Commissioning helps 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.

**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 the 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

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**Project Partners**

**OWNER/AGENCY**
Portland State University  
Portland, OR  
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**ARCHITECT**
PSU Staff Architect  
Portland, OR  
Contact: Richard Pieckenbrock

**MECHANICAL ENGINEER**
CBG Consulting Engineers  
Portland, OR

**COMMISSIONING AGENT**
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