

## **Building in Special Flood Hazard Areas**

**Special Flood Hazard Areas (SFHA)** are areas designated by FEMA as having a 1% or greater annual chance of flooding. Due to the destructive nature of floods, special construction requirements are necessary within a SFHA to minimize potential damage to structures. This booklet provides general information on these requirements. Additional detailed information can be obtained from Fresno County Municipal Code Title 15 Chapter 15.48 Flood Hazards Areas. To determine if your project is within a SFHA, contact Fresno County Department of Public Works and Planning, Development Engineering Section at (559) 600-4022.

The primary method of protecting buildings from flood damage is to elevate them above the surface of the flood waters, or the base flood elevation (BFE). Base flood elevations or depths and SFHAs are shown on the Flood Insurance Rate Maps (FIRMs) published by FEMA. For areas where base flood elevations have not been determined by FEMA, Fresno County Municipal Code describes methods to establish a local base flood elevation.

### **SFHA EXEMPT PROJECTS**

- **Improvements, such as additions or renovations**, to structures built prior to 1980 are limited in size and scope by the Substantial Improvement Rule. The Substantial Improvement Rule states that if the cost of the improvement equals or exceeds 50% of the market value of the structure, the structure must be brought into compliance with current floodplain regulations. Projects less than 50% may be exempt from SFHA construction requirements. Records of improvements are kept as the 50% threshold is a cumulative value and applies for the life of the structure. For more information, contact the Fresno County Development Engineering Section.
- **If only a portion of the property is located within a SFHA**, and the proposed structure will be located on the portion outside the SFHA, flood zone construction requirements may be waived with the submission of a map of survey. The map of survey, prepared by a licensed land surveyor, shall show all Federal and State flood zones and floodways, property lines, and the footprint of all existing and proposed structures.

### **SFHA CONSTRUCTION REQUIREMENTS**

#### **1. Survey and Site Plans**

- A minimum of two (2) FEMA Elevation Certificates are required; one before permits are issued and one after construction. The first Elevation Certificate establishes the elevation of the project site, and is compared to the BFE to determine the height above grade that flood damage reduction measures must be taken. Based on this initial Elevation Certificate, the structure's finish floor elevation is determined. If your plans/application package does not include a completed initial Elevation Certificate, you cannot proceed through the building permitting process.
- After construction, a surveyor or engineer is required to survey the as-built elevations of the project and complete the FEMA Elevation Certificate. The Elevation Certificate is proof that the structure was built in compliance with floodplain regulations and is required to be submitted to the Fresno County Development Engineering Section for final approval before release can be granted and occupancy awarded.

- Additional surveys are recommended when any site grading is completed and when the forms for the foundation are set.
- Site plan(s) shall show the location of all existing and proposed utilities, machinery and equipment (including water and fuel tanks), as well as the banks or levees of any watercourse crossing the property.

## **2. Minimum Floor Elevations**

- The top of the finished floor for all habitable areas of the structure is required to be a minimum of twelve (12) inches above the BFE for all SFHA except in Zone A. See the Fresno County Municipal Code for elevation requirements for top of finish floor in Zone A.
- Portions of the structure used solely for access, parking or limited storage (such as a crawlspace or attached garage) are permitted below the BFE provided that all other requirements for areas below the BFE are met.
- Commercial and industrial structures may be floodproofed to six (6) inches above the BFE, except in Zone A, instead of elevating, only if certification of floodproofing completed by a registered civil engineer or registered architect. All machinery inside must be installed to resist flotation, collapse, and lateral movement when subjected to base flooding conditions.
- Detached accessory structures may be exempt from finished floor elevation, (see Detached Accessory Structure Section)
- Basements, wine cellars, and any other enclosed areas below grade on all sides are PROHIBITED.

## **3. Portions of the Structure Below the BFE**

- If any portion of the structure is to be located below the BFE, the structure must be designed and constructed to resist flotation, collapse, and lateral movement when subjected to base flooding conditions. For more information, see ASCE 24-05 Flood Resistant Design and Construction, Chapter 1.
- All materials installed below the base flood elevation must be flood resistant materials, such as concrete and corrosion resistant metals. For more information, see ASCE 24-05 Flood Resistant Design and Construction, Chapter 5 and FEMA Technical Bulletin (TB) 2-93 Flood Resistant Materials.
- Vents are required in any enclosed space below the BFE not designed to resist hydrostatic forces to relieve hydrostatic pressure on the structure. A minimum of one (1) square inch of vent area is required for each square foot of enclosed space. Vents must be installed on a minimum of two sides of the structure, with the bottom of the vent within one (1) foot of the exterior adjacent grade and the top of the vent no higher than the BFE. Vents may be equipped with screens or louvers which allow for the automatic entry and exit of floodwaters. For additional information, see ASCE 24-05 Flood Resistant Design and Construction, Chapter 2.6.2 and FEMA TB 1-93 Openings in Foundations.

## **4. Utilities, Machinery and Equipment**

- All utilities, machinery, equipment, tanks and wells are required to be elevated above the BFE or be designed, constructed and installed to prevent floodwaters from entering or accumulating within its components. For additional information, see ASCE 24-05 Flood Resistant Design and Construction, Chapter 7.

- Tanks may be located below the BFE provided they are anchored by an approved or engineered system designed to resist all flood related loads during the base flood. For additional information, see ASCE 2405 Flood Resistant Design and Construction, Chapter 7.4.1.

- All utilities must be installed before occupancy can be granted.

## **5. Detached Accessory Structures**

- Detached accessory structures are permitted to have the finished floor below the base flood elevation provided it is used solely for access, parking or limited storage.

- The structure must meet all materials, venting, anchoring and utilities requirements.

## **6. Manufactured Homes**

- Manufactured homes are required to have the top of the finished floor a minimum of one (1) foot above the base flood elevation, except on Zone A. In addition, the entire foundation support system (piers, bracers, exterior perimeter wall, etc.) must be at or above the BFE or be certified by a licensed architect or civil engineer to withstand all flood forces (see ASCE 24-05 Flood Resistant Design and Construction, Chapter 1).

## **7. Flood Insurance Considerations**

- The purchase of flood insurance is mandatory as a condition of receipt of federal or federally-related financial assistance for the acquisition or construction of buildings in SHFAs. Check with your lender to determine if mandatory flood insurance purchase requirements will apply.

- Flood insurance premiums can be reduced by elevating the finished floor above the minimum requirements. Elevating the finished floor two or three feet above the base flood elevation can reduce the cost of flood insurance by several hundred dollars annually, as well as provide additional protection from flooding.

- Structures elevated entirely on earthen fill may apply for a Letter of Map Revision Based on Fill (LOMR-F) from FEMA. If granted, the LOMR-F legally removes the structure from the SFHA and federal mandatory flood insurance requirements no longer apply (lenders may, at their discretion, still require flood insurance as a condition of the loan). For more information on submitting an application for a LOMR-F see FEMA form MT-1.

### **Links to Additional Resources:**

Fresno County Municipal Code Title 15(Chapter 15.48 Flood Hazard Areas)

ASCE 24-05 Flood Resistant Design and Construction [www.asce.org](http://www.asce.org)

FEMA Technical Bulletin 1-93 Openings in Foundations [www.fema.gov](http://www.fema.gov)

FEMA Technical Bulletin 2-93 Flood Resistant Materials [www.fema.gov](http://www.fema.gov)

**For additional information visit our website [Flood Protection Information](#) , or contact the Fresno County Department of Public Works and Planning, Development Engineering Section at (559) 600-4022.**