

PAUL O. INTRO & START 9:00 - 9:15

FLOODPLAIN 101 IAFSM 2018







Tuesday March 13, 2018
Tinley Park, IL





Housekeeping

- > Restrooms
- Phones, PDAs, Pagers, etc.
- Breaks & Lunch
- Attendance CECs
- Ability to Hear / See
- Pacing—Too Fast, Slow
- > Questions???





Course Topics

- Part 1 Flooding and Floodplain Management
- Part 2 Flood Studies and Maps
- Part 3 Regulations
- Part 4 Ordinance Administration
- Part 5 Flood Insurance & CRS
- Part 6 Mitigation
- Questions???
- Exercises
- CFM exam help (coastal, etc..)

Part 1 Flooding and Floodplain Management







Part 1 - Topics

- Basic Abbreviations & Terms
- > Floodplain vs Floodway
- Minimum Standards of the NFIP

Common Acronyms...

BFE = Base Flood Elevation

FIRM = Flood Insurance Rate Map

NFIP = National Flood Insurance Program

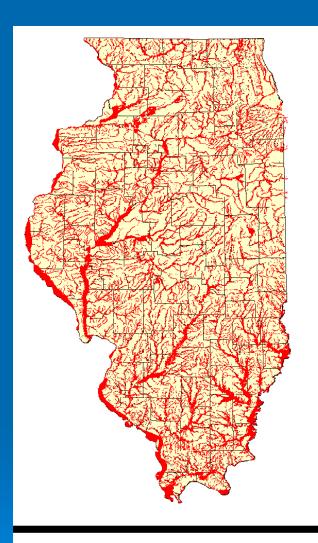
SFHA = Special Flood Hazard Area



Floodplain Basics



Illinois? Floods?



FLOOD PLAINS •The largest inland system of rivers, lakes, and streams in the entire nation!



Illinois is a VERY Wet State!



Floods are BY FAR the most common and the most costly disasters in Illinois.

Floods happen EVERY YEAR in Illinois.

Federal Disasters 1993 - 2016

1993 & 1995 MIDWEST FLOODS







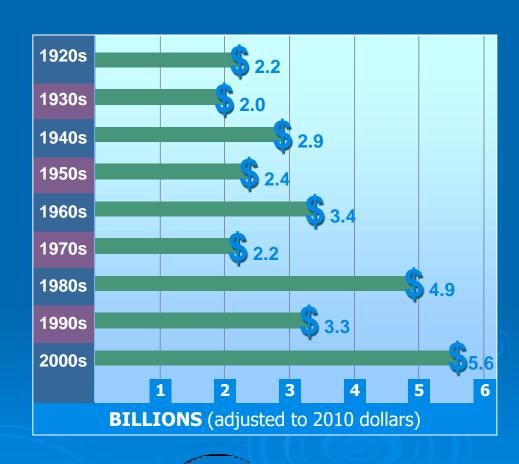




Trends in Flood Damages...

- > \$10 billion annually
- Four-fold increase from early 1900s
- USGS report:
 - * Extreme weather events have not increased.
 - * Damages have increased.

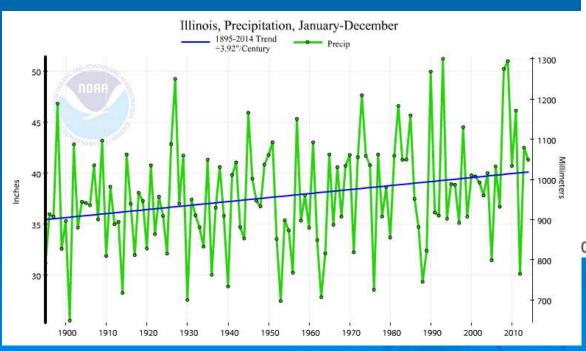
Society is to blame.....
not the weather!

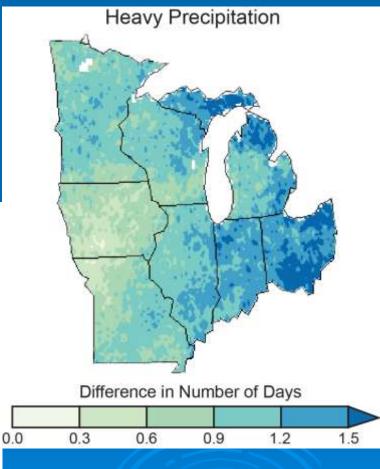


Worldwide Evolution of Catastrophe *Insured* Losses, 1970-2007 ■ Man-made catastrophes ■ Natural catastrophes \square 9/11/2001 loss (property and BI) \blacksquare 9/11/2001 loss (liability and life)

Climate Change

In Illinois, It's Happening No Doubt





Consider higher standards!!

People and Property Are at Risk in the Floodplain

Many Floodplain Residents Don't Understand the Risk





Many Structures
Unnecessarily Located in
Floodplain

Engineered Structures Have Provided Protection to Millions





But flood control is not always the answer.







Panic



The Hydro ILLOGICAL Cycle









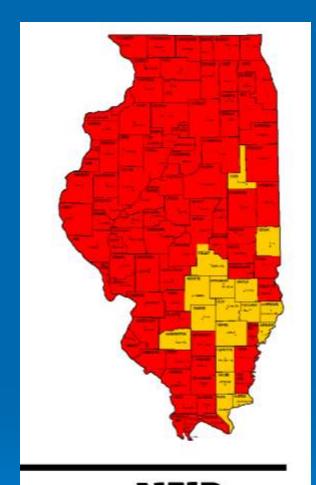
Concern





Devastation

National Flood Insurance Program



NFIP COUNTIES

To join the National Flood Insurance Program (NFIP), a community must adopt local floodplain management regulations.

In Illinois:

88 of 102 Counties have joined the NFIP.

Approx. 900 communities have also joined the NFIP.



Makes Available:

- flood insurance
- disaster assistance
- grants and loans

In Exchange For:

- Local floodplain ordinance and permits which:
- Prevent increased damages
- Protect new buildings
- Keep flooding from getting worse

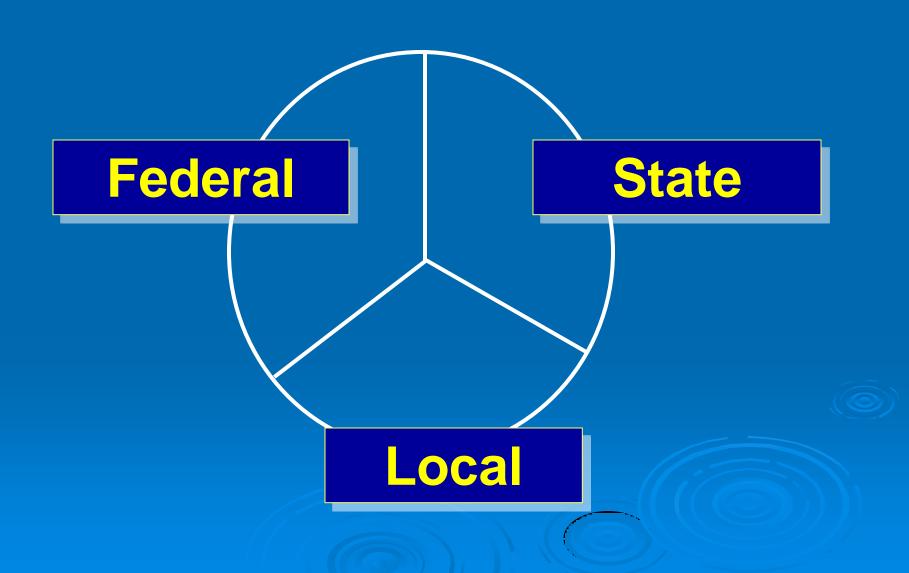


Three related program areas support the NFIP:

- Flood Hazard Identification (mapping)
- Floodplain Management (regulations, building codes, and zoning)
- Flood Insurance (coverage for residents in NFIP communities).



Three Responsibilities



Definition: "Flood"

General and temporary condition of partial or complete inundation of:

2 or more acres of normally dry land or

2 or more properties...



From:

Overflow of inland or tidal waters



Or From:

Unusual and rapid accumulation or runoff of surface waters from any source



Or from:

Mudflow



Or from:

Collapse or subsidence of land along the shore of a lake or similar body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels that result in a flood.



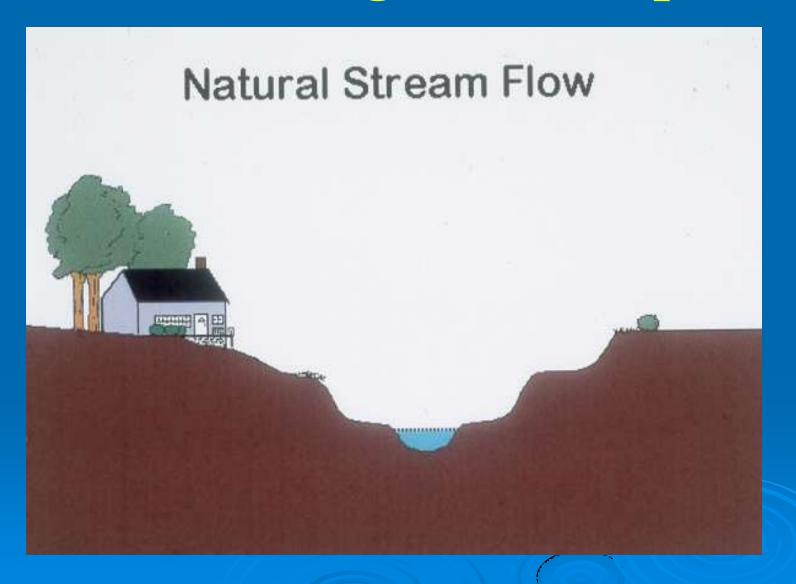


The floodplain is the land that is subject to a 1% or greater chance of flooding in any given year.

What is a Special Flood Hazard Area (SFHA)?

Land areas that are at High Risk for flooding are called Special Flood Hazard Areas (SFHA), or floodplains.

These areas are indicated on Flood Insurance Rate Maps (FIRMS)



Base Flood

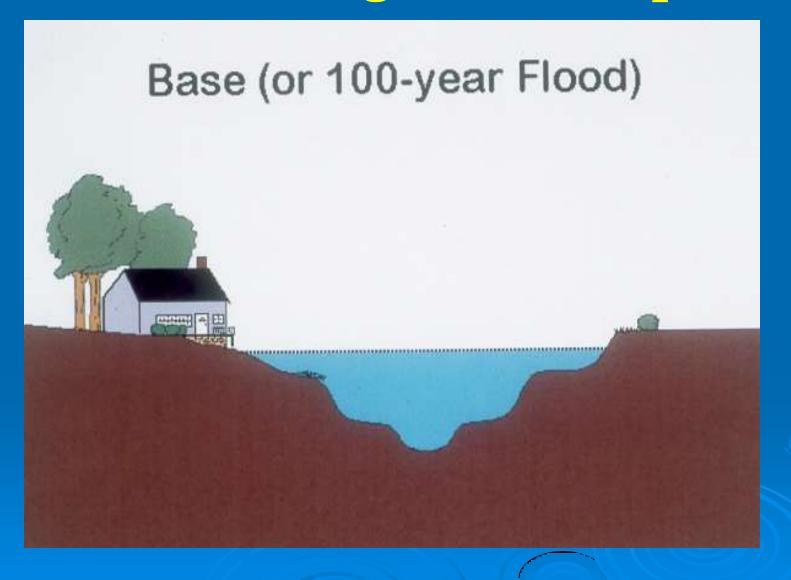
A flood that has a one-percent chance of being equaled or exceeded in any given year. It often is referred to as the

"100-year" flood.

"1% chance flood"







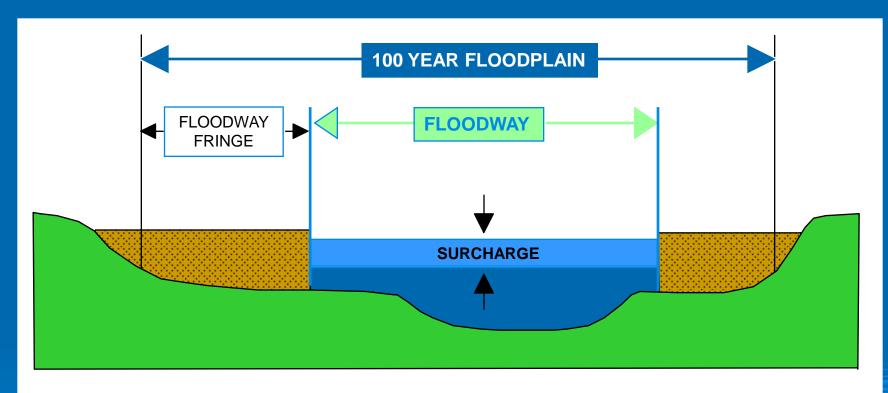
"Floodway"

A 'Regulatory Floodway' means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without increasing the water surface elevation more than a designated height (IL = 0.1').



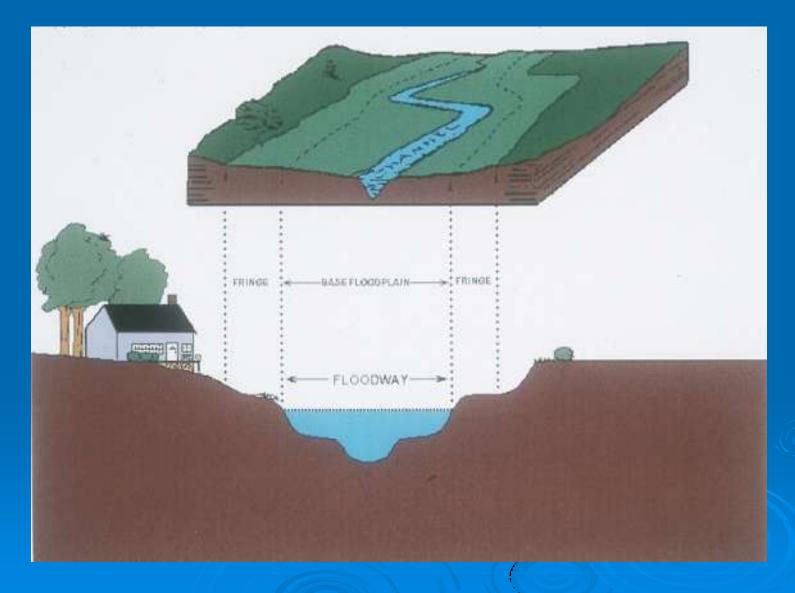


Understanding the Floodway

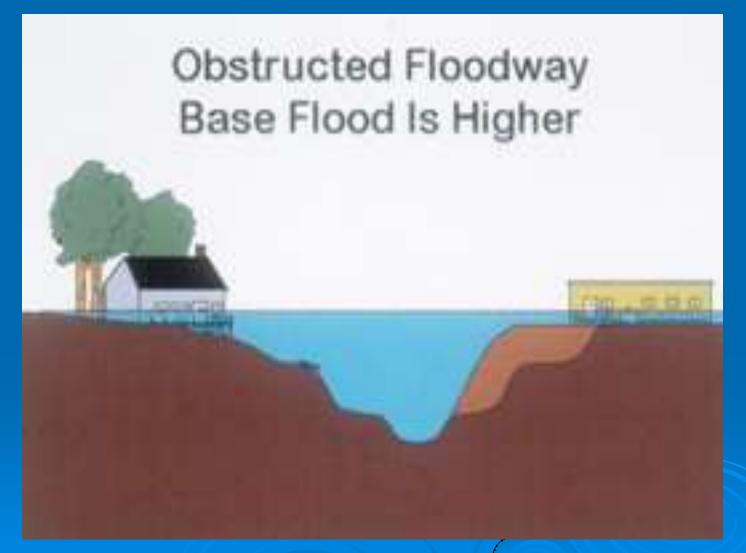


FLOODWAY + FLOODWAY FRINGE = 100 YEAR FLOODPLAIN SURCHARGE NOT TO EXCEED 0.1 FOOT

Understanding the Floodway



Understanding the Floodway



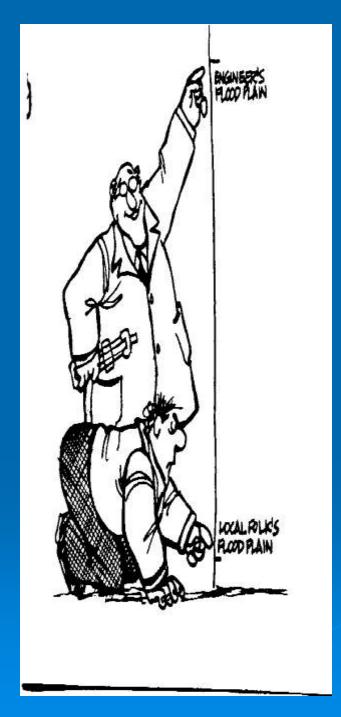
Part 1 Summary Review

Where did we confuse you?

- Basic terms and abbreviations
- NFIP goals
- Floodplain vs Floodway
- > Federal, state and local roles



START



Part 2 - Topics

- Basic Terms
- Types of FEMA Maps
- Flood Insurance Studies (FIS)
- Locate flood elevation on FIRMs
- Updating Maps (LOMCs)
- Levees

Common Acronyms...

BFE = Base Flood Elevation

FHBM = Flood Hazard Boundary Map

FIRM = Flood Insurance Rate Map

FIS = Flood Insurance Study

LOMC = Letter of Map Change

LOMA = Letter of Map Amendment

LOMR = Letter of Map Revisions

NFIP = National Flood Insurance Program

SFHA = Special Flood Hazard Area

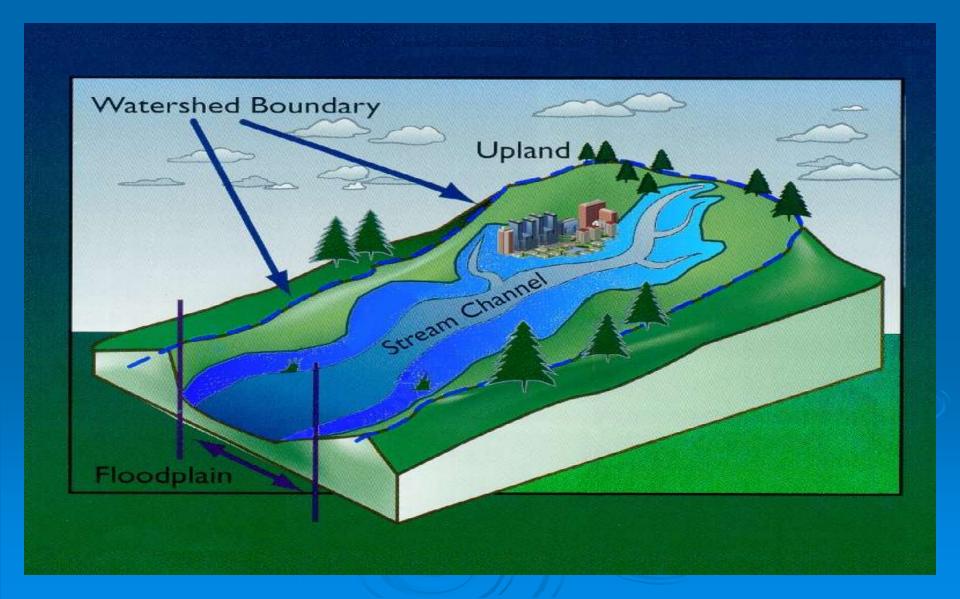
Types of FEMA Maps

> Flood Hazard Boundary Maps (FHBM)

- Flood Insurance Rate Map (FIRM)
- > Flood Boundary Floodway Map

Digital Flood Insurance Rate map (DFIRM)

How Do They Make Those EXCELLENT Floodplain Maps?



Approximate A Zones

- Also called "unnumbered A zones"
- Unique no BFEs
- Permits still required
- Vital reference: FEMA publication 265 Managing Floodplain Development in Approximate A Zones



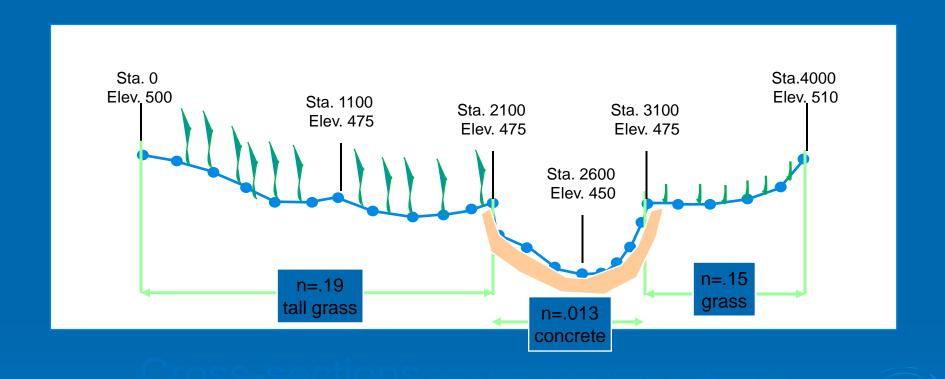
FIRM Detailed Delineations 3 Mapping Elements

- #1 Land Elevations = Topography
 Shape and surface of the floodplain
- #2 Flow = Hydrology
 How much rain runs off and how fast it collects
- #3 Flow Height = Hydraulics
 How does the water move downstream

Note: Special methods used for coastal flood studies

Topography

1st Mapping Element



Channel Geometry are points in a straight line, each point having distance and elevation.

Channel roughness is given by segments called Manning's "n".

Topography

1st Mapping Element

Bench Marks (BM) and Reference Marks (RM)

- BM or RM = Carefully measured elevation points from which other elevations are surveyed. These are a surveyor's starting elevation.
- Datums (Not all elevations are equally accurate!)
 - MSL =Mean Sea level
 - ■NGVD 29 =National Vertical Datum 1929
 - ■NAVD 88* =Earth's geoid or mass
 - Local datum =Usually very confusing
 - * this datum is used for most FIRMS



Read text of FIS Report for explanation of datum used. Reference marks (RM) are identified on older FIRMS.

Hydrology 2nd Mapping Element

Hydrology how rainfall runs-off on different land types

- Flood Discharge (flow), cubic feet per second typically
- Flood Frequency (how often), % chance every year
- Climatology (Global Warming), esp. coastal areas

Calibration check computer model with real flows:

- Computer modeling
- Gaged streams statistical analysis
- Ungaged streams regression equations
- Coastal storm modeling

Hydraulics 3rd Mapping Element

Hydraulics how runoff flows in lakes, creeks and structures

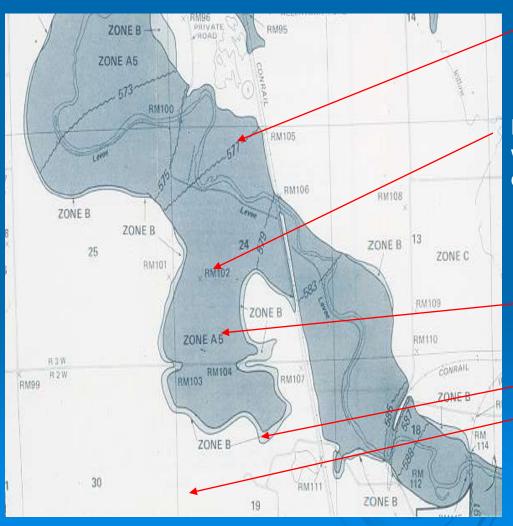
Lakes and Wetlands store water, releasing overflows

Rivers and Creeks water slowly moves down hill / slopes

Bridges and Culverts force water into smaller openings, increases upstream water levels

Computer Models estimate flows and water levels
Flood elevation and Floodway determinations
Coastal Storms surge oceans causing wave run-up

Flood Insurance Rate Map (FIRM) Flood Zones



Base Flood Elevation (BFE) Water Surface elevation (in feet) of the base flood at specific locations

Elevation Reference Marks (RM) Points for which ground elevation data have been established and recorded on the FIRM

Flood Hazard Zones.

Zone A, Zone A1–A30, and Zone AE — 100-year or base flood

Zone B - 500 – year flood.

Zone C or X — All other areas

Flood Zones

Zone V - SFHAs inundated by the 1% annual chance (100-year) flood; coastal floods with velocity hazards (wave action); no base flood elevations are determined.

Zone B and X (shaded) - 0.2% annual chance (500-year) area; areas subject to the 100-year flood with average depths of less than 1 foot or with contributing drainage area less than 1 square mile; and areas protected by levees from the base flood.

Zone C and X (unshaded) - Areas determined to be outside the 500-year floodplain.



Flood Zones

Zone AO - Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths are shown, but no floodway

Zone AH - Flood depths of 1 to 3 feet (usually areas of ponding; BFEs are shown, but no floodway



Flood Zones

Zone AR – SFHAs from the <u>decertification</u> of a previously accredited flood protection system that is being restored to provide at least 100 year protection.

Zones AR/A1-30, AR/AE, AR/AH, AR/AO, and AR/A - After restoration is complete, these areas will still experience residual flooding from other flooding sources.

Zone A99 - SFHAs inundated by the 100-year flood to be protected by a Federal flood protection system under construction; no BFEs.

Zone D - Areas in which flood hazards are undetermined Used with levee protected areas

100 Year Storm

The 1% chance flood is the basis for the NFIP program

- 100-year flood, also known as "Base Flood"
- Base Flood Elevation also known as "BFE"
- Flood area, also known as "Special Flood Hazard Area" "SFHA"

Detailed maps show 0.2% annual chance "500-year" flood

FIS profiles include: 10-year 50-year 100-year 500-year Annual Chance: 10% 2% 1% 0.2%



Approximate Floodplain maps Flood Hazard Boundary Maps (FHBM)

Late 1970s, Very inaccurate



Pre-1988 FIRMS

and

FBFM

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

CITY OF ASHLAND, OHIO ASHLAND COUNTY

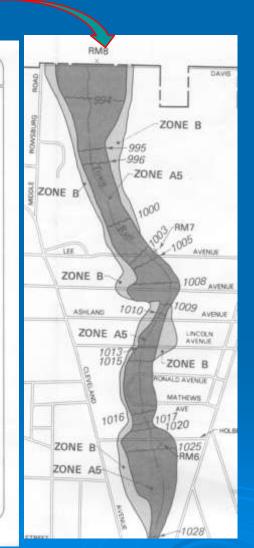
ONLY PANEL PRINTED

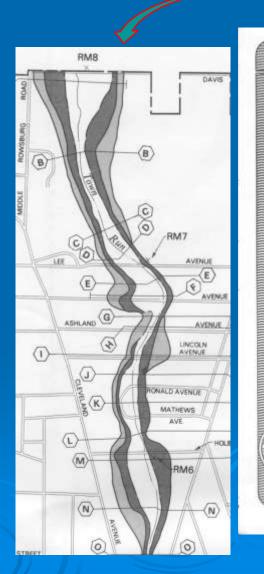
FILE COPY FLOOD PLACE PLACEMENT UNIT DO NOT REMOVE

COMMUNITY-PANEL NUMBER 390007 0005 D

> MAP REVISED: SEPTEMBER 1, 1983

Federal Emergency Management Agency





NATIONAL FLOOD INSURANCE PROGRAM

FLOODWAY

FLOOD BOUNDARY AND FLOODWAY MAP

CITY OF
ASHLAND,
OHIO
ASHLAND COUNTY

ONLY PANEL PRINTED

FILE COPY FLODO PLAIN PLANNING UNIT DO NOT REMOVE

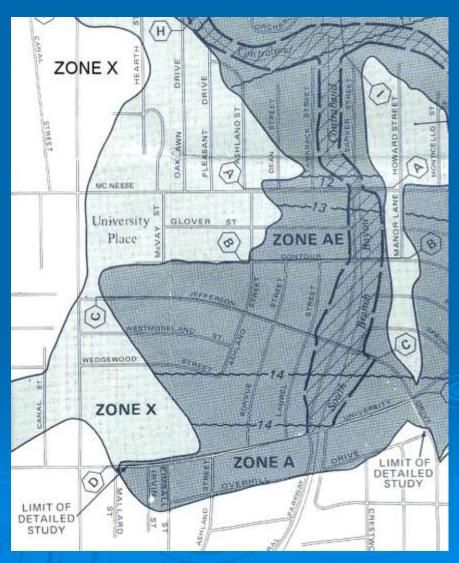
COMMUNITY-PANEL NUMBER 390007 0005

> MAP REVISED: SEPTEMBER 1, 1983

Federal Emergency Management Agency

Flood Insurance Rate Map (new format)

Un-shaded X Zone Zone AE Floodway Floodway fringe Cross section Base flood elevation Shaded X Zone Zone boundary Approximate A Zone

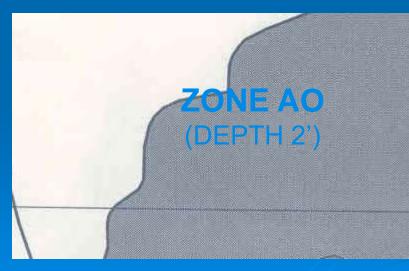


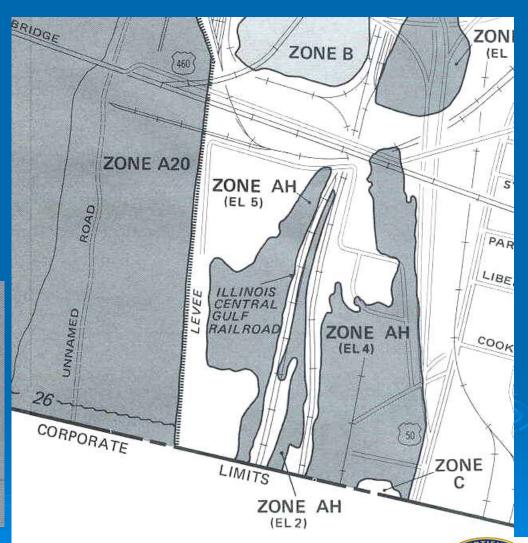
AO and AH Floodplain Zones

Shallow flooding

AO -sheet flow

AH – ponding

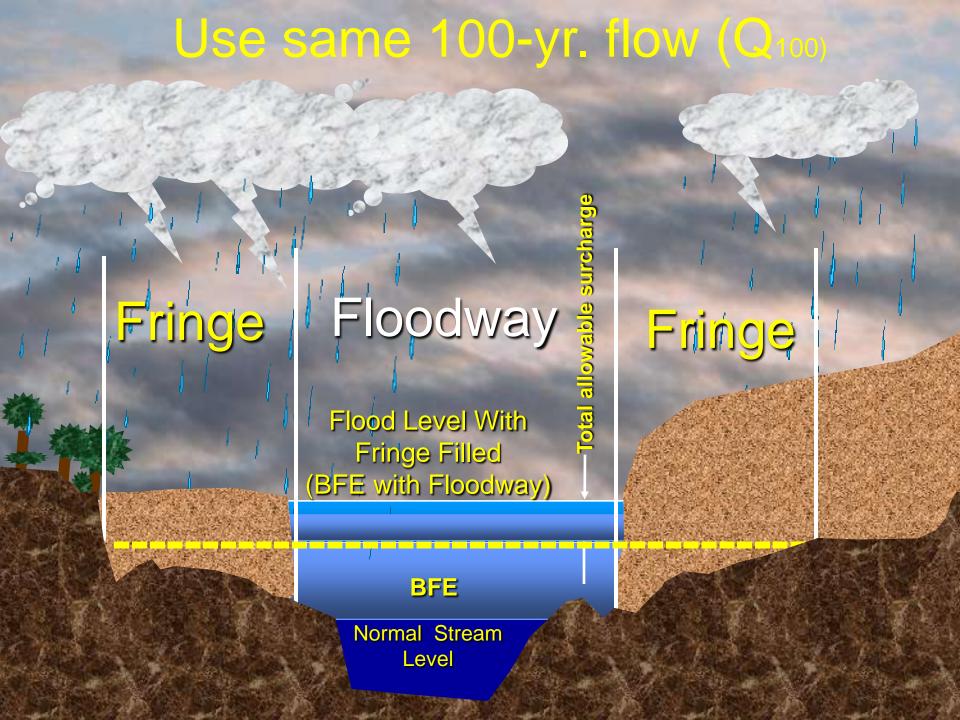




Digital Flood Insurance Rate Maps The Next Generation







How are floodways delineated?

