



# Energy-efficient home lighting

## FACT SHEET



APARTMENT & CONDO EFFICIENCY SERVICES



ENERGY STAR PRODUCTS



HOME PERFORMANCE WITH ENERGY STAR



WISCONSIN ENERGY STAR HOMES

For a list of retailers in your area who carry ENERGY STAR qualified lighting products, or for more information, call 800.762.7077 or visit [focusonenergy.com](http://focusonenergy.com).

One of the easiest ways to reduce your energy costs is to replace standard incandescent light bulbs with compact fluorescent light bulbs (CFLs). These energy efficient lamps last up to 10 times longer than traditional bulbs and provide the same light output, but use up to 75 percent less electricity.

By replacing incandescent bulbs with ENERGY STAR® qualified CFLs in your home's five most frequently used light fixtures, you can save as much as \$35 a year in energy costs.

### CFL benefits

Energy efficient CFLs offer many benefits, including:

- **Lower energy costs.** Compared to incandescent bulbs, CFLs use 75 percent less energy to produce the same amount of light. Because lighting accounts for about 20 percent of electricity costs in the average home, this can result in significant savings.
- **Longer life.** Most CFLs last 5,000 to 10,000 hours, compared to just 1,000 hours for incandescent bulbs. This saves you time and money on replacement bulbs and reduces waste.
- **Cooler operation.** CFLs produce about 75 percent less heat than incandescent bulbs, reducing the risk of fire.



According to the U.S. Environmental Protection Agency (EPA), if every home in America replaced just one incandescent light bulb with an ENERGY STAR qualified CFL, we would save enough energy to light more than three million homes for one year and reduce pollution by the equivalent of taking more than 800,000 cars off the road.

### Light output

Light output is measured in lumens. Compared to incandescent bulbs, CFLs use far fewer watts of electricity to produce the same amount of lumens. Use the chart below to determine the right CFL for your needs.

LIGHT OUTPUT COMPARISON		
INCANDESCENT BULB	COMPACT FLUORESCENT BULB	MINIMUM LIGHT OUTPUT (IN LUMENS)
40 watt	9–13 watt	450
60 watt	13–15 watt	800
75 watt	18–25 watt	1,100
100 watt	23–30 watt	1,600
150 watt	30–52 watt	2,600



focus on energy™  
The power is within you.



# How to choose the right ENERGY STAR® qualified light bulb

For this fixture

Choose this bulb

	Table/Floor Lamps	Pendant Fixtures	Ceiling Fixtures	Ceiling Fans	Wall Sconces	Recessed Cans	Track Lighting	Outdoor Covered	Outdoor Exposed
Spiral									
Covered A-Shape									
Globe									
Tubed									
Bullet									
Indoor Flood									
Outdoor Flood									

## AVOID EARLY BURNOUT:

- Only bulbs marked “dimmable” or “three-way” will work on dimmers or three-way switches
- Most photocells and timers are not designed to work with CFLs

### Many sizes and styles

CFLs come in a variety of shapes and sizes to fit almost every need. Today, you can find CFLs for dimmer switches, three-way lamps, recessed cans and outdoor applications.

Different fixtures require different types of bulbs. Use the chart above to find your fixture and determine which bulb will work best.

### Color temperature

Different bulbs emit different colors of light, from warm tones to cool. This is known as color temperature, and is measured in degrees Kelvin (K). In general, the lower the Kelvin temperature, the warmer (more yellow) the light; the higher the Kelvin temperature, the cooler

(bluer) the light. ENERGY STAR qualified bulbs offer a range of color-temperature choices:

Warm (2700°K to 3000°K): Warm color temperatures are preferred by people who like the color of light from incandescent bulbs. Lighting with warm color temperatures creates a welcoming atmosphere in living rooms, dining rooms and bedrooms. Choose a bulb that states “warm white” or “soft white” on the package.

Cool (4100°K and up): Cooler color temperatures are sometimes preferred for clean, clear light in kitchens and in bathrooms. Choose a bulb that states “cool white” or “daylight” on the package.

## LIGHTING TERMS AND DEFINITIONS

**CFL** (compact fluorescent light bulb). A low-wattage, high-lumen lamp commonly replacing old-fashioned incandescent light bulbs today.

**Fluorescent lighting.** Method of producing light by sending electrical current through a tube of ionized gas.

**Incandescent lighting.** Method of producing light by heating a tungsten or halogen element.

**Lumens.** A measure of brightness of a light source. An 18-watt CFL and a 75-watt incandescent bulb both provide about 1,100 lumens of brightness.

**Watts.** A measure of electrical power.

**Kilowatt-hour (kWh).** A kilowatt-hour is a measure of electricity used over time. For example, ten 100-watt light bulbs left on for one hour would use one kilowatt-hour (or 1,000 watt hours) of electricity.

### Shopping tips

When shopping for CFLs, keep the following tips in mind:

- Look for the ENERGY STAR label for products that meet or exceed government energy efficiency standards.
- Select a CFL that uses one-third the wattage of the incandescent bulb you're replacing. For example, replace a 75-watt incandescent with an 18- to 25-watt CFL to ensure adequate illumination. (See "light output" chart on front page.)
- Check the size of your light fixture so you buy the correct bulb size. CFLs come in a range of shapes, sizes and wattages.
- Choose the appropriate color temperature (warm or cool) to suit your taste and

application.

