

Residential Accessory Structures in the Flood Fringe of the Floodplain: Sheds, Detached Garages and Other Structures

Residential accessory structures in the flood fringe must be designed to comply with the community’s floodplain management ordinance, as well as other applicable regulations, and permitted by the local zoning authority prior to construction. Other applicable regulations may include, but are not limited to, the structure setback distance and vegetation removal standards consistent with local shoreland management or wild and scenic river ordinances.

What are accessory structures?

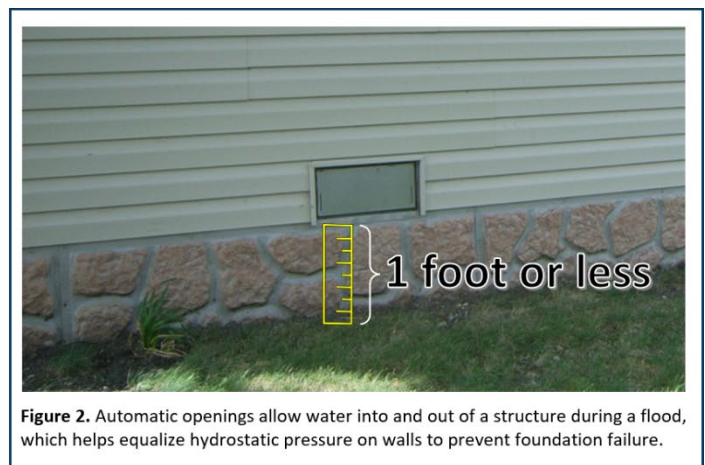
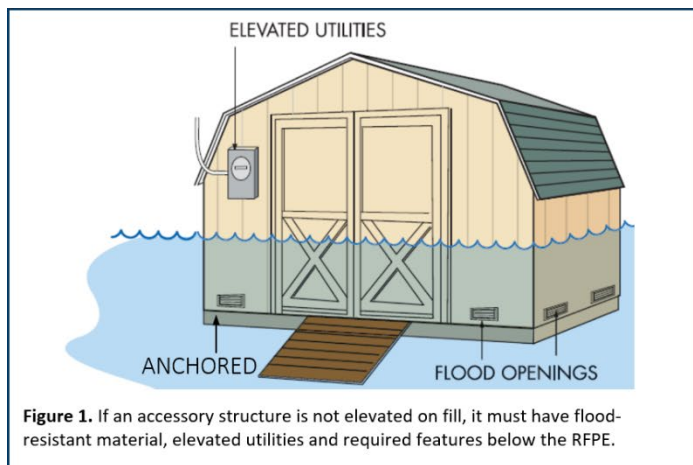
Accessory structures are buildings on the same parcel of property as, and incidental to, a principal structure or use. This information sheet is focused on smaller accessory buildings not larger than 600 sq. ft. in size that meet FEMA’s definition of an accessory structure. Larger accessory buildings exceeding 600 sq. ft., such as pole barns and hay sheds, must meet the same local ordinance requirements as nonresidential buildings.

Accessory structure requirements

Accessory structures are not allowed in the floodway but may be permitted in the flood fringe. To learn more about the flood fringe, see the info box on Page 3.

Accessory structures with two or more rigid walls. Common examples include detached garages, storage and tool sheds, and small boat storage structures. These accessory structures in the flood fringe must be:

- one-story in height, used only for parking or storage and not intended as habitable space.
- no larger than 600 sq. ft. in floor area (a typical two-stall garage), but some local ordinances may limit the size of accessory structures to 575 sq. ft. or less.
- anchored to resist flotation and lateral movement. See Page 4 for more information on anchoring.
- constructed with utilities elevated to or above the Regulatory Flood Protection Elevation (RFPE) and/or floodproofed below the RFPE (utilities other than electric are possible indicators of a habitable space). See the info box on Page 3 for more information on the RFPE.
- built using flood damage-resistant materials below the RFPE. See [FEMA Technical Bulletin 2](#) for more details.



In addition to the above requirements, accessory structures in the flood fringe must also be built using an allowable construction method. The two most common allowable methods are:

1. Elevate on fill so the top of the lowest floor is at or above the RFPE. The finished fill elevation must be at or above the base flood elevation (BFE) plus stage increase. While fill is not required to extend 15 ft. beyond the structure, some local ordinances may have this requirement.
2. Wet-floodproof up to the RFPE. The accessory structure is not elevated, but automatic non-engineered flood vent openings are required on at least two sides of the structure. Vents must have a minimum net area (i.e., excluding vent slats or screens from the calculation) of 1 sq. in. for every 1 sq. ft. subject to flooding and be installed no more than 1 ft. above grade, as shown in Figures 1 and 2 (on Page 1). Alternatively, engineered openings certified for an equivalent size may be used. See [FEMA Technical Bulletin 1](#) for more details.

