

Secure Composition Shingle Roofs



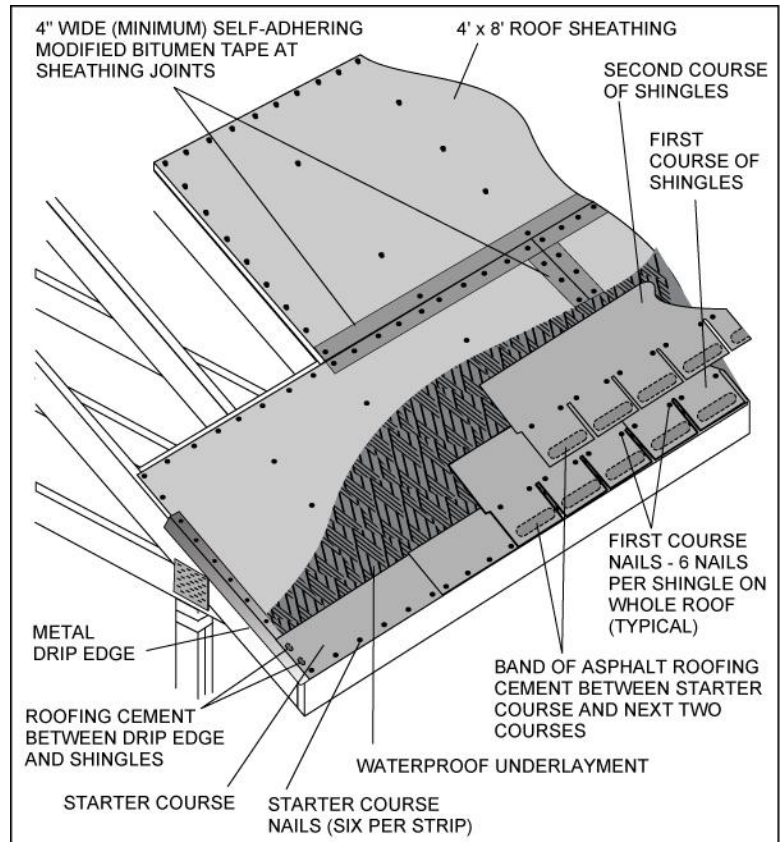
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PROTECTING YOUR PROPERTY FROM HIGH WINDS

When composition shingles are not securely attached, they can be damaged or torn away by high winds. When this happens, the interior of the structure becomes vulnerable to rainwater infiltration. If your composition shingle roof is being repaired or replaced, your roof designer or roofing contractor should make sure that the following requirements have been met (see figure):

- Each shingle should be held by at least six nails or staples, which should be installed below the edge of the upper, overlapping row of shingles.
- A waterproof underlayment should be installed beneath the shingles. When well attached, it temporarily protects the building from rain if shingles are torn away by the wind.

The roof sheathing (typically plywood panels) should be at least 15/32-inch thick and should be securely attached to the roof trusses. (Nails in older wood roof sheathing are often farther apart than recommended, especially in areas subject to high winds. Your roof designer or roofing contractor should check with local building officials for nailing requirements.)



BENEFITS OF UTILIZING THIS MITIGATION STRATEGY

- ✓ Helps to prevent damage to a structure and its contents
- ✓ Helps to prevent injuries

TIPS

Keep these points in mind when you have your composition shingle roof repaired or replaced:

- ✓ If you are having an old roof replaced, your contractor should remove the existing shingles and underlayment rather than install new shingles over them. This approach allows the contractor to inspect the sheathing and make any repairs that may be necessary.
- ✓ All nails used to attach the roof sheathing must penetrate the underlying roof trusses, otherwise the sheathing will not be securely attached and can be more easily torn away by high winds. Inadequate attachment of roof sheathing, resulting from poor workmanship, has been a common cause of roof failures during hurricanes and other storms with high winds.

- ✓ If your building is in a hurricane-prone area, the following precautions are recommended:
 - The general recommendations given in the Fifth Edition of the National Roofing Contractors Association (NRCA) *Steep-Slope Roofing Manual* should be followed.
 - Shingles should be attached with nails, not staples.
 - The first course of shingles should be sealed to the starter strip with dabs or bands of roof cement. Details are provided in FEMA 499, Technical Fact Sheet No. 7.3.
 - If your building is within 3,000 feet of saltwater, the nails should be hot-dip galvanized or stainless steel.
 - Your roofing designer should try to obtain information from manufacturers about bond strength and nail pull-through resistance, and then use products with values in the upper ranges of available strengths.
- ✓ Check local code requirements for roof repair or replacement criteria. Your local building official should be able to provide additional recommendations.
- ✓ Provide your roofing contractor with FEMA P-499, *Home Builder's Guide to Coastal Construction*, "Asphalt Shingle Roof for High-Wind Regions," Technical Fact Sheet No. 7.3.

ESTIMATED COST

A roofing contractor will charge approximately \$10 to \$15 per square foot of roof area to remove and replace shingles and underlayment.

OTHER SOURCES OF INFORMATION

The Federal Alliance for Safe Homes (FLASH), <http://www.flash.org>.

FEMA 488, *Hurricane Charley in Florida: Mitigation Assessment Team Report, Observations, Recommendations and Technical Guidance*, "Hurricane Recovery Advisories," April 2005, <http://www.fema.gov/library/viewRecord.do?id=1444>.

FEMA 489, *Hurricane Ivan in Alabama and Florida: Mitigation Assessment Team Report, Observations, Recommendations and Technical Guidance*, Appendix D, Recovery Advisories No. 1 and 2, August 2005, <http://www.fema.gov/library/viewRecord.do?id=1569>.

FEMA 499, *Home Builder's Guide to Coastal Construction*, "Roof Underlayment for Asphalt Shingle Roof," and "Asphalt Shingle Roof for High-Wind Regions," Technical Fact Sheets No. 7.2 and No. 7.3, December 2010, <http://www.fema.gov/library/viewRecord.do?id=2138> .

FEMA 549, *Hurricane Katrina in the Gulf Coast: Mitigation Assessment Team Report, Building Performance Observations, Recommendations, and Technical Guidance*, July 2006, <http://www.fema.gov/library/viewRecord.do?id=1857>.

Institute for Business & Home Safety (IBHS), <http://www.disastersafety.org>.

NRCA Steep-Slope Roofing Manual, National Roofing Contractors Association, Fifth Edition, 2003, <http://www.nrca.net/rp/pubstore/details.aspx?id=445> or <http://www.nrca.net/rp/pubstore>.

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