



Why fluorescent?

Fluorescent lamps are energy efficient, cost effective alternative lighting sources with many benefits to you, the user, and the environment. They use less electricity than a standard incandescent bulb, last longer, and give off less heat, making them a cost-effective lighting alternative.

Better energy efficiency

State-of-the-art fluorescent Tri-phosphor lamps, electronic ballasts, and occupancy sensors combine to make fluorescent lighting the most energy efficient lighting option. Fluorescent lamps are 8 times more efficient, using only 25% of the electricity required by the incandescent lamp to produce the same amount of light.

T8 Tri-phosphor lamps provide more “light” using less energy. Tri-phosphor fluorescent lamps reduce consumption by up to 40% when used with electronic ballasts. Plus, these lamps offer improved color rendering, and the linear distribution of light is uniform for more effective lumination of the task area.

Using electronic ballasts instead of magnetic ballasts provides more light output with less wattage—20,000 cycles per second vs. 60 cycles with the magnetic version—and runs quieter and cooler. Dimmable electronic ballasts offer the best of two worlds, energy saving electronics and the ability to adjust the amount of lighting of the task area.

Energy waste is eliminated with occupancy sensors. When the light senses an occupant, it turns on. If no activity is detected within 15 minutes, it turns off. Occupancy sensors contribute an energy savings of 70%. Step up to state-of-the-art office lighting managed with occupancy sensors.

Reduced eye strain

Fluorescent task lighting offers relief to eye strain—that silent, often overlooked inhibitor of productivity. Eye strain occurs when the muscle of the eye must continually adjust the iris to the brightness and contrast of the task. If the light is too bright or too dim, if the contrast of the task is too high, or if there is too much glare, the eye becomes overworked as it struggles to compensate for the environment.

The result? Distractions that reduce productivity: burning eyes, headaches, drowsiness, even neck and back pain.

If 80% of all sensory experience is visual, why not make it pleasant? Augment lower ambient light levels with task lighting. Task lighting even directs the appropriate amount of light to the task with minimum glare, reducing the need for the eye to make frequent adjustments and enhancing the workers environment.

More reasons to consider fluorescent lighting

Fluorescent light stays brighter longer. Over their 24,000-hour lifetime, fluorescent lamps maintain 94% of the luminosity as compared to 65% for HID. And fluorescent lights are less costly to operate, averaging 55% savings per fixture over HID.

Improved lamp life. Fluorescent lamps last two to three times longer than metal halide lamps of 400W or less, based on lamp manufacturers' published data.

Excellent lumen maintenance. T5 and T8 fluorescent lamps lose only 5-6% of their lumen output between the rated initial and maintained lumens (maintained lumens are calculated 40% of rated life). By contrast, standard metal halide lamp lumens typically deteriorate about 35% over the same period. As the lamps continue to age, the difference becomes even more pronounced.

Energy efficiency. The higher lumens per watt of fluorescent systems translates into big energy savings. Maintained footcandles are almost always better per energy dollars spent.

Fluorescent light has a high color-rendering index—up to 85 compared to 65-70 for HID. This can be especially important in warehousing, where accurate reading of color codes and color-coded tags is essential for error-free operation.

Instant on. Fluorescent light comes on a full light output instantly, unlike HID, which can take 15 minutes to reach full brightness.

Dimmable and occupancy sensor capabilities. Fluorescent lights further reduce your energy costs by allowing lights to turn off on low-activity areas.

Potential energy company rebates. Some energy companies offer rebates to companies who significantly reduce their energy demand.

400W Metal Halide Comparison

Type of Fixture	Existing Lighting system 400w MH	Payback/ROI			
		6 lamp T8	8 lamp T8	4 lamp T5	6 lamp T5
Fixture Quantity	100	100	100	100	100
Total Wattage (lamp & ballast)	458	224	302	246	369
Annual energy cost*	\$ 20,005.00	\$ 9,784.00	\$13,191.00	\$10,745.00	\$16,118.00
Lamp cost	\$ 19.00	\$ 9.60	\$ 12.80	\$ 18.00	\$ 27.00
Total system cost/fixture		\$ 190.00	\$ 246.00	\$ 217.00	\$ 257.06
Total system (all fixtures)		\$19,000.00	\$24,600.00	\$21,700.00	\$25,706.00
Annual energy savings based on upgrade*		\$10,221.00	\$ 6,814.00	\$ 9,260.00	\$ 3,888.00
Payback (years)		1.35	2.85	1.78	5.27
ROI		74%	35%	56%	19%

