

## Basement & Lowest Floors for Homes in a Floodplain

Determining the “lowest floor” of a structure in a floodplain is important because the top (i.e., walking surface) of the lowest floor must be at or above the Regulatory Flood Protection Elevation (RFPE). Lowest floors include basements and crawl spaces of any size. An improperly elevated lowest floor can result in a significant increase in flood insurance premiums!!

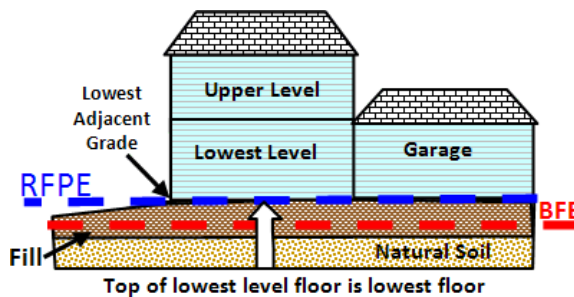


Figure 1. A concrete slab on grade is permitted for a home in a floodplain if the top (walking surface) of the lowest level floor is above the RFPE.

The floodplain regulations apply to all enclosed spaces; they do not differentiate between finished versus unfinished, habitable versus not habitable, or a space that is more than a certain minimum height versus a space that is only a couple feet high.

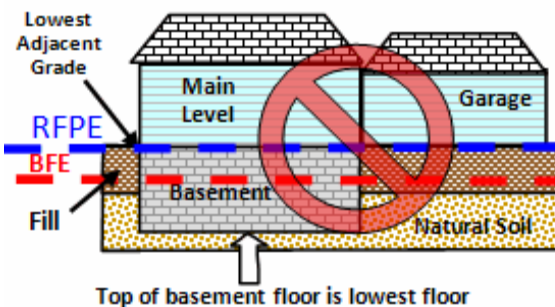


Figure 2. This example is NOT PERMITTED for a home in a floodplain because the basement is the lowest level of the home and it is below the RFPE.

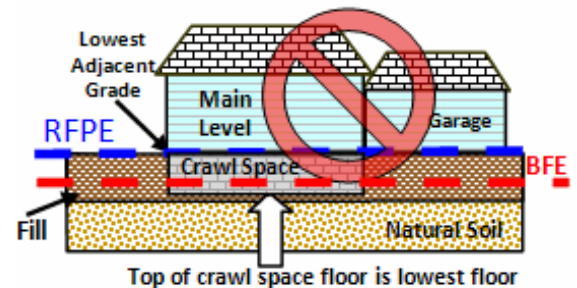


Figure 3. A below grade crawl space or utility space is considered a basement and it is the lowest floor. It NOT PERMITTED for a home in a floodplain because it is below the RFPE.

### Related Definitions

**Lowest Floor**—Lowest floor of the lowest enclosed area (including basement or crawl space). The lowest floor level must meet minimum elevation requirements (i.e., the Regulatory Flood Protection Elevation).

**Basement**—Any area of a structure, including crawl space, having its floor subgrade (below ground level) on all sides.

**Regulatory Flood Protection Elevation (RFPE)**—The RFPE is the 100-year flood (1 percent annual chance flood) elevation + stage increase due to establishing floodway + freeboard (Duluth's minimum is 2 feet). The lowest floor must be elevated so that the walking surface of that lowest floor is at the RFPE or higher.

**Base Flood Elevation (BFE)**—Same as the 1 percent annual chance flood elevation or the “100-year” flood elevation.

### RFPE Formula

$$\frac{\text{100-year flood elevation} + 2 \text{ feet}}{=} \text{regulatory flood protection elevation (RFPE)}$$

### Myths and Facts of Basement Definitions

**Myth:** It is not a basement if I cannot stand up in it.

**Fact:** It does not matter if a basement is 2 feet or 8 feet high, or if it is “habitable” based on state building code. It is a basement if it is below grade on all sides.

**Myth:** It is not a basement if the floor is unfinished or dirt.

**Fact:** It does not matter if a basement floor is concrete or unfinished. It is a basement if it is below grade on all sides.

