

# Howard Talks Tech

## What you need to know about Lightning



Lightning is a capricious, random and unpredictable event. Its' physical characteristics include current levels in excess of 400 kA, temperatures to 50,000 degrees F., and speeds approaching one third the speed of light. Lightning kills more people each year on average than hurricanes and tornadoes combined. There are about 100 lightning fatalities annually in the US. Beyond the tragic loss of life, however, are the many injuries.

Only about 10% of lightning strike victims are killed; 90% survive. But many of the estimated 1000 survivors suffer severe, life-long injury and disability..

Injury from a lightning strike may occur in any of these ways:

1. Direct strike: Lightning directly strikes a person.
2. Contact strike: A person is touching an object (such as a tree) that has been struck by lightning.
3. Side splash: Lightning jumps from the primary strike object on its way to the ground.
4. Ground strike: Lightning strikes the ground and the current spread out in a circle from that spot.
5. Blunt injury: A person is thrown violently from the lightning strike or from the explosive force that occurs as surrounding air is superheated and rapidly cooled.
6. Upward streamer: When a low-energy electrical charge streams upward to meet a downward leader, it may carry enough current to cause electrical injury even if it does not connect with the downward current to complete the lightning strike

Lightning safety should be practiced by all people during thunderstorms. Preparedness includes: get indoors or in a car; avoid water and all metal objects; get off the high ground; avoid solitary trees; stay off the telephone.

Lightning can strike up to **10 to 15 miles** from the rain portion of the storm. Measuring lightning's distance is easy. Use the "Flash/Bang" (F/B) technique. For every count of five from the time of seeing the lightning stroke to hearing the associated thunder, lightning is one mile away. A F/B of 10 = 2 miles; a F/B of 20 = 4 miles, etc. The 30/30' rule for lightning safety could save your life. The first 30' means that you need to take cover if you hear thunder within 30 seconds of the lightning flash (flash to bang ratio). Then wait at least 30 minutes after the last lightning flash or thunder in order to resume normal activity.

All deaths from lightning are from cardiac arrest and stopped breathing at the time of the strike. The victims are not electrified and are safe to touch. Lightning may cause numerous other injuries:

- Up to two-thirds of the seriously injured people struck by lightning have keraunoparalysis-a temporary paralysis unique to lightning strike.
- Victims may experience superficial burns. Contrary to common belief, deep burns are rare. They occur in fewer than 5% of lightning injuries

If caught outdoors during nearby lightning, adopt the Lightning Safety Position (LSP). LSP means staying away from other people, taking off all metal objects, crouching with feet together, head bowed, and placing hands on ears to reduce acoustic shock

A safe building is one that is fully enclosed with a roof, walls and floor, such as a home, school, office building or a shopping center. Picnic shelters, deck overhangs and other partially open structures are NOT safe. A warning sign should be placed on such structures.