Preventing Hurricane Damages

Catastrophic hurricane losses are the largest and most pervasive risk facing Florida's coastal communities. In 2004 and 2005, eight hurricanes slammed the state, inflicting $31.3 billion in insured losses. Much of this damage occurred because of roofs performing poorly during severe wind and rain.

FLORIDA SEA GRANT RESPONDS

Florida Sea Grant is funding development of technologies and policies that reduce hurricane damages, creating new options for innovative and low-cost retrofits, better building codes, and more realistic models for insurance companies to value properties and assess risk. Sea Grant supports an industry-research partnership at Florida International University that has constructed an impressive "Wall of Wind" research facility capable of creating hurricane-like conditions in a controlled setting.

To date, Florida Sea Grant has supported three key projects at the facility. One is an ongoing study of how wind-related damages to the outside of a house or other structure create paths for water intrusion to the interior. Better understanding this process should allow improved construction techniques as well as more realistic risk assessments by the insurance industry.

In a second project, the FIU team has developed polymer strips with epoxy adhesive to strengthen connections between roof trusses and walls, as a cost-effective retrofit, and in new construction. The strips offer major advantages over conventional techniques with metal straps, whose attachment can weaken structures. The FIU team also tested a new product, developed by a commercial partner, that attaches to roof edges to make them less susceptible to wind damage.

RESULTS

The FIU team has successfully quantified the process of water intrusion using mockups of sections of a house and is moving on to a larger-scale trial. Wall of Wind test results have shown that the low-cost polymer strip truss-to-wall connectors perform as well or better than traditional techniques. The group has applied for a patent and is seeking a commercial partner for marketing. They also showed that the roof-edging product, which is on a path to wide availability, dramatically reduces damaging roof suction.
where
innovation
meets
impact