

MERRY, BRIGHT, AND SAFE

A GUIDE TO ELECTRICAL SAFETY DURING THE HOLIDAYS





THE HOLIDAY SURGE

The period between Thanksgiving, Christmas, Hanukkah and New Year's Day is meant to be a time of celebration, warmth, and gathering. However, it is also a time to remain vigilant for the risk of electrical hazards and residential fires. Electrical failures and malfunctions are a leading cause of home fires during the winter months. Holiday decorations and Christmas trees account for hundreds of fires each year, resulting in injuries, deaths, and millions of dollars in property damage.

This sudden, massive surge in electrical demand places incredible stress on home wiring systems, extension cords, and wall outlets. Holiday decorations that only appear once a year should be checked every year, and Christmas trees placed in a safe location. The tragic reality is that almost all of these incidents are entirely preventable. With a few practical steps, you can protect your home and loved ones.

THE CHRISTMAS TREE

Whether you prefer a freshly cut pine or an artificial pre-lit tree, a well-maintained and positioned tree is key to enjoying your holidays safely.

REAL TREES: WATER IS YOUR SHIELD

A well-watered, freshly cut tree is highly resistant to ignition. A dried-out tree, however, is essentially a massive pile of standing kindling inside your home.

- **The Fresh Cut:** When you bring a tree home, cut about two inches off the base of the trunk before placing it in the stand. This removes sap that has sealed the wood, allowing it to absorb water.
- **Check the Water Daily:** A fresh tree can consume up to a gallon of water a day, especially in the first week. Never let the water level fall below the base of the trunk.
- **Location Matters:** Keep your tree at least three feet away from any heat source, including fireplaces, radiators, space heaters, and heat vents. The constant blast of warm, dry air will rapidly dehydrate the needles.
- **The Disposal Rule:** Remove the tree from your home immediately after the holidays, or the moment the needles become dry, brittle, and begin falling off in large numbers.

ARTIFICIAL TREES: FIRE-RETARDANT LABELS

If you prefer an artificial tree, do not assume it is entirely fireproof.

- **Check the Label:** Look for a label explicitly stating that the tree is "Fire Retardant." This does not mean it will not catch fire, but it will resist burning and extinguish more quickly.
- **Pre-Lit Cautions:** For pre-lit artificial trees, carefully inspect the built-in wiring every year as you assemble the branches. The folding and storing process can easily pinch or sever internal wires.





INDOOR LIGHTING & DECOR

INSPECT BEFORE YOU CONNECT

Holiday lights spend eleven months of the year shoved into plastic bins or tightly wound around cardboard in hot attics or freezing garages. This environment degrades the plastic insulation surrounding the wires.

- **The Visual Check:** Before stringing any lights, whether they are brand new or pulled from storage, inspect the entire length of the wire. Discard any strings with cracked insulation, frayed wires, or bare copper showing.
- **Socket Safety:** Look for broken or crushed bulb sockets. An empty or broken socket can expose energized metal contacts.
- **Other decorations:** Checking for electrical safety doesn't stop with the lights. Any holiday décor that plugs in should be inspected before plugging in. If the wire or cord is frayed, damaged or wearing thin, do not plug it in.

UPGRADE TO LED

The single best electrical safety upgrade you can make for the holidays is throwing away your old incandescent lights and replacing them with modern LEDs (Light Emitting Diodes).

- **Cool to the Touch:** Incandescent bulbs create light by generating intense heat. LEDs generate almost no heat, making them vastly safer to nestle into dry pine needles, wrap around curtains, or hang near paper decorations.
- **Energy Efficiency:** LEDs use up to 75% less energy. Because they draw so little power, you can safely connect dozens of LED strings end-to-end without overloading the circuit.
- **Durability:** LED bulbs are typically made of epoxy lenses, not fragile glass, making them highly resistant to breakage.



INCANDESCENT BULBS

If you are still using older, glass incandescent bulbs, you must strictly monitor how you connect them. Unlike LED strings, incandescent bulbs draw significant current and generate real heat, which is why the rules below matter more with every string you add.

- **End-to-End Limits:** Unless the manufacturer specifically states otherwise on the packaging, never connect more than three standard strings of incandescent lights end-to-end.

The Danger: Exceeding this limit pulls too much electrical current through the tiny wires in the first string, causing the wire to overheat, melt its plastic casing, and spark a fire.

