Floodplain Management in the FNSB

By Doug Sims, CFM
Minor Revisions by Nancy Durham, MURP, CFM

Periodic flooding has always been a fact of life here in the Interior of Alaska. Dating back prior to statehood and the floods of the 1930's and 40's, spring breakup and summer rainfall flooding events were common and expected. The historic flood of record occurred in August of 1967, two years after the formation of the Fairbanks North Star Borough and prompted the borough Assembly at the time, to begin the process of joining the newly formed National Flood Insurance Program (NFIP).

Prior to construction in a floodplain, it is **imperative** that a floodplain permit be obtained from the Fairbanks North Star Borough! This permit requirement was first established by ordinance in 1972 and is a crucial part of our floodplain management responsibilities.

Obtaining a permit **before** you build is relatively simple and serves multiple objectives. Proper building elevation can go a long way toward saving unnecessary expenditure of flood insurance dollars, which facilitates ease of financing and not to mention protecting the safety of you or your client's family.

Since joining the NFIP in 1969, floodplain management in the borough continues to evolve; from the first adoption of Title 15; the floodplain management ordinance in 1972, to completion of the Moose Creek Dam and Tanana Levee system in 1981, to the adoption of digital flood insurance rate maps in the March of 2014. Title 15 is our local floodplain management ordinance that is a requirement for our community's continued participation in the NFIP. Title 15 is the ordinance that describes construction requirements for new development occurring in flood hazard areas as mapped and defined by the Federal Emergency Management Agency (FEMA). The principal focus of Title 15 is to ensure structures built in the floodplain meet minimum constructions standards related to foundation systems and adequate elevation of a building. The title is also concerned with alteration of watercourses identified as being flood prone such that the watercourse's ability to carry flood waters is not diminished.

As mentioned above the primary concern is the building foundation system and how the building is elevated. There are three basic foundation systems commonly used; a standard crawlspace, concrete slab on grade and use of fill or a post and pad foundation. Each system has its benefits and complexities, the simplest being slab on grade or post and pad. The crawlspace technique requires a bit of extra thought in the design and construction in order to be compliant **AND** not require excessive flood insurance premiums.

A key number in designing any foundation for a building located in the Special Flood Hazard Area (SFHA) is known as the base flood elevation or BFE. This number represents the surface elevation of the floodwaters having a 1% chance of occurring. Structures whose lowest floor, including unfinished crawlspace floors, located above the BFE are less expensive to insure and are in compliance whereas structures whose lowest floor is located below the BFE are more expensive to insure and may not be in compliance.

When fully enclosed areas below BFE are contemplated, flood vents are required. Flood vents must be self actuated and allow for the automatic entry and exit of floodwaters. The vents act to relieve hydrodynamic forces exerted in foundation walls by floodwaters that act to undermine the structures stability. If flood vents are not incorporated into a crawlspace enclosure that is located below BFE, the floor of the crawlspace becomes the lowest floor and may result in significantly higher flood insurance premiums. Conversely, if the enclosure is properly vented, the lowest floor becomes the next highest floor, which is going to be the finished floor. Fully enclosed areas located above BFE do not require vents.

Figure A illustrated below gives an example of a compliant crawlspace that is less expensive to insure. For insurance purposes, the lowest floor is located at BFE due to the correct venting. Without the vents, this structure would be more expensive to insure.

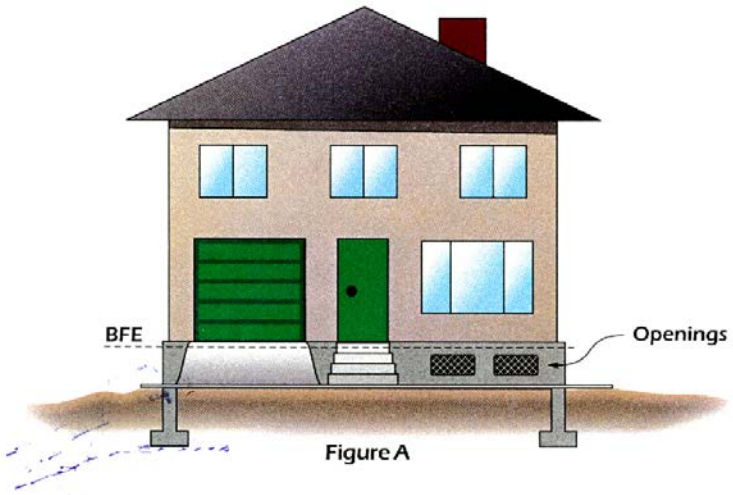
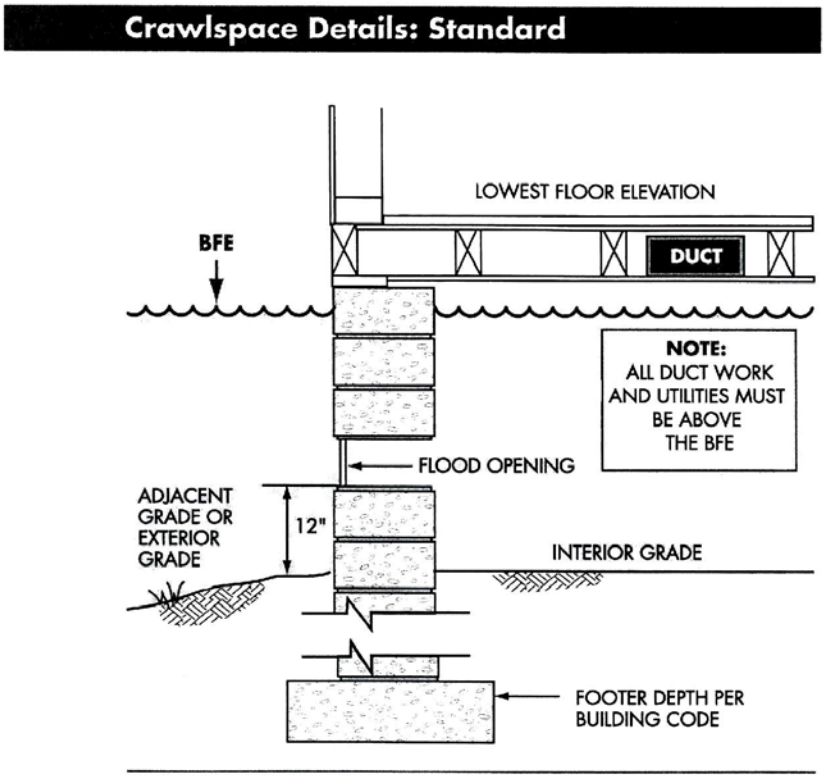


Figure A

The illustration below shows a standard crawlspace design that is NFIP compliant and not expensive to insure. Note that the interior grade and exterior grade are the same, vents are properly shown no higher than one foot above grade and all ductwork and utilities are located above BFE. If the flood vents were not present in the illustration below, the lowest floor would be the elevation of the interior grade as shown, well below BFE and much more expensive to insure.



Key factors involved when constructing in a Special Flood Hazard Area include knowing what your ground elevations are **before** start of construction, what the base flood elevation is and to have a floodplain permit. You are protecting your investment, your family's safety and minimizing insurance expenses by knowing proper building requirements **beforehand** when dealing with a flood prone building site.

For further information and assistance please call the FNSB Floodplain Administrator at 459-1263.