 Encroachment limits are adjusted to an allowable surcharge 0.1 foot surcharge in Illinois

The allowable surcharge (one foot FEMA) must not be exceeded at any point along the reach



Advantages of DFIRMs

- Map revisions will be faster and easier months instead of years
- Communities will be able to use the digital flood map data with their local data, such as parcel data
- The new flood risk maps will cover entire counties
- If a community is located in more than one county, it will be mapped only to the county border

FEMA FLOOD MAP STORE WEB2.MSC.FEMA.GOV 1-800-358-9616

- Online mapping products:
- Digital Flood Insurance Rate Maps (DFIRM)
- Flood Insurance Rate Maps (FIRMs)
- Flood Insurance Study reports (FIS reports)
- Digital Q3 flood data
- Community Status Book
- Flood Map Status Information Service (FMSIS)
- Letters of Map Change (LOMCs)
- •NFIP Insurance Manuals.

FEMA Flood Map Service Center: Welcome!

Looking for a Flood Map? @

Enter an address, a place, or longitude/latitude coordinates:

Enter an address, a place, or longitude/latitude coo

Search

Looking for more than just a current flood map?

Visit <u>Search All Products</u> to access the full range of flood risk products for your community.



About Flood Map Service Center

The FEMA Flood Map Service Center (MSC) is the official public source for flood hazard information produced in support of the National Flood Insurance Program (NFIP). Use the MSC to find your official flood map, access a range of other flood hazard products, and take advantage of tools for better understanding flood risk.

FEMA flood maps are continually updated through a variety of processes. Effective information that you download or print from this site may change or become superseded by new maps over time. For additional information, please see the Flood Hazard Mapping Updates Overview Fact Sheet

FEMA Map Service Center

www.msc.fema.gov

FEMA's Map Service Center

- Online Digital Maps
 - Scanned images of older maps
 - DFIRMS of newer maps
 - Option to create FIRMette
- Ordering for flood insurance studies
- Records of letters of map change
- Create FIRMettes, FIRMette Tutorial

http://www.msc.fema.gov



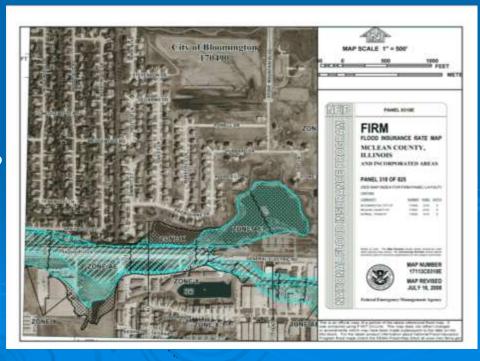
National Flood Hazard Layer (NFHL)

- Online Interactive Map of All DFIRM data
- https://www.fema.gov/national-flood-hazardlayer-nfhl
- Can be loaded into Google Earth
- Displays Letters of Map Change (LOMCs)
 Information

Search: FEMA Geo Platform

The "FIRMette"

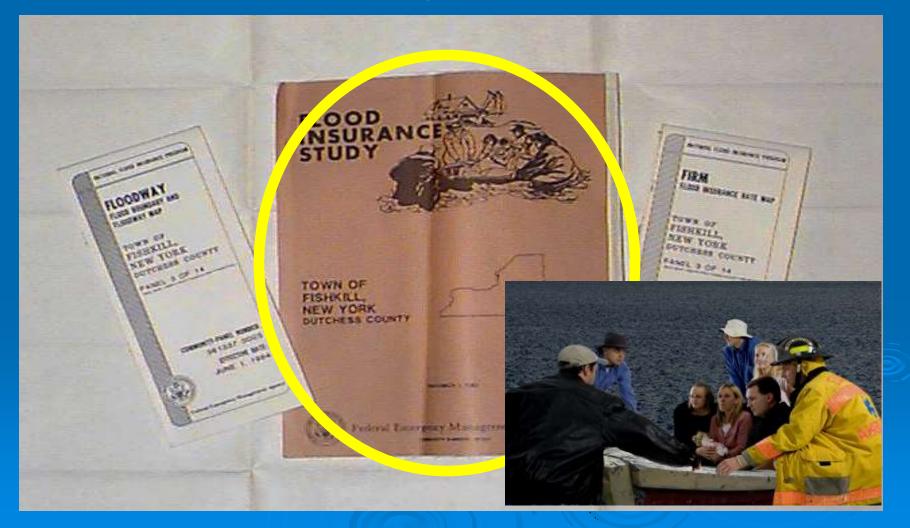
- > Available online
- Scaled to use as regulatory map
- > Printable
- >www.FEMA.gov
 - Click "Map Store"
 - Click "Map Search"
 - Type in address
 - Click "view" map



Paper Map? A thing of the past......

- As of October 1, 2008, customers may ONLY order Digital maps:
 - New DFIRM in GIS
 - Old non-converted maps will simply be scanned pdfs.
 - Existing paper maps in the warehouse will not be distributed. They have been recycled!

Flood Insurance Study (FIS)



Components of a Flood Insurance Study (FIS)

Marratíve

- Appraises a community's flood problems
- Establishes insurance risk zones
- Community flood history
- Study information
- Plots floodplain boundaries
- Flood elevation profiles
- Provides data to delineate floodways in some communities





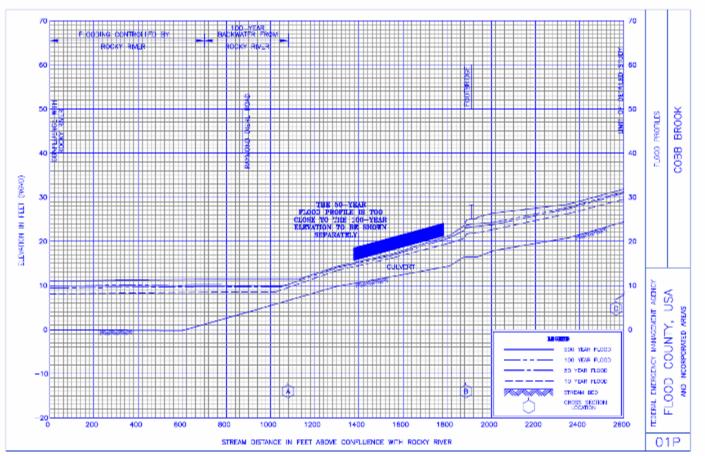
FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION (FEET NGVD)			
CROSS SECTION	DISTANCE1	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Rocky River A B C	4.395 5.537 9.610	115 13 100	1.233 142 323	6.1 9.2 8.4	9.9 10.4 10.9	9.9 10.4 10.9	10.0 10.5 11.1	0.1 0.1 0.2

FLOOD USA AND INCO

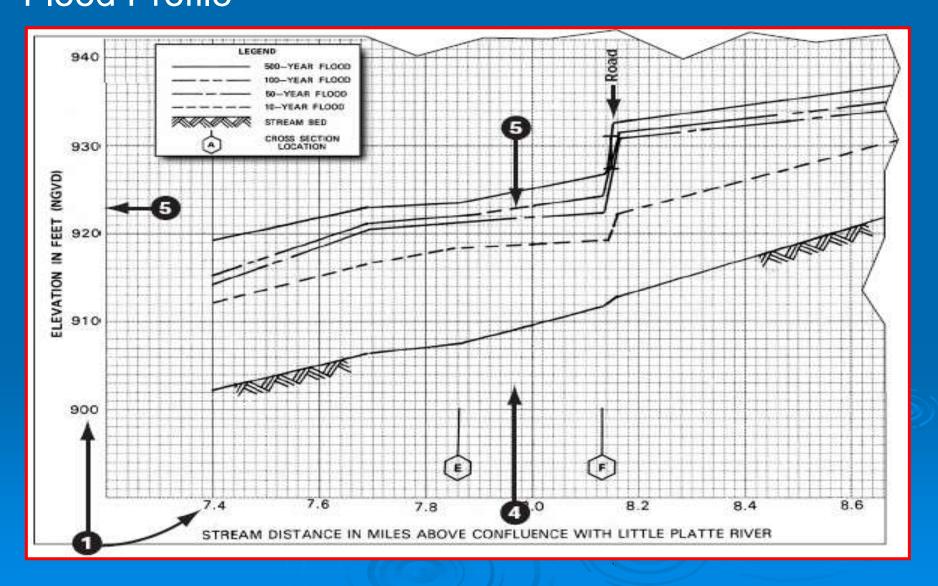
COMMUNITY NAME

RUDOS COUNTY AUNICOS PORATES ARSA RUDOSVALLA TOWN OF





Components of a Flood Insurance Study (FIS) Flood Profile



Floodway Data Table

					BASE FLOOD				
FLOODING SOURCE		FLOODWAY			WATER SURFACE ELEVATION				
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY (FEET I		INCREASI	
Green River									
Α	0	188	1,691	6.9	267.5	257.3 ²	257.4 ²	0.1	
В	380	161	1,539	7.6	267.5	258.0 ²	258.1 ²	0.1	
С	480	161	1,550	7.6	267.5	258.1 ²	258.2 ²	0.1	
D	980	155	1,143	10.3	267.5	259.6 ²	259.7 ²	0.1	
E	1,560	319	2,103	5.6	267.5	262.9 ²	262.9 ²	0.0	
F	1,770	288	2,345	5.0	267.5	265.2 ²	265.2 ²	0.0	
G	2,270	73	849	13.8	267.5	265.3 ²	265.3 ²	0.0	
Н	2,770	119	1,564	7.5	267.5	267.5	268.5	1.0	
I	2,940	169	1,971	6.0	267.5	267.5	268.5	1.0	
J	3,440	170	1,802	6.5	268.1	268.1	269.1	1.0	
K	4,540	207	2,164	5.4	270.1	270.1	270.7	0.6	
L	4,840	227	1,839	6.4	270.3	270.3	271.0	0.7	
М	5,370	113	837	14.0	271.2	271.2	271.5	0.3	

¹ Feet Above Confluence With Lake Highwater

² Elevation Computed Without Consideration of Backwater From Lake Highwater

TABLE	FEDERAL EMERGENCY MANAGEMENT AGENCY	FLOODWAY DATA		
1	City of Floodville, CA	GREEN RIVER		

Mapping Level Of Detail

Approximate study—

- Draws flood floodplain boundaries;
- no base flood elevations or depths

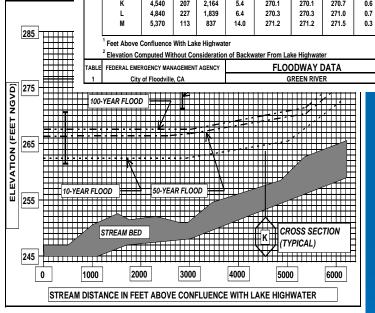
Limited Detail study –

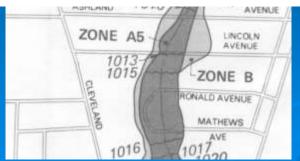
- Draws rough flood elevations to low degree of accuracy;
- BFEs not displayed on FIRM;
- more accurate than approximate study,
- less accurate than detailed study

Detailed study—

- Draws flood elevations (BFEs) or depths on FIRM;
- often includes floodway and coastal high hazard areas

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE	MEAN VELOCITY (FEET PER	REGULATORY FLOODWAY FLOODWAY		FLOODWAY	INCREASE
O Bi			FEET)	SECOND)	(FEET NGVD)			
Green River A	0	188	1,691	6.9	267.5	257.3 ²	257.4 ²	0.1
В	380	161	1,539	7.6	267.5	258.0 ²	258.1 ²	0.1
С	480	161	1,550	7.6	267.5	258.1 ²	258.2 ²	0.1
D	980	155	1,143	10.3	267.5	259.6 ²	259.7 ²	0.1
E	1,560	319	2,103	5.6	267.5	262.9 ²	262.9 ²	0.0
F	1,770	288	2,345	5.0	267.5	265.2 ²	265.2 ²	0.0
G	2,270	73	849	13.8	267.5	265.3 ²	265.3 ²	0.0
Н	2,770	119	1,564	7.5	267.5	267.5	268.5	1.0
1	2,940	169	1,971	6.0	267.5	267.5	268.5	1.0
J	3,440	170	1,802	6.5	268.1	268.1	269.1	1.0
K	4,540	207	2,164	5.4	270.1	270.1	270.7	0.6
L	4,840	227	1,839	6.4	270.3	270.3	271.0	0.7
M	5,370	113	837	14.0	271.2	271.2	271.5	0.3





Accuracy Precedence

#1 Floodway Data Table
(Most Accurate)

#2 Plotted Profiles(Second Most Accurate)

#3 BFE on FIRM Panel (Least Accurate)

Map Changes



Sometimes the maps are just plain wrong!

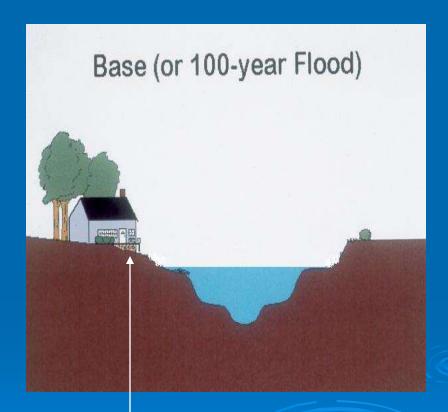
Sometimes the floodplains are modified.

There is a process to correct them

Letter of Map Amendment (LOMA)

House is shown in the floodplain





But NATURAL ground elevations prove it to be higher than the flood elevation



Letter of Map Amendment (LOMA)

Situation:

Structure is located on NATURALLY high ground

Information needed by FEMA:
Completed MT-1 Form 1 (or MT-EZ)

Cost: "free"

DEPARTMENT OF HOMELAND SECURITY - FEDERAL EMERGENCY MANAGEMENT AGENCY APPLICATION FORM FOR SINGLE RESIDENTIAL LOT OR STRUCTURE AMENOMENTS TO NATIONAL FLOOD INSURANCE PROGRAM MAPS

O.M.E. NO. 1660-0015 Expires February 28, 2014

PAPERWORK BURDEN DISCLOSURE NOTICE

Public reporting Surdan for this data collection is estimated to everage 2.4 hours per response. The barden estimate includes the time for reviewing nativations, searching existing data sources, gathering and mannfalling the data neededs, and completing and submitting that form, this collection of information in respired to obtain or retain hearths. One service reports in the submitted or the service is valid ONE control neutron or exists and ONE control neutron in the common facilities of t

remer's agent. In order to process your request, all information on links submissions will result in processing delays. below the BFE? fron forms; visit Handfi, net. 3,50m change trill free (R77-FEMA MAP) (877-836-2627) injurion from the Owed) anal street address of the Property (required) seck one): [MM/YYY] bounds description and map of the area to be removed, certified by a fixed. For the preferred format of metos and bounds descriptions.
tion forms; visit Standard S
then(st. not 3.50m) thange ton free (877-FEMA MAP) (877-836-2627) reption from the Deed) and street address of the Property (required) seck one): [MM/YYY] bounds description and map of the area to be removed, certified by
mack one): [MM/YYY] bounds description and map of the area to be removed, certified by
[MM/YYYI] bounds description and map of the area to be removed, certified by
bounds description and map of the area to be removed, certified by a
f my knowledge. I understand that any false statement may be a Section 1001.
all address (optional) (() By checking here you may receive espondence electronically at the entail address provided):
ine Telephone No. (required):
No. (syrtemat):
Date (required)

DHS - FEMA Form 086-8-22, FEB 11

MT-EZ Form

Page 1 of 3

MT-EZ Form

NOTE: If the request is to be may be submitted in lieu of	ed by a registered professional engine see a fixed zone determination compl l'action & if the request is to have a l or on the list or described portion max	isted for the structure, and food core determination o	en Devetion Detriform	our will result in processing delays. I has been completed for this property, it is legally recorded property, or a portion
hedwal Regulations. The purpose property who believes that his or accurately delineating the Shris. b	of Part 70 is to provide an administrati has property has been madverberily in conding on an NPP map, Part 70 proc	ive precedure refereby DHS schuded in a designated SPS returns shall not apply if the	PENN will review origin i. The necessity of Part topography has been a	es, chapter; Parts to and tt, calle of matter solveithed by an enter or lapses of 70 is the in part to the fectional difficulty of thread to race the original ground to or day king (htdkf) (forwing the property to
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Determination Requested For	n (check one)	Elevation Information	Required (complete	(turn 5)
Structure located on retur	rel grade (LOMA)			e elevation of the lowest ground ellos, stairs, deck supports or garages)
Gagalty recorded purcel of	land, or portion thereof (LOMA)	Secetion of the Iconstruence of from the SPH		for within the portion of land to be
1. PROPERTY INFORMATION				
Property Description (Lot and	Block Number, Tax Fancel Number	r, or Abbreviated Descrip	tion from the Dead,	etc):
2. STRUCTURE INFORMATION	N.			
	Line, Suita, and/or Brig. No.):			
What is the type of community	on? (check one)	imana Mini	b on grade	Sesament/enclosure
ther (equinit)	er land and	444		Dimension in
3. GEOGRAPHIC COORDINAT	E DATA			
	nd Longitude of the most upstream Datum: WGS84 NAD83		r decimal degrees to	meanut fifth decimal place)
	nd Longitude of the most opinion Datum: WSSB4 NADBS		decimal degrees to	nearest fifth decimal place) Long.
4. FLOOD INSURANCE RATE I	MAP (FIRM) (REDEMATION			
NPIP Community Number	Map Panel Number	Base Fixed Develor	(BFE): Source of	of BPE
5. ELEVATION INFORMATION	(SURVEY REQUIRED)			
Elevation of the lowest grav Indicate the datum (if siffer Has FEMA identified this are this certification is to be signed a	ee as subject to land subsidence or	is and bounds area (to the rach deturn convenion) rapids? No	Tec (provide data s neer, er architect autho	NAVO SS Other (add attachment) froment relevating) road by low to cartify deviation information.
	w United Dates Code, Section 2001.			
cartifers have:	Silvense fee:		operation Date:	
Company Name.	Yeinghore No.	- '	90 No.:	(sed (syttemat)
trial.				
Signature			Date:	

DHS - FEMA Form SISLA-22, FEB 11

NT-62 Fum

Page 2 of 3

MT-EZ

DEPARTMENT OF HOMELAND SECURITY - FEDERAL EMERGENCY MANAGEMENT AGENCY APPLICATION FORM FOR SINGLE RESIDENTIAL LOT OR STRUCTURE AMENDMENTS TO NATIONAL FLOOD INSURANCE PROGRAM MAPS

O.M.B. NO. 1660-0015 Expires February 28, 2014

PAPERWORK BURDEN DISCLOSURE NOTICE

Public reporting burden for this data collection is estimated to average 2.4 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. This collection of information is required to obtain or retain benefits. 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, 1800 South Bell Street, Arlington, VA 20598-3005, Paperwork Reduction Project (1660-0015) NOTE: Do not send your completed form to this address.

This form should be used to request that the Department of Homeland Security's Federal Emergency Management Agency (FEMA) remove a single structure or legally

LOMA:

A letter from DHS-FEMA stating that an existing structure or parcel of land that has not been elevated by fill would not be inundated by the base flood.

A – This section may be completed by the property owner or by the property owner's agent. In order to process your request, all i	information on
this form must be completed in its entirety, unless stated as optional. Incomplete submissions will result in processing delays.	

- Has fill been placed on your property to raise ground that was previously below the BFE?
 - No Yes If Yes, STOP!! You must complete the MT-1 application forms; visit

http://www.fema.gov/plan/prevent/fhm/dl mt-1.shtm

or call the FEMA Map Information eXchange toll free: (877-FEMA MAP) (877-336-2627)

Legal description of Property (Lot, Block, Subdivision or abbreviated description from the Deed) and street address of the Property (required):

First Question: Is there fill??

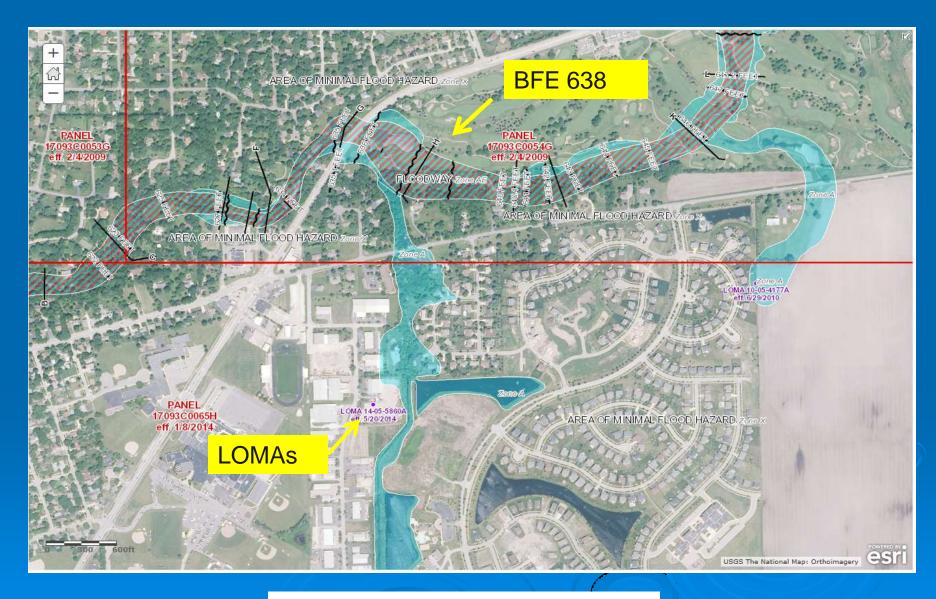
Applicant's Name (required):	E-mail address (optional) (By checking here you may receive correspondence electronically at the email address provided):		
Mailing Address (include Company name if applicable) (required):	Daytime Telephone No.	(required):	
	Fax No. (optional):		
Signature of Applicant (required)	Date (required)		
End o			

DHS - FEMA Form 086-0-22, FEB 11

MT-EZ Form

Page 1 of 3

LOMAs are shown on the NFHL

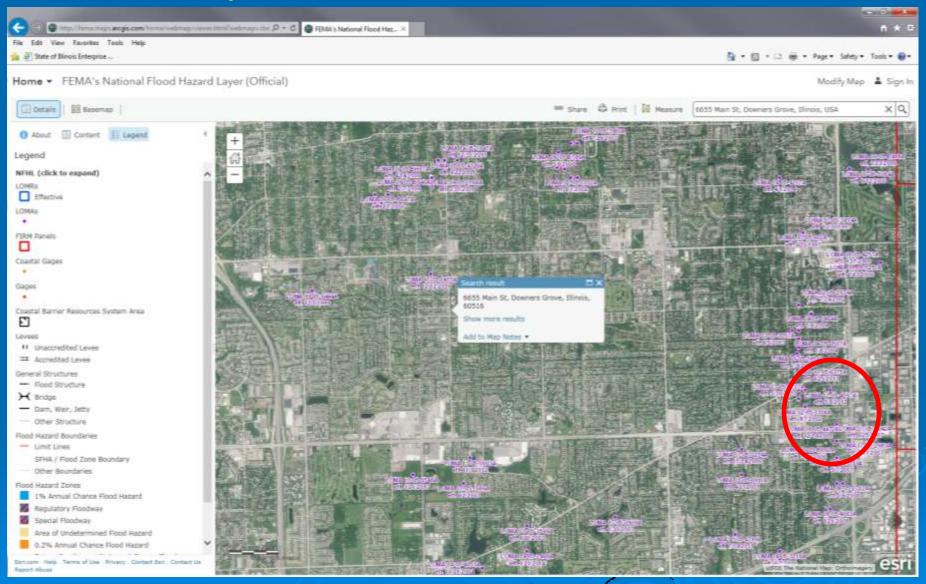


LOMAs are shown on the NFHL



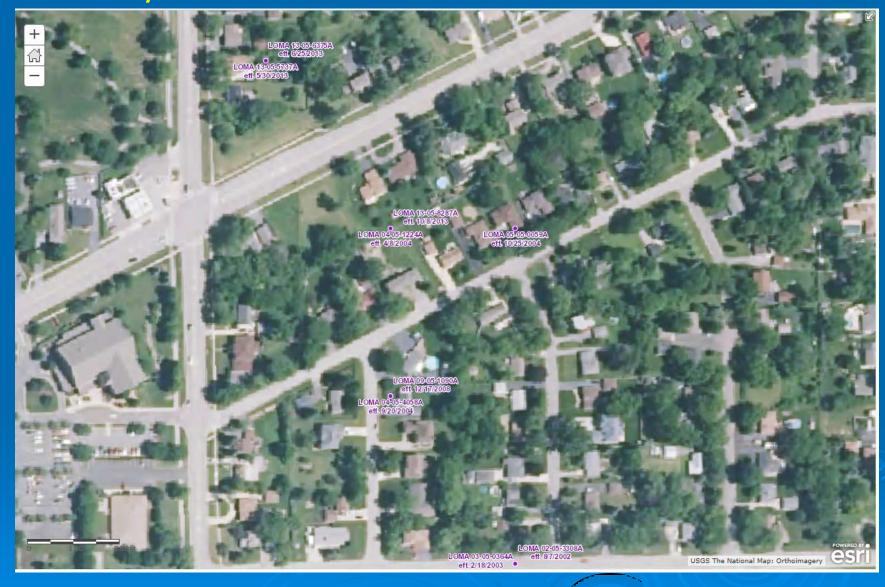
Example - Oswego, IL

Even w/o the DFIRM – LOMAs are



Scores of LOMAs in Downers Grove area!

Even w/o the DFIRM – LOMAs are shown!



Scores of LOMAs in Downers Grove area!

The E-LOMA

- Internet based system to process simple LOMA requests
- Only available to licensed land surveyors and professional engineers
- Allows determinations to be printed out locally by the user
- Random audits to be completed to verify accurate determinations

Types of Map Changes

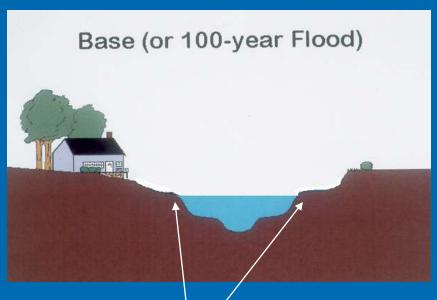
MT-1 Map Changes

- Conditional letter of Map Amendment (CLOMA)
- Letter of Map Revision Based on Fill (LOMR-F)
- Conditional Letter of Map Revision Based on Fill (CLOMR-F)

MT-2 Map Changes

- Letter of Map Revision (LOMR)
- Conditional Letter of Map Revision (CLOMR)
- Physical Map Revisions (PMR)

Letter of Map Revision (LOMR)



Floodplain as shown on the floodplain map

New floodplain based on PHYSICAL modification





Letter of Map Revision (LOMR)

Situation:

Physical changes to the floodplain, the floodway, or flood elevations.

Information needed by FEMA:

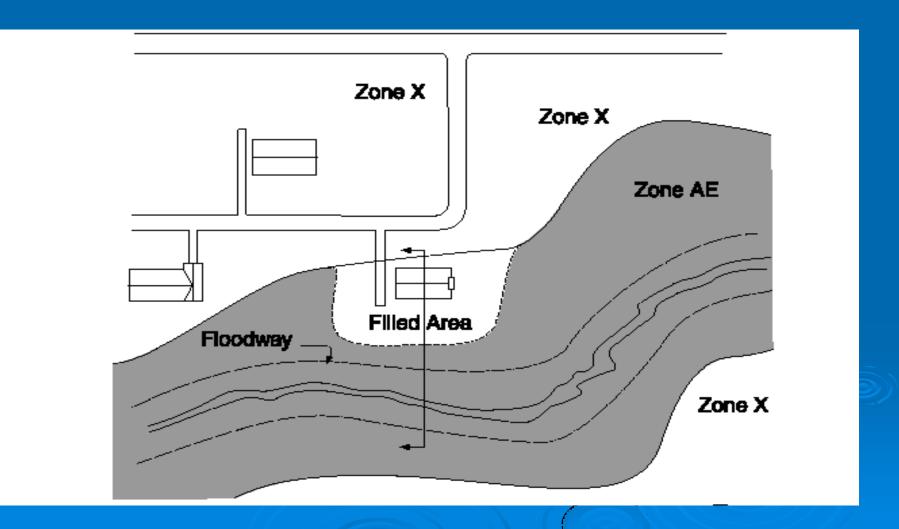
Detailed engineering and MT-2 Form

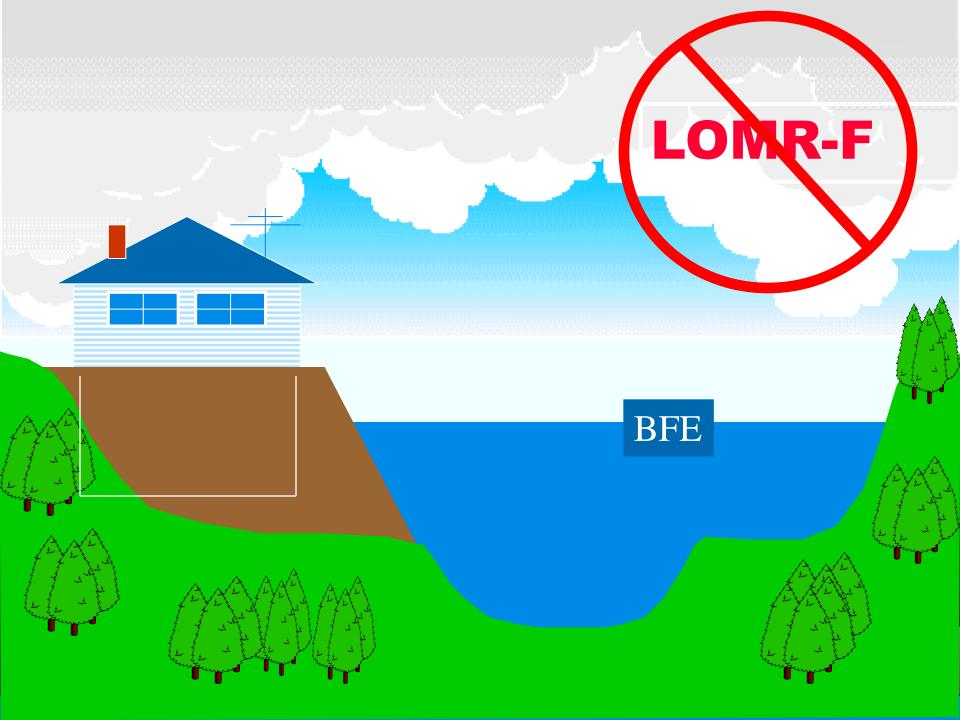
Cost: not cheap

Conditional Letter of Map Revision CLOMR-F

A letter from FEMA stating that a proposed development project would not be inundated by the 1% chance flood if built as proposed.

