Floodplain Regulations in Depth

OEP Spring Planning & Zoning Conference
June 11, 2011

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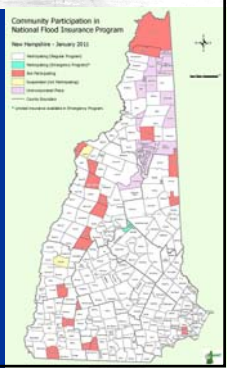
Overview of Presentation

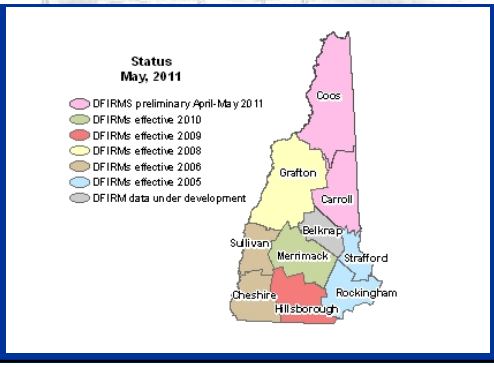
- NFIP Update
- 12 Key Floodplain Regulations
  - Building Code Requirements
  - Higher Standard Regulations
- Questions

NFIP in New Hampshire

- 214 communities (91%) participate
- 21 communities (9%) do not participate
- 2 communities are suspended



New Mapping in NH



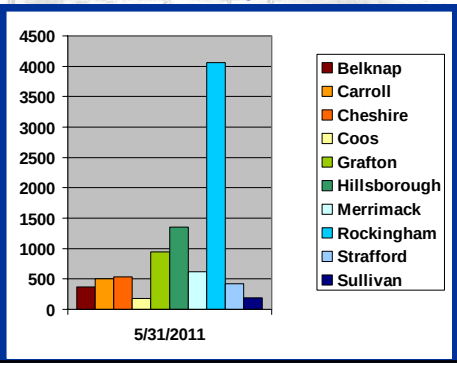
Differences between FIRM and DFIRM

Dover

Where Can I get Map or Study?

- **FEMA Map Store** (www.msc.fema.gov) for viewing, printing a FIRMette, and purchase of digital data only
- **NH GRANIT** (www.granit.unh.edu/dfirms/) for DFIRMs: on-line viewing of pdf copies maps and studies, free download of GIS data, and purchase of paper copies
- **Town Halls and NH OEP** – view paper copies of maps & studies

Flood Insurance Stats – New Hampshire



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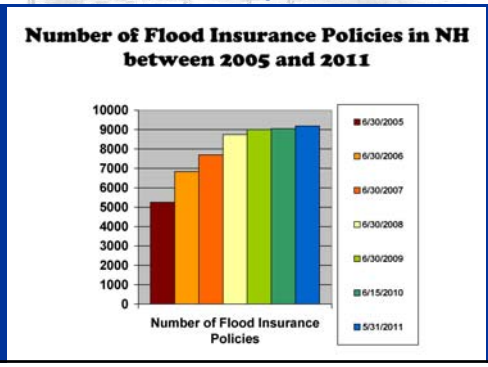


Flood Lines Newsletter

- NH NFIP newsletter
- Email distribution list
- To be added go to: www.nh.gov/oep/newsletters.htm

Certified Floodplain Manager Exam (CFM)

- Professional certification through ASFPM
- Refresher course (full day)– Aug 26
- CFM Exam (3-hours) – Aug 30
- Deadline to apply – Aug 12 (Fees)
- www.nh.gov/oep/programs/floodplainmanagement/education_and_training.htm

12 Key Floodplain Regulations

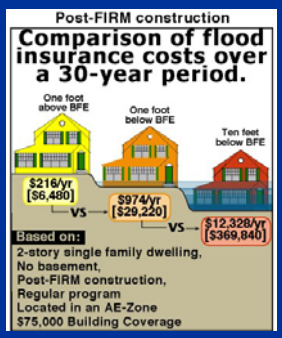
Floodplain Regulations

- Source of the regulations is the Code of Federal Regulations (Chapter 44, Section 60.3).
- NH OEP developed model floodplain development ordinances that contain the NFIP minimum requirements.
- Communities are strongly encouraged to adopt regulations that exceed the NFIP minimum requirements.

