

Fluorescent Lighting



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Fluorescent lamps use 25%-35% of the energy used by [incandescent products](#) to provide a similar amount of light. They also last about 10 times longer (7,000-24,000 hours).

The two general types of fluorescent lamps are:

- Compact fluorescent lamps (CFLs) -- commonly found with integral ballasts and screw bases, these are popular lamps often used in household fixtures
- Fluorescent tube and circline lamps -- typically used for task lighting such as garages and under cabinet fixtures, and for lighting large areas in commercial buildings.

CFLs

CFLs combine the energy efficiency of fluorescent lighting with the convenience and popularity of [incandescent fixtures](#). CFLs fit most fixtures designed for incandescent bulbs and use about 75% less energy.

Although CFLs cost a bit more than comparable incandescent bulbs, they last 6–15 times as long (6,000–15,000 hours). See [How Energy-Efficient Lightbulbs Compare with Traditional Incandescents](#), and find out [how CFLs work](#).

CFLs are most cost-effective and efficient in areas where lights are on for long periods of time. You'll experience a slower payback in areas where lights are turned on for short periods of time, such as in closets and pantries. Because CFLs do not need to be changed often, they are ideal for hard-to-reach areas. Learn more about [when to turn off your lights](#) and [replacing fluorescent lamps](#).

CFL Lighting

CFLs are available in a variety of styles or shapes, and each is designed for a specific purpose. The size or total surface area of the tube(s) determines how much light it produces. Many models are dimmable, as indicated on the package, and are and compatible with other [lighting controls](#).

Common types of CFLs include:

- **A-line and A-line spiral lamps** are screw-in base bulbs most often found with medium Edison (E-26) bases and integral ballasts; these can be used in common household fixtures that are designed for incandescent bulbs such as table lamps, ceiling fixtures, and wall sconces.
- **Globe lamps** are similar to spiral lamps, but feature a globe or other decorative shape enclosing the actual CFL lamp. These are used in more decorative fixtures where the lamp is visible such as bathroom and ceiling lighting.
- **Floodlight and reflector lamps** also have a screw-in base, and are designed to focus light on the objects in front of them. They are commonly used in indoor fixtures such as recessed or enclosed down lights as well as outdoor floodlights.
- **Pin-type tubular CFLs** can have one to six tubes and feature a special pin-based connection rather than a screw-in base. These lamps are made to fit specific lighting fixtures or luminaires where the ballast is part of the fixture. There are many different kinds of pin-type lamp bases so it is impossible to plug a lamp of this design into a fixture not designated for that size lamp. These products are rarely found in residential applications and are primarily used in commercial buildings.

Cleanup and Disposal

Like all fluorescent lamps, CFLs contain a tiny amount of mercury, which is needed to make the inert gasses conductive at all temperatures and to make the lamp work properly and efficiently. Like many heavy metals, mercury can be hazardous to the environment, so it is important to recycle your used CFLs rather than throw them away. Many hardware, home improvement and retail stores recycle used CFLs -- contact a local retailer to find out.

If a CFL breaks, it can release some of its mercury although this is usually part of a solid constituent of the lamp at normal temperatures and is easily cleaned up. Nonetheless, you should follow specific cleanup steps to avoid coming in contact with the mercury. See the [EPA recommendations for cleanup steps](#).

Fluorescent Tube and Circline Lighting

Fluorescent tubes – by far the most common form of fluorescent lighting but rarely found in residential buildings -- are much more energy efficient than incandescent lamps and are ideally suited to illumination of large indoor areas of commercial or industrial buildings.

Circular, tube-type fluorescent lamps are a special form of a linear tube lamp and are called *circline* lamps by their inventor in the early 1980s. In residential applications, they are commonly used for portable task lighting or other specialty applications such as a torchiere where a compact, efficient light source with a low-temperature, high-luminous output is needed.

Visit Energy Basics for a [technical comparison of different types of lighting](#).

External Resources

[Cleanup and Safe Disposal of CFLs - Environmental Protection Agency](#)

[ENERGY STAR® Light Bulbs](#)

References

[Energy-Efficient Ceiling Mounted Residential Luminaires - Lighting Research Center](#)

[CFL Downlights - Lighting Research Center](#)

[Screwbase Compact Fluorescent Lamp Products - Lighting Research Center](#)

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