Basement or Elevated Building

Know the Difference

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It is important to know the difference between what the National Flood Insurance Program considers a basement and an elevated building. In order to determine the difference between the two building types, the first step is to define a basement and a subgrade crawl space.

**Definition of a Basement**

**BASEMENT** – Any area of the building, including any sunken room or sunken portion of a room, with its floor below ground level (subgrade) on all sides. A basement is considered a Diagram 2 (non-elevated).

**SUBGRADE CRAWLSPACE** – Crawl space floor is within 2 feet of the Lowest Adjacent Grade (LAG) and the distance between the next higher floor is 5 feet or less. A subgrade crawl space is rated “with basement” rates. A subgrade crawl space is considered a diagram 9 (non-elevated).
**Subgrade Crawlspace vs Basement**

Why does the flood program make a distinction between the two? The answer is because of rating. Although both basement and subgrade crawlspace identify structures with the lowest floors below ground level, subgrade crawlspaces that have an elevation difference of -1 or lower in other words the Base Flood Elevation (BFE) is higher than the crawlspace floor or C2a could possibly be rated as a submit-for-rate, which may result in less expensive rates. Basements do not have this advantage.
**Is it a Basement or Subgrade Crawl?**

Let’s look at an example to determine if a structure would be defined as a basement or as a subgrade crawlspace.

By looking at the numbers from the elevation certificate, the top of the bottom floor which is noted by C2.a on the elevation certificate is 100.3. The lowest adjacent grade noted by C2f on the elevation certificate is 102.9. If C2a, 100.3 minus c2f, 102.9 is more than 2, then the structure is considered a basement.

In this example, 100.3 - 102.9 = -2.5, which means that the top of the bottom floor is more than 2 feet below the lowest adjacent grade making this structure a basement.

The subgrade floor and the basement floor are always considered the lowest floor for rating regardless if the building has a basement or a subgrade crawlspace.

**Basement and Subgrade Crawlspace Coverage Limitations**

Coverage limitations in basements apply to all zones and all buildings. Coverage extends to the items that service the structure. If it is not on this list it is not covered.

Items covered in a basement include:
• Central air conditioners
• Cisterns and the water in them
• Drywall for walls and ceilings in a basement and the cost of labor to nail it unfinished (unfrosted, and not taped) to the framing
• Electrical junction and circuit breaker boxes
• Electrical outlets and switches
• Elevators, dumbwaiters, and related equipment, except for related equipment installed below the BFE after 9/30/1987
• Fuel tank and the fuel in them
• Furnaces and hot water heaters
• Heat pumps
• Nonflammable insulation in a basement
• Pumps and tanks used in solar energy systems
• Stairways and staircases attached to the building not separated from it by elevated walkways
• Sump pumps
• Water softeners and the chemicals in them, water filters and faucets installed as an integral part of the plumbing system
• Well water tanks and pumps
• Required utility connections for any item in this list (electric, gas, and sewer are the only utilities acceptable for coverage in the flood program)
• Footings, foundations, posts, pilings, piers, or other foundation walls and anchorage systems required to support a building
• Cleanup
• Air conditioning units, portable or window type (covered under contents coverage)
• Clothes washers and dryers (covered under contents coverage)
• Food freezers, other than walk-in, and the food in the freezer (covered under contents coverage)

Elements Not Covered

• Contents items not specifically listed above
• Improvements such as finished walls, floors (flooring or carpets), and ceilings
• Building equipment and fixtures not specifically listed above

A bathroom located in the basement would not be covered. A big screen TV located in a basement or the sunken room would also not be covered. Regarding the list of covered items on the slide, you'll notice, no personal property, nothing finished is covered.
When a community joins the NFIP, guidelines are put in place regarding compliance for building purposes. Buildings codes and ordinances are mandated for flood purposes. To comply with those floodplain regulations, the lowest floor of a structure should be built at or above the BFE.

When the floor of a basement or subgrade crawlspace is built, that floor is below ground level and therefore below the BFE making the structure non-compliant for NFIP purposes. Due to this coverage in those areas will be restricted by the flood program.

**What is an Elevated Building?**

The NFIP defines an elevated building as a building that has no basement and that has its lowest elevated floor raised above ground level by foundation walls, shear walls, posts, piers, pilings, or columns. Elevated structures can also be elevated with solid perimeter foundation walls.

A structure elevated with any type of enclosure and located in an A zone must have the enclosed areas properly vented in order to be compliant with the flood program. The flood vents reduce the hydrostatic pressure in the event of a flood whose depth is more than 1 foot deep.