- Select only dimmable bulbs for use with dimmer switches. Not all CFLs are suitable for use with dimmer switches.
- Choose only outdoor CFLs for use in outdoor applications. Moisture can shorten the life of standard CFLs.

### COMPACT FLUORESCENT FIXTURES

When purchasing new fixtures (floor or table lamps, wall, ceiling-mounted or outdoor fixtures), look for ENERGY STAR qualified models. These fixtures are available in many styles and sizes and use energy efficient fluorescent bulbs (CFLs or tubes). Because they use CFLs, these fixtures use up to 75 percent less energy and operate at cooler temperatures for improved safety.

### TORCHIERES

Compact fluorescent torchiere floor lamps, available since 1997, use a CFL that delivers more lumens per watt than their halogen counterparts and burn an average of 750 degrees Fahrenheit cooler. Their higher purchase price is quickly offset by lower operating costs; a compact fluorescent torchiere can save you up to \$180 in energy costs over its lifetime. Because they operate so much cooler, they are significantly safer to use.

### CFLs AND THE ENVIRONMENT

The growing popularity of CFLs has prompted some to question the bulbs' mercury content and its effect on the environment. Like all fluorescent lamps, CFLs contain small amounts of mercury. Yet they are perfectly safe to use. They do not emit mercury when they are intact, in use, properly stored, handled, and/or installed. And because CFLs use less electricity, they are actually responsible for fewer mercury emissions than traditional incandescent bulbs. A power plant will emit more mercury producing the electricity to light an incandescent bulb than to run a CFL for the same length of time.

CFLs contain an average of five milligrams (mg) of mercury per bulb. By comparison, some watch batteries contain 25 mg of mercury and many manual thermostats contain up to 3,000 mg. (See chart below.)

<b>MERCURY CONTENT OF CFLs VS. OTHER COMMON HOUSEHOLD PRODUCTS.</b>		
<b>Product</b>	<b>Amount of Mercury</b>	<b>Number of Equivalent CFLs</b>
Compact fluorescent bulb	an average of 5 milligrams	1
Watch battery	25 milligrams	5
Dental amalgams	500 milligrams	100
Home thermometer	500 mg – 2 grams	100–400
Float switches in sump pumps	2 grams	400
Tilt thermostat	3 grams	600

### **PROPER DISPOSAL OF CFLs**

Because CFLs contain a small amount of mercury (about equivalent in size to the tip of a ball-point pen), the U.S. Environmental Protection Agency (EPA) recommends that consumers take advantage of local recycling options, such as recycling centers and transfer stations, to dispose of CFLs. Many communities schedule household waste collection events when fluorescent lamps are collected along with paints, pesticides, used motor oil and other materials.

### **Recycle your used CFLs for free**

Focus on Energy has partnered with nearly 400 retailers across the state to offer free CFL recycling to consumers. Simply bring your expired, unbroken CFLs to a participating retailer, who will ship them to an environmental management center to be recycled in accordance with environmental regulations.

Visit [focusonenergy.com/cflrecycling](http://focusonenergy.com/cflrecycling) for a list of participating retailers. If there are none in your area, contact your local municipal solid waste agency.

### **CLEANUP OF BROKEN CFLs**

If a CFL breaks, take care in cleaning up. Even though the amount of mercury is very small (a 5 mg ball would be barely visible), EPA recommends the following steps: Open nearby windows to disperse any vapor that may escape. On hard surfaces, carefully sweep up the glass fragments using stiff paper or cardboard (do not use a vacuum or broom) and place them in a lidded jar or sealed plastic bag. Use sticky tape, such as duct tape, to pick up any remaining small pieces and powder. Wipe the area with damp paper towels. Finally, place the towel in the plastic bag and dispose of it at your local recycling center.

On carpets or rugs, carefully pick up the fragments and place them in a lidded jar or sealed plastic bag. Use sticky tape, such as duct tape, to pick up any remaining small pieces and powder. If vacuuming is needed after all visible materials are removed, vacuum the area where the bulb was broken. Finally, remove the vacuum bag (or empty or wipe the canister) and put the bag or vacuum debris in a sealed plastic bag and dispose of at your local recycling center. For more information, visit [www.energystar.gov/cflsandmercury](http://www.energystar.gov/cflsandmercury).

### **MORE INFORMATION**

#### **Focus on Energy**

Learn more about smart energy choices for home and work and find a participating retailer in our free CFL recycling program.

**[focusonenergy.com](http://focusonenergy.com)**

#### **The official ENERGY STAR Web site**

Learn more about energy efficient products that meet ENERGY STAR standards. The lighting product information pages cover CFLs, fixtures and ceiling fans.

**[energystar.gov](http://energystar.gov)**

#### **U.S. Environmental Protection Agency**

Learn more about lamp recycling and find a recycling center in your area.

**[epa.gov/bulbrecycling](http://epa.gov/bulbrecycling)**