Spring 2005

Special Edition on Disaster-Resistant Roofing

BLUEPRINT FOR SAFETY NEWS

Finding a qualified roofing contractor takes some time – and a lot of research. The *Federal Alliance for Safe Homes* provides the following tips to help ensure you'll hire a contractor that is honest, reliable and knowledgeable.

Ten Things You Need to Know About Choosing a Roofing Contractor

1. Make sure the roofing contractor has a permanent and identifiable place of business, complete with phone number and physical address.

2. Roofing contractors should be knowledgeable about the latest developments in the industry. Ask if the contractor is a member of a local, regional or national association.

3. Require potential contractors to show proof of insurance – for both workers compensation and general liability insurance.

4. Contact state and local licensing boards to insure a roofing contractor has all the appropriate licenses for your area.

5. Ask potential contractors for references of past customers who have the same type of roof system being installed for you. Contact the references to see if the contractor completed the job satisfactorily.

6. Find out if the contractor is an approved applicator for one or more roofing material manufacturers. Ask if the product you choose has an approved applicator program, and if your roofing contractor is certified. Keep in mind that most manufacturers of shingles and tile do **not** have these programs.

7. Require the contractor to have a written safety program. An emphasis on safety ultimately lowers the cost of doing business, and further assures that your job will go smoothly.

8. A good roofing contractor should have a quality assurance program. Ask who will inspect the work of the crew installing your new roof.

9. Research the contractor's financial stability. Ask for names of a few of the contractor's material suppliers and call them for assurance.

10. Most of all, make sure you feel comfortable that the company has the experience and expertise to handle your roof installation.

If you are replacing your roof, be sure your contractor removes its covering down to the bare wood.

Strengthen Your Roof Against All-Weather Hazards

By Leslie Chapman-Henderson, President & CEO, FLASH, Inc.®

Your roof covering is your home's first line of defense, but it is also the part of a house most affected by severe weather conditions. Whether you live in the North, South, East or West, your roof will be subject to the damaging forces of hail, high wind, ice, lightning or wildfire.

This issue of *Blueprint for Safety News* focuses on methods of strengthening your roof - whether you are planning to re-roof your present home or build a new one. These tested, code-plus techniques and products are critical to protecting you, your family and your belongings.

Even the smallest leak or curling shingle can signal a bigger problem if left unchecked. Misplaced nails in the roof deck or inadequate roof-to-wall connections are hazards that are easily identified - but only if you, your contractor or home inspector know what to look for.

That's why it's critical to choose a professional, licensed, and well-established contractor. Take the time to discuss the best options for disaster-resistant materials and construction methods. Local building codes set a solid minimum safety standard, but do not guarantee that a home's roof will be built with the highest level of protection available. For that reason, roofing professionals generally agree that an effective roof system requires proper design, quality materials and installation, regular inspection and proper maintenance.

Shopping for the best materials, researching the most effective installation techniques, and establishing a relationship with a professional roofing contractor are some of the best ways to achieve effective, long-term roof system safety.

Strengthening Homes and Safeguarding Families
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CEO's CORNER

Ten Steps to Building a Disaster-Resistant Roof

The roof is by far the largest and most vulnerable structure on any house. It takes a beating from hail, rain, sun and wind throughout the year, as well as the occasional lightning strike and fallen tree limb. Despite these everyday hazards, a new roof system can last about 20 years depending on the type of roof covering installed. Some types, such as, clay tile, certain metals like copper, or slate systems can last longer.

Homeowners and homebuilders can improve the life and strength of a home's roof by following a few simple steps. The following are ten techniques that can be used during a roof installation on a new or existing home.

