



FEMA

Factsheet

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BUILDING AN ELEVATED HOME IN FLOOD AND EARTHQUAKE ZONES

Was your home badly damaged or destroyed by the recent Washington storms? If you are considering construction of a new home in an area that may be affected by future floods or by a major earthquake, here are some important considerations:

What are the rules for the elevation of the new house?

In some parts of Washington, local building officials know the requirements for the minimum elevation of the first floor of your home. In some areas the lowest horizontal supporting beam must be above the base flood elevation (BFE), rather than the first floor. Some jurisdictions require additional “freeboard” above the mapped BFE. This is because of anticipated wave action on top of the flood waters, or because of the inherent uncertainties in accurately predicting future flood levels. You’ll usually need to hire a licensed surveyor to establish a “benchmark” at your building site. Building higher than the minimum requirement

may be a good idea. The additional cost is not likely to be very high.

Can a home be designed to withstand high winds, flooding, or earthquakes?

With every major event, engineers learn more about storm and earthquake resistant design and construction. The proven way to build a home that can survive extreme forces is to first build a team of professionals who can work well with you and with each other. If your licensed architect, structural engineer, soil engineer, and general contractor all have excellent reputations and extensive experience with this type of project, it is possible to reach the goal of creating a long-lasting structure.

The details will be different in every situation, but key structural elements often include a strong, well anchored foundation (heavy posts, piling or steel reinforced concrete) and extremely sturdy and durable connections between the

foundation and building frame. There must also be great attention to load path calculations throughout the house. These will

involve careful consideration of the strength of various materials, and connection details between all parts of the structure. The result is a building that can resist the various powerful forces (gravity, wind pressure, shear, uplift, overturning, earthquake shaking and twisting, etc.). The building envelope (siding, windows, doors, and roof) must be designed and constructed in ways that exceed normal building standards. It is critical that wind and water are kept out of the house during a storm.

How is this type of construction affordable?

High quality, storm and earthquake resistant construction is a more expensive initial investment, but if you really value your home, it is a wise investment. If you are considering new construction, there are three inter-related variables to keep in mind: budget, scope (size of project), and quality. If you can’t expand the budget, it may be a wise decision to reduce the scope, rather than quality. Most estimates of the additional cost of disaster resistant construction range from 5 percent to 25 percent, depending on the location and level of protection needed. However, after employing this type of construction, insurance may be more readily available and affordable. In addition, the resale value of the home is enhanced if the home is built to last.

