

Lighting guide

for homeowners



Lighting matters

Lighting has as much to do with how a home feels and looks as do its furnishings. An essential design tool, light can create dramatic living rooms, peaceful bedrooms, productive kitchens, and beautiful and safe entryways. Often an afterthought, lighting should be considered from the time a space is being planned.

If you're remodeling, or simply rearranging, you can evaluate your home's current lighting by walking through your home in the evening. Turn on lights as you go from room to room. Is the lighting adequate? Does it evoke the mood you desire?

Here are a few solutions to common problems.

- Make low ceilings appear higher with uplighting.
- Draw attention away from unattractive ceilings with downlighting.
- Make a room seem larger with an even wash of light on the walls.

Effective lighting, however, isn't just about look and feel. According to the American Lighting Association, lighting consumes 12 percent to 15 percent of the electricity in a home. Replacing existing lightbulbs or fixtures with Energy Star products will benefit your budget and the environment.

The following information will get you started in your lighting research. We encourage you to continue gathering information from the web sites listed in this booklet and to visit with lighting professionals in your area. If you're building a new home or remodeling, tap into the lighting know-how of your architect, building contractor, interior designer, landscape architect, electrical contractor, or electrician.

Types of lighting

With thousands of light fixtures to choose from, it's easy to get distracted by appearances. But it's crucial to choose fixtures for the type of lighting they produce.



Ambient lighting, also known as general lighting, provides the overall illumination of a room.



Task lighting provides additional illumination for specific activities, such as cooking, office work, or woodworking.



Accent lighting draws attention to desirable features of your home, such as artwork, plants, fireplace mantels, or unique wall treatments.

Bulb basics

Just as it's important to choose the right lighting fixture, it's important to select lightbulbs that will give you the best, most efficient light in every situation.

Incandescent

The standard lighting choice in most United States households, incandescent lightbulbs also are the least efficient light source. About 90 percent to 95 percent of the energy consumed by incandescent lightbulbs is released as heat and only 5 percent to 10 percent is released as light. Long-life incandescent bulbs emit less light than standard incandescent bulbs of the same wattage so they should be used only in hard-to-reach fixtures.

Halogen

Halogen sources produce a quality of light that is brighter and whiter than standard incandescent bulbs. They also have a longer life and provide more light per watt than standard incandescent bulbs.

Full-size fluorescent

Fluorescent systems often are used for general lighting in kitchens, bathrooms, laundry rooms, workshops, and garages. The most energy-efficient lighting products available, most full-size fluorescent bulbs operate 20,000 hours or more while standard incandescent bulbs last only 750 to 1,000 hours. Look for Energy Star-rated T8 or Super T8 fluorescent fixtures and bulbs.

Compact fluorescent lamps

Compact fluorescent lamps, or CFLs, can produce light similar in color to incandescent bulbs and are available in almost as many sizes, shapes, and styles. Be aware of the color-temperature characteristics when shopping for CFLs and look for a warm color-temperature rating if you want to match the color of light from an incandescent bulb. It's also important to purchase CFLs with enough wattage to provide the light output you desire.

CFLs cost more but use 75 percent less electricity and last about ten times longer than incandescent bulbs. **If automobiles were as efficient as compact fluorescent lighting systems, "...you would get 90 miles to the gallon and cars would last for 200 years,"** according to *Better Homes and Gardens* magazine.

It's important to know that it's illegal to place CFLs in the garbage because they contain mercury. Call the Minnesota Pollution Control Agency at 800-657-3864 or visit www.earth911.org to learn how to dispose of them lawfully and safely.

Light-emitting diodes

Light-emitting diodes, or LEDs, are forging a niche in home use in under-cabinet lighting and exterior holiday lighting. LEDs can last tens of thousands of hours if used at rated current; are impervious to heat, cold, shock, and vibration; and don't create the flicker that you might experience with fluorescent lamps. LEDs have the potential to become high-efficacy, long-life, white-light alternatives for general household lighting.

By the numbers

Anyone who has purchased a lightbulb knows that several factors must be considered. Here are some key terms to keep in mind.

What's watt?