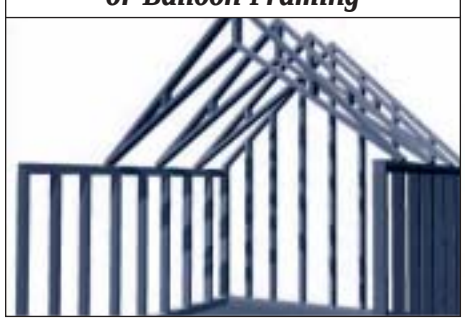
Step 1: Consider the Shape of the Roof

If you are building a new home, the type and shape of the roof can help determine how well it will perform during a severe windstorm. A ***hipped roof*** typically performs better in windstorms than a gabled roof because of its aerodynamic properties. A hipped roof slopes upward from all sides of the building. A ***gabled roof*** has two slopes that come together to form a ridge or peak at the top, making each end look like the letter A.

Step 2: Brace Gable Ends

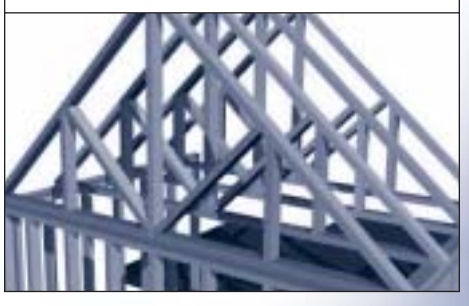
Homes with gabled roofs are more likely to suffer damage, such as the collapse of the end wall from high winds, because they are often not braced properly during construction. If your home is built with a gabled end wall, use one of the following construction techniques.

Continuous Wall or Balloon Framing



Homes with high, cathedral ceilings, where there is no place to brace a gabled end should be ***balloon framed***. Use full-height studs, concrete or solid masonry walls from the floor below all the way up to the roof. Balloon-framed gable end walls perform better in windstorms because they do not have the hinge that usually exists where the triangular part of the gable sits on top of the wall below.

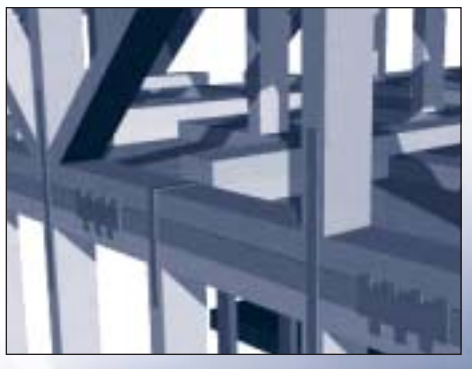
Platform Framing



Brace the intersection of the gable and the end wall. This intersection is a particularly weak point and those that are not properly braced can collapse, causing major damage. In homes with attics, an attic floor or ceiling diaphragm with the proper bracing techniques can be used to provide the lateral support of the gable end wall if the end wall is NOT framed full height, or ballooned framed.

Step 3: Secure Roof-to-Wall Connections

Your home's ability to resist the extreme force of wind is only as strong as its weakest link.



The only sure way to create a wind-resistant home is to secure all connections - wall-to-foundation, roof-to-wall, and floor-to-floor.

Install hurricane "straps" or "clips" at every wall-to-rafter (roof joist) connection to reinforce the roof. These connections are critical in holding the roof together and will dramatically increase the home's overall wind resistance. Pay special attention to the reinforcement of gable end connections, which are more likely to fail in high wind. Be sure to install all connectors following manufacturer's specifications.

