

## **INTRODUCTION**

Rebuilding of the Mississippi Gulf Coast will begin very soon in some areas. Communities will need information now if they are to ensure that buildings are reasonably protected from future storm events. The Flood Recovery Guidance is intended as an interim product to fulfill this need. As better information becomes available, it will be provided to communities. FEMA highly encourages communities to use the Flood Recovery Guidance in their planning and rebuilding efforts so they can ensure a certain level of protection against future flood damages. The following is a list of frequently asked questions pertaining to the Flood Recovery Guidance.

## **ADVISORY FLOOD ELEVATIONS**

### **WHAT IS AN “ADVISORY FLOOD ELEVATION”?**

In many areas, the storm surges from Hurricane Katrina far exceeded the base flood elevations (BFEs) on the current effective Flood Insurance Rate Maps (FIRMs) for the Mississippi Gulf Coast. Even though Hurricane Katrina was a very large storm, it raised questions as to the validity of the current BFEs. FEMA has conducted a reassessment of those BFEs and determined they do not reflect the true risk. The Flood Recovery Guidance was developed to provide communities with Advisory Flood Elevations they can use in the reconstruction process until more detailed data becomes available.

### **HOW WERE THE ADVISORY FLOOD ELEVATIONS DERIVED?**

The Advisory Flood Elevations are based on a new flood frequency analysis that takes into account Hurricane Katrina as well as additional tide and storm data from other events that have occurred during the 25 years since the FIRMs were developed. The flood frequency analysis uses tide (water level) gage data, a collection of the water levels of the sea as it rises and falls, and observed high water marks in the impacted areas. The results of the analysis are Advisory Flood Elevations. These are preliminary estimates of the impact that Hurricane Katrina had on the previous 1-percent-annual-chance, or 100-year flood.

### **WHY ARE THE ADVISORY FLOOD ELEVATIONS HIGHER THAN THE ELEVATIONS SHOWN ON THE EFFECTIVE FLOOD INSURANCE RATE MAPS (FIRMS)?**

The flood elevations depicted on the effective FIRMs are based on studies that were performed more than 25 years ago. The Advisory Flood Elevations are higher than the elevations depicted on the effective FIRMs because they are based on additional engineering analysis and about 25 additional years of flood data, including the effects of Hurricane Katrina.

### **WHY ARE THE NEW ADVISORY FLOOD ELEVATIONS LOWER THAN HURRICANE KATRINA FLOOD ELEVATIONS?**

The Advisory Flood Elevations are based on the 1-percent-annual-chance flood event, or 100-year flood; The Advisory Flood Elevations are lower than Hurricane Katrina flood elevations because Hurricane Katrina was a more extreme event than the base flood event. The elevations of the 1-percent-annual-chance flood are the Federal standard for floodplain management. Buildings constructed to this standard are still vulnerable to the effects of larger events like Hurricane Katrina.

**HOW WILL THE ADVISORY ELEVATIONS COMPARE TO THE FINAL ELEVATIONS DEPICTED ON REVISED FIRMS?**

In the next one to two years FEMA will formally revise the FIRMs. The final elevations to be depicted on revised FIRMs will be based on detailed analyses of the coastal hazards and will include the data used for the Advisory Flood Elevations. The final elevations to be depicted on the revised FIRMs may differ somewhat from the Advisory Flood Elevations; however, we expect them to be comparable. Until detailed analyses are completed, the Advisory Flood Elevations should be used for floodplain management purposes as it is the best information we have available at this time.

**HOW DO THE HURRICANE KATRINE FLOOD ELEVATIONS OF 2005 COMPARE TO THE HURRICANE CAMILLE FLOOD ELEVATIONS OF 1969 ON THE MISSISSIPPI GULF COAST?**

Based on preliminary high-water mark information, Hurricane Katrina flood elevations exceeded the flood elevations in the most heavily impacted areas from Hurricane Camille by 5 to 10 feet.

**WHAT IS THE STORM SURGE STILLWATER ELEVATION (SWEL)?**

Storm Surge Stillwater Elevation (SWEL), is the flood level resulting from storm surge flooding during a projected 1% chance annual flood, or base flood. The SWEL does not include wind driven waves which ride on top of the SWEL. The SWEL is reference to National Geodetic Vertical Datum of 1929, North American Vertical Datum of 1988 or other datum.

