



Lifeguard Lightning Safety Guidelines



Every year, lightning strikes and kills people on or near bodies of water. Summer is the peak season for outdoor and water-related activities, and when most lightning deaths and injuries occur. As recently as 2011, a lifeguard was fatally struck by lightning in Florida. Lightning cannot be prevented, but the vulnerability of lifeguards, beach-goers, and patrons near bodies of water can be minimized. Vulnerable locations include: beaches, outdoor pools, diving boards, lifeguard stands, and nearby outdoor recreational facilities. While every state has reported lightning-related fatalities, the highest numbers are reported in states bordering the Great Lakes, southern states bordering the Atlantic Ocean and Gulf of Mexico, and the four corners states of Colorado, New Mexico, Utah, and Arizona. This document serves as a guideline for developing a lightning safety plan and communicating lightning safety information. These guidelines are aimed primarily at areas of the country with moderate to high lightning hazard levels, but may be applied anywhere.

Develop an Emergency Action Plan (See model plan and edit to your location)

- Have a means to garner daily weather forecasts and updates.
- Identify means to monitor lightning in the area.
- Identify the closest safe locations before the beginning of the season, and consider posting signs that promote lightning safety and indicate locations that provide protection from lightning.
- Locations that offer protection from lightning:
 - Fully-enclosed buildings that are grounded with wiring and plumbing
 - Lifeguard towers that are fully-enclosed and compliant with NFPA 780¹ lightning guidelines
 - Fully-enclosed metal vehicles (no soft top convertibles)
- Locations that do not offer protection from lightning:
 - Beaches
 - Water
 - Open-sided pavilions (such as picnic areas)
 - Restrooms, changing facilities, and showers
 - Lifeguard stands that are not fully enclosed and compliant with NFPA 780¹ lightning guidelines
 - Tents
 - Boats that are not designed or retrofitted to be compliant with NFPA 780¹ lightning guidelines
 - Small personal water craft (e.g. Jet Skis)
- Determine what actions to take based on the threat level, including:
 - How patrons will be notified
 - Whether to evacuate facilities or just issue warnings and advice on safe shelter
 - How staff will protect themselves
 - When to notify staff and patrons that the threat has subsided and normal activities can resume

¹ National Fire Protection Association (NFPA) 780- Standard for the Installation of Lightning Protection Systems



Educate Staff

- Annual training for lifeguard and beach patrol units should include lightning awareness and a review of protocols in their hazardous weather safety plan. This includes:
 - Education on facts about the dangers of lightning
 - Locations that provide protection
 - Emergency action plan for lightning in the area, along with severe weather watches and warnings
- Suggest staff members attend the free National Weather Service SkyWarn™ basic storm spotter training to enhance weather awareness. Counties typically have a local spotter training session once every 1 to 2 years; along with an online class for those unable to attend in person. Date, time, and location of classes can be found from navigating from <http://www.weather.gov> to your local National Weather Service office home page.

Warning and Communication Tools

- NOAA weather radio.
- Forecasts can be monitored via the internet if available on-site.
- Information about the proximity of lightning strikes is available via the flash-to-bang rule (explained below), local on-site detection devices, smart phone applications and commercial notification services.
- Identify means to communicate with and notify staff and patrons. Communication tools include:
 - Two-way radios
 - Public address, loudspeaker system (fixed and/or on mobile vehicles)
 - Telephones, including mobile phones
 - Air horn or megaphone notification
 - Whistle system
 - Sign boards and flags
 - Text, e-mail and social media alerts
 - Internal television and/or radio broadcasts



Daily Operations

- Designate a “weather watcher” each day.
 - At the beginning of the shift, designee notifies staff of weather forecasts that may impact operations that day
 - Identify safe shelter locations
 - The weather watcher has primary, but not sole, responsibility for observation of and updates on weather conditions.
- Determine the distance of lightning from a location by using the “flash-to-bang rule”
 - Begin counting at the sight of the lightning flash. Stop counting at the sound of related thunder. Divide the count by five (5) to determine the proximity in miles of the lightning strike (5 seconds = 1 mile; 50 seconds = 10 miles, etc).
- Use this rule in combination with other resources (local lightning detection systems and commercial services) if they are available, with the closest strike detected or observed used as guidance for the evacuation of a site.
- Lightning most frequently occurs within 10 miles of a thunderstorm (although there are occurrences when cloud-to-ground lightning strikes known as “bolts from the blue” can strike up to 20 miles away from a thunderstorm). It is generally recommended that patrons be notified (or evacuated based on the emergency action plan) and staff take shelter when thunderstorms move within 10 miles.
 - Depending on the attendance levels and the proximity of adequate shelter, a larger radius of lightning may be prudent to provide time to prepare.
 - Consider the organization of thunderstorms in the area. More organized thunderstorms (squall lines, bow echoes, super cells, large clusters) should prompt a greater lead-time as compared to an isolated thunderstorm.
- When in doubt, remember “When Thunder Roars, Go Indoors!”

Lightning Injury Response

- Ensure scene safety (victims do not carry an electrical charge and can be touched)
- Follow local protocols for trauma injury and triage. If necessary, safe, and appropriate, move the victim to a safe place away from the threat of another lightning strike
- Summon an ambulance as needed according to local protocols
- CPR and/or AED may be necessary
- Heart irregularities, shock, or sudden loss of consciousness are possible. Keep the conscious victim calm and monitor closely