- **Know Your Wattage:** Incandescent strings pull far more power than LEDs. A single string of 100 incandescent mini lights can draw roughly 40–50 watts, compared to just a few watts for the LED equivalent. Add up the total wattage of everything on one outlet or extension cord and keep it well under the circuit's rating (most household circuits are 15 or 20 amps). When in doubt, spread strings across multiple outlets instead of daisy-chaining more onto one.

- **Feel for Heat:** Incandescent bulbs run hot enough to scorch or ignite nearby material. Periodically touch the bulbs and sockets (once they've been on for a while) to check they aren't unusually hot, and never let strings rest against dry greenery, wrapping paper, curtains, or other flammable decorations.

- **Matching Replacement Bulbs:** If a bulb burns out, replace it with one of the exact same voltage and wattage. A higher-wattage substitute forces the rest of the string to carry more current than it was designed for, and a mismatched bulb can also throw off the whole string's electrical balance.

- **Don't Leave Them Running Unattended:** Because incandescent bulbs generate heat continuously while lit, turn them off when you leave the house or go to bed. A timer or smart plug makes this automatic and removes the temptation to "just leave them on."
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INDOOR EXTENSION CORDS

A TEMPORARY SOLUTION, NOT PERMANENT WIRING

Extension cords are incredibly convenient, but they are designed for temporary use only. During the holidays, many homeowners treat them as a substitute for permanent wall outlets, weaving them through rooms, behind couches, and leaving them plugged in for months. This misuse inevitably leads to overheating, insulation failure, and electrical fires.

CORD MANAGEMENT RULES

- **Never Cover Cords:** Do not run extension cords under rugs, carpets, or furniture. Cords naturally generate heat when electricity flows through them; covering them traps that heat and can cause a fire.
- **Avoid Pinch Points:** Do not run cords through doorways or windows where they can be pinched, crushed, or severed by foot traffic.
- **Don't Connect Two or More Extension Cords Together:** "Daisy-chaining" is the highly dangerous practice of plugging one extension cord into another, or plugging multiple power strips together to reach a distant outlet. Each connection point adds resistance, and the combined length lets current drop and heat build past what any single cord was designed to handle, which can melt the cord's insulation and start a fire at the joint. If an extension cord is not long enough to reach the outlet, buy a single, longer cord. Never connect two together.
- **The "Octopus" Outlet:** Do not overload a single wall receptacle with multi-plug adapters and power strips. This creates an "octopus" of wires that can easily exceed the 15-amp or 20-amp limit of your home's circuit breaker.

UNDERSTANDING CORD GAUGES

Not all extension cords are created equal. They are rated by their "AWG" (American Wire Gauge). Counterintuitively, the lower the gauge number, the thicker the wire, and the more electricity it can safely carry.



16-Gauge (Light Duty):
Suitable only for light indoor displays (a few strings of LED lights).

14-Gauge (Medium Duty):
Good for longer outdoor lighting displays or standard appliances.

12-Gauge (Heavy Duty):
Required for high-draw items.

THE DANGER OF VOLTAGE DROP

If you use a thin, light-duty cord to power a heavy-duty item, the cord restricts the flow of electricity. This creates resistance, which generates intense heat, eventually melting the rubber insulation and starting a fire.



OUTDOOR DECORATING

BRAVING THE ELEMENTS

Outdoor holiday displays require entirely different equipment and precautions than indoor decor. Exposing indoor-rated cords or lights to rain, snow, and freezing temperatures is a recipe for a short circuit, a blown breaker, or a severe electrical shock.

WEATHERPROOFING YOUR DISPLAY

- **Outdoor Ratings Only:** Use only lights, extension cords, and timers explicitly marked for "Outdoor Use." These products are manufactured with thicker insulation designed to withstand UV rays, moisture, and extreme cold.
- **GFCI Protection:** Plug all outdoor decorations into Ground Fault Circuit Interrupter (GFCI) outlets. These specialized outlets detect dangerous ground faults and cut the power instantly (in milliseconds), preventing electrocution in wet conditions. If your exterior outlets are not GFCI-protected, have a licensed electrician upgrade them.
- **Elevate the Plugs:** Never let extension cord connections sit in puddles, gutters, or snowbanks. Elevate connections using a brick or secure them inside a specialized weather-resistant plastic cord cover.
- **Create a Drip Loop:** When plugging cords into an outdoor wall outlet, allow the cord to dip below the outlet before plugging it in. This prevents rainwater from running directly down the cord and into the electrical socket.

