFIP</u>: The County of Maui participates in the National Flood Insurance Program(NFIP). The NFIP makes federally-backed flood insurance available for all buildings, whether they are in a floodplain or not. Flood insurance covers direct loss caused by surface flooding, including a river flowing over its banks, a lake or ocean storm, and local drainage problems.

The NFIP insures buildings, including mobile homes with two types of coverage, structural and contents. Structural coverage is for the walls, floors, insulation, furnace, and other items permanently attached to the structure. Contents coverage may be purchased separately provided the contents are in an insurable building.

MANDATORY PURCHASE REQUIREMENT: The mandatory purchase requirement applies to all forms of federal or federallyrelated financial assistance for buildings located in a Special Flood Hazard Area. This requirement affects loans and grants for the purchase, construction, repair, or improvement of any publicly or privately owned building in the Special Flood Hazard Area, including, machinery, equipment, fixtures, and furnishings contained in such buildings.

Financial assistance programs affected include loans and grants from agencies, such as, the Department of Veterans Affairs, Farmers Home Administration, Federal Housing Administration, Small Business Administration, and Federal Emergency Management Agency. The requirement also applies to secured mortgage loans from financial institutions, such as, commercial lenders, savings and loan associations, savings banks, and credit unions that are regulated, supervised, or insured by federal agencies such as the Federal Insurance Corporation and the Office of Thrift Supervision. It also applies to all mortgage loans purchased by Fannie Mae or Freddie Mac in the secondary mortgage market.

<u>HOW IT WORKS</u>: Before a person can receive a loan or other financial assistance from one of the affected agencies or lenders, there must be a check to see if the building is in a Special Flood Hazard Area. The Special Flood Hazard Area is the base (100year) flood plain mapped on a Flood Insurance Rate Map(FIRM). It is shown as one or more zones that begin with the letter "A" or "V".

Copies of the FIRM are available for review at the Planning Department, 250 South High Street, Wailuku, Maui and at the Wailuku Branch of the Maui Public Library System. Many lenders and insurance agents have copies, also. It is the agency's or the lender's responsibility to check the FIRM to determine if the building is in a Special Flood Hazard Area, although many communities provide assistance.

If the building is in a Special Flood Hazard Area, the agency or lender is required by law to require the recipient to purchase a flood insurance policy on the building. The requirement is for structural coverage equal to the amount of the loan (or other financial assistance) or the maximum amount available, whichever is less. The maximum amount available for a single-family house is \$250,000.

The mandatory purchase requirement does not affect loans or financial assistance for items that are not covered by a flood insurance policy, such as vehicles, business expenses, landscaping, and vacant lots. It does not affect loans for buildings that are not in the Special Flood Hazard Area, even though a portion of the lot may be flood prone.

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