

Lighting

Bright Ideas

Little thought goes into the lighting in many new homes. There are great opportunities for better lighting and lower energy costs. The keys are quality lighting design and efficient light sources. The menu of affordable product choices is broad.



Have You Experienced...

- Some areas in your home are dim or shadowy?
- Too much light and glare in other areas?
- Light bulbs that frequently need replacement?
- Electric bills that are higher than you like?

These are signs that the lighting system in your home isn't meeting all your needs.

Quality Lighting Design

Quality lighting starts with good design:

- **Daylighting.** Light from the sky is most people's first choice. It's often easy to provide pleasant "daylighting" throughout your house, all day long. Key elements include windows on two sides of each room (best located near corners at walls or ceilings) and light-colored interior surfaces. Too much window area can cause glare or overheating.
- **Indirect lighting.** Consider using hidden light sources to wash the walls and/or ceiling with light, rather than the common approach of a ceiling-mounted fixture in the center of the room. "Indirect lighting" provides softer, more even lighting with fewer shadows and less glare.
- **Light levels.** Consider combining a lower, pleasant background lighting level, for the room as a whole, with "task lighting" that puts more light right where it's needed for specific activities. This approach gives you more control over lighting, makes a room more interesting and puts better lighting on the task at hand.



Lighting Research Center

In this quality, energy-efficient lighting design, general lighting is provided by fixtures hidden on top of the cabinets. The light-colored walls and ceiling softly reflect this light throughout the room. "Task lighting" delivers extra light at the counters, sink and cooking island. All lighting in this kitchen is advanced fluorescent.

Capture the Opportunities

Well-designed, energy-efficient lighting can provide many benefits:

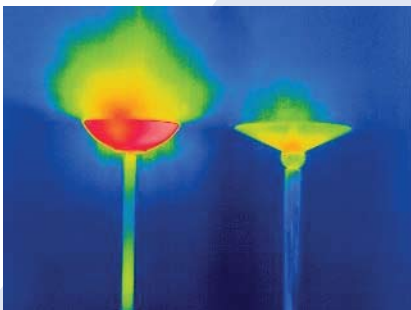
Comfort. Well-lit spaces feel better. Less heat from lights improves summer comfort.

Health. Eye fatigue and headaches can be reduced. Cooler lighting fixtures are safer.

Durability. Fluorescent light bulbs last far longer than conventional bulbs.

Value. Your electric costs for lighting can be much lower.

Efficient Electric Lighting



The 55-watt fluorescent torchiere (right) runs at 100 to 200° F – much safer and less unwanted heat. The fluorescent fixture saves about \$15 per year in electric costs and the bulb will last five to 10 years.

Most home lighting still relies on conventional, incandescent light bulbs. Unfortunately, this 125-year-old technology is dimly inefficient, converting less than 10% of the energy it uses into visible light.

Fortunately, the menu of attractive, efficient alternatives is broad. For the same light levels, fluorescent lights use two-thirds to three-quarters less electricity than incandescent bulbs. Cooler operation means fewer safety concerns and better summer comfort. Fluorescent bulbs last six to 20 times longer than incandescent bulbs, meaning fewer trips to the store and up the ladder.

This infrared photo shows two "torchiere" lamps that produce the same amount of light. The conventional halogen model (left) uses a 250-watt halogen bulb that operates at more than 700° F.

Fluorescent Facts

Advances in technology have made it possible to use fluorescent lighting in every part of the house.



- **Fixtures.** There are attractive fluorescent options for almost any style of lighting fixture, whether it's hard-wired lighting your builder installs or portable lighting you provide.
- **Bulb style.** Some fixtures use long (two-foot to four-foot) fluorescent tubes while others use compact fluorescent light (CFL) bulbs.
- **Screw-in CFL bulbs.** You can replace incandescent bulbs in most conventional fixtures with screw-based CFL bulbs. A wide variety of styles and sizes are available.



Fluorescent lighting comes in an ever-increasing range of choices.

CFL Tips

- **Light level.** Choose the CFL bulb that will deliver the amount of light you need. The chart (right) will help you make an appropriate selection.
- **Three-way and dimming.** Look for CFL bulbs labeled for three-way fixtures and standard dimmer controls. Don't use other CFL bulbs for these applications.
- **Outdoor use.** Most CFL bulbs work well outdoors but only in enclosed fixtures that shelter the bulbs from rain and snow. Check the temperature rating on the package.
- **Accent lighting.** Incandescent lighting is usually a better choice than CFL bulbs for highlighting artwork or other displays.
- **Recessed downlights.** Many CFL reflector-style bulbs are available for standard recessed lighting fixtures. Some combinations of bulbs and fixtures work well, while others may have problems with light distribution or early bulb failure.

Typical Light Output (lumens)	Standard Bulb	Exposed CFL Bulb 	Enclosed CFL Bulb 
210	25 watt	5 to 7 watt	9 to 10 watt
450	40 watt	9 to 11 watt	14 to 15 watt
900	60 watt	13 to 18 watt	18 to 20 watt
1,200	75 watt	18 to 23 watt	25 watt
1,750	100 watt	25 to 30 watt	-

What's Important

- Ask your builder about options regarding window placement and electric lighting.
- Look for the ENERGY STAR label to help find CFL bulbs and fixtures meeting strict specifications for quality and energy efficiency.
- Expect to pay a little more for fluorescent lighting up front and get your money back many times over through lower energy costs and fewer replacement bulbs.
- Save more money by turning off lights when you don't need them.



House as a System

A house is more than just a collection of parts. It is a **system** that incorporates heating, cooling, air circulation, lighting and more. If the pieces don't work well together, there will be problems. In a high-performing home, a "whole-house" design approach and quality craftsmanship combine to deliver better comfort, healthier indoor air and energy cost savings in a package that's built to last and hold its value.

Buzz, Flicker and Weird Colors

When many people hear "fluorescent," they cringe. Why? Because they grew up with old-style lighting at school or work. It buzzed, flickered and made people look a little blue.

Fortunately, advanced technology has eliminated these problems. With today's quality fluorescent products, there is no compromise in lighting quality compared with conventional lighting. The ENERGY STAR® label makes it easy to find CFLs and fixtures that start instantly and won't hum or flicker. Colors look true and natural under this light.

More Information

This fact sheet is one in a series. Visit the following Web site for more information about lighting or to review fact sheets on other new home choices: www.ColoradoNewHomeChoices.org.

