

Portable Generator Safety Guidelines

EHS wants the university community to know that portable generators can be hazardous if used improperly. The major hazards are carbon monoxide poisoning and electrocution.

For safe generator operation, follow these simple steps:

1. READ THE OPERATOR MANUAL.

- Thoroughly read, understand, and follow all manufacturer's recommendations. Be sure you understand them **BEFORE** connecting and activating the generator.
- Follow the manufacturer's instructions to properly ground the generator. Never exceed the manufacturer's recommended load limit.

2. MAINTAIN ADEQUATE VENTILATION AND STABILITY.

- Generators emit carbon monoxide. Never operate a generator inside an enclosed space. Place it in a dry, sheltered (weather-protected), level, outside location at least 25 feet away from air intakes, windows, or doors. Make sure generator has 3-4 feet of clear space around on all sides (including above it) for adequate ventilation.
- Never operate a generator near combustible materials.

To avoid carbon monoxide (CO) poisoning:

- Never use a generator indoors or in attached garages; only operate the generator outdoors in a well-ventilated, dry area, away from air intakes.
- Protect the generator from direct exposure to rain and snow – preferably under a canopy. Do not restrict the airflow around the generator to allow for adequate cooling.
- Carbon monoxide (CO) is colorless, odorless, and tasteless and is a very deadly gas that is present in the exhaust fumes of an operating engine (powered by gasoline or other hydrocarbon-based fuels).
- Breathing carbon monoxide for only a few minutes can kill you. Carbon monoxide displaces oxygen molecules in air, which reduces the amount of oxygen our blood cells can deliver to the heart, brain, and other tissues. According to the Centers for Disease Control and

Prevention, nearly 420 people die every year in the U.S. from carbon monoxide poisoning, and more than 100,000 others become ill or seek medical attention.

- Breathing lower levels of carbon monoxide can cause fatigue and increase chest pain in people with chronic heart disease.
- Breathing higher levels of carbon monoxide causes flu-like symptoms, such as headaches, dizziness, and weakness. It also causes sleepiness, nausea, fatigue, vomiting, confusion, and disorientation. Very high levels of carbon monoxide causes loss of consciousness and death.
- If you experience any of these symptoms and have any reason to suspect carbon monoxide poisoning, immediately leave the area and seek fresh air. Obtain medical treatment if necessary. Contact EHS to monitor for carbon monoxide.

3. HANDLE FUEL CAREFULLY.

- Power off the generator to refuel and allow generators to cool for at least 2 minutes **PRIOR TO** refueling. Gasoline and its vapors may ignite if they come in contact with hot equipment components or an electrical spark. Keep fuel containers away from hot equipment. Vapors can travel long distances to ignition sources.
- Only store fuel in approved, labeled safety containers in a well-ventilated location outside of buildings.
- Ensure there is a fully charged dry chemical fire extinguisher (minimum rating of 10A:80BC) present at each generator location.
- Check the engine oil level every time you refuel.

4. AVOID ELECTROCUTION AND PROXIMITY TO WATER.

- Make sure the generator is properly grounded and placed in a dry location. If improperly grounded, the entire generator could become electrically charged and cause electrocution.
- Do not plug the generator into a wall outlet.

- Do not operate or store the generator in wet or damp conditions or on highly conductive locations such as metal decking and steel work.
- Follow manufacturer's instructions for properly grounding the generator or use at least #8 (8 AWG) copper grounding wire to connect the generator to a grounding source such as a water pipe that travels into the ground at least 10 feet or a metal rod specifically designed for grounding that has been driven into the ground at least 8 feet.

5. USE THE RIGHT EXTENSION CORD.

- Always plug electrical appliances directly into the generator using the manufacturer's supplied cords or use UL-listed, three-prong extension cords only.
- Ensure the cords are appropriately rated in amp(ere)s or watts for the intended use. Be sure the extension cord is the proper size (wire gauge or AWG) to handle the electric load that will be plugged into it. Do not use underrated cords; replace them with heavier gauge wire. A HOT CORD IS AN OVERLOADED CORD. Overloaded cords are an electrical and fire hazard.
- Inspect all cords to make sure they are fully intact, and not abraded, cut, or damaged. Never use frayed or damaged cords.
- Use a Ground Fault Circuit Interrupter (GFCI).
- Keep all extension cords out of the way or securely taped down to avoid tripping hazards.
- NEVER run extension cords under carpeting or other potentially combustible materials. Heat can build up in such areas and pose a fire danger.

6. AVOID NOISE AND VIBRATION HAZARDS.

- Generator engines vibrate and create noise. Excessive noise and vibration could cause hearing loss and fatigue that may affect job performance.
- Wear adequate hearing protection and keep at a distance from the equipment.

- Keep portable generators as far away as possible from work areas and gathering spaces.

7. AVOID USING SUSPECT/DAMAGED EQUIPMENT.

- Do not use electrical equipment that has been submerged in water. Such equipment should be thoroughly dried and properly evaluated before any future use.
- Power off and do not use any electrical equipment that emits strange odors, begins smoking, produces unexpected arcs/sparks, or is in any other erroneous/dangerous state.