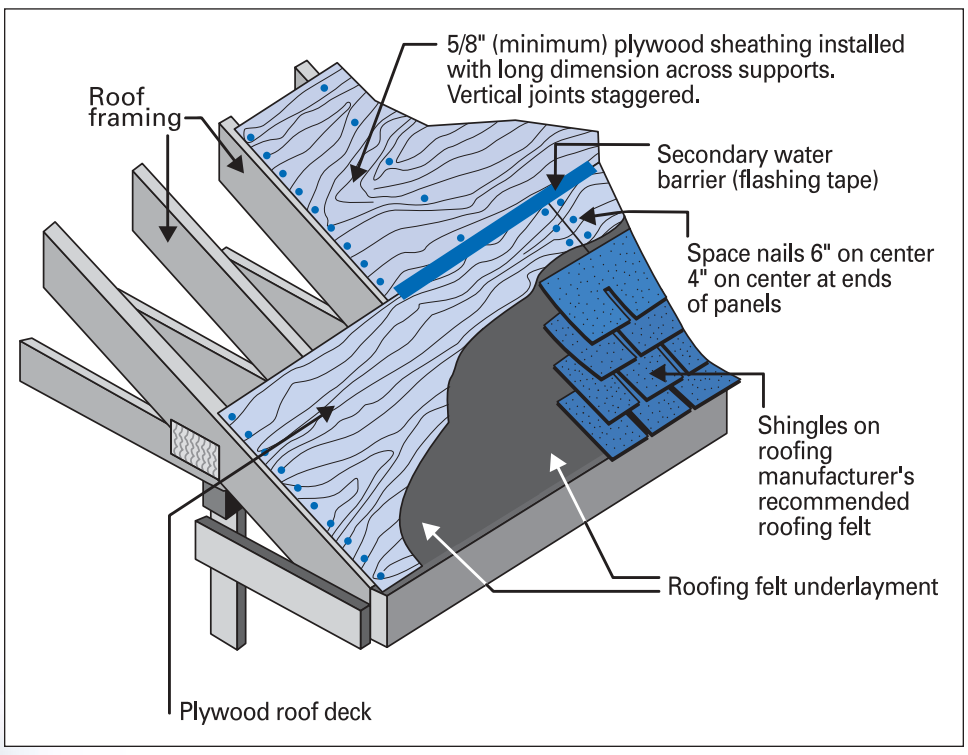
Step 4: Reinforce Roof Sheathing (Decking)

The roof covering and the deck beneath it are your home's first line of defense from high winds and rain.

Install a roof deck made of solid plywood (not oriented strand board-OSB) that is a minimum of 5/8" thickness to maximize wind and windborne debris resistance. Use 10-penny common or 8-penny ring shank nails to secure the sheathing, nailed every four inches along the panel edges and every six inches in the field of

the plywood panel. Make sure the nails penetrate the decking directly into the roof framing. *(See diagram below).*

Be sure to look in the attic to confirm that the roof decking is properly installed to the roof framing. If you can see nails along the sides of rafters or trusses, where the nail penetrates the decking, your roof deck is probably not securely attached.



Step 5: Create a Secondary Water Barrier

Install self-adhering flashing tape or modified polymer bitumen strips (referred to as "peel and seal") to help keep out rain in the event the roof covering blows off during severe weather. Apply the tape to all joints on the plywood deck sheathing.

Step 6: Install the Roof Underlayment

Install one layer of #30 underlayment (sometimes called "felt paper") over the plywood roof decking and secondary water barrier tape. One layer of #90 underlayment is recommended for tile, slate or metal roof coverings.

Step 7: Select an Impact-Resistant Roof Covering

Install a roof covering that has been tested to the latest standards for wind and impact (hail) resistance. These standards are ASTM D 3161 enhanced or UL 2390 for wind resistance; UL 2218 for impact resistance. Be sure to specify these standards and look for labels on the products confirming these standards because ordinary roofing materials may not look any different from the wind-resistant versions. Also pay careful attention to the manufacturer's warranty - in some cases, the length of the warranty may have been established as a marketing tool without appropriate technical research or field-testing.

Step 8: Choose the Right Roof Covering for Your Location

Consider the weather conditions that will most impact your roof. Are you in a hurricane-prone area or in one that is affected by hail? Even one hailstorm can seriously damage your roof's covering. Here are the different types of roof covering materials.

Asphalt shingles are found on most homes in the United States. They can be reinforced with either organic or fiberglass materials. *Fiberglass* shingles last up to 20 years and have a Class A fire rating. *Modified* asphalt shingles include SBS (a rubber-type compound) or APP (a plasticizer) and are likely to perform well in hailstorms. *Fiberglass composition* shingles stand up moderately well to hail. If you live in hurricane-prone areas beware: Most asphalt roofing shingles are not rated to withstand winds above 60 mph – well below the minimum hurricane wind speed of 74 mph.