**USING ADVISORY FLOOD ELEVATIONS FOR FLOODPLAIN MANAGEMENT**

**IS MY COMMUNITY REQUIRED TO USE THE ADVISORY FLOOD ELEVATIONS DEVELOPED USING THE METHODS IN THE FLOOD RECOVERY GUIDANCE?**

No. A community participating in the National Flood Insurance Program (NFIP) is not required to use the Advisory Flood Elevations. Ordinarily FEMA provides scientifically sound flood data to communities in accordance with a well defined regulatory process. This process involves providing preliminary data, affording an appeals procedure, finalizing the data and providing a six-month period of time for communities to adopt the data into their local ordinances and codes. FEMA cannot require a community to adopt new data unless it goes through this process. However, remapping and completing the entire regulatory process generally takes a minimum of two years from the inception of the restudy until new FIRMs become effective. The Flood Recovery Guidance is an interim product that will provide communities with a new estimate of the minimum flood elevations that they can use during reconstruction.

**WHAT ARE THE BENEFITS TO MY COMMUNITY OF ADOPTING THE ADVISORY FLOOD ELEVATIONS?**

Hurricane Katrina clearly demonstrated the BFEs and flood boundaries on the current FIRMs do not provide an appropriate level of protection for new buildings and repairs of substantially damaged buildings. FEMA has developed the Advisory Flood Elevations to provide communities with an interim product they can use during reconstruction to assure that new buildings and repairs of substantially damaged buildings are reasonably protected from flood damage.

Although FEMA can not require communities to adopt the Advisory Flood Elevations, continued use of the flood data on the current FIRMs could result in residential and commercial buildings that will be vulnerable to flood damage because they will not be built high enough or have the structural integrity to resist flood forces that may be encountered in future large events.

**IF COMMUNITY WISHES TO USE THE ADVISORY FLOOD ELEVATIONS, WILL IT NEED TO AMEND ITS FLOODPLAIN MANAGEMENT REGULATIONS TO INCORPORATE THE NEW DATA?**

Generally yes. Your floodplain administrator will need the authority to require use of the Advisory Flood Elevations instead of the base flood elevations on your current effective FIRM. If your community chooses to use this information, FEMA advises that the community formally adopt the flood hazard data so that it is legally enforceable. When communities receive advisory flood hazard data or have evidence that there is an increased flood hazard risk, communities have a responsibility to evaluate and prudently use this information for actions in the floodplain to ensure that structures are not vulnerable to flood damage and the health and safety of citizens are protected.

**WHAT LANGUAGE SHOULD MY COMMUNITY USE TO ADOPT BASE FLOOD ELEVATIONS BASED ON THE METHODOLOGY IN THE FLOOD RECOVERY GUIDANCE?**

FEMA recommends that your community amend its floodplain management regulations to adopt the still water elevation(s) and the method for calculating the Advisory Flood Elevation provided in the Flood Recovery Guidance for your county. Your community may want to consider adopting the following or similar language:

The base flood elevations used for the purpose of administering this ordinance shall be established by the Building Official (or Floodplain Administrator) using stillwater elevations (SWEL) and methodology described in FEMA's Flood Recovery Guidance for \_\_\_\_\_ County, dated \_\_\_\_\_. The Flood Recovery Guidance shall also be used by the Building Official as the basis for determining the landward boundary of the floodplain.

**WHAT IF MY COMMUNITY HAS ADOPTED THE INTERNATIONAL BUILDING CODE?**

If your community has adopted the International Building Code, you should adopt the Advisory Flood Elevations based on the methodology described in the Flood Recovery Guidance in the same way. Your floodplain administrator may need to seek advice from the community's attorney on how to specifically reference the Flood Recovery Guidance in the community's floodplain management regulations.

**WILL FEMA PROVIDE UPDATED INFORMATION BESIDES THE FLOOD RECOVERY GUIDANCE AND WILL MY COMMUNITY BE REQUIRED TO ADOPT THIS INFORMATION?**

The Flood Recovery Guidance is interim data produced to help communities respond to the need to immediately process permits necessary to begin reconstruction. By approximately November 15<sup>th</sup>, FEMA will issue a set of Flood Recovery Maps that show the inundation extent and height of Hurricane Katrina and Advisory Flood Elevations. These maps will be available on the internet.