Floodplains are for Floods

Construction Implications on Flood Insurance

- Building not built to regulations = very high premiums or insufficient coverage
- Submit-for-rate properties (lowest floor is 2 ft or more below BFE)
- Building built to minimum regulations or more = pay less

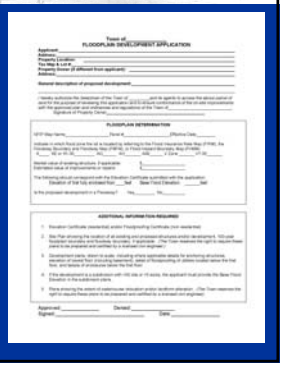


Building Codes

- NH Building Code (revised April 1, 2010) includes:
  - International Building Code (IBC) 2009
  - International Residential Code (IRC) 2009
- 2009 IBC and IRC include regulations pertaining to development in special flood hazard areas
- The codes reference the nationally recognized standard produced by the American Society of Civil Engineers, *Flood Resistant Design and Construction* (ASCE 24)

#1 Permitting

All proposed **development** in a special flood hazard area shall require a permit



Development Examples

New Construction

Substantial Improvement

Development Definition

Any man-made change to improved or unimproved real estate, including <u>but not limited to buildings or other structures</u>, mining, dredging, filling, grading, paving, excavating or drilling operation or storage of equipment or materials.

Minor Development

- Have discretion to exempt small projects (e.g. planting a garden, installing a mailbox, routine maintenance). (Ex. Exempt projects valued less than $500)
- **The Key** – whether the development will present a new obstruction in flood flows, alter drainage, or have the potential to be a substantial improvement

#2 Construction Requirements

All new construction/substantial developments:

- Are designed (or modified) and adequately anchored to prevent flotation, collapse, and lateral movement.
- Are constructed with flood-resistant materials.
- Use methods and practices to minimize flood damage.
- Protect utilities and other service facilities from intrusion of floodwaters.

Anchoring

- Normal building practices usually suffice
- When anchoring is needed:
  - Where flood flows are fast (floodway)
  - In coastal areas with waves and high winds
  - Manufactured homes

Building Code details more specific reqs.

Flood Resistant Materials

- FEMA Technical Bulletin #2 (www.fema.gov/plan/prevent/floodplain/techbul.shtm)
- Updated in August 2008

Building Code details more specific reqs.

#3 Certification

- **Elevation Certificate**
  - Community required to keep elevation data on file
  - Rate a Flood Insurance Policy
  - Support a FEMA Letter of Map Amendment application
- **Floodproofing Certificate**
  - For use on non-residential structures only
  - Used instead of elevation

Building Code details more specific reqs.

#4 Utility Requirements

Utilities should be designed and/or located so as to prevent water from entering or accumulating within the components

Building Code details more specific reqs.

Protecting Utilities

- Raise HVAC components.
- Install backflow valve.
- Elevate electrical components.
- Anchor fuel tanks.
- Waterproof veneer.

Water and Sewer Systems

- Within a special flood hazard area require:
  - New/replacement sewage systems that minimize or eliminate infiltration of floodwaters.
  - Location of onsite waste disposal systems to avoid impairment to them or contamination from them.

Building Code details more specific reqs.

#5 Other Permits

- Applicant: Must secure other required permits and approvals BEFORE a permit for floodplain development is granted.
- Local Floodplain Manager should know applicable Federal and State regulatory programs.

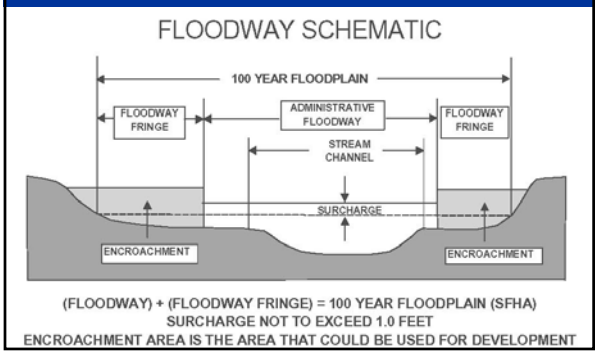
US Army Corps of Engineers

Environmental Services

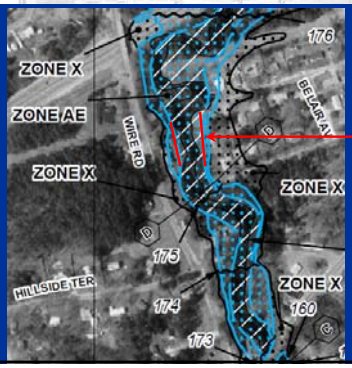
#6 Floodway

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 cumulatively increasing the water surface elevation more than a designated height.

