

Heat, Light and Power

Heat

If you burn anything larger than candles in your house, make sure to provide adequate ventilation. Try opening a window a crack on each side of the room, to avoid carbon monoxide poisoning. If you feel drowsy or have a headache, your body could be warning you of inadequate ventilation.

- ▶ When using a fire, someone should always stay awake to make sure that it does not get out of hand, and that ventilation is adequate.
- ▶ Keep fire-fighting materials at hand, such as buckets of water or sand, baking soda, salt, a heavy blanket or tarp, or a chemical fire extinguisher.
- ▶ Wear as much extra clothing as you need, and use extra blankets on your bed.
- ▶ Sleep close to other people and animals.
- ▶ You can also make “thermal curtains”, which are essentially thick blankets, to put over your windows. You can also put layers of plastic over your windows to have the same effect. This will reduce heat loss, especially at night.
- ▶ Try to find drafts and block them, but do not make your house airtight. You want to be able to regulate ventilation, but you need air to circulate to remove carbon dioxide and other gases that might build up and become toxic.
- ▶ Choose one room to concentrate the heat in, and close off the others. You can use partitions made out of blankets, drapes, cardboard, plywood or several layers of plastic sheeting. Choose a room on the side of the house away from prevailing wind, and one that is well insulated and has few or small windows. An interior bathroom may work well, unless you are using a stove, in which case you need a window to vent. A basement may be a good choice, since the earth is somewhat warmer than the surface air in winter, and has an insulating effect.

If you do live in a cold climate, and have to go without a heated house, you will gradually get used to it. The colder temperatures will become more comfortable. In cold weather, make sure that you get enough water. Cold air is relatively dry, and you may not be aware that you are becoming dehydrated. If you are slightly dehydrated, your metabolism slows significantly. You will probably need to eat more fat and calories as well, to ensure that your body has enough energy to keep itself warm.

Never use charcoal as an interior heat source. Burning charcoal gives off vast amounts of carbon monoxide.

Carbon Monoxide Poisoning

Never fall asleep without turning out your stove or lamp. Carbon monoxide poisoning can result from a fire burning in an unventilated shelter. Carbon monoxide is a great danger. It is colorless and odorless. Any time you have an open flame, it may generate carbon monoxide. Always check your ventilation.

Even in a ventilated shelter, incomplete combustion can cause carbon monoxide poisoning. Usually, there are no symptoms. Unconsciousness and death can occur without warning. Sometimes, however, pressure at the temples, burning of the eyes, headache, pounding pulse, drowsiness, or nausea may occur. The one characteristic, visible sign of carbon monoxide poisoning is a cherry red coloring in the tissues of the lips, mouth, and inside of the eyelids. Get into fresh air at once if you have any of these symptoms.

Light

Numerous disasters have proved that many people can remain calm for several days in total darkness. But some occupants of a shelter full of fearful people probably would go to pieces if they could see nothing and could not get out. It is easy to imagine the impact of a few hysterical people on the other occupants of a pitch-dark shelter. Under wartime conditions, even a faint light that shows only the shapes of nearby people and things can make the difference between an endurable situation and a black ordeal.

Electric Lights

A low-amperage light bulb used with a large dry cell battery or a car battery is an excellent source of low-level continuous light. One of the small 12-volt bulbs in the instrument panels of cars with 12-volt batteries will give enough light for 10 to 15 nights, without discharging a car battery so much that it cannot be used to start a car. Making an efficient battery-powered lighting system for your shelter is work best done before a crisis arises. During a crisis you should give higher priority to many other needs.

Things to remember about using small bulbs with big batteries:

- ▶ Always use a bulb of the same voltage as the battery.
- ▶ Use a small, high-resistance wire, such as bell wire, with a car battery.
- ▶ Connect the battery after the rest of the improvised light circuit has been completed.
- ▶ Use reflective material such as aluminum foil, mirrors, or white boards to concentrate a weak light where it is needed.
- ▶ If preparations are made before a crisis, small 12-volt bulbs (0.1 to 0.25 amps) with sockets and wire can be bought at a radio parts store. Electric test clips for connecting thin wire to a car battery can be purchased at an auto parts store.

Candles And Commercial Lamps

Persons going to a shelter should take all their candles with them, along with plenty of matches in a waterproof container such as a Mason jar. Fully occupied shelters can become so humid that matches not kept in moisture-proof containers cannot be lighted after a single day.

