



BETTERBRICKS

BUILDING COMMISSIONING

for better public buildings

CASE STUDY

STATE AGENCY USES TAX DOLLARS WISELY

The Oregon Department of Administrative Services (DAS) is the central administrative agency of state government, working to effectively implement policy and financial decisions made by the Governor and the Oregon Legislature. The agency mission is to ensure that tax dollars are used productively.

When DAS began experiencing high energy use in their own Public Service Building and problems with their HVAC system operation, they could not ignore them and expect to comply with their own mission statement. They turned to the commissioning process to reduce operating costs and improve the performance of their building.

The DAS office is a six-story 170,000-square-foot building in downtown Salem. The state constructed it in the mid-1950s and remodeled it and upgraded the HVAC system in 1995. After the remodel, the agency encountered numerous problems with the HVAC system and high-energy use. The agency management decided to commission the remodeled building to identify specific problems and suggest specific remedies.

The commissioning process identified 16 significant issues that now have been resolved. The most notable was that the gas-fired hot water boiler had been rendered inoperable because of a faulty high-temperature cutout circuit. Due to the faulty circuit, the building had been operating as fully electrically heated. Resolving this issue reduced electricity

BUILDING COMMISSIONING

Is a systematic and documented process of ensuring that the owner's operational needs are met, building systems perform efficiently, and building operators are properly trained.

over



Oregon Department of Administrative Services
Public Service Building

“Based on our experience with commissioning the ODAS building, commissioning is now encouraged for all retrofit projects.”

- Elin Shepard, Oregon Department of Administrative Services

COMMISSIONING QUICK FACTS

Building: Public Service Building

Location: Salem, Oregon

Completion date: September 2000

Scope of project: Retrofit

Commissioning cost: \$20,900 ¹

First-year cost benefit: \$18,380 ²

Annual energy savings: \$9,330 ³

¹ Commissioning providers fee only.

² Cost reduction or avoidance.

³ Annual energy savings based on cost of electricity of \$0.0494/kWh and natural gas of \$0.755 /therm.



COMMISSIONING BENEFITS

- Healthier indoor air quality.
- Expanded equipment life.
- Improved operation and maintenance.
- Operating cost reduction from improved energy efficiency.

usage by 100,000 kWh per year, and increased gas usage by 4,600 therms per year, with a net increase in overall efficiency.

Some other issues included:

- Lack of economizer optimization
- Lack of chilled water temperature reset
- Malfunctioning daylight dimming controls in the perimeter lighting.

The agency has responsibly addressed the HVAC problems and high-energy use it had by commissioning its building. In the end, this proved to be a prudent use of tax dollars while improving the performance and efficiency of the building.

LESSONS LEARNED

- Don't assume a remodel and system upgrade alone will improve building operation.
- A systematic commissioning process can help O&M staff discover hard to identify causes of operational problems.
- Commissioning can provide a means for documenting the severity of problems.
- Use the commissioning plan to establish channels of communication.

"The most significant benefit from commissioning this building was the documentation of facility problems. The documentation gave ODAS the necessary 'ammunition' to get funding approval"

- Phil Teague, Oregon Department of Administrative Services

PROJECT PARTNERS

- OREGON DEPARTMENT OF ADMINISTRATIVE SERVICES
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www.facilities.das.state.or.us
- COMMISSIONING PROVIDER
Systems West Engineers, Inc.
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The Alliance is a non-profit group of electric utilities, state governments, public interest groups and efficiency industry representatives working to make affordable, energy-efficient products and services available in the market place.