

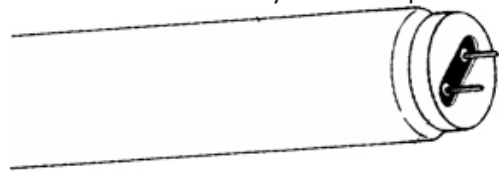
How to Find Environmentally Preferable Linear, U-Bent, and Circular Tube Fluorescent Lights

Fluorescent tubes are among the most energy-efficient lighting available for homes, businesses and other interior spaces. With hundreds of models to choose from, there are big differences in energy efficiency, life span and mercury content. Below are some ways to find high-efficiency, long-life and low-mercury fluorescent lighting products.

Things to look for when selecting fluorescent tube lighting products:

Fixtures

- Stock fixtures with a high-efficiency electronic ballast. Electronic ballasts are more efficient than older magnetic ballasts. They turn on immediately and unlike magnetic ballasts do not flicker or hum. The fluorescent lamps that work with electronic ballasts (linear T8s and T5s, u-bent T8s and circular T5s) also have better light quality, less mercury and a longer rated life than the fluorescent lamps that work on magnetic ballasts (linear and u-bent T12 and circular T9 fluorescent lamps).
- Avoid “preheat” fluorescent fixtures. Also, avoid fixtures containing linear “preheat” T5, T8 and T12 fluorescent lamps. While these have a low initial price tag, they cost consumers more money in the long run because “preheat” models are among the least efficient fluorescent lamps on the market and have a relatively short lifespan – only 5,000 to 9,000 hours – compared to modern linear fluorescent lamps, which typically have a rated life of 15,000-30,000 hours. In addition, many of these older “preheat” fluorescent lamps have a relatively high mercury content compared to modern linear fluorescent lamps.



Replacement Tubes

- Stock high-efficiency T8s. Fluorescent tubes vary in their performance. An easy way to identify a high-efficiency lamp is by its color rendering index (CRI), which is an indicator of light quality. Stock lamps with a CRI of 80 or more. These often have an ordering code with an 800 number in it (e.g., F32T8/830/ECO). High-efficiency lamps include GE SPX and HL, Philips Advantage, and Sylvania Optron 800 models.
- Stock long-life T8s. While typical T8s last 15,000-20,000 hours, there are now “long-life” models that last 24,000 to 36,000 hours. Common long-life fluorescents include Philips PLUS, Sylvania XP, and GE XL models.
- Stock low-mercury T8s. Philips ALTO II linear fluorescents contain only 1.7 mg of mercury, are highly rated for energy-efficiency, and have long life spans of 24,000 to 40,000 hours. For more information, go to www.nam.lighting.philips.com/us/ecatalog/catalogs/p-5569.pdf. Although these “green tipped” tubes contain a smaller quantity of mercury than most comparable models on the market, they should not be put into the trash! All fluorescent lights contain mercury and should be recycled.

For more information:

- Responsible Purchasing Network Guide for Fluorescent Lighting: http://www.responsiblepurchasing.org/purchasing_guides/lighting/
 - Environmental Working Group Lighting Guide: <http://www.ewg.org/greenlightbulbs>
 - Sierra Club Guide to CFL Lighting: <http://www.sierraclub.org/policy/conservation/cfl-guidelines.pdf>
 - Sierra Club article on LEDs: <http://www.sierraclubgreenhome.com/go-green/lighting/light-emitting-diodes-leds/>
 - EcoGeek's video review of LEDs vs. CFLs vs. Incandescents: <http://www.youtube.com/watch?v=pv-mr3VLW34>
- Or contact us at Washington Citizens for Resource Conservation at (206) 441-1790 or info@zerowastewashington.org**

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How to Find Environmentally Preferable Lighting

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Compact fluorescent lights (CFLs) are typically 3-4 times more efficient than standard incandescent light bulbs and last much longer.

But not all fluorescent lights are created equal!

Some CFLs meet minimum energy efficiency and performance standards; some last longer than others; and some have less mercury than others.

And there are emerging alternatives that are highly-efficient, very long-lasting, & with no or very low mercury content.