LOMR-F



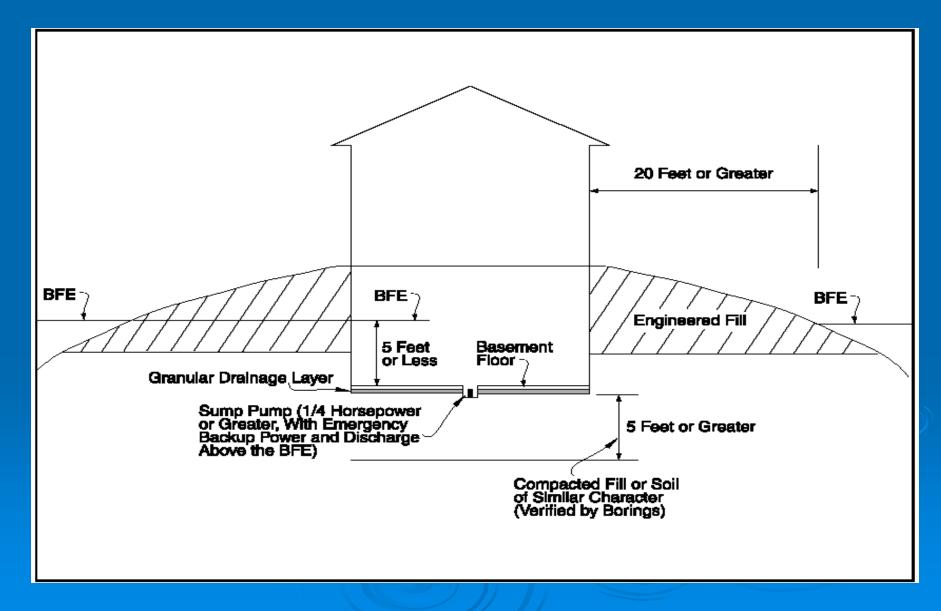


Issue a LOMR-F with a basement below BFE??

...NOT in Rock Island County! ...NOT under Ray's review!



Technical Bulletin 10-01



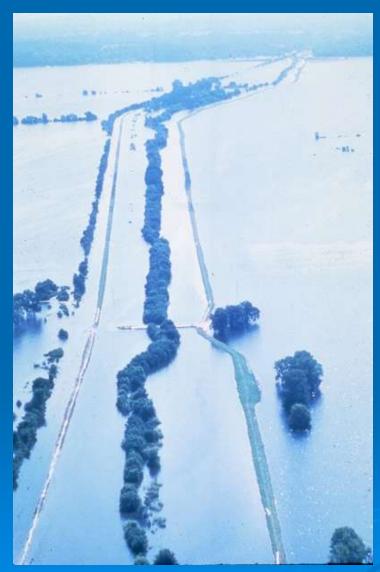
LOMC TOLL-FREE HOTLINE 1-877-FEMA MAP (366-2627)

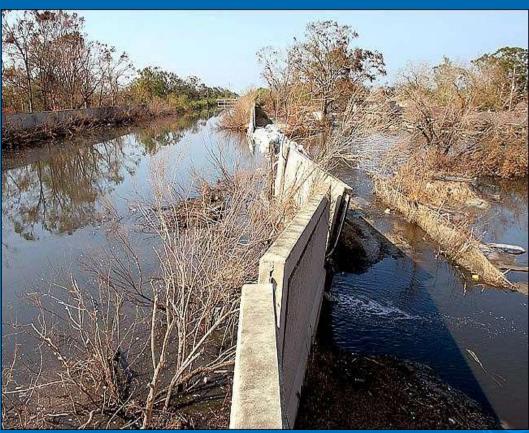
- Inundated with calls about changing the maps from residents, insurance companies, or appraisers, etc?
- Need to know the status of a current LOMA /LOMR ?

LOMC Fee Schedule

Requests for Single-Lot, Single-Structure Map Change	Paper Form Fee	Online LOMC Fee
Single-Lot or Single-Structure LOMA	Free	Free
Single-Lot/Single-Structure CLOMA and CLOMR-F	\$600	\$500
Single-Lot/Single-Structure LOMR-F	\$525	\$425
Single-Lot/Single-Structure LOMR-F Based on As-Built Information (CLOMR-F previously issued by FEMA)	\$425	\$325
Requests for Multiple-Lot/Multiple-Structure Map Changes	Paper Form Fee	Online LOMC Fee
Multiple-Lot/Multiple-Structure LOMA	Free	Free
Multiple-Lot/Multiple-Structure CLOMA	\$800	\$700
Multiple-Lot/Multiple-Structure CLOMR-F and LOMR-F	\$900	\$800
Multiple-Lot/Multiple-Structure LOMR-F Based on As-Built Information (CLOMR-F previously issued by FEMA)	\$800	\$700
Requests for Map Changes Requiring Special Technical Review	Paper Form Fee	Online LOMC Fee
CLOMR Based on New Hydrology, Bridge, Culvert, Channel or Combination Thereof	\$6,750	\$6,500
CLOMR Based on Levee, Berm or Other Structural Measures	\$7,250 (plus \$60/hr)	\$7,000 (plus \$60/hr)
LOMR Based on Bridge, Culvert, Channel, Hydrology, or Combination Thereof	\$8,250	\$8,000
LOMR Based on Levee, Berm or Other Structural Measures	\$9,250 (plus \$60/hr)	\$9,000 (plus \$60/hr)
LOMR Based on As-Built Information Submitted as a Follow-up to a CLOMR	\$8,250	\$8,000
LOMR Based Solely on Submission of More Detailed Data	Free	Free
LOMR/CLOMR Based on Structural Measures on Alluvial Fans	\$7,250 (plus \$60/hr)	\$7,000 (plus \$60/hr)

Levees In Illinois





Failures somewhere in Illinois with every major flood!

"Accredited" Levees In Illinois

Alorton
Alton
Andalusia
Beardstown
Bethalto
Brooklyn
Brookport

Cahokia Cairo Caseyville Centreville Collinsville Creve Coeur

Dupo

East Alton

East Carondelet
East Dubuque

East Moline

East Peoria East St. Louis Fairmont City

Fulton Galena

Golconda

Granite City

Gulfport Hartford Harrisburg

Hull

Karnak

Kaskaskia Keithsburg

Madison

Meredosia

Milan

Moline

Mound City Mt. Carmel

North Pekin

Oquawka Ottawa

Ottawa Peoria

Pleasant Hill

Pontoon Beach Prarie du Rocher

Quincy

Rock Island

Rosiclare

Roxana

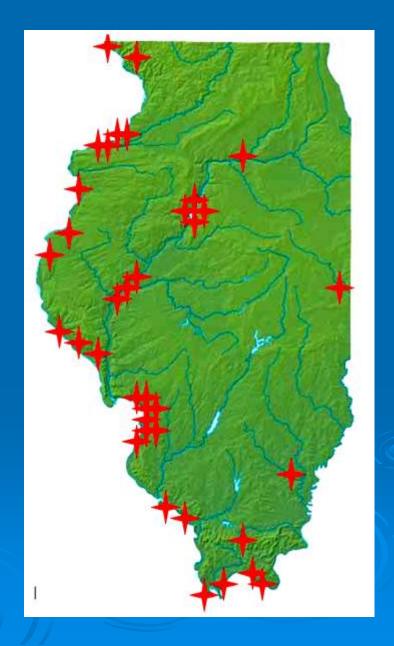
Sauget Silvis

South Roxana

Venice

Washington Park

Wood River



yellow font = levee certification in question

What is a FEMA "Accredited Levee"?

- Freeboard (3 ft. ++)
- > Closures
- Embankment protection
- Foundation stability
- > Settlement
- Interior Drainage
- Operation & Maintenance plan



In lieu of these structural requirements, a Federal agency with responsibility for levee design may certify that the levee meets these standards.

FEMA Levee Responsibilities

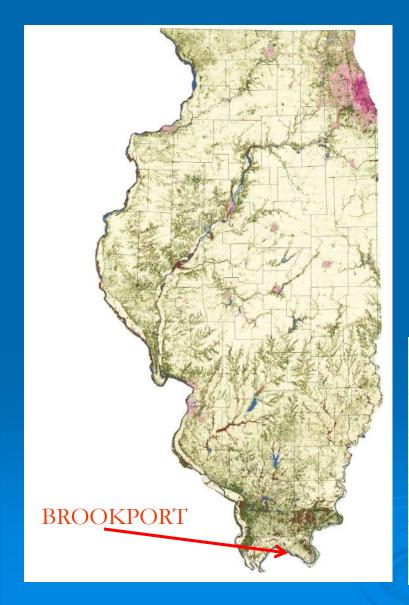
- Determine and establish appropriate risk zone designations in areas behind levees
- Reflect those determinations on maps
- > FEMA ACCREDIT levees
 - Establish mapping standards
 - Design, operations, and maintenance
 - Vast Involvement: Public and Local Government
 - Provide at least 1-percent-annual-chance flood protection
- >FEMA DOES NOT certify levees

Community/Levee owners Responsibilities

If a community or levee owner wants the floodplain maps to recognize protection from the 100-year flood...

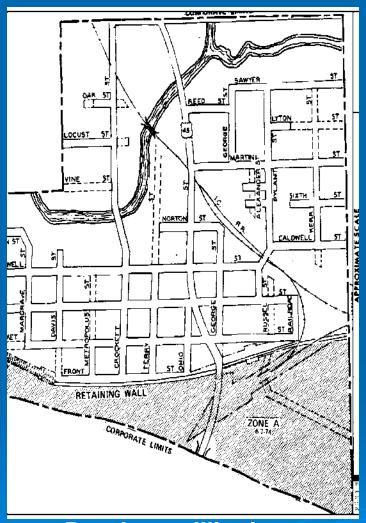
the levee owner must provide the documentation to show that the levee meets design, construction, and operation & maintenance standards for 100-year flood protection.

Brookport, Illinois Levee

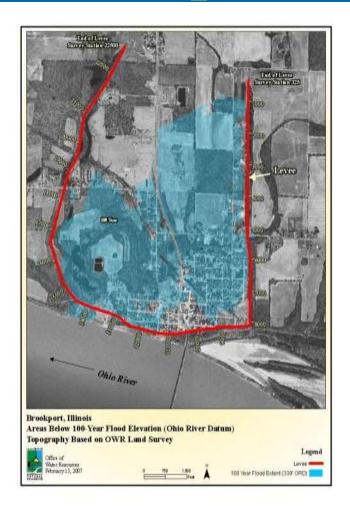




Brookport, Illinois Maps



Brookport, Illinois Flood Insurance Rate Map April 1976



Brookport, Illinois IDNR Residual Risk Map February 2007

Residual Risk Awareness?

There are about 1 million residents behind levees

YET only 1% are covered by a Flood Insurance!!



Floodplain Manager just became aware of his residual levee risk

Part 2 Summary Review

Where did we confuse you in covering:

- Types of flood maps
- Flood insurance studies (FIS)
- Using maps
- Working with Approximate A zones
- Letters of Map Change (LOMC)?
- Levee accreditation

BREAK 10:15 - 10:30

Part 3 Regulations





Part 3 - Topics

- > Regulations:
 - State floodway permits
 - > Dams
 - > Public Waters
 - NFIP Building Protection (elevation/floodproofing)
 - > Utilities
 - > RVs





State Regulatory Involvement

- Passage of State Legislation
- Adoption of State Model Floodplain Ordinances
- Six Northeastern Illinois Counties
- "Downstate" Counties



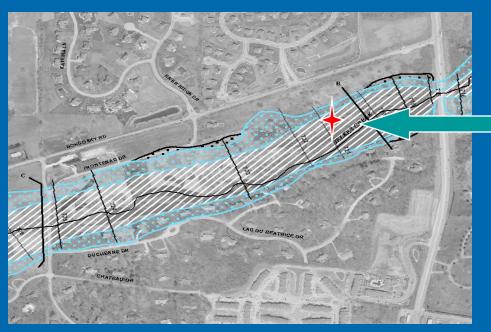


IDNR/OWR Permit Programs Adm. Rules

- Construction in Floodways of Rivers, Lakes and Streams:
 Part 3700 Rules
- Rules for Construction and Maintenance of Dams:
 Part 3702 Rules
- Regulation of Public Waters: Part 3704 Rules
- Floodway Construction in Northeastern Illinois:
 Part 3708 Rules
- Allocation of Water from Lake Michigan: Part 3730
 Rules

Floodway Encroachments



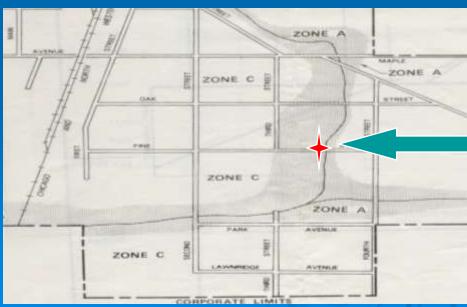


State Permit required in a:

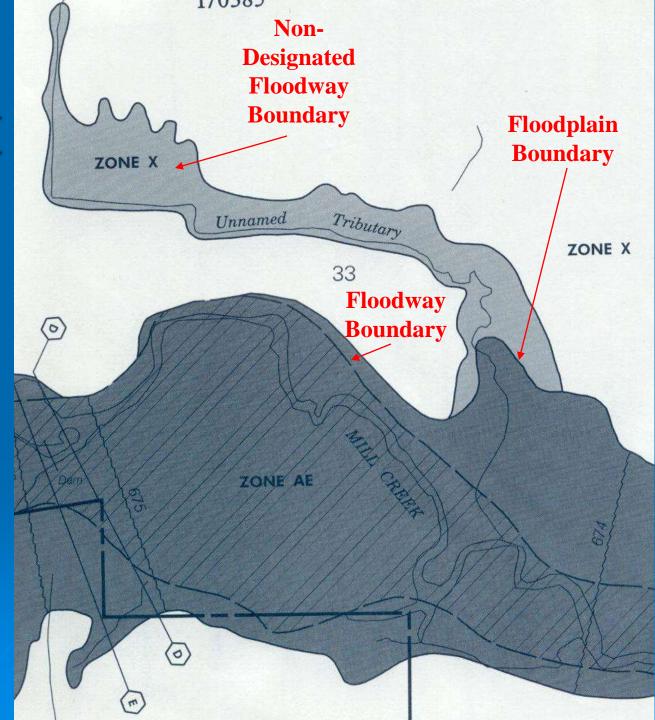
Mapped Floodway

Or

Floodplain with no identified Floodway



FIRM



The IDNR/OWR exercises jurisdiction over **construction** in the **floodway** of watercourses which have a drainage area of:

- 1 square mile or more (640 acres) in an urban area, or
- 10 square miles or more (6400 acres) in a rural area.
- Consult with IDNR/OWR for assistance with determining jurisdiction

The Part 3700 Rule are applicable to:

- All jurisdictional streams in downstate counties regardless of the floodway/floodplain mapping
- Jurisdictional streams in NE IL which do not have regulatory (designated) floodways

Two types of Permits are currently offered:

1. Statewide Permit

Statewide Permits are pre-authorizations of certain minor projects which are permissible per the Part 3700 rules.

A permit application submittal is usually not needed.

2. Formal Permit

Formal Permits are needed for significant projects which do not meet a Statewide Permit. These projects generally require an extensive project review of engineering data.

Examples: New Bridges and Culverts, Levees

Current Active Statewide Permits

- SWP 2 Bridge and Culvert Crossings of Streams in Rural A.s.
- SWP 3 Mooring . ilities Used Exclusively for Barge F' and Purposes
- SWP 4 Aerial Utility sings
- SWP 5 Minor Boat Docks
- SWP 6 Minor Non-Obstructive "hodway Construction"
- SWP 7 Outfalls
- SWP 9 Minor Shoreline, Street, Bank, and Sannel Protection activities
- SWP 10 Accessory Structures and Additions to Lating Residential Structures
- SWP 11 Minor Mainte ... ce Dredging
- SWP 12 Bridge Culvert Replacement Structures
- SWP 13 Terrary Construction Activities
- SWP 14 ecial Uses of Public Waters

The IDNR/OWR exercises jurisdiction over construction in the regulatory floodway of watercourses in Cook, DuPage, Kane, Lake, McHenry and Will counties (excluding the City of Chicago) if the watercourse has a drainage area of:

- 1 square miles or more (640 acres) in an urban area
- 10 square miles or more (6400 acres) in a rural area
- Consult with IDNR/OWR for assistance with determining jurisdiction

Two types of Permits are offered:

1. Regional Permit No. 3

Regional Permit No. 3 is a pre-authorizations of certain minor projects which are considered permissible per the Part 3708 rules.

A permit application submittal is usually not needed.

2. Formal Permit

Formal Permits are needed for significant projects which do not meet Regional Permit No. 3. These projects generally require an extensive project review of engineering data.

Examples: Bridges and Culverts, Channel Modification Projects, Flood Control Projects

Current Active Regional Permit

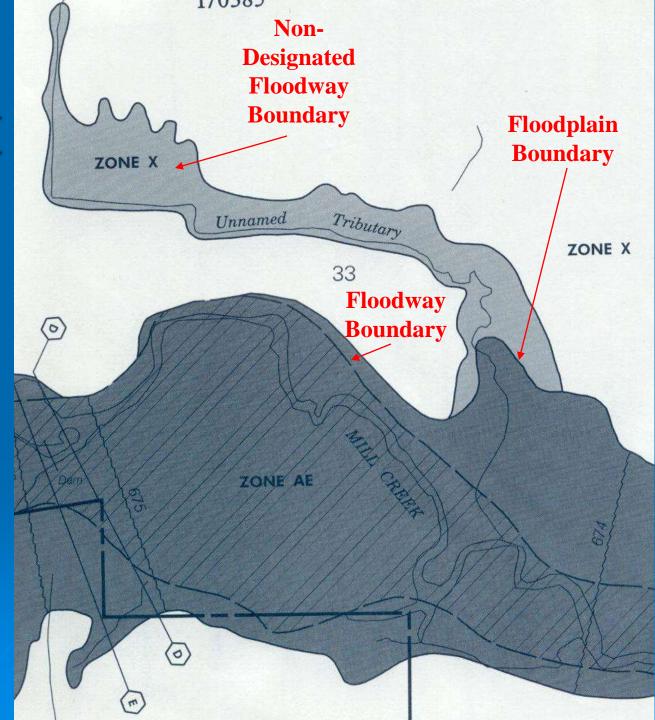
Regional Permit No. 3 - Authorizes underground and overhead utilities, storm and sanitary sewer outfalls, sidewalks, patios, athletic fields, playground equipment and streambank protection activities.

RP1 and RP2 are administered by IDOT

RP3 can be found at https://www.dnr.illinois.gov/WaterResources/Pages/PermitsStatewideRegionalGenera l.aspx

- Appropriate Uses
- Floodway Map Revisions
- Delegation
 - Municipalities/Counties
 - IDOT Agreement

FIRM



- Permit Application Review Fees
- Check or Electronic Payment
- Fee Schedule and FAQ

can be found at http://www.dnr.illinois.gov/WaterResources/Pages/default.aspx

IDNR/OWR Permit Program Process

Joint Application Form

Complete and Submit Joint Application Form

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When to Submit...

An application submittal is only needed for <u>jurisdictional</u> construction activities that require a <u>formal</u> or <u>general</u> permit.

When not to Submit...

- An application submittal is <u>not</u> needed for construction activities that:
 - are not jurisdictional.
 - are authorized by a regional or statewide permit.
 - are an exempted activity per administrative rules.
 - can be authorized by IDOT/DOH per MOA.
 - * a permit application submittal <u>is needed</u> for work in a delegated community

What to Submit...

- Permit application package that is tailored to obtaining an IDNR/OWR permit.
 - One size does <u>not</u> fit all.
- Properly completed IDNR/OWR copy of application form.

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Application Form

- 1. Application number.
- 2. Date Received (day/month/year).
- 3. Applicant's name with contact person.
- 4. Agent's name.
- 5. Statement of Authorization.
- 6. Adjacent Property Owners Information.
- 7. Project Location.
- 8. Municipality(ies).

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SEE INSTRUCTIONS FOR ADDRESS

Application Form

- 9. Brief description of Project.
- 10. Purpose of Project.
- 11. For Dredging Projects
 Only
- 12. Start Date of Project
- 13. Projected Date of Completion.
- 14. Signature.
- https://www.dnr.illinois.gov/Wat
 erResources/Pages/PermitApplic
 ationandInstructions.aspx

Support Information

- Narrative
- Location Map
- FIRM
- Site Plan
- Grading Plan
- Plotted Cross Sections
- Design Drawings
- Computations/H&H Analyses
- Engineering Report

Do Not Submit...

- More than one copy of the application form, engineering report, etc. However, 2 copies of drawings are preferred.
- Corps of Engineers, IEPA, and Applicant's copy of the application form.
- Wetland reports needed by COE.
- Full sets of engineering drawings.
- Soil boring reports.*
- Contract documents. *
 - * May be needed for a dam safety submittal.

Proposed Updates to the Part 3700 Rules

Definitions

- Adds new definitions
- Expands Definitions for Worst Case Analyses

Jurisdiction

 Expands Explanation for exempted activities (converted from some statewide permits)

Permit Application

- Update Website reference
- Timetable for OWR Response to applications
- Technical Guidance for Applications

Proposed Updates to the Part 3700 Rules

- Fees
- General Standards
- Bridge/Culvert Crossing Modifications
- New Levees/Floodwalls
- Modified Levees/Floodwalls
- Violations and Enforcement

Proposed Updates to the Part 3700 Rules

- Standards for New Bridges/Culverts
 - Includes new worst-case scenario language
- Standards for Bridge/Culvert Reconstruction
 - Includes new worst-case scenario language
 - Replaced Bridge/Culvert Permit Requirements
 - No Impacted Structures
 - Has Impacted Structures

Dam Safety Permit Program

Part 3702 Rules Regulation of Dams



Definition

"Dam" – All obstructions, walls, embankments, or barriers, together with their abutments and appurtenant works, if any, constructed for the purpose of storing or diverting water or creating a pool.

Part 3702 Rules Dam Categorization

- Size (small, intermediate or large)
- > Hazard (Class I, II or III)

IDNR/OWR Dam Safety Permit Program

When is a dam safety permit required?

- Construction of a new dam
 (Class I, Class II, or jurisdictional Class III)
- Major Modification to an existing or new dam (Major Structural Change)
- Breach or remove an existing or new dam

An <u>existing dam</u> is defined as a dam which was constructed prior to September 2, 1980.





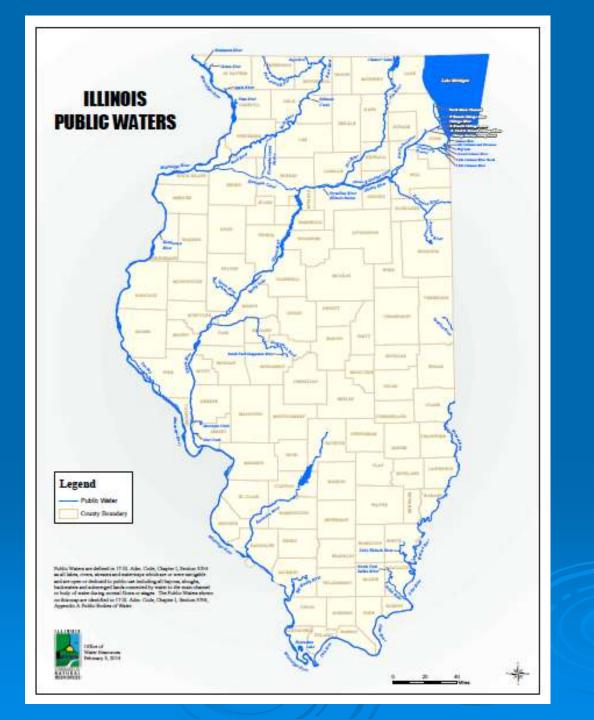


IDNR/OWR Public Waters Permits (Part 3704 Rules)

- Activities in Public Waters
- Navigation impacts
- Encroachments
- Impairment of Public's rights, interests and uses
- Impairment of Natural Resources

IDNR/OWR Public Waters Permits (Part 3704 Rules)

- Natural Waterways
- Waterways Improved for Navigation
- Man-Made Waterways
- Appendix A



Public Notices

Needed for:

- Projects that involve revisions to the regulatory floodway or flood profile.
- Projects in public waters that are not authorized by a regional, statewide or general permit.
- Formal permits for dams.





IDNR-OWR Offices

Northeastern Illinois
Regulatory Programs Section
2050 W. Stearns Road
Bartlett, IL 60103

Phone 847/608-3116 Fax 847/931-2037 Downstate Illinois
 Regulatory Programs Section
 One Natural Resource Way
 Springfield, IL 62702-1271

Phone 217/782-0900 Fax 217/785-8100

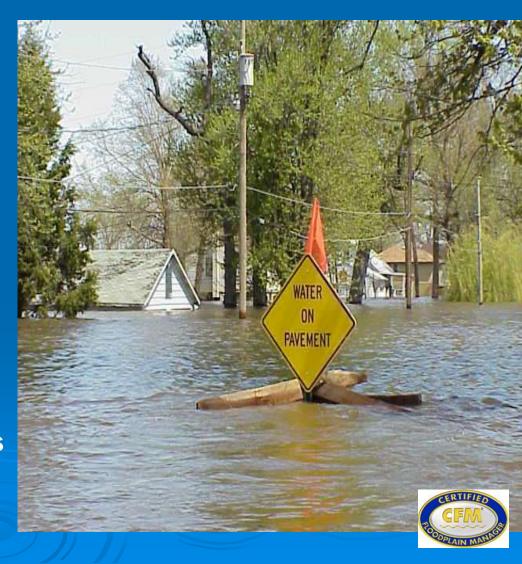
Web Site: https://www.dnr.illinois.gov/WaterResources/Pages/default.aspx



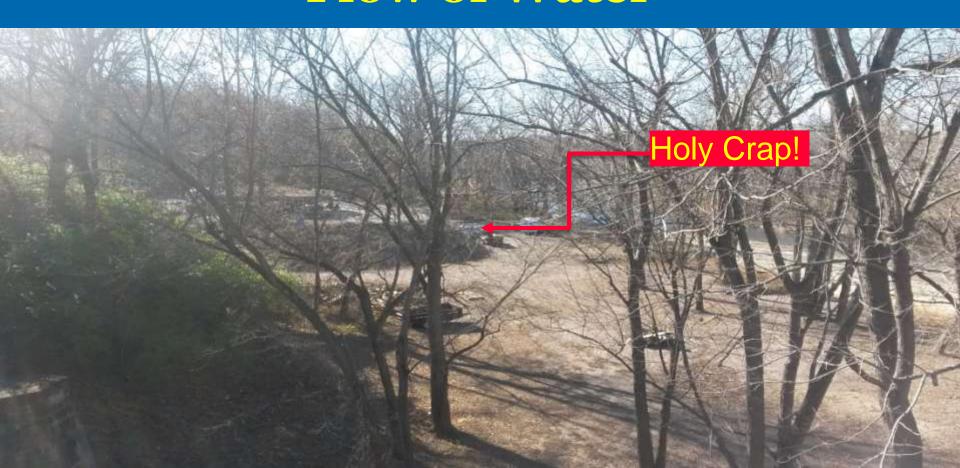
Questions

Development is

- Construction of new buildings
- Addition or substantial improvements to existing buildings
- Manufactured (mobile) homes and RVs
- Subdivisions or commercial developments
- Storage of materials
- •Fill, grading, excavating
- Fences, culverts, bridges, roads
- And ANYTHING else that changes the floodplain



Any Floodplain "Development" (fences, fills, grading, etc..) Cannot Block or Obstruct the Flow of Water



Building Protection Standards..

