

Fire and electricity: Proper response critical to safety

Electricity helps power homes and businesses, but it can be extremely dangerous if it is not handled properly in an emergency situation.

As a firefighter, you are often called to accident scenes or building fires that involve electricity. If you are aware of the hazards and know how to respond appropriately, you can protect yourself and the public from being injured or killed.

The dangers of downed wires

Severe weather and vehicle accidents can cause overhead electric lines to snap and fall to the ground. Downed wires are extremely hazardous and should be approached with caution. Even if the line is not sparking or jumping, it may still be energized.

If you are called to the scene of a downed wire, you should first clear the area and establish a safety zone that only authorized personnel can enter. The safety zone should extend a minimum of two full span lengths of wire in each direction beyond the downed wire. Keep in mind that any object in contact with the line, such as a car, metal fence or guard rail, is probably energized and dangerous.

Once you have cleared and secured the area, call Alliant Energy at 1-800-ALLIANT or the local electric utility. Do not attempt to move or cut downed wires — only electric utility employees have the training and equipment needed to safely handle power lines.

If an overhead line has fallen on a vehicle that hit a power pole, use caution when approaching the scene and stay at least 10 feet away. Remember, the vehicle and any camper or trailer attached to it may be energized.

As long as the vehicle is not on fire, tell the occupants to remain calm and stay in the vehicle. If the passengers try to get out, they could be shocked or killed.

If the occupants must exit the vehicle because of a fire, instruct them to jump out landing with both feet together and avoid touching the equipment and ground at the same time. They must clear the vehicle in one jump without stumbling or falling back toward the car or truck. Once on the ground, they should keep their feet close together and shuffle a safe distance away from the vehicle. Small, shuffling steps are important because electric current will radiate out from the area like ripples in a pool of water. Anyone who stands or walks through the area is in danger of being seriously injured or killed, and the risk is even greater when you take large steps. Why? Because your feet may be in two different voltage areas, providing another path through which current can flow with devastating results. This is known as step voltage or step potential.

Use caution near overhead power lines

Almost every structural fire has electric hazards, including overhead power lines located near the scene. When responding to a fire, never park emergency vehicles near or under overhead electrical conductors, and keep aerial equipment at least 10 feet from power

lines. While some overhead lines are covered, this coating is to protect the wire from weather. It will not protect you from shock.

Surprisingly, the person on the ladder may be relatively safe. However, firefighters who are in contact with the ground and equipment at the same time — firefighters at the end of hose lines — are at greatest risk for electric shock.

Also, standing near equipment that comes in contact with a power line can prove fatal because of step voltage or step potential. For example, if a ladder or boom touches a power line, the current flows through the equipment and into the ground.

Extinguish fires with spray, not stream

Because water (except pure, distilled water) is a good conductor of electricity, you should use a spray or fog nozzle rather than a straight stream. If you apply water with a hand-held nozzle to an energized object, electricity may flow back through the nozzle and cause a serious injury.

Disconnecting power

When fighting fires in residential or commercial buildings, you rarely need to turn off the power to the entire building. In fact, lighting is often beneficial to firefighting and evacuation. You may also need electricity to operate pumps, fans or other equipment that protects the building and its contents.

If you do have to shut off the power for safety reasons, open the circuit breakers, remove the fuses or disconnect switches to shut off or deenergize the affected area.

To shut off the electric service to the entire building, turn the buildings main disconnect breaker. Then attach a warning tag indicating that the power was intentionally shut off.

Never cut wires or pull a meter to de-energize the entire building. Meters are not switches, so removing a meter does not necessarily turn off the flow of electricity. More importantly, disturbed meters may produce dangerous arcing.

For more information on responding to electric and natural gas emergencies, go to www.alliantenergy.com or call 1-800-ALLIANT.