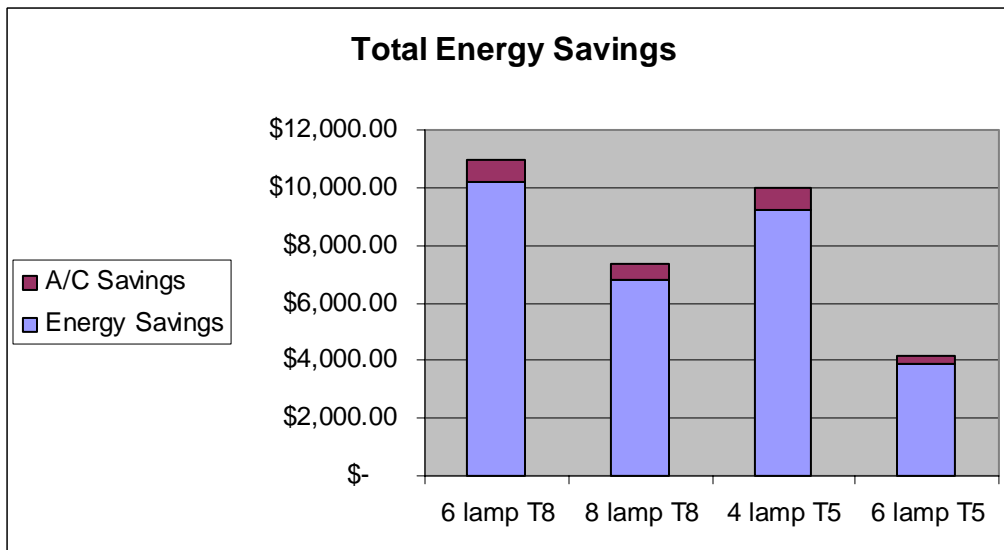
*Based 6,240 annual operating hours at \$0.07/KwH

	Air conditioning Savings			
	6 lamp T8	8 lamp T8	4 lamp T5	6 lamp T5
Annual energy savings based on upgrade	\$ 10,221.00	\$ 6,814.00	\$ 9,260.00	\$ 3,888.00
A/C savings*	0.25	0.25	0.25	0.25
Average cooling hours*	0.30	0.30	0.30	0.30
Total A/C savings	\$ 767.00	\$ 511.00	\$ 695.00	\$ 292.00

*Based on one watt of air conditioning energy required to remove four watts of heat load.

**Air conditioning estimated operation at 30% of the year.

	Total Energy Savings			
	6 lamp T8	8 lamp T8	4 lamp T5	6 lamp T5
Energy Savings	\$ 10,221.00	\$ 6,814.00	\$ 9,260.00	\$ 3,888.00
A/C Savings	\$ 767.00	\$ 511.00	\$ 695.00	\$ 292.00
Total	\$ 10,988.00	\$ 7,325.00	\$ 9,955.00	\$ 4,180.00



1000W Metal Halide Comparison

Type of Fixture	Existing Lighting system 400w MH	Payback/ROI			
		6 lamp T8	8 lamp T8	4 lamp T5	6 lamp T5
Fixture Quantity	100	100	100	100	100
Total Wattage (lamp & ballast)	1058	224	302	246	369
Annual energy cost*	\$ 46,213.00	\$ 9,784.00	\$13,191.00	\$10,745.00	\$16,188.00
Lamp cost	\$ 30.00	\$ 9.60	\$ 12.80	\$ 18.00	\$ 27.00
Total system cost/fixture		\$ 190.00	\$ 246.00	\$ 217.00	\$ 257.06
Total system (all fixtures)		\$19,000.00	\$24,600.00	\$21,700.00	\$25,706.00
Annual energy savings based on upgrade*		\$36,429.00	\$33,022.00	\$35,468.00	\$30,096.00
Payback (years)		0.35	0.55	0.43	0.64
ROI		287%	180%	230%	155%

