

# EMERGENCY LIGHTING

Should there be a temporary lapse in electrical power, alternative sources of lighting must be stored in advance. Before the event, this is relatively inexpensive and easy. After the event, it becomes very difficult, perhaps impossible.

In most emergencies with a several days time span (hurricanes, ice storms, etc.) battery operated lighting will often see us through. However, with a major emergency the duration can be much greater. There are many products on the market that will serve well for these longer emergencies.

There are now several solar products that can provide lighting, even after cloudy days. There are solar lanterns, solar flashlights, even solar battery chargers. The solar walkway lamps that line outdoor paths are available in-home centers. These can be brought in at night to provide ambient lighting. Solar photovoltaic panels or wind generators, hooked to batteries, can provide lighting and cost as little as \$100 per light. With solar or wind, once the power is restored, you still have free, non-polluting lighting.

**Kerosene lanterns** and **gas lanterns** are common choices. With these be sure you have enough fuel stored safely away from the house. Gas lantern are very noisy but give off lots of heat. Kerosene lanterns can smell but scented fuel is available.

**Candles** should not be ruled out. However, common decorative candles have a short life. Emergency candles can have up to 100 hours of burn time and an indefinite shelf life. Be sure to have a good quality fire extinguisher in each room where candles, kerosene and gas are being used. Most of the alternatives require a fire or flame, so use caution. More home fires are caused by improper usage of fires used for light than for any other purpose. Especially use extra caution with children and flame. Teach them the proper safety procedures to follow under emergency conditions. Allow them to practice these skills under proper adult supervision now, rather than waiting until an emergency strikes.

**Cyalume sticks** are the safest form of indoor lighting available but very few people even know what they are. Cyalume sticks can be purchased at most sporting goods stores for about \$2 per stick. They are a plastic stick about four inches in length and a half inch in diameter. To activate them, simply bend them until the glass tube inside them breaks, then shake to mix the chemicals inside and it will glow a bright green light for up to eight hours. Cyalume is the only form of light that is safe to turn on inside a home after an earthquake. One of the great dangers after a serious earthquake is caused by ruptured natural

gas lines. If you flip on a light switch or even turn on a flashlight you run the risk of causing an explosion. Cyalume will not ignite natural gas. Cyalume sticks are so safe that a baby can even use them for a teether.

### **Two-Mantle Gas Lantern**

A gallon of Coleman-type fuel utilized with a two-mantle gas lantern has a burning time of approximately 40 hours. Light output is approximately the same as a 200W light bulb. Assuming an operating or burning time of 5 hours per day, the following approximate amounts of fuel would be consumed: White gas may be substituted in some camping equipment, but read and follow the specific instructions of the equipment manufacturer. A gas lantern gives a high intensity light and lots of heat, too—though the pressurized gas delivery system is quite noisy when operating. Two-Mantle Gas Lantern Fuel Consumption

Period	Fuel Consumed per 5 Hours of use.
Day,	1 pint.
Week,	1 gallon.
Month,	4 gallons.
Year,	50 gallons.

### **Kerosene Lanterns**

Given today's technology, a kerosene lantern seems a bit old-fashioned and out of place! However, a kerosene lantern with a 1" wick will burn approximately 45 hours per quart of kerosene, saving lots of natural resources and utilizing approximately one-fourth as much fuel as a gas lantern. Kerosene lanterns are an effective and fairly safe lighting source. There are now scented lamp oils which replace kerosene. This lamp oil is generally available in retail stores. Make sure the oil is approved for use in your lamp. There is a difference in lighting quantity and quality, as the kerosene lantern is quite dim when compared to the two-mantle gas lantern. The light output of a kerosene lantern is comparable to a 40W-60W light bulb. As a rule of thumb, the typical kerosene lantern burns approximately 1 ounce of fuel per hour. Burning at the rate of 5 hours each day, the following approximate amounts of kerosene would be used:

## Kerosene Lantern Fuel Consumption

Period	Fuel Consumed per 5 Hr.
Day,	1 / 4 pint.
Week,	1 quart.
Month,	1 gallon.
Year,	12 gallons.

Kerosene lamps are excellent sources of light and will burn for approximately 45 hours on a quart of fuel. They burn bright and are inexpensive to operate. The main problem with using them is failure to properly trim the wicks and using the wrong size chimney. Wicks should be trimmed in an arch, a “V,” an “A” or straight across the top. Failure to properly trim and maintain wicks will result in smoke and poor light.

Aladdin type lamps that use a circular wick and mantle do not need trimming and produce much more light (and heat) than conventional kerosene lamps. These lamps, however, produce a great amount of heat, getting up to 750 degrees F. If placed within 36 inches of any combustible object such as wooden cabinets, walls, etc. charring can occur. Great caution should therefore be exercised to prevent accidental fires.

The higher the elevation the taller the chimney should be. Most chimneys that come with kerosene lamps are made for use at sea level. At about 4500 feet above sea level the chimney should be about 18-20 inches high. If your chimney is not as tall as it should be you can improvise by wrapping aluminum foil around the top of it and extending it above the top. This will enable the light to still come out of the bottom portion and yet provide proper drawing of air for complete combustion. If the chimney is too short it will result in smoke and poor light. Be sure to store extra wicks, chimneys and mantles.

### **Tallow Candles**

Tallow candles burn brighter, longer, and are fairly smoke free when compared to wax candles. Tallow candles are generally available in specialty stores only, unless you make your own. Wax candles are available almost anywhere housewares are sold. Store tallow candles in a cool, dry location. Candles stored in the freezer will burn slower and without dripping.

## Emergency Candles

There are two types of emergency candles available for camping, storage, and emergency purposes.

**Candles.** Every family should have a large supply of candles. Three hundred sixty-five candles, or one per day is not too many. The larger the better. Fifty-hour candles are available in both solid and liquid form. White or light colored candles burn brighter than dark candles. Tallow candles burn brighter, longer, and are fairly smoke free when compared to wax candles. Their lighting ability can be increased by placing an aluminum foil reflector behind them or by placing them in front of a mirror. However, candles are extremely dangerous indoors because of the high fire danger— especially around children. For this reason be sure to store several candle lanterns or broad-based candle holders. Be sure to store a goodly supply of wooden matches.

Save your candle ends for emergency use. Votive candles set in empty jars will burn for up to 15 hours. Non-candles (plastic dish and paper wicks) and a bottle of salad oil will provide hundreds of hours of candle light.

The type made of hardened wax in a can has the capability of utilizing several wicks simultaneously. The other type is a liquid paraffin-filled bottle with a wick for easy lighting. The liquid paraffin burns without odor or smoke. This candle has a minimum 100-hour burning time and indefinite shelf life.

Height	Diameter	Approximate Burning Time in Hours
6"	1/2 "	3
6"	1"	8
9"	2"	48

**Trench candles** can be used as fireplace fuel or as a candle for light. To make trench candles:

1. Place a narrow strip of cloth or twisted string (for a wick) on the edge of a stack of 6-10 newspapers.
2. Roll the papers very tightly, leaving about 3/4" of wick extending at each end.
3. Tie the roll firmly with string or wire at 2-4" intervals.
4. With a small saw, cut about 1" above each tie and pull the cut sections into cone shapes. Pull the center string in each piece toward the top of the cone to serve as a wick.

5. Melt paraffin in a large saucepan set inside a larger pan of hot water. Soak the pieces of candle in the paraffin for about 2 minutes.

6. Remove the candles and place on a newspaper to dry.