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TECHNICAL BULLETIN

Effective Date: January 1, 2003

Source Document: 19NYCRR 1220 - *Residential Code of New York State (RCNYS)*

Topic: The use of Cedar Shake Shingles in 110-120 mph Wind Zones

This document is to clarify the allowable use/installation of wood shakes in high wind regions of New York State with 110 -120 mph 3-second gust wind zones. Wood shakes are not prohibited in these regions. The traditional method for installing wood shake shingles utilizes wood purlins in lieu of continuous roof sheathing, which does not constitute a roof diaphragm. However, roof/ceiling diaphragms are typically an intrinsic part of the main wind force resisting system necessary to resist wind forces in a building, and *are* usually required as part of the engineered design. The building must be designed in such a manner as to resist the effects of wind loads acting on the building, regardless of the buildings cladding method (shingles in this case). This, as part of engineering methodology, requires rigidity of the building which is provided by diaphragm action. Absent the diaphragm action, other non-conventional methods must be utilized and engineered to withstand such forces. This engineered design method is allowed by *Residential Code of New York State (RCNYS)* Section R301.1.2

RCNYS Section R301.2.1.1 requires that buildings located in regions where the basic wind speeds equal or exceed 110 mph shall be designed in accordance with one of four referenced standards. This effectively prohibits the use of the RCNYS for the building's structural design. These reference standards (and generally accepted engineering practice) require building structures to be of sufficiently rigid design to resist and transmit wind forces acting on the building in a continuous load path to the foundation. Two of these standards, *The Wood Frame Construction Manual* and *Southern Building Code Congress International Standard for Hurricane Resistant Residential Construction (SSTD 10)*, require the use of floor and roof /ceiling diaphragms as the basis for design of the structure. The *Building Code of New York State* allows for engineered design of the building.

Wood shake shingles can be installed in high wind regions, by following the requirements of the RCNYS for wood shake shingles, and the minimum loading requirements of *ASCE 7-98* for air permeable cladding (for the design of shingle attachment). The building's structure must be designed in accordance with one of the referenced standards required by the *RCNYS* to resist the effects of wind forces on the structure, thereby showing compliance with the code.

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