Floodway Cross-Section



Watercourses with a Regulatory Floodway

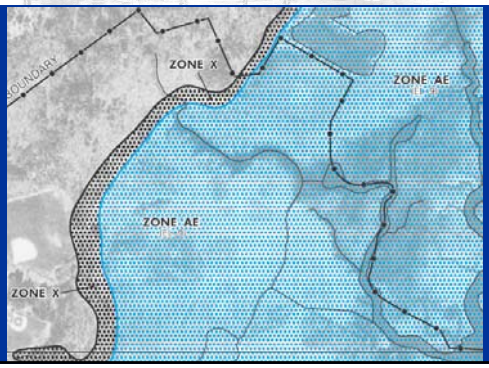


Floodway is the white hatched area

Watercourses with a Regulatory Floodway

No encroachments, including fill, new construction, substantial improvements, and other development are allowed within the floodway unless it has been demonstrated through hydrologic and hydraulic analyses performed in accordance with standard engineering practices that the proposed encroachment would not result in **<u>any increase in flood levels</u>** within the community during the base flood discharge.

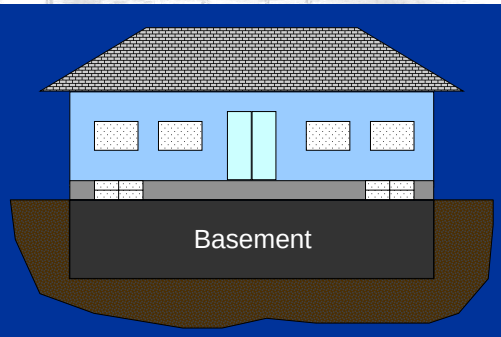
Watercourses without a Regulatory Floodway



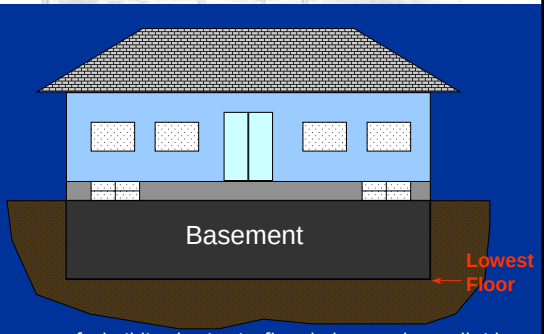
Watercourses without a Regulatory Floodway

No new construction, substantial improvements, or other development (including fill) shall be permitted within Zone A1-30 or AE on the FIRM unless it is demonstrated by the applicant that the cumulative effect of the proposed development, when combined with all existing and anticipated development, will **<u>not increase the BFE more than 1 foot</u>** at any point within the community

#7 Basements

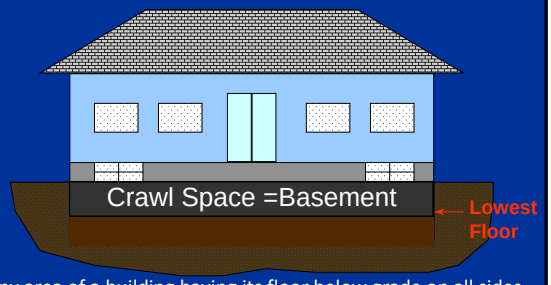


Basements



Any area of a building having its floor below grade on all sides.

Basements



Any area of a building having its floor below grade on all sides.

#8 Lowest Floor

Requires that the **lowest floor** of new and substantially-improved or damaged structures be elevated at or above the **base flood elevation**

Elevated Foundation

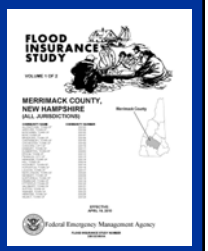
Building Code details more specific reqs.

Non-Residential Floodproofing

Building Code details more specific reqs.