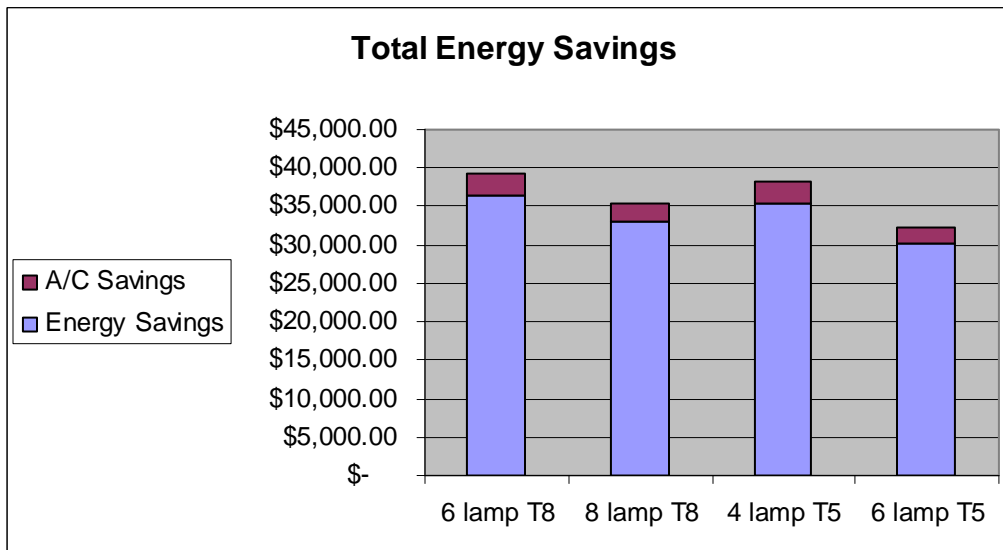
*Based 6,240 annual operating hours at \$0.07/kWh

	Air conditioning Savings			
	6 lamp T8	8 lamp T8	4 lamp T5	6 lamp T5
Annual energy savings based on upgrade	\$36,429.00	\$33,022.00	\$35,468.00	\$30,096.00
A/C savings*	0.25	0.25	0.25	0.25
Average cooling hours*	0.30	0.30	0.30	0.30
Total A/C savings	\$ 2,732.00	\$ 2,477.00	\$ 2,660.00	\$ 2,257.00

*Based on one watt of air conditioning energy required to remove four watts of heat load.

**Air conditioning estimated operation at 30% of the year.

	Total Energy Savings			
	6 lamp T8	8 lamp T8	4 lamp T5	6 lamp T5
Energy Savings	\$ 36,429.00	\$33,022.00	\$35,468.00	\$30,096.00
A/C Savings	\$ 2,732.00	\$ 2,477.00	\$ 2,660.00	\$ 2,257.00
Total	\$ 39,161.00	\$35,499.00	\$38,128.00	\$32,353.00



Comparative Index

Specific Characteristics:	400/U				
	Metal Halide	6 Lamp T8 Fixture	8 Lamp T8 Fixture	4 Lamp T5 Fixture	6 Lamp T5 Fixture
Initial Lumens	36,000	22,600	30,240	17,800	26,700
Mean Lumens	23,500	21,246	28,428	16,734	25,101
Initial Lumens per Watt	79	100	100	73	73
Mean Lumens per Watt	51	94	94	68	68
Color Rendering Index (CRI)	65	85	85	85	85
Lumen Maintenance (20,000 Hours)					
@ 0% of Life	100%	100%	100%	100%	100%
@ 25% of Life	71%	94%	94%	96%	96%
@ 50% of Life	60%	94%	94%	95%	95%
@ 75% of Life	52%	94%	94%	94%	94%
@ 100% of Life	47%	94%	94%	94%	94%
Fixture Efficiencies	65%	92%	92%	92%	92%
Lamp Life (Hours)	20,000	24,000	24,000	24,000	24,000
Total Wattage per Fixture	458	224	302	246	369
Energy Cost Per Fixture Per Year					
@ \$0.06/KwH	\$ 240.07	\$ 117.41	\$ 158.30	\$ 128.94	\$ 193.42
@ \$0.08/KwH	\$ 320.09	\$ 156.55	\$ 211.06	\$ 171.92	\$ 257.89
@ \$0.11/KwH	\$ 440.12	\$ 215.26	\$ 290.21	\$ 236.40	\$ 354.59
@ \$0.15/KwH	\$ 600.16	\$ 293.53	\$ 395.74	\$ 322.36	\$ 483.54
Number of Turns in Ten Year Cycle	4.37	3.64	3.64	3.64	3.64
Warm-Up & Restrike Time	20 Minutes	0 Minutes	0 Minutes	0 Minutes	0 Minutes
Energy Savings Opportunity	NO	YES	YES	YES	YES
Dimmable	NO	YES	YES	YES	YES
Color Shifting	YES	NO	NO	NO	NO
Glare	YES	NO	NO	NO	NO