Add Strength and Water Resistance When Repairing Your Roof

Whether you are just replacing a few shingles or have damage that requires you to strip down to the rafters, you can take steps at every stage of work to minimize future storm damage. For new construction and substantial remodeling or repair, you'll have to meet residential building codes. Check with your local permit office before beginning construction to see what codes may apply to your restoration project. Keep in mind that building codes can be used as a guide to stonger construction, even when you are not required to follow them.

Add adhesive to loose shingles

If the storm took off just a few shingles, and your roof is otherwise in good shape, take the opportunity to check for loose shingles. Most loose shingles can be spotted from the ground; only attempt to repair those tabs that are visibly loose. If you can lift the edge of any shingle, a good strong wind can do the same. You can prevent wind damage by adding roofing adhesive where edges are loose. This can be done even if you're not doing other roof work. Add three dabs of adhesives under the edge of loose shingles and apply pressure. Do not apply a continuous bead of adhesive. Use care, both for your safety and to avoid damaging the shingles by walking on them.

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BUILD Safer Stronger Smarter

redo the roof...

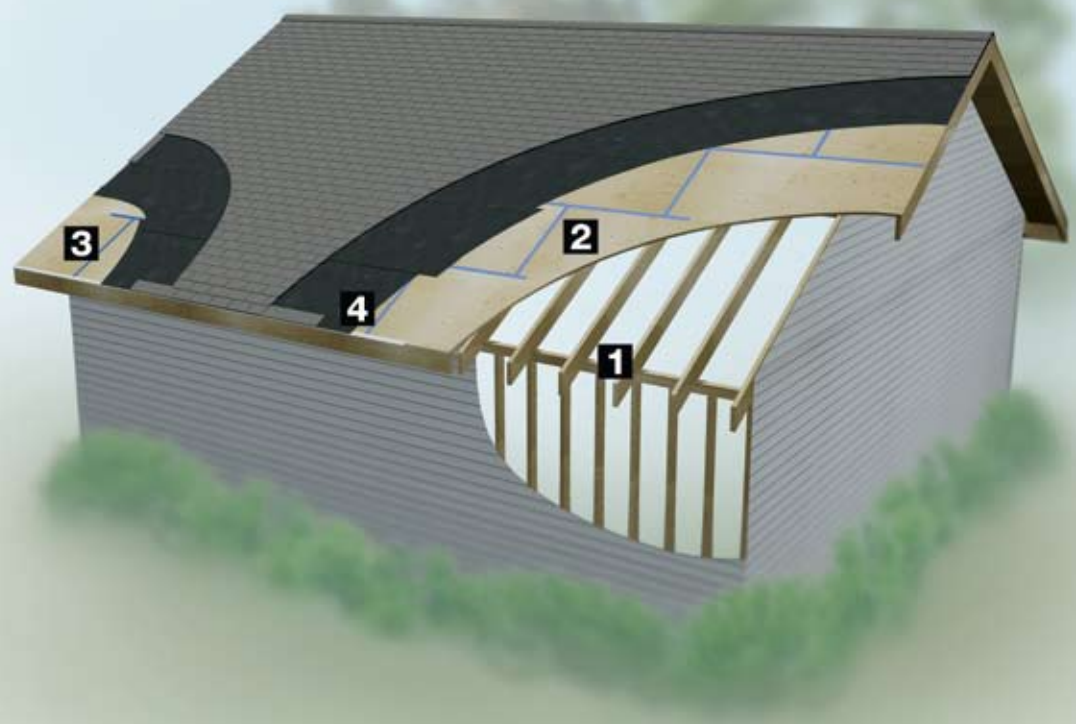
When you replace shingles, it's a good idea to replace the roofing felt, too. With the felt off, you can see the roof deck, or sheathing. Roof decking gives you something to nail the shingles to, but it also helps stabilize and distribute wind loads across the entire rafter system. The process of adding strength when redoing a roof, begins with making sure the decking is in good shape and that it is fastened well to the rafters. But, you may go one step further and remove the decking along the eaves, so you can add hurricane straps.

Choose shingles that are hurricane-rated

When it's time to replace a shingle roof, you may choose a metal roof or other roof covering that has proven resistance to hurricanes, but you can stick with shingles. Wind resistant shingles come in three classes:

90 mph wind (Class D)
120 mph wind (Class G)
150 mph wind (Class H)

Select shingles with a rating equal to or greater than the basic wind speed at your location (see wind speed map inside).