Base Flood Elevation Determination

- **Zone AE or A1-30**
  Base flood elevation can found in the Flood Insurance Study (BFE is rounded on map)
- **Zone A** – No base flood elevations determined

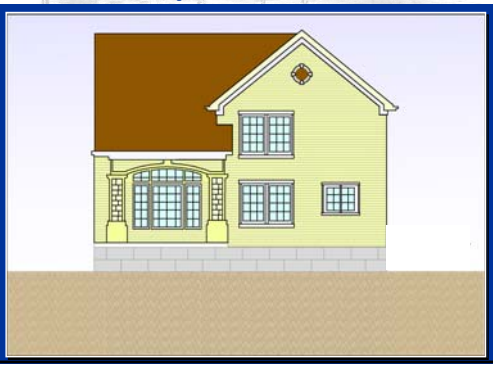


The Lowest Floor

- The floor of the lowest enclosed area, including a basement.
- Can have an enclosure under the lowest floor that is:
  - used solely for storage, building access, or parking;
  - not a basement area; and
  - contains the proper amount of flood openings

Lowest Floor

Find the Lowest Floor Crawl-Space Foundation



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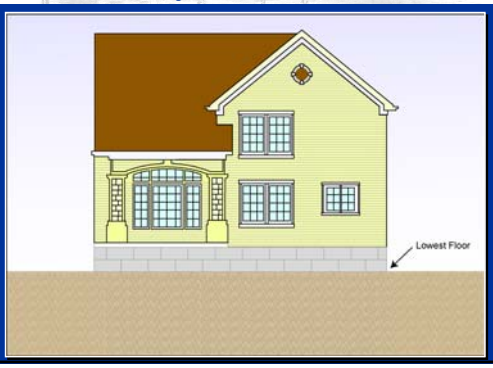

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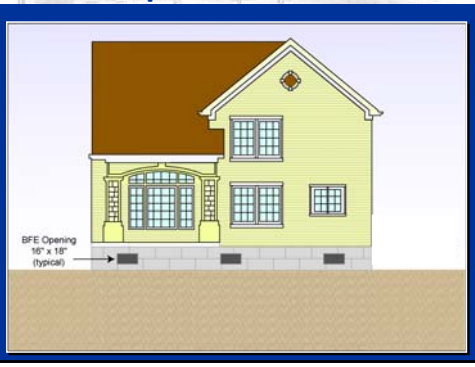

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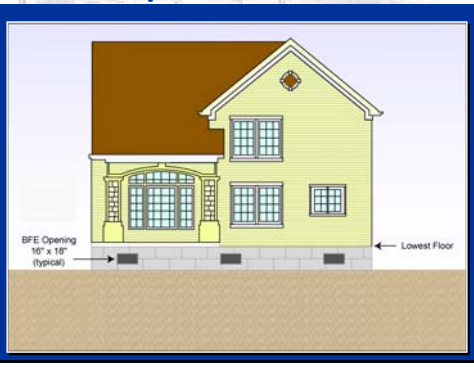
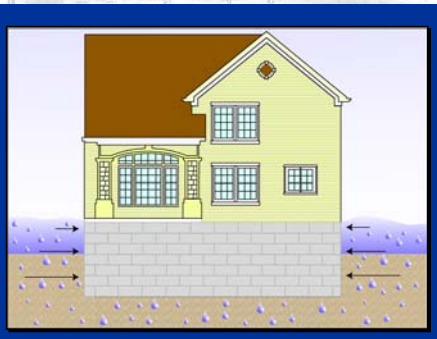


#9 Enclosures/Crawlspaces



Hydrostatic Forces

Flood Openings

Flood Openings

- FEMA Technical Bulletin #1 (www.fema.gov/plan/prevent/floodplain/techbul.shtm)
- Updated in August 2008

Building Code details more specific reqs.

#10 Zone A with no BFE

Community shall obtain, review, and reasonably utilize any 100-year flood elevation data available from any federal, state, or other source including data submitted for development proposals submitted to the community (i.e. subdivisions, site plan approvals)

FEMA Guidance Document

Managing Floodplain Development in Approximate Zone A Areas

www.fema.gov/plan/prevent/fhm/dl_zonea.shtm

Development Less Than 50 Lots or 5 Acres in Zone A

- Use Simple Method to Estimate BFE
- Lowest floor elevated 1 to 2 ft above the experienced flood event
- Lowest floor elevated 2 to 5 ft above highest adjacent grade
- **No basements!**

Post-FIRM Zone A - No Basement/Enclosure $100,000 Bldg Coverage Estimated Annual Cost

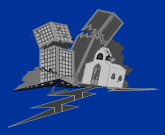
Elevation Difference (Lowest Floor above HAG)	Estimated Flood Insurance Annual Premium
+5 feet or More	$444
+2 to +4 feet	$1,014
+1 feet	$2,040
0	Special Rating

#11 Substantial Improvement

Means any reconstruction, rehabilitation, addition, or any other improvement of a structure, the cost of which equals or exceeds 50% of the market value of the structure before the start of construction of the improvement. This term includes structures that have incurred **substantial damage**.