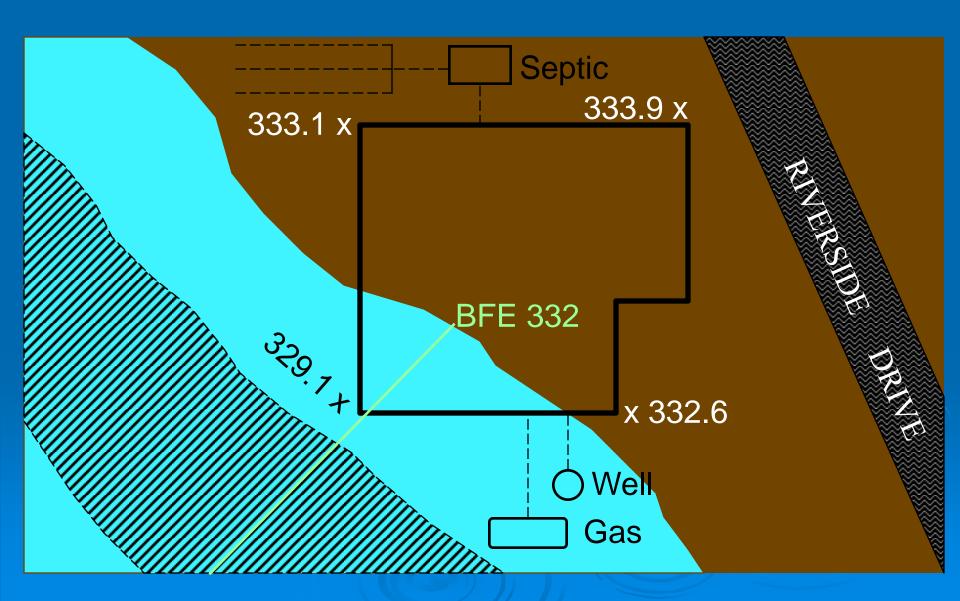
Methods to Elevate Buildings in an A Zone

- Elevation on Fill
- Elevation on flow-thru walls
- Elevation by poles, piers, or columns

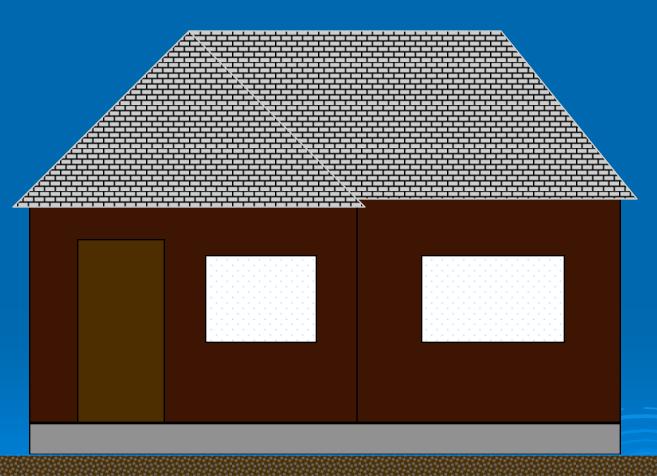




Get a Site Plan with elevations



Slab on Fill



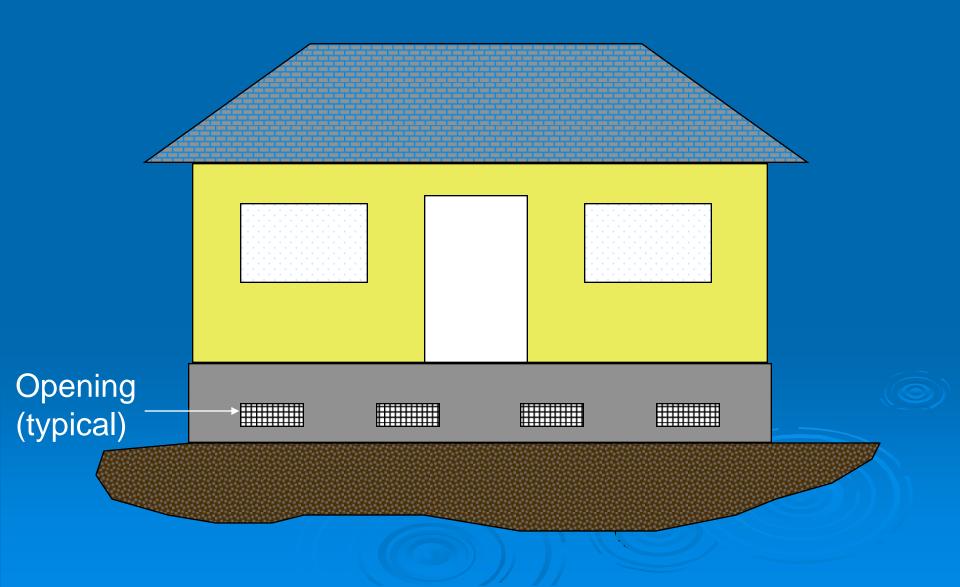
Criteria for Elevation on Fill

- Usually limited to three or four feet in height
- Fill placed in 6' layers and compacted (95% proctor)
- > Extend fill 10' around structure
- Side slopes 1' vertical to 1.5' horizontal
- Erosion control





Perimeter Wall Foundation

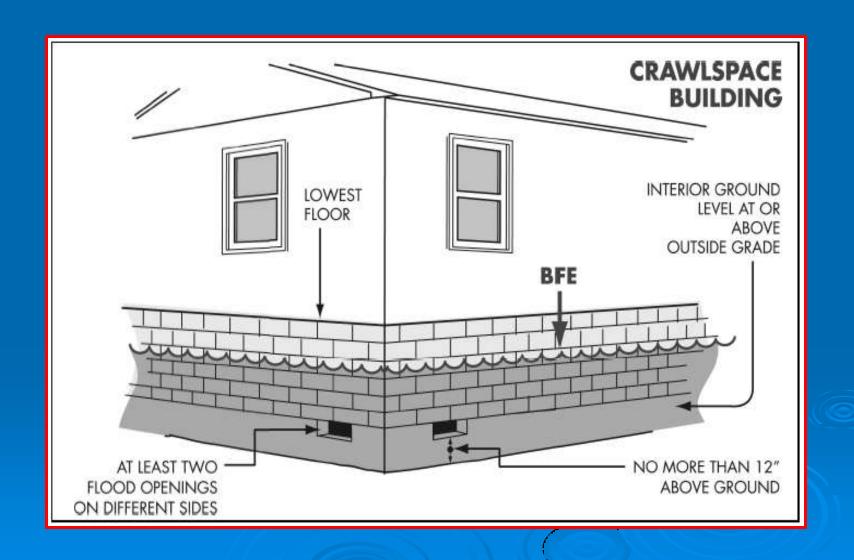


Criteria for Elevation on Perimeter Wall Foundations

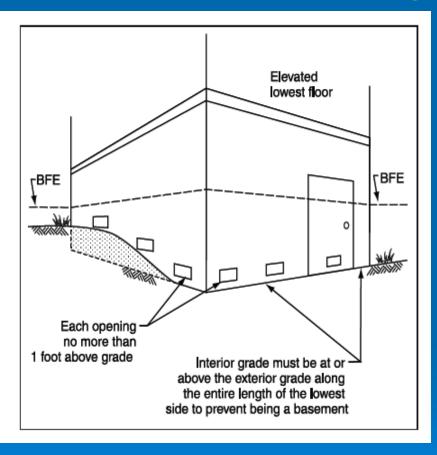
- Usually limited to three or four feet in height above grade
- Enclosed areas below the lowest floor must have openings to equalize hydrostatic pressures (1" per 1 sq. ft.).
- Openings no more than one foot above grade.
- Flood resistant materials
- > NO HVAC, electric, utilities, etc...

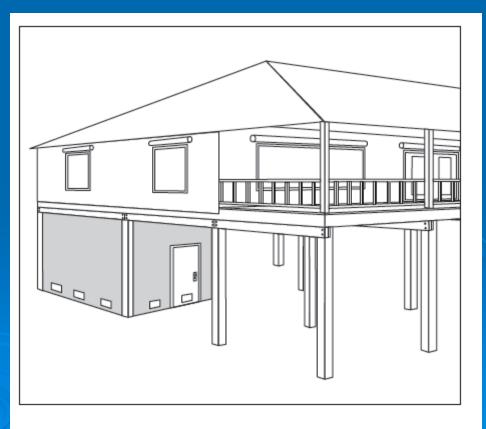


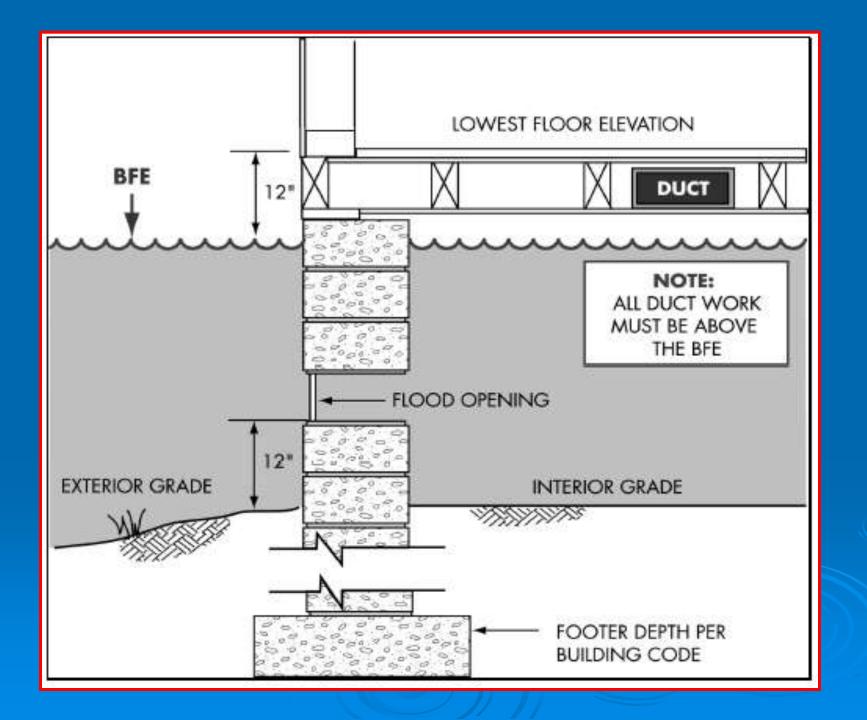
Elevation on Solid Perimeter Walls



Any enclosed area <u>must</u> be flow thru







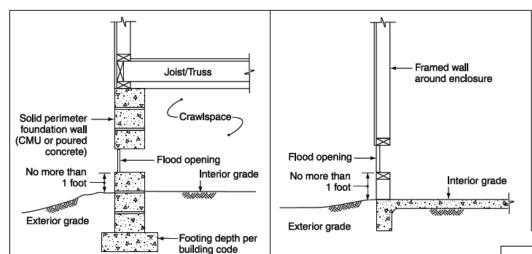
Crawlspace Rules

- Total height no more than 4 feet.
- No more than 2' below grade.
- Flow through openings
 Ratio = 1" per 1'
- Interior drainage controls
- Flood resistant materials





Crawlspaces



Interior above grade?

or

Interior below grade?

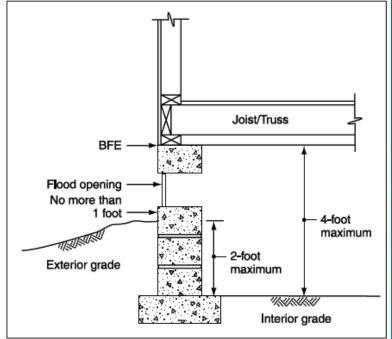
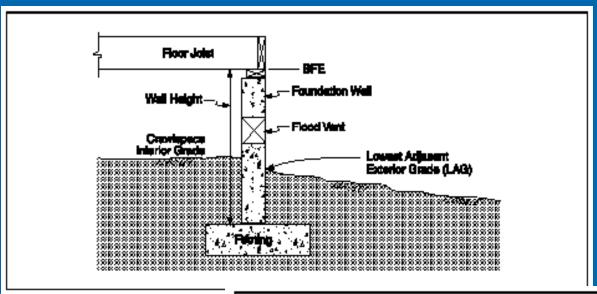
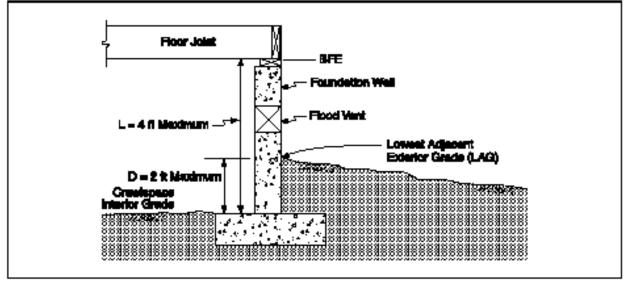


Figure 2. Limitations on below-grade crawlspaces in shallow flood hazard areas (TB 11)

Technical Bulletin 11-01







Openings in Foundation Walls and Walls of Enclosures

Below Elevated Buildings in Special Flood Hazard Areas in accordance with the National Flood Insurance Program

Technical Bulletin 1 / August 2008

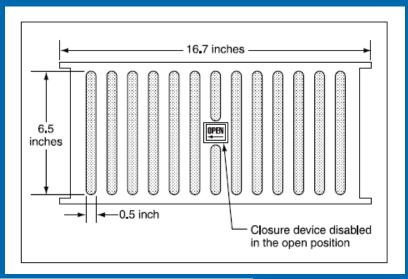


Technical Bulletin #1

www.FEMA.gov

Search window: Technical Bulletin 1

Watch the vents! "standard vents" are only 42 sq. in.



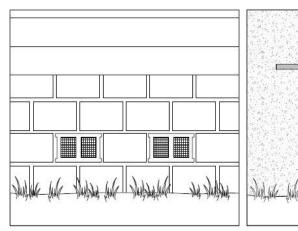


Figure 20. Concrete block turned sideways (insect screening shown)

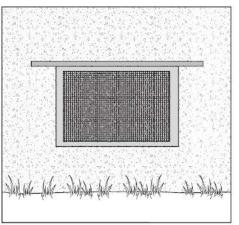
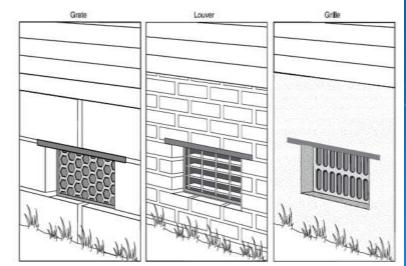


Figure 21. Wood frame with insect screen inserted in opening in poured concrete foundation wall



Engineered Flood Vents





Each is rated differently.

Get the ISO flow thru report!



House built on elevated foundation walls





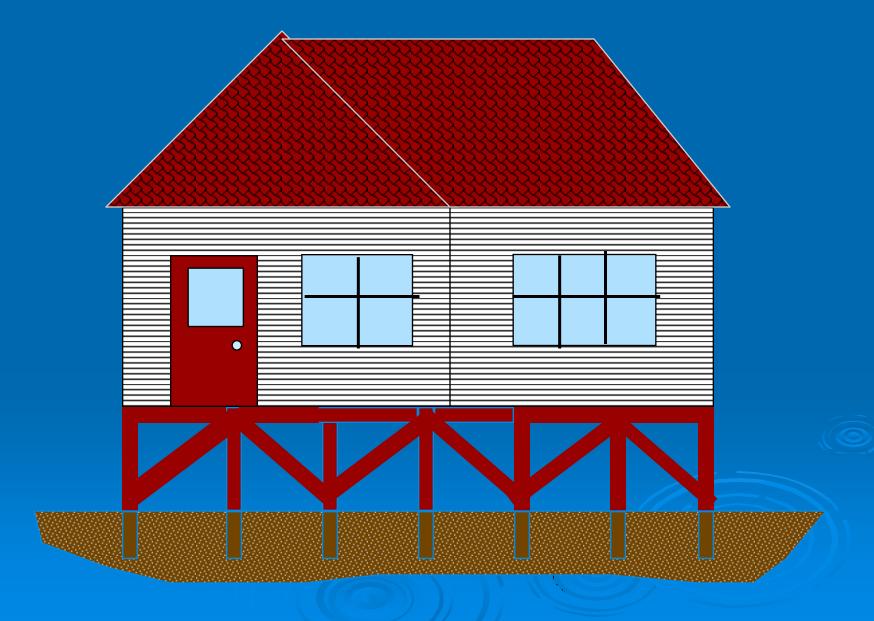
Flow through lower area



What do you notice about the vents?



Post or Pile Foundation



Post or Pile Foundation

- Should be used in areas of deep flooding and/or high velocities (floodways)
- Properly anchored to resist wind and water forces
- Lower area must remain open (not enclosed later). Get non-conversion agreement.





House built on piers or poles above the flood elevation



NON-C ONVERSION A GREEMENT FOR ENCLOSURES BELOW THE BASE FLOOD ELEVATION

This DECLARATION made th	nis day of	, 20_ _ ("Owner") having	, by an address at
WITNESSETH: WHEREAS, the Owner is the			
County of		f fesignated in the Ti	
WHEREAS, the Owner has a has an enclosed area below trequirements of Article Ordinance of ("Permit").	the base flood elev Section	ation constructed i	in accordance with the Management
WHEREAS, the Owner agree that the following covenants, property as a condition of gra Owner and shall be binding o successors, future owners, an	conditions and res inting the Permit, a on the Owner, his h	trictions are placed and affects rights ar	on the affected ad obligations of the
UPON THE TERMS AND SU The structure or part thereof t			llows:
At this site, the Base Floor National Geodetic Vertical De		feet above m	ean sea level,
2. Enclosed areas below the vehicles, limited storage, or a			olely for parking of
All interior walls, cellings a constructed of flood resistant		e Base Flood Elev	aton shall be

 The walls of the enclosed areas below the Base Flood Elevation shall be equipped and remain equipped with permanent flow-thru openings as shown on the Permit.

Mechanical, electrical or plumbing devices shall not be installed below the Base

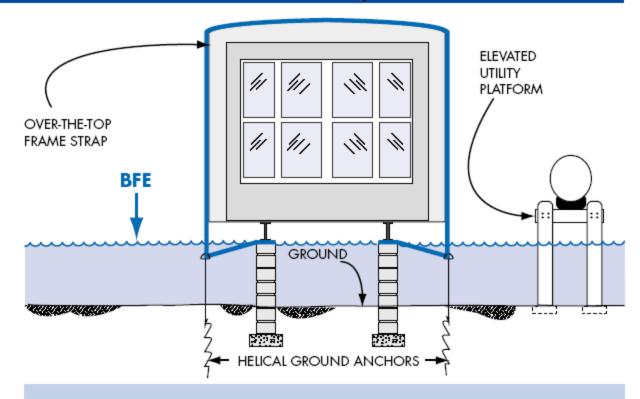
Flood Elevation

- The jurisdiction issuing the Permit and enforcing the Ordinance may take any
 appropriate legal action to correct any violation. Any alterations or changes from these
 conditions also may render the structure uninsurable or increase the cost for flood
 insurance.
- A duly appointed representative of the City is authorized to enter the property for the
 purpose of inspecting the exterior and interior of the enclosed area to verify compliance
 with this Declaration.

Non Conversion Agreement

Recommended on all enclosed lower areas!!

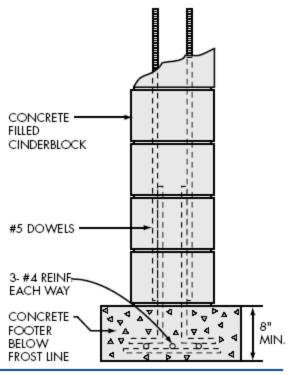
Manufactured Homes Deserve Special Attention



Manufactured homes must be anchored to resist flotation, collapse, or lateral movement by being tied down in accordance with the Rules and Regulations for the Illinois Mobile Home Tie-Down Act (77 IL Administrative Code 870, IL Dept. of Public Health).

Experience shows that manufactured homes are easily damaged. As little as one foot of water can cause substantial damage.

Dry stacked blocks are not acceptable — they will NOT withstand a flood.



Why Anchor?

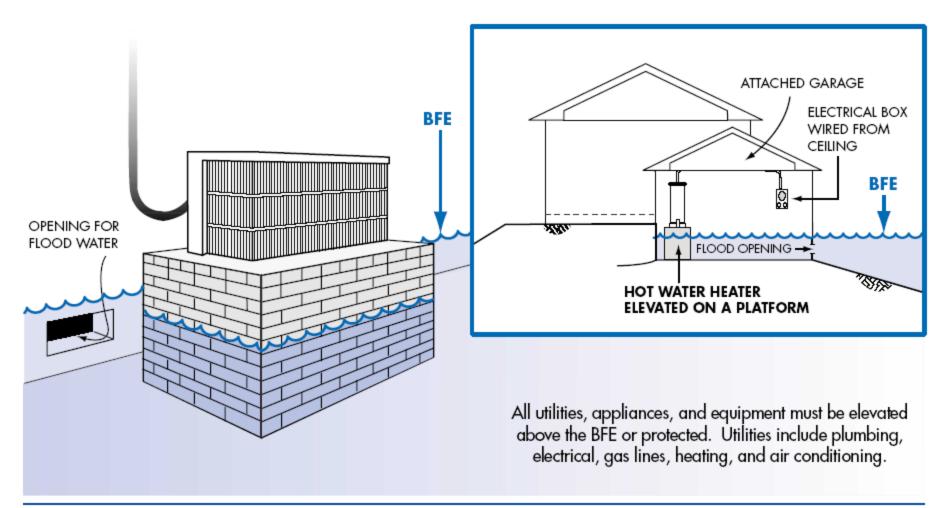


Standards for Utilities and Building Systems

All new construction and improvement shall be constructed with electrical, HVAC, plumbing and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.



Utility Service for Buildings



27 ILLINOIS QUICK GUIDE









Recreational Vehicles & Travel Trailers

- Self propelled or towable by a light duty truck
- 2. No porch or deck
- 3. No permanent dwelling. Only seasonal use.
- 4. No more than 400 sq. ft.
- 5. Wheels on axles and inflated
- 6. Quick disconnect utilities
- 7. Licensed and titled as an RV
- 8. Supported by wheels or jacks. No blocks.





If an RV is on-site for more than 180 days, it must:









Wet Floodproofing / Minor Accessory Structures

"Permanent or contingent measures applied to a structure and/or its contents that prevent or provide resistance to damage from flooding by allowing flood waters to enter the structure."



Wet Floodprofing / Minor Accessory Structures

When to Use Wet Floodproofing

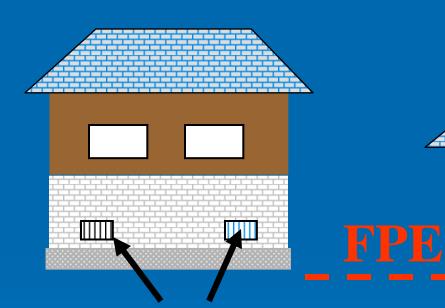
- Enclosed areas below the BFE that are used for parking, building access, or limited storage
- Attached or detached garages
- Minimal value storage sheds and garages

Wet Floodproofing Garages and sheds

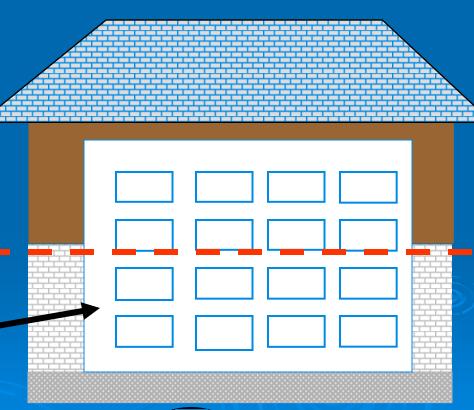
- Non-habitable
- Use only for storage and parking & no later modification
- Accessory to an existing structure on same lot
- Flood resistant materials
- No HVAC
- Flow-thru openings
- Less than \$15,000 in value and less than 500 sq. ft.



Accessory Structure Wet Floodproofing Standards



Openings to allow floodwaters to flow in & out



Agricultural Structures

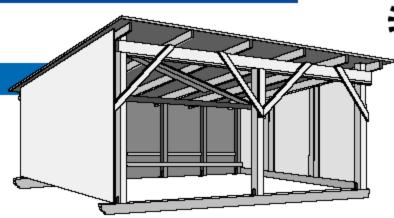
Variances are allowed for:

Pole frame buildings

Steel grain bins

Steel frame corn cribs

General purpose feeding barns open on one side





Farm houses are not agricultural structures.

Contact IDNR/OWR for additional guidance on variances for agricultural structures.

Variances are not allowed for:

Livestock confinement buildings

Poultry houses

Dairy operations

Similar livestock operations



Non-elevated agricultural structures must be considered on a sitespecific basis and may be permitted only by a variance. Applicants must show that sites are in "wide, expansive floodplain areas" and no other alternative location outside of the Floodplain exists.

The best flood protection is to elevate agricultural buildings, but certain types can be approved by variance if they are "wet floodproofed."

30 ILLINOIS QUICK GUIDE

Non-Residential Floodproofing

ONLY NON-RESIDENTIAL STRUCTURES MAY BE FLOODPROOFED IN LIEU OF ELEVATION.





Floodproofing Requirements

- 1. Non-residential construction may be floodproofed below the BFE so that the structure is watertight with walls substantially impermeable to the passage of water.
- 2. Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.



Floodproofing Certificate

- A Floodproofing Certificate is required for all floodproofed structures
- The Floodproofing Certificate must be signed by an Engineer
- The form can be obtained at: www.FEMA.gov/library/floodproof



NATIONAL FLOOD INSURANCE PROGRAM

FLOODPROOFING CERTIFICATE

FOR NON-RESIDENTIAL STRUCTURES

The floodproofing of non-residential buildings may be permitted as an alternative to elevating to or above the Base Flood Elevation; however, a floodproofing design certification is required. This form is to be used for that certification. Floodproofing of a residential building does not after a community's floodproofing agreement elevation requirements or affect the insurance rating unless the community has been issued an exception by FEMA to allow floodproofed residential basements. The permitting of a floodproofed residential basement requires a separate certification specifying that the design compiles with the local floodplain management ordinance.

				FOR	RINSURANCE COMPANY USE
BUILDING OWNER'S NAME					JCY NUMBER
STREET ADDRESS (Including Apt., Unit, Suite, and/or Bidg, Number) OR P.O. ROUTE AND BOX NUMBER					
					WPANY NAIC NUMBER
OTHER DESCRIPTION (Lot and Bk	ock Numbers, etc.)				
CITY				STATE	E ZIP CODE
GIIT				PIAIR	2 POODE
	SECTION I	FLOOD INSUF	RANCE RATE MAP (FIR	M) INFORMATION	
Provide the following from th	e proper FIRM:				
COMMUNITY NUMBER	PANEL NUMBER	SUFFIX	DATE OF FIRM INDEX	FIRM ZONE	BASE FLOOD ELEVATION
					(In AO Zones, Use Depth)
eem	TION II ELOODOBOO	VEING INFORM	ATION (By a Bookfored)	Drofossional Engine	or or Arnhiforth
SECTION II FLOODPROOFING INFORMATION (By a Registered Professional Engineer or Architect)					
Floodproofing Design Ele	vation information:				
Building is floodproofed to an elevation offeet NGVD. (Elevation datum used must be the same as that on the FIRM.)					
Height of floodproofin	ng on the building abov	e the lowest adja	acent grade is	feet.	
(NOTE: for insurance receive rating credit. premium.)	e rating purposes, the i If the building is floodp	building's floodpr proofed only to th	oofed design elevation mu ne Base Flood Elevation, t	ist be at least one for hen the building's in:	of above the Base Flood Elevation to surance rating will result in a higher
	SECTION III CE	RTIFICATION (By Registered Profession	al Engineer or Archi	tect)
Non-Residential Floodpro	oofed Construction	Certification:			•
I certify that, based upon development and/or review of structural design, specifications, and plans for construction, the design and methods of					
construction are in accordance with accepted standards of practice for meeting the following provisions:					
The structure, together with attendant utilities and sanitary facilities, is watertight to the floodproofed design elevation indicated above, with walls that are substantially impermeable to the passage of water.					
All structural components are capable of resisting hydrostatic and hydrodynamic flood forces, including the effects of buoyancy, and anticipated debris impact forces.					
	mation on this certifica by fine or imprisonment			e data available. I ur	nderstand that any false statement
CERTIFIER'S NAME			LICENSE NUMBER (d	or Affix Seaf)	
TITLE			COMPANY NAME		
ADDRESS			CITY	STATE	ZIP CODE
					
SIGNATURE	<u> </u>		DATE	PHONE	

Copies should be made of this Certificate for: 1) community official, 2) insurance agent/company, and 3) building owner.