When working with structures in V zones, solid perimeter walls are not compliant and not an acceptable means of elevating buildings. Elevated structures may or may not have an enclosure below the lowest elevated floor.

**Elevated No Enclosure**

The structure in the photo above is elevated on pilings. To be compliant with floodplain management regulations, the lowest floor of any structure should be elevated above the base
Mobile Homes

This photo shows an example of a mobile home that has the lowest living floor elevated off the ground by means of blocks with the standard vinyl skirting. This type of structure is considered a diagram 5 or elevated without and enclosure.

Elevating the structure in this manner elevates the lowest living floor to lessen the flood damage to the lowest living floor. The standard vinyl skirting is designed to break up and float away when flood waters hit.

Another setup for mobile or manufactured homes is to place the structure on solid perimeter walls as we see in the photo on the left.

Solid perimeter walls will not break away during a flood therefore cannot be classified as a diagram 5 or elevated without enclosure.

In fact mobile/manufactured homes elevated on solid perimeter walls are considered to be a diagram
8 or elevated with an enclosure.

**Enclosure versus No Enclosure**

There are occasions when a Diagram 5 or Elevated with no enclosure is improved or altered so that an enclosure is added below the lowest elevated floor. How will that affect the flood policy?

If the policy was rated with an elevation certificate that did not indicate the structure had an enclosure, then the certificate will need to be amended to reflect the new enclosure information.

The NFIP will need verification that the enclosure was built in compliance with the floodplain management regulations. Depending on the enclosure specifications, the policy may need to be rewritten and possibly re-rated according to the new information.

If a loss occurs and the policy was not rated applying the new enclosure information, then the policy will be re-underwritten and rated correctly prior to the loss adjustment being made, which could delay the claim payment.

**Elevated Buildings – Partial Enclosures**

There are occasions when the elevated structure is constructed with partial enclosures as seen in the photo above. The structure in the photo above reflects the lowest living floor elevated on pilings, posts, piers, columns or parallel shear walls. These types of structures are often found in coastal areas.

Regulations do vary according to flood zone. The structures pictured above happen to be located in an A zone. To be compliant with flood plain management regulations, the enclosed area needs to have proper venting.
Compliance with the venting guidelines will determine where the lowest floor for rating will be. If the enclosure does meet the venting criteria, the lowest floor for rating will be the top of the next higher floor (finished living floor) which is C2b from the Elevation Certificate. If the enclosure does not meet the venting criteria as stipulated by the NFIP regulations, the floor of the enclosure, which is the top of the slab of the enclosure or C2a from the elevation certificate, must be used as the lowest floor for rating.

In the flood program the higher the rating floor is above the base flood elevation, the lower the rates will be. Rating from the top of the slab will not give the insured the most optimal rates.

**Venting Guidelines – A Zones Only**

As flood waters rise the water builds up against a foundation or wall and creates pressure.

If this pressure is not equalized the foundation could be damaged and possibly collapse. Flood vents are engineered to equalize such pressure which called hydrostatic pressure.

For this reason, structures located in A zones with enclosures located below the elevated living floor must be properly vented to be compliant with floodplain regulations.

Mandates for compliant flood venting are: A minimum of 2 vents, located on at least 2 different walls. There should be 1 square inch of venting per 1 square foot of enclosed space and the vents also have to be no more than 1 foot off of the ground and be permanently open without human intervention.

**Elevated with Enclosure**

Let’s look at an example to determine if the enclosure is adequately vented to meet NFIP guidelines and also determine what floor can be used as the lowest floor for rating purposes. The photos below do reflect venting in the enclosure.
From the elevation certificate below, we can calculate whether the vents are compliant. Based on the information shown, we know there are 4 vents in the enclosure within one foot of ground level. The enclosure size is 240 square feet. Based on surveyor’s measurements there are 272 square inches of vented space.

- One of the guidelines is that there must be a minimum of 2 vents on different walls. We can see in the photo above this criteria has been met.

- Next, there is 272 square inches of venting for a 240 square foot space, which is compliant as well.

- Based on the vents being compliant with NFIP guidelines, we are able to use the elevated floor for our rating purposes. This is called the next higher floor or C2b from the elevation certificate.
Taking this one step further to determine the applicable rates, look at the lowest floor we've determined we're able to use and compare that to the BFE.

- The elevation of the next higher floor or C2b from the Elevation Certificate is 16.7. The BFE is 8.0.

- Subtracting the BFE from the next higher floor (C2b) from the EC, shows a +9 foot difference and the structure was built in compliance with floodplain management guidelines.

