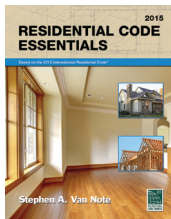

WIND, SNOW, SEISMIC AND FLOOD LOADS

In addition to supporting the live and dead loads, the building must safely resist environmental load effects such as wind, snow, earthquake, and flood hazards. These forces may be vertical (up or down) or lateral (sideways) and are also referred to as loads. [\[Ref. R301.1\]](#)

Wind

Lateral wind pressure may be positive (pushing against the building on the windward side) or negative (suction forces on the leeward side of a building). Wind pressure can also produce upward forces referred to as *uplift*. The building resists wind forces with wall bracing, sheathing, and positive load path connections from the roof down to the foundation (Figure 4-4).

continued



This excerpt is taken from ICC's ***Residential Code Essentials: Based on the 2015 International Residential Code***®.

The I-Code Essentials series uses a straightforward, focused approach to explore code requirements with non-code language, allowing readers to gain confidence in their understanding of the material. Each book is an invaluable companion guide to the 2015 IBC, IRC, IFC or IECC for both new and experienced code users.

You Should Know

Ultimate Design Wind Speed

IRC conventional framing limits for wind speed:

- 140 mph (130 in hurricane regions)

WFCM conventional framing limits for wind speed:

- 195 mph

Wind speed terminology has changed, but requirements are the same.

Previous basic wind speed of 90 mph = new ultimate design wind speed of 115 mph. ●

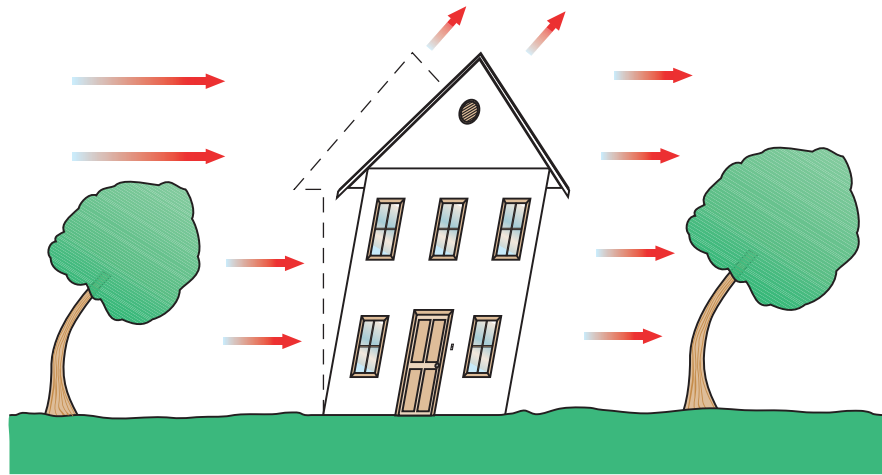


FIGURE 4-4 Wind forces acting on building

Conventional construction in accordance with the prescriptive provisions of the IRC is generally limited to those geographic regions with ultimate design wind speeds not greater than 140 mph as shown in the IRC ultimate design wind-speed map. Regions where the wind speeds exceed 140 mph (130 mph for hurricane-prone regions) are identified by the code as requiring wind design, and the prescriptive wind provisions of the code no longer apply (Figure 4-5). In this case, the IRC references several alternatives. Conventional wood frame construction may comply with the WFCM or the ICC Standard for Residential Construction in High-Wind Regions (ICC-600) (Figure 4-6). Otherwise, the code requires wind design in accordance with the engineering provisions of the *International Building Code* (IBC) or ASCE Minimum Design Loads for Buildings and Other Structures (ASCE 7). [Ref. R301.2.1]

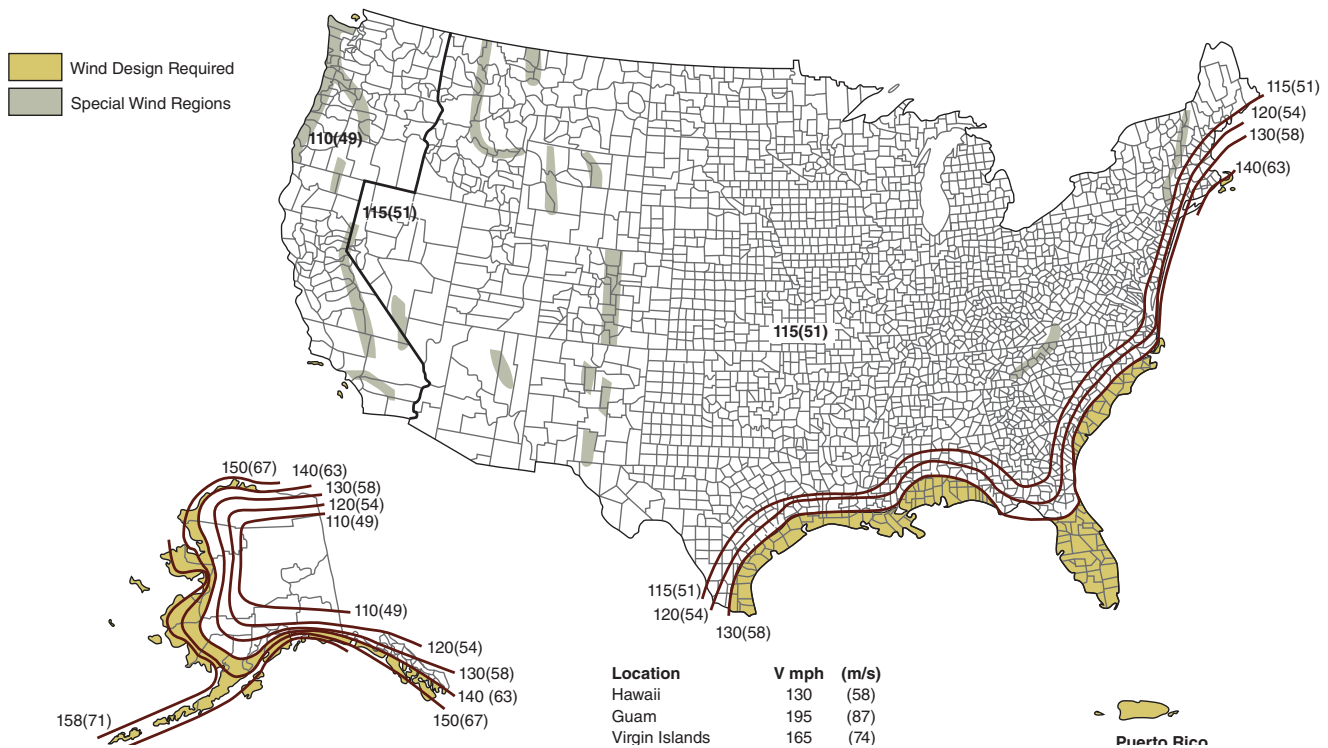


FIGURE 4-5 Regions where wind design is required