Wattage is the electrical power needed to make a lightbulb work. **Lumens** measure brightness. The **efficacy** of a lightbulb is measured by efficiency of lumens produced per watt of electrical consumption. The higher the efficacy of a lamp, the more light it produces for each unit of energy consumed. To optimize energy efficiency, look for the highest lumens at the lowest wattage. **Luminaire Efficacy Rating**, or LER, compares the energy efficiency of fluorescent lamps.

Light is light, right?

Wrong. Light quantity, quality, and color depend on the light source and the light fixture. The **Color Rendering Index**, or CRI, rating system describes how a given lamp or light source will affect the color of an object that it illuminates. The higher the CRI rating, the less distortion. The lower the rating, the more pronounced the color distortion might be. A CRI of 100 indicates no color distortion as compared with natural daylight.

Warm or cool?

Color temperature describes the appearance of light given off by a lamp or light fixture. The color temperature scale ranges from 1500 Kelvin (K), which appears red-orange, to 9000 K, which appears blue. Rooms decorated in warm colors look best when illuminated by bulbs between 2750 K and 3000 K. Cooler colors look best when lit by bulbs of 4000 K or above. For rooms decorated in both warm and cool colors use a mid-range bulb, around 3500 K.

Warm 2600 - 3400°k	Natural 3500°k	Cool 3600 - 4900°k	Daylight 5000°k
Friendly Intimate Personal	Friendly Inviting	Neat Clean Efficient	Bright Alert

Fixtures for every need

The number of lighting choices available can be overwhelming. Rather than a one-size-fits-all approach for your entire house, consider during the design phase how you'll use lighting in each room. This will help ensure that your lighting needs are met.

Ceiling fixtures



Ceiling light fixtures most often are used for ambient or general lighting in kitchens, bedrooms, hallways, and dens. Ceiling fixtures use full-size fluorescent, CFL, or incandescent lightbulbs. For greatest quality and efficiency, look for fixtures with the Energy Star rating.

Chandeliers



Chandeliers are classic over dining room tables, but they also add interest to foyers, bedrooms, and living rooms. Controlling a chandelier with a dimmer switch varies the intensity of light to suit mood and activities. Chandeliers with CFL options are becoming more available and affordable.

Pendants



Fun and functional, pendants or hanging lamps typically are smaller than chandeliers but also hang from the ceiling. Hung individually or grouped, pendants often are used to light game tables, countertops, dinette tables, and work areas.

Wall-mounted fixtures



Wall-mounted fixtures provide general, accent, or supplemental lighting. Often designed to match chandeliers, pendants, or ceiling fixtures, wall-mounted fixtures are available in CFL and incandescent configurations.

Vanity lights



Vanity globes and vanity bars provide task lighting and supplement ambient light in bathrooms. Availability, selection, and pricing of CFL fixtures make them a wise choice for vanity lighting.

Table and floor lamps



Table and floor lamps provide ambient, task, and accent lighting. Many will accommodate CFLs. Be sure to choose Energy Star-rated lamps, both for energy savings and safety. Halogen floor lamps, for example, operate at such high temperatures that they easily can ignite curtains and other flammables.

Recessed lighting



The most common recessed lighting fixtures are downlights and accent or eyeball fixtures. Accent fixtures can be equipped with spotlight bulbs to direct compact beams of light toward specific objects or room features. Downlight fixtures often are used for ambient lighting in rooms with very high or very low ceilings. To prevent heat loss and damaging condensation, fixtures recessed into attic spaces must be airtight.

Track lighting



Track lighting allows ambient, task, and accent lighting from the same system. Individual fixtures slide along a track and swivel for aiming flexibility. Track-lighting fixtures usually are compatible with incandescent, CFL, and LED lamp technologies. LED lamps provide long life, but CFLs are the best choice for energy efficiency and longevity.

About Energy Star

When you select Energy Star-rated lighting products you're taking steps toward reducing your energy bills and helping to protect our environment. Visit **www.energystar.gov** to learn more about this government-backed program, which emphasizes superior energy efficiency.

For more information, visit these web sites:

American Lighting Association: www.americanlightingassoc.com

Consumer's Guide to Energy Efficiency and Renewable Energy:
www.eere.energy.gov/consumer/your_home

Home Lighting:

www.state.mn.us/mn/externalDocs/Commerce/Home_Lighting

Ask the Builder by Tim Carter: www.askthebuilder.com

Energy Star: www.energystar.gov



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