Enersave
SYSTEMS

Severe Storm Protection

Icynene Inc., the manufacturer of The Icynene Insulation System®, initiated a study of hurricane wind effects after the record-shattering hurricane season of 2005. The purpose of the study was to determine if improved insulating practices can protect against potential water and moisture damage resulting from high winds associated with tropical storms.

The Alan G. Davenport Wind Engineering Group at the University of Western Ontario used a model home with reduced air infiltration rates similar to the rates that would be achieved had the home been insulated with Icynene® insulation/air barrier system. The gable-roof model featured attic and living spaces scaled to maintain similar volume ratios of a full-scale house. Two tests were conducted to measure the performance of two different insulation applications to determine which would deliver the best performance during strong winds. The wind models used during testing mimic that of Chicago and Miami.

The first scenario tested a typical vented attic design. The wind forced, laterally-driven rainwater entered the attic through the soffit vent assemblies; which can lead to a flooded attic, increasing the risk of mold growth and wood rot. Building science experts suggests that soffit assemblies are not appropriate during extreme wind driven rains. To eliminate the entry of rainwater, many experts recommend an unvented attic.

The second scenario tests the unvented attic theory by sealing each soffit vent, incorporating the attic into the conditioned space. Through this sealing, rainwater entry was eliminated, prohibiting moisture damage to the insulation and ceiling materials. The tests resulted that an unvented attic controls rainwater, aids in energy conservation and humidity control.

Recently, the International Code Council (ICC) amended its International Energy Conservation Code (IECC) and International Residential Code (IRC) to approve unvented conditioned attic assemblies, stipulating that an air-impermeable insulation can be applied directly to the underside/interior of the structural roof deck.

Source: Icynene report entitled, "Better Shelter: a new study offers home insulating strategies for added protection against severe storms."