

December 10, 2012

To: Dan Tingen
Chairman, North Carolina Building Code Council

From: Residential Standing Committee
North Carolina Building Code Council

Proposal: Fenestration product rating and glass deflection.
"Effect of reflective sunlight on vinyl siding."

At the December 2010, North Carolina Building Code Council meeting, the Chairman assigned the Residential Standing Committee to review Item C-2 & Item C-3 and to report back to the Council when the interested parties completed ongoing research.

*Note: Item C-2 (D-2 at the March 2011 BCC Meeting) N1101.5 of the 2012 NC Residential Code.
Item C-3 (D-3 at the March 2011 BCC Meeting) 303.1.3 of the NC ECC.
Both titled Fenestration product rating and glass deflection.
At the March 2011 Building Code Council Meeting, the Council voted to hold these items
and send back to committee.*

The Residential Standing Committee met on February 23rd, 2011 and again on March 12th, 2012. Interested parties provided reports and made presentations to the committee. Among those providing the committee with information were representatives from the Window and Door Manufactures Association, the glass industry, builders, Vinyl Siding Institute, and members of the NC Home Builders Association. The committee reviewed reports and presentations from Berkeley National Laboratory Environmental Energy Technologies Division, NCDOT OSFM Evaluation Services white paper on Low-E-Glazing, MI Windows and Doors, Inc., Window and Door Manufactures Association, Cardinal Glass, and others. The committee also reviewed a report from The Commonwealth of Massachusetts Department of Public Safety that published a Vinyl Siding Distortion Advisory which referenced the NAHB report on "The effect of Reflected Sunlight from Low-e and other Double Paned Window Glass on Vinyl Siding".

When committees of the NC Building Code Council review requests for additions and changes to the existing building codes, the committee is confronted with the task of deciding whether an addition or change to the code is necessary, or whether the concern in question should be addressed by the manufacturer of these products. All products do not perform the same on our homes. This is the case with window and siding products. Some products may perform better or worse depending on factors such as geographic region, environmental factors, architectural design, orientation of siding surface, decay resistance, physical properties of the siding, grade or type of the window or siding, and sunlight reflective or absorptive qualities.

Other factors, such as low-e double pane windows (glass surfaces) that tend to bow inward, create a concave surface which may concentrate the sun's rays, causing vinyl siding to distort. In the case of reflective sunlight distorting vinyl siding, all of these factors may play a part including location of glass surfaces and the windows reflective surface.

Home builders and home buyers should be aware that there are cases where reflective sunlight on any siding product may produce unwanted effects, and on vinyl siding where this sunlight is concentrated can distort the siding. Builders and home buyers must research which window and siding products perform best under the conditions where the home will be built. This residential standing committee had hoped that information provided by the glass and vinyl siding manufactures would lead to a residential code proposal to solve this problem. To date, the glass and vinyl siding manufactures have provided valuable information to this committee, but not information that would result in another proposal to make changes to the residential code to help correct this problem. Warranties or insurance, does not appear to be providing solutions for the builder or homeowner to recover damages from reflective sunlight on vinyl siding.

The NC Building Codes regulates minimum standards for many products used in homes, and often how they must be installed. This issue is complex, not a one fix, fits all. The problem may not seem large when looking at all of the homes built in North Carolina, but is quite serious to those home builders and home owners who have this problem. This committee does not support the proposal submitted, but does provide this report to notify builders and home owners, that reflective sunlight can in some cases distort vinyl siding products.

Residential Standing Committee
David Smith, Chairman