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Everything you need to know about CFLs - part 1:

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CFLs (compact fluorescent bulbs) have come a long way. Early versions were very expensive and plagued with problems (they appeared dim, flickered, didn't come on instantly and burned out sooner than promised).

But that was then. New technology has solved most of the old problems. Today, using CFLs is one of the easiest and most effective ways to save money on energy. It's as easy as screwing in a bulb and flipping a switch. That said, buying and using CFLs can still be confusing. This issue, and the next couple of issues, of Living Green News will address 10 of the most common questions and help you put these great energy-saving bulbs to best use.

Question: *I've looked at CFLs at home centers, but am not sure what to buy. How do I know which provides as much light as a regular 60 or 100 watt bulb?*

Answer: Look at the lumen rating, not the bulb wattage, to compare real light output. Then buy a CFL with 20 percent more lumens than the incandescent bulb you want to replace has. For example, to replace a 60 watt incandescent bulb that has 870 lumens, buy a CFL with at least 1,050 lumens. If you follow wattage guidelines on the package, you may not be satisfied with the light output. Be wary of CFLs that don't list the lumens on the packaging. Their claims that the light output matches a certain incandescent wattage are sometimes misleading or wrong. Another

reason you need more lumens is that a CFL will dim over time. It will lose 20 to 25 percent lumen power after 4,000 hours (40 percent of a CFL's 10,000 hour rated life). Incandescent bulbs also lose lumens, but the life of these bulbs is extremely short compared with that of CFLs.

Question: *Are there some places where using a CFL makes more sense than others?*

Answer: Since many CFLs last up to 10 times as long as incandescent, consider placing them in difficult-to-reach fixtures. It may mean climbing the ladder once every five years instead of every year. It also makes sense to use CFLs in light fixtures that are continuously "On" more than three hours per day.

CFLs save energy in any location, but there are some circumstances that can reduce their life span:

- Frequent on-off switching, as in a hallway
- Excessive vibration near doors or stairways
- High-humidity areas such as a damp basement or crawl space
- A CFL that's not rated for use in an enclosed light fixture might burn out prematurely if enclosed.

Question: *CFLs cost five or six times as much as regular bulbs. How long do I need to use them before I recoup my investment?*

Answer: Although CFLs have come down dramatically in price, their electronic ballast and other features do make them more expensive to manufacture than incandescent bulbs. The payback period will vary with the cost of electricity in your area. However, based on a cost of 10 cents per kWh, a 15 watt CFL will cost about \$12 to operate over its 8,000 hour projected life span. Burning a 60 watt incandescent bulb with equivalent light output for the same length of time will cost about \$48;



a cost difference of \$36 (and you'll need to buy four to eight bulbs since they have a much shorter life span). Based on those numbers, a CFL will pay for itself in about 500 hours (in about four months if the bulb is used four hours per day).

Question: *How do compact fluorescent lights work and how do they differ from standard bulbs?*

Answer: Standard incandescent bulbs work by using electricity to heat up a thin filament inside the bulb. As the filament heats up, it glows, producing light. The drawback to standard bulbs is that most of the energy consumed – over 80 percent – goes into creating heat, not light. CFLs work on a totally different principle. They consist of two basic parts: a gas-filled tube (what many of us would call the “bulb”) and a ballast that contains the electronics. In simple terms, electricity from the ballast excites phosphors on the inside surface of the bulb; these phosphors in turn glow, producing light. Since CFLs don't waste as much energy creating heat, they're much more energy efficient. You see the savings when you compare the wattages; a 15 watt CFL provides about as much light as 60 incandescent bulb.

Question: *I stopped buying CFLs because the first few I bought years ago seemed dim and the color of the light was weird. Are CFLs more like “normal” incandescent bulbs these days?*

Answer: Because CFLs last so long, some of the first-generation bulbs are still burning and giving people the wrong impression of the newer CFLs. The newer bulbs flicker less, make less noise, start up faster and emit light very similar to that of standard (“Type A”) incandescent bulbs. The spiral shape, which is often used in CFLs casts

light more like a standard incandescent bulb. The color of the light has improved dramatically.

If you couldn't see the bulb, you wouldn't know whether the light was incandescent or fluorescent. “Daylight” bulbs, which broadcast a whiter light, are available for those desiring a cooler, less yellowish light.



In the next issue of *Living Green News*, we will wrap up the discussion on CFLs with the following topics:

- Can they operate on dimmer switches?
- Can they be used outside?
- What's new on the market for CFLs?
- Are there three-way CFL bulbs?
- How do you dispose of CFLs?

Did You Know?:

- Some CFLs have screw-on covers so they look much like standard incandescent bulbs.
- The cost of electricity in the United States ranges from less than 10 cents per kilowatt hour to nearly 40 cents per kilowatt hour. The more expensive your electricity, the faster you'll recoup the extra money you pay for CFLs.

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