

Department of General Administration
Division of Engineering and Architectural Services
Facilities Engineering Section

Building Commissioning Case Study



Facility: **Office Building 2, Washington State Capital Campus**

Project Description: Office Building 2 (OB2) is a 1970's multi-story office building designed with two long building sections oriented north/south with a service level and four upper floors. A core section common to all floors connects the north/south wings. Various modernizations over the years have been completed, including the addition of security doors between the core area and the office wings. OB2 was selected for retro-commissioning because of a history of building static pressure control problems and poor temperature control. The primary goal was to identify and correct the static pressure control problem and then address energy consumption and temperature control problems.

Project Summary:

Project Completed:	March 2004
Building Size:	325,000 square feet
Commissioning Cost:	\$120,270
Commissioning Cost per Square Foot:	\$ 0.37
First-Year Cost Benefit:	\$52,300
Annual Energy Savings:	\$12,200
Commissioning Firm:	Keithly/Welsh Associates

Project Benefits: The major findings were: the supply and return fans short cycled which caused the building pressure to surge positive and negative; the VAV boxes were going in and out of occupied mode at the same time creating rapid air flow changes; the fan shifting was not well coordinated nor optimized for energy performance; the building static pressure sensor was not located in the right place; 73% of the 216 VAV terminal units failed one or more functional tests; the building control code was compromised; and the VFD's for the supply fans were failing. Through retro-commissioning the problems that were identified were also corrected. The building systems now operate correctly. The building pressurization problems have been resolved, the majority of the VAV boxes have been repaired, and the control system problems have been corrected.

Bonnie Scheel, GA's Division of Facilities Planning and Management said, "The commissioning work that was done in the OB2 Building has greatly improved the indoor environment for the tenants in the building. It has also benefited the maintenance staff by reducing the number of service calls related to temperatures and pressurization issues in the building."

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