Severe Weather
Safety Awareness

Fairfield County
Office of Emergency Management
And
Homeland Security

Spring Safety Awareness Week: March 21-27, 2004
Ohio's Statewide Tornado Drill: Wednesday, March 24th at 9:50 a.m.

Excerpted from "Ohio Severe Weather Safety Awareness" Spring 2004
Ohio Department of Public Safety. The full version is available with Web links at:
www.ema.ohio.gov

DEPARTMENT OF
PUBLIC SAFETY
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Tornado Facts

• A tornado is a violently rotating column of air extending from a thunderstorm to the ground.
• The most violent tornadoes are capable of tremendous destruction with wind speeds of 250 mph or more. Damage paths can exceed one mile wide and 50 miles long.
• The average tornado moves from southwest to northeast, but tornadoes have been known to move in any direction.
• The average forward speed of a tornado is 30 mph, but may vary from nearly stationary to 70 mph.
• While tornadoes can occur throughout the year, **the peak season in Ohio is April through July**.
• Tornadoes usually occur between 2 p.m. and 10 p.m., but have been known to occur at any hour of the day.
• Tornadoes can be classified into one of three types:

- ***Weak Tornadoes (F0/F1)*** account for 70 percent of all tornadoes; cause less than 5 percent of tornado deaths; lifetime is usually one to 10 or more minutes; wind speeds are less than 113 mph.
- ***Strong Tornadoes (F2/F3)*** account for 29 percent of all tornadoes; cause nearly 30 percent of all tornado deaths; may last 20 minutes or longer; wind speeds are 113 mph to 206 mph.
- ***Violent Tornadoes (F4/F5)*** account for only one percent of all tornadoes; cause 70 percent of all tornado deaths; may last for one hour or more; wind speeds are greater than 260 mph.

• The Fujita tornado scale (F scale) was developed by the late Professor Theodore Fujita of the University of Chicago to classify tornadoes according to wind speed and damage.
• **Ohio averages 16 tornadoes and five tornado-related fatalities per year.**
• In 2003, there were 12 tornadoes in Ohio resulting in 18 injuries and no deaths.
• National Weather Service (NWS) offices in Wilmington and Cleveland, Ohio; Pittsburgh, Pennsylvania; Charleston, West Virginia; and Syracuse, Indiana provide warnings for Ohio.
• The NWS uses Doppler weather radars to detect the air movement within thunderstorms. Early detection of increasing rotation aloft within a thunderstorm can allow lifesaving warnings before the tornado forms.

Tornado Safety Tips

• Despite Doppler radar, tornadoes can sometimes occur without any warning, allowing very little time to act. It is important to know the basics of tornado safety. **Know the difference between tornado watches and tornado warnings.** See page 10 for these definitions.

• Tune in to one of the following for weather information: radio, local or cable television (to include the Ohio News Network or the Weather Channel), National Oceanic and Atmospheric Administration (NOAA) weather radio.

• **Take responsibility for your safety** and be prepared before a watch or warning is issued. Meet with household members to **develop a disaster plan** to respond to tornado watches and warnings. Conduct regular tornado drills. When a tornado watch is issued, review your plan--don't wait for the watch to become a warning. **Learn how to turn off the water, gas and electricity at the main switches.**

• If you are a resident with special needs (such as a physical disability or a language barrier), you should register your name and address with your local police and fire departments before any natural or man-made disaster. First responders will be able to ensure you have been notified during emergency situations.

• The safest place to be during a tornado is a basement. Once there, try to find something sturdy to crawl under. Getting underneath a work bench or heavy table will protect you from flying debris and/or a collapsed roof. If the building has no basement or cellar, go to a small room (a bathroom or closet) on the lowest level of the structure, away from windows and as close to the center of the structure as possible.

• Be aware of emergency shelter plans in stores, offices and schools that you and your family members frequent. If no specific shelter has been identified, move to the building's lowest level. Try to **avoid areas with large glass windows, large rooms and wide-span roofs** such as auditoriums, cafeterias, large hallways or shopping malls.

• If you're outside, in a car or mobile home, go immediately to the lowest level of a nearby sturdy building. Sturdy buildings are the safest structures to be in when tornadoes threaten. **Winds from tornadoes can blow large objects, including cars and mobile homes, hundreds of feet**. Tornadoes can change direction quickly and lift a car or truck, tossing it through the air. Never try to out-drive a tornado. **Mobile homes are particularly vulnerable.** A mobile home can overturn very easily even if precautions have been taken to tie down the unit.

• If there is no building nearby, lie flat in a low spot. Use your arms and hands to protect your head as tornadoes cause debris to be blown at very high speeds. **Do not seek shelter under highway overpasses and bridges**--weaker structures could be destroyed from the high winds and dangerous flying debris. You will be safer lying flat in a low-lying area where wind and debris can blow above you.

• Tornadoes come from severe thunderstorms, which can produce a lot of rain. If you see water rising rapidly or flood waters moving toward you quickly, move to another location.

Tornado Loss Prevention Tips

The following steps are suggestions that homeowners should take before a natural disaster occurs to assure speedy and hassle-free recovery.

Home Coverage and Preparedness Tips

• Tornado losses are most often covered by the “windstorm peril” under the homeowner’s insurance policy.

• Check with your insurance agency to assure adequate coverage is provided by the homeowner’s insurance policy. Notify your agent of any additions or improvements to the home.

• Consider purchasing the replacement-cost coverage endorsement for the home and its contents. This option provides for the rebuilding or replacement of damaged property and belongings at current costs, rather than depreciated values.

• If you experience a storm-related loss to your home that is covered by insurance and you plan to submit a claim, notify your insurer in a timely manner, as required by your insurance policy.

• In some cases, the timeframe to file a storm-related claim may be limited.

Home Inventories Assist in Settling Claims

• Videotape, photograph or compile a written inventory of your home and belongings.

• Keep the inventory off-premises in a bank safe-deposit box. The inventory will provide a record for you and the insurance company, should a loss occur.

Written Inventory Tips

 Go through each room of the home and list every item, including the purchase date, price and model/serial numbers. Don’t forget basements, closets, dresser drawers, attics and the garage.

 Include the appraised value of antiques, jewelry and other costly possessions. Attach professional, written appraisals, if available.

 To download a sample of a personal property inventory form, visit www.ohioinsurance.org/renters_insurance/images/inventory.pdf

Video/Photo Inventory Tips

 Pan the camera around the room in order to capture each item on the video.

 Obtain close-ups of expensive items such as jewelry, fine art, stamp collections, china, furs, antiques and silver.

 Consider grouping items for easier inventory.

 Narrate the video by noting purchase costs and dates. Include model and serial numbers for appliances and electronics.

 Update your inventory every time you move, or every two to three years.

Auto Coverage and Preparedness Tips

• When severe weather threatens, move cars under cover to prevent damage from high winds, flying debris and hail.

• Cars would be protected under the “other than collision” (comprehensive) portion of an auto insurance policy, if damaged by windstorms or hail.

After the Loss - Insurance Tips

• Photograph any damage and inventory losses, especially if heavy, widespread damage has occurred. They will assist when settling claims.

• Secure property from further damage or theft and save related receipts, since many insurers will reimburse for these expenses.

• If required to seek temporary housing due to a covered loss such as a tornado, check your policy for “loss of use” coverage. Many policies cover such expenses up to a stated amount.

• Beware of home repair rip-offs. Carefully check the background of all contractors, especially those who promise “cheap” repairs.

Tornado Statistics

As the severe weather season approaches, take some time during Severe Weather Safety Awareness Week to **make a safety plan** for your family, friends, neighbors and co-workers. Planning ahead will lower the chance of injury or death in the event severe weather strikes.

Tornadoes develop from severe thunderstorms. They are usually preceded by very heavy rain and/or large hail. Hail falling from a thunderstorm indicates that the storm has large amounts of energy and may be severe. In general, the larger the hailstones, the more potential for damaging thunderstorm winds and/or tornadoes.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1940-49	2	0	5	5	10	6	2	5	3	0	0	0	38
50-59	1	4	7	8	12	12	12	5	1	2	1	0	65
60-69	0	1	5	37	26	20	16	12	4	1	8	0	130
70-79	2	4	3	26	28	50	25	18	14	7	1	2	180
80-89	1	0	17	19	32	50	16	7	1	2	2	0	147
90-99	1	5	1	16	21	48	77	17	5	3	3	1	198
2000-03	0	0	0	6	16	4	4	6	2	2	19	0	59
1940-03	7	14	38	117	145	190	152	70	30	17	34	3	817

Note: The increase in tornadoes listed in the 1950s and 1960s does not necessarily indicate an absolute increase in the number of tornadoes but is more likely the result of better communication, an increase in population and more public awareness of severe weather.

Thunderstorm / Lightning Facts

Thunderstorms are a common spring and summer occurrence throughout the state of Ohio. Many Ohioans may not realize that **thunderstorm winds and lightning kill more people every year than tornadoes.**

• Although hurricanes and tornadoes receive most of the recognition, lightning occurs more often in the United States. More than 40 million lightning strikes occur every year, resulting in nearly 100 deaths.

• All thunderstorms produce lightning. Lightning often strikes outside of heavy rain and may occur as far as 10 miles away from any rainfall.

• Lightning results from the buildup and discharge of electrical energy between positively and negatively charged areas. The action of rising and descending air within a thunderstorm separates positive and negative charges.

• An average flash could illuminate a 100 watt light bulb for more than three months.

• The air near a lightning strike is heated to 50,000 degrees which is hotter than the surface of the sun. The rapid heating and cooling of the air near the lightning channel causes a shockwave that results in thunder.

• **Ohio experiences thunderstorm activity of about 30 to 50 days annually.**

• The typical thunderstorm is 15 miles in diameter and lasts 30 minutes.

• Of the estimated 100,000 thunderstorms that occur each year in the United States, only about 10 percent are classified as severe.

• Severe thunderstorms can produce damaging winds as strong as the winds in a weak tornado and can be life threatening.

• A severe thunderstorm can produce hail that is 3/4 inch in diameter or larger and/or winds of 58 mph or higher and can produce tornadoes.

• Large hail causes nearly $1 billion in damage to property and crops annually.

• The costliest U.S. hailstorm occurred in Denver, July 11, 1990. Total hail damage was estimated at $625 million.

• Lightning strikes the earth 100 times every second.

• **National Lightning Awareness Week is June 20-26, 2004.**

Thunderstorm / Lightning Safety Tips

The following safety tips can protect you during a thunderstorm:

• If you can hear thunder, you are close enough to the storm to be struck by lightning. Go to safe shelter immediately, such as a sturdy building or car. **Do not take shelter in small sheds, under isolated trees or in convertible automobiles.**

• Telephone lines and metal pipes can conduct electricity. Do not use a telephone during a storm unless it is an absolute emergency. Unplug all unnecessary appliances BEFORE the storm approaches. Avoid using electrical appliances during the storm.

• Turn off air conditioners. Power surges from lightning can overload the compressors.

• Do not take a bath or shower during a storm. Water is an electrical conductor.
The following safety tips can help when you are caught outdoors and no shelter is nearby:

• If lightning is occurring and a shelter is not available, get inside a hard-top automobile and keep the windows up. The roof of the vehicle protects you, not the rubber tires.

• If no automobile is available, find a low spot away from trees, fences and poles. Be alert to the possibility of flash flooding.

• If you are in the woods, take shelter under short trees or bushes.

• **If you feel your skin tingle or your hair stand on end, squat low to the ground on the balls of your feet. Place your hands on your knees with your head between them. Make yourself the smallest target possible and minimize your contact with the ground.**

• If you are boating or swimming, get to land and find shelter immediately.

• Stay away from open outdoor spaces.

For more information visit the Lightning Protection Institute Web site at www.lightning.org and the National Weather Service Web site at www.lightningsafety.noaa.gov.

Emergency Preparedness Plans & Disaster Kits

The best defense when faced with severe weather warnings is preparedness. Every household and business should have a disaster preparedness plan for natural and man-made disasters. The Ohio Committee for Severe Weather Awareness offers the following tips on preparation for inclement weather.

Have a family meeting. Involve everyone in the household in the preparation of a disaster plan. Discuss the types of disasters that can affect you and your home. Ensure that everyone knows the difference between weather watches and warnings. Write down solutions for each kind of emergency. Plan how to care for your pets following a disaster.

Develop a family escape and/or shelter plan. Draw an overhead floor plan view of your home. Determine two escape routes per room. Teach children how to open windows and screens. Pick a meeting place outside of the home (a large tree or neighbor's yard) in case of a sudden emergency, like a fire. Determine where to shelter during a tornado (in a basement, centralized closet or bathroom).

Practice your plan. Even the best plan is ineffective unless it has been practiced. Conduct fire drills. Activate smoke detectors when the household is asleep. Conduct tornado drills. Practice how to protect yourself and others during severe storms.

Organize your disaster preparedness kit. No matter the incident, your kit should have enough supplies to sustain every member of your household for three days.
For the home: NOAA weather radio, flashlight, batteries, nonperishable foods, bottled water and juices, manual can opener, first aid kit, prescription drugs, sleeping bags, important family documents, cash/ credit cards, important phone numbers.
For the car: fire extinguisher, tools, first aid kit, sleeping bags or blankets, bottled water, high-energy snacks, flashlight, batteries, battery operated radio, cell phone, cash/credit cards.
Commercially prepared disaster kits are available at select discount, hardware and military surplus stores or can be purchased via the Internet.

During times of nondisasters, citizens with special needs or disabilities should contact their local fire department and emergency management agency to inform them of their emergency needs. That way, first responders can ensure that residents will be notified of threatening conditions in their area. **The American Red Cross** offers checklists of items that people should include in their disaster kits. **The following are suggested items for individuals with special needs and for your pet.**

Equipment
Emergency information lists
Eye glasses
Eating utensils
Grooming, dental and dressing devices
Hearing devices, extra batteries
Flashlight, extra batteries
Oxygen
Suction equipment
Dialysis equipment
Sanitary supplies
Wheelchair, repair kit and/or other mobility aids
Long canes or sticks to gauge depth of floodwaters
Monitors
Bottled water
Extra medication/prescribed medications

Service Animal/Pet Supplies
Pet food and water
Leash/harness
Collar
ID tags
Medications and medical records
Vaccination tags/papers

NOAA Weather Radio - The Voice of the NWS

Known as the “Voice of the National Weather Service,” the National Oceanic & Atmospheric Administration (NOAA) Weather Radio is provided as a public service by NOAA, a division of the Department of Commerce. NOAA Weather Radio includes more than 800 transmitters, covering all 50 states, adjacent coastal waters, Puerto Rico, U.S. Virgin Islands, and U.S. Pacific Territories. NOAA Weather Radio requires a special radio receiver or scanner capable of picking up the signal. Broadcasts are found in the public service band at these seven frequencies (MHz):

•162.400 •162.425 •162.450 •162.475
•162.500 •162.525 •162.550

NOAA Weather Radio broadcasts NWS warnings, watches, forecasts and other hazard information, 24 hours a day. NOAA Weather Radio is not just for emergencies. It is a round-the-clock source of weather reports and information to help prepare for the day ahead. Each National Weather Service office tailors its broadcast to suit local needs. Routine programming is repeated every few minutes and consists of the local forecast, regional conditions and marine forecasts. Additional information, including river stages and climatic data is also provided.

Seconds Save Lives!
Weather radios equipped with special alarm-tone features sound alerts to give immediate information about a life-threatening situation. During an emergency, National Weather Service forecasters will interrupt routine weather radio programming and broadcast a special tone that activates weather radios in the listening area.

Who Needs NOAA Weather Radio?
Public safety experts agree that tone-alert weather radios should be standard equipment in every home. They are especially valuable in places that are entrusted with public safety, including hospitals, schools, places of worship, nursing homes, restaurants, grocery stores, recreation centers, office buildings, sports facilities, theaters, retail stores, bus and train stations, airports, marinas and other public gathering places.

NOAA Weather Radio . . . Improving For the Future
Implementation of additional NOAA Weather Radio (NWR) transmitters will continue to expand the nationwide network coverage. New digital technology (termed “SAME” - Specific Area Message Encoding) now allows lifesaving messages to be targeted to a specific area, like a county or portion of a state. Weather radios come in many sizes and with a variety of functions and costs. Most NWR receivers are either battery-operated portables or AC-powered desktop models with battery backup, so they can be used in the absence of commercial electric power.

Where Can I Purchase a NOAA Weather Radio? What if I Have Additional Questions?
You can purchase a Reecom weather radio at the Fairfield County EMA Office, 407 E. Main St., Lancaster, OH 43130. 654-4357. Model 1630: $45.00; Model 1650: $55.00.
Or you can check with electronics or department stores, call your local National Weather Service office or go to the following web site: www.nws.noaa.gov/nwr. This site contains information on NOAA Weather Radio coverage areas, station listings, SAME coding, receiver and vendor information, automated voices, all hazards concept, the Emergency Alert System and general information.

EAS & Warning System Testing

A statewide warning system testing will be conducted Wednesday, March 24, 2004 at 9:50 a.m. The State Emergency Communications Committee will notify all television and radio stations. For additional information on Ohio's Emergency Alert System,* contact the Ohio Emergency Management Agency at (614) 799-3695 or contact the Fairfield County EMA: 740-654-4357.

The Federal Communications Commission (FCC) designed the Emergency Alert System (EAS) as a tool for officials to quickly send important emergency information targeted to a specific area. After conducting extensive tests of competing technologies, the FCC ruled that EAS would be a digital-based automated system and use coding protocols similar to the NOAA Weather Radio Specific Area Message Encoding (SAME). As a technical and operational structure, EAS accounts for the needs of special populations as the hearing impaired and individuals with differing language requirements.

While the NOAA Weather Radio is the National Weather Service's primary entry into EAS, there are other means of entering emergency information to the EAS. Several levels of backup and procedures exist for those areas currently outside the range of an NOAA Weather Radio station. Local and county emergency operations centers have the ability to input messages directly to the EAS in much the same way as the NWS. Radio and television stations have similar capabilities to initiate an EAS message.

Many areas of Ohio have a network of outdoor emergency alert sirens to aid in early notification of weather emergencies. The sirens are designed as an outdoor warning system and may not always be audible in densely populated areas or indoors. The siren systems are activated locally and are designed to alert area residents of threatening conditions. On flat terrain with no wind, most sirens can be heard up to one mile away over normal background noise. Local systems are tested regularly.

* The emergency Alert System replaced the Emergency Broadcast System in 1996.

Severe/Hazardous Weather Terms

Warning - A product issued by National Weather Service local offices indicating that a particular weather hazard is either imminent or occurring. A warning indicates the need to take action to protect life and property. Typical warnings include:
- *Tornado Warning*
- *Severe Thunderstorm Warning*
- *Flash Flood/Flood Warning*
- *Excessive Heat Warning*

Watch - A NWS product indicating that conditions are favorable for the development of a particular severe weather event. A watch is normally issued for several hours and indicates a need for planning, preparation and an increased awareness of changing weather conditions. Typical watches include:
- *Tornado Watch*
- *Severe Thunderstorm Watch*
- *Flood Watch*

Cold Air Funnels: Weak funnel cloud extension from cumuliform clouds that typically remain aloft. They form in cold unstable air masses and are not usually associated with thunderstorms or severe weather.

Downburst: Intense gust of wind or downdraft that exits the base of a thunderstorm and spreads out horizontally at the earth's surface as a strong wind which often causes damage.

Flash Flood: A flood that can occur very rapidly. Flash floods occur as the result of very heavy rainfall in a short period of time, generally over a relatively small area.

Flood: The condition that occurs when water overflows the natural or artificial confines of a stream or body of water, or accumulates by drainage over low lying areas.

Funnel Cloud: Violently rotating column of air that is not in contact with the ground. A tornado passes through the funnel cloud stage during its development and dissipation.

Gust Front: The leading edge of a mass of cool, gusty air that flows from the base of a thunderstorm and spreads along the ground in advance of the thunderstorm.

Lightning: Generally, any and all of the various forms of electrical discharge produced by thunderstorms.

Severe Thunderstorm: A thunderstorm producing a tornado, damaging winds of 58 mph or higher, and/or hail 3/4-inch in diameter or larger.

Squall Line: Any line or narrow band of thunderstorms. These lines may be of considerable length, extending across multiple states.

Straight-Line Winds: Thunderstorm winds that may produce damage which typically exhibits a lack of a rotational damage pattern. Straight-line winds are most often produced by a thunderstorm gust front, originating from a downburst.

Thunderstorm: In general, a local storm produced by a cumulonimbus cloud, and accompanied by lightning and thunder, usually with strong wind gusts, heavy rain and sometimes hail. A cumulonimbus cloud is a cauliflower-shaped cloud that has a height taller than or equal to its width.

Tornado: A violently rotating column of air that comes in contact with the ground, many times, descending from the base of a severe thunderstorm. Tornadoes are usually funnel-shaped, with the narrow end nearest the ground. In Ohio, most tornadoes are obscured by hills, trees and rain until they are upon you.