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Things to look for when selecting environmentally preferable CFLs:

- **ENERGY STAR rating.** ENERGY STAR is a voluntary rating system operated by the US Dept of Energy and US EPA. It allows CFLs that meet minimum efficiency, lamp life and other performance standards to have the ENERGY STAR logo printed on its packaging and marketing materials. ENERGY STAR has also adopted a voluntary 5-6 mg mercury limit on CFLs up to 40 watts. The program spot checks CFLs and disqualifies those that fail its performance testing. For a list of ENERGY STAR-rated CFLs, go to www.energystar.gov. (Click on Lighting link, then CFLs link on left and then advanced search link on right to find details about specific models.)
- **Lifespan of at least 12,000 hours.** The longer the lifespan, the less often the CFL will need replacement. ENERGY STAR sets a minimum rated life of 8,000 hours for bare twist models and 6,000 hours for other shapes. Some CFLs have a rated life of as high as 15,000 hours. Look for models with the highest rated life that meet your needs.
- **Mercury content below 3 mg** (for CFLs up to 25 watts). Although the mercury content is not generally printed on the package, you can contact the manufacturer and ask for it.

Here are some ENERGY STAR-rated CFLs* with a long life and low mercury content.

| Brand | Bulb Line | Mercury per Bulb (mg) | Rated Life | Manufacturer Phone # | Manufacturer Website |
|---|---------------------------------|-----------------------|--------------|----------------------|--|
| Litetronics | Neolite (13, 20, & 23 watts) | 1 mg | 12,000 hours | 800-860-3392 | www.litetronics.com |
| Philips | Marathon (14 watt) | 2.64 mg | 12,000 hours | 800-223-1828 | www.lighting.philips.com/us_en/ |
| Sylvania | Micro Mini (13, 20, & 23 watts) | 1.5 mg | 12,000 hours | 800-544-4828 | www.sylvania.com/ConsumerProducts/New+Products/Micro-Mini+Twist/ |
| Technical Consumer Products, Inc. (TCP) | 289 series (9 & 13 watts) | 2.1 mg | 12,000 hours | 800-324-1496 | www.tcpi.com |

*This is not a complete list. There may be other CFLs that meet the same criteria.

Even Better Options: LEDs and Cold Cathode CFLs

LEDs

LED lights are a super efficient option for many applications, are mercury-free, and have extremely long lives – up to 100,000 hours (or 10 years) for some models. While they are far more expensive per bulb than CFLs, once energy efficiency and life span are taken into account, the long-term price is comparable to CFLs but without the mercury problem. Review LED product literature carefully to make sure the light output meets the needs for the bulb it's replacing. At this time, we recommend stocking LEDs for specific applications: Nightlights, closet lights, flashlights, exit signs, outdoor pathway lighting, spot lights, desk/reading lamps, holiday string lighting, and (under cabinet) strip lights.

LED general purpose light bulbs: There is a growing number of general purpose LED bulbs emerging in the market place. **Here are two high-quality models to consider stocking.**

| Manufacturer | Model | Wattage | Rated Life | Light Output | Manufacturer Phone | Manufacturer Website |
|------------------|--|----------|---------------|------------------------------------|--------------------|--|
| GBL LED Lighting | E26-D5X30 LED-CLR-WHT (Retail price: \$60) | 7 watts* | 100,000 hours | 295 lumens | 604-216-0448 | www.gbl-led.com |
| EarthLED | ZetaLux (Retail price: \$50) | 7 watts* | 50,000 hours | 350 (warm white); 450 (cool white) | 877-855-1625 | www.earth-led.com |

* Replaces a 40-watt incandescent light bulb

Cold Cathode CFLs

Cold cathode CFLs have longer lifespans (15,000 – 25,000 hours) and less mercury than regular CFLs. They also tend to be much smaller and, therefore, can be good replacements for vanity and chandelier lighting. Only cold cathode CFLs are dimmable. Beware: higher-wattage cold cathode CFLs are sometimes less efficient than regular CFLs. Some models have smaller candelabra base.

Below are some Cold Cathode CFL models to consider stocking:

| Manufacturer | Bulb Line | Wattages Available | Shapes Available | Rated Life | Manufact. Phone | Manufact. Website |
|---|--|--------------------|--|------------------------|-----------------|--|
| Litetronics | Micro-Brite (Not dimmable) | 2-8 watts | Standard, Flame Tip, Globe, Reflector | 18,000 to 25,000 hours | 800-860-3392 | www.litetronics.com/ |
| Technical Consumer Products, Inc. (TCP) | C3 Cold Cathode CFLs (works with analog dimmers) | 3-8 watts | Standard, Flame Tip, Globe, Reflector, Torpedo | 25,000 hours | 800-324-1496 | www.tcpi.com |
| Ushio | C3 Cold Cathode CFLs (works with analog dimmers) | 3-18 watts | Standard, Reflector | 25,000 hours | 800-838-7446 | www.ushio.com/files/specs/C3cold-cathode.pdf |