

# cutting-edge fluorescent.

by Randy Smith



Above: new compact fluorescent products produce enough light to be considered as replacements for smaller HID sources. Other advances in fluorescent lamps extend light output and rated life far beyond earlier technologies.

*Photo courtesy Phillips Lighting*

Since the LDL opened in 1989 we have seen fluorescent lighting continually advance in terms of efficacy and lamp life. Today's linear and compact fluorescent lamps provide more and better lighting than ever before. Here are some highlights of advances in today's fluorescent lamps and electronic ballasts:

- “Super” and “Premium” T8s are the new buzz words floating around the Northwest. What exactly are these T8s? The basic definition is 3100 or higher initial lumens and 2915 or greater mean lumens with a Color Rendering Index (CRI) of at least 85 and a rated life of 20,000 hours or greater.

GE-Starcoat HL, Osram/Sylvania-Octron 800 XPS and Philips-Advantage T8 are the lamps from the major manufacturers that comply. As a quick comparison the 70 series lamps produce around 84.5 mean lumens per watt, the 80 series lamps produce around 87.5 mean lumens per watt and the super/premium lamps produce around 92 mean lumens per watt. This is a 9% increase in light output with the same wattage. The purpose of using these lamps is to produce the most light per lamp with the least lumen depreciation.

Some energy conservation organizations, such as the Energy Trust of Oregon ([www.energytrust.org](http://www.energytrust.org)), offer greater monetary incentives for using the Super/Premium T8 systems over standard lamps.

- High Performance CFLs begin to blur the line between fluorescent and lower wattage HID lamps. Beginning with the 50W “biax” lamps of a few years ago, CFLs now have light output that rivals 250W+ incandescent and 70W Metal Halide lamps. The “biax” style of lamps are longer than incandescent

and HID (22” or more) requiring fixtures specifically designed for them. 55W—80W lamps of this type can produce up to 6000 lumens. These are useful for exterior wall washing applications or interior high ceiling applications. All major lamp manufacturers make these lamps: GE-Biax, Osram/Sylvania Dulux L, and Philips PL-L.

At LightFair 2003 Philips Lighting announced a new CFL product family - the PL-H - which is a size and shape similar to the 4-pin 42W CFL. The PL-H comes in 60W, 85W, and 120W versions with lumen output of 4000, 6000, and 9000 lumens respectively.

- T5HO lamps produce 5000 lumens using 54W in the nominal 4-foot model. This has created a market of indirect linear pendant luminaire using 1 lamp instead of 2. It has also created a new type of popular industrial luminaire for low bay applications—a 4 lamp, 20,000 lumen fluorescent. This is instant-on, instant-restrike, low lumen depreciation high-CRI lighting for industrial spaces.

- Energy-Saving T8 lamps are designed to provide similar lighting performance to the full-wattage lamp, but using a watt or two less energy per lamp. GE-Watt Miser Ultra, Osram/Sylvania Supersaver and Philips Energy Advantage lamps use 28W-30W to produce approximately 2900 lumens. Some of these lamps are intended exclusively for use on instant-start ballasts and have less than 20,000 hours of rated life.

- Long-Life T8 lamps are engineered to lower relamping costs by extending the rated burn hours beyond the typical 20,000 hour level. Also, some new lamps are designed to provide 20,000 hours of life whether the ballast is rapid start or instant start. Many longer-life lamps are rated at 24,000 hours, and some are rated as high as 30,000 hours.

When you see a linear fluorescent lamp rated at higher burn hours make sure the rating is based on a standard 3 hour operation cycle. Some less reputable lamp manufacturers claim long life ratings, but base those claims on 10-, 12- or 24 hour burning cycles. The industry standard for testing fluorescent lamp life uses a 3 hour operation cycle.

## common lamp comparisons.

**F25T12 (aka shoplight)**  
25W / 1860 lumens / 12,000 hrs

**F40T12**  
40W / 3000 lumens / 20,000 hrs

**F40T12ES**  
34W / 2650 lumens / 20,000 hrs

**F32T8RE80**  
32W / 2950 lumens / 20,000 hrs

**F96T8**  
59W / 5770 lumens / 15,000 hrs

**F28T5**  
28W / 2900 lumens / 20,000 hrs

**F54T5HO**  
54W / 5000 lumens / 20,000 hrs

**FEA30CIR (aka CircLite)**  
30W / 1900 lumens / 10,000 hrs

**FC9T5HO (aka T5 CircLite)**  
55W / 3300 lumens / 16,000 hrs

**F282D (aka 2D)**  
28W / 2050 lumens / 10,000 hrs

**FT39 (aka “Biax”)**  
39W / 2850 lumens / 12,000 hrs

**FT40 (aka “Biax”)**  
40W / 3150 lumens / 20,000 hrs

**CFQ13W**  
13W / 860 lumens / 10,000 hrs

**CFTR26W**  
26W / 1800 lumens / 10,000 hrs

**CFTR32W**  
32W / 2400 lumens / 10,000 hrs

**CFTR42W**  
42W / 3200 lumens / 10,000 hrs

**A19 100W**  
100W / 1600 lumens / 750 hrs

**QL85W (Induction)**  
85W / 6000 lumens / 100,000 hrs