In the next two years, FEMA will complete a formal restudy of your community that will produce revised FIRMs that communities will be required to adopt. Communities will have the opportunity to fully participate in the study process. Preliminary copies of the FIRM and Flood Insurance Study will become available for community review. Until that time, we strongly urge that your community utilize the Flood Recovery Guidance and any additional data we provide you in administering your floodplain

management regulations during reconstruction. It will continue to be your choice whether or not to adopt this data.

**ARE THERE ADDITIONAL REQUIREMENTS THAT COMMUNITIES SHOULD CONSIDER ADOPTING BESIDES THE ADVISORY FLOOD ELEVATIONS?**

Yes. NFIP floodplain management requirements have special provisions that apply in coastal high hazard areas or V zones. Because these areas are subject to wave impacts and high velocity floodwaters, buildings must be elevated on piles or columns so the bottom of the lowest horizontal structural member (usually a floor beam) is above the BFE. This allows waves to pass under the building. Recent experience has shown that wave impacts and debris are a problem in many coastal areas which are currently designated as A zones or even as B, C, and X zones. To adequately protect buildings from wave impacts, communities should consider requiring V-zone construction methods in any zones where waves were experienced during Hurricane Katrina. These areas can be determined using the same calculation used to calculate the wave height. Communities should consider requiring V zone type construction in any area where the wave height is greater than one foot. This could include areas designated as B, C, and X when there are storms greater than the base flood event. Guidance on construction in coastal A zones can be found in FEMA's *Coastal Construction Manual (FEMA 55)* which can be accessed online at [http://www.fema.gov/pdf/hazards/nhp\\_fema55.pdf](http://www.fema.gov/pdf/hazards/nhp_fema55.pdf) and ASCE 24: *Flood Resistant Design and Construction*.

**SURGE ELEVATIONS THE IMPACTED AREAS FROM HURRICANE KATRINA WERE WELL ABOVE THE ADVISORY FLOOD ELEVATIONS FEMA HAS RECOMMENDED. HOW CAN COMMUNITIES PROVIDE ADDITIONAL LEVELS OF PROTECTION TO PROTECT BUILDINGS FROM LARGER EVENTS SUCH AS HURRICANE KATRINA?**

The Advisory Flood Elevations are FEMA's best estimate at this time of the 1-percent annual chance or 100 year elevations along the Mississippi Gulf Coast. Even though they are significantly higher than the BFEs on the current FIRMs, they are still well below the surge elevations from Hurricane Katrina experienced in most areas. Future Category 4 and 5 hurricanes could create similar surge elevations. Although the NFIP uses the base flood as its standard level of protection, nothing in NFIP minimum standards prevents communities from adopting higher standards if the situation warrants and they are encouraged to do so. Some things communities and property owners could do to provide additional protection include:

- Adopt or use freeboard on top of the Advisory Flood Elevations. Adding 3 or 4 feet of freeboard would provide significant additional protection.
- Require the use of pile or column foundations to elevate residential buildings a full story above ground even in those areas where the Advisory Flood Elevations indicate shallow flooding. These foundations can be designed to withstand wave impacts.
- Put parking levels below commercial and multi-family residential buildings to raise the first floor of the building above ground level.

**CAN MY COMMUNITY ADOPT A FREEBOARD REQUIREMENT ON TOP OF ITS CURRENT BFES AS AN ALTERNATIVE TO ADOPTING THE ADVISORY FLOOD ELEVATIONS?**

Yes. One way that has been identified to protect buildings from increased flood hazards is to require freeboard on top of the current effective BFEs on the FIRM. Freeboard is an added safety factor expressed in feet that many communities add to their BFEs to account for uncertainty or provide an

increased level of protection. Communities can use the Advisory Flood Elevations to help determine the amount of freeboard that would provide a reasonable level of protection and adopt that level of freeboard into their ordinance. For example if the current BFE at a location is 14 feet above sea level and the community adopts a 3 foot freeboard, new and substantially improved and damaged buildings would have to have their lowest floods elevated to 17 feet above sea level. One issue with this approach is that there are no current effective BFEs in B, C, and X zones. Communities who choose the freeboard approach should consider adding the freeboard to the SWEL for that area and using that elevation to determine the landward boundary of their floodplain. Some Florida communities took the freeboard approach after Hurricane Ivan demonstrated that their flood elevations were not adequate for some areas.

