

NC DEQ Lightning Safety Toolbox Talk



- 1) What is lightning?** Lightning is an electrical discharge between clouds and either the surrounding air or the ground. Intra-cloud lightning is most common type, and it takes place between oppositely charged areas within a cloud. The most dangerous form of lightning to workers is cloud-to-ground lightning. It takes place between oppositely charged areas in a cloud and on or near the ground.



2) Some lightning statistics:

- a) Florida leads the nation in lightning strikes, but they are very also common in NC, TX, CO, and AL
- b) About 70% of lightning strikes occur between noon and 6 pm.
- c) 74% of lightning deaths occur in June, July, and August
- d) One third of lightning strikes take place indoors
- e) Outdoor activities account for 60% of deaths by lightning
- f) Odds of being struck by lightning in a given year: 1 in 1,222,000
- g) Odds of being struck by lightning in your lifetime: 1 in 15,300
- h) Lightning can heat surrounding air to 50,000 degrees F, which is hotter than the surface of the sun

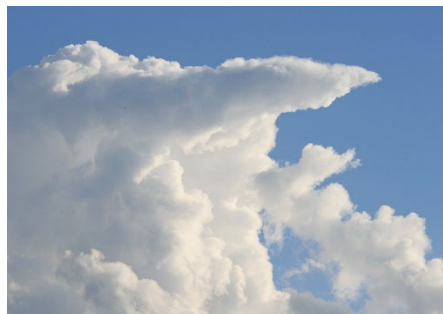
3) When is lightning possible? There are no specific warnings or advisories for lightning. It can occur during any thunderstorm.

4) Lightning strikes can cause:

- a) Burns
- b) Neurological Damage
- c) Hearing Loss
- d) Memory Loss
- e) Psychological Trauma
- f) Death

5) Signs of approaching lightning storms:

- a) Thunder
- b) High winds
- c) Darkening skies
- d) Flashes of light
- e) Tall, bright, white clouds in a gray sky
- f) Hair standing on end or a tingling sensation
- g) Metallic taste in the mouth
- h) Scent of ozone in the air
- i) Dizziness or sweating (electrical charges interfering with your central nervous system)
- j) Sensation of vibrating, crackling, or buzzing
- k) Anvil shaped clouds (the point of the anvil shows the direction the storm is moving)



6) Estimating distance: Count the number of seconds between seeing lightning and hearing thunder. Divide this number by 5 to estimate how far the storm is from you in miles.

7) The 30-30 Rule: If the time between seeing lightning and hearing thunder is less than 30 seconds it is close enough to be a danger to you. Do not resume outdoor activities until 30 minutes after the last flash of lightning.

8) Outdoor lightning safety tips:

- a) Avoid lightning by checking weather forecasts and postponing outdoor activities.
- b) Move indoors: "When thunder roars, move indoors".
- c) Move away from elevated areas such as hills or peaks. Lightning seeks the highest object.
- d) Sheltering in an enclosed vehicle is better than no shelter at all.
- e) Do not shelter in golf carts, convertibles, motorcycles, or other open vehicles.
- f) Avoid open areas or bodies of water.
- g) Do not shelter under trees.
- h) Separate yourself from others.
- i) Do not hold any metal objects above shoulder level.
- j) Avoid tall structures like telephone poles.
- k) Do not stand on or touch concrete. Metal reinforcement in concrete, such as rebar, can conduct lightning and electricity.
- l) Do not lie flat on the ground. If you must remain outdoors assume the safety position. Crouch in a ball with your head between your legs and hands over your ears.

8) Indoor lightning safety tips:

- a) Avoid sources of water. Do not shower, bathe, wash dishes, or have any other contact with water sources. Lightning can travel through metal piping.
- b) Avoid all electronic equipment. Do not touch anything connected to an electrical outlet (computer, gaming systems, washer, dryer, stove, etc.)
- c) Avoid windows, doors, porches, and concrete.

d) Do not use corded telephones.



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NC DEQ Lightning Safety Toolbox Talk Quiz Key



- 1) **What is the most dangerous type of lightning to workers?** Our biggest concern is cloud-to-ground lightning, which is a discharge between oppositely charged areas in a cloud and on or near the ground.

- 2) **Can you be struck by lightning indoors?** Yes, one third of all lightning strikes take place indoors

- 3) **When is lightning possible?** Any time there is a thunderstorm.

- 4) **True or false: Lightning can heat the surrounding air hotter than the surface of the sun?** TRUE

- 5) **Name some signs of approaching lightning storms:**
 - a) Thunder
 - b) High winds
 - c) Darkening skies
 - d) Flashes of light
 - e) Tall, bright, white clouds in a gray sky
 - f) Hair standing on end or a tingling sensation
 - g) Metallic taste in the mouth
 - h) Scent of ozone in the air
 - i) Dizziness or sweating (electrical charges interfering with your central nervous system)
 - j) Sensation of vibrating, crackling, or buzzing

- k) Anvil shaped clouds (the point of the anvil shows the direction the storm is moving)

6) Estimating distance: You see lightning and 5 seconds later you hear thunder. How far away is the storm? 1 mile.

7) What is the 30-30 Rule: If the time between seeing lightning and hearing thunder is less than 30 seconds it is close enough to be a danger to you. Do not resume outdoor activities until 30 minutes after the last lightning sighting.

8) Name some outdoor lightning safety tips:

- a) Avoid lightning by checking weather forecasts and postponing outdoor activities.
- b) Move indoors: "When thunder roars, move indoors".
- c) Move away from elevated areas such as hills or peaks. Lightning seeks the highest object.
- d) Sheltering in an enclosed vehicle is better than no shelter at all.
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8) List some indoor lightning safety tips:

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- 2) **Can you be struck by lightning indoors?**

- 3) **When is lightning possible?**

- 4) **True or false: Lightning can heat the surrounding air hotter than the surface of the sun?**

- 5) **Name some signs of approaching lightning storms:**

- 6) **Estimating distance:** You see lightning and 5 seconds later hear thunder.
How far away is the storm?

- 7) **What is the 30-30 Rule:**

- 8) **Name some outdoor lightning safety tips:**

- 8) **List some indoor lightning safety tips:**



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