

# Tornado Preparedness



# Defining the Term

Everyone has heard of tornados – but what are they?

The National Weather Service has a strict definition for these weather events.

Tornados have been reported in all 50 states, and can happen at a moment's notice. So, it's important to clearly understand what they are – and how fast they're rotating. Speed levels dictate the so-called EF ratings that are always mentioned in weather reports.

Here's a deeper look at the science of tornados, their frequency and peak seasons:

## WHAT'S A TORNADO?

The National Weather Service defines a tornado as a rotating column of air which extends from the base of a thunderstorm down to the ground. They're usually associated with funnel of condensation carrying dust and debris along with water droplets. The Enhanced Fujita (or EF) Scale became the standard for describing tornado strength in 2007, as measured over three-second gusts.

The National Weather Service says EF-0 is 65-85 miles per hour, EF-1 is 86-110 mph, EF-2 is 111-135 mph, EF-3 is 136-165 mph, EF-4 is 166-200 mph, and EF-5 is more than 200 mph. Storms on the higher end of this rating system can tear apart even the best built structures, uproot trees and cause massive damage to infrastructure.



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## WHERE THEY HAPPEN

Some 1,200 tornados are reported annually across the United States, according to the National Weather Service. Official documentation didn't begin until 1950, and that has limited official tracking over the long term. Still, we know these storms frequently strike the central region of America,

now known colloquially as "Tornado Alley." The area's relatively intense concentration of activity doesn't exempt others, however, as these storms touch down all over the nation. The highest number of tornados outside of the U.S. has been reported in Bangladesh and Argentina, according to the National Weather Service.

## WHEN THEY'LL HAPPEN

The seasons where tornados are most likely to happen vary according to region. Learning when they are most concentrated is a critical element in being prepared. Be cautioned, however, that destructive storms can – and do – happen outside of their typical season, as when 15 people were killed

in February 2012 by a storm that roared across the Southern Plains and Ohio Valley. The National Weather Service says peak seasons for U.S. regions include: Early spring on the Gulf Coast, May to June on the Southern Plains, and June to July on the Northern Plains and upper Midwest.

# How To Create A Family Plan

Discuss early and often what you'll do when a tornado strikes

These plans will likely have to be executed very quickly, so be ready.

You should have already bought supplies, long before tornado season arrives. Make specific plans for storage of key documents, food and water, medicines and extra batteries. Sketching out what happens in the confusing aftermath of a dangerous strike is critical, too.

In the end, practicing may make all the difference in the few moments before a natural disaster. Here's a look at what goes into creating a solid family plan for tornado:

## PROACTIVE PLANNING

What you do days, weeks or even months before a tornado makes all the difference. Make sure your safe area is adequately supplied, in particular if you have a large family, because these weather warnings may last for some time. Your home may be damaged too, making a quick exit impossible. So keep a three-day supply of water and easy-to-consume non-perishable foods, a seven-day supply of medicines and enough batteries to power your weather radio and flashlights. Store important documents in a safe, so that insurance policies and birth certificates can be quickly located.

## PRACTICE OFTEN

They say practice makes perfect, and that's particularly true in this situation. The more you've gone over when, how and when to evacuate, the more second nature it will become in the chaos that can surround these weather systems. Designate an interior room away from windows

(preferably on the lowest level), a secluded part of the basement or other storm shelter. Then map out the safest, quickest route to that spot. That means avoiding windows, heavy furniture that might tip over and even larger wall hangings. Finally, practice your evacuation, then practice again and again until

it becomes something everyone can do without thinking.

## FINAL CHECKLIST

If you have pets, designate a family member to gather and carry them along. Bring your pet into the safe space often, in order to create a sense of comfort in the surroundings. That will be critical in a stressful situation.

Choose an alternate path to the safe space in case the agreed-upon route is blocked. Also, don't forget to pick an exterior meeting place for other family members to reunite near your home after the storm has passed – as well as an alternate spot in the event your neighborhood has been deemed unsafe after a tornado.



# How To Spot A Tornado

Tracking technology isn't always available when the weather turns

What happens when a storm takes out your access to information from meteorologists and storm chasers?

You'll have to rely on your own knowledge of the sounds and sights associated with tornados. That starts with recognizing the sound of your area's tornado siren, if there is one. This alert is designed to give everyone critical time to take cover in the event of looming danger.

Buying and maintaining a battery-operated weather radio to keep up with expert analysis is also a smart move, in particular if you live in tornado-prone areas. Meteorologists have never had more access to information about conditions that are favorable for tornadic activity, or sophisticated tracking technology to follow them in real time.

