Lighting

Best Practices for Energy Efficiency

	ADVANTAGES	DISADVANTAGES	RECOMMENDED USE	LUMENS per WATT	LIFETIME (HRs)
INCANDESCENT					
Standard Incandescent light bulbs	Good color rendering	Low efficiency	None	10–17	750–2,500
Halogen	Good color rendering.	Low efficiency, but higher than standard incandescent bulbs	Anywhere that dimming is required but LED, fluorescent, and cold cathodes will not work	12–22	2,000–4,000
FLOURESCENT					
Linear Fluorescent	• Adequate color rendering • 90% reduction in energy compared with incandescent for T5 and T8 bulbs (10x more efficient) • T5 are 45% more efficient than T12, while T8 are 32% more efficient than T12 bulds	• Dimming requires special ballasts • Lamp life is reduced by frequently turning on and off	Kitchen overhead and storage; walkways and signs	30–110	7,000–24,000
Compact Fluorescent (CFL)	• Adequate color rendering • Requires careful disposal • 75% reduction in energy compared with incandescent (4x more efficient)	• Dimming requires correctly installed ballasts • Lamp life is reduced by frequently turning on and off	Overhead (can or recessed lighting); Kitchen (refrigerator)	50–70	10,000
Neon	Can be efficient with optimized ballast and transformer	Less efficient than interchangeable options such as LED	None	8–80	50,000–100,000
SOLID STATE					
Light Emitting Diode (LED)	• Highly efficient • Long useful life • Can be dimmed • 90% reduction in energy compared with incandescent (10x more efficient)	Highly directional lighting	Accent lighting	25–64	35,000–50,000
COLD CATHODE					
Cold Cathode	• Dimmable • Long useful life • Good color rendering • Lamp life not reduced by frequent switching • 80% reduction in energy compared with incandescent (5x more efficient)	Expensive to purchase and install	Anywhere dimming and diffuse light is important	30–80	25,000
HIGH INTENSITY DISCHARGE (HID)					
Metal Halide	• Adequate color rendering • Highly efficient where suitable • 80% reduction in energy compared with incandescent (5x more efficient)	No dimming technology	Parking lots	70–115	5,000–20,000
High-pressure and Low-pressure Sodium	• Highly efficient where suitable • 90% reduction in energy compared with incandescent (10x more efficient)	• No dimming technology • Poor color rendering	Parking lots	50–150	12,000–24,000