We'd also be able to apply a very favorable rate for this risk. If the vents were not compliant, let's say the vents were more than 1 foot off the ground, or we only had 214 square inches of venting, for rating purposes the top of the bottom floor (C2a) would have to be used.

- In this scenario we would subtract our BFE (8.0) from the lowest floor elevation or C2a (6.0).

- 6.0-8.0 gives us a -2 elevation difference, which means the structure was not built in compliance with floodplain management codes and typically will result in higher rates.

**Elevated Buildings - Walkouts**

A structure where most of the walls of the lowest level are partially or completely below ground level and one wall is at ground level is called a Walkout. For NFIP purposes, Walkouts are also considered to be elevated structures with an enclosure. The next question that usually is asked next is why a walkout is an elevated structure instead of a basement in flood insurance?

In the flood program in order for a structure to be considered a basement, all sides of the structure are below ground. A walkout has one side at ground level so these types of structures do not fall into the basement regulations.
What makes walkouts different is that the walls are made up of solid foundation perimeter walls. Three of the walls are below the natural grade leaving one exposed at ground level or grade. An individual should be able to walk out of that exposed side and not have to walk up or down stairs. They should walk right out at the same level as the ground.

The venting criteria already discussed for enclosures in A zones also applies to a walkout with one variation. The vents can be located on one wall instead of 2 different walls.

If the venting criteria are met and the enclosed area is used for parking, storage or building access only, the structure can be rated using the elevation of the top of the next higher floor or C2b from the elevation certificate with potentially more favorable rates.

If the venting criteria are not met or if the enclosed area is used for something other than parking, storage or building access, the top of the bottom floor or C2a from the elevation certificate must be used for rate determination.

At this point, we’re strictly talking about rating and rate development.

*Elevated Buildings - Crawlspace*

Similar to the subgrade crawlspace, a building sitting atop an above ground crawlspace should not be more than 5 feet below the top of the next higher floor.

Unlike the subgrade crawlspace an elevated building with an above ground crawlspace is not 2 feet below the top of the next higher floor. Also unlike some of the structures we have seen thus far, the perimeter foundation walls are solid construction opposed to piers, posts, and pilings.
Like all enclosures in structures located in A zones, the crawlspace must be properly vented. The red circles on the above photo indicate this crawlspace does have venting. In order to confirm compliance with the venting criteria, we need to look at the venting information from the elevation certificate.

**Is the Enclosure Compliant?**

| A8. For a building with a crawlspace or enclosure(s): |
|---------------------------------|-----------------|
| a) Square footage of crawlspace or enclosure(s) | 720 sq ft |
| b) Number of permanent flood openings in the crawlspace or enclosure(s) within 1.0 foot above adjacent grade | 12 |
| c) Total net area of flood openings in A8.b | 725 sq in |
| d) Engineered flood openings? | Yes | No |

<table>
<thead>
<tr>
<th>B8. Flood Zone(s)</th>
<th>B9. Base Flood Elevation(s) (Zone A0, use base flood depth)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AE</td>
<td>8.0</td>
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Is this enclosure properly vented and compliant with floodplain regulations?

The size of the enclosure is 720 Square Feet. There are 12 vents that are within 1 foot of the Lowest Adjacent Grade (LAG). The total square inches of venting equal 725 square inches.

Yes, because the enclosure is compliant the floor used for rating would be the top of the next higher floor which is c2b from the elevation certificate.
What is a V Zone?

Floodplain management guidelines are specific to flood zone. The regulations for A zones differ from V zones. Let’s change our focus from A zones and concentrate on the regulations and specifics of V zones.

The V stands for Velocity. In order to be compliant with floodplain management regulations, structures located in V zones should be elevated above the BFE and built to withstand high velocity waters or strong wave action. V zones are also considered to be one of the Special Flood Hazard Areas. These areas have a 1% chance of flooding with velocity hazard or the high velocity wave action in any given year.

**Elevated Without Obstruction – V Zones**

Ideally, V zone structures should be built with the lowest floor elevated off the ground by means of piers, posts, piles or columns with no enclosure below. When these structures are built, the pilings are driven into the ground. Horizontal beams are then laid across the top of the pilings. Once done, the foundation is poured on top of the beams. Being in the high risk areas of high volume water, a structure built to this specification should be able to sustain the high velocity water with minimal damage, if any.

Because of these very specific building codes, different flood terms are used when referring to structures located in V zones.

The term elevated “without an enclosure” is used in A zones but for V zones the terminology is elevated “without an obstruction”.

Elevated Without Obstruction - V Zones
This allows flood waters to pass below the elevated area without causing any structural support damage and nothing to impede the flow of water.

