

State of Efficiency

Efficiency: The productive use of resources; the degree to which something is done well or without wasted energy.

December 1, 2010. Volume 1, Issue 2. Published by the Department of Central Services

“We, the public servants of the state of Oklahoma, are hereby committed to the conservation of resources and the protection of future generations through the promotion and implementation of sustainable business practices.”

What’s Inside:

LEED® Gold Project Earns Merit Award	page 2
Capitol Building Earns Energy Star	page 3
What a Bunch of Bulb-Crushery!	Page 4
Energy Savings & Renewable Energy Update	page 5
You’ve Come A Long Way, Bulby...	page 6
Tree Grant Contributes to Landscaping Master Plan	page 7
Recycling Update	page 8
Get to Know Your Facilities Professionals	page 8

LEED® Gold Project Earns Merit Award

The Department of Central Services (DCS) is proud to accept the Merit Award in the category of Green Facilities from Buildings magazine's 2010 Project Innovations Awards for the renovation of the Department of Human Services (DHS) building, located at 50 N.E. 23rd Street in Oklahoma City.

The 2010 Project Innovations Awards included commercial and institutional facilities across the U.S. in three categories: Green Facilities, Modernization, and New Construction. The Grand Prize in the Green Facilities category was awarded to Hobbs Brook Management, LLC for renovation of a Boston office building.

"We are very proud that DCS Office of Facilities Management's (OFM's) work competes alongside the work of private sector management companies," said John Richard, Director of DCS. Richard went on to say, "Through the success of this renovation project, DCS is able to set a precedent for our vision of operational efficiency and environmental responsibility in state buildings."

The project began as a mechanical system upgrade, but soon blossomed into a whole-building upgrade with much consideration given to sustainable construction and building features. Agency leadership and building tenants were eager to support the goal of pursuing LEED Gold certification from the US Green Building Council (USGBC). The USGBC certification marked the first LEED Gold-certified building in Oklahoma City and only the seventh in the entire state.

"Innovative strategies, cutting-edge technologies, and personnel dedicated to improving the way we operate are the life-blood of our sustainability program," Richard said. "The national recognition of DCS' natural resource stewardship, as well as a microscopic energy bill, reinforces our commitment to this program."

The completed project features a state of the art Building Management System (BMS), geothermal heating/cooling, 10-kW wind turbine, 60-kW photovoltaic (PV) solar panels, highly-reflective roofing, and triple-pane, low-emissive windows. Solar-powered, sun-tracking skylights compliment energy-efficient lighting with light harvesting capabilities.

Water conservation efforts included installing low-consumption, sensor-operated toilets and faucets, waterless urinals, and native/adapted landscaping materials.

So when do the energy savings start? The 11, 427 sq. ft facility had an energy bill of **\$152** for the month of October. 🌟

State Capitol Building Earns the Energy Star

The Oklahoma State Capitol building is one of four buildings that earned the Energy Star label from the Environmental Protection Agency (EPA). The Jim Thorpe building, Attorney General building, and the Kerr-Edmondson building in Tulsa all met the EPA requirements for superior energy use and environmental

stewardship. The EPA's energy performance scale helps organizations assess how efficiently their buildings use energy relative to similar buildings nationwide. According to the [Energy Star website](#), an Energy Star qualified facility meets strict energy performance standards set by EPA and uses less energy, is less expensive to

operate, and causes fewer greenhouse gas emissions than its peers.


How is the Energy Star rating calculated?

The EPA uses statistically representative models to compare your building against similar buildings from a national survey conducted by the Department of Energy's Energy Information Administration. This national survey, known as the Commercial Building Energy Consumption Survey (CBECS), is conducted every four years, and gathers data on building characteristics and energy use from thousands of buildings across the United States.

What does it take to become Energy Star certified?

Before a building can become certified, ownership must first create an account on Portfolio Manager, track at least a year's worth of energy bills, and adhere to a series of operating and energy use conditions. Buildings earning a rating of 75 or higher can apply for the Energy Star label. Note: The Department of Central Services (DCS) average portfolio rating of 80 was enough to earn [Energy Star Leaders](#) recognition back in April.

What does the rating of 89 mean about the State Capitol?

According to the Energy Star website, the EPA's energy performance rating system is a method that rates the performance of your building on a scale of 1 to 100. The rating expresses the performance of your building relative to similar facilities around the US. A rating of 50 signals that your performance is in the middle of your peer group – half of similar facilities are more efficient and half are less efficient. A rating of 75 indicates that your building is more efficient than 75% of buildings, in other words, you perform in the top quartile for your peer group. Based on that information, the State Capitol's rating of 89 means it is performing more efficiently than 89% of the buildings in its peer group. The rating is based on as-billed energy consumption, and is normalized to adjust for weather and for the level of business activity (including operating hours and occupant density). 