When it's time to

Add hurricane straps

Sometimes you'll need to replace damaged or rotted roof decking. When roof decking is removed along the eaves, you may be able to strap the rafters to the walls. Wherever the rafter is directly above the stud and the stud is exposed because the wall covering has been removed, the strap should extend to the stud. Strapping that wraps over the rafter is better than strapping that just attaches to the side of the rafter; old rafters may split in high winds if the bottom part is attached to the wall and the top edge is attached to the roof sheathing. If the strap doesn't wrap over the rafter, it should catch at least 4 inches.

Top plates are typically held to wall studs with toenails. If only the top top plate is accessible for strapping (because no wall coverings have been removed), strengthen its attachment to the bottom top plate by adding deck screws. Putting these on an angle adds a lot of strength. When the top top plate has been firmly attached to the wall, straps or brackets that attach the rafter to the top plate will do some good.

Install screws, brackets and straps to connect all the old rafters you can reach. Even if you can only connect a few, you will have improved the ability of your roof to resist uplift forces.

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Add fasteners to the roof deck

Roof decking is typically nailed or stapled sparingly–just enough to keep the plywood or oriented strand board (OSB) from sliding off. In high-wind areas, tremendous uplift pressures on the roof can lift the decking off. While the roofing felt is off during repairs or replacement of the roofing, add nails or screws to the roof deck The nail size and type, and the spacing of nails, is specified to resist the uplift force for a particular house, roof pitch, wind speed and other factors. However, in the absence of specific design for an existing house, much good can be done using 8- or 10-penny nails spaced 4-6 inches at the seams; 4-inch spacing is more appropriate for higher wind areas.

Galvanized, ring-shank nails have more holding power than smooth-shank nails. If you use screws, 2 to 2 ½-inch deck screws are a good choice. Be sure the nails or screws hit the rafter. If you can't tell from outside, shine a light into the attic where the roof decking meets the rafters. Nails that missed the rafter will "shine." Wherever you have a large number of "shiners" go out and add a few nails or screws in that deck panel.

If the felt and shingles are already on, you can strengthen the roof-deck-to-rafters connection by adding subflooring adhesive. From inside the attic, using a caulk gun and AFG-01 tested adhesive, run a continuous bead of adhesive along each side of the rafter where it meets the roof sheathing.