Lighted candles and other fires should be placed near the shelter opening through which air is leaving the shelter, to avoid buildup of slight amounts of carbon monoxide and other headache-causing gases. If the shelter is completely closed for a time for any reason, such as to keep out smoke from a burning house nearby, all candles and other fires in the shelter should be extinguished. Gasoline and kerosene lamps should not be taken inside a shelter. They produce gases that can cause headaches or even death. If gasoline or kerosene lamps are knocked over, as by blast winds that would rush into shelters over extensive areas, the results would be disastrous.

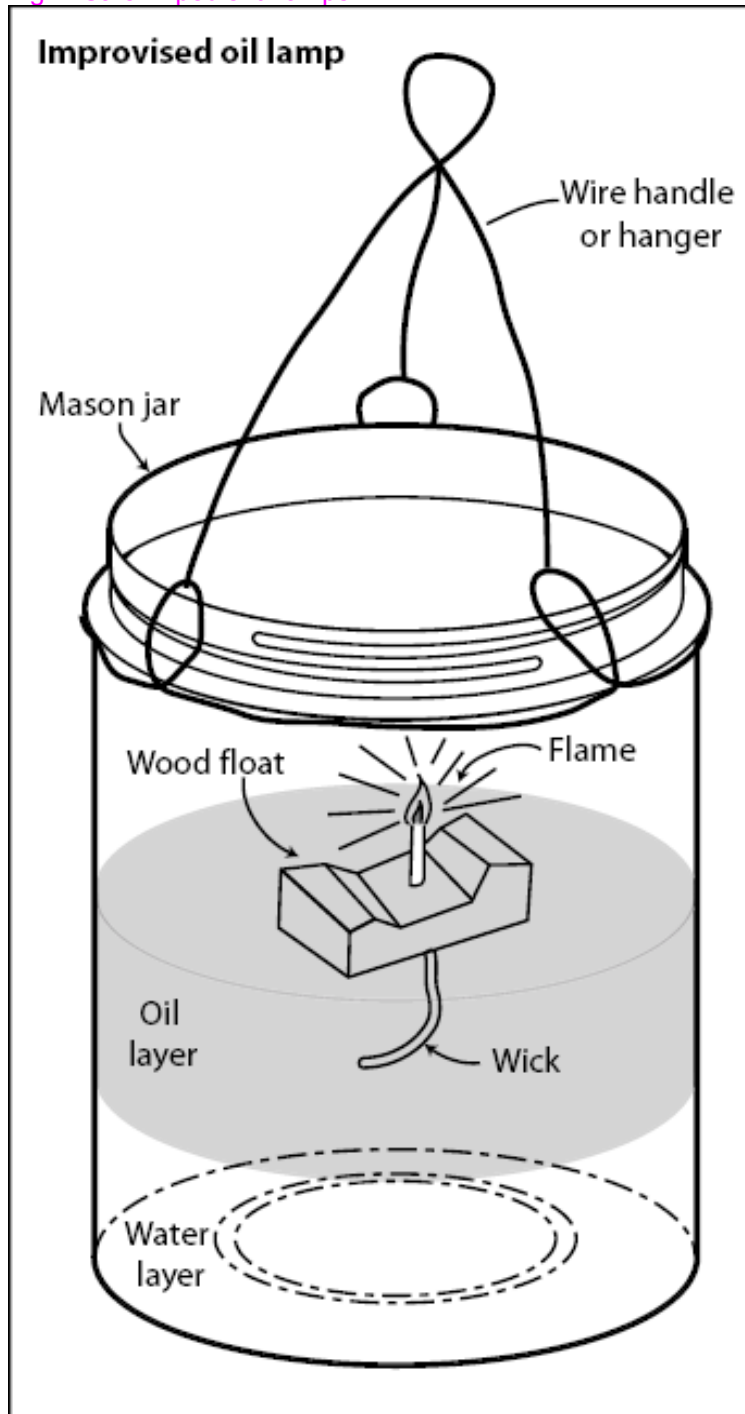
Expedient Oil Lamp

The simple expedient lamps described below are the results of Oak Ridge National Laboratory experiments which started with oil lamps of the kinds used by Eskimos and the ancient Greeks. The oil lamp is a very old form of lighting. The original oil lamps could be as simple as a cup or bowl filled partially with oil, with a wick to soak up the oil. The wick can be as simple as a piece of twisted moss. More wicks mean more light. Some sources suggest that olive oil and sunflower oil are the best vegetable oils for lamps, and corn oil is the worst. Numerous field tests have proved that average Americans can build good lamps by following the instructions given below (Fig. 1).