YARD INFLATABLES: MANAGING THE LOAD

While inflatable snowmen and snow globes are neighborhood favorites, their continuous blower motors require careful electrical management.

- **Powering the Blower:** The motor must run constantly to keep the decoration upright. This sustained draw makes inflatables the perfect candidate for a heavy-duty 12-gauge extension cord. A light-duty cord will quickly overheat under this continuous load.
- **Keep Intakes Clear:** Blower motors typically sit directly on the ground. Ensure the intake fan is elevated or kept completely clear of deep snow, standing puddles, and dead leaves. Debris or water sucked into the motor can cause it to seize, overheat, and ignite.
- **Prevent Cord Chafing:** Inflatables shift constantly in the winter wind. Route your heavy-duty cords away from nylon tethers, abrasive bushes, or high-traffic walkways. Constant friction can wear down the plastic insulation over a few weeks, exposing energized copper wire.
- **Timers and Wind Limits:** Do not leave blowers running 24/7. Use an outdoor-rated heavy-duty timer to give the motor a rest during daylight hours. Always deflate displays during high winds to prevent the motors from overworking and to stop violent shifting from ripping electrical connections out of the outlet.

OVERHEAD POWER LINE DANGER

When hanging lights on rooflines, gutters, or in tall trees, the greatest threat is not falling from the ladder. It is making contact with the high-voltage overhead power lines connecting the utility pole to your house.

- **Look Up and Live:** Always survey the entire area for overhead power lines before setting up a ladder, carrying a long pole, or tossing light strands over branches.
- **The 10-Foot Rule:** Keep yourself, your ladder, and your decorations at least 10 feet away from any overhead power line. Electricity can "arc" or jump across open space if you get too close.
- **Use the Right Ladder:** Never use an aluminum or metal ladder when working anywhere near electricity. Use a fiberglass or wooden ladder instead, as they do not conduct electricity.



STAYING WARM SAFELY

When the winter chill sets in, many families supplement their central heating with portable electric space heaters. While convenient for warming a single chilly bedroom or office, space heaters are involved in nearly 80% of all fatal home heating fires.

A standard space heater draws 1,500 watts of power. To put that in perspective, a single space heater draws roughly the same amount of electricity as a hair dryer running on its highest setting. They maximize the capacity of a standard wall circuit and generate intense, localized heat.

THE THREE-FOOT RULE

The most common cause of space heater fires is placing the unit too close to combustible items.

- **Clear the Zone:** Space heaters need their own designated space. Keep all combustible materials, including curtains, holiday wrapping paper, Christmas trees, blankets, clothing, and upholstered furniture, at least three feet away from the heater in every direction.
- **Flat and Stable:** Always place heaters on a hard, level, non-combustible floor (like tile or hardwood). Never place them on thick carpets, rugs, or elevated surfaces like tables where they can easily be knocked over.

PLUGGING IT IN SAFELY

- **Wall Outlets Only:** A space heater must be plugged directly into a permanent wall outlet.
- **No Extension Cords:** Never plug a space heater into an extension cord or a plastic power strip. The sustained high current draw will almost certainly melt the plastic casing of a power strip and start a fire.
- **The Unattended Rule:** Turn off and unplug space heaters whenever you leave the room or go to sleep. Do not rely solely on the thermostat to cycle it off.

HOLIDAY KITCHEN SAFETY

THE HEART OF THE HOLIDAYS

Thanksgiving and Christmas involve cooking on a massive scale. The kitchen becomes a chaotic hub of activity, with multiple high-draw appliances running simultaneously. Kitchens are the leading area for home fires, and the introduction of extra electrical elements only heightens the risk.

COUNTERTOP APPLIANCE OVERLOAD

Hosting a holiday dinner often means dusting off specialty appliances: slow cookers, electric roasters, deep fryers, and warming trays.

- **Circuit Overload:** Kitchen outlets are typically on 20-amp circuits, which can handle about 2,400 watts of power. If you plug a slow cooker (300 watts), an electric roaster (1,400 watts), and a coffee maker (1,000 watts) into the same circuit, you will trip the breaker.
- **Spread the Load:** Plug high-wattage cooking appliances into different outlets located on separate circuits to avoid an overload.
- **Unplug When Done:** Once the meal is served, unplug all countertop appliances. This eliminates the risk of an appliance accidentally being turned back on or short-circuiting while everyone is eating in the dining room.

