



TORNADO

PREPAREDNESS

What is a Tornado?

We all know what kind of damage a tornado can inflict upon an area. But what exactly is a tornado?

As defined by the National Weather Service, a tornado is a violently rotating column of air extending from the base of a thunderstorm down to the ground. It is hard to see a tornado unless it forms a condensation funnel comprised of water droplets, dust and debris.

Tornadoes have been reported in all 50 states and can occur at any time of day, any time of the year. They can rip apart even the most well-built structures and can uproot massive trees. These characteristics make tornadoes the most violent of all atmospheric storms, according to the NWS.

Globally, tornadoes occur in many parts of the world. The NWS reports that the highest concentrations of tornadoes outside the United States occur in Argentina and Bangladesh.

HIGH FREQUENCY

About 1,200 tornadoes hit the U.S. on an annual basis, according to the NWS. Official tornado records only date back to 1950, making it hard to track any notable increases in the frequency of storms long term.

Tornado Alley is a nickname for the central region of the U.S., a moniker given due to



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the area's relatively high concentration of tornado activity. While this part of the country incurs an increased number of tornadoes compared to other segments of the nation, violent tornadoes can happen outside Tornado Alley.

PREDICTING

Knowing when tornado season is approaching can help you prepare. The seasons can vary depending on where you live. Although scientists can predict when tornado season

usually takes place, there have been many instances of a destructive storm breaking out in off-season time periods, including the tornadoes that killed 15 people on Leap Day 2012 in the Southern Plains and Ohio Valley regions.

The NWS reports the peak seasons for different regions as:

- Southern Plains: May into early June;
- Gulf Coast: Earlier during the spring; and
- Northern Plains and Upper Midwest: June and July.

Alerts & Measurements

One of the most important actions you can take while trying to stay safe during a tornado is to heed the warnings of the National Weather Service.

The federal agency specializes in forecasting all types of weather, including deadly tornadoes. Educate yourself on the difference between a tornado watch and a warning so that when the time comes, you are knowledgeable about what they mean and what they could predict.

TORNADO WARNING

A tornado warning is more serious than a watch and requires immediate action on your part to protect yourself and your family. This means that a tornado has been sighted or indicated by weather radar.

You should move to an interior room on the lowest floor of a sturdy building and avoid windows. If you're in a mobile home or vehicle or outdoors, move to the nearest sturdy shelter and protect yourself from flying debris.

TORNADO WATCH

A tornado watch can quickly accelerate into a warning, so be prepared to take action.

Hearing this alert from the NWS means tornadoes are possible in your area and you should be ready to execute your emergency plan.

If possible, stay in a building or home equipped to offer tornado protection. Keep your eyes and ears open, and be ready to act quickly if a warning is issued.

THUNDERSTORMS

Severe thunderstorms can quickly



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turn into potential tornadoes, so it is important to follow along with your local newspaper or broadcasts when planning your activities during a thunderstorm warning.

These alerts mean that severe weather has been reported by spotters or indicated by radar and could trigger an outbreak of tornado activity.

Treat a severe thunderstorm like a tornado, especially if you're also under a tornado watch.

THE EF SCALE

The Enhanced Fujita (EF) Scale became operational in 2007 and is used to assign a tornado with a specific rating.

The National Weather Service is the only federal agency with authority to provide official EF Scale ratings, and does so through a process of measuring highest wind speeds and damage indications.

Here are the five EF ratings along

with the three-second gust levels that help define them, according to NWS.

EF Rating	Three-Second Gust
0	65-85 mph
1	86-110 mph
2	111-135 mph
3	136-165 mph
4	166-200 mph
5	Over 200 mph

Can a Helmet Protect You?

One of the simplest preventive measures you can take during a tornado is wearing a helmet, says a research team from the University of Alabama at Birmingham Injury Control Research Center.

The team reviewed historical tornado research to drive its report, as well as coroner reports from the deadly April 27, 2011, tornado that killed dozens of people and injured another 1,500.