These expedient lamps have the following advantages:

- ▶ They are safe. Even if a burning lamp is knocked over onto a dry paper, the flame is so small that it will be extinguished if the lamp fuel being burned is a cooking oil or fat commonly used in the kitchen, and if the lamp wick is not much larger than 1/16 inch in diameter.
- ▶ Since the flame is inside ajar, it is not likely to set fire to a careless person's clothing or to be blown out by a breeze.
- ▶ With the smallest practical wick and flame, a lamp burns only about 1 ounce of edible oil or fat in eight hours.
- ▶ Even with a flame smaller than that of a birthday candle, there is enough light for reading. To read easily by such a small flame, attach aluminum foil to three sides and the bottom of the lamp, and suspend it between you and your book, just high enough not to block your vision.
- ▶ A lamp with aluminum foil attached is an excellent trap for mosquitoes and other insects that can cause problems in an unscreened shelter. They are attracted to the glittering light and fall into the oil.
- ▶ These lamps can be made in less than an hour, once the materials have been assembled, so there is no reason to wait until a crisis arises to make them. Oil exposed to the air deteriorates, so it is best not to store lamps filled with oil or to keep oil-soaked wicks for months.

Fig. 1 Safe Expedient Lamps



Buddy Burner

The “Buddy Burner” is a simple improvised candle or stove, which can be used for lighting or for heat. The housing is a tuna can or similar container, with a cardboard spiral inside. Melted paraffin, or other fat, is poured in to saturate the cardboard. Once it is burning, more fat or wax can be put on top, which will then melt and burn as well. Place this burner on the ground or on a hot-pad, since the container will get quite hot when the contents are mostly burned away. Placing a wick in the centre may help it to get started. This is an excellent way to burn up the ends or drippings of other candles without having to make whole new candles.

Flashlights

Obviously, for most cases a flashlight would be safer and simpler, although not as long lasting in some cases. You can buy flashlights that charge by solar power, cranking or shaking, which are suitable for off-the-grid use.

Power

A total power failure during a pandemic is actually quite likely, and it is one of the pandemic consequences that all of the experts predict, but it may be a short-lived event that only lasts for a few days. On the other hand, a blackout may very well last for weeks. Regardless of the duration, if you can prepare for a blackout that lasts at least one full month, and if the month you prepare for is January, you should be able to ride it out just fine. Here are some measures you can take for getting along without electricity:

- ▶ Keep your basement dry with a battery-operated, back-up sump pump. An alternative would be a portable, 12-volt, transfer pump that can run off a car battery.
- ▶ Keep your water pipes from bursting by warming them with a catalytic propane heater. During a winter power outage, consider draining your pipes.
- ▶ Keep yourself warm during the day with winter clothing and sleeping bags. For maximum warmth at night, pitch a tent indoors and drape a couple of blankets over it. Then, simply add bedding and people.
- ▶ If you still have natural gas service, you can heat part of your home with your kitchen oven. Just be sure that the space you heat is not airtight. As a measure of safety, place a carbon monoxide detector in any room that you intend to warm.
- ▶ Conserve your heat by closing off any room that you do not need to occupy.
- ▶ Kerosene lamps, which can each provide ten or twelve candlepower of illumination, are cheap to buy and cheap to operate. Have at least two for every room you plan to occupy. Store enough fuel and replacement wicks for several weeks of continual use. One gallon of kerosene should provide 12 candlepower for 100 hours.
- ▶ Candles can supplement your kerosene lamps, but unless they have stable bases and glass chimneys, they should only be considered as a back up to a back up.
- ▶ Propane powered heaters, lamps, and stoves can be used safely indoors, but they consume oxygen and release a small quantity of carbon monoxide, so they should not be used in airtight spaces.
- ▶ Coleman liquid fuel lamps and stoves are far more economical to operate than their propane counterparts, but they emit relatively large quantities of carbon monoxide, so they must never be used indoors.
- ▶ A 5,000 watt generator will burn one gallon of gasoline per hour, so fuel storage for more than a few days of continuous use is not very practical. Apart from that, you should bear in mind that the noise from a large generator is rather conspicuous and will alert desperate people to the fact that you still have resources.
- ▶ Do not leave your generator unattended. If you must leave it for a while, chain it to something solid to prevent theft. Better still, bolt it to the floor of your garage or basement and furnish it with a metal pipe exhaust system.
- ▶ Purchase a couple of siphons, so you can use the gasoline in your automobiles to fuel your generator or your dual-fuel stoves.