Metal, once considered a commercial roofing material, has now become an attractive alternative for some homeowners. Metal roofs last up to 40 years, are relatively lightweight, and may have a Class A or B fire rating. But unlike other shingles that can ease back into shape, metal shingles can dimple permanently when hit by hail.

Slate can last more than three times longer than shingles but is also more expensive than other materials. Slate is also very heavy. Some roof structures are unable to support this type of roof covering.

Synthetic roof coverings made of fiber cement or molded plastic can simulate the look of various types of traditional roof coverings, such as slate, wood shingles and shakes, but their performance varies by product.

Tile is popular in some areas, but its performance in hailstorms varies by type. Concrete tiles are more durable and can last more than 20 years. Clay tiles are brittle and can be easily chipped or broken. Like slate, tile is heavy. If you replace another type of roof with tile, be sure that the structure can support the weight. Heavy products also can take longer to install, making labor costs significantly higher. Hire a roofing professional experienced in installation of tile and slate.

Wood shingles and shakes are made from cedar, southern pine or other woods. Though some people like their appearance, wood shingles and shakes perform only moderately well against hail. In addition, some local codes limit their use and they may not be rated for fire unless they're treated with a fire retardant. "Class A" roofing materials have the highest resistance to fire that originates from outside the home.

Step 9: Add an Extra Measure of Protection

On roof systems at least a year old, you can increase the wind uplift resistance of your roof over nail-secured sheathing alone by applying a 1/4 inch bead of APA AFG-01 certified wood adhesive along the intersection of the roof and deck AND roof support elements on both sides of the beam.

Step 10: Perform Roof Check-Ups Twice a Year

During Spring and Fall, look for: shingles that are buckling, curling or blistering; loose material or wear around chimneys, pipes and dormers; and excessive amount of shingle granules in gutters. Granules give shingles weight and protect against ultraviolet rays of the sun. Also be sure to clean the roof and gutters of tree limbs and leaves.

Some Facts to Consider about TILE ROOFING

Clay or concrete tile is becoming more and more popular as a roof covering. But loose tile can become windborne missiles in hurricane-force winds if they are not installed properly.

In fact, the South Florida Building Code is more restrictive than any other in the country because of the high rate of roof-tile damage after Hurricane Andrew. Still, the Code contains "minimum requirements" not necessarily as stringent as they should be.

The Tile design can be problematic. It is configured with an air space beneath the tile, which makes the tile vulnerable to high winds. Broken or loose tile are even more vulnerable. Once a tile becomes loose or breaks, wind can get underneath and it's only a matter of time before the remaining tiles become airborne.

FLASH® recommends the following steps for installing tile:

- Choose a roofing contractor who specializes in tile installation. Ask for references and then contact these references for their opinions of the contractor's performance. Ask for projects that were installed at least three to five years ago. They will have more likely been exposed to adverse weather conditions.
- Use copper nails and flashing to avoid corrosion. This will prevent premature roof failure.
- Install tile with two nails per tile rather than one.
- Set ridge, hip, and rake tiles in foam adhesive rather than mastic or mortar.
- Instead of 90-pound underlayment use modified bitumen cap sheet to extend the life of the underlayment to match that of tile.
- Check for roof to wall connections. If needed they can be installed when the existing roof is removed.

Maintenance to eliminate missing or broken tile is important to preserve the integrity of your roof. However, tile is easily broken so avoid any foot traffic on your roof by anyone other than a professional trained to walk on tile.