What a Bunch of Bulb-Crushery!

According to the [Buildings Energy Data Book](#), available via the Department of Energy (DOE) website, commercial buildings make up about 18% of all energy consumption in the US. So what's using all that energy in commercial buildings? Aside from Heating, Ventilation, & Air Conditioning (HVAC), lighting accounts for [14%](#) of a building's total energy use.

Commercial buildings require thousands of fluorescent tubes in all shapes and sizes, burning for thousands of hours to effectively illuminate the interior workspaces in commercial buildings. Fluorescent tubes all contain a trace amount of mercury vapor (about 1/100th the amount found in a household thermometer) and simply throwing away spent tubes (especially in bulk) will result in

a hazardous collection of mercury in the environment.

The lamp crushing device employs a triple-filtration process after which only .00005 mg/m³ of mercury vapor remains, exceeding the Occupational Safety & Health Administration (OSHA) standard. More than 1,350 four-foot T8 lamps can be crushed into one 55-gallon drum, minimizing storage requirements & likelihood of accidental exposure.

Even when avoiding *most* accidents, (EPA studies show an accidental breakage rate of 3% when storing, handling, and shipping fluorescent tubes), the process is much safer using a lamp crusher system when disposing of the same number of glass tubes because 99.99% of the mercury vapor is captured by filter. 🌟

Energy Savings & Renewable Energy Update

Energy Generated

(Numbers updated 12/1/2010)

Total Wind = 25,858 kWh, CO2 Equivalent = 44,475 lbs.

Total Solar = 65,292 kWh, CO2 Equivalent = 146,642 lbs

Energy Savings/Increase

(Sept. FY08 through Sept. FY11)

Total Energy (kBtu) reduction of 5,951,404 kilo British thermal units.

Electricity (kWh) reduction of 1,906,727 kilo Watt-hours.

Natural Gas (Dth) increase of 672 Dekatherms.

Water (Gallons) reduction of 7,678,000 Gallons.

For a complete listing of energy savings please visit:

[OFM Energy Management Page.](#)

For information on renewable energy projects in the Capitol Complex, visit: [Renewable Energy Projects.](#)


You've Come A Long Way, Bulby...

Former-President George W. Bush signed the Energy Independence and Security Act (EISA) in 2007 which was intended to reduce energy usage and greenhouse gas emissions while minimizing U.S. dependence on foreign energy sources. One provision phasing out today's 40W, 60W, 75W and 100W general service incandescent light bulbs in favor of lower wattage bulbs.

The lower wattage limits set by the new standards will use about 30% less energy than the old incandescent wattages they are replacing. That will mean lower energy costs to operate the new bulbs and fewer greenhouse gas emissions. For the first time, federal law sets a minimum rated life of 1,000 hours for general service incandescent light bulbs. Replacement options for phased-out bulbs include Compact Fluorescent Lights (CFL), Solid-State Lights (LED), or Halogen lamps. Halogens are actually just a more efficient form of incandescent, so these bulbs can be used in any application where you have been using incandescent bulbs. Additionally, halogens use less energy, deliver a pleasing incandescent light, are dimmable and contain no mercury. These new halogen bulbs are available today.

According to the National Electrical Manufacturers Association (NEMA), T-12 fluorescent tube lamps presently account for about 30% of all 4-foot fluorescent purchases in the US and are also nearing a cease-manufacture date. The popular T-12 lamp is commonly used in conjunction with magnetic ballasts (phase-out effective July 1, 2010) which make up nearly 7% of the entire US fluorescent ballast market.

[National Lighting Bureau](#) (NLB) Vice Chair Susan Bloom (Philips Lighting and Philips Lighting Electronics) commented in a press release, "T12 fluorescent technology is 70 years old and is generally considered outdated when compared to the far more efficient T8 and T5 fluorescent technologies currently available. Nonetheless, industry sales data reveal that less-efficient T12s still account for three out of every ten four-foot fluorescent lamps sold in the U.S. This means that literally millions of existing T12 fluorescent lighting sockets will have to be upgraded sooner rather than later, because the lack of these replacement ballasts will make T12 lighting harder to maintain. The good news is that owners and managers of America's commercial, industrial, and institutional facilities who still rely on T12 lighting can rest assured that there are high-performing and more energy-efficient lighting technologies readily available to them that will also serve to support our national goals of energy independence and a clean environment."

