



### Fluorescent Lighting versus LED Lighting Lifecycle Costs

Transitioning from Fluorescent and HID lighting to LED lighting not only saves the consumption of kWh of electricity, it also essentially eliminates lighting maintenance completely.

A typical fluorescent fixture with three (3) T8/32 watt fluorescent tubes consumes 96 watts plus 8 watts by the ballast for a total of 104 watts. Assuming the fixture is on twelve (12) hours per day seven (7) days a week that fixture will consume 419 kWh per year, at \$0.10 per kWh, this fixture will cost \$25.14 to run each year. By retrofitting this same fixture with two (2) LED tubes, (providing the same or better lighting) the yearly kWh consumption is 157, for a yearly cost of \$9.42. This translates into a savings of \$15.72 or 62.5% savings, using LED lighting versus traditional fluorescent lighting. Therefore, over the thirteen (13) year life of the LED fixture the total kWh savings in monetary value is \$204.

Additionally, the difference in maintenance costs is even more dramatic. LED lighting has virtually no required maintenance for the life of the tube which is approximately thirteen (13) years assuming that the light is on as in the example above (twelve (12) hours/day, 365 days/year). During the same period of time, each T8/32 will need to be replaced approximately every eighteen (18) months or 8 times in thirteen (13) years. Additionally, the electronic ballast will need to be replaced every thirty-six (36) months or four (4) times. Therefore each fixture will require approximately 26 T8 replacements and four (4) ballasts. Again, assuming the cost of the T8 fluorescent tubes is \$3.00 each for a total tube cost of \$78 and the ballast cost is \$20 each for a total cost of \$80, the material cost alone will be approximately \$158 over the thirteen (13) year period.

The labor to maintain the T8 fixture for the period of time can also be calculated. Since the tubes in each T8 fixture will not burn out at the same time, we calculate the replacements individually. Assuming a qualified maintenance person is paid \$20/hour and it takes 15 minutes to change a T8 tube the labor to replace twenty-six (26) tubes is six (6.5) hours costing \$130 and assuming that the ballast takes thirty (30) minutes to replace, the ballast replacement will take two (2) hours for an additional cost of \$40. Total maintenance cost is calculated at \$173.

Therefore the total maintenance cost during the thirteen (13) year period for this one T8 fixture is \$331 versus \$0 for the equivalent LED fixture.

	T8 Fluorescent	LED
Cost of the 3 bulbs for fixture	\$9	\$40
kWh Cost over 13 yrs.@.10/kWh	\$592	\$204
Cost of Material Replacement	\$158	\$0
Cost of labor	\$173	\$0
Total Cost for 13 yrs.	\$932	\$244

