

CaseStudy: Clackamas County

Oregon City, Oregon

Design-Build-Operate Brings Taxpayer Savings and Environmental Stewardship to Clackamas County Public Services Building

Clackamas County is a growing Oregon community of 362,000 with a mix of urban and rural populations with divergent needs. County workers had outgrown existing space at 17 offices spread out around the county. Many of these were outdated facilities with operations costs increasing year after year. County leaders knew they needed a new centralized facility and wanted to build it with minimal impact on the environment. But with limited public funds, they were concerned about the ability to build and operate a building in a timely manner to take advantage of low interest rates and availability of construction materials.



Through a unique design-build-operate process in partnership with Johnson Controls, Inc. and others, Clackamas County was able to swiftly construct a cost-effective and sustainable building with the County's financial and environmental goals in mind. The Public Services Building (PSB) at the Red Soils campus combines several departments at a centralized facility to provide better services for citizens.

In addition, by involving the operations team as well as the design and construction team from the beginning, the PSB has reduced lifecycle costs because the project also included long-term operations as part of the design process. Having Johnson Controls responsible for all technology assured that each system worked from the start and saved time and installation conflicts among the different subcontractors. A LEED-nominated model for energy efficiency and environmentally sustainable operating procedures, the PSB serves as a showcase to municipalities across the country.



The PSB project is the first in a series of buildings that will house the county's operations in the coming years.

Multiple Planning Challenges

The PSB Red Soils site is located in Oregon City, a thriving municipality, but one that lacked a master plan code for major campuses. Not only did Clackamas County help develop the plan, it paid the city to hire an engineering design consultant for non-county design review to expedite the design-build-operate process. Both County Administrator Jonathan Mantay and City Manager Larry Patterson worked extensively to make sure the entire project was a success.

Three other significant issues required a swift construction process:

- **Lease Deadlines** – Clackamas County had hundreds of employees from various departments at 17 different locations in the area. It was scheduled to renew multiple rental lease agreements, but with those costs likely to increase, it was in the best interest of the County to find a solution that would decrease the rising costs of rental space.
- **Financing** – With record-low interest rates, delays would add costs. Clackamas County was able to secure 4.11 percent financing over 30 years immediately by beginning construction.
- **Steel Prices** – According to the American Society of Professional Estimators (ASPE), China is expected to use 32 percent of the world's supply of steel through at least 2010. Global market demands meant that raw material pricing for virtually all steel commodities had doubled since December 2003. By utilizing the design-build-operate concept and starting construction before the global steel price increase, Clackamas County was able to avoid considerable cost increases that would likely have been in effect through as late as 2010.

"The decision by the Board of County Commissioners to pursue the design-build process, expedite the project and partner with Johnson Controls was a bold step," said County Administrator Jonathan Mantay. "It was a move which will benefit the citizens of Clackamas County for years to come."



This naturally pleasing facility features bioswales for storm water run-off and walking paths.

Design-Build-Operate Streamlines Success

In order to have the PSB meet an aggressive construction schedule, Clackamas County engaged the operations team as well as the design and construction team from the beginning. In this innovative approach, Johnson Controls designed, delivered, and commissioned building technology (including fire alarm, sprinkler, electrical, cable,

AV, security, telecom/data systems, duress, lighting and the entire building automation system) in parallel with the complete mechanical, electrical, plumbing, heating, cooling and air handling systems. In addition, Johnson Controls will maintain and operate the equipment for the county for 20 years.

Having this single coordinator responsible for all technology helped prevent installation conflicts among the different subcontractors. For example, most of the ducting was installed before the walls went up. Normally ductwork has to fit around what's already installed. Space management for future tenant remodels will be easier because of the logical orientation of ductwork, piping and electrical components.

The efficient design-build-operate process meant that the facility was ready for occupancy almost exactly a year after ground was broken, an estimated seven months earlier than had typical construction been used.

Leading-Edge Environmental Technology Uses LEED Guidelines

Johnson Controls helped the County utilize the United States Green Building Council's LEED (Leadership in Energy and Environmental Design) Green Building Rating System®. LEED ensures that buildings meet certain requirements for protecting occupant health; improving employee productivity; using energy, water and other resources more efficiently; and reducing the overall impact of the building on the environment – often without additional cost to the building owner.

In this case, cutting-edge technology will provide energy savings of 57% compared to a typical office building. The facility also features bioswales for stormwater run-off and a series of trails and educational signs designed for public use throughout wetlands on the property. Other technology includes a low-temperature HVAC system and a Web-based Metasys® building management system used to tie together many intelligent systems that improve operations and management. Indoor environmental quality measures such as carbon dioxide monitoring and use of low-emitting materials complemented an environmental quality management plan during construction and a two-week flushout before occupancy.

Additional sustainable features include lights that sense the amount of daylight entering the building and adjust to maintain optimum levels (and save energy at the same time), and a cooling tower that is electrostatically cleaned so chemicals are not released into the drainage water. The County has applied for LEED Silver Certification.



The building was constructed with people in mind. Increased ventilation, carbon dioxide monitoring and thermal control will lead to improved comfort.



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Saving Money While Providing Better Service

The project was planned with cost efficiencies in mind:

Lifecycle Costs — Because Johnson Controls installed and guaranteed the performance of high-grade equipment over 20 years, the building is estimated to avoid \$1.8 million in repair, maintenance and energy expenses as compared to a building constructed at minimum code compliance. By focusing on lifecycle cost as opposed to first cost, the building also is 40% more efficient than ASHRAE 90.1. The project gathered approximately \$346,000 in energy rebates and tax credits.

Operating Costs — The county's costs are expected to be reduced by nearly \$48,000 per year compared to a typical office building. For instance, by having county offices share resources and equipment such as copiers and printers, the county will save in equipment leasing and renewal costs. Most importantly, the co-location of services helps Clackamas County provide a higher level of customer service. Citizens needing services and information can quickly and easily have a variety of their needs met through the professional services centrally located at the PSB.

Showcase Project Supports Future Expansion Plans

The 110,000-square-foot project is the first of a series of buildings that will house the county's operations in the coming years. The long-term plan incorporates linking the campus to a central plant for heating, ventilation and air conditioning, as well as energy usage via a utilidor (an underground utility corridor) running the length of the campus. The LEED certification will set the standard for all the buildings to follow as well as for any associated private development on or adjacent to the county property.

A year before the facility was complete it was already attracting attention. Clackamas County Commission Chair Bill Kennemer made a presentation on sustainability in new buildings at the National Association of Counties Annual Conference. Portland news media has extensively covered the new facility and its services, and the county is shooting a short educational video that will be televised in the building's lobby, along with a longer production that will be available through schools and libraries and to other municipalities.

The two outstanding elements of this project – employing LEED standards and using design-build-operate construction strategies – not only helped this project but also can serve as an example for other municipalities. Almost 30 cities, including Austin, Boulder, Chicago, Dallas, Los Angeles, Portland, San Diego, San Francisco, San José and Seattle, have adopted LEED criteria or require that city-owned buildings be constructed using green building criteria. As they seek to build green, municipalities can also benefit from the efficient design-build-operate process.



County commissioners Larry Sowa, Martha Schrader and Bill Kennemer welcome visitors to the facility's open house.



County officials and other special guests gather for the building dedication.