That Tuscaloosa-Birmingham tornado was a violent EF4 tornado that devastated portions of both cities. It was one of the 355 tornadoes in the April 25-28 outbreak, the largest tornado burst in United States history, according to the National Weather Service.

In the study, the UAB team's analysis of coroner reports and 50 years of literature found that head injuries were the most common cause of tornado deaths. The researchers came to a simple conclusion upon uncovering this information: Wear a helmet.

A helmet can help protect the head from flying or falling objects, greatly improving your chances of staying safer during a tornado, the UAB team says.

The Centers for Disease Control and Prevention is researching the safety impact of helmets in tornado situations and still recommends as a first precaution that people find a shelter or tornado-safe room.

RIGHT HELMET

UAB researchers say that



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motorcycle, football and bicycle helmets offer practical, inexpensive solutions to reduce the risk of head injuries during a tornado.

A motorcycle helmet with a face shield and neck support would be a good option because of the overall coverage it provides. High-quality helmets are available in the sport-

ing goods sections of your local stores, as well as in bike shops and motorcycle dealers.

ACCESSIBLE

The key to effectively using a helmet during a tornado is accessibility. Looking for a helmet in the few seconds before a tornado hits may delay you

getting safely to shelter. If people choose to use helmets, they should not be considered an alternative to seeking appropriate shelter, the CDC recommends.

Keep your helmet in your tornado emergency preparedness kit that also should include non-perishable food, a first-aid kit and flashlights.

Strapping on a helmet is a simple process, but one that may be more difficult in a high-stress situation. Practice putting on your helmet on a day when no storms are forecast. Conduct a home drill that involves you and your family members going to your safe spot, locating your helmets and putting them on.

After a Tornado

Most fatalities and injuries during a tornado are caused by flying debris, according to the National Weather Service.

A federal storm study of injuries after a 1982 tornado in Marion, Ill., showed that 50 percent of the tornado-related injuries were suffered during rescue attempts, cleanup and other post-tornado activities.

In that study, nearly a third of the injuries resulted from stepping on nails. The other most common injuries include falling objects and heavy, rolling objects.

One of the most important safety acts to remember is to avoid downed power lines, busted gas lines or compromised electrical systems. These pose the threat of fire, electrocution or explosion.

CHECK FOR INJURIES

Protecting yourself and your family requires the prompt attention to any injuries sustained during or after a tornado. If a family member is hurt, do not move them unless they are in immediate danger of further injury, states the Centers for Disease Control and Prevention.

Other tips from the CDC:

- If someone has stopped breathing, begin CPR if you are trained to do so;
- Stop a bleeding injury by applying direct pressure to the wound;
- Clean out all open wounds and cuts with soap and clean water;
- If a wound gets red, swells or drains, seek immediate medical attention; and
- Have any puncture wound evaluated by a physician.

PRECAUTIONS

Just because a storm is apparently over doesn't make it safe to come out of your safe spot. Continue to monitor your battery-powered radio or television for emergency information before making that decision.

While leaving any structure that may be damaged, be vigilant of your surroundings. While entering one, always wear sturdy boots, long sleeves and gloves.

Hazards such as exposed nails, broken glass and power lines can cause serious injuries and should be considered extremely dangerous hazards. As soon as you are able to safely make a phone call, report any electrical hazards to the police and your utilities company.



Danger Zones

By now you should know the drill. If a tornado is forecast, find a safe location in the interior part of a basement. If you have no basement, go to an inside room on the lowest floor.

Unfortunately, we don't always find ourselves in an ideal location during a tornado. We may be on the road, at work, at school or in a shopping center when one forms.

It is important that you understand your surroundings at all times, as well as the protocols in place for dealing with a tornado.

AT HOME

If you find yourself at home and are able to gather in a safe location, always avoid windows. An exploding window can cause serious injury or even death.

Have an emergency kit on standby in your safe spot, and make sure it includes a blanket or sleeping bag that can help protect you from debris. For added protection, you also can get underneath a sturdy object, such as a heavy table.

Avoid sheltering immediately underneath objects such as pianos or refrigerators on the floor above you. They could fall through the floor if a tornado damages your home.

