



New Hampshire Floodplain Management Program Fact Sheet #3

Preventing Common Building Violations

Basements and Enclosures

One NFIP requirement in a participating community's floodplain regulations and in the state building code is that the lowest floor of residential structures must be located at or above the Base Flood Elevation (BFE). In many instances, in order to get the lowest floor up to or above the BFE, foundation walls are used which create an enclosure (i.e. crawlspace).

Enclosures are allowed below the BFE BUT they must meet that criteria that the automatic entry and exit of floodwaters is allowed so that interior and exterior pressures of the floodwaters will equalize during a flood and thereby reduce damage to the enclosure and the structure during a flood event. Enclosures located below the BFE must meet the following three minimum criteria:

1. Unfinished Area/Limited Uses

The enclosed area must be unfinished or flood resistant and used only for the parking of vehicles, building access, or storage. This area will be subject to water entering and exiting so it should be designed and used to handle wetness.

2. No Basements or Areas Below Ground on All Sides

The area cannot be a basement or any other area in which its floor is below the ground on all sides. An area with a floor below the ground on all sides would act as a bathtub as water entered the enclosure and would not allow floodwaters to easily and quickly move out of the enclosure.

3. Flood Openings

The enclosed area must have flood openings. Flood openings are a series of small openings installed in the enclosure's walls. The flood openings relieve the pressure of floodwater on the exterior enclosure walls by allowing floodwaters to enter the enclosure and put pressure on the interior walls, which will equalize the pressure on the enclosure walls. Structures with enclosures that do not have openings are at risk of damage or collapse due to the uneven pressure the floodwaters will have on the enclosure walls.

Designs for flood openings must either meet or exceed the following minimum criteria:

- A minimum of two flood openings with a total net area of not less than 1 square inch for every 1 square foot of enclosed area subject to flooding must be provided. The openings should be installed on at least two sides of each enclosed area to decrease the chances that all openings could be blocked with floating debris.
- The bottom of each opening must be no higher than 1 foot above the higher of the final interior or exterior grades under the opening.



Figure 6: Engineered openings in garage doors

- The openings may be equipped with screens, louvers, valves, or other coverings or devices—provided that they permit the automatic entry and exit of floodwaters. The openings must remain open at all times.

For those who want unique or individually designed openings, they must be certified by a registered engineer or architect. They must still be designed to automatically allow the entry and exit of floodwaters.

Related resources:

[FEMA's Technical Bulletin 1, Requirements for Flood Openings in Foundation Walls and Walls of Enclosures](#)
[FEMA Technical Bulletin 2, Flood Damage-Resistant Materials Requirements](#)

Mechanical and Utilities Equipment

Minimum NFIP requirements requires that electrical, heating, ventilation, plumbing, and air conditioning equipment, and other service facilities are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding. Therefore, these mechanical and utility components are prohibited below the BFE (except for the minimum electric service required to address life safety and electric code requirements).

Related resources:

[Protecting Building Utility Systems from Flood Damage](#)

Elevation Certificate

One of the best things a community official can do to ensure that enclosures below the BFE are built in compliance is to require the submittal of FEMA's Elevation Certificate. The purpose of the Elevation Certificate is to gather elevation information necessary to ensure compliance with community floodplain regulations.

A sample Elevation Certificate that explains where community officials should verify that enclosures below the BFE, flood openings, and mechanical and equipment of new or substantially improved structures are compliant with the previously mentioned NFIP requirements can be viewed in our [Fact Sheet #2 Elevation Certificates](#).

Related resources:

[Floodplain Permit Process, Applications and Certificates](#)

How Violations Impact Flood Insurance

It is not only important for community officials to ensure these requirements are met to prevent flood damage to the structure but also to prevent the homeowner from paying a high cost for flood insurance. Flood insurance rates are directly tied to a variety of factors, including but not limited to foundation type, first floor height, number of floors, and construction type.

For example, a policy holders insurance premium rate may be higher if they have an enclosure below grade or non-elevated utilities.

Related resources:

[Risk Rating 2.0: Equity in Action \(floodsmart.gov\)](#)

New Hampshire Floodplain Management Program and Resources

The NH Floodplain Management Program is a program of the Office of Planning and Development (OPD) within the NH Department of Business and Economic Affairs. OPD is the state coordinating agency for the NFIP and works in partnership with FEMA. For more information about the Program and the services it provides or to view FEMA resources and guidance documents, please visit the NH Floodplain Management Program's [website](#) or contact the team via 603-271-1755 or planning@livefree.nh.gov.