More information about lighting policy, phased-out lamps, and effective dates can be found at [Facilities-net.com](#). To find out if your building's lighting will be affected by the upcoming changes, contact Thomas Bowman by phone (405) 522-6913, or via [email](#). 

Phase-out Schedule:

100 watt bulbs will be replaced with bulbs 72 watt s starting 1/1/2012.

75 watt bulbs will be replaced with bulbs 53 watts or less starting on 1/1/2013.

60 watt bulbs will be replaced with bulbs 43 watts or less starting on 1/1/2014.

40 watt bulbs will be replaced with bulbs 29 watts or less starting on 1/1/2014.


Tree Grant Contributes to Landscape Master Plan

The Department of Central Services (DCS) announced today plans to revamp the Capitol Complex landscape design and maintenance practices. The new master plan is centered on reducing present and future water consumption and maintenance requirements, while restoring the natural look of vegetation familiar to Oklahomans. “DCS is committed to the use of sustainable landscaping practices and materials around the Capitol Complex to minimize maintenance and resource consumption for years to come,” said John Richard, Director of DCS. Richard went on to say, “By decreasing the use of gasoline-powered equipment while reducing water and maintenance costs, DCS is positioning grounds management for future efficiencies.”

To further reduce water consumption and maintenance needs, native plant life adapted to the notoriously harsh Oklahoma weather patterns will populate the capitol complex grounds. Selecting perennials as opposed to annuals in beds will decrease labor costs and preservation requirements, while planting 40 acres of wildflowers in vacant lots will significantly reduce mowing frequency. The south Capitol Plaza redesign will feature Shumard oak, cedar elm, and sycamore trees complimented by Canaert junipers, multi-trunk Vitex and drought-resistant Buffalo Grass. Funding for the south Capitol Plaza project was supplemented by a \$25,000 tree grant from the Oklahoma Department of Transportation (ODOT) Beautification Office.

“Taking advantage of a grant opportunity to support the mission of our master plan is a no-lose situation.” Richard said. “The specific selection of plant-life is intended to reflect the natural appearance of Oklahoma lands as well as the stewardship of Oklahomans.”

DCS plans to phase-in a ‘smart’ irrigation system throughout the complex to avoid wasteful practices such as applying water during weather events and to account for Evapotranspiration (ET) rates. The California Department of Water Resources defines ET as: The quantity of water transpired (given off), retained in plant tissues, and evaporated from plant tissues and surrounding soil surfaces. The new system will also provide real-time data from flow sensors allowing swift response to line breaks or other major leak issues.


DCS Office of Facilities Management (OFM) is managing the projects and expects to begin work in early November and complete the major projects by summer 2011. 

DCS Recycling Update

DCS recently began the "[Re-Invent Your Print!](#)" [Recycling](#) Program in DCS-managed facilities. In July, State Surplus began weighing and reporting recyclables collected. The numbers below are through November 19, 2010.

80,429 lbs of Paper

16,881 lbs of Cardboard

701 lbs of Aluminum & Plastic 

Get to Know Your Facilities Professionals!

The Facts. Name: Rick White. Occupation: Construction Maintenance Administrator III. Years with DCS: 3. Specialized Skills: Rick does it all! Hometown: Tecumseh, OK

Rick White has been with DCS for three years. He began at the Attorney General's office, then moved to the Capitol and Governor's Mansion, and now serves as Supervisor for Central Maintenance, Team Three. Maintenance at the Governor's Mansion is Rick's primary responsibility, which is a job he enjoys a great deal. Prior to working for DCS, Rick spent 13.5 years working at Exxon Mobile. Rick has been married for 34 years. He has one son, three daughters, and six grandchildren. When Rick isn't working for DCS, he spends time working on the cabin he is building on his 40 acre farm in Tecumseh, where he also enjoys spending time with his grandchildren. Rick's favorite thing about working for DCS is the people.

[Click Here to Email Rick White](#) 

Contact Us:

Department of Central Services (DCS)

State of Oklahoma

Will Rogers Building

2401 N. Lincoln Blvd Ste. 112

Oklahoma City, OK 73105

(405) 521-3315

liz_cope@dcs.state.ok.us 

Next Issue:

BIG FIVE: The 5 keys to operating a CNG Vehicle.

LED Technology: The Wes Welker of Lighting. 

This handicap accessible publication is issued by the Department of Central Services as authorized by Director John Richard. Copies have not been printed but are available through the agency website. 