Exposure category

In addition to the wind speed for a geographic area, ground surface irregularities affect the wind forces placed on a building. Forested terrain or groups of buildings in close proximity shield a building from wind. Flat, open terrain, on the other hand, exposes a building to the full effects of wind.

The IRC classifies wind exposure into three categories: B, C and D. Exposure B, the default and most common application, affords some wind protection with trees and buildings characteristic of urban and suburban settings (Figure 4-7). Exposure C is basically open terrain with scattered obstructions (Figure 4-8). Exposure D applies to buildings in flat, unobstructed areas exposed to wind flowing over open water or mud flats for a distance of 5,000 feet or more.

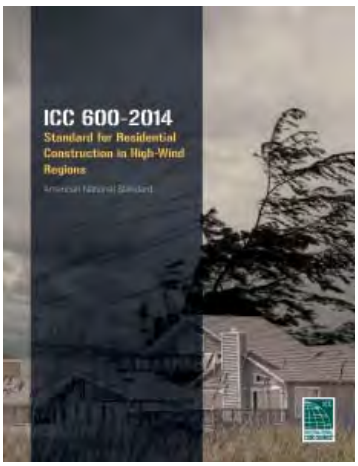

FIGURE 4-6 ICC 600

FIGURE 4-7 Wind exposure B

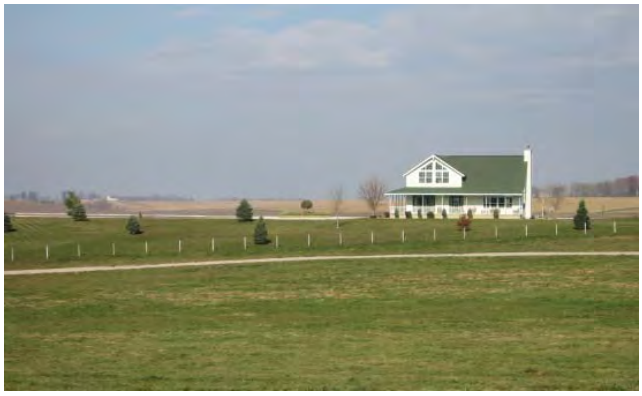

FIGURE 4-8 Wind exposure C

Exposure categories are important design criteria for engineering of buildings or portions of buildings resisting the effects of wind, and such criteria should appear on engineering submittal documents. Many of the prescriptive methods of wood frame construction in the IRC are generally deemed in compliance without consideration of the wind exposure category. However, wind exposure category is considered when applying the provisions for wall sheathing, wood wall bracing, roof uplift resistance, and exterior wall and roof coverings. Siding, roofing, windows, skylights, exterior doors and overhead doors must be manufactured and installed to resist wind loads based on ultimate design wind speed, exposure factors and other criteria in accordance with the code. **[Ref. R301.2.1.4]**