**WILL NFIP INCREASED COST OF COMPLIANCE (ICC) FLOOD INSURANCE COVERAGE PAY TO ELEVATE BUILDINGS TO THE ADVISORY FLOOD ELEVATIONS?**

Yes. If your community adopts and enforces the Advisory Flood Elevations and requires a substantially damaged building to be elevated to that elevation, that building would qualify for ICC coverage provided that it met the other requirements in the policy. ICC would pay the cost of elevating the building to the Advisory Flood Elevation and the adopted freeboard up to the \$30,000 limit for ICC coverage. Coverage would also be available if your ordinance applies those elevations to areas that are currently mapped as B, C, or X zones or applies V zone construction standards to areas currently mapped as A zones.

**CAN MY COMMUNITY GET CREDIT UNDER THE NFIP COMMUNITY RATING SYSTEM (CRS) FOR ADOPTING ADVISORY FLOOD ELEVATIONS OR FREEBOARD?**

Yes. Most communities on the Mississippi Gulf Coast participate in the NFIP's CRS. Policyholders in these communities receive discounts on their flood insurance premiums because their communities are implementing floodplain management programs that go beyond the minimum requirements of the NFIP. Communities could receive CRS credit for adopting and enforcing the Advisory Flood Elevations or for adopting and enforcing freeboard requirements. Credits for adopting the Advisory Flood Elevations would be in effect until a revised FIRM became effective.

## **INSURANCE IMPLICATIONS**

**IF COMMUNITIES ADOPT AND UTILIZE THE ADVISORY FLOOD ELEVATIONS, HOW WILL IT AFFECT THEIR CITIZENS' FLOOD INSURANCE POLICIES?**

Since the communities' FIRM will not, in the near term, be revised by the Advisory Flood Elevations, the policies will continue to be rated using the zones and flood elevations on the current effective FIRM.

Additionally, communities that participate in the NFIP's CRS can apply for more credit points based on their adoption of standards higher than the NFIP's minimum requirements. This can result in additional premium discounts for all policyholders in the community.

**IF BUILDINGS ARE CONSTRUCTED IN COMPLIANCE WITH THE ADVISORY FLOOD ELEVATIONS, HOW WILL THAT AFFECT THEIR PREMIUMS?**

If the Advisory Flood Elevations are higher than the BFE on the existing FIRM, the flood insurance premiums for buildings constructed to those new elevations will be much lower.

**WHAT HAPPENS TO EXISTING FLOOD INSURANCE POLICIES IF THE FIRMS ARE REVISED IN THE FUTURE TO REFLECT NEW HIGHER BFES?**

Existing policies can continue using the same zone and BFE on the FIRM that was in effect at the time the building was constructed, as long as it is to their advantage and the building was constructed in compliance with local floodplain management ordinances.

## **FEMA GRANT PROGRAMS AND ADVISORY FLOOD ELEVATIONS**

**HOW WILL FEMA'S ADVISORY FLOOD ELEVATIONS APPLY TO FEMA'S MITIGATION GRANT PROGRAMS?**

The Advisory Flood Elevations will provide valuable baseline information to support the rebuilding process. Communities may use the elevations when determining the location and design of critical facilities, and when determining whether other facilities should be relocated. The elevations will also facilitate new mitigation opportunities.

If adopted by the community, the Advisory Flood Elevations will be incorporated into reassessing risk, developing projects and determining cost-effectiveness for FEMA's public assistance and mitigation grant programs—HMGP, PDM, and FMA. This is because the Advisory Flood Elevations will help establish protection against future disaster events based on the best available information. This information will empower communities to mitigate to higher levels than before Hurricane Katrina. In these situations, the elevations will contribute to a higher level of protection when doing so is technically feasible, cost-effective, environmentally compliant, and programmatically eligible.

**WILL APPLICANTS TO FEMA'S MITIGATION PROGRAMS AND PUBLIC ASSISTANCE PROGRAMS BE REQUIRED TO USE THE ADVISORY ELEVATIONS WHEN DEVELOPING PROJECT PROPOSALS?**

No, they will not be required to use the Advisory Flood Elevations, unless a community adopts them as a standard. Current FEMA policy requires that projects involving FEMA funds must comply, at a minimum, with all applicable State and local codes and ordinances. Generally, local ordinances rely on the effective FIRM data. Therefore, FEMA will encourage the use of the Advisory Flood Elevations as a source of best available information, but their use will not be required. But if the Advisory Flood Elevations are adopted, newly constructed public buildings funded under public assistance meeting the Advisory Flood Elevations and HMGP and other projects will generally become more cost effective due to the higher elevations.