

How to Reduce Damage from Future Storms

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RALEIGH, N.C. – With hurricane season upon us and many North Carolinians having recovered from past disasters, FEMA mitigation experts encourage all who live in areas prone to high winds and flooding to make some fairly simple changes to their homes to reduce damage from future severe storms.

"It is safer, cheaper, and ultimately much easier to limit future destruction than to repair it afterward," said North Carolina Emergency Management Director Mike Sprayberry. "And, the rebuilding phase of a disaster is the ideal time to consider ways to strengthen your home to protect people and property."

Some techniques require licensed building professionals to design and install. Others can be implemented by do-it-yourself methods and don't require permits. Before undertaking improvements, homeowners are advised to check with their local building officials about their plans.

Protect against flood damage

Contact local emergency management officials to find out what is the hundred-year floodplain in your area and make changes that limit a flood's ability to damage a home.

- **Raise Electrical Boxes, Major Appliances, and HVAC** components at least one-foot above the 100-year flood level.
 - **Circuit Breaker Boxes** - Short circuits in flooded systems pose a significant fire danger. The likelihood of a flooded electrical system can be reduced by raising all electrical components.
 - **Appliances** - Washers and dryers can be elevated with pressure-treated lumber, or moved to a higher floor; and
 - **HVAC** - Exterior HVAC equipment should be elevated by a professional contractor.



- **Anchor fuel tanks** - When floodwaters move an unanchored tank, the supply line may tear. Additionally, filling and ventilation tubes need to be above flood level so that water cannot get inside the tank. Anchor inside and outside tanks with properly sized ground anchors. For safety's sake, consult local officials and building professionals about the best methods for anchoring fuel tanks.
- **Install sewer backflow valves** - Flooding can cause sewer lines to back up into houses through drainpipes. Backflow valves are designed to block drainpipes temporarily and prevent flow into the house. Have a licensed plumber or contractor install the valves.
- **Buy Flood Insurance:** Understanding your flood risk allows you to make informed decisions about protecting your family and property. Flood damage is not usually covered in homeowner multi-peril insurance policies. The most common way to insure against flood damage to your home and contents is with a separate flood insurance policy. You can learn more about flood insurance coverage and costs at <https://www.fema.gov/national-flood-insurance-program>.

Reinforce Vulnerable Areas to Minimize Wind Damage

High winds are looking for cracks to penetrate a home, because once high winds get in even through what may seem to be small openings, they can do tremendous damage. Here are tips from FEMA experts on methods to limit high wind's ability to trespass into a home.

- **Strengthen Entry Doors and Windows** - Install storm shutters over all exposed windows and glass surfaces. If replacing an entry door, use an approved, impact-tested door and install a dead bolt lock long enough to penetrate the 2X4 framing of the door. Also ensure the strike plate is installed with screws long enough to penetrate the door frame.
- **Fortify garage doors** – Once wind gets through a garage door it can do tremendous damage to the whole house. A garage door can be reinforced by adding braces across the back of the door and by strengthening the glider wheel tracks. Modifications should usually be made by a garage door expert. Consider purchasing a garage door built to withstand high winds.
- **Brace Gable End Walls** - Anchor and brace the bottom of the gable end's triangular wall to the ceiling joists or ceiling framing. Strengthen the gable end wall studs and brace the top of the gable end wall by tying it to the rafters or tops of the trusses.



- **Keep Outdoor Gear from Becoming Windborne Missiles** - Securely anchor all storage sheds and other outbuildings, either to a permanent foundation or with straps and ground anchors. Bolt outdoor furniture and barbecue grills to decks or patios, attach them to ground anchors with cables or chains. Secure trash cans with cables or chains attached to ground anchors or to wood posts firmly embedded in the ground.
- **Trees and Landscaping Tips** – It is estimated that three-quarters of the damage done by trees in high winds could be avoided if trees had been properly cared for starting with planting. Plant trees at the correct depth by making sure the roots are at the soil surface. Trees planted too deep could snap off at the stem-girdled point during forceful winds. Avoid wounding trees by banging them with a lawn mower or cutting them with a weed trimmer. Wounds lead to decay, a condition that leads to storm-damaged trees. Prune trees to correct defects such as multiple leaders and weak branch attachments.

For more about strengthening a home, view resources at www.fema.gov, www.ready.gov and the fact sheet, Mitigation for Homeowners (fema.gov).

The State also administers FEMA's Hazard Mitigation Grant Program (HMGP) which can provide buyouts, elevations and repairs to homes that have been affected by flooding events. The application process begins by contacting your local government's emergency manager. That contact information and additional information about the program can be found at [NC DPS: Hazard Mitigation](#).

For more information on North Carolina's recovery from Hurricane Florence, visit ncdps.gov/Florence and FEMA.gov/Disaster/4393. Follow us on Twitter: [@NCEmergency](#) and [@FEMARegion4](#).

