



# Naval Safety Center

## LESSONS LEARNED

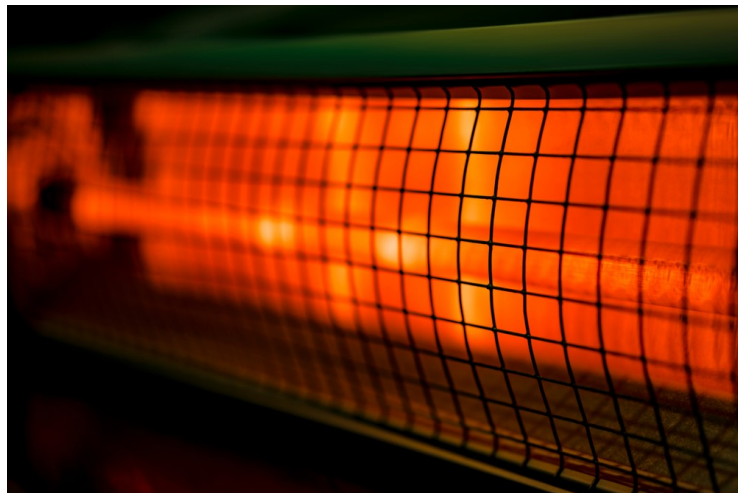


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### WINTER ELECTRICAL SAFETY

With the holidays winding down and winter's coldest months fast approaching, there is an increased demand on our homes' electrical systems. Lighted decorations, additional cooking equipment (crock pots, warmers), and space heaters can put a strain on home electrical components and increase the risk of shocks and fire (this includes your workspaces as well). Add potential faulty systems or appliances and the threats keep adding up. Top it off with some winter weather, frozen pipes, melting ice and snow intrusion, and the risk meter rises even higher.

Electric shocks are bad enough, but the most significant winter electrical hazard is fire. According to the National Fire Protection Association (NFPA), between 2012 and 2016, heating equipment was the cause for 15 percent of fires in U.S. homes resulting in 490 fatalities, 1,400 injuries, and \$1 billion in direct property damage. The most common equipment associated with these fires is space heaters, which account for 86% of the fatalities, 78% of the injuries, and 54% of the property damage.



As other lessons from the Naval Safety Center have shown, our Sailors and Marines are not immune to the same dangers that await the rest of the U.S. While not all electrical mishaps result in a fire, they can cause severe damage or personal injury. Keep in mind that if a service member's house burns down due to unsafe electrical practices (unless they are injured and lose work time), we won't see those incidents in our database. However, a quick search of the fiscal year 2019 mishaps revealed that our service members aren't shock or burn resistant, with or without burning down the house. Here are a few examples:

- A Marine was plugging in a heating blanket when the power outlet exploded, causing an electric shock and burns to the fingers and forearm; resulting in three lost workdays. The cause was a faulty outlet, which was described as "not in a safe condition" in the report. How can one tell if an outlet is defective? We have a few tips on page two. — *We were tempted to poke fun at the typical tough Marine image, but if you have the opportunity to use a heated blanket (if authorized) for your comfort, no judgment from here. Just make sure it's safe to use.*
- A Sailor was sleeping in a space aboard ship with an unauthorized space heater (*that raises at least two questions*). Sometime around zero dark thirty, he awoke to the smell of smoke and flames and called for help. The emergency was called away and a member from the first response team quickly extinguished the fire with a CO2 extinguisher. — *Did we mention the space was the safety officer's office? Doh! Fortunately, the (now melted) space heater caused no damage, but we think the safety officer may have had some explaining to do.*
- While on watch, the officer of the deck inadvertently jostled a space heater and noticed it "arcing and sparking." As a Sailor attempted to unplug it, he received an electric shock. Fortunately for this petty officer, he wasn't seriously injured or "electrocuted" like our next Sailor.
- A Sailor was reaching to fix a light that had water dripping on it from the ceiling (*ORM flags should be waving*). Quoting from the report, "Service member failed to secure power resulting in [the] member being electrocuted. [The] member received no light duty." — *Well, no need for light duty if you're electrocuted. We think they meant to say "shocked," because he survived. Fortunately, the Sailor is still with us and had no serious injuries. Needless to say, the safety failure should be obvious.*

## WINTER ELECTRICAL SAFETY



### Key Takeaways and Tips

**1. Recognize the signs of trouble.** You may not have an Electrician's Mate (EM) at home to check all your electrical equipment, but you can learn to recognize signs of trouble waiting to happen. If you see any of these signs of electrical problems, turn off the power, and call an electrician immediately. A qualified electrician can identify possible causes, such as short or overloaded circuits, improperly-rated fuses and breakers, and not having ground-fault protection where it's needed to protect against shock hazards.

- Lights flicker for no apparent reason
- You wiggle a switch and it feels "floppy" in your hand or the lights flicker or go on and off
- The light switch doesn't turn the lights on or – even worse – won't turn them off
- An unusual smell
- Discolored receptacles, switches, or other electrical devices
- Sparks or noises (especially like "frying eggs")
- Frayed wires or loose connections
- Overloaded outlets, extension cords, or surge protectors
- Circuit breakers trip (be especially concerned if they won't reset!)

**2. Winter storms can cause additional hazards.** Here is a list of new things to look out for during the cold months:

- Alternative heating devices such as space heaters, being used incorrectly  
*(Note: If you are assigned to a ship, see the EMs before you buy a portable heater. There are strict safety guidelines for approved shipboard portable heaters. If ashore, check with your facility safety officer for approved space heaters. Follow those guidelines for safe portable heaters at home too.)*
- Damaged or downed utility lines
- Water damaged appliances and utilities can be electrically charged
- Frozen water pipes can burst and cause safety hazards. Know where the main water shutoff is located
- Leaking gas lines, damaged or leaking gas propane containers, and leaking vehicle gas tanks may explode or ignite
- Generators are often used during power outages, but if they're not correctly used and maintained they can be hazardous
- Always follow manufacturers' instructions and guidelines, and always run generators or other fuel-powered machines outside of the home in a well-ventilated location, as carbon monoxide fumes are odorless and can quickly overwhelm you

This product is posted on the NAVSAFECEN CAC-enabled website at <https://intelshare.intelink.gov/sites/navsafe>.

Send any feedback to: [NAVSAFECEN\\_CODE522\\_LESSONS\\_LEARNED@navy.mil](mailto:NAVSAFECEN_CODE522_LESSONS_LEARNED@navy.mil)

*And remember, "Let's be careful out there"*