

4/14/10

Riverfront Parking Garage

Original lighting on lower level

95 – 175W Metal Halide (MH) fixtures with 15k (15,000) hours average life bulbs.

Current lighting

57 – 2 bulb x 54W High Output (HO) T5 fluorescent fixtures, plus

38 – 1 bulb x 54W HO T5 fluorescent fixtures, all with 20k hours average life bulbs.

Power consumption

$95 \times 210W = 19.95 \text{ kW} \times 24 \text{ hours} \times 365 \text{ days} = 174762 \text{ kWh/year}$

$57 \times 120W = 6840 \text{ W}$, plus

$38 \times 60W = 2280 \text{ W}$

Total $9.12 \text{ kW} \times 24 \text{ hours} \times 365 \text{ days} = 79891 \text{ kWh/year}$

Difference of 94871 kWh/year at \$0.06/kWh = **\$5692 savings per year.**

Fixtures total \$9720 plus \$1880 in hardware to install totals \$11600 or \$122 per fixture with mounting hardware and bulbs. The simple payback for this project is less than 2 years, not including future savings in maintenance costs for bulbs and ballasts.

The original fixture bulbs are about \$20 each and were lasting for about a year each, due to breakdown of the ballast over the last 20 years. They are rated to last for about 1.7 years. The current fixture bulbs are about \$5-7 each and are rated to last for about 2.3 years. About 10% of the original fixture ballasts had been replaced over the last 10 years at about \$60-70 each and the rest were due to fail in the near future. Much of the wiring in the fixtures was heat damaged and many of the wire nuts had cracked and started to disintegrate. It would have been equally as much work and cost to repair the old fixture as to install the new units.

The new fixtures were manufactured by H.E. Williams in Carthage, MO which is only 175 miles from Lawrence, saving transportation costs.

The old fixtures have been broken down to their components and either sent to be recycled or salvaged for useful pieces. The breakdown of recycled metals is:

Stainless steel	1040 lbs	\$780.00
Ballasts	660 lbs	\$184.80
Sheet Aluminum	372 lbs	\$186.00
Extruded Aluminum	89 lbs	\$62.30
Insulated Copper Wire	28 lbs	\$41.40
<u>Misc other scrap</u>	<u>170 lbs</u>	<u>\$282.45</u>
Total	2359 lbs	\$1536.95

All of the cardboard packing material has been broken down and sent to WR/R for recycling.