



BUILDING COMMISSIONING

for better public buildings

C A S E S T U D Y

Commissioning helps Portland State University



The 213,000-square-foot Science II building at Portland State University.

When Portland State University (PSU) had to replace a chiller in its Science II building, they wanted to get to the end result — a smooth-running chiller system — as soon as possible.

The Oregon Office of Energy assisted them in achieving their goals with support from the NW Energy Efficiency Alliance's Public Building Commissioning Program.

Located on the PSU campus in downtown Portland, the 213,000 square foot Science II building houses

the laboratories for the university's biology, civil and mechanical engineering and environmental science programs.

Commissioning yielded a high-quality HVAC system in which nearly all of the problems were ironed out. The commissioning provider found that an incompatible chiller starter was causing chiller mis-starts.

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.

COMMISSIONING QUICK FACTS

Building: Portland State University

Location: Downtown Portland

Scope of Project: Chiller replacement

Total Commissioning Cost: \$11,750

First-year estimated savings: \$11,750

Estimated Long-Term Savings: \$39,830

Payback: 2.2 Years

Footnote: Energy savings are based on cost of electricity of \$0.0494/kWh and natural gas cost of \$0.755/therm. Savings may vary from year to year. Similar projects may yield different results due to varying circumstances.



The new cooling towers taken from the third floor of the building.

“The biggest benefit (of commissioning) was that at the completion of the job, everything worked together and at optimal efficiency.”

— Doug Stake
PSU, Mechanical Supervisor

Commissioning also led to the correction of cooling tower deficiencies, chiller control programming problems and outside air damper binding issues. The PSU staff expects to see lower operating and maintenance expenses over time.

This result means that over the next ten years, the quantifiable benefits of commissioning are twice as much as the costs associated with it.

COMMISSIONING BENEFITS

- Chiller mis-starts corrected
- Chiller oil temperature false alarms eliminated
- Cooling tower fan VFD adjusted
- Cooling tower defects (low sump water levels, fans, louvers installed improperly) eliminated
- Air handler outside air dampers repaired
- Chiller controls reprogrammed

Project Partners

OWNER/AGENCY
Portland State University
Portland, OR
Contact: Doug Stake

ARCHITECT
PSU Staff Architect
Portland, OR
Contact: Richard Pieckenbrock

MECHANICAL ENGINEER
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COMMISSIONING AGENT
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The Northwest Energy Efficiency Alliance is a non-profit group of electric utilities, state governments, public interest groups and industry representatives committed to bringing affordable, energy-efficient products and services to the marketplace.



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