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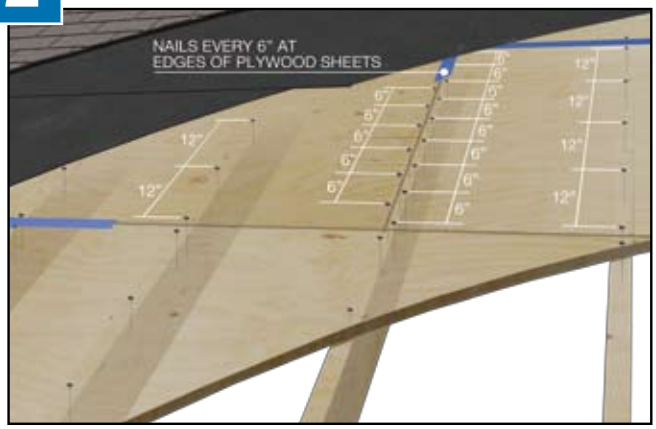
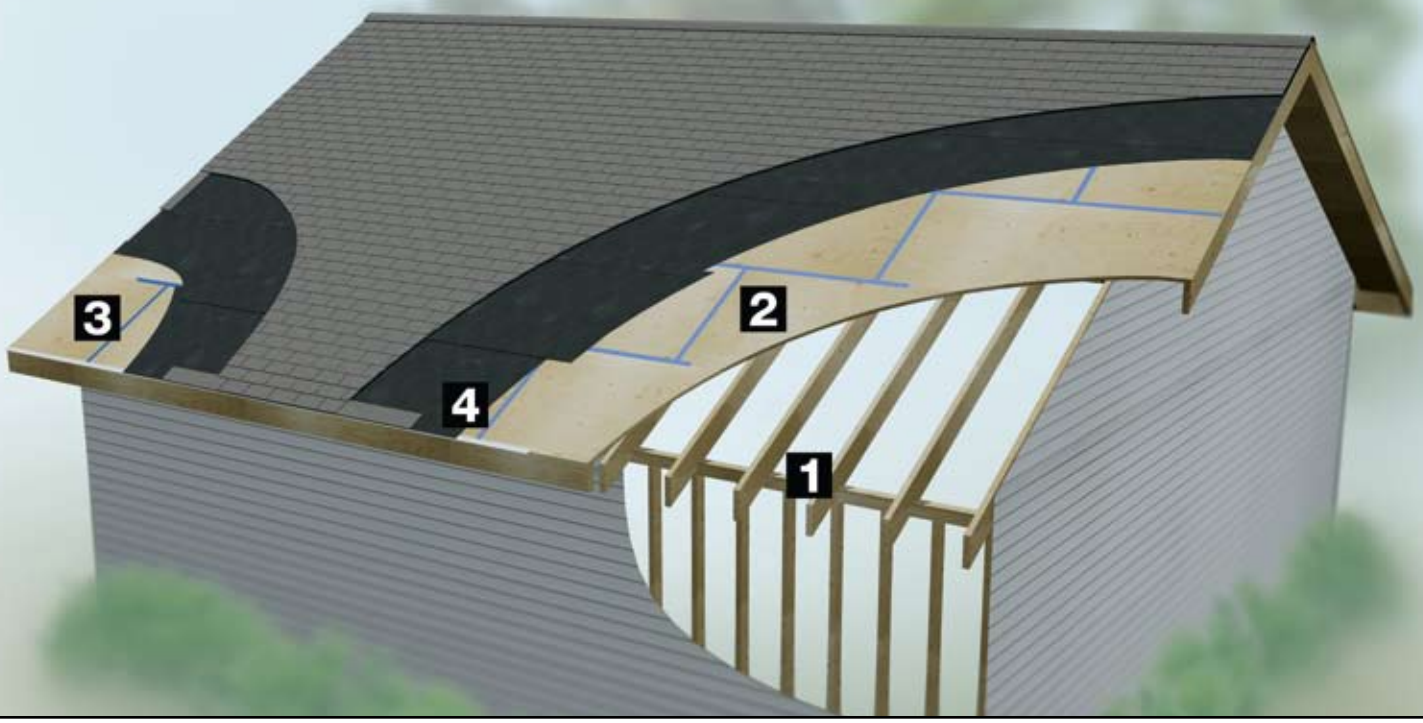
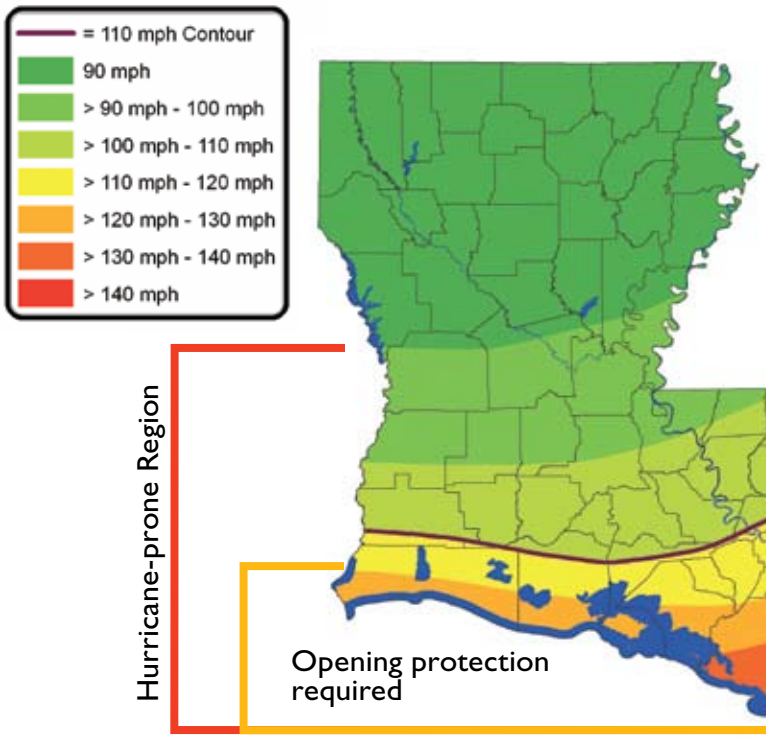


redo the roof...



Louisiana Basic Wind Speeds



Basic Wind Speed has been determined by the American Society of Civil Engineers (ASCE) as a reference for the International Residential Code (IRC), on which the Louisiana State Uniform Construction Code is based. Basic Wind Speed in Louisiana ranges from 90 mph in the northern part of the state to 150 mph in the southeastern tip.

