

CITY OF AUSTELL

Non-Residential Structures in the Floodplain

New non-residential construction located in the regulated floodplain must be protected against flood damage from a 100-year flood event by elevation of the structure or dry floodproofing. In addition to new buildings, “new construction” also includes all improvements to existing post-FIRM structures (built after the community began regulating floodplain development). If a building is “substantially improved” or has been “substantially damaged” the entire structure must be brought into compliance with the current standards for new non-residential construction.

What is the Flood Protection Level?

If a “Base Flood Elevation” is indicated on the floodplain map issued by FEMA or is available from another source, then non-residential buildings must be protected from flood damage to a level of four feet above this height. If no BFE is available, the flood protection level should be at least four feet above the highest adjacent grade.

The Base Flood Elevation (BFE) is the calculated water height for the flood that has a 1% probability of being equaled or exceeded in any given year (the 100-year flood).

Elevation of the Building

Elevation is the preferred method of protecting non-residential buildings from flood damage. In non-coastal floodplains, this requires *location of the lowest floor at or above the flood protection level*. A basement that is below grade on all sides is prohibited. Elevation can be accomplished by:

- Elevation on properly compacted fill;
- Elevation on piles, posts, piers, or columns; or
- Elevation on walls or a crawl space.

Elevation Certificate

To ensure that a building is properly elevated, the lowest floor is surveyed and an elevation certificate¹ is obtained and kept by Austell Public Works.

Enclosed Areas Below the Lowest Floor

An unfinished, flood-resistant, enclosed area below the lowest floor can be permitted if it is usable solely for vehicle parking, building access, or limited storage. This area must be properly vented to allow for equalization of hydrostatic forces and meet design and use criteria (see *Floodplain Facts #8: Enclosed Areas Below the Flood Protection Level*).

¹ Elevation Certificate and Instructions are available at <http://www.fema.gov/business/nfip/elvinst.shtm>.

Dry Floodproofing

As an alternative to elevation, floodproofing of non-residential buildings is permitted. ***Dry floodproofing requires that the structure be watertight below the flood protection level, with walls substantially impermeable to the passage of water.*** All structural components located below the flood protection level must be capable of resisting hydrostatic and hydrodynamic loads and the effects of buoyancy. Utilities must be protected from flood damage. Most floodproofing is appropriate only where floodwaters are less than three feet deep, because walls and floors may collapse under higher water levels. Techniques that require human intervention are only appropriate if there is adequate warning time (12 hours is a recommended minimum) and someone will be present who is capable of implementing or installing the required measures.

Floodproofing Certificate

A registered professional engineer or architect must prepare the building plans and certify that the proposed dry floodproofing measures will meet the required criteria. Upon completion of the floodproofed portion of the structure, the as-built floodproofed elevation is certified by a licensed professional.²

Anchoring

The building, any gas or liquid storage tanks, and any equipment servicing the building must be designed and anchored to prevent flotation, collapse, or lateral movement during the 100-year flood event. In addition to anchoring the building to its foundation, it is necessary to ensure that the foundation won't move (due to hydrostatic forces, hydrodynamic forces, or undercutting by erosion or scour). In areas where flood velocities exceed five feet per second, additional anchoring measures may be required, such as reinforcing crawlspace walls, using deeper footings, using extra bolts to connect the sill to the foundation, or installing rods to connect the cap to the sill.

Flood Resistant Design, Materials, and Utilities

Whether the structure is elevated or floodproofed, all parts of the building that are exposed to floodwaters must be resistant to flood damage. This involves the use of flood resistant materials and designs. (Additional information and references are provided in *Floodplain Facts #9: Flood Resistant Design.*)

Additional information about floodplain development requirements is provided in other fact sheets (available at www.apwsm.org):

- ☛ Floodplain Facts #1: Floodplain Development
- ☛ Floodplain Facts #2: Non-Building Floodplain Development
- ☛ Floodplain Facts #3: Modifications to Existing Floodplain Structures
- ☛ Floodplain Facts #4: Residential Structures in the Floodplain
- ☛ Floodplain Facts #5: Non-Residential Structures in the Floodplain
- ☛ Floodplain Facts #6: Manufactured Homes, Recreational Vehicles, and Trailers in the Floodplain
- ☛ Floodplain Facts #7: Accessory Structures and Garages in the Floodplain

² Floodproofing Certificate for Non-Residential Structures is available at http://www.fema.gov/plan/prevent/fhm/dl_fpc.shtm.

- ☔ Floodplain Facts #8: Enclosed Areas Below the Flood Protection Level
- ☔ Floodplain Facts #9: Flood Resistant Design
- ☔ Floodplain Facts #10: Floodplain Development in Approximate A Zones
- ☔ Floodplain Facts #11: Development in Areas of Shallow Flooding
- ☔ Floodplain Facts #12: Floodway Encroachments
- ☔ Floodplain Facts #13: Floodplain Variances