The Floodproofing Certificate must be signed by an engineer and on file for EVERY floodproofed structure

Substantial Improvement



"Improvement" Triggers

- ✓ Reconstruction
- ✓ Rehabilitation
- ✓ Addition
- ✓ Other improvements



Substantial Improvement

> Lateral additions or vertical additions

- 50% increase in market value or
- 20% increase in floor area*

(*Illinois specific ordinance)

Substantial Improvement

The Formula

Cost of improvement project > 50% Market value of the building

Example:

\$75,000 project = 54% \$140,000 house



"Market Value"

- Independent professional appraisal
- NFIP claims data
- Tax or building department estimates
- Detailed Actual Cash Value estimates
- Uniform Residential Appraisal Report (URAR): value depreciation by
 - age/quality

"Improvement or Damage Cost"

Repair or improvement cost data:

- Qualified contractors' estimates
- NFIP data
- Standard Building Code/Marshall & Swift

Related data:

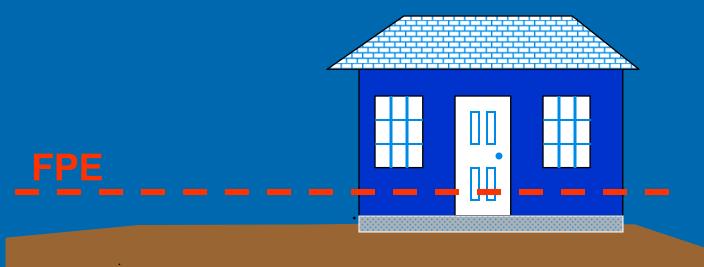
- Tax assessments
- Surveys
- Other local agencies or departments



Excludable Costs

- Repairing existing health/safety violations
- Preparation specifications, surveys, building permit fees, plans
- Site work septic systems, wells, water supplies, landscaping
- Items separate from / incidental to improvement

Existing House

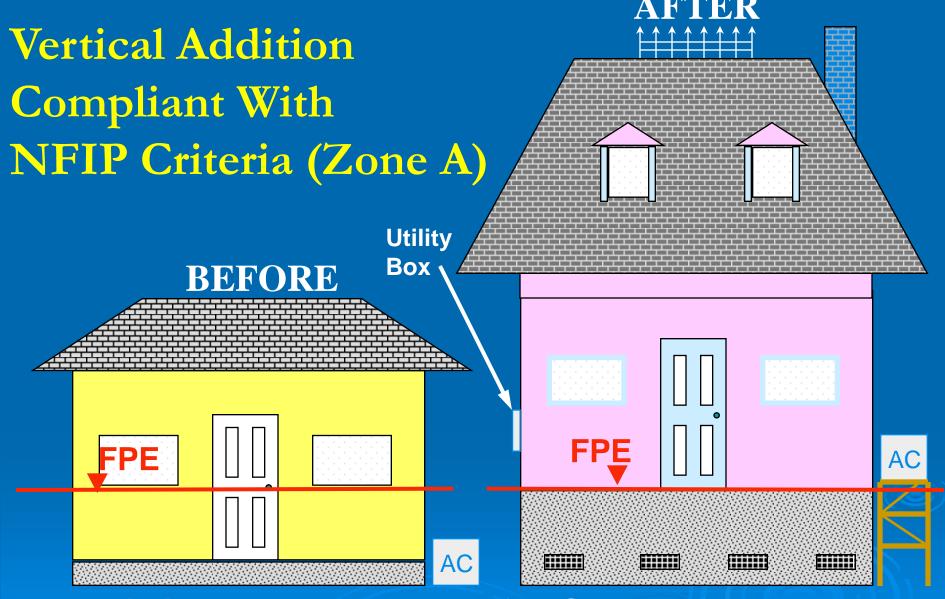


Original Ground

Substantial Improvement Existing House + Garage/FR/BR Addition



•Raise Existing House & Build Addition above FPE

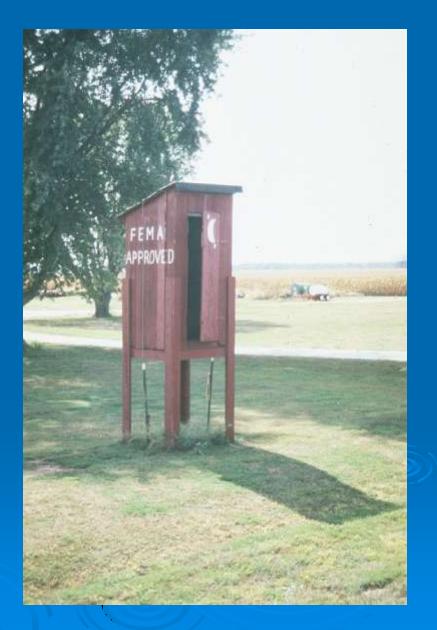


Existing Pre-FIRM
Residential Structure

After Substantial Improvement Elevate on fill or crawl required

Substantial Damage (The 50% Rule)





Substantial Damage

"The 50% Rule":

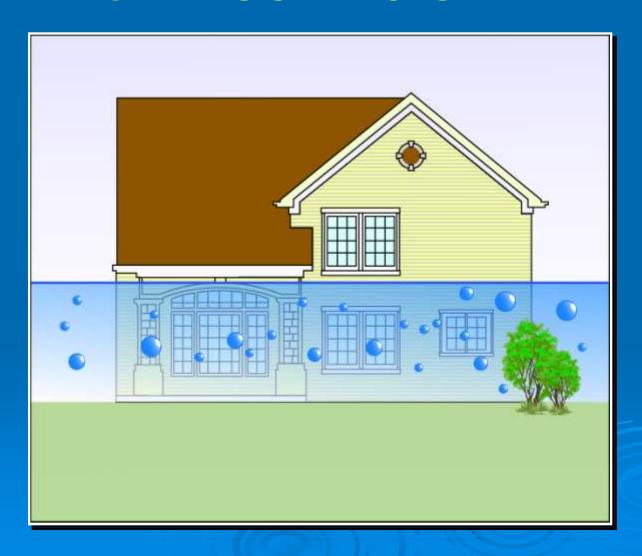
If damages from ANY source (flood, fire, tornado, etc..) exceed 50%.

The structure must be brought into compliance with floodplain regulations (elevated or floodproofed).

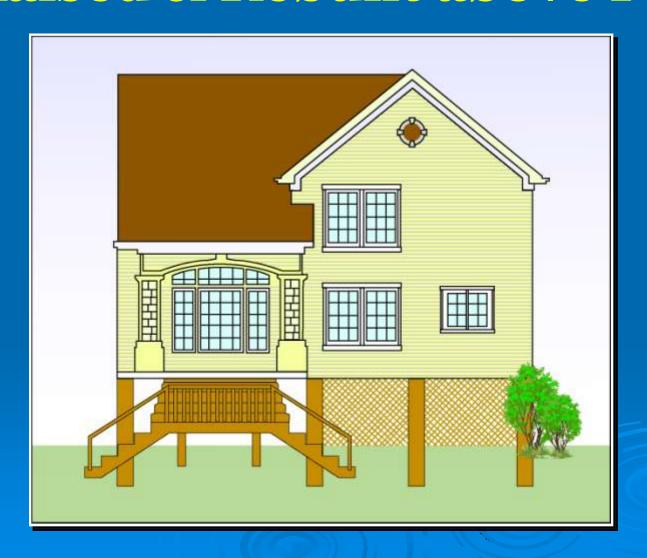
THE Illinois state model ordinance tracks CUMMULATIVE substantial damage



Existing Housewith Floor Below FPE



Substantially Damaged House Raised & Rebuilt above FPE



Non-Triggers

Correcting existing violations of codes that are minimum necessary for safe living conditions, including:

- Health codes
- Sanitary codes
- Safety codes



Post-Flood Requirements

- Perfect time to reconstruct the RIGHT WAY!
- Available mitigation funds???
- Flood Insurance help???
- Obtain state or cooperative assistance
- ALL RED TAGGED (substantially damaged) buildings must be brought into compliance regardless of insurance or mitigation availability.

Post Flood Responsibilities

- MOVE FAST! Don't wait for FEMA!
- Identify, tag, and document flooded structures
- Post information for the public on permit requirements. Use media sources.
- Provide technical information
- Contact State or FEMA for assistance and guidance if needed.

State of Illinois Flood Damage Assessment Packet

A cooperative effort by:

Illinois Department of Natural Resources Office of Water Resources

Illinois Emergency Management Agency

Federal Emergency Management Agency







2008 update

Includes Information On:

Steps to take following a flood
Substantial damage determinations
Blank damage assessment worksheets
FEMA Residential Substantial Damage Estimator (RSDE)
RSDE Field Worksheet
Information on state floodway pegmit requirements
Sample letter
Sample Notice
Information on mitigation programs

Field Inspections During FloodCrest





Post Flood – Survey

- Document high water marks
- Digital photos
- Mark locations on map
- Post notices on properties
- Follow up letters



Substantial Damage Regs Work!

Flooded 2008



Red Tagged!



Not Flooded 2013



FEMA Technical Bulletins and References

- TB 1 Openings in Foundation Walls and Walls of Enclosures
- TB 2 Flood Damage-Resistant Materials Requirements
- TB 3 Non-Residential Floodproofing -- Requirements and Certification
- **TB 4 Elevator Installation**
- **TB 6 Below-Grade Parking Requirements**
- **TB 7 Wet Floodproofing Requirements**
- TB 10 Ensuring that Structures Built on Fill In or Near Special Flood Hazard Areas are Reasonably Safe From Flooding
- TB 11 <u>Crawlspace Construction for Buildings Located in Special Flood</u>
 <u>Hazard Areas</u>

Critical Facilities

Critical Facility- Any facility which is critical to the health and welfare of the population and, if flooded, would create an added dimension to the disaster. Damage to these critical facilities can impact the delivery of vital services, can cause greater damage to other sectors of the community, or can put special populations at risk.

Examples:

- ✓ Fire and police stations,
- ✓ schools,
- ✓ Hospitals,
- ✓ retirement homes ,
- ✓ major roads and bridges,
- ✓ critical utility sites,
- ✓ Hazardous material facilities.



Nursing Home under construction in the floodplain. Caseyville, IL

The last word.. Critical Facilities

If they can't be located outside of the floodplain all together, make sure the facility and all ingress and egress is located above the 500-year flood elevation!



Snow Valley Nursing Home Lisle, IL

State and Federal Executive Orders

Illinois Executive Order V (2006) – All state agencies must comply with State Regs and NFIP. Critical Facilities.

Federal Executive Order 11988 (1978) – Federal agencies must protect against flooding. Written prior to NFIP. Vague.

Federal Flood Risk Management Standards (2016) –

Added layer to EO11988. Fed agencies and funding must comply with FPM regs. Additional flood protection (freeboard, climate change, etc.).

Rescinded by the guy currently living in the White House.



Part 3 Summary Review

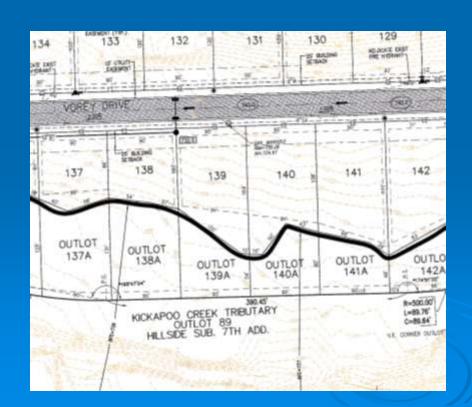
Where did we confuse you on regulations:

- State floodway permits
- > Dams
- Public Waters
- NFIP Building Protection (elevation/floodproofing)
- Utilities
- > RVs
- Sub Dam and Sub Imp



START

Part 4 Ordinance Administration







Part 4 - Topics

- Duties of Floodplain Administrators
- Variances
- Community Audits & Compliance
- Recordkeeping
- Elevation Certificates

LOCAL PERMIT RESPONSIBILITIES



To participate in the National Flood Insurance Program (NFIP) certain duties are required!!!!!

Everyday Activities

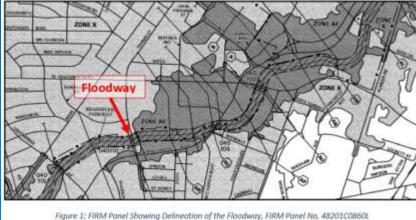
- a. Review applications
- b. Provide base flood data (where available) Come to 3B!
- c. Review plans and specifications
- d. Ensure that other permits are obtained
- e. Provide notice of water course alterations
- f. Issue/deny permits
- g. Inspect development
- h. Look out for violations

a. Review applications

- Review and evaluate development permit applications
 - Is development in flood *plain*?
 - Is development in flood way?

Any development in the floodplain

requires a permit



b. Provide base flood data

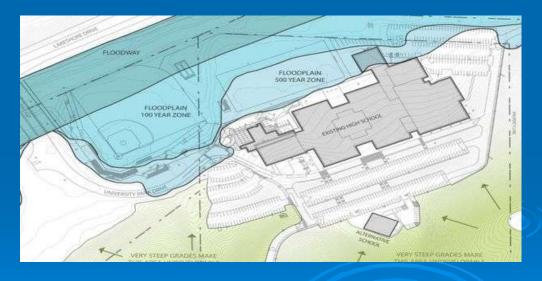
Interpret floodplain boundaries and provide BFE data when available

- If your community map has unnumbered A zones
 - Determine BFE or
 - Require that applicant hire engineer or
 - Make FEMA do it



c. Review plans and specs

- Ensure conformance with NFIP floodplain management criteria
- Include review of
 - site plan
 - foundation design
 - thoroughly notated plans





d. Ensure other permits obtained

Advise applicant of other permits or approvals that may be necessary

Examples include:

- Clean Water Act: 404 permit, NPDES permit
- State permit requirements
- Other local permits such as storm water management permits, septic permits, etc.





e. Notify of water course alterations

Provide required notification of changes

in existing water courses to:

- FEMA
- State
- Adjacent communities







f. Issue or deny permits

Floodplain Administrator can:

- Issue floodplain development permit
- Conditionally approve permit
- Deny permit





g. Inspect development

- Check development location
- Verify construction according to plans

Inspect

- Setback from floodway
- Foundation construction
- Flood resistant material requirements
- Utilities and other building systems
- Anchoring, at/above BFE, floodproofing





h. Look out for violations

- Investigate
 - Reported by citizens
 - Reported by other officials
 - Found by chance
- Implement enforcement provisions
- Retrofit to protect from future flooding
- > EDUCATE!



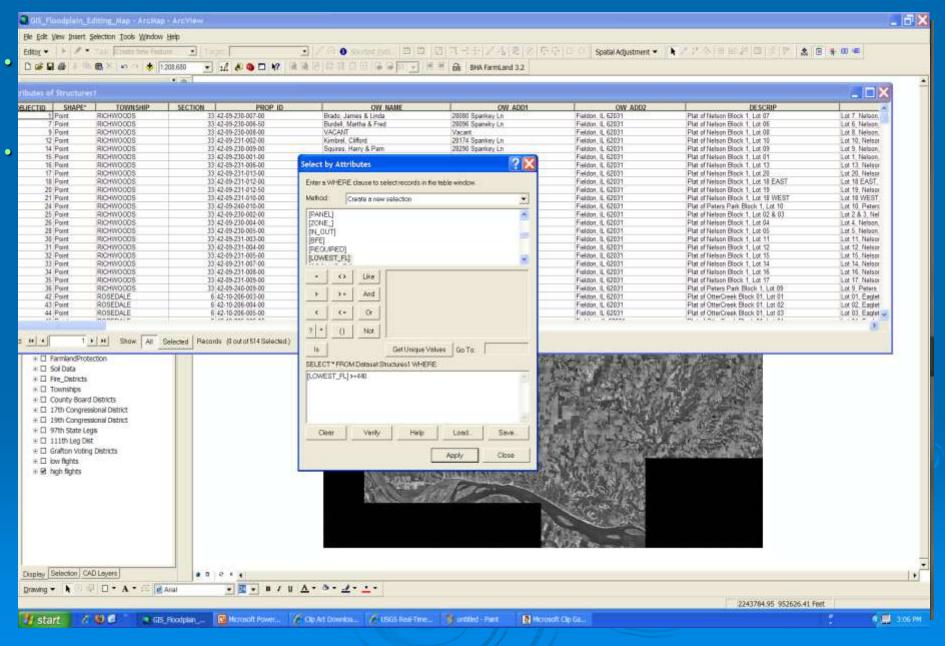
A "Perfect" Set of Records

- Applications
- Permit and inspection records
- Compliance files variances, ECs
- LOMCs and other flood studies
- Old ordinances, old flood maps



- Back-up copies in secure location
- Logical filing system, ie., by address

Got GIS? Risk Identification!



Variance

- Grant of relief from requirements of floodplain development ordinance
- Permits construction in a manner that would otherwise be prohibited
- Stays with property if sold
- Not relief from flood insurance!
- Granted by local governing body





Conditions for Variances

- 1. For a piece of property; not personal
- 2. Is minimum necessary to afford relief
- 3. If within designated regulatory floodway, cannot cause increase in flood levels during base flood
- 4. No extraordinary public expense
- 5. No increase in flood heights



Conditions for Variances

- 6. No fraud or victimization of public
- 7. No conflict with existing local laws or ordinances
- 8. No increased threat to public safety or creation of nuisance









Key to Valid Variance

- "Unnecessary hardships"
- Loss of all beneficial or productive use
- Deprivation of reasonable return on property
- Rendering property valueless
- Inability to develop property in compliance with the regulations
- Reasonable use cannot be made consistent with regulations



Insufficient Reasons

- Less than drastic depreciation of property
- Convenience of property owner
- Circumstances of owner not the land
- To obtain better financial return
- Property similar to others in neighborhood
- Hardship created by owner's own actions



If a Variance is Issued

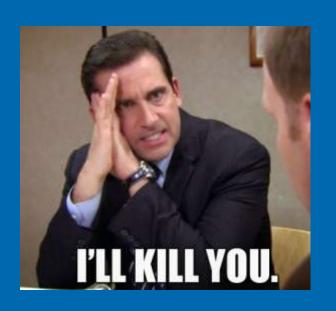
A community must

Maintain a record of all variance actions, including those denied, along with the justifications (findings of fact).

A Word of Advice... DO NOT GRANT VARIANCES!

They place people and property at risk, and flood insurance costs sky-rocket. If you're going to grant a variance be sure to DOCUMENT!...

...This is the community's only protection after the flood when damages have occurred.





If full compliance isn't possible...

Corrective measures should be coordinated with state NFIP Coordinator and FEMA.





Last Resort: Section 1316

- ✓ All other means exhausted
- ✓ Community declares structure in violation at public meeting
- ✓ Declaration/request sent to FEMA





Record Keeping

- Provides evidence of activity
- Supports decision-making
- Supports delivery of programs and services
- Demonstrates accountability of person and community



100+ community visits per year.

15+ workshops per year.

5,000 technical assistance per year.

Illinois leads
the nation in
communities on
probation or
suspended
from the
National Flood
Insurance
Program.

Compliance!



7 communities nationwide kicked out of NFIP. 5 are in Illinois! We (Paul) are serious!

The Community Assistance Visit (CAV)

The CAV provides a means to render technical assistance and a process to correct program deficiencies and violations.



National Flood Insurance Program (NFIP)
Guidance for Conducting
Community Assistance Contacts
and Community Assistance Visits

FEMA F-776/April 2011



Community Assistance Visit Possible Violations

Examples of deficiencies and violations......

- Failure to require ANY permits;
- Failure to obtain state floodway permit;
- Failure to use proper flood elevation data;
- Non-compliant ordinance;
- Structures below BFE;
- HVAC or electric components not elevated;
- Failure to correct violations to practicable extent;
- Pattern & practice of issuing non-compliant variances;
- Allowing non-compliant lower enclosures or no vents;
- Fill and debris.

Community Assistance Visit





Community Assistance Visit (cont)

IF YOU CAN'T GET THE WHOLE
THING, GET WHAT YOU CAN
REASONABLY AND PRACTICALLY
GET, to limit flood damage exposure to
people and property. Save your
community's good standing in the
National Flood Insurance Program!

WHO'S TO BLAME?

- >The developer?
- The builder?
- The owner?
- The building official?
- The realtor?
- The prior administration?

WE DON'T CARE!!!!

Regardless of who is at fault, the violation must be corrected.

Probation

- Formal notification to the community that FEMA regards the community's floodplain management program as not compliant with the minimum standards of the NFIP.
- An additional \$50 dollar premium will be charged on policies sold or renewed during the probation period.
- The maximum probation period is one year.





Suspension

A community is subject to suspension unless it corrects program deficiencies and remedies all violations by the compliance deadlines set during the probation period.





Effects of Suspension or Non-Participation in the NFIP

No federally-backed flood insurance.

➤ No federal/state grants and loans.

No federal flood disaster assistance.

No federal mortgage insurance.



If your community has any Rep Loss properties...

NO BEASON!

Illinois is ranked #1 in the nation:

- 1. Overall flood loss reduction
- 2. Fewest number of flood insurance claims occurring on newer post-FIRM structures (1%). *Some states have as much as 50% of flood claims taking place on newer post-FIRM buildings.
- 3. Mitigation of repetitive loss properties (50% no longer make damage claims)







FEMA Technical Bulletins and References

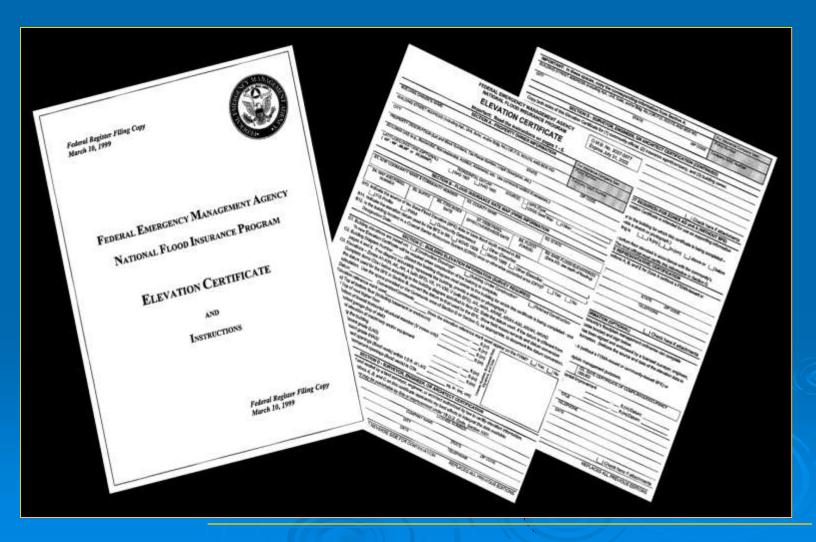
- TB 1 Openings in Foundation Walls and Walls of Enclosures
- **TB 2 Flood Damage-Resistant Materials Requirements**
- TB 3 Non-Residential Floodproofing -- Requirements and Certification

Openings in Foundation Walls and Walls of Enclosures

- **TB 4 Elevator Installation**
- TB 6 Below-Grade Parking Requirements
- **TB 7 Wet Floodproofing Requirements**
- TB 10 Ensuring that Structures Built on Fill In or Near Special Flood Hazard Areas are Reasonably Safe From Flooding
- TB 11 <u>Crawlspace Construction for Buildings Located in Special Flood</u> <u>Hazard Areas</u>

START

The FEMA Elevation Certificate



The Elevation Certificate

DEPARTMENT OF HOMELAND SECURITY Federal Emergency Management Agency ELEVATION CERTIFICATE

IMPORTANT: FOLL								iration: 11/30	/2018	
Copy all pages of this Elevation Certificat				official, (2) in		oe agentes moan FORM INSURA	y, and (3) bull			
	PROPERTY INFOR	MATIO	N			ORM INSURA	INGE COMP			
A1. Building Owner's Name Policy Number:										
A2. Building Street Address (including Apt., Unit, Suite, and/or Bidg. No.) or P.O. Route and Company NAIC Number:										
City				State			Zip Code			
•	k Numbers Tax Parce	el Numi	ber Lenal		etc \		Ep couc			
Troperty Description (Lot and Disc	A3. Property Description (Lot and Block Numbers, Tax Parcel Number, Legal Description, etc.)									
A4. Building Use (e.g., Residential, No	n-Residential, Additio	n, Acce	ssory, etc	.)						
A5. Latitude/Longitude: Lat. Long. Horizontal Datum: NAD 1927 C NAD 1983										
A6. Attach at least 2 photographs of th	e building if the Certifi	cate is	being use	d to obtain i	flood i	nsurance.				
A7. Building Diagram Number										
A8. For a building with a crawispace of	r enclosure(s):			A9. For a l	bulldin	g with an attach	ed garage:			
a) Square footage of crawispace or	r enclosure(s)		sq ft	a) Square	footag	e of attached ga	rage		sq ft	
 b) Number of permanent flood oper crawispace or enclosure(s) withit above adjacent grade 					tache	rmanent flood op d garage within t nt grade				
c) Total net area of flood openings	In A8.b		sq in	c) Total ne	t area	of flood opening	as in A9.b		sq in	
	○Yes ○No					ood openings?		○ No		
	TION B - FLOOD INS	URAN								
B1. NFIP Community Name & Commu	inity Number		32. Count	y Name				B3. State		
					-	Fired Toronto				
B4. Map/Panel Number B5. Suffix	36. FIRM Index Date		levised Da		88.	Flood Zone(6)	B9. Base Flo (Zone AC	od Elevation), use base		
							depth			
B10. Indicate the source of the Base Fir				depth enter	red In	Item B9:				
○ FIS Profile ○ FIRM ○ Comm	nunity Determined (Other/s	Source:							
B11. Indicate elevation datum used for	BFE in Item 89: 0	NGVD 1	1929 (N	IAVD 1988	O	ther/Source:				
B12. Is the building located in a Coasta Designation Date:		ystem (CBRS) an	ea or Othen	wise P	rotected Area (0	OPA)? OY	es (No)	
	ON C - BUILDING EL		ON INFOR	MATION (S	HIRVI	V REQUIRED.				
C1. Building elevations are based on:							Finished Con	struction		
C2. Elevations - Zones A1 - A30, AE, A								, AR/AO.		
Complete Items C2.a -h below accordin * A new Elevation Certificate will be requ						Rico only, enter	meters.			
_	ulled when consulucin	an or an								
Benchmark Utilized: Indicate elevation datum used for the el	levations in Home 2) #	rounh		ical Datum:		C NAVO 1000				
Other/S		uyıl	, octow.	- 14040		- IANAD 1300				
Datum used for building elevations mus							Check the m			
a) Top of bottom floor (including basen	nent, crawispace, or e	nclosur	e floor)		-		○ feet		-	
b) Top of the next higher floor							() feet			
 Bottom of the lowest horizontal struct Attached garage (top of slab) 	stural member (V Zone	s only)					€ feet € feet			
e) Lowest elevation of machinery or eq	uloment servicing the	bulldin	a				- leet	meter	0	
(Describe type of equipment and loc		Canalli	3		-		C feet	neter (5	
f) Lowest adjacent (finished) grade ne	xt to building (LAG)				-		feet	neter	5	
g) Highest adjacent (finished) grade ne	ext to building (HAG)				-		feet	neter	5	
h) Lowest adjacent grade at lowest ele	vation of deck or stain	s, Inclu	ding		-		∫ feet	neter	15	
structural support							- leet	- meter		
FEMA Form 086-0-33 (7/15)		Deele		vious edific				Page 3 g		

Replaces all previous editions

_	ELEVA	TION (CERTIF	ICATE		OMB	Control Number: 1660-000				
							Expiration: 11/30/2010				
SECTION D - This certification is to be signed and sealed by a	SURVEYOR, E						lon Information / continu				
that the information on this Certificate represent punishable by fine or imprisonment under 18 U.	s my best effor	ts to Inter									
Were tattude and longitude in Section A provided by a licensed land surveyor? Check here if attachments. Yes No											
Certifier's Name	0.100		nse Num	ber							
Title	I					PL	ACE				
ine	Company Na	ne					EAL ERE				
Address	City		State	Zip Code							
Signature	Date		Telepho	one							
(Min and											
Copy both sides of this Elevation Certificate for				ice agent/c	ompany, and	d (3) building ov	vner.				
Comments (including type of equipment and loc	ation , per C2(e), if appi	Icable)"								
Signature See						Da	te				
SECTION E - BUILDING ELEVATION INF For Zones AO and A (without BFE), complete its											
Sections A, B, and C. For items E1-E4, use nati E1. Provide elevation information for the followin highest adjacent grade (HAG) and the lower	ıral grade, if av ıg and check th	allable. C le approp	theck the	measurem	ent used. In	Puerto Rico or	nly, enter meters.				
a) Top of bottom floor (including basement, or enclosure) is	crawispace,		-	∫ feet	○ meters	above or	r 📗 below the HAG.				
 b) Top of bottom floor (Including basement, or enclosure) is 	crawispace,		-	feet	neters	above or	below the LAG.				
E2. For Building Diagrams 6 -9 with permanent higher floor (elevation C2.b in the diagrams) of t		provided	In Section				of instructions), the next r 🔲 below the HAG.				
E3. Attached garage (top of slab) is			-	feet	neters (above or	below the HAG.				
E4. Top of platform of machinery and /or equipm servicing the building is	nent		-	∫ feet	neters (above or	below the HAG.				
E5. Zone AO only: If no flood depth number is a management ordinance? Yes No							ommunity's floodplain				
SECTION F - PROPE											
The property owner or owner's authorized repre	sentative who	complete	Section	s A, B, and	E for Zone	A (without a FE	MA-Issued or				
community-issued BFE) or Zone AO must sign in Property Owner or Owner's Authorized Represe	ere. The state	ments In	Sections	A, B, and E	are correct	to the best of n	ny knowledge.				
Address	City			State		7IP	Code				
	Date					-"					
Signature	Date			Telep	nune						
Comments											
						Che	eck here if attachments.				
FEMA Form 086-0-33 (7/15)		Replaces	all previ	ous editions			Page 4 of 15				

Replaces all previous editions.

11/30/18 **Expire Date**

Now **Five** pages long!!

Must use the new form

Section A What's New

Identify whether the enclosure, crawlspace, or garage has engineered flood openings.

Two new **Building Diagrams** have been added:

- The new Diagram 1B is for raised-slab-on-grade or slab-on-stem-wall-with-fill single- and multiple-floor buildings.
- The new Diagram 9 is for all buildings (other than split-level) elevated on a subgrade crawlspace.

Section A – Property Information

DEPARTMENT OF HOMELAND SECURITY

Federal Emergency Management Agency

ELEVATION CERTIFICATE

IMPORTANT: FOLLOW THE INSTRUCTIONS ON PAGES 9-16

Copy all pages of this Elevation Certificate	and all attachments for (1)	community o	fficial (2) incu	rance agent/comp. my and	(3) building own	
	PROPERTY INFORMATI		iliciai, (2) ilisui	FORM INSURANCE	• •	
A1. Building Owner's Name				Policy Number:		
A2. Building Street Address (including a Box No.	Apt., Unit, Suite, and/or Blo	lg. No.) or P.	O. Route and	Company NAIC		
City			State	Zip (Code	
A3. Property Description (Let and Block A4. Building Use (e.g., Residential, No.	·			c.)		
A5. Latitude/Longitude: Lat.	Long.	Horizo	ontal Datum:		AD 1983	
A6. Attach at least 2 photographs of the A7. Building Diagram Number	e building if the Certificate i	s being used	l to obtain floo	d insurance.		
A8. For a building with a crawlspace or	enclosure(s):		A9. For a buil	ding with an attached gar	age:	
a) Square footage of crawlspace or	enclosure(s)	sq ft	a) Square foot	tage of attached garage		sq ft
 b) Number of permanent flood oper crawlspace or enclosure(s) within above adjacent grade 	0		,	permanent flood opening ned garage within 1.0 foo cent grade		
c) Total net area of flood openings i	n A8.b	sq in	c) Total net ar	ea of flood openings in A	9.b	sq ii
d) Engineered flood openings? (Yes No		d) Engineered	I flood openings?	es No	

OMB Control Number: 1660-0008

Expiration: 11/30/2018

Section A- Property Information Photo Requirements

DEPARTMENT OF HOMELAND SECURITY

Federal Emergency Management Agency

ELEVATION CERTIFICATE

IMPORTANT: FOLLOW THE INSTRUCT	TONS ON PAGE	ES 9-16	Expirati	ion: 11/30/2018
Copy all pages of this Elevation Certificate and all attachments for (1) c	community official, (2)	insurance agent/company	, and (3) building	g owner.
SECTION A - PROPERTY INFORMATION	ON	FORM INSURAN	ICE COMPANY	USE
A1. Building Owner's Name		Policy Number:		
A2. Building Street Address (including Apt., Unit, Suite, and/or Bldg Box No.	g. No.) or P.O. Route	Company NAIC Number:		
City	State		Zip Code	
A3. Property Description (Lot and Block Numbers, Tax Parcel Num	nber, Legal Description	on, etc.)		
A4. Building Use (e.g., Residential, Non-Residential, Addition, Acco	essory, etc.)			
A5. Latitude/Longitude: Lat. Long.	Horizontal Datu	m: NAD 1927	NAD 1983	
A6. Attach at least 2 photographs of the building if the Certificate is	s being used to obtain	flood insurance.		
A7. Building Diagram Number				
A8. For a building with a crawlspace or enclosure(s):	A9. For a	building with an attached	d garage:	
a) Square footage of crawlspace or enclosure(s)	sq ft a) Square	e footage of attached gara	age	sq ft
b) Number of permanent flood openings in the crawlspace or enclosure(s) within 1.0 foot above adjacent grade	in the a	er of permanent flood ope attached garage within 1. adjacent grade		
c) Total net area of flood openings in A8.b	sq in c) Total n	et area of flood openings	in A9.b	sq in
d) Engineered flood openings? Yes No	d) Engine	eered flood openings?	Yes O	No

Section A – Property Information Building Diagrams (now 11 of them)

OMB Control Number: 1660-0008

DEPARTMENT OF HOMELAND SECURITY

Federal Emergency Management Agency

ELEVATION CERTIFICATE

IMPORTANT: FOLLOW THE INSTRI	UCTIONS ON PAGES 9-16 Expiration: 11/30/2018
7A PA 15 15 15 15 15 15 15 15 15 15 15 15 15	or (1) community official, (2) insurance agent/company, and (3) building owner.
SECTION A - PROPERTY INFORM	FORM INSURANCE COMPANY USE
A1. Building Owner's Name	Policy Number:
A2. Building Street Address (including Apt., Unit, Suite, and/o Box No.	or Bldg. No.) or P.O. Route and Company NAIC Number:
City	State Zip Code
A3. Property Description (Lot and Block Numbers, Tax Parce	Number, Legal Description, etc.)
A4. Building Use (e.g., Residential, Non-Residential, Addition	i, Accessory, etc.)
A5. Latitude/Longitude: Lat. Long.	Horizontal Datum: NAD 1927 NAD 1983
A6. Attach at least 2 photographs of the building if the Certific	cate is being used to obtain flood insurance.
A7. Building Diagram Number	
A8. For a building with a crawlspace or enclosure(s):	A9. For a building with an attached garage:
a) Square footage of crawlspace or enclosure(s)	sq ft a) Square footage of attached garage sq ft
b) Number of permanent flood openings in the crawlspace or enclosure(s) within 1.0 foot above adjacent grade	b) Number of permanent flood openings in the attached garage within 1.0 foot above adjacent grade
c) Total net area of flood openings in A8.b	sq in c) Total net area of flood openings in A9.b
d) Engineered flood openings? Yes No	d) Engineered flood openings? Yes No

Instructions for Completing the Elevation Certificate (Continued)

OMB Control Number: 1660-0008 Expiration: 11/30/2018

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 A8.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).