With all this being said, there is a possibility of having a type of enclosed area beneath these elevated structures. The building codes/guidelines are very specific.

To be compliant with floodplain management regulations the elevated area can be enclosed with:

- Insect screening, wooden or plastic lattice, slats or shutters however 40% of their area needs to be open
- Any machinery and/or equipment located in the enclosed area should be elevated to at least the BFE.
- Used for parking, storage or building access only.

The structure pictured above is an elevated structure without an obstruction as the lowest living level is elevated off the ground by means of posts. The floor used for rating would be the bottom of the floor or the bottom of the lowest horizontal structure, which is C2c of the elevation certificate unlike the previous zones which rate from the top of the floor.
**Elevated with Obstruction – V Zones**

In V zones the reverse of Elevated *without* Obstruction is elevated *with* obstruction. This phrase refers to those elevated structures where the enclosed area below the elevated floor is either:

- Fully enclosed by solid or breakaway walls; or
- A combination of 2 or more solid, breakaway walls with insect screening, lattice or slats; or
- Any machinery and/or Equipment is below the base flood area

Just like with the venting criteria for A zones, V zones also have rating criteria. Rating will be from the lowest horizontal structural member or C2c if:

- The walls are breakaway walls, and
- The machinery and equipment is raised above the BFE
**Rating will be from the bottom of the slab or C2a if:**

- An obstruction exists, or
- The machinery and equipment is below the BFE, or
- 2 or more walls are solid walls

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**Enclosure Compliance Guidelines – V Zones**

- 299 square feet or less in size,
- The walls of the enclosure should be constructed of breakaway walls,
- The enclosed space should be used for parking, storage and building access only
- Machinery and equipment must be elevated to at least the Base Flood Elevation (BFE)
- The enclosed space should also be unfinished. Unfinished refers to walls that have been mudded and taped but not painted or wallpapered

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To be compliant, enclosures in V zones should be:

- 299 Square feet or less in size,
- The walls of the enclosure should be constructed of breakaway walls,
- The enclosed space should be used for parking, storage and building access only
- Machinery and equipment must be elevated to at least the base flood elevation
- The enclosed space should also be unfinished. Unfinished refers to walls that have been mudded and taped but not painted or wallpapered
Breakaway walls provide no structural support and are designed to break away in pieces and float away when the flood waters pass through.

Elevated structures in V zones with an enclosure below the elevated floor that does not meet the criteria specified for “without obstruction”, meaning made out of latticework or slats will be categorized as “with obstruction”, whether they meet the above criteria or not.

In other words, an enclosure in a V zone that meets the criteria above will be rated and categorized as “with obstruction”. A structure that has an enclosure falling outside these criteria, for example, the enclosure is 320 square feet, it still considered “with obstruction”; however, the difference is which floor will be used for rating purposes and the rates applied.

**What Makes an Enclosure Finished?**

Continuing with defining what the flood program considered finished enclosures.

The enclosure can have no more than 20 linear feet of finished walls, which includes painted surfaces, paneling, wallpaper, or drywall that has been primed and/or painted.

Finished could also be an enclosure that is used for something other than vehicle parking storage and/or building access, living space for example.
Elevated Building Coverage Limitations –

Just as with basements, there is coverage limitations applied to elevated structures with an enclosure. Coverage limitations for structures elevated with an enclosure apply only to Post-FIRM structures in any zone beginning with A or V.

Items that will be covered are items that service the structure. Items covered include:

- Central air conditioners
- Cisterns and the water in them
- Electrical junction and circuit breaker boxes
- Electrical outlets and switches
- Elevators, dumbwaiters, and related equipment, except for related equipment installed below the BFE after 9/30/1987
- Fuel tank and the fuel in them
- Furnaces and hot water heaters
- Heat pumps
- Pumps and tanks used in solar energy systems
- Stairways and staircases attached to the building not separated from it by elevated walkways
- Sump pumps
- Water softeners and the chemicals in them, water filters and faucets installed as an integral part of the plumbing system
- Well water tanks and pumps
- Required utility connections for any item in this list (electric, gas, and sewer are the only utilities acceptable for coverage in the flood program)
- Footings, foundations, posts, pilings, piers, or other foundation walls and anchorage systems required to support a building
- Cleanup
- Air conditioning units, portable or window type (covered under contents coverage)
- Clothes washers and dryers (covered under contents coverage)
- Food freezers, other than walk-in, and the food in the freezer (covered under contents coverage)

Elements Not Covered

- Contents items not specifically listed above
- Improvements such as finished walls, floors (flooring or carpets), and ceilings
- Building equipment and fixtures not specifically listed above