



# Severe Weather Safety: Seeking Shelter



**Severe Weather Safety and Preparedness: Seeking Shelter**  
**by Rob White - The Original Weather Blog**

Whenever a Severe Thunderstorm or a Tornado Warning is issued for your area by the National Weather Service (NWS), it is a good idea to have a plan in place so that you can react to the situation both quickly **and** calmly.

While every severe weather situation is different, the purpose of this guide is to establish some basic "ground rules" to keep you and your family safe during threatening weather conditions.

In particular, this guide will focus on what action you should take to protect yourself and your family in the event of a Severe Thunderstorm Warning or a Tornado Warning.

Many folks are confused as to the difference between a **Watch** and a **Warning**.

I usually suggest the following rules of thumb for differentiating between the two:

Take each term literally. A Severe Thunderstorm or Tornado "**Watch**" means that you should "watch out" for severe thunderstorms and/or tornadoes. Conditions are favorable for such development in and close to the watch area. Watches are typically issued for a period of 6 or more hours at a time. With that in mind, don't let your guard down if the weather is initially quiet across your area. Monitor NOAA Weather Radio or local media for updates on the situation.

A "**Warning**" means that a severe thunderstorm and/or tornado has been observed by spotters or detected by radar. A warning means that the threat is imminent (typically within 0-30 minutes), so seek shelter immediately using the tips that follow later in this guide.

Next we'll take a look at both Severe Thunderstorm and Tornado Warnings, and what you should do if either are issued for your area.



### What to Do During a Severe Thunderstorm Warning

A **Severe Thunderstorm Warning** means that a severe thunderstorm has been observed or is indicated by radar. By definition, a severe thunderstorm is one that produces either of the following (or both): hail of 1 inch in diameter (roughly the size of a quarter) or larger and wind gusts of 58 mph or higher.

In a situation involving 1 inch hail and/or 58 mph winds, there's probably little more that you need to do other than to stay indoors and away from windows until the storm passes. If you are caught outdoors in such a situation (i.e., at a carnival or other outdoor event), it would be better to seek shelter in your car (assuming no other substantial structure is available) rather than to remain outside and exposed to the elements. I strongly suggest that you do the same if you are outdoors in a tent (including a carnival tent) or other weakly secured structure that may not be able to withstand strong, gusty winds of 60-70 mph.

Listen for the "buzz" words, though, and be prepared to take more significant sheltering action if any of the following kinds of statements (known as a "call to action statement") are included in a Severe Thunderstorm Warning:

*"This is a particularly dangerous situation..."* This wording is typically followed by a specific size of hail (i.e., tennis ball or larger) and/or a specific range of wind speeds (i.e., 70-90 mph) that can be expected with a particularly dangerous storm. If you live in the path of such a storm, it would be a good idea to go ahead and take tornado shelter precautions (see that section further below) just to be on the safe side. An example of "enhanced wording" in a severe thunderstorm is below:

\* AT 658 AM CDT... NATIONAL WEATHER SERVICE DOPPLER RADAR INDICATED A LINE OF SEVERE THUNDERSTORMS CAPABLE OF PRODUCING QUARTER SIZE HAIL...AND DESTRUCTIVE WINDS IN EXCESS OF 70 MPH. THESE STORMS WERE LOCATED ALONG A LINE EXTENDING FROM 8 MILES NORTHEAST OF DURAND TO WINNEBAGO TO FRANKLIN GROVE TO 5 MILES WEST OF WALTON... AND MOVING EAST AT 70 MPH.

Another "call to action statement" to listen for in a Severe Thunderstorm Warning is: "*Severe thunderstorms can and occasionally do produce tornadoes with little or no advanced warning...*"

This line is inserted into a Severe Thunderstorm Warning in two particular situations:

- (1). A Tornado Watch is also in effect for the warned area. This means that conditions are favorable for tornado development with most any severe storm that forms in the region, so be on the lookout.
- (2). The meteorologist issuing the warning observes a sign that the storm may produce a tornado, but there is not yet enough evidence to support the issuance of a formal Tornado Warning.

If a Severe Thunderstorm Warning is issued for your area and it contains the "...storms can and occasionally do produce tornadoes..." tag line in it, I would again suggest that you go ahead and take tornado shelter precautions (see that section further below) just to be on the safe side.



Remember - warnings are not issued for lightning!

Another very important thing to keep in mind is that ***severe thunderstorm warnings are not issued for lightning***. With over 25 million lightning strikes each year in the U.S., its no surprise that lightning is among the top weather-related killers.

