

What is WPI-8?

And what does it mean to my construction or remodeling project?

BY CAROLIN SANTANGELO

Hint: It isn't an acronym for engineers using wands, potions and incense to analyze your project

WPI-8 is the certificate of compliance that is required upon completion of coastal home construction, which certifies a home as insurable for windstorm coverage with the Texas Department of Insurance (TDI). Think of it as 'windstorm proof of insurance.'

Our location along the coast and on a barrier island comes with all the benefits of island living; sand and sun, recreational water sports, bird watching and fishing. This setting, seaward of the intra-coastal waterway, comes also with special requirements for construction, additions or exterior remodeling. It is precisely because of the close proximity to bay and beach, and its inherent higher risk due to exposure to tropical storms and hurricane force winds, that these measures are necessary.

Once the design phase of your project is complete, drawings will be provided for engineering review, prior to acceptance by the city permitting department. You or your builder / contractor may identify the TDI-approved engineering firm that you wish to use.

A windstorm engineer's plan review -- and follow-up, on-site inspections -- are required for all new construction and exterior remodeling to achieve the WPI-8. The engineer may package services together, with a single fee for plan review and inspections. During the framing process, it will be up to the contractor to schedule inspections at appropriate times. Once construction is completed to specifications, the engineer will sign off and a WPI-8 certificate is issued by the TDI.

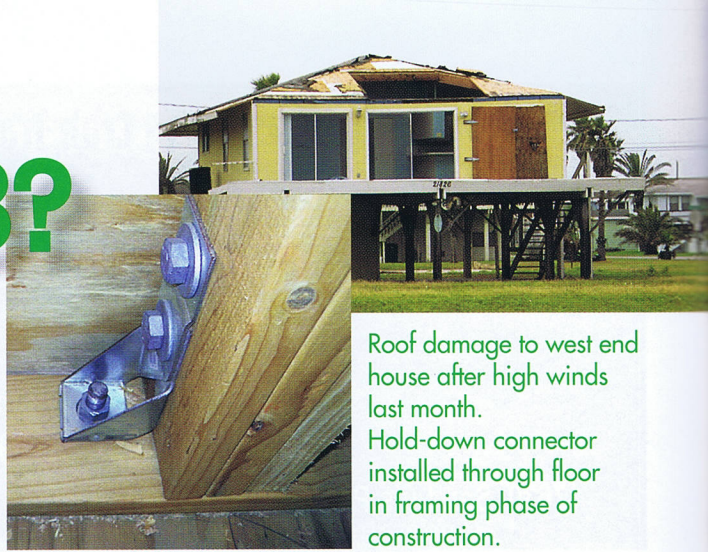
There are perceptions that the windstorm engineering criteria may unnecessarily cost the homeowner more in construction and labor costs. If you are paying for the service, however, don't you want to ensure you are getting the best-engineered product, which will withstand the rigors of coastal weather conditions?

In discussion with David Franklin of Aran & Franklin Engineers, we talked about how important some features, and engineering analysis, are to the ultimate performance of the entire structure.

A hurricane tie is a small, but mighty piece of hardware designed to hold roof rafters to the walls of the house. There are a wide variety (whole catalogs) of clips that can be installed on any roof / rafter / wall configuration. These generally cost just a couple bucks apiece (note that hundreds may be required, depending on house size).

On a larger and more dramatic scale, substantially more beefy hold-down connectors may be specified to be used at critical positions throughout the house, but still cost only \$25 to \$35 each.

Last month extreme high winds were experienced overnight on the west end, and in the morning it was discovered that two houses in Sea Isle had been severely damaged. These older homes, which faced the beach, had deep roof overhangs and porch covers that caught the wind. Hurricane Ike had not



Roof damage to west end house after high winds last month. Hold-down connector installed through floor in framing phase of construction.

seriously affected either of these, and we can't say what kind of tornado-like winds may have been experienced this time. However, predating current codes requiring application of hurricane clips or other connectors, both of these sustained catastrophic damage to their roofs and consequently, to their interiors.

David Franklin recommends a maximum roof overhang of 24 inches; an overhang less than this can be supported fully by the integral rafter tail extensions. Beyond 24 inches there must be additional engineered support. Additionally, porch overhangs should be supported via a combination of: connection to the roof, transferring wind load pressures from the roof through supporting posts and down to the pilings or foundation.

Internal to the structure, shear walls are often used to resist the 'overturning moment;' to the layman, this means to make sure the house doesn't twist in the wind. Shear wall is built of plywood panels on one or two sides of an interior wall, to assist in keeping the structure rigid, resisting undesired movement. When winds are applied to the roof, loads are transferred to the shear wall, which in turn, transfers pressure to the floor and to blocking between stringers.

Each project is different, though at strategic points hold-down connectors may be specified, along with extra bolts, beams, metal strapping, shear walls, insert shear panels or steel plates. Your project may include any or all of the above.

It may even be possible to apply connectors to your existing structure. If you have an older house, it may be prudent to hire a windstorm inspector to identify vulnerabilities in the structure that will benefit from reinforcement.

For the homeowner, these may seem to be non-gratifying details of your home's construction. These special features will be installed behind the walls, immediately covered up with sheetrock and siding, never to be seen again. However, you will be able to sleep well at night, knowing that your home is designed and engineered to meet most extreme coastal weather conditions.

Consultation courtesy of David Franklin, Aran & Franklin Engineering, Inc. www.aranfranklin.com, 409-935-5200. Carolin Santangelo is a home designer and owner of Seaside Home Design, LLC. To contact, visit SeasideHome@windstream.net, or call 409.632.0381.