



## Lighting during the holidays

### Energy Efficient holiday lights

When purchasing new holiday lighting there are many facts to consider. The cost to decorate your house over the holidays can really add up. In order to reduce the amount you pay during the holidays you should consider incandescent mini lights, rope lighting or fibre optic cabling. Timers and photo-cells can also help you save energy and money by automatically turning lights on at dusk and off at a specifically scheduled time. It is important to make sure that your timer is designed for the required amount of wattage.



### Light emitting diodes

Now, Canadian retailers are selling seasonal LED strings. These energy efficient light strings are better than the traditional incandescent light strings because they use up to 95% less energy and last up to 7 times longer. These lights tend to be more durable with no filaments or glass bulbs to break. They also produce very little heat, reducing the risk of fire. The operational cost of one of the strings is a fraction of the price of a conventional holiday light.





### Incandescent mini-lights

These lights were introduced in the 1970's and now dominate the market and use 10% of the energy used by traditional incandescents. They have 100-bulb strings that use 40 watts of power; they also generate less heat than traditional bulbs. The string lights come in a variety of designs. When the lights are arranged in series around each other, the bulbs are typically 2.5 volts each. Most of the mini-lights available today have a shunt installed so that if one light goes out, the others stay on.



### Traditional Incandescents

The traditional screw socket bulbs use either 5 or 7 watts per bulb. They generally come in strings of 25 bulbs per string, which would mean a large amount of power is required between 125 and 175 watts per string. The biggest downfall is that 90% of the power that these incandescents use is used to produce heat and the other 10% is for light. 5 strings of traditional lights produce as much heat as a small baseboard heater, which makes it simple to see why these lights are such a fire hazard, especially when placed on a dry tree. Incandescent bulbs are very expensive to replace and need to be replaced often. Most people find that it is better to buy a whole new string than purchase the replacement bulbs. If you are planning on purchasing this type of light buying a 5 watt bulb instead of a 7 watt bulb will reduce your operating costs by 30%.





### Rope or flexible lighting

Rope or flexible lighting consists of miniature incandescent lights which are encased in flexible plastic tubing. The tube is about 1/2" in diameter and the bulbs are spaced about 1" apart. The bulbs use approximately 0.5 watts of power or 5 watts per foot and are rated to last over 20000 hours. These lights are available for indoor and outdoor use and are also available in several different colors, and can also be used for feature illumination.



### Fibre optic cabling

Artificial trees that use a built-in fibre optic cable to send light throughout the tree from a single incandescent bulb are gaining in popularity. The heat that is generated from the single bulb is generally between 5 and 20 watts, which is minimal and it branches where hundreds of tiny fibres distribute the light and are cool to the touch.

### Keeping it safe

Safety is important when considering lighting. You should use CSA approved lights, cords, plugs and sockets that are meant for outdoor use or wet locations. Try to avoid using extension cords by installing a separate weather-proof circuit for holiday lighting.

Make sure that your outdoor circuits are equipped with an approved, weather-proof ground fault circuit interrupter. Do not overload circuits. Have no more than 1400 watts on a circuit. If other lights in your house dim when the holiday lights are turned on or the plug is very hot when turned off, the circuit is overloaded. To calculate a circuit's load, multiply the number of bulbs by the watts per bulb, and add any lamps, appliances or other equipment on the same circuit. Never install





lights with the power on, you should test the lights first, and then install them. Be sure to keep electrical connections off the ground. Use eave clips or insulated staples instead of tacks or nails to hold the light strings in place. If you want sections of your string unlit, do not leave the sockets empty. If left empty this may create a fire hazard, or could be fatal if someone were to touch the inside of the empty socket. Instead of leaving it empty, place a burnt out bulb in the empty socket. This will not affect the other lights on the string. Don't leave your outdoor lights up year-round because cords and bulbs will deteriorate, which will reduce their safety and shorten their life. Do not use outdoor lights indoors because they burn hotter and can pose more of a threat to cause harm and/or fires. Also, be sure to replace broken bulbs and light sets that have cracked or corroded sockets, frayed plugs, bare wires or loose connections.