Accessory structures with fewer than two rigid walls. Common examples include gazebos, picnic pavilions, pergolas and carports. Examples are shown in Figures 3 and 4. Because these accessory structures are open sided, they may be permitted in the flood fringe below the RFPE provided they are:

- anchored to resist flotation and lateral movement. See Page 4 for more information on anchoring.
- constructed with utilities elevated to or above the RFPE and/or floodproofed below the RFPE.
- built using flood damage-resistant materials below the RFPE. See [FEMA Technical Bulletin 2](#) for more details.



Figure 3. A gazebo with a roof but no solid walls may be below the RFPE if adequately anchored and constructed using flood-damage resistant materials.



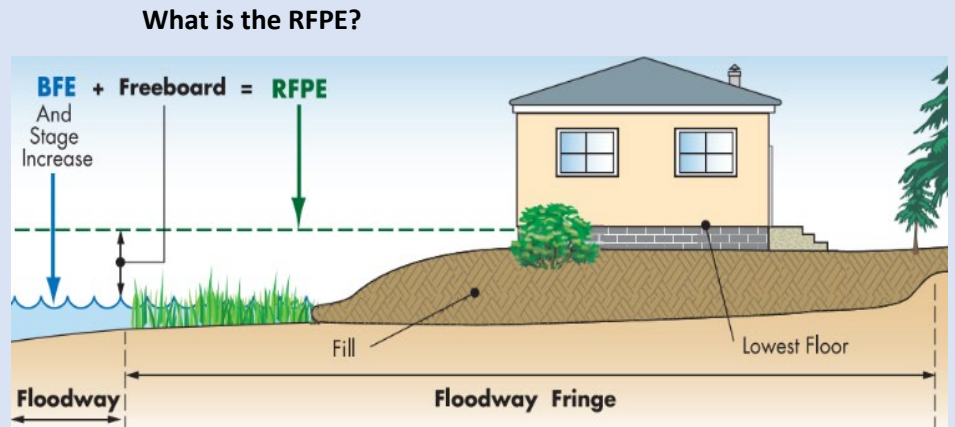
Figure 4. An open-sided picnic shelter with slab on grade foundation anchoring may be below the RFPE if flood-resistant materials are used. Note the elevated utilities.

What materials cannot be stored in the floodplain? While accessory structures in the floodplain may be used for parking and storage, there are restrictions on the storage of certain items. For instance, the storage of materials that are flammable; explosive; potentially injurious to human, animal or plant life; or pollutants is **prohibited**. Any such sensitive materials must be stored outside of the floodplain or elevated to or above the RFPE.

What about small sheds that are less than 200 sq. ft.?

Most plastic, steel, and wood storage sheds available for purchase at big box home improvement stores are small sheds. Small sheds are defined as having a floor area of 200 sq. ft. or less. Federal floodplain regulations require a permit from the local zoning authority for small sheds located in the flood fringe, even though they are otherwise exempt from building permit requirements under Minnesota State Building Code. So, while a local permit is required for small sheds in the flood fringe, communities may consider waiving fees for small sheds and other types of development that would not otherwise require a permit.

The Regulatory Flood Protection Elevation, or RFPE, is the minimum elevation to which a building's lowest floor, utilities and other facilities in the regulatory floodplain must be elevated. It is defined as an elevation that is 1 foot (i.e., freeboard) above the 1% annual chance (100-year) elevation *plus* any stage increase due to establishing a floodway (up to 0.5 ft.).



Permit process for accessory structures in the flood fringe

Below is a summary of the steps involved in applying for, reviewing and permitting accessory structures:

1. Verify the proposed building is in the flood fringe. See the info box below for more details on the flood fringe.
2. If in the flood fringe, apply for a permit and work with your community to ensure floodplain and other local regulations are being met.
3. Once permitted, construct the accessory structure in accordance with the approved plans.
4. During and after construction, your community may require regular inspections.
5. After the project is complete, submit to your community the “as-built” documentation that verifies your accessory structure is consistent with approved plans.

What is the flood fringe?