Disaster Safety Through Partnership

Academic Partners
- Austin College
- Central U.S. Earthquake Consortium
- International Code Council
- Texas Tech Wind Science and Engineering Research Center
- The Actuarial Foundation

National Partners
- American Red Cross
- American Society of Home Inspectors
- Citigroup
- FEMA
- Firewise
- Institute for Business and Home Safety
- National Roofing Contractors Association
- National Storm Shelter Association
- National Weather Service
- Nationwide
- St. Paul Travelers
- State Farm Insurance Companies
- The Home Depot
- The Home Depot Foundation
- The Salvation Army
- USAA

Regional Partners
- Apalachee Regional Planning Council
- Rocky Mountain Insurance Information Association
- Southwest Insurance Information Service
- Tampa Bay Regional Planning Council

State Partners
- Alabama Department of Insurance
- Arkansas Department of Insurance
- Building Officials Association of Florida
- Citizens Property Insurance Corporation
- Disaster Contractors Network
- First Floridian
- Florida Department of Community Affairs
- Florida Department of Financial Services
- Florida Division of Forestry
- Florida Emergency Preparedness Association
- Florida Fire Chiefs Association
- Florida Insurance Council
- Florida Select
- Georgia Department of Insurance
- Georgia Emergency Management Agency
- Independent Insurance Agents of Texas
- Insurance Council of Texas
- Kentucky Division of Emergency Management
- Kentucky Office of Insurance
- Kentucky Weather Preparedness Committee
- New Jersey Office of Emergency Management
- New York State Insurance Department
- North Carolina Department of Insurance
- Texas Department of Insurance
- Texas Department of Public Safety
- Virginia Bureau of Insurance
- Virginia Department of Emergency Management
- Volunteer Florida
- West Virginia Insurance Commission

Community Partners
- Brevard Prepares
- City of Anderson, Indiana
- City of Deerfield Beach
- Duval Prepares
- Hernando County Emergency Management
- Home Builders Association of Greater Dallas
- Miami-Dade Emergency Management
- Tulsa Partners
- Volusia Prepares

Leadership Partners
- Walter A. Bell, Alabama Insurance Commissioner
- Jane L. Cline, West Virginia Insurance Commissioner
- Ernie Fletcher, Kentucky Governor
- Tom Gallagher, Florida Chief Financial Officer
- Alfred W. Gross, Virginia Insurance Commissioner
- Jim Long, North Carolina Commissioner of Insurance
- Glen Jennings, Executive Director Kentucky Office of Insurance
- José Montemayor, Texas Commissioner of Insurance
- John W. Oxendine, Georgia Insurance & Safety Fire Commissioner
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Resource Partners
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- Wayne-Dalton

Moss Control for Your Sloped Roof

The Problem

Trees and shrubbery provide an organic food source for moss, algae and lichens – and tree shade prevents shingles from drying out. This growth on roofs can hinder drainage and cause leaks and premature roof failure. And contrary to popular belief, moss grows on any side of the roof if conditions are right, not just the north side.

The Remedy

- Remove trees and plants overhanging the roof.
- Carefully clean the roof with surface brooming and controlled low-pressure rinsing.

First, a caution: Moss covered roofs are very slippery, especially when wet.

- Alter the ph of rainwater runoff by installing zinc, copper, or galvanized steel strips along or near the ridge line. But remember, this procedure, if improperly done, can be harmful to your roof as well as dangerous for a homeowner and should be performed by a knowledgeable roofing professional.

Other Cautions

- Make sure your roof is in good enough condition to withstand the moss removal.
- Some chemicals used for rinsing may kill surrounding plant life.

A brochure with detailed information on this subject is available from the Western States Roofing Contractors Association. This association can also provide you with a list of roofing contractors in your area with the knowledge necessary to deal with moss control. Visit www.wsrca.com

For more roofing information visit:
The Federal Alliance for Safe Homes - FLASH, Inc. ....www.flash.org & www.blueprintforsafety.org
The National Roofing Contractors Association ..... www.nrca.net
The Well-Connected House/Simpson Strong-Tie .....www.wellconnectedhouse.com

We welcome your questions and comments through www.flash.org
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www.flash.org
1427 East Piedmont Drive, Suite 2
Tallahassee, FL 32308
www.flash.org
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