MOBILE HOMES

The Centers for Disease Control and Prevention urges you to never stay in a mobile home during a tornado. They



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can turn over during strong winds and are unlikely to withstand the force of a strong storm.

If you live in a mobile home, it is important to plan ahead when you find out a tornado is possible. Go to a nearby building, preferably

one with a basement. Coordinate with friends or family members to make a plan of action.

If you live in a tornado-prone area, you can encourage your mobile home community to build a tornado shelter. This can provide great

safety and security for you and other residents.

OTHER ZONES

One of the most dangerous places to be during a tornado is in a vehicle, which can be easily tossed by tornado winds.

The CDC recommends that you never try to outrun a tornado in your car. If you see a tornado and are unable to find safe shelter, stop your vehicle, avoid areas with lots of trees and do your best to protect your head with an object or your hands.

Make a List

Keeping a physical list of critical information in a central location can help save you the stress of searching through multiple places if a tornado hits.

Information such as your home insurance policy, a backup collection of important phone numbers and contact information for utilities companies — these are all vital to you staying safe and connected after a big storm.

Choose a room in which to store a fireproof, waterproof safe and fill it with documents and master lists. Be sure to update insurance policies as they change or are renewed. The same goes for phone numbers for new employment connections or teachers at your children's schools.

The ability to track down these types of documents in the aftermath of a destructive tornado can help you promptly connect with people. Here are some ideas for items to make a list of and store in your safe:

- Birth certificates, Social Security cards, passports and any other critical personal identification items
- Ownership certifications for your home, cars or other major equipment
- Insurance policies and your will
- List of household contents, including serial numbers
- Photographs of contents from every room, especially high-value items including jewelry, paintings and col-



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lectibles

- Important telephone numbers, such as emergency, paramedics and medical centers
- Names, addresses and telephone numbers of your insurance agents and finan-

cial planners

- Telephone numbers of the electric, gas and water companies
- Names and telephone numbers of at least two neighbors
- If renting, the name and

telephone number of your landlord or property manager

- Important medical information including allergies, regular medications and concise medical history
- Year, model, license and

identification numbers of your vehicles

- Contact information for your bank or credit union
- Radio and television broadcast stations to tune to for emergency broadcast information

Readying Your Home

It is important to have a plan of action for your family in case of a tornado. Head to the basement. Go to an interior room. Stay off the roadways.

Along with these tips, be sure to incorporate some interior home strategies in your emergency plan. The way furniture is arranged or appliances are secured can make a big difference in maintaining the safety of you and your family.

In a perfect world, you will be alerted to impending tornado activity and be in a safe spot when the storms come through. But that's not always the case. You may not hear your weather radio. Some people simply do not take tornadoes seriously. Whatever the case, you may find yourself in your bed or on your couch when a tornado rips through your area.

How this furniture is arranged can make a big difference in protecting yourself in such situations.

ARRANGING FURNITURE & APPLIANCES

Arrange furniture so that chairs and beds are away from windows, mirrors and picture frames that could shatter on top of you. If you have heavy decorative items on display, keep them on lower shelves at or below head level.

Identify top-heavy furniture such as bookcases and china cabinets, and secure them to the wall with sliding bolts. This type of furniture could topple over and hurt you in the case of your house being damaged. Young children could be particularly susceptible to falling furniture.

For large appliances, it is important to secure them to the wall. Use metal strapping or durable cable to tightly attach them to hooks in wall studs.



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Items such as hot water heaters and other freestanding appliances can cause gas leaks or major damage if compromised.

INSPECTING YOUR HOME

Prior to the possibility of a tornado,

you should conduct a full home inspection for potential hazards to your health and safety.

First take an inventory of your cleaning materials and analyze how they are stored. They should be kept in a sturdy, latched or locked cabinet in a well-ventilated area. They also should be kept away from emergency food or water supplies.

Here are some questions to ask yourself, according to the Federal Emergency Management Agency:

- Are walls securely bolted to the foundation?
- Are wall studs attached to the roof rafters with metal hurricane clips, not nails?
- Do you know how to shut off utilities at the main switches or valves?