Here's what else to watch for, and what to do, to keep your family safe:

## WHAT EXPERTS LOOK FOR

Meteorologists call for a tornado watch when conditions are favorable for development. This is determined by utilizing weather-prediction models that calculate specific atmospheric behaviors. Information is gathered by satellites, weather balloons, surface weather



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stations and aircraft. Modeling software then provides a forecast for where the tornado may touch down, and the track it might take.

Of course, tornados are like any other weather system – so sometimes they don't track as forecast. Weather professionals rely on years of specialized training and experience to sharpen these predictions in

other to warn us of impending threats. Pay close attention to watches, and even closer attention to warnings – since they indicate that danger is near.

## WHAT YOU SHOULD LOOK FOR

Trained weather experts provide the best information available, but conditions may make it impossible to tune

into their reports. You may be away from a radio or television, or experiencing a cable, satellite or power outage. In that case, the Red Cross advises people in harm's way to look for key warning signs of an imminent tornado.

Watch for cloud movement at the base of a thunderstorm, including wall clouds and the beginnings of a funnel.

Roaring noises that last longer than a typical clap of thunder can be a sign, as well. Flying debris and visible cloud rotation indicate that the storm is already dangerously close. Seek shelter either in a windowless area of your home, in the basement or in a storm-safe space as soon as possible, even if other warnings have not been heard.

# Preparing Your House

Modifications must be made long before tornado warning sirens go off

Your family's safety can depend on key changes in and around your home.

It's best to have established strategies in place, since tornadoes can threaten so suddenly that there's no time for in-depth discussion. Every plan should include moving to an interior room or enclosed underground space – and then sheltering in place. The roadways are the last place to be when this kind of danger is on the horizon.

But that tried-and-true advice must also be paired with small changes around your home to make them safer during a storm, especially when it comes to easier access. Preparedness is key, including regular home inspections to make sure you're ready to withstand the storm.

## CHANGES AT HOME

Because of the nature of tornadoes, we often don't receive much early warning. That makes it essential that there are clear plans in place for where to go at a moment's notice. Have family discussions where the meeting spot is identified, so that even the littlest ones know where to go when alerted. In the meantime, consider buying storm shutters that can be quickly closed.



Top-heavy furniture, including china cabinets and bookcases, should be secured at the top to walls with bolts. If items like this fall over, they can impede access or in fact cause grave injury to those in your home. Use durable cable or metal strapping to attach larger appliances in wall studs. Arrange other furniture so that

there are clear exit lines to your agreed-upon meeting point. Learn how to shut off utilities, particularly gas, at the main switches to guard against leaks.

## PRIOR INSPECTIONS

Plan ahead to be tucked away in the meeting space for long enough that the storm

passes. Keep a weather radio with extra batteries on hand, as well as water, snacks, blankets, a first aid kit and a flashlight. Inventory all cleaning materials and store in a well-ventilated space away from emergency water and food. Place them inside a sturdy cabinet that can be locked or latched.

For those living in areas most prone to tornadoes, the Federal Emergency Management Agency recommends safety-focused home construction tips like attaching wall studs to the roof rafters with metal hurricane clips. Walls should also be bolted securely to the foundation, and reinforced with multiple boards.

# Understanding Tornado Alerts

Each one indicates a specific level of danger for those in its path

You should always heed urgent messages issued by trusted local weather professionals and the National Weather Service.

They've accumulated lots of experience in forecasting all kinds of weather, including violent tornados. But they also use specific terms or industry jargon that you've heard many times but may not completely understand.

Knowing the precise definitions can mean the difference between life and death. Here's how to decode tornado alerts so you can be as prepared as possible:

### **TORNADO WATCH**

Tornado watches are issued when conditions are favorable for storms. They're meant to put residents on alert so that they can quickly take action, since a watch may quickly ramp up to the more serious tornado warning. When a watch is issued by the National Weather Services for your area, be ready to follow through with your emergency plans.

Stay inside a building or home that can provide protection from the storm. Keep weather reporting channels open, and use both your eyes and ears to check the weather status around you. Then act quickly if conditions change,



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or if a tornado warning follows.

### **TORNADO WARNING**

This alert is far more serious than a watch, which simply means a tornado is possible. Warnings require immediate response because a tornado has been indicated on weather radar or confirmed by sight. Move quickly to an interior

room on the building's lowest floor, or to a basement or storm cellar, if possible. Avoid windows. If you are in your vehicle, outdoors or in a mobile home, try to get to the nearest sturdy structure and be ready to protect yourself from any flying debris.

