

Scappoose City Hall LED Lighting Upgrades Case Study



Scappoose City Hall upgrades to LED Lighting in their city hall offices, police station and district courtroom.

Project Background & Scope

The Scappoose City Hall had a fluorescent lighting system that mainly used obsolete T12 lamps. The district courtroom, in particular, felt under lit to occupants, especially during evening council meetings. Creative Lighting Solutions, Inc. (CLS), a local LED manufacturer, met with City Business Manager, Jon Hanken, and discussed the opportunity to move towards a highly energy efficient solution, which included financial incentives from their utility, Columbia River PUD. Installing more efficient lighting, especially environmentally friendly LED, would also align with the city's effort to "GO GREEN", which is important to residents.

A representative from CLS showed city staff the 18-Watt LED T8 replacement tubes they offer, and several sample fixtures. The total project would consist of replacing approximately 300 existing T12 lamps (40w each) with new LED T8 lamps (18w each). The LED products have a correlated color temperature (CCT) of 4100k and a color rendering index (CRI) of 83, produce 91 lumens per Watt, and could be retrofitted into existing fixtures. The LED lamps carry a five-year/50,000-hour warranty.

Making a sound financial investment and creating a better overall working environment were the two main goals of the city, so it was important to keep costs down and to make sure that the lighting levels were appropriate for the tasks at hand. The police station had long running hours, the administration offices ran normal business hours, and the district courtroom had below average run times. The existing fixtures consisted of 2, 3, and 4 lamp, 2' x 4' troffers, with a mix of flat lens, wrap-around lens, and parabolic fixtures. There were also a few fixtures that held 8-foot T12 fluorescent lamps. The energy savings would come from reducing the wattage of



Scappoose City Hall Counsel Chamber

each lamp and delamping many of the existing fixtures. After City Council saw the LED T8 samples in use and the utility offered an incentive, they made the decision to do the conversion in December 2012.

Results

All the spaces were outfitted with the new LED T8 Lamps, including an evidence room that was not included in the original scope of work. (Upon seeing the much brighter light provided by the new LED lamps, the Chief of Police requested that this area be updated as well). A few 8-foot fixtures that were initially left out of the project were also added. They were replaced by 4-foot fixtures with a mix of clear and diffusing lenses that were readily available. While the fixtures themselves may not have been ideal, they were the most cost effective and expedient solution.

The fluorescent lamps were removed and the ballasts were disconnected. The new LED lamps with internal drivers were then installed. Many of the fixtures were delamped but the council chambers were fully relamped with four lamps in each fixture so the space would be bright, to help keep everyone alert during the long evening meetings and in anticipation of plans for video conferencing in the future. Even though the new LED lamps in the council chambers use approximately 55% less energy than the old fluorescent lamps, the space feels much brighter.

No controls were added in this project per the city's request due to previous experiences with malfunctioning occupancy sensors. The installation went quickly and with no mess. Only two lamp failures occurred (both immediately after installation) and both were quickly replaced under warranty. Although it is a new installation, Mr. Hanken is very happy with it so far. He noted that a few occupants initially felt the new lighting was too bright. However, occupants seem to have adjusted to it and he believes the brighter and whiter light has improved the moods of City Hall occupants. The lighting retrofit was completed during the dark winter months. Some employees jokingly comment, "It's not Portland anymore, it's Phoenix."

It is too soon to have reports on the actual energy savings, but the expected savings are 61%, with a return on investment (ROI) of 6% on the energy savings alone (including the utility incentives). When the low operational expenses of the new LED lamps are compared to the high operational expenses of the old T12 lamps, the ROI is expected to be considerably higher. The City of Scappoose is "GOING GREEN" in more ways than one.

Lessons Learned

The city manager believes this project was well worth the investment. Two things were critical to making the decision to convert to LED lighting: seeing the LED lamps in action before purchasing and the utility incentive.



City Hall Main Office Lighting



18-Watt LED T8 Tube

Additional Resources

Contractor/Manufacturer Information:

Mike Bernards

Company:

Creative Lighting Solutions, Inc.

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Website:

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Utility:

Columbia River PUD

Considerations for Purchase

Before purchasing LED lighting:

- Understand warranty coverage and length. Coverage might include various components, field repair, shipping and labor, over 5 to 10 years. Warranty eligibility may require multiple LEDs to fail before replacement.
- Install a sample before committing to a purchase.
- Check your local utility for available incentives.
- Engage a professional to provide lighting that meets your needs, complies with energy code, and is compliant with utility incentive requirements.

Most utility incentives for LED lights use a qualified list:

- For light bulbs, look for ENERGY STAR products: http://www.energystar.gov/index.cfm?c=manuf_res.pt_lighting
- For commercial light fixtures, refer to Design Lights Consortium qualified product lists: <http://www.designlights.org>

Additional questions to ask are listed at this U.S.

Department of Energy website: <http://www.eere.energy.gov/buildings/ssl/what-to-ask.html>