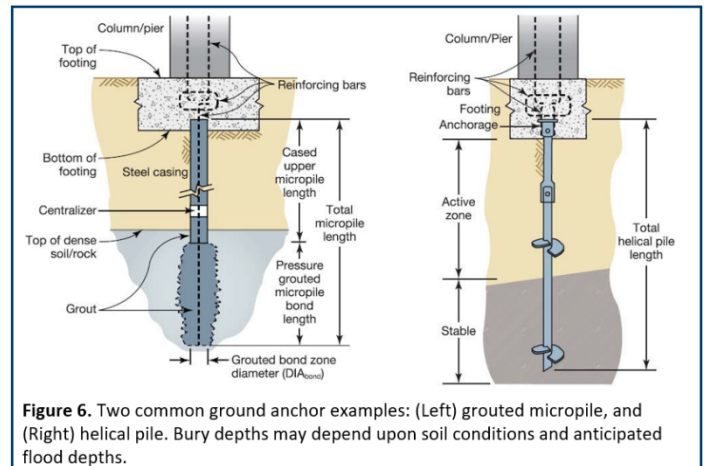
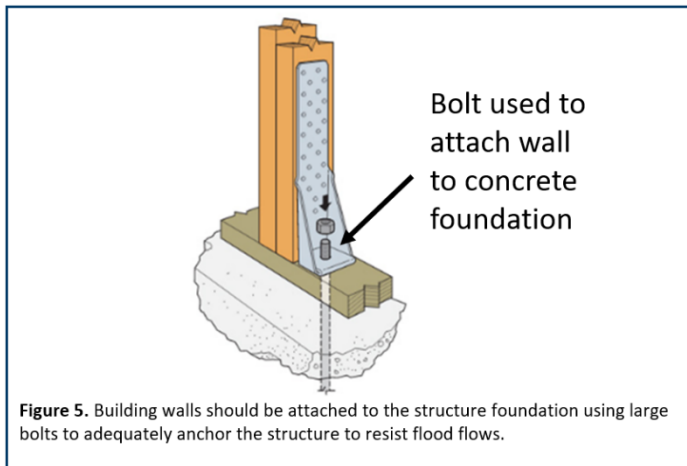
The flood fringe is the remainder of the floodplain lying outside of the floodway, as shown on the Flood Insurance Rate Map (FIRM). This area is generally covered by shallow, slow moving flood waters. Floodplains where the FIRM does not delineate the floodway and flood fringe must be treated as floodway until a permit applicant has provided certain engineering information to verify the proposed building site is outside of the floodway. In some cases, an area may be considered flood fringe without engineering information if the community approves use of “standard engineering practices,” which should also be approved by the DNR. Examples of standard engineering practices include sites that are obvious backwater areas, ineffective flow areas near bridge and culvert crossings, and using the Ordinary High Water Level (OHWL) on lakes and wetlands to delineate the floodway boundary.



Adequate anchoring

Accessory structures must be adequately anchored to ensure their safety and stability during flood events. This commonly involves securing the building's walls to its foundation using large bolts. An example is shown in Figure 5. Common foundations include stem walls with soil-supported floors, slab on grade, piles, piers or columns. If no

foundation is present, grouted micropile (e.g., steel rebar embedded in concrete) or helical pile (e.g., auger shaped) anchors, concrete pedestal anchors or other ground anchoring systems approved by the community may be used to secure accessory structures. Ground anchor examples are shown in Figure 6.



Temporary accessory structures

Temporary accessory structures are exempt from floodplain permitting. These are structures placed for only a short period of time before being completely removed. Common examples of temporary structures are greenhouses in store parking lots, porta potties, produce stands, booths at fairs and festivals, snack bars in waterfront parks, event canopies and camping tents. In all cases, verification of temporary status by the local zoning authority is required.

Non-structural accessories

Some “structures” that may be considered accessory in nature under local zoning ordinances and other regulations are not accessory structures for floodplain management purposes. Examples include fences, solar panels, detached decks and patios, stairs, swimming pools, retaining walls and docks. Such “structures” that are not accessory structures are considered “development” and must meet the minimum development standards for the floodplain districts they are located in.

Related FEMA Definitions

Accessory structures – Garages, sheds, and other structures associated with a residence. For more information, see [FEMA's accessory structure guidance \(Bulletin P-2140\)](#).

Automatic openings – Openings in a structure’s foundation designed to allow flood water into and out of a building during a flood without human intervention and to help equalize hydrostatic pressure.

Flood Fringe – The portion of the 1% annual chance (100-year) floodplain located outside of the floodway.

Micropile – Small diameter piles, such as small diameter steel casing or threaded rebar.

Regulatory Flood Protection Elevation (RFPE) – The RFPE is the 1% annual chance (100-year) flood elevation + stage increase due to establishing flood fringe + Minnesota’s minimum freeboard of 1 foot.

Wet-floodproofing – Intentionally flooding a structure to minimize flood damage and cleanup. The structure is designed with automatic openings so hydrostatic pressures are equalized, rather than building up on one side and buckling the foundation.