

Going Retro (-commissioning) Pays Off

Making your building's equipment and systems work the way they are supposed to can be one of the most cost-effective ways to save on energy costs. As commercial and industrial buildings age, their performance can degrade, and their use or occupancy patterns often change. Unless a building's systems have been periodically updated, they may no longer perform as designed or meet the needs of its occupants. Existing building commissioning can address these problems as it improves how building equipment and systems function together through an intensive quality-assurance process. It includes both retrocommissioning, which applies to existing buildings that have not been commissioned before, and recommissioning, which applies to buildings that have been commissioned before and need to be re-tuned.

Why do it? Building owners, managers, staff, and tenants all stand to gain from the commissioning process. The biggest benefit is energy savings. A 2009 analysis of 332 existing building commissioning projects by Lawrence Berkeley National Laboratory found a median commissioning cost of US\$0.30 per square foot, whole-building energy savings of 16 percent, and a simple payback of 1.1 years. Commissioning can also lower building operating costs by reducing demand and time spent by management or staff responding to complaints, as well as by increasing equipment life. And it can improve tenant satisfaction by increasing the comfort and safety of occupants.

Know what to expect. At a minimum, the existing building commissioning team consists of the commissioning provider—the consulting firm providing the service—and a member of the building staff. It could also include an owner's representative, design professionals, and testing or other specialists. The building owner will select a commissioning lead or agent who will guide the process. The process involves several steps:

- *Comprehensive operations review.* The team will analyze building documents; conduct an initial building walk-through; and may interview managers, staff, or tenants to help determine the current state of building operation.
- *Testing of building systems.* The team will monitor current equipment performance, conduct

functional testing on the building equipment and systems to ensure that they operate as expected, and conduct simple repairs.

- *Development of recommendations.* The team will produce a list of measures that could be used to improve the building's performance. The measures may range from simple and low-cost repairs or controls changes to extensive retrofits.
- *Implementation of selected measures.* The owner or another designated authority will approve measures to be implemented.
- *Verification of benefits.* Testing or inspections may be used to verify that the desired results are achieved from each measure.
- *New documentation and building staff training.* As a key part of handing off the commissioning project, the team will train building staff to maintain any improvements and produce new documentation for the building record to assist in sustaining the selected measures.

Tips for success. There are several things building staff can do that will save time and money on the project:

- Help select the commissioning provider.
- Gather all of the building documents that will be used by the commissioning team for the comprehensive operations review.
- Complete regular maintenance tasks (such as seasonal servicing of HVAC equipment) before the commissioning starts.
- Assist with monitoring and testing efforts. This will lower the project cost and provide hands-on training for the building staff to enable them to maintain the implemented measures.
- Track measures after the project has been completed to ensure that benefits last.

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