Use a synthetic underlayment

When the shingles blow off or the tabs are damaged, the old type underlayment (roofing felt) provides little resistance to wind damage. This layer of material should keep water from running in through expansion gaps in the roof deck. Wind-driven rain that gets in through the roof causes major damage.

Improve the storm resistance of the roof by doing one or more of the following:

■ Tape seams in the roof deck using a modified bitumen tape (not duct tape).

■ Use a synthetic underlayment. Synthetics are more wind-resistant than roofing felt. For long-life metal or simulated tile roofing, a peel-and-stick (fully adhered) waterproof membrane might be a better choice.

■ Overlap the underlayment 4-6 inches, or more in very high-wind areas

■ Install drip-edge over the underlayment along the rakes (edges of gable roofs); place underlayment over the drip-edge along the eaves.

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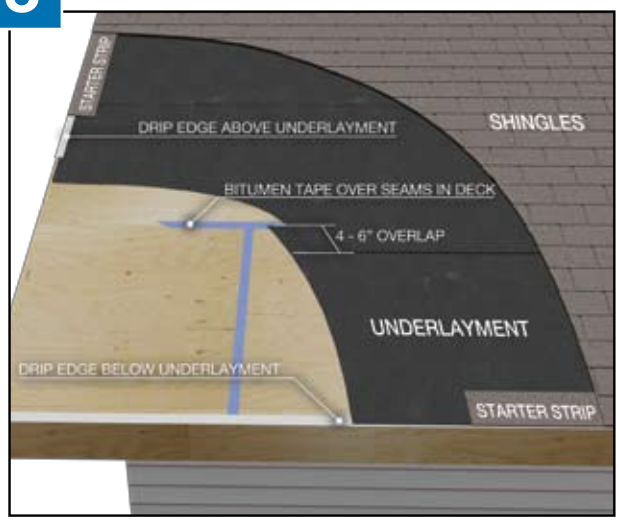

Use high-wind installation techniques

Wind forces are greatest along the eaves, rakes, ridges and valleys of the roof — or, in essence, when the wind has to change direction to get over or around the building. Building codes call for stronger attachments in the higher wind-force areas. It's simpler and more practical to use the stronger attachment methods and nailing patterns in all portions of the roof. You can improve the wind resistance of any asphalt shingle by using six nails per shingle.

For improved wind resistance:

■ Use a starter strip along eaves and rakes nailed between 1 and 2 inches from the edge of the roof. This is a tabless strip of roofing with adhesive strips on the top and bottom near the edge. Extend the starter strip and shingles 1 inch beyond the drip edge.

■ Put two nails at each tab-cut, for a total of six nails instead of four. Never use staples for installing roof shingles.

■ Use extra roofing adhesive under shingles along the eaves, rakes and ridges.

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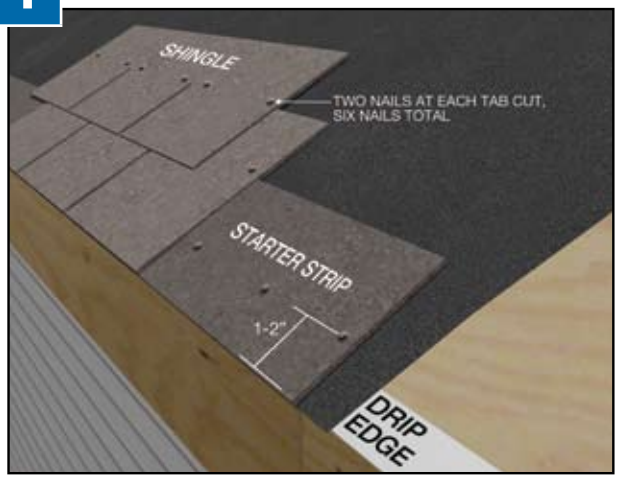

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Homeowner roof improvement checklist

Spot repairs on existing roof:

■ Add roofing adhesive to loose shingles.

Replacing roofing

■ Use nail size, type and spacing for stronger attachment of roof deck to rafters.

■ Tape roof decking seams with modified bitumen tape.

■ Use synthetic underlayment/proper overlapping

■ Choose wind-resistant shingles (Class D, G, H).

■ Follow high-wind installation guidelines.

Replacing deck panels

■ Add hurricane straps for secure wall-to-rafter connections.

■ Use deck screws to attach top plates to each other and to the studs when stud faces are not accessible for strapping.

Additional information on these topics, as well as termite protection, energy efficiency and other better building practices, is available at **www.LSU AgCenter.com/Homebuilding**

www.BuildSaferStrongerSmarter.org

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