WATER AND ELECTRICITY

- **Keep Cords Dry:** Ensure the cords for electric carving knives, hand mixers, and blenders are kept far away from the kitchen sink, wet countertops, and hot stovetops.
- **GFCI Protection:** Just like outdoor outlets, all kitchen outlets near a water source must be GFCI-protected. If an appliance falls into a sink of water, the GFCI will cut the power instantly, preventing a lethal shock.





LITHIUM-ION BATTERIES & TOYS

E-bikes, electric scooters, hoverboards, drones, smartphones, and remote-controlled toys are all powered by lithium-ion batteries. They can pose a fire risk if they are damaged, overcharged, or manufactured poorly.

When a lithium-ion battery fails, it enters a chemical process called "thermal runaway." The battery rapidly heats up, venting highly toxic, flammable gases, and forcefully ejects flames. A lithium-ion battery fire burns incredibly hot, produces thick black smoke, and cannot be easily extinguished with a standard water hose.

CHARGING SAFELY

- **Use the Original Charger:** Only use the charging cord and power adapter that came directly from the manufacturer in the box. Counterfeit or cheap gas-station chargers often lack the internal safety circuits that prevent the battery from violently overcharging.
- **Do Not Charge Overnight:** Unplug toys, scooters, and devices as soon as they are fully charged. Do not leave them plugged in overnight while you are asleep.
- **Avoid the Bed:** Never charge smartphones or tablets on a bed, under a pillow, or on a couch. The soft material acts as an insulator, trapping the heat generated during the charging process.

HOVERBOARDS AND E-BIKES

- **UL Certification:** If you are gifting an e-bike, electric scooter, or hoverboard, verify that it bears a UL certification mark (such as UL 2849 for e-bikes). This proves the battery system has been rigorously tested.
- **Store Safely:** Never charge or store an e-bike or scooter in a hallway, stairwell, or directly in front of your home's primary exit door. If the battery catches fire, your only escape route will be completely blocked by flames.



EMERGENCY PREPAREDNESS

Even with the best, most vigilant safety practices, emergencies can happen. A severe winter storm or a sudden malfunction requires immediate action. Preparing your home and your family for an emergency or a winter power outage is a crucial step in comprehensive holiday safety.

ALARMS AND EXTINGUISHERS

- **Test Your Smoke and Carbon Monoxide (CO) Alarms:** You should have working smoke alarms and CO alarms installed inside every bedroom, outside every sleeping area, and on every level of your home. Test them by pressing the button before you put up your holiday decorations.
- **The Right Extinguisher:** Ensure you have a standard Class ABC fire extinguisher readily available in your home. The "C" classification indicates it contains non-conductive chemicals and is safe to use on energized electrical equipment.
- **Never Use Water:** Never throw water on an electrical fire. Water conducts electricity. Throwing water on a burning outlet or sparking tree light can cause a severe electrical shock and may spread the fire.



POWER OUTAGE PROTOCOL

Heavy winter storms and ice accumulation on lines can lead to holiday power outages.

- **Keep flashlights handy:** Using candles may seem like a good idea, but they're a fire hazard and don't emit that much light. Stick to flashlights and keep some spare batteries.
- **Stay informed:** Listen to the radio for the latest weather and news updates. Keep a hand-crank or battery-powered radio for emergencies. Some utility providers also put status updates on their websites or social media that will be helpful.
- **Generator Safety:** If you use a portable gas-powered backup generator, never operate it inside your home, garage, enclosed porch, or basement. Keep it at least 20 feet away from windows and doors, with the exhaust pointing away from the house, to prevent deadly carbon monoxide poisoning.
- **Unplug the Electronics:** If the power goes out, immediately unplug sensitive electronics (TVs, computers) and turn off your holiday lights. When the utility restores power, it often arrives with a sudden voltage spike that can permanently damage your expensive equipment.

RESOURCES

Visit these sites for additional information:

**ELECTRICAL SAFETY
FOUNDATION INTERNATIONAL (ESFI)**

www.esfi.org

**NATIONAL FIRE PROTECTION
ASSOCIATION (NFPA)**

www.nfpa.org/holiday

**CONSUMER PRODUCT
SAFETY COMMISSION (CPSC)**

www.cpsc.gov

UNDERWRITERS LABORATORIES (UL)

www.ul.org

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