### **THUNDERSTORM ALERTS**

Thunderstorms often have

the potential to produce tornados , so you should follow news about these systems closely, too. Thunderstorm warnings mean that severe weather is either indicated on radar or reported by local spotters – and when combined with a tornado watch, they present a very real threat. Stay tuned to local broadcasts and keep up on weather apps.

The National Weather Service defines a severe thunderstorm as any system with winds of 58 miles per hour or higher while producing hail of one inch in diameter or larger. Severe thunderstorm alerts are typically issued for 4 to 8 hours, depending on the severity and traveling speed of the system, and arrive well before rains begin.

# When You're At Work

Severe weather doesn't always arrive when you're out of the office

You should have a plan for when you're at work, just in case.

Tornados can strike at any time, and certainly that includes 9-to-5 on weekdays. Turn on weather app notifications so that you are alerted while at work, or keep TVs and radios turned to updated weather information when watches and warnings are issued on your way to work.

Be aware of danger signs in the skies around you, including large hail, dark often greenish clouds, roaring noises and, of course, funnel clouds. Then be prepared to follow a plan to safety just as you would at home.

## ADVANCE PLANNING

Everyone should be familiar with workplace tornado evacuation plans. If they are not in place, encourage supervisors to create one – or develop your own weather-focused group in order to complete this incredibly important document. The plans should identify one or more safe areas depending on the size of your operation, making sure it's on the lowest level of the building and away from windows.

## SHELTERING IN PLACE

Cellars and basements are ideal, but your workplace employee safe room should be

constructed of the sturdiest materials like reinforced concrete, if possible. Stay away from areas with flat roofs. Encourage employees to gather in the center of the space. Discuss and implement a policy for purchasing and replenishing emergency supplies.

If your work is done outdoors, emergency plans should include instructions on

what to do in the event of a tornado. The most favorable place is a designated nearby structure. If employees are inside a vehicle, they should stay below the window line, keeping their head covered with hands or a blanket. Those who are on foot should find the lowest possible place to lay down, again covering their head with hands.

## EMERGENCY CHECKLIST

An alarm system and all-clear process should be developed and tested so that everyone understands what these sounds mean. Develop an emergency checklist so that no critical steps are missed in this chaotic time. Assign specific duties – like checking in employees and any visitors or

customers at the escape area when an alarm sounds – well beforehand. This roster will ensure that everyone is accounted for. Make sure that non-English speakers have been updated in a language they can understand. Designate other employees as alternates in case the assigned person is absent or has been injured.



# Cleanup Safety

Dangers lurk even when the storm itself is long gone

High winds and flying debris can impact wide swaths of land, making cleanup a hazardous undertaking.

Tornado-ravaged areas may include downed power lines, broken and splintered trees, overturned vehicles, gas leaks and flooding and fire. The dangers can even extend to scared wildlife.

That's why it's so important to approach the critical clean-up phase with an eye on personal safety. Plenty of people are injured each year even after the tornado warning has expired.

## PROTECTIVE OUTERWEAR

Dress for the work ahead before beginning cleanup, since you'll be surrounded by sharp objects and dangerous conditions. Wear durable work boots, preferably with a steel toe, since you'll be walking through debris fields.

Similarly, choose the thickest, most durable pants you own. Downed trees are a particular danger while surveying the damage. Stay away from baggy clothes, which may be snagged and cause you to injure yourself in a fall. Don't leave without thick work gloves and some sort of eye protections. Now is the time to dig out your old quarantine-era masks, since high dust will be so prevalent. Do not touch or walk



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over downed lines, and stay clear of any place where you smell gas.

## WHEN TO GO

Make sure the threat of a storm has completely passed before emerging to assess the damage to your home and to the neighborhood around you. You don't want to get caught outside during one of these vio-

lent weather events. First, make sure everyone in your immediate space hasn't been harmed, then check on those who are nearby. Evaluate the area for power or gas line issues before beginning initial processes like trimming trees. If dangerous conditions are confirmed, wait until utility companies are on site and have turned them off at the source.

## COMMON INJURIES

Most injuries reported during cleanup operations involve sharp objects, according to the Occupational Safety and Health Administration – including broken glass and nails. Electrical injury is also common because people have touched a live power line, sometimes inadvertently.

Slips and falls involving tripping over objects and slick walkways are an issue. Keep away from pooling water if you are unsure of its depth, and avoid scared wildlife. OSHA also reports a jump in dehydration because of the difficulty in getting fresh water during recovery, and exhaustion from long hours spent cleaning up.