Substantial Damage

Damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50% of the market value of the structure before the damage occurred.



www.fema.gov/library/viewRecord.do?id=4160

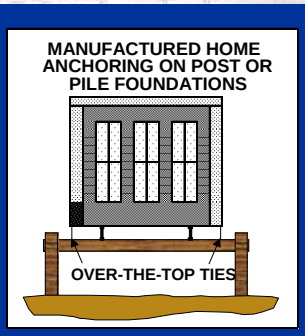
Substantial Improvement/
Substantial Damage
Desk Reference

FEMA P-758 / May 2010

FEMA

#12 Elevated Manufactured Home

Anchoring a Manufactured Home



Displaced Manufactured Home

Recreational Vehicle Requirements

Allowed if on-site for fewer than 180 consecutive days

AND

Recreational Vehicle Requirements

Be fully licensed and ready for highway use

Subdivision and Site Plan NFIP Requirements

- PB shall must assure all necessary permits have been received
- PB shall require submittal of evidence:
  - All proposal minimize flood damage
  - All public utilities & facilities are located & constructed to minimize or eliminate flood damage
  - Adequate drainage is provided

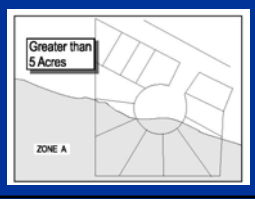
Development Greater Than 50 Lots or 5 Acres

- PB shall require that all proposals for development greater than 50 lots or 5 acres, whichever is the lesser, include Base Flood Elevation (BFE) data within such proposals (i.e. floodplain boundary and 100-year flood elevation).
- Detailed Study Needed

Development Greater Than 50 Lots or 5 Acres *(cont.)*

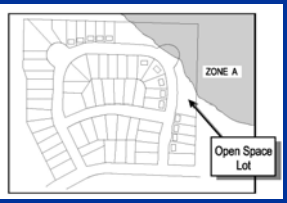
- Proposed 76-lot subdivision
- BFE data required for affected lots

- Proposed 12 lot/ 6.7 acre subdivision
- BFE data required for affected lots



Development Greater Than 50 Lots or 5 Acres *(cont.)*

- Proposed 76-lot subdivision
- Entire Zone A contained entirely in open space lot
- BFE data may not be necessary



Variances

- Grant of relief by a community from the terms of a floodplain management regulations
- Granting variances is a local decision that must be based on not only NFIP criteria, but also on state law and other provisions the community requires.

Variance Requirements

- For floodplain management purposes only.
- May significantly increase the cost of flood insurance.
- Pattern of inconsistent variances can result in sanctions against community.
- Designated historic structures and functionally dependent facilities receive special consideration.

Insufficient Reasons for a Variance

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

Reasons for Granting a Variance

- Unnecessary hardship – burden of proof on applicant
- Reasons must be substantial
- Proof must be compelling
- Must weigh hardship against purpose of ordinance

If a Variance Is Issued

- Notify applicant in writing:
  - Higher insurance premiums ($25 for $100 of coverage)
  - Greater risk to life and property
- Maintain records
  - Variance request
  - Notification to applicant
  - All variance actions/procedures, including denials, and justifications
- Report variance actions in biennial report to FEMA

A Word of Advice

- Do not grant variances!
  - People and property are placed at risk.
  - Flood insurance costs skyrocket.
- If you do grant a variance, be sure to document!
- Documentation is your community's only protection after a flood that causes damages.

Other Higher Regulations

- Preserve floodplain areas – limit uses and structures
- Prohibit critical facilities from both 100-year and 500-year floodplain areas
- Require structures be setback from waterbodies a certain distance
- Eliminate flood prone areas from lot size calculations

Questions

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www.nh.gov/oep/programs/floodplainmanagement/