## Basements & Lowest Floor Special Cases

What is called a “basement” in common language usage in Minnesota is not always consistent with FEMA’s definition of a “basement.” In addition, there are other special situations to consider.

### 1. Walkout basement

The typical Minnesota walkout basement is not a “basement” according to FEMA (Figure 4). FEMA’s basement definition says all sides are subgrade (below ground level), but the typical walkout basement has one complete side (the walkout side) with the floor at the same level as the adjoining ground level. If the walkout basement level is above the regulatory flood protection elevation (RFPE), the local community may issue a standard building permit.

A related but prohibited layout is shown in Figure 5. Occasionally, a landowner will excavate an area adjacent to one side of the basement floor. However, unless there is gravity flow drainage over the ground surface toward the flooding source, this is still considered a basement.

### 2. Natural ground is above 1% annual chance flood elevation

If no fill is brought in, and the lowest adjacent grade (lowest place where soil touches building) is above the 1% annual chance flood elevation, the structure is officially out of the high-risk flood zone where floodplain management regulations apply (Figure 6). This structure may still be subject to severe flood damage from subsurface water pressure against the basement walls and standard basement construction is not recommended.

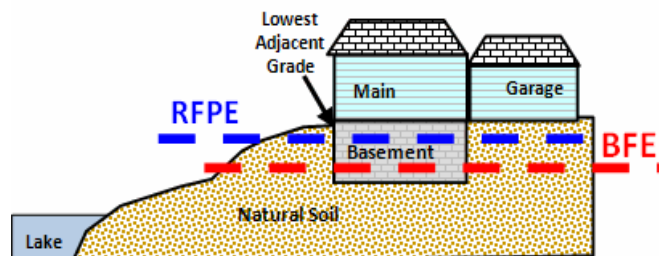


Figure 6. Lowest Adjacent Grade is above Base Flood Elevation (BFE) or the 1% annual chance flood elevation, so site is not in Zone A or AE. Minimum floodplain regulations do not apply. NOTE: The community may have higher standards. For example, if the site is in shoreland district, there are still minimum elevations.

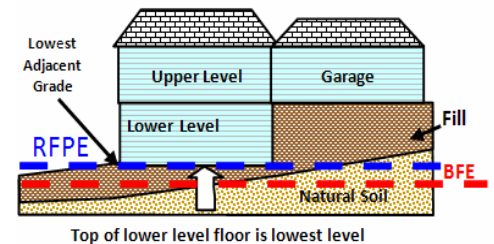


Figure 4. A walkout basement or lower level is permitted for a home in a floodplain if the top of the lowest floor is above the RFPE.

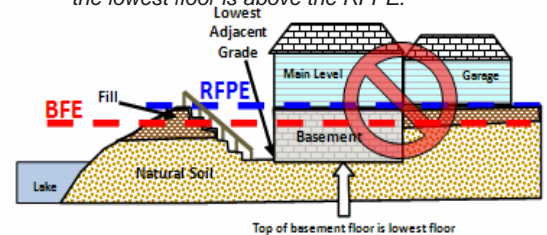


Figure 5. Excavating an area adjacent to a basement does not stop it from being a basement! There must be gravity flow drainage over the ground surface from that lowest side.

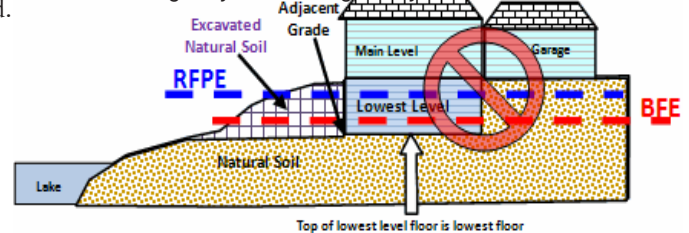


Figure 7. Same situation as in Figure 6, but they excavated to make a walkout basement. They have put themselves into the high flood risk area (Zone A or AE) and must meet the floodplain regulations, so now have a violation.