

# Choosing the right light

## Comparing fluorescents and LEDs

		Traditional technology	Replacement technology	Replacement technology	Replacement technology	Replacement technology	Energy-efficient technology
		T12 fluorescent using magnetic ballasts	T8 fluorescent using electronic ballasts	T8 fluorescent using electronic ballasts using a lighting control, e.g., motion sensor	T5/T5HO fluorescent using electronic ballasts using a lighting control, e.g., motion sensor	High-Intensity Discharge Lamp (HID) Pulse Start Metal Halide with electronic ballast	Light emitting diode (LED) using a lighting control, e.g., motion sensor
Features	Energy efficiency	Low to Medium	High	High	High	Medium to High	High
	Light colour	Cold colour temperature; poor colour rendering	Colour temperature options range from warm to cool; good colour rendering	Colour temperature options range from warm to cool; good colour rendering	Colour temperature options range from warm to cool; good colour rendering	Cold colour temperature; medium to good colour rendering	Colour temperature options range from warm to cool; good colour rendering
	Dimmability	None	Partial to full range; expensive to implement	Partial to full range; expensive to implement	Partial to full range; expensive to implement	Limited, very expensive to implement; on start requires warming time	Full range, widely available; less expensive to implement
	Attributes	Humming, flickering	Mild humming, flickering	Mild humming, flickering	Mild humming, flickering	Humming, flickering	No humming, some flickering may occur
	Application	Recessed and surface-mounted ceiling troffers; pendant/linear, low-bay	Recessed and surface-mounted ceiling troffers; pendant/linear, low/high bays	Recessed and surface-mounted ceiling troffers; pendant/linear, low/high bays	Surface-mounted ceiling troffers; pendant/linear, low/high bays	Surface-mounted ceiling/ pendant low/high bays	Recessed and surface-mounted ceiling troffers; pendant/linear, low/high bays
Input Wattage (W) * for Light output (in lumen)	1,500 – 3,000 lm (low output)	25W – 50W	17W – 35W	17W – 35W	15W – 30W	40W – 60W	13W – 25W
	3,000 – 5,000 lm (average output)	50W – 80W	35W – 60W	35W – 60W	30W – 50W	60W-80W	25W – 40W
	5,000 – 10,000 lm (high output)	80W – 180W	60W – 120W	60W – 120W	50W – 110W	80W-170W	40W – 80W
	10,000–20,000lm	180W-340W	120W-240W	120W-240W	110W-220W	170W-275W	80W –150W
	20,000–40,000	340W-670W	240W-360W	240W-360W	220W-330W	275W-435W	150W-300W
Percentage of improvement (T12 using magnetic ballasts as baseline**)		N/A	25%	40%	50%	15%-25%	70%
Estimated operating cost per bulb	Life span**	About 20,000 hours or five years	20,000 to 60,000 hours or five to 15 years	20,000 to 60,000 hours or five to 15 years	About 20,000 hours or five years	15,000 hours to 20,000 hours or four to five years	50,000 to 80,000 hours or 12 to 20 years
	Annual energy cost****	\$32.94	\$24.70	\$17.29	\$14.41	\$32.94	\$11.53

\*Generally, the higher the lumen, the brighter the bulb; input wattage includes bulb and ballast

\*\*Assumption based on 30% time of use reduction due to vacancy

\*\*\*Assumption based on 12 hours of use per day

\*\*\*\*Estimated energy cost is \$0.094/kWh calculated for a 80W, T12 equivalent