

# THE HOT TIP ON COLD CATHODES

A new high-tech device is finding its way into retail and food service establishments nationwide - evolving quickly and adapting to a variety of useful purposes. Sightings of this new beast are multiplying rapidly and show no signs of slowing down...

## WHAT IS IT?

Actually, this is not an exotic new creature but a clever merging of two existing technologies: the cold cathode fluorescent lamp (CCFL) and the compact fluorescent lamp (CFL). Ever wonder what makes your laptop screen light up? There are tiny "cold cathode" fluorescent tubes at the perimeter of the screen that backlight the liquid crystal display. These lamps are similar to the "linear" fluorescent tubes in ceiling light fixtures except they are only 1/8 of an inch in diameter. By curling the cold cathode tube into a spring shape and adding a ballast and screw base, they are transformed into miniature compact fluorescent lamps; creating a new type of light source with definite benefits for the dining room.

## EVOLUTION OF THE CCCFL

It's hard to explain exactly what "cold cathode" means without getting into some tricky electrical theory. The important thing to know is that the cathode is the primary point of failure in fluorescent lamps because it is heated every time the lamp is turned on. (Note the dark marks on the end of old fluorescent tubes.) Cold cathode technology starts the lamp with increased voltage at a lower temperature - taking the heat off the cathode and reducing wear and tear. Cross breeding the cold cathode with the CFL to create the cold cathode compact fluorescent lamp (CCCFL) improved the CFL technology in three useful ways: long life, dimming, and flashing.

- **Long Life:** A typical CFL lasts between 8,000 to 10,000 hours – a nice long time compared to a light bulb at 1000 hours. But a CCCFL will last 25,000 hours. That's 4-plus years in your 16-hour a day dining room!
- **Dimming:** In many dining rooms, the ability to dim the lights is essential. As of this writing, most standard CFLs cannot be dimmed. CCCFLs can be safely operated with a dimmer making them ideal for wall sconces, chandeliers, table lamps, and other decorative fixtures.
- **Flashing:** Cold cathode technology allows the CCCFL to be switched on and off thousands of times without burning up the cathode – something that cannot be done with a regular CFL. This makes CCCFLs perfect for flashing signs and explains why casinos were some of the first big customers for these lamps.

## ADAPTABILITY

Restaurants are loaded with little decorative lamps meant to catch the eye and entertain the patron. Lighting manufacturers are catching on to this fact and CCCFLs are one of the technologies they are adapting to fill this specialized market. You can now get cold cathode lamps that are shaped like small globes, bulbs, and floods, and even "torpedoes"

and “flame tips” for candelabras and chandeliers. They come in a variety of opacities (smoky to clear), are available in “warm white” so they look like regular incandescent bulbs, and you can even get some of them in different primary colors for signage or color accent lighting.

Currently, CCCFLs are available in 3 watt and 5 watt configurations. These lamps are not meant for heavy task lighting but are ideal for catching the eye and adding flair to a lighting scheme. The 3-watt version will replace a 15 watt incandescent (standard lamp with a filament) and the 5 watt CCCFL will cover the 20 watt range. Lighting companies are about to roll out an 8 watt CCCFL that will easily match a 30-plus watt incandescent. If you can't find a CCCFL to fit your needs, just wait a bit and it will be created.

### **HABITAT**

If there is one drawback to CCCFLs it is the fact that you will have to do a little hunting to find them. Currently, you will not find these beauties grazing at your local big box hardware store – a definite handicap to the typical restaurant. But you need search no further than your local lighting supplier or the Internet to get as many as you need. There are at least three manufacturers offering these lamps and they are working hard to make them a household item. Today's prices range from \$10 to \$15 per lamp, which seems like a bundle until you remember that one of these lamps can outlive a dozen incandescent lamps – saving you the capital cost and labor on a dozen lamp changes. In other words, that \$15 flame tip CCCFL could save you more than \$50 over the 4 years that you own it. A chandelier with a dozen lamps will net you more than \$400 on your \$180 investment. Double your money in four years – that certainly beats your 401K!

### **THE FINAL ANALYSIS**

CCCFLs are perfectly suited to food service, offering a long-life technology in a creative package that makes money for the restaurateur. What more could you ask for? How about a utility rebate of \$2 per lamp! Want more info? Visit the Food Service Technology Center website at [www.fishnick.com](http://www.fishnick.com) and look for the short presentation on cold cathodes.

Eventually, CCCFLs will come to you. But, why not be a smart operator, get ahead of the pack, and track down some for yourself!

**These energy saving tips are offered by the PG&E Food Service Technology Center (FSTC), an unbiased food service resource center located in San Ramon, CA. The FSTC program is funded by California utility customers and administered by the Pacific Gas and Electric Company under the auspices of the California Public Utilities Commission. For more information on the FSTC and for our schedule of free energy efficiency seminars, please visit our website at [www.Fishnick.com](http://www.Fishnick.com). The FSTC is a member of the California Restaurant Association.**