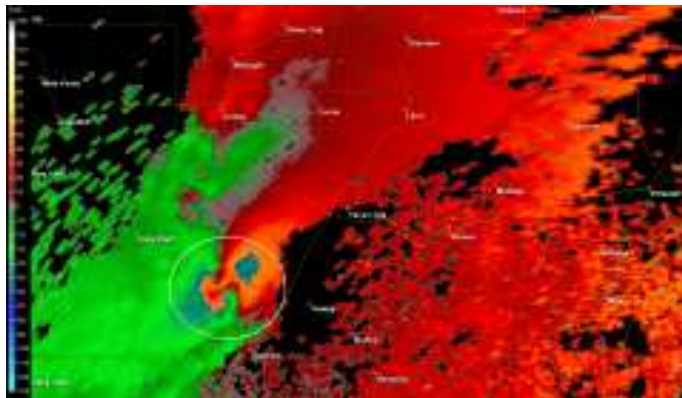
If you're outside, by all means, get inside - whether to a building or a car. Cars actually offer great lightning protection. In most cases, if lightning were to directly strike a car, the charge would be carried around the frame and down through the tires into the ground.

If you're caught outdoors and observe lightning in the distance, just use the old "flash - bang" rule to figure out how close you are to danger. As soon as you see the flash, start counting (one one-thousand, two one-thousand...) until you hear the thunder, then stop. Take the number of seconds that you counted and divide by 5 and that's roughly how far the lightning strike was from you (in miles). For example, if you counted to 5: 5 seconds divided by 5 = 1, so the lightning strike was about 1 mile away from you. Time to head indoors or to the car!



### What to Do During a Tornado Warning

A **Tornado Warning** is issued whenever a tornado has been observed on the ground and/or is indicated by radar. Such a warning may also be issued when radar indicates that tornado development is imminent (i.e., a strong rotational signature is detected at low levels of the atmosphere).



Tornadic circulation as indicated on doppler radar

***Without a doubt, the best protection from a tornado is in an underground storm shelter (like the one shown below) or a basement.***



Underground storm shelters offer the best protection

If you seek shelter in a basement, make sure to get underneath the stairs, beneath a sturdy workbench, or some other type of reinforced structure if possible, so as to prevent injury in the event that debris falls into the basement from above.



Get the boxes out from under the stairs before a severe weather day

If you don't have a basement or other underground sheltering option and you live in a particularly tornado-prone area, you may wish to consider having a [tornado "saferoom"](#) installed. Tornado saferooms, like the ones pictured below, are designed to withstand fierce tornado winds. They can be installed either above ground or below ground in both existing homes and those under construction.



Example of an above ground tornado saferoom in a garage



Example of a below ground tornado saferoom in a garage  
Courtesy Tricia Worthington

Lets say that you have a basement but don't have an opening beneath the stairs nor do you have another reinforced structure to get beneath and protect yourself from falling debris. In such a case, you may wish to consider installing a saferoom in one corner of the basement. A saferoom had been installed in Sam's basement in Joplin, MO (see [this frequently read post](#)) and it saved his life when debris fell into and nearly filled it up during the devastating tornado that took place there in May of 2011.

Before purchasing a tornado saferoom, make sure that the dealer / builder you are working with installs and/or builds only those units that are certified by the NSSA ([National Storm Shelter Association](#)).

If you don't have an underground shelter, basement, or tornado saferoom option, your best bet is to get to the most interior room possible in your home or business. The idea here is to put as many walls between yourself and the tornado as possible. The closet in the photo below was the only room left standing in this particular home that was struck by a tornado in Alabama in 2011. This is a scene that unfolds time and again across the country each year:



Small, interior rooms offer good protection

Centrally located bathrooms offer excellent protection, as the pipes running through the walls Offer some additional structural support. Also, in the bathroom, you can get into the bathtub and cover yourself with a mattress or other object to protect you from any flying and/or falling debris.

Regardless of where you seek shelter, I highly recommend that you wear a crash helmet of some sort. This is a new (as of 2012) recommendation of mine, and it could make a big difference if debris were to fall down on your head in a basement, closet, bathroom, etc.

I know it may sound silly, but I am very serious. [Post-storm interviews with emergency physicians and surgeons](#) in both the Joplin, MO and Tuscaloosa/Birmingham, AL tornado disaster areas of 2011 indicate that a majority of the tragic deaths were the result of blunt force trauma, typically to the head.



A helmet can protect you from falling debris

Another new safety tip for 2012: If you have an infant child, I highly recommend strapping them into a car seat before heading to shelter as well.

We may not like to think about it, but according to [post storm studies in Alabama](#), 14 of 21 people that tragically died while inside of their homes in Jefferson County in April 2011 were found "in debris a considerable distance away", which indicates that they were airborne for some period of time.



A small child is no match for being thrown about by a tornado. Being inside of a car seat that provides additional support and cushioning from impact (similar to the performance we'd expect from a car seat in a vehicle crash), very well could mean the difference between injury (even if serious) and death in this type of situation.

It is also important to put a crash helmet on your infant or toddler as well, even if they're in the car set, for the reasons described in the previous section.





### **Tornadoes and Mobile Homes Don't Mix**

**If you live in a mobile home**, the best advice that I can give during a tornado situation is to **get out, and get out fast!**

This has been a point of debate on [my blog](#) from time to time, however there is no question in my mind (after 25 plus years of seeing tornado damage in person, in pictures and on video) that *you are more likely to survive a tornado laying flat in a ditch outside as compared to staying inside a mobile home.*



Lay down as flat as possible in a ditch

Obviously, an underground storm shelter or some other type of a tornado saferoom would be the best sheltering option in a mobile home situation. However, if neither of these options are available, I suggest that you seek shelter in a ditch or other lowering.

Lay as flat on the ground as possible, and wear a crash helmet or otherwise protect your head. If possible and practical, cover yourself with a blanket, mattress or a similar object to try and prevent being injured by flying debris.



A mobile home is no place to stay during a tornado

Another sheltering idea if you live in a mobile home would be to have an alternate location (such as a friend or relative's house) lined up where you could stay if severe weather is expected in your area.

The key in this situation would be to ***make sure that you're at this alternate location before severe weather threatens.*** That way you don't have to risk driving around or otherwise being outdoors during a severe weather and/or tornado situation.



A good rule of thumb would be to get to this alternate location as quickly as possible following the issuance of a Tornado Watch for your area. Remember, in general, you have from 1-6 hours of lead time when a Watch is issued for your area, compared to as little as 0-10 minutes in a Warning situation. Don't wait until an actual warning is issued, as you may not have enough time to react and get to the alternate location safely.



### Apartment Buildings, Office Buildings, Public Places

If you're in an apartment building, office building, or other public place and are threatened by a tornado, first look for a pre-designated shelter location (watch for signs like the one below). If there doesn't appear to be one available, then take cover in an interior room on the **lowest floor** of the structure.



Just like when you're in a single family home, the idea is to put as many walls between yourself and the tornado as possible – and to get as low as possible (either the 1<sup>st</sup> floor or, preferably, underground).

Be sure to stay away from windows, especially in office buildings or other structures with lots of glass on the outside. Flying debris can easily shatter them, causing significant injury and even death.



If you are at work and hear of a Tornado Warning for your area close to quitting time, ***please don't leave work and get in your car.*** This is probably the single worst thing that you could do. It would be far safer to ride out the storm at work and then leave when the threat has passed by.



Truck wrapped around telephone pole by tornado

Regardless of the situation, ***never try to outrun a tornado in your vehicle, as it can be very easy to misjudge the tornado's movement and speed.*** The tornado could also change course without notice.

If you find yourself **in your vehicle or otherwise outdoors and away from a familiar shelter**, (such as at a fair, carnival, campground or other outdoor event), follow the same general rules as applied to the public place and mobile home situations.

If a designated shelter is not available (look for the signs), take refuge in a ditch or other low-lying area and lay your body down as close to the ground as you can. If possible, wear a helmet or otherwise protect your head from flying debris.



## **Make Sure that You Have a Way to Receive Severe Weather Warnings at Night**

Severe weather can be especially dangerous when you are asleep at night. If you are getting ready to turn-in for the night and live in an area that is under a Severe Thunderstorm or a Tornado Watch (which, as a reminder, are the precursors to a warning), make sure that you have a way to receive any weather warnings that may be issued for your area during the overnight hours.

A [NOAA Weather Radio with a battery back-up](#) is a tried and true option. Most models today allow you to program the unit to only sound an alert for your specific county location.

Another method of receiving warnings at night would be to download and/or subscribe to a smartphone alert or text alert application that will notify you of a severe weather warning for your area. There are many free options available, as well as a few relatively inexpensive ones with additional features. A quick internet search of “severe weather text alerts” or “severe weather smartphone alerts” will get you pointed in the right direction.

***Most importantly, never, ever rely on an outdoor tornado warning siren to alert you to a tornado at night*** (nor even during the daytime, for that matter). As the name implies, they are designed for warning people that are outside - not inside. Depending on your proximity to the nearest siren, the amount of background and/or outside noise, how deeply you sleep, etc., you may not be able to hear it (or it may not even wake you at night).

It is my hope that the above tips will help you plan out your best severe weather safety and sheltering options. Its far better to have a plan in place **before** severe weather threatens, that way you’re less likely to run around in a panic the next time severe weather hits.

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*Rob White is a meteorologist living in the Austin, TX area. He has over 20 years of experience in the industry, with a focus on severe weather forecasting, storm warnings, safety and preparedness. Rob has worked in both the media and private enterprise, and is currently the President of [WeatherGuidance, LLC](#), a private sector weather forecast and storm warning firm.*

*You can follow Rob at [The Original Weather Blog](#), on [Facebook](#), and on [Twitter](#) for additional safety tips and severe weather updates throughout the year.*