DIAGRAM 1A

All slab-on-grade single- and multiple - floor buildings (other than split-level) and high-rise buildings, either detached or row type (e.g., townhouses); with or without attached garage.

Distinguishing Feature - The bottom floor is at or above ground level (grade) on at least 1 side."

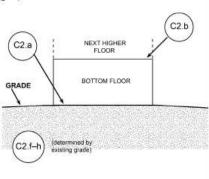


DIAGRAM 1B

All raised-slab-on-grade or slab-on-stem-wall-with-fill singleand multiple-floor buildings (other than split-level), either detached or row type (e.g., townhouses); with or without attached garage.

Distinguishing Feature - The bottom floor is at or above ground level (grade) on at least 1 side."

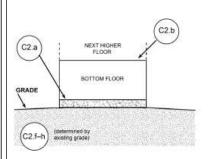


DIAGRAM 2A

All single- and multiple-floor buildings with basement (other than split-level) and high-rise buildings with basement, either detached or row type (e.g., townhouses); with or without attached garage.

Distinguishing Feature - The bottom floor (basement or underground garage) is below ground level (grade) on all sides.*

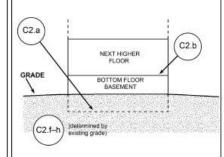
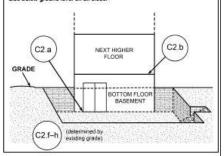


DIAGRAM 2B

All single-and multiple-floor buildings with basement (other than split-level) and high-rise buildings with basement, either detached or row type (e.g., townhouses); with or without attached garage).

Distinguishing feature - The bottom floor (basement or under ground garage) is below ground level (grade) on all sides; most of the height of the walls are below ground level on all sides and the door and area of egress is also below ground level on all sides."



^{*} 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.

Instructions for Completing the Elevation Certificate (Continued)

DIAGRAM 3

All split-level buildings that are slab-on-grade, either detached or row type (e.g., townhouses); with or without

Distinguishing Feature - the bottom floor (excluding garage) is at or above ground level (grade) on at least 1 side. *

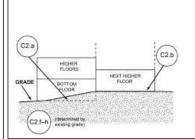


DIAGRAM 4

OMB Control Number: 1660-0008 Expiration: 11/30/2018

All split-level buildings (other than slab-on-grade), either detached or row type (e.g., townhouses); with or without

Distinguishing Feature - The bottom floor (basement or underground garage) is below ground level (grade) on al sides. *

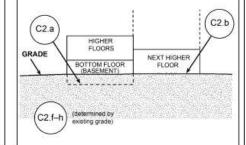


DIAGRAM 5

All buildings elevated on piers, posts, piles, columns, or parallel shear walls. No obstructions below the elevated

Distinguishing Feature - For all zones, the area below the elevated floor is open, with no obstruction to flow of floodwaters (open lattice work and /or insect screening is permissible).

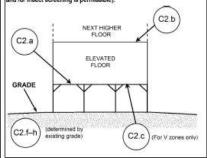
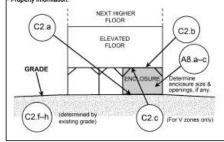


DIAGRAM 6

All buildings elevated on piers, posts, piles, columns, or parallel shear walls with full or partial enclosure below the elevated

Distinguishing Feature - For all zones, the area below the elevated floor is enclosed, either partially or fully. In A Zones, the partially or fully enclosed area below the elevated floor is with or without openings " present in the walls of the enclosure. Indicate information about enclosure size and openings in Section A Property Information.



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,

[&]quot;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 2 openings is required for enclosures or crawispaces. The openings shall provide a total net area of not less than 1 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

Instructions for Completing the Elevation Certificate (Continued)

DIAGRAM 7

All buildings elevated on full-story foundation walls with a partially or fully enclosed area below the elevated floor. This includes walkout levels, where at least 1 side is at or above grade. The principal use of this building is located in the elevated floors of the building.

Distinguishing Feature - For all zones, the area below the elevated floor is enclosed, either partially or fully. In A Zones, the partially or fully enclosed area below the elevated floor is with or without openings" present in the walls of the enclosure. Indicate information about enclosure size and openings in Section A - Property Information.

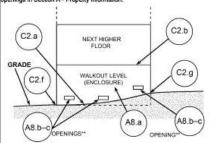


DIAGRAM 8

OMB Control Number: 1660-0008

Expiration: 11/30/2018

All buildings elevated on a crawlspace with the floor of the crawlspace at or above grade on at least 1 side, with our without an attached garage.

Distinguishing Feature - For all zones below the first floor is enclosed by solid or partial perimeter walls. In all A zones, the crawispace is with or without openings" present in the walls of the crawispace. Indicate information about crawispace size and openings in Section A - Property Information.

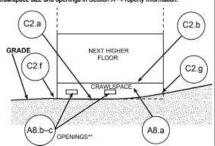
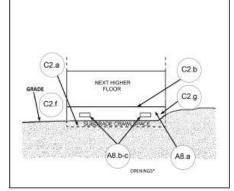


DIAGRAM 9

All buildings (other than split-level) elevated on a sub-grade crawlspace, with or without attached garage.

Distinguishing Feature - The bottom (crawispace) floor is below ground level (grade) on all sides. " (If the distance from the crawispace floor to the top of the next higher floor is more than 5 feet, or the crawispace floor is more than 2 feet below the grade (LAG) on all sides, use Diagram 2.)



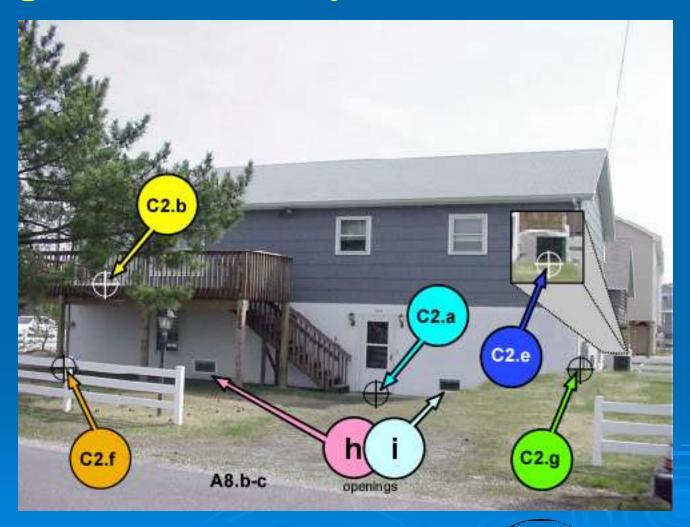
A floor that is below ground level (grade) on all sides is considered a basement even if the floor is used for living purposes, or as an office, garage, workshop,

[&]quot;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 2 openings is required for enclosures or crawispaces. The openings shall provide a total net area of not less than 1 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

Diagram #1 and 1B - Slab or wall

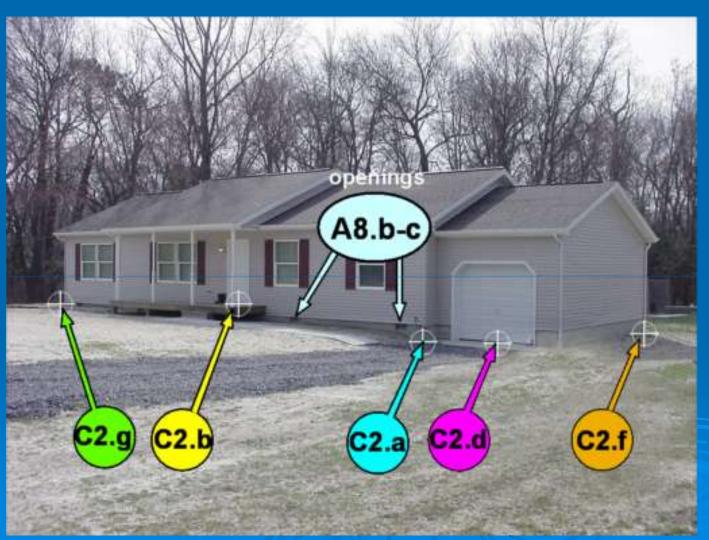


Diagram # 7 - Fully enclosed lower area



Permanemnt Flow Thru openings are VERY important!

Diagram #8 and #9 — Crawlspaces (above grade crawl and below grade crawls)



Section A- Property Information Crawlspaces

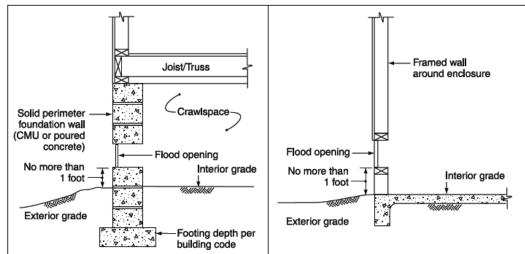
DEPARTMENT OF HOMELAND SECURITY

Federal Emergency Management Agency

ELEVATION CERTIFICATE

OMB Control Number: 1660-0008 **IMPORTANT: FOLLOW THE INSTRUCTIONS ON PAGES 9-16** Expiration: 11/30/2018 Copy all pages of this Elevation Certificate and all attachments for (1) community official, (2) insurance agent/company, and (3) building owner. FORM INSURANCE COMPANY USE SECTION A - PROPERTY INFORMATION A1. Building Owner's Name Policy Number: A2. Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Company NAIC Box No. Number: City State Zip 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.) Horizontal Datum: A5. Latitude/Longitude: Lat. Long. NAD 1927 NAD 1983 A6. Attach at least 2 photographs of the building if the Certificate is being used to obtain flood insurance. A7. Building Diagram Number A8. For a building with a crawlspace or enclosure(s): A9. For a building with an attached garage: a) Square footage of crawlspace or enclosure(s) a) Sware footage of attached garage sa ft sa ft b) Number of permanent flood openings in the b) Number of permanent flood openings crawlspace or enclosure(s) within 1.0 foot in the attached garage within 1.0 foot above adjacent grade above adjacent grade c) Total net area of flood openings in A8.b c) Total net area of flood openings in A9.b sq in ○ No d) Engineered flood openings?

Crawlspaces



Interior above grade?

or

Interior below grade?

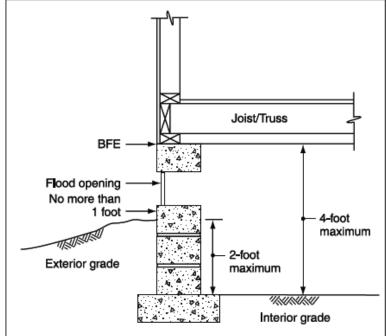


Figure 2. Limitations on below-grade crawlspaces in shallow flood hazard areas (TB 11)

Section A – Property Information **Openings**

DEPARTMENT OF HOMELAND SECURITY

Federal Emergency Management Agency **ELEVATION CERTIFICATE**

IMPORTANT: FOLLOW THE INSTRUCTIONS ON PAGES 9-16

Expiration: 11/30/2018 Copy all pages of this Elevation Certificate and all attachments for (1) community official, (2) insurance agent/company, and (3) building owner. FORM INSURANCE COMPANY USE SECTION A - PROPERTY INFORMATION A1. Building Owner's Name Policy Number: A2. Building Street Address (including Apt., Unit, Suite, and/or Bldg, No.) or P.O. Route and Company NAIC Box No. Number: State Zip Code City A3. Property Description (Lot and Block Numbers, Tax Parcel Number, Legal Description, etc.) A4. Building Use (e.g., Residential, Non-Residential, Addition, Accessory, etc.) Horizontal Datum: A5. Latitude/Longitude: Lat. Long. NAD 1927 NAD 1983 A6. Attach at least 2 photographs of the building if the Certificate is being used to obtain flood insurance. A7. Building Diagram Number 48. For a building with a crawlspace or enclosure(s): A9. For a building with an attached garage: a) Square footage of crawlspace or enclosure(s) a) Square footage of attached garage sq ft sq ft b) Number of permanent flood openings in the b) Number of permanent flood openings crawlspace or enclosure(s) within 1.0 foot in the attached garage within 1.0 foot above adjacent grade above adjacent grade c) Total net area of flood openings in A8.b Total net area of flood openings in A9.b sq in sq in No Yes O No Engineered flood openings? d) Engineered flood openings?

OMB Control Number: 1660-0008



Openings in Foundation Walls and Walls of Enclosures

Below Elevated Buildings in Special Flood Hazard Areas in accordance with the National Flood Insurance Program

Technical Bulletin 1 / August 2008

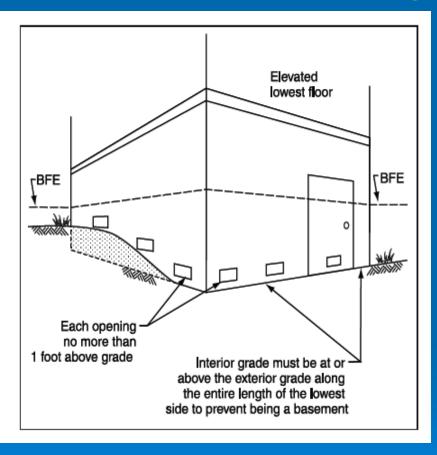


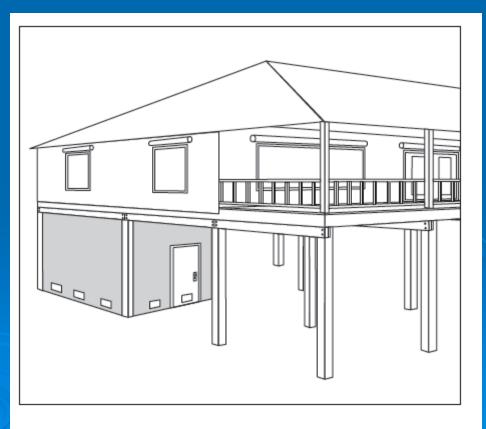
Technical Bulletin #1

www.FEMA.gov

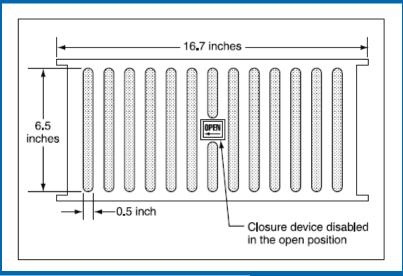
Search window: Technical Bulletin 1

Any enclosed area <u>must</u> be flow thru





Watch the vents! "standard vents" are only 42 sq. in.



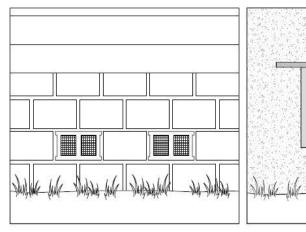


Figure 20. Concrete block turned sideways (insect screening shown)

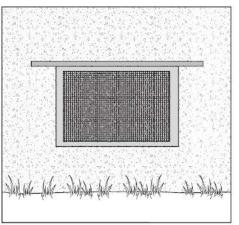
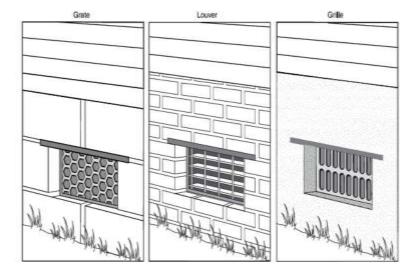


Figure 21. Wood frame with insect screen inserted in opening in poured concrete foundation wall



Section A – Property Information Engineered Openings?

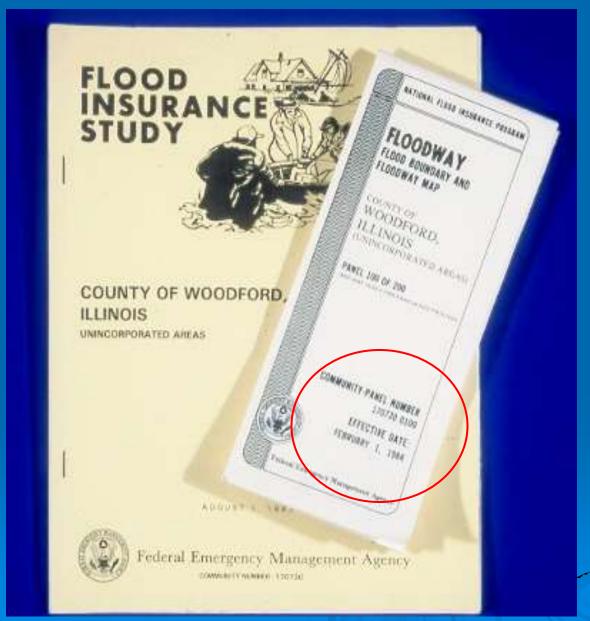


All Engineered
Openings must
have an ICC-ES
Evaluation Report

Section B – Flood Insurance Rate Map (FIRM) Information

_										
L		SE	CTION B - FLOOD INS	URA	NCE RATE MAP (FIRM	M) INFORMATION				
В	1. NFIP Community Na	ame & Comn	nunity Number		B2. County Name	B2. County Name				
	4. Map/Panel Number	B5. Suffix	B6. FIRM Index Date	B7.	FIRM Panel Effective/ Revised Date	B8. Flood Zone(s)		ood Elevation(s) O, use base flood		
В	B10. Indicate the source of the Base Flood Elevation (BFE) data or base flood depth entered in Item B9:									
	FIS Profile FIRM Community Determined Other/Source:									
В	B11. Indicate elevation datum used for BFE in Item B9:									
В	B12. Is the building located in a Coastal Barrier Resources System (CBRS) area or Otherwise Protected Area (OPA)? Yes No									
D	esignation Date:		CBRS) OP	A					

Flood Studies and Maps



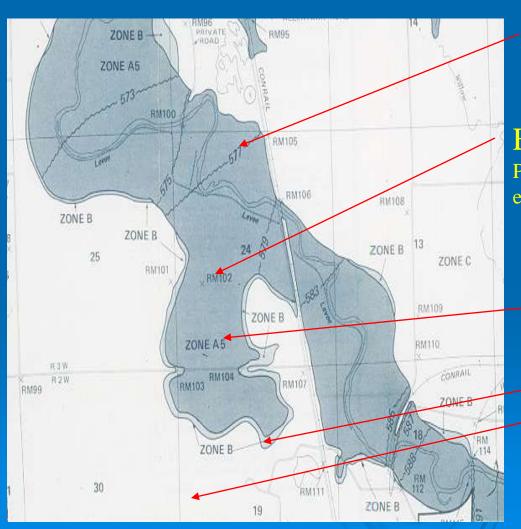
Go to:

Map Service Center website!

Section B – Base Flood Elevation information

B1	NFIP Community Name & Community Number				B2. County Name				B3. State
									20121111
B4.	Map/Panel Number	B5. Suffix	B6. FIRM Index Date	B7.	FIRM Panel Effective/ Revised Date	B8/	Flood Zone(s)		ood Elevation(s) O, use base flood
	FIS Profile FI	RM Com	munity Determined (Othe					
B12			tal Barrier Resources S		0 1929			OPA)?	Yes

Flood Insurance Rate Map (FIRM)



Base Flood Elevation (BFE)

Water Surface elevation (in feet) of the base flood at specific locations

Elevation Reference Marks (RM)

Points for which ground elevation data have been established and recorded on the FIRM

Flood Hazard Zones.

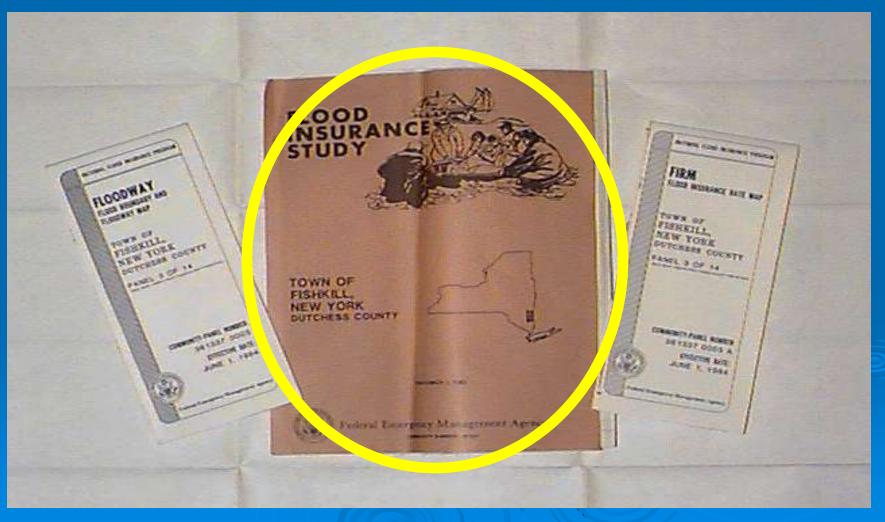
Zone A, Zone A1–A30, and

Zone AE - 100-year or base flood

Zone B - 500 – year flood.

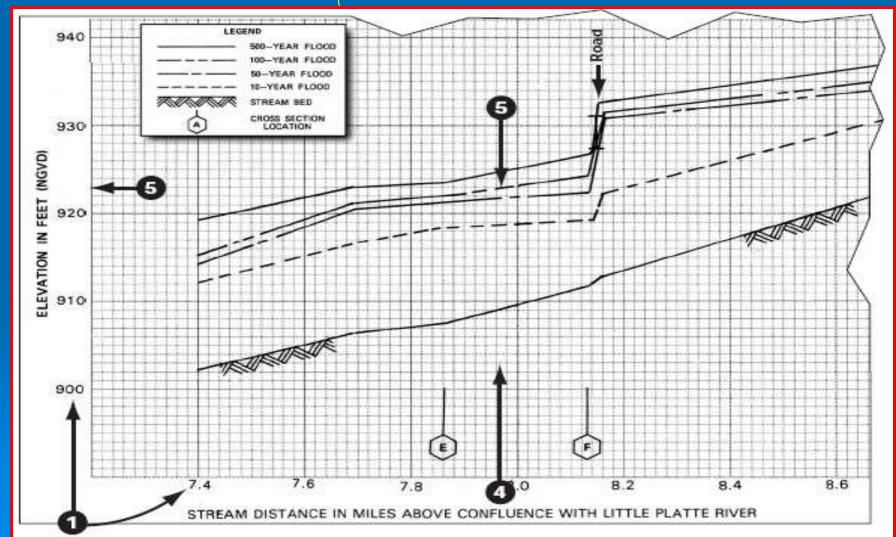
Zone C or X – All other areas

Flood Insurance Study (FIS)



Flood Profile in the a Flood Insurance Study (FIS)

Flood Profile



BFEs in Unnumbered (unstudied) floodplains

- Illinois State Water Survey (?)
- Highway Engineer
- Engineering study
- BFEs in Approximate A Zones Booklet
- Estimate and FEMA concurrence
- FEMA??? (No BFE available from Federal, State, or Local Sources)
- NOT Osman

Section C – Building Elevation Information

SECTION C - BUILDING ELEVATION INFORMATION (SURVEY REQUIRED)							
C1. Building elevations are based on: Construction Drawings* Building Under Construction* Finished Construction							
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, AR/AO. Complete Items C2.a -h below according to the building diagram specified in Item A7. In Puerto Rico only, enter meters.							
* A new Elevation Certificate will be required when construction of the building is complete.							
Benchmark Utilized:	Vertical Datum:						
Indicate elevation datum used for the elevations in items a) through h) belo	w. NGVD 1929	NAVD 198	3				
Other/Source:							
Datum used for building elevations must be the same as that used for the l	BFE.		Check the mea	asurement used.			
a) Top of bottom floor (including basement, crawlspace, or enclosure floor)	-	feet	meters			
b) Top of the next higher floor	-	-	feet	meters			
c) Bottom of the lowest horizontal structural member (V Zones only)			feet	meters			
d) Attached garage (top of slab)		-	feet	meters			
e) Lowest elevation of machinery or equipment servicing the building (Describe type of equipment and location in Comments)		-	feet	meters			
f) Lowest adjacent (finished) grade next to building (LAG)		-	C feet	meters			
g) Highest adjacent (finished) grade next to building (HAG)		-	feet	meters			
h) Lowest adjacent grade at lowest elevation of deck or stairs, including structural support		-	feet	meters			

Deck elevation?

Section C(h) now captures the lowest adjacent grade at lowest elevation of deck or stairs, including structural support.

This information is required if the EC is being used to support a request for a LOMA or LOMR-F.

➤ Is Deck connected to the structure?

Section D – Surveyor Certification

SECTION D - SURVEYOR, ENGINEER, OR ARCHITECT CERTIFICATION					
This certification is to be signed and sealed by a land surveyor, engineer, or architect authorized by law to certify elevation information. I certify that the information on this Certificate represents my best efforts to interpret the data available. I understand that any false statement may be punishable by fine or imprisonment under 18 U.S. code, Section 1001.					
Check here if attachments.	Were latitude and longitude in Section A provided by a licensed land surveyor? Yes No				
Certifier's Name		License Num	ber		
Title	Company Name			PLACE SEAL HERE	
Address	City State Zip Code		Zip Code		
Signature	Date Telephone		one		
Copy both sides of this Elevation Certificate for (1) community official, (2) insurance agent/company, and (3) building owner.					
Comments (including type of equipment and loc	ation , per C2(e), if	applicable)"			
Signature				Date	

Section E – Building Information (Zone AO and A)

SECTION E - BUILDING ELEVATION INFORMATION (SURVEY NOT REQUIRED) FOR ZONE AO AND ZONE A (WITHOUT BFE)					
For Zones AO and A (without BFE), complete Items E1 -E5. If the Certificate is intended to support a LOMA or LOMR-F request, complete Sections A, B,and C. For Items E1 -E4, use natural grade, if available. Check the measurement used. In Puerto Rico only, enter meters.					
E1. Provide elevation information for the following and check the appropriate boxes to show whether the elevation is above or below the highest adjacent grade (HAG) and the lowest adjacent grade (LAG).					
a) Top of bottom floor (including basement, crawlspace, or enclosure) is		-	☐ feet ☐ meters	above or	below the HAG.
 b) Top of bottom floor (including basement, crawlspace, or enclosure) is 		-	feet meters	above or	below the LAG.
E2. For Building Diagrams 6 -9 with permanent flood openings	provided	d in Sectio	n A Items 8 and/or 9 (s	ee pages 8 -9 of	Instructions), the next
higher floor (elevation C2.b in the diagrams) of the building is		-	☐ feet ☐ meter	s above or	below the HAG.
E3. Attached garage (top of slab) is		-	☐ feet ☐ meters	above or	below the HAG.
E4. Top of platform of machinery and /or equipment servicing the building is		-	☐ feet ☐ meters	above or	below the HAG.
E5. Zone AO only: If no flood depth number is available, is the top of the bottom floor elevated in accordance with the community's floodplain management ordinance? Yes No Unknown. The local official must certify this information in Section G.					

Section F Property Owner's Agent

SECTION F - PROPERTY OWNER (OR OWNER'S REPRESENTATIVE) CERTIFICATION							
The property owner or owner's authorized representative who completes Sections A, B, and E for Zone A (without a FEMA-issued or community-issued BFE) or Zone AO must sign here. The statements in Sections A, B, and E are correct to the best of my knowledge.							
Property Owner or Owner's Authorized Representative's Name:							
Address	City	State	ZIP Code				
Signature	Date	Telephone					
Comments							
Check here if attachments.							

Section G Community Authorization

SECTION G - COMMUNITY INFORMATION (OPTIONAL)						
The local 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. Complete the applicable item(s) and sign below. Check the measurement used in Items G8 - G10. In Puerto Rico only, enter meters.						
G1. The information in Section C was taken from other documentation 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 and date of the elevation data in the Comments area below.)						
G2. A community official completed Section E for a building located in Zone A (without a FEMA-issued or community-issued BFE) or Zone AO.						
G3. The following information (Items G4 -G	10) is provided for cor	mmunity floo	dplain management	purposes.		
G4. Permit Number G5. Date Permit Issued G6. Date Certificate of Compliance/Occupancy Issued						
G7. This permit has been issued for: New Co		tantial Impro				
of the building: G9. BFE or (in Zone AO) depth of flooding at the		-	feet meters	Datum		
site:	building	-	☐ feet ☐ meters	Datum		
G10. Community's design flood elevation:		-	feet meters	Datum		
Local Official's Name Title						
Community Name		Telephone				
Signature		Date				
Comments						

Last Two Pages – Building Photos

BUILDING PHOTOGRAPHS

See instructions for Item A6

OMB Control Number: 1660-0008 Expiration: 11/30/2018

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:	
If using the Elevation Certificate to obtain NFIP flood insurance, affix at least 2 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." When applicable, photographs must show the foundation with representative examples of the flood openings or vents, as indicated in Section A8. If submitting more photographs than will fit on this page, use the Continuation Page.						

