

Building a Disaster Resistant House

- What can you do to prevent major damage to your home?

- **Install an Impact-Resistant Roof.** An impact-resistant roof which can protect against hail damage. An impact resistant roof uses a rubber compound that is blended into the asphalt to give the surface more flexibility and bounce. Some insurance companies may offer a discount to homes with this kind of roof.
- **Install Whole House Surge Protection and High Quality Plug -In Surge Protectors.** Whole house surge protection and high quality plug- in surge protectors can help prevent against lightening and lightening induced power surges which can damage computers and other electronic components like TVs and Stereos, air conditioners, washing machines, dryers and other equipment. A whole house surge protector installed at the main electrical meter will divert most of the surge energy to the ground. Whole house surge protection units can be purchased for as little as \$50 plus installation. High quality surge protection would be priced higher. Quality plug-in surge protectors can also provide point-of-use protection and can protect against direct lightening strikes.
- **Utilize Wind Resistant Construction.** During high winds, increased wind loads can cause significant damage. Improving the framing connections within a home can reduce damage. The concept is to tie the home together from the very first boards on the foundation through the roof structure. Anchor bolts will strengthen the attachment of the sill plate. Continuous sheathing from the sill plate to the roofline ties the first and second stories together and wind clips hold the roof on the home much more securely. Careful nailing of the roof sheathing will further increase strength.
- **Install Stronger Garage Doors.** Garage doors and windows will often fail under high winds. Buildings come apart in strong winds because the wind enters somewhere. When engineers looked at buildings damaged in Oklahoma City, they found that garage doors frequently buckled first, allowing wind to tear apart the rest of a home. By installing a 2" thick garage door with horizontal bracing and a strengthened wall frame on both sides of the door, you can reduce wind damage more so than if you had a lighter, non-reinforced door.
- **Install a Safe Room.** A saferoom is a reinforced concrete structure designed to withstand ground level wind speeds of 250 mph and damage from a 14' - 2x4 traveling at 100 mph. Protecting the occupants of a building once the wind is inside is another challenge. Experts now advocate home 'safe rooms,' specially reinforced rooms or closets which can protect people. Experts stress safe rooms because people have been killed by flying debris when they've waited too long before trying to reach an outdoor shelter.
- **Install a Washing Machine Hose Cut-Off Valve.** The unit will sense when the washing machine cycle is complete and then shut down the water supply, while relieving the pressure in the hoses. Washing machine hose failures result in \$150

million in damage to homes in the United States and Canada each year. Hoses need to be regularly inspected and periodically replaced. Check with a professional plumber who can tell you about products like a water hammer aerator which will absorb the increased water pressure that comes when the electric valve in your washing machine shuts off or automatic shut off valves.

- **Disaster Proof Your Windows.** If you are replacing your existing windows, install impact resistant window systems, which have a much better chance of surviving a major windstorm. These window systems are commonly available in hurricane-prone areas. If you are unable to find them locally, you can order them from manufacturers or home improvement stores in coastal areas. You also install a laminated film, which will prevent glass from flying. However, you should be aware that while it will protect you from glass flying into the home, it could also make it more difficult to break out your window to escape a fire.
- **Install Back Flow Valves.** In some areas, flooding can cause sewage from sanitary sewer lines to back up into houses through drain pipes. These backups not only cause damage that is difficult to repair but also create health hazards. You can prevent sewer lines from backing up by installing backflow valves or standpipes, which are designed to block drain pipes temporarily and prevent flow into the house. Backflow valves are available in a variety of designs that range from the simple to the complex. If your basement is prone to flooding, you may also want to raise all utilities and equipment, such as the water heater, oil tanks, furnace and electric wiring. Finally you will want to install and maintain a sump pump system if you have below grade floors. Remember to get a battery back-up for your sump pump.

These are just a few suggestions to consider if you plan to build a new home or to retrofit your existing home.

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