

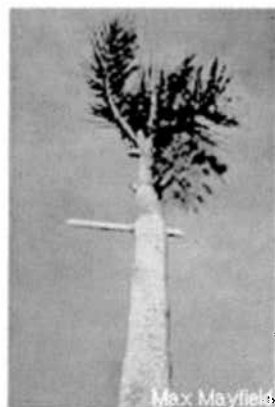


NATIONAL HURRICANE CENTER



HIGH WINDS

The intensity of a landfalling hurricane is expressed in terms of categories that relate wind speeds and potential damage. According to the Saffir-Simpson Hurricane Scale, a Category 1 hurricane has lighter winds compared to storms in higher categories. **A Category 4 hurricane** would have winds between 131 and 155 mph and, on the average, would usually be expected to **cause 100 times the damage of the Category 1 storm**. Depending on circumstances, less intense storms may still be strong enough to produce damage, particularly in areas that have not prepared in advance.



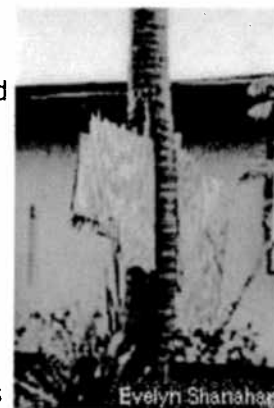
Tropical storm-force winds are strong enough to be dangerous to those caught in them. For this reason, emergency managers plan on having their evacuations complete and their personnel sheltered **before the onset of tropical storm-force winds**, not hurricane-force winds.

Hurricane-force winds can easily destroy poorly constructed buildings and mobile homes. Debris such as signs, roofing material, and small items left outside become flying missiles in hurricanes. Extensive damage to trees, towers, water and underground utility lines (from uprooted trees), and fallen poles cause considerable disruption.

High-rise buildings are also vulnerable to hurricane-force winds, particularly at the higher levels since wind speed tends to increase with height. Recent research suggests you should stay below the tenth floor, but still above any floors at risk for flooding. It is not uncommon for high-rise buildings to suffer a great deal of damage due to windows being blown out. Consequently, the areas around these buildings can be very dangerous.

The strongest winds usually occur in the right side of the eyewall of the hurricane. Wind speed usually decreases significantly within 12 hours after landfall. Nonetheless, **winds can stay above hurricane strength well inland**. Hurricane Hugo (1989), for example, battered Charlotte, North Carolina (which is 175 miles inland) with gusts to nearly 100 mph.

The **Inland High Wind Model** can be used by emergency managers to estimate how far inland strong winds extend. The inland wind estimates can only be made shortly before landfall when the windfield forecast errors are relatively small. This information is most useful in the decision-making process to decide which people might be most vulnerable to high winds at inland locations.



Windows falling from a high-rise building



Burger King Headquarters' CEO office in Miami after Hurricane Andrew

QUESTIONS TO ASK YOUR COMMUNITY LEADERS

Does your community building code set standards that will help buildings withstand winds in a major hurricane?

Do your shelter facilities include long-span roofs or unreinforced masonry walls (such as gymnasiums) that are vulnerable in high winds?



Damage from Hurricane Frederic (1979)

RELATED INFORMATION

- [HIGH WIND SAFETY ACTIONS](#)
- [SAFFIR-SIMPSON HURRICANE SCALE](#) (updated February 2010)
- [HURRICANE WIND DECAY](#)
- [HISTORIC HIGH WIND EVENTS](#)
- [RISK AREAS](#)

RELATED MULTIMEDIA

- [AGAINST THE WIND](#) (0.2mb )
- MAX MAYFIELD DISCUSSES - [HURRICANE INTENSIFICATION](#) (0.2mb MP3 )

RELATED WEBSITES

- [STORM PREDICTION CENTER](#)
- [INSTITUTE FOR BUSINESS & HOME SAFETY \(IBHS\)](#)

ADDITIONAL SAFETY INFORMATION

HIGH WIND SAFETY ACTIONS - *before hurricane season*

- Find out if your home meets current building code requirements for high-winds. Experts agree that structures built to meet or exceed current building code high-wind provisions have a much better chance of surviving violent windstorms. [Please visit IBHS \(Institute for Business and Home Safety\)](#)
- Protect all windows by installing commercial shutters or preparing 5/8 inch plywood panels. [More info](#)
- Garage doors are frequently the first feature in a home to fail. Reinforce all garage doors so that they are able to withstand high winds. [More info](#)
- If you do not live in an evacuation zone or a mobile home, designate an interior room with no windows or external doors as a "Safe Room". [More info #1](#) [More info #2](#)
- Before hurricane season, assess your property to ensure that landscaping and trees do not become a wind hazard.
 - Trim dead wood and weak / overhanging branches from all trees.
 - Certain trees and bushes are vulnerable to high winds and any dead tree near a home is a hazard.
 - Consider landscaping materials other than gravel/rock.

HIGH WIND SAFETY ACTIONS - *as a hurricane approaches*

- Most mobile / manufactured homes are not built to withstand hurricane force winds.