Coastal Contractor

Special Supplement to The Journal of Light Construction and Remodeling Magazine

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BPA

~Guest Editorial

Stronger Nails, Properly Spaced

Eight dollars. $8. However you write it, that small sum can make a huge difference in the survival of homes exposed to high winds.

What does $8 buy? That's the estimated cost of switching to 8d ring-shank nails from 8d smooth-shank nails for a typical 2,000-square-foot house.

Literally hundreds of sheathing panels have been tested by the International Hurricane Research Center (IHRC) at Florida International University and at Clemson University, where I was a professor of civil engineering until 2004.

The data included individual nail withdrawal values as well as panel tests in vacuum chambers. Interestingly, we found single fastener ultimate withdrawal capacities for smooth-shank nails are often substantially lower than those implied by the *National Design Specification for Wood Construction* (NDS), while capacities for various ring-shank nails used in the test were generally equal to or greater than those implied by the NDS.

Head pull-through failures can also contribute to or control the ultimate uplift capacity of roof panel connections. This failure is commonly observed when ring-shank nails or screws were used to attach nominal 1/2-inch plywood and oriented strand board (OSB).

However, these panel tests found head pull-through failures were extremely rare for 5/8-inch (actual 19/32 inch) sheathing, even when ring-shank nails were used, supporting the suggestion that this thickness is a good choice in high-wind areas.

Through this research, we can conclusively say that 8d ring-shank nails installed at 6-inch spacing over the entire roof nearly doubles the uplift capacity of 5/8-inch roof sheathing compared with panels attached with 8d common bright or 8d galvanized nails.

Stronger nails, properly spaced in 5/8-inch sheathing. Increasing the wind resistance of homes along the coastline and across the country does not require a significant investment. — *Tim Reinhold*

Dr. Tim Reinhold is vice president of engineering at the Institute for Business & Home Safety, a national nonprofit initiative of the insurance industry dedicated to reducing the damages and suffering caused by natural disasters.