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Construction Industry Spotlight

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Want to save money? Commission your building

- ***Though building commissioning is growing, less than 10 percent of all buildings have been commissioned.***

By KATIE ZEMTSEFF
Journal Staff Reporter

BUILