

Severe Thunderstorm Appendix to the Severe Weather Annex



August 2023

Purpose and Scope

Purpose

This Severe Thunderstorm Appendix identifies specific college tasks necessary before, during, and after a severe thunderstorm incident.

Scope

This document applies to the college and surrounding community, including first responder agencies. All college faculty and staff who are assigned emergency management roles and responsibilities will have access to training and all college emergency plans.

General Information

What is a Severe Thunderstorm?

According to the [National Severe Storms Laboratory \(NSSL\)](#), a thunderstorm is “a rain shower during which you hear thunder. Because thunder comes from lightning, all thunderstorms have lightning.”

A thunderstorm is classified as “severe” when it contains one or more of the following: hail one inch or larger, winds gusting more than 50 knots (57.5 mph), or a tornado.

Thunderstorms can form quickly; therefore, college staff need to monitor weather updates and follow watches and warnings to stay informed of weather conditions in their area.

Specific Actions Taken Before, During, and After Incident

BEFORE a Severe Thunderstorm	
Task	Responsible Role
Identify areas suitable for use as the best available shelter-in-place areas based on specific threats from hail, tornadoes, high winds, and lightning. <ul style="list-style-type: none"> • First floor locations in permanent buildings • Locations of the area in avoidance of hazardous materials • Interior rooms with no exterior glass windows or doors 	Manager of EH&S and Emergency Management
Clearly mark severe weather shelter areas so they are easily identifiable for those in hallways, common areas, etc.	Manager of EH&S and Emergency Management
Test emergency communication procedures	Manager of EH&S and Emergency Management
Regularly inspect and maintain emergency equipment (e.g., generators, emergency lighting).	Maintenance Manager
Maintain current contact lists for utility providers and other essential vendors.	Manager of EH&S and Emergency Management
Secure loose objects vulnerable to high winds.	Grounds Manager
Remove or trim trees that may be in danger of falling on people or buildings.	Grounds Manager
A NOAA Weather Radio is constantly monitored.	Sr. Director of PP
Have a plan to cancel or postpone outdoor activities with little notice.	Athletic Trainer
Make weather safety information readily available to staff, students, and visitors at outdoor events.	Public Information Officer
Ensure staff, students, and visitors are properly trained and have practiced various safety drills, such as hold, secure and shelter.	Manager of EH&S and Emergency Management
Develop a plan with clear criteria for when to pause or cancel outdoor events. <ul style="list-style-type: none"> • Refer to Lightning Safety and Outdoor Sports Activities for outdoor events guidance. • The National Weather Service recommends moving staff and students to a first-floor interior room when a severe thunderstorm or tornado watch is issued. A <i>warning</i> is considered <i>too late</i>. 	Athletic Trainer

DURING a Severe Thunderstorm	
Task	Responsible Role
Relocate staff, students, and visitors to pre-identified severe weather shelter-in-place areas of the facility based on the unique characteristics of the incident.	Faculty & Staff
Account for all personnel.	AC Employees
Dial 911 if assistance is needed from emergency response agencies.	AC Chief of Police
Monitor official sources for changing conditions.	Administration
Notify staff members of developing weather conditions and maintain communications throughout the event.	Public Information Officer
Keep everyone away from windows and exterior doors.	Faculty & Staff
Close all exterior and interior doors.	Faculty & Staff
Avoid large rooms with large-span roofs, such as cafeterias, agriculture barns, and gymnasiums.	Faculty & Staff
Ensure that college personnel are prepared to transition into a Unified Command structure with outside response agencies if needed.	AC Chief of Police

AFTER a Severe Thunderstorm	
Task	Responsible Role
Account for all personnel.	AC Employees
Report any injuries and building damage to college administrators.	Sr. Director of PP
Conduct damage assessment.	Sr. Director of PP
Request transportation resources (if necessary).	Sr. Director of PP
Implement the reunification plan (if necessary).	Manager of EH&S and Emergency Management
Implement the college Continuity of Operations Plan (COOP) (if necessary).	VP of Business Affairs
Conduct an after-action review (AAR).	AC Chief of Police
Develop and implement an Improvement Plan (IP) based on findings from the AAR.	Sr. Director of PP
Check for downed power lines or broken utilities and restrict access to the area; report to utility companies.	Sr. Director of PP
Avoid walking through standing water, as it may be electrically charged from downed power lines.	AC Employees
Repair damages from the storm.	Sr. Director of PP
Document any assistance provided to other colleges or agencies for potential reimbursement.	VP of Business Affairs
Initiate and coordinate public information activities with local response agencies. (Consider a Joint Information Center (JIC)).	Public Information Officer
Take video or photos of damages for insurance reimbursement purposes.	Sr. Director of PP

Resources

Definitions

Damaging Winds – Damaging winds are often called “straight-line” winds to differentiate the damage they cause from tornado damage. Strong thunderstorm winds can come from several processes. Most thunderstorm winds that cause damage to the ground are a result of outflow generated by a thunderstorm downdraft. Damaging winds are classified as those exceeding 50–60 mph.

Hail – Hail is a form of precipitation consisting of solid ice that forms inside thunderstorm updrafts. Hail can damage aircraft, homes, and cars and can be deadly to livestock and people.

Lightning – Lightning is a giant spark of electricity in the atmosphere between clouds, the air, or the ground.

National Oceanic and Atmospheric Administration (NOAA) - The mission of the National Oceanic and Atmospheric Administration (NOAA) is to provide daily weather forecasts, severe storm warnings, climate monitoring to fisheries management, coastal restoration, and support of marine commerce.

National Severe Storms Laboratory (NSSL) - The National Severe Storms Laboratory (NSSL) is a federal research laboratory under NOAA’s Office of Oceanic and Atmospheric Research. NSSL serves as a national resource for severe weather research and works collaboratively with the National Weather Service to ensure that forecasters have the knowledge, capabilities, and technologies to effectively communicate accurate, timely, and actionable forecasts and warnings of extreme weather to the public and commerce.

National Weather Service (NWS) - The National Weather Service (NWS) provides weather, water, and climate forecasts and warnings for the United States, its territories, adjacent waters, and ocean areas to protect life and property and enhance the national economy.

NOAA Radio – NOAA Weather Radio All Hazards (NWR) is a nationwide network of radio stations broadcasting continuous weather information directly from the nearest National Weather Service office. NWR broadcasts official Weather Service warnings, watches, forecasts, and other hazard information 24 hours a day, 7 days a week.

Severe Thunderstorm – A thunderstorm is classified as “severe” when it contains one or more of the following: hail one inch or greater, winds gusting in excess of 50 knots (57.5 mph), or a tornado.

Thunder – Thunder is the sound caused by a nearby flash of lightning and can be heard for about 10 miles from the lightning strike.

Thunderstorm – A thunderstorm is a rain shower during which you hear thunder. Because thunder comes from lightning, all thunderstorms have lightning. Many hazardous weather events are associated with thunderstorms. Under the right conditions, rainfall from thunderstorms causes flash flooding, killing more people each year than hurricanes, tornadoes, or lightning. Lightning is responsible for many fires around the world each year and causes fatalities. Hail up to the size of softballs damage cars and windows, and kills livestock caught out in the open. Strong (up to more than 120 mph) straight-line winds associated with thunderstorms knock down trees, power lines, and mobile homes. Tornadoes (with winds up to about 300 mph) can destroy all but the best-built man-made structures.

Tornado – A tornado is a narrow, violently rotating column of air that extends from a thunderstorm to the ground. Because wind is invisible, it is hard to see a tornado unless it forms a condensation funnel made up of water droplets, dust, and debris.

Warning - A warning is issued when hazardous weather or hydrologic event is occurring, imminent, or likely. A warning means weather conditions pose a threat to life or property. People in the path of the storm need to take protective action.

Watch - A watch is used when the risk of hazardous weather or hydrologic event has increased significantly, but its occurrence, location, or timing is still uncertain. It is intended to provide enough lead time to allow potentially affected individuals to enact necessary plans. A watch means that hazardous weather is possible. Potentially affected individuals should have a plan of action in case the storm worsens and should listen for further information and possible warnings, especially when planning travel or outdoor activities.

Additional Resources

[NOAA Severe Weather 101 – Thunderstorms](#)

The NOAA National Severe Storms Laboratory (NSSL) is a federal research laboratory under NOAA's Office of Oceanic and Atmospheric Research. NSSL's research spans weather radar, tornadoes, flash floods, lightning, damaging winds, hail, and winter weather.

[NWS and Partners Publications and Brochures](#)

The National Weather Service (NWS) provides publications and brochures that address various weather-related topics. This site also includes teaching aids for educators and weather-related activities for students. Materials are available at no cost and can be downloaded and printed.

[Severe Thunderstorm Safety \(NWS\)](#)

This website is designed to teach you how to stay safe in a severe thunderstorm. If you know what to do before, during, and after severe weather you can increase your chances of survival. There are also links to research, past events, other topics of interest, and downloadable materials about thunderstorms, lightning, and tornadoes.

[The National Risk Index](#)

The National Risk Index is an online mapping application from the Federal Emergency Management Agency (FEMA) that identifies communities most at risk from 18 natural hazards. This application visualizes natural hazard risk metrics and includes data about expected annual losses from natural hazards, social vulnerability, and community resilience.