

# Portable and Home Standby Generators

POWER

## Introduction

Strong winds, heavy snow or ice accumulations are natural conditions that can bring down trees and power lines. Lightning strikes, flooding and vehicle accidents can damage electrical transformers or other electrical distribution equipment. All of these conditions can result in a blackout affecting thousands of homes. Most blackouts are short but some can last for several days or weeks following severe weather events like hurricanes, ice storms, or blizzards.

Many homeowners are investing in generators to power their sump pumps, refrigerators and other appliances where there are frequent power outages following storms. Generators are a temporary solution to reduce the potential for flooding, freezing and other property damage. However, generators can create an increased risk of carbon monoxide poisoning, electrocution and fire.

This article will discuss common classifications of generators, the hazards of generators, general safety guidelines for generator operation and other issues an association should consider for generator use in their communities. This article does not discuss commercial grade generators that are common in high rise buildings and other large common buildings within a community.



### What CAU Recommends:

- > Never operate a generator indoors or near an opening that would allow CO gas to enter a home
- > Read and follow the manufacturer's operating instructions that came with the generator
- > Install CO detectors in all residences and units
- > Never plug a generator into a house outlet
- > Do not overload a generator or an individual extension cord
- > Use a ground fault circuit interrupter (GFCI) to reduce the risks of electrocutions and electric shock injuries
- > Do not store flammable fuels inside living areas, including garages and basements
- > Confirm that home standby generators comply with National Electrical Code articles 702 for Optional Standby Systems and 705 for Interconnected Electric Power Sources

### Need More Information?

Additional information on generator safety is available from the Consumer Product Safety Commission ([www.cpsc.gov](http://www.cpsc.gov)), the National Fire Protection Association ([www.nfpa.org](http://www.nfpa.org)) and a variety of manufacturer web sites. Associations may request additional information on this topic by contacting CAU's Loss Control Department.

## Classifications of Generators

The two most common classifications of generators for residential use are portable and home standby. Both types are available in a variety of sizes and can operate on various fuel sources.

Gasoline fueled portable generators are the most common type of generator for residential use and they are readily available in retail stores for less than \$1,000. The resident must place these generators in a safe location and start them manually.

This type of generator supplies managed emergency power to selected appliances in a home. Larger capacity generators can connect to an automatic transfer switch and supply managed power to selected circuits in a home.

Home standby generators fueled by the home's natural gas or propane, are becoming more common for residential use. The cost for this type of generator can be several thousand dollars plus shipping and installation charges. Standby generators start automatically when utility power is lost and supply power to the home's electrical circuits through an automatic transfer switch wired to the home's electric panel. They can provide whole house power or managed power to selected circuits.

## Hazards of Generators

The most common hazards associated with generator use are carbon monoxide (CO) poisoning, electrocution and fire.

Generators, like any other internal combustion engine, can produce high levels of CO in a short amount of time when operated in an enclosed space. Residents should never operate a generator within an enclosed space such as inside a residence, garage, basement, breezeway, or near doors, windows, vents and other openings that would allow CO to enter their own or adjacent residences. Residents that use generators should also install CO detectors in their home. Additional information on CO detectors is available in CAU Risk Management Article GL-4, Carbon Monoxide Detectors.

Generators can pose a risk of shock and electrocution, especially if used in wet conditions such as rain or snow. Portable generators should be located beneath an open canopy like structure, away from the residence, on a dry surface where water cannot reach the generator or puddle beneath it. Residents should also dry their hands before touching the generator or plugging appliances into the generator.

Residents should never attempt to plug a generator into a house outlet. This practice known as "back feeding" will actually bypass some of the built in circuit protection

devices and can back feed power into the utility lines and electrocute utility workers and neighbors served by the same transformer.

When connecting appliances to a portable generator, residents must use heavy-duty extension cords rated for outdoor use with a wattage rating that exceeds the total wattage for all appliances connected to the cord. Extension cords should be long enough so that the generator is positioned a safe distance from the home. Extension cords should also be free from cuts or tears that expose the internal wiring and have all three prongs intact.

Portable generators present an increased risk of fire during refueling and because of fuel storage. Since gasoline spilled on a hot engine can ignite, residents must turn off the generator and allow it to cool down before refueling.

## Other Considerations

Based on the type of community, many associations will need to consider additional requirements or restrictions regarding the location of generators.

In multi-unit buildings, associations should prohibit operating portable generators on elevated balconies to prevent CO gas from entering adjacent units through doors, windows, vents and openings in roof soffits.

Associations should also prohibit residents in multi-unit buildings from storing large quantities of gasoline and other flammable fuels inside a residence. Fuels should be stored outside of living areas in properly labeled, non-glass safety containers and never be stored near an ignition source such as a heater or hot water heater.

For home standby generators, associations will likely want to limit the location of the generator to a side or rear yard or a certain distance from a property line. For aesthetic reasons associations may require a privacy or landscape barrier to conceal the generator. In these cases, the barriers should not impede the required air intake or ventilation space requirements for the generator.

One final consideration for generators used within a community association is noise. Most generators have peak, full load noise levels below 80 decibels (dba) however, the location of the generator near walls or in tight spaces can amplify noise levels.

It is likely that residents without generators will complain about noise produced by generators and seek relief from the association based on the nuisance restrictions in the association documents. In anticipation of this, associations should require that generators comply with all local noise ordinances. Permanently installed generators should include a weatherproof, sound attenuating cover.