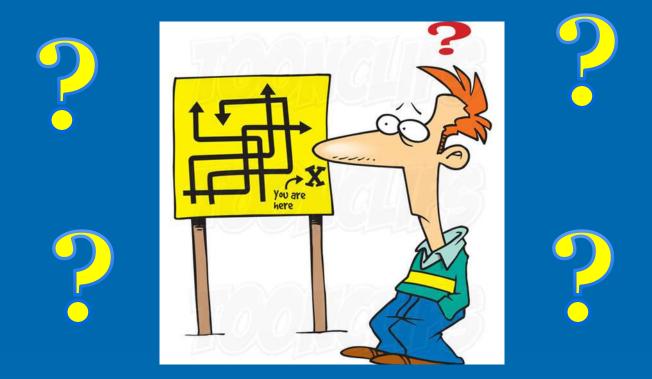
Copies of the Elevation Certificate

Download from:

http://www.fema.gov/

or

simply go to www.FEMA.gov and search "elevation certificate"



Questions?

Part 4 Summary Review

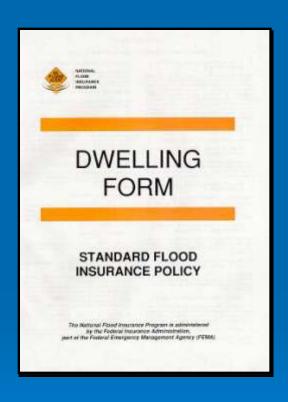
Where did we confuse you in covering:

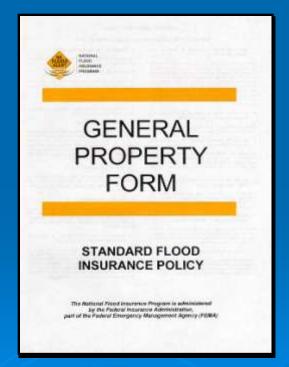
- Duties of Floodplain Administrators
- Variances
- Substantial damage/improvement
- Community Audits & Compliance
- Recordkeeping
- Elevation Certificates

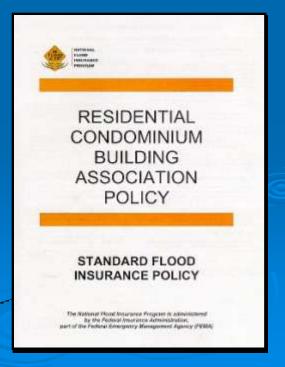
BREAK START ---1:45 - 2:00

Part 5

Flood Insurance







Part 5 - Topics

- Basic Terms & Abbreviations
- NFIP Insurance Overview
- Policy Types and Rating
- Increased Cost of Compliance
- Community Rating System
- Grandfathering

Common Acronyms...

BFE = Base Flood Elevation

CRS = Community Rating System

FIRM = Flood Insurance Rate Map

ICC = Increased Cost of Compliance

NFIP = National Flood Insurance Program

PRP = Preferred Risk Policies

WYO = Write Your Own



National Flood Insurance Program (NFIP)

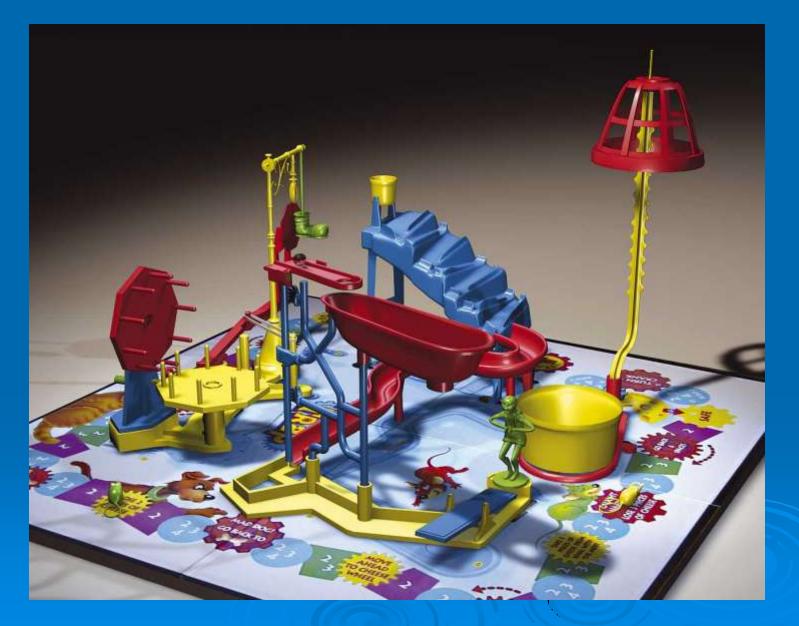
- Now covers 5.1 million policies in 20,000 communities.
- ➤\$994 billion in risk exposure (almost all high risk properties).





- ➤ In floodplains less than 50% coverage.
- ➤In all risk zones less than 10% coverage.
- Adverse selection only those who need it buy it.

How Does Flood Insurance Work?



Who Can Buy Flood Insurance?

- > Anybody in a community participating in the NFIP.
- Anywhere within that community (all zones)
- Not all flood insurance is NFIP



To purchase NFIP policy:

- Call any licensed insurance agent
- Call FEMA directly at 1-800-720-1093



Coverage Amounts

Buildings

- Up to \$250,000 Residential
- Up to \$500,000 Non-Residential

Contents

- Up to \$100,000 Residential
- Up to \$500,000 Non-Residential

Less if community is in the Emergency phase of the program

NFIP Flood Insurance



Can be purchased for:

- > a building under construction
- > a finished structure

contents inside an insurable bldg.

Insurable Property



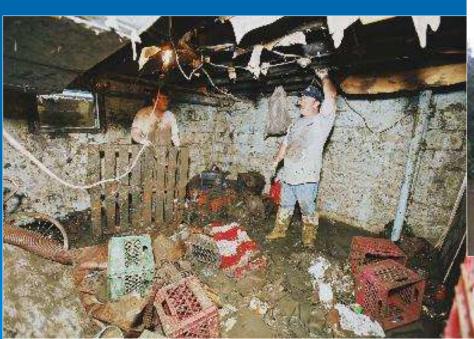
Definition of an eligible building

- > 2 or more outside rigid walls
- > A fully secured roof
- > Permanently affixed to a site
- > At least 51% of ACV above ground
- Could be manufactured home or travel trailer if it meets above criteria



NFIP Does NOT Cover

- Basement improvements
- Basement personal belongings
- Structures built over water







Limitations

Basements and enclosures beneath the lowest floor – limited coverage



When It's Written

Waiting Period

Generally 30 days, unless...it's at the time of loan closing, mortgage review or map revision

Lenders

- Must have determination on file guaranteeing accuracy
- May require insurance <u>even outside</u>
 <u>SFHA</u>

Who Writes Flood Insurance?

NFIP flood insurance

- FEMA
- Write Your Own (WYO) companies

Private flood insurance

- WYO Companies
- Other high-risk insurers, ie., Lloyd's of London



Who Can Buy Flood Insurance?

Anybody in a community participating in the NFIP.

Anywhere within that community (all zones)





Who MUST buy Flood Insurance?

- ➤ Required for buildings in <u>SFHA</u> (floodplain) when:
 - <u>Making</u>
 - <u>Increasing</u>
 - **R**enewing
 - <u>E</u>xtending a mortgage, home equity, improvement, construction, commercial or farm credit loan

Remember MIRE

Who MUST Buy Flood Insurance?

Community Status

Does the community participate in the NFIP? Is insurance available?

Type of Loan
Is the lender Federally regulated?

Type of Property

Is it an insurable structure?

Location of Property
Is it located within a floodplain?

Lender's Responsibility Insurance is required when:

- A lender makes, renews, extends, or increases a loan.
- That loan is from a federally regulated or insured lender
- The loan collateral is insurable under the NFIP's standard policy.
- That collateral is or will be located in a high risk flood area (A Zone)
- The community participates in the NFIP.

How Much Coverage is Required?

Amount of the loan at initiation

<u>or</u>

Maximum_available through the NFIP

<u>or</u>

- Value of building at loan origination
- > Whichever is less



When do flood insurance policies become effective?

30-Day Waiting Period

- **Exceptions for:**
 - Insurance in connection with a loan
 - Purchased within 13 months of a map change (1 day)

Good morning...
I'd like to find out about flood insurance.



Lenders Documentation

"a lender's decision made in the exercise of due diligence and good faith as to the location of a property, which is the subject of the loan, on such a map will be final and sufficient to comply with the Act".

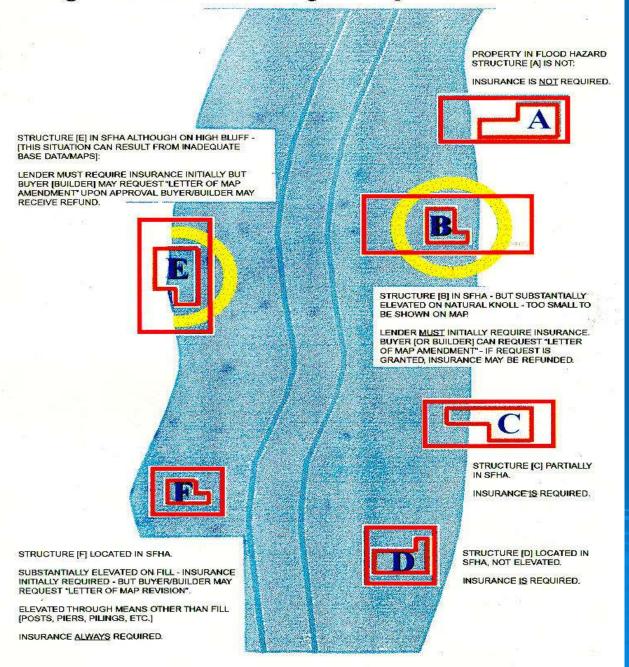
Do lenders HAVE to depend on the Zone Determination Company's floodplain determination?

NO!

Flood "Certification" Vendors

- Not FEMA endorsed
- Essentially unregulated industry
- Approx 150 firms but only 1/3 subscribe to NFDA standards and practices
- Quality control issues
- What are they really determining?

Flood Insurance Requirements For Typical Residential Sitings In FEMA/HUD Designated Special Flood Areas



Deductibles

Standard

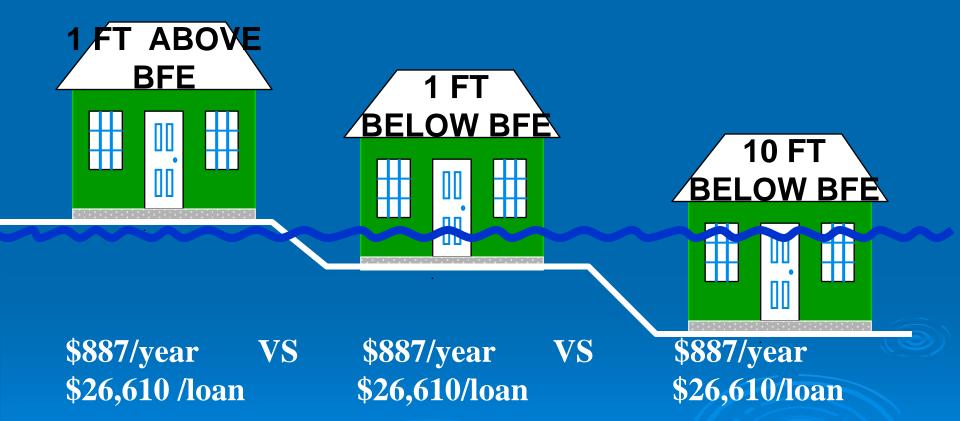
- \$1,000 Post FIRM

- \$2,000 Pre FIRM

Higher deductibles available for lower premiums

Separate deductible for building and contents

Comparison Cost of Flood Insurance *Existing Pre-FIRM House*



Based on \$75,000 bldg. & \$20,000 contents coverage. Single family, no basement, standard deductible

Comparison cost of Flood Insurance





The Preferred Risk Policy (PRP)

>Written only for areas located outside of the mapped floodplain (B,C and X Zones)

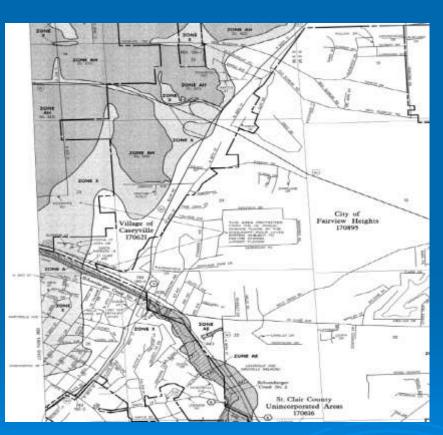
>Sold in "packaged" coverage amounts. Very cheap!

Building Type	Building Coverage	Contents Coverage	Annual Premium
Residential w/o basement	\$30,000	\$12,000	\$150
Residential with basement	\$30,000	\$12,000	\$175
Non- Residential w/o basement	\$50,000	\$50,000	\$557

PRP Extension

➤ Effective January 1, 2011, buildings that are newly designated within a Special Flood Hazard Area due to a map revision are eligible for coverage under PRP for a period of up to 2 years after the effective date of the map.

PRP Extension





Grandfathering

If homeowner:

- maintains continuous coverage or
- was <u>built in compliance</u> with an old FIRM, insurance can be rated using previous map if it benefits them.

"Old Maps" Rule

Keep old maps!!!

If old maps aren't available, check for historical maps at: www.msc.fema.gov



Many, but not all, old maps are there.

How can Homeowners reduce the cost of their Flood Insurance?

With lenders approval, increase the amount of deductible

If location of the structure is a close call, apply for Letter of Map Amendment

Mitigate to reduce vulnerability



Options & Actions

- Property Owners (and insurance agents)
 - Identify what full-risk rate is; get an Elevation Cert.
 - Look into map change (LOMA or LOMR)
 - Look into effect of higher deductibles
 - Look into rate-reducing mitigation actions



Options & Actions

- Communities
 - Join CRS/Increase CRS Rating
 - Be aware of mitigation grants
 - Work together!
 - Provide technical advice
 - Elevation Certificates
 - Building/Rebuilding to reduce flood risk
 - Implement Higher Standards



FLOODPLAIN MANAGEMENT & ITS EFFECTS ON FLOOD INSURANCE



Building Construction:

- Get it right and insurance premiums will be affordable
- Get it wrong and premiums will be very expensive
- Exceed minimum
 standards and insurance
 will be relatively cheap

What is Increase Cost of Compliance (ICC)??

- > Part of the standard Flood Insurance Policy.
- > Not a grant.
- > Up to \$30,000 to assist with code compliance:
 - Floodproof
 - Relocate
 - **Elevate**
 - Demolish



ICC Details

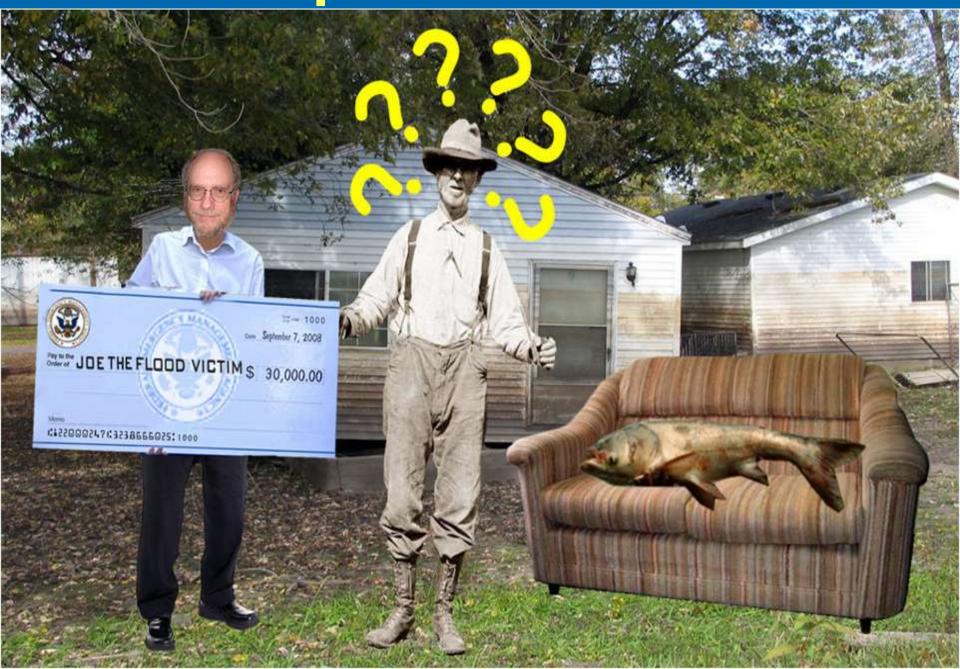
ICC Claim Filed if Structure was:

- > Damaged by flood.
- Substantially or repetitively damaged





ICC opens the Window of



How to Qualify for ICC??

Three conditions must be met for an ICC claim to be paid:

- Building must be covered by a Standard Flood Insurance Policy.
- Structure must be substantially damaged or cumulatively substantially damaged by a flood.
- The building has a history of NFIP claim payments that satisfy the definition of "target group repetitive loss structure".





When ICC is Approved

- NFIP will release ½ of the estimated amount to begin construction.
- NFIP will release the other ½ when an elevation certificate and local building permit showing compliance is provided.



QUICK Mitigation is the Key







One month after the flood!!!!



ICC Before and After









START

Community Rating System (CRS)



Another way to reduce the cost of a flood policy!

Community is aboveand-beyond NFIP minimums.

Must pass a "clean" CAV first.



Community Rating System in Illinois (65Communities)

•	Adams County	8	Lisle	7
•	Addison	6	Mount Prospect 7	
•	Bartlett	7	North Utica 9	
•	Calumet City	6	Northbrook	7
•	Carbondale	9	Oak Brook	7
•	Country Club Hills	8	Orland Hills	5
•	Deerfield	8	Palatine	7
•	DeKalb City	8	Peoria County	5
•	Des Plaines	7	Prospect Heights	8
•	Downers Grove	7	Sangamon County	8
•	Flossmoor	8	South Holland	5
•	Glendale Heights	7	St. Charles	5
•	Hoffman Estates	7	Wheeling	7
•	LaSalle County	9	Willowbrook	6
•	Lansing	7	Wood Dale	5
•	Lincolnshire	5	Riverwoods	
•	Jersey County		Whiteside County	
•	Rock Island Co	7	Lake County	6
•	Lake in the Hills	6	Gurnee	8
	Glenview	6	River Forest	7
	Crystal Lake	6	Sycamore	7

CRS in Illinois

- Ranked #6 in the nation for participation
- > Six communities are class 5 or better

- Only four communities in the nation with higher CRS ratings.
- > 40% of all flood insurance policies in Illinois are subject to CRS discounts.

Incentive



CRS provides an incentive for communities to initiate new flood protection activities.

CRS Activity Examples

- Activity 300 Elevation certs, Outreach projects
- Activity 400 Higher standards, Open space preservation, Stormwater management
- **Activity 500** Acquisition and relocation,

 Drainage system maintenance
- Activity 600 Flood warning program, levee safety, dam safety

- > 300 Public Information Activities
 - 310 Elevation Certificates
 - 320 Map Information
 - 330 Outreach Projects
 - 340 Hazard Disclosure
 - 350 Flood Protection Information
 - 360 Flood Protection Assistance



- > 400 Mapping & Regulatory Activities
 - 410 Additional Flood Data
 - 420 Open Space Preservation
 - 430 Higher Regulatory Standards
 - 440 Flood Data Maintenance
 - 450 Stormwater Management



- > 500 Flood Damage Reduction Activities
 - 510 Floodplain Management Planning
 - 520 Acquisition and Relocation
 - 530 Flood Protection
 - 540 Drainage System Maintenance



- > 600 Flood Preparedness Activities
 - 610 Flood Warning Program
 - 620 Levee Safety
 - 630 Dam Safety



CRS Premium Discounts

<u>Class</u>
9
8
7
6
5
4
3
2
1

<u>Points</u>
500-999
1000-1499
1500-1999
2000-2499
2500-2999
3000-3499
3500-3999
4000-4499
4500+

Discount
5%
10%
15%
20%
25%
30%
35%
40%
45%

CRS Representative for Illinois

Lou Ann Patellaro, CFM ISO / CRS Specialist ISO - Commercial Property Cell – (954) 651-5021 Office/Fax – (708) 634-3040





Part 5 – Summary Review

Where did we confuse you in covering:

- NFIP Insurance Requirements
- Types of flood insurance and policies
- Increased Cost of Compliance (ICC)
- Community Rating System (CRS)
- Grandfathering

Part 6 Mitigation





START

The Most Important Mitigation Tool is:

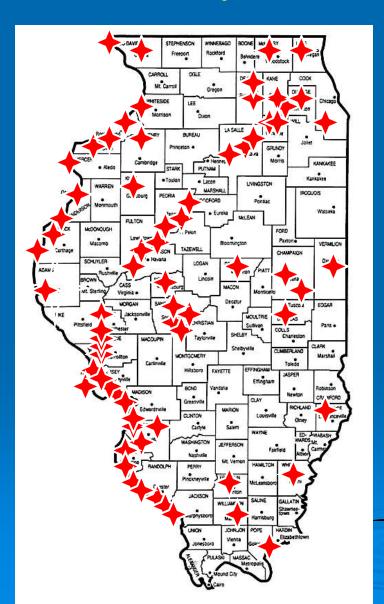


Mitigation is a mind set



Adams County	23
Aurora	25
Aurora Township	3
Bath	8
Belleville	52
Birds	67
Birds Bridge	15
Browning	54
Calhoun County	70
Carmi	32
Champaign Count	
Chatham	9
Cleveland	21
Clinton	38
Danville	23
DeKalb	6
DuPage County	49
East Dubuque	8
East St. Louis	572
Elizabethtown	2
Elsah	2
Evansville	18
Fults	25
Grafton	106
Greene County	113
Hamburg	3
Hancock County	54
Hardin	43
Havana	44
Hillview	15
Jersey County	93
JoDaviess County	2
Kampsville	13
Kaskaskia	6
Keithsburg	110
Kendall County	7

Mitigation Works! 5,000 Buyouts



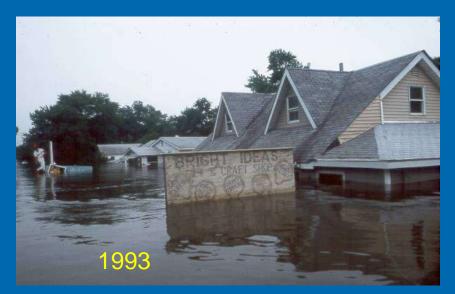
Kirkland	65
Knox County	17
_aSalle County	14
_ake County	53
Madison County	47
Marion	46
Mason County	28
McHenry County	1
Montgomery	39
Monroe County	1,400
Oquawka	32
Ottawa	57
Palos Hills	3
Pawnee	3
Pearl	4
Peoria	14
Peoria County	100
Peoria Heights	23
Petersburg	42
Pike County	33
Pontoosuc	20
Randolph County	24
Riverside	10
Riverton	6
Rock Island County	y 63
Rockwood	11
Rocky Run	12
Sangamon County	61
Shorewood	47
Sidney	10
St. Clair County	270
Thebes	1
/almeyer	244
/illa Grove	15
Narsaw	5
West Frankfort	31
Whiteside County	8

Don't Plan for the Past; Plan for the Future

- Urban flooding is becoming more significant
- Increasing number of extreme events



Grafton, Illinois... Flood? What flood?













City of Ottawa



1982. The Ottawa "flats". Under water.



2008. The same Ottawa "flats"
After buyouts.

Mitigation Grant Programs

FEMA currently has 3 mitigation grant programs:

- Hazards Mitigation Grant Program (HMGP)
- Flood Mitigation Assistance (FMA)
- Pre-Disaster Mitigation (PDM)
- Other sources:
- IDNR/OWR
- DCEO (HUD funds)
- Metropolitan Water Reclamation District

Mitigation Funds will NOT Solve all of your Problems

- Limited amount of funds
- Some projects too big
- Some projects too small
- Some don't qualify under the rules

IDNR Funds

- > Requests for applications will go out soon
- > Acquisition and demolition
- > No elevations, no Mobile Homes
- > Funds are on a reimbursement basis
- > No Cost share
- > Can be used as Cost Share for FEMA
- Easier than the FEMA program
- Limited funding

Hazard Mitigation Grant Program (HMGP)

- FEMA allocates 15 % of the total disaster assistance generated in response to a Presidential declaration toward HMGP.
- Program is administered by the State.
- 25% Cost share with the State/Local Community.
- Voluntary and Competitive (No Guarantee).
- Projects must meet benefit-cost, environmental and other Federal, State and local criteria.
- Can fund acquisition, elevation, and small structural flood projects, wind and earthquake projects
- Priorities: Substantial Damage and repetitive loss

Flood Mitigation Assistance (FMA)

- Yearly Allocation from Insurance Policy Base.
- Requires Mitigation Plan.
- Administered by the State.
- Repetitive Loss properties are targeted.
- Community needs to be in good standing in the NFIP.
- Structures must be insured.
- Voluntary and Competitive (No Guarantee).

Pre-Disaster Mitigation Program (PDM)

- Annual nationwide competitive program.
- Funds projects for all natural hazards
- Flood insurance is not a prerequisite
- Mitigation plan is a prerequisite
- Can fund plans
- Changing emphasis can now fund floodwalls, green infrastructure, floodplain and stream restoration

Repetitive Loss

➤ Has incurred flood-related damage on 2 occasions, in which the cost of the repair, on the average, equaled or exceeded 25 percent of the market value of the structure at the time of each such flood event

Severe Repetitive Loss

Has at least four NFIP claim payments (including building and contents) over \$5,000 each, and the cumulative amount of such claims payments exceeds \$20,000;

For which at least two separate claims payments (building payments only) have been made with the cumulative amount of the building portion of such claims exceeding the market value of the building.

Rep Loss in Illinois

- >2,815 rep loss properties (5.5% of 50,000 policies)
- ➤\$67 million in total rep. loss payments (31% of our total claims)
- Located in in 303 communities

- 1993 #5 on the national list!
- >2007- #15 on the national list!
- Most grievous remaining Rep Loss properties are located on Federal lease property.



Mitigation Planning

 Communities must have mitigation plans to be eligible for Federal Mitigation projects. (DMA 2000). HMGP, FMA, and PDM.

DuPage County Natural Hazards Mitigation Plan





Including:

Village of Addison Village of Oak Brook Village of Bartlett City of Oakbrook Terrace Village of Bensenville Village of Roselle Village of Villa Park VIIIa ge of Bloomingdale Village of Burr Ridge City of Warrenville Village of Carol Stream Village of Wayne City of West Chicago Village of Clarendon Hills City of Darien Village of Westmont Village of Downers Grove City of Wheaton City of Elmhurst Village of Willowbrook Village of Glendale Heights Village of Winfield City of Wood Dale Village of Glen Ellyn Village of Hanover Park Village of Woodridge Village of Hinsdale Darien-Woodridge Fire Village of Itasca Protection District Village of Lisle Liste-Woodridge Fire Village of Lombard Protection District City of Naperville College of DuPage

DuPage County Hazard Mitigation Workgroup
October 2007

Current mitigation plan status

Green = Plan done Yellow = Developing plans White = Haven't started **Black = non-NFIP county**

TEMA State of Illinois Local Mitigation Plan (LMP) Status 1/31/2018

Creation with an approximate that \$1500 - 474 Fegulation severally CAF. 11,83,07-20,374 Breen County 54 SCOK (30) 62

Darress County 10-30-43 (30078) Count Country Tel 1-2012 (1921)

Cam Develop 4-1-30 (1) (1 002)

Changage County (0-00-00) (00)

Death Desire; - \$40-00 (4)(2) (8)(5/2)

Combinational County - 6-13-13 (1-1042)

Deltaile Description-0013 (102,100) Duffage County 3-00-600 (\$10.00.4)

Digital County - S-TO-TO-K(12 17 5)

Promision County - 4-639 (7) (27, 201)

Faller County - 7-10-0012 (3-10-00)

11. Grundy County 9-0-0013 (20 001)

Managab County - 1-01-0003 (18,900)

13. Marry Causey, P.10-60 N (2000) Andreas County 9-10-10 (002 10)

Additional County 19-9-20 (6) 25 ET

James County 124 3-23 or 2012

Je Devises Devises 10-18-00 D/D C/D 20. Kara Desert - 19-23-4007 C 07207

Karlades Court - 11-23-20 (1111) 60 (1

Lake County 7-03-0012 (700 602)

Labelle County - 10-40-10 (11.1900)

Laurence County 1 1-70 017 (100 37)

Lague Course 3-(3-00) (30 (00)

Mason County 3-1 00 000 (110 700)

Makes County 2-17-2017 (320-202) March at Creaty - 10:30:12 (12:00)

Marin Grundy-()-13-4 0(14,000)

10. MidNessy Deure, -1-20-20 1/100/100

31. Marcar County + 6474 77104361 Manager Dayley 2-12-00 N (31)07

33. Mangamay Deely-160-17(20(60) 24. Harrien County 3-22-00 H (222207)

13. Marulan County - 3-03-17 (4.5-0)

Fue County 2-18-13 (10727)

Fulnam Causily (0-00-12)(0000)

Richland Dawney (-3) 4503 [10733] 10. Rent letter Deutsch-15-15(1-0) 100

Takes County 0-11-17 (\$47.17)

Bangaman Dalah -3-43-11(191-005) Best County 1-13-20 H /2 H P

41. Two County - 10:00-17 (1 10:0)

Singlement County-3rd 6d 7(67,711)

Transfer County - 3-11-0 (1100)

Walter Drugg - D/D-17 (1997)

Whitesda County - 9:30-10 CT CT

Will Device 34 7-2012 (677200)

Williamson County-11-2-12 (003) 7

30. Westings Design-13:13:14 (20) 300) Wayne Develop # 1-2015 (10700)

Regulation reviewed by LDEF in development - 11.33% 1,433.300 T.BCB0

Claims Cruss-planning in prepara (27 10)

Dragues Designationing in program (18718)

15. Pulselo Granty relationers propose (2312)

23. Union Desiry "planting in program (17447) 24. White Deputy - made requirements (14,660)

Land produces the made deput USFs 25102-224206 Alexander County - planning ingring (1.05)

Dark Drunty-glanning agrangem (10232)

Cale David - places; a proper \$1,070 Crawford Deady-plantage property (1881)

Desigles County replacing ingregoes (1990) Dell'in County in planning in program (1993)

Discords Detecty made regulationals (ATL)

Online County - planning in program (24 l2) Greens County + glanning in gray year (1136.1)

Jehnundenty-glannege gergen (12.001)

17. Manager Deuts, "glanning in gray and (4) (2) Name County - planning in program (19900)

Manual County-planning in program (12707)

10. Ogla Crushy – planning in project (2002) 17. Programment – planning in project (1804) 12. Parry Dranty - main regimenate (20,320)

10. Inhayle County "planting in progress (" 110) 11. Bulky Granty "planting in gray (21.18)

22. In Car County-planning in program (270,000)

Tegulates 2,728,202



Part 6 - Summary Review

Where did we confuse you in covering:

- HMGP
- FMA
- PDM
- Mitigation Planning



IEMA Point of Contact:

Sam Al-Basha
State Hazard Mitigation Officer
Illinois Emergency Management Agency
1035 Outer Park Drive
Springfield, IL 62704
217-785-9942 sam.m.al-basha@illinois.gov

IDNR-OWR Point of Contact Ron Davis 217-524-7200 Ron.davis@illinois.gov



FEMA Point of Contact:

Frank Shockey
Natural Hazard Specialist
536 South Clark Street
Chicago, IL 60605-1521

312-408-5321

Frank.shockey@fema.dhs.gov

IDNR/OWR Contacts:

DEPARTMENT OF NATURAL RESOURCES

Paul Osman Statewide Programs Manager (217) 782-4428 Paul.Osman@Illinois.gov

Ron Davis Downstate Floodplain Manager (217) 524-7200 Ron.Davis@Illinois.gov



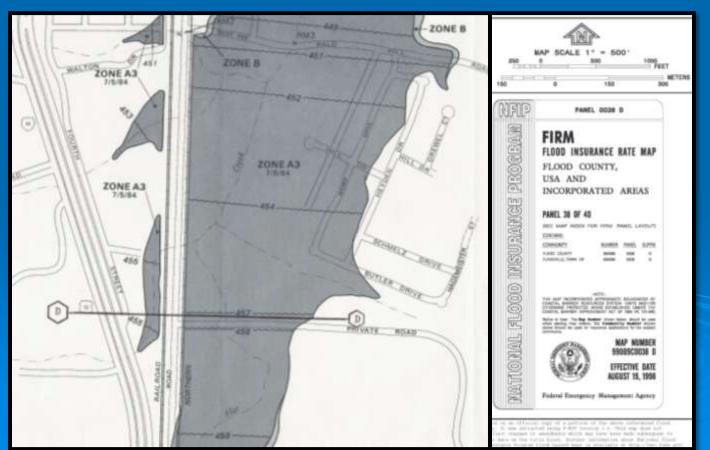
A great View! Look at all that GREEN in Grafton!



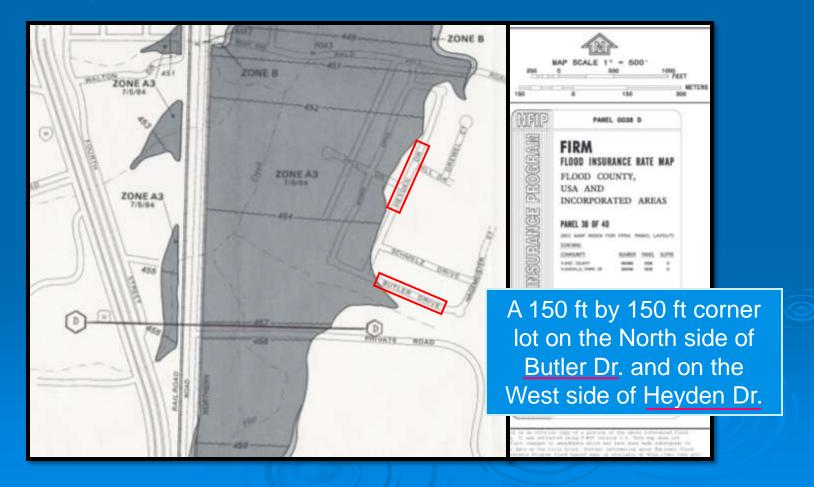
EXERCISE SLIDES

- New Residential Development
- Site Description
- What is the Baseflood Elevation on Map
- What is the Baseflood Elevation on Study Profile

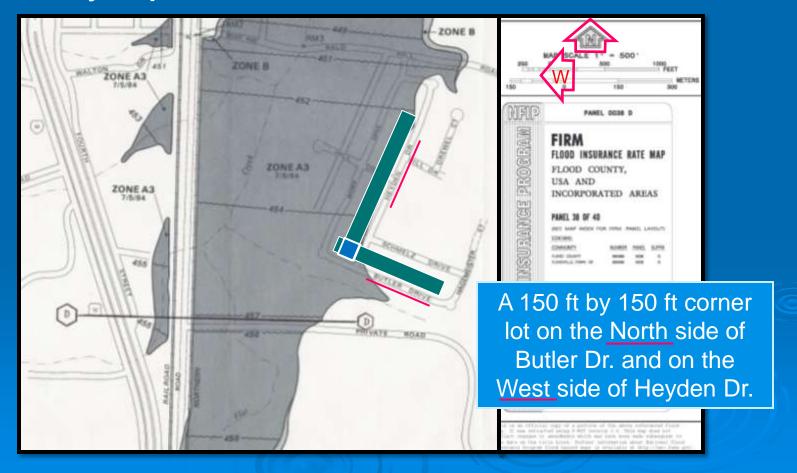
- First step
- Select Correct FIRM Panel



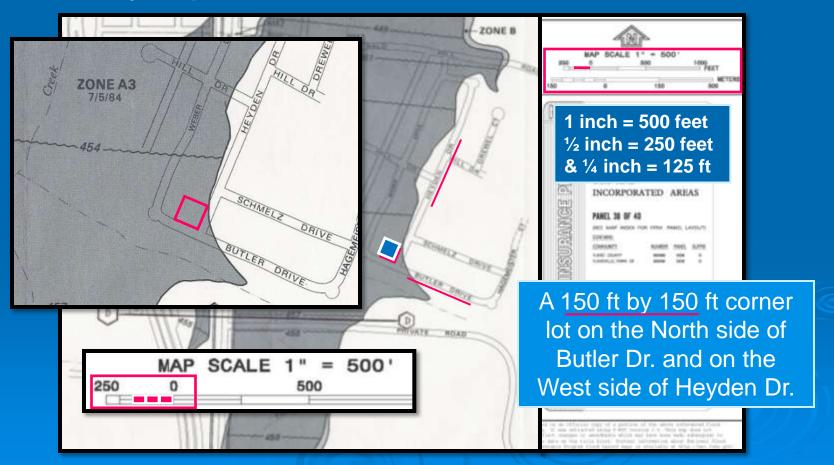
> Find General Location



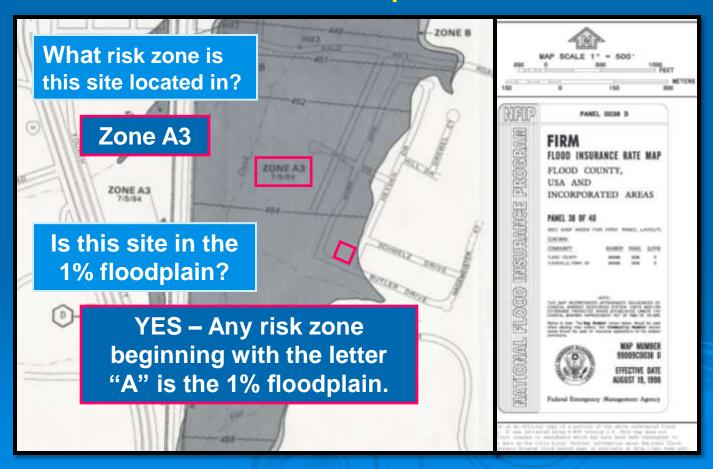
Identify Specific Location



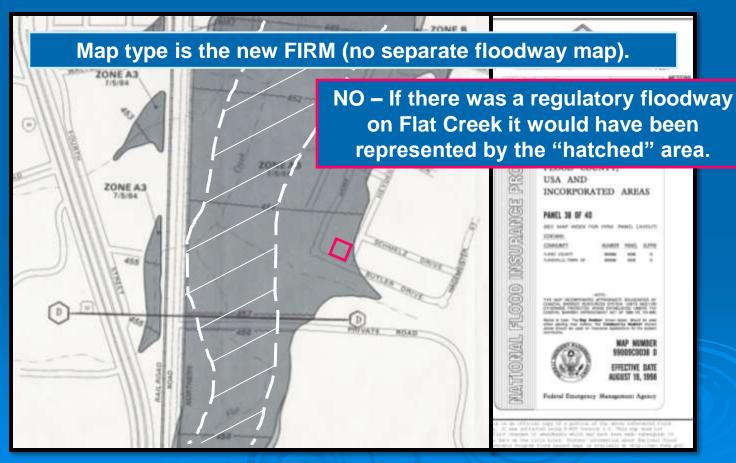
Identify Specific Lot



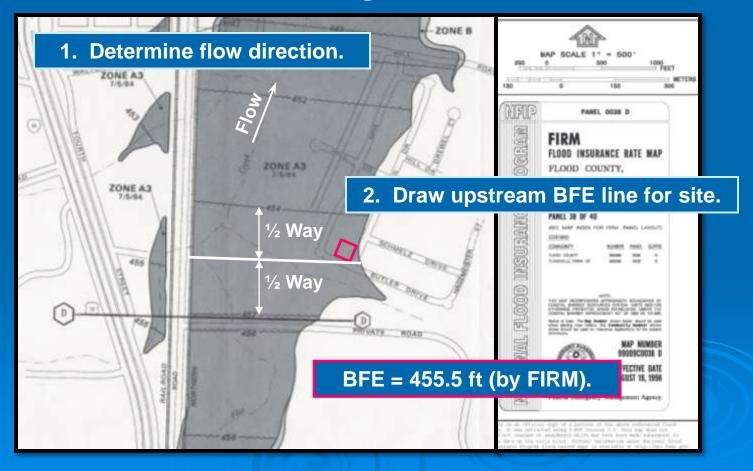
Is the Site in the Floodplain?



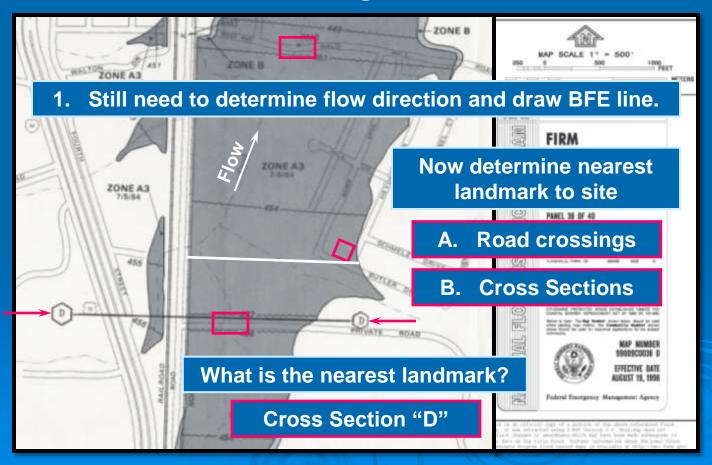
Is the Site in the Regulatory Floodway?



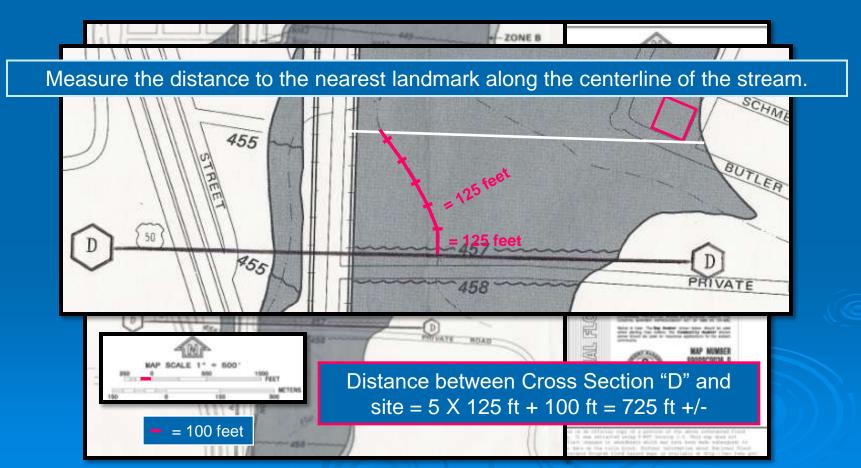
Determine BFE Using FIRM



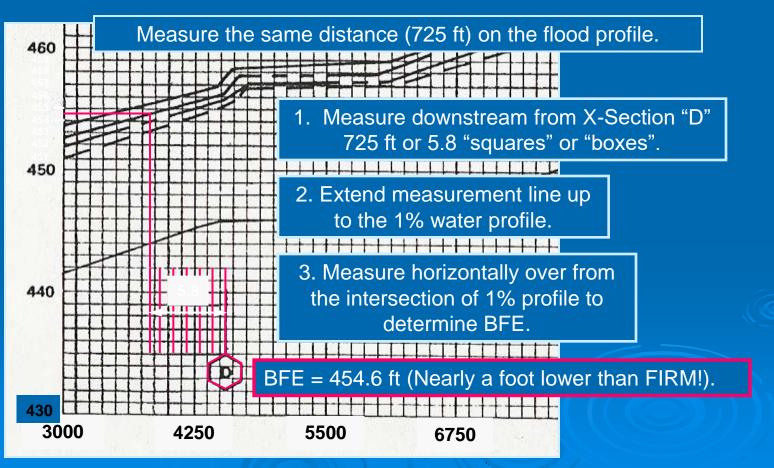
Determine BFE Using FIS Flood Profile



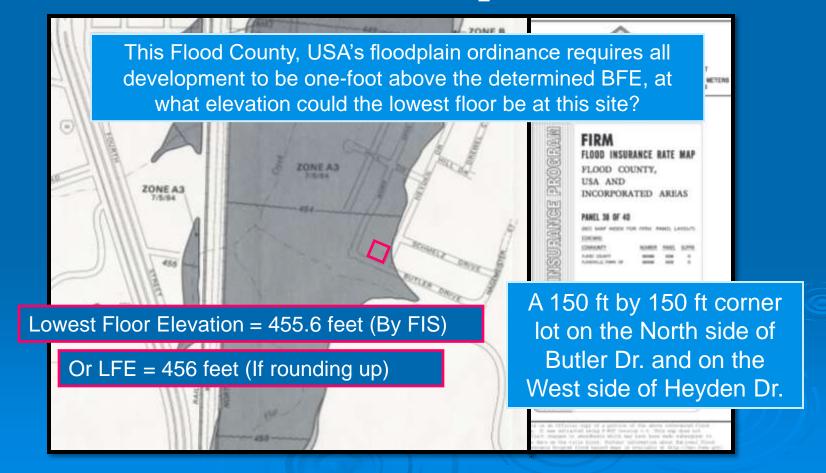
Determine Distance to closest Landmark



Determine BFE



> Additional Freeboard Requirements



ZONEX City of DeKalb ZONE X HILLDRESS ZONE X ZONEX ZONE ZONE AF ZONEX ZONE AE ZONE X ZONE ZONE X ZONEX RM 25 ZONEX ZONE X ZONE

Floodplain Exercise

Single family home located at 1212
Thornbrook Road (on the curve)

- 1. Floodplain?
- 2. Floodway?
- 3. Base Flood Elevation?
- 4. Construction method to use?

ZONE X City of DeKalb ZONE X ZONE X ZONEX ZONE X ZONE ZONE X ZONEX RM 25 ZONE X ZONE

Floodplain Exercise

A single family home located at 512 Woodley Road (southeast corner of Woodley Road and Miller Avenue) has suffered fire damage. The owner wants to repair the home.

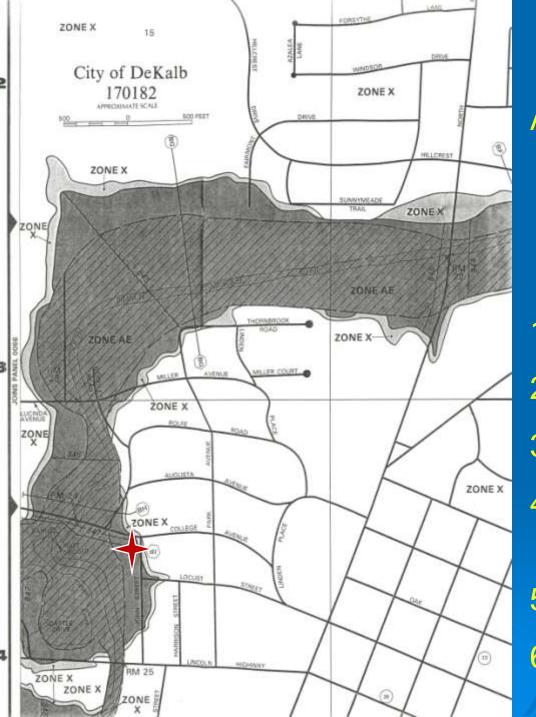
- Floodplain?
- 2. Floodway?
- 3. Base Flood Elevation?
- 4. Construction method to be used?

ZONE X City of DeKalb ZONE X ZONE X ZONEX ZONE ZONE AE ZONEX ZONE AE 3 ZONE X ZONE ZONE X ZONE X RM 25 ZONEX ZONE X ZONE

Floodplain Exercise

A convenient store is proposed at 2207 E. College Avenue (northeast corner of College and Rolfe Road

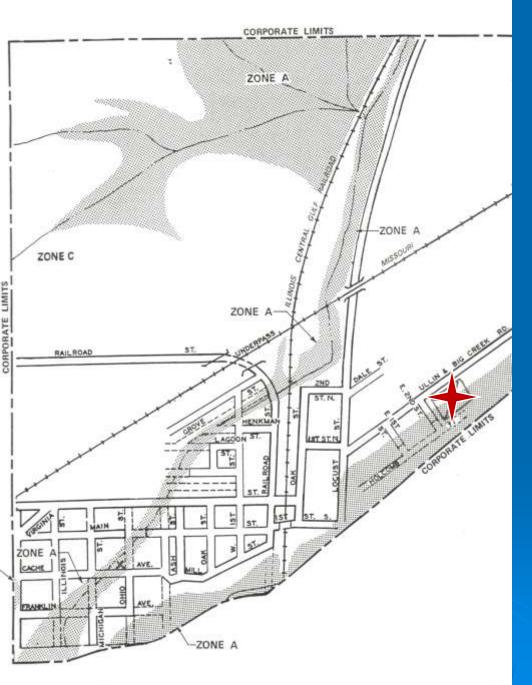
- 1. Floodplain?
- 2. Floodway?
- 3. Base Flood Elevation?
- 4. Construction method to be used?



Floodplain Exercise

A single family home is proposed at 1022 John Street (southwest corner of College Avenue and John Street)

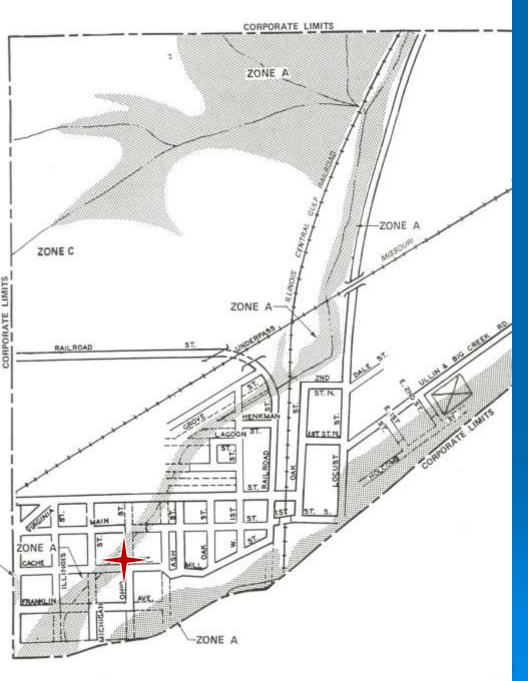
- 1. Floodplain?
- Floodway?
- 3. Base Flood Elevation?
- 4. Lender zone determination?
- 5. Filling on lot?
- 6. Nursing home w/ basement?



Floodplain Exercise

Ullin is getting a new
Super Walmart on the
corner of Ullin Road
and East 2nd Street!!!!

- 1. Floodplain?
- 2. Floodway?
- 3. Base Flood Elevation?
- 4. Construction methods to be used?



Floodplain Exercise

The Mayor of Ullin got a raise! He wants to do a \$100,000 improvement to his double-wide trailer. He lives on the corner of Ohio and Cache Street.

- 1. Floodplain?
- 2. Floodway?
- 3. State permit required?
- 4. Local permit required?
- 5. Base flood elevation?

Coastal Regs



coastal Floodplains

Definitions.....

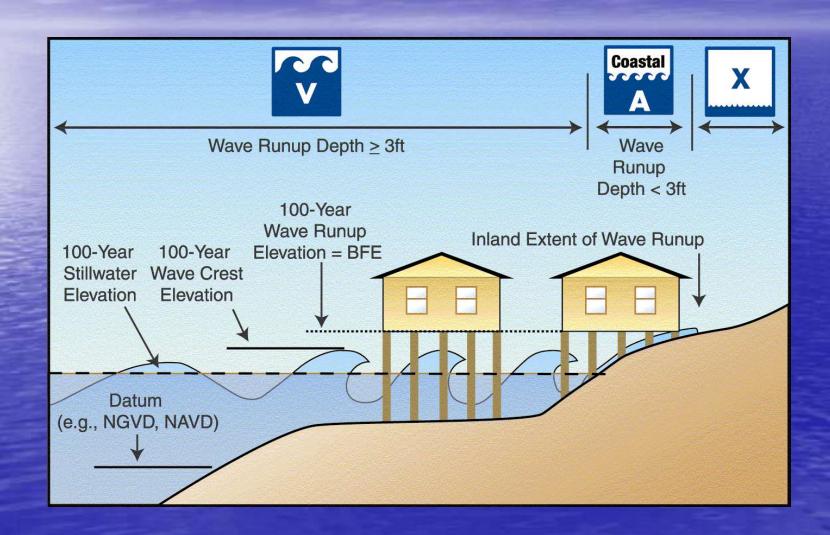
 Coastal High Hazard Area: an area of special flood hazard extending from offshore to the inland limit of a primary frontal dune along an open coast and any other area subject to high velocity wave action from storms or seismic sources. The area is designated on the FIRM as Zone V1 – V30, or VE or V.

Coastal Floodplains

Definitions.....

 Coastal A Zone: the portion of the SFHA landward of a V zone...which may be subject to wave effects, velocity flows, erosion, scour, or combinations of these forces and are treated as V zones.

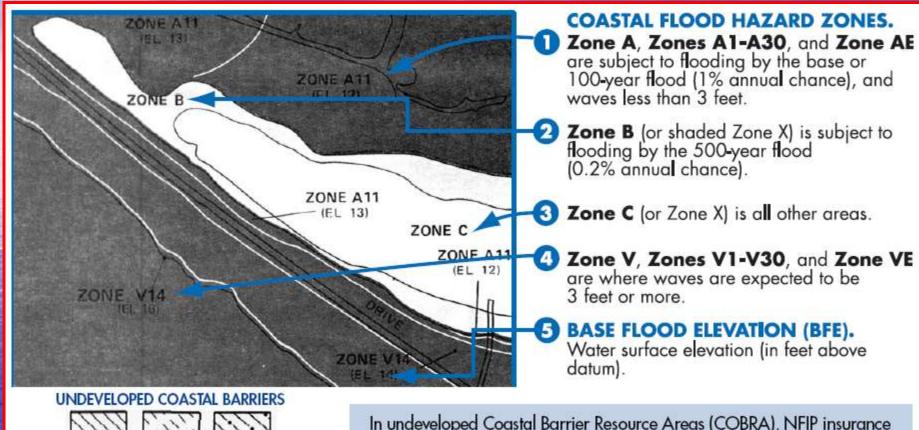
Coastal Floodplain



Goastal Floodplain Map



Levels of Detail in Floodplain Delineations



Identified

Protected Areas

Identified

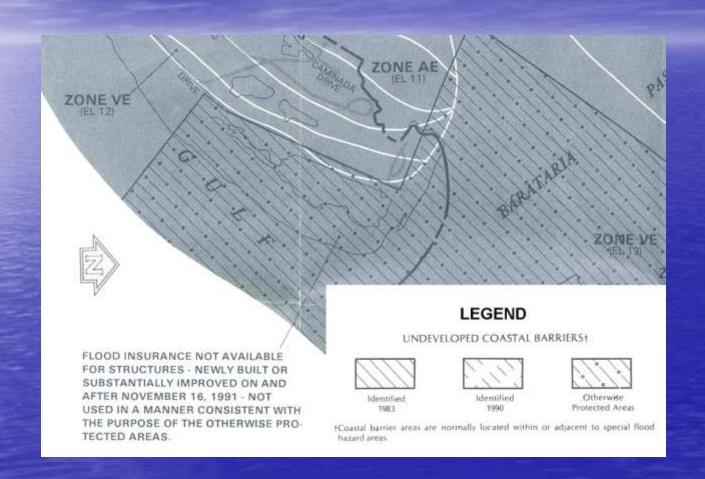
In undeveloped Coastal Barrier Resource Areas (COBRA), NFIP insurance is not available for new or substantially improved structures built after November 16, 1990.

Coastal Floodplain Map

Coastal Barrier Resource Act (CoBRA) of 1982 Coastal Barrier Improvement Act of 1990

 Areas subject to certain flood coverage restrictions. The NFIP is prohibited from writing flood insurance policies on new or substantially improved buildings in these areas.

Coastal Barrier Zones



- Mean High Tide: All new construction in V Zones must be located landward of the reach of mean high tide.
- Modification of Dunes: Prohibit man-made alteration of sand dunes in V Zones.

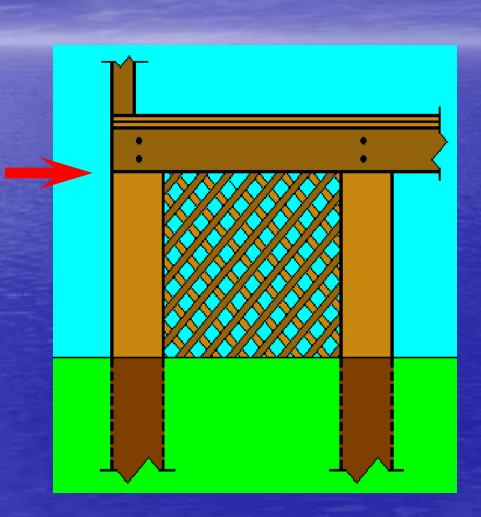
Methods to Elevate Buildings in a V Zone

 New and substantially improved structures must have the bottom of the lowest horizontal member at or above the BFE.

Building Protection Standards

Coastal High Hazard or V Zone Construction (cont.)

Bottom of the lowest horizontal structural member supporting the lowest floor





VZone Building Design and Performance Certificate



For New Construction, Substantial Improvements, and the repair or damage lobuildings in Coastal Special Rocal Hazard Area (Zone V)

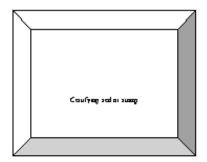
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Walling Address				
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Other Legal Descript	kn			
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Foundation Desc 5. Approximate dep	i horiscountero	sion used for thu	ndalon design	

Section 3: ViZone Cartifying Statement

I certify that I have developed or reviewed the shuctural design, plans, and specifications for consiste ion and that the proposed design and me hads officers function are in accordance with accepted standards of practice formed ing. The following provisions:

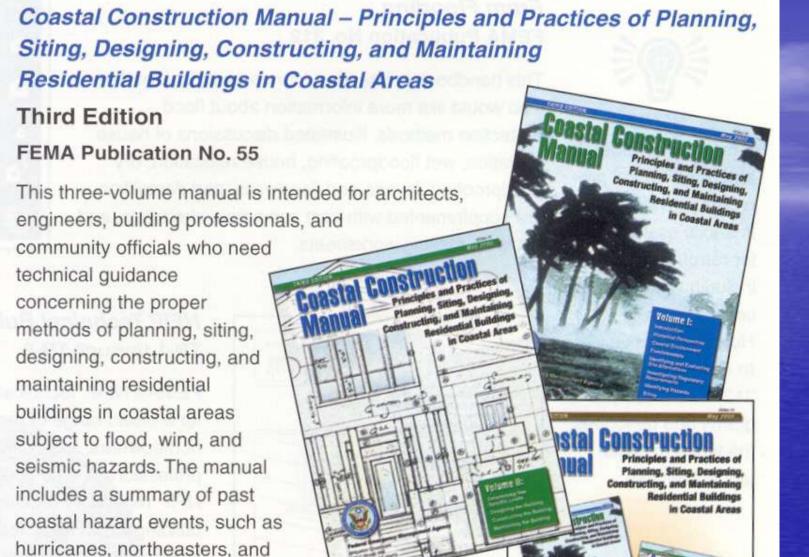
- The bollom of he lowes thorizontal sincural member of he lowest floor (including piles and columns) is elevated to above the BFE; and
- The pile or column fourdation and sinciple alladed here bits anchored to resist incitation, collapse, and takend moument lost to the effects of which and water loads string shrull be recously on all building components. Water loading use used are hose exceptibled with the base food. Wind loading usines used are hose required by the applicable State or local building code. The potential for scour and encolonal the foundation has been an logated for conditions associated with the base food, including water action.

Signature						
Phore Number	BIAL					
Represening						
Address						
CIM	State	Zn Code				



coastal High Hazard Areas or V Zones

- Structural Fill is prohibited to support buildings.
- Nonstructural fill, such as might be used for landscaping, should be placed so that it does not divert waves and surging floodwaters onto other structures.



hazards and regulatory requirements that affect coastal construction; and detailed design guidance, including formulas and example problems.

tsunamis; a discussion of coastal

connecting the Load Path in the V Zone

- Continuous path from roof to wall to foundation
- Materials that resist deterioration







V Zone / Breakaway Wall Certificate

In V Zones, the applicant must include the V
Zone Certificate and an engineer's certification of
design on a breakaway wall.







Altering Sand Dunes

 Your flood damage prevention ordinance prohibits manmade alterations of sand dunes that will increase potential flood damage.

COBRA

- NFIP insurance not available.
- You must still review and issue permits.

Permit Issuance (continued)

