

Fluorescent Lighting Types

Light is created when the mercury is ionized by an electric arc, producing ultraviolet energy, causing the phosphors coating inside the lamp to 'light up.' There are three types of fluorescent tubes:

- T12 – the 1 1/2" conventional fluorescent tubes are 3 to 4 times more efficient than incandescent lighting and last 10 to 20 times longer, but have largely been replaced by the new energy saving T8 tubes.
- T8 – smaller 1" tubes are 25-35% more efficient and have significantly less mercury than their T12 predecessors.
- T5 – these smaller lamps produce more light from a smaller area and are 60% more efficient than T8s. They also contain a very small amount of mercury (3mg). Their compact design makes them ideal for projects where T8s are not functional.¹

T8s are 25-35% more efficient than T12s which translates to lower energy bills.¹

UPGRADES

- Upgrading from T12s to T8s almost always requires ballast upgrading. Older T12 setups were primarily on magnetic ballasts but the more efficient, quieter and lighter electronic ballasts have become the standard. The electronic ballast has no hum, no flicker, and has lower power loss. The typical electronic ballast should last upwards of 25 years. It should be noted that the old ballasts can be recycled.

PROPER DISPOSAL

- There are safe and effective disposal methods for recycling spent tubes. A number of companies specialize in the full-service recycling of spent tubes, recycling 98% of the contents of the tube, while other companies distribute "bulb eaters" that are specially designed to safely removing over 95% of the mercury and phosphor dust.
- Both of these options reduce the environmental and health risks associated with improperly disposing of spent fluorescent tubes.

Over 6,000,000 fluorescent and high intensity discharge (HID) lamps, containing mercury, are disposed of in Alberta each year. Of these less than 3% are being properly disposed of.

Although jurisdictions world-wide have classified used fluorescent tubes as hazardous waste, banning them from their landfills, the Alberta government has not yet followed suit.²

For a list of fluorescent tube recyclers please visit our [online recycling directory](#). For further information please [email](#) Green Calgary's Commercial Environmental Services program or visit our [website](#).

REFERENCES

1 Source: BC Hydro

http://www.bchydro.com/powersmart/technology_tips/buying_guides/lighting/full_size_fluorescent_lamps.html (Last Accessed Aug 3, 2009).

2 Source: Fluorescent Lamp Stewardship Initiative

<http://www.environment.gov.ab.ca/info/library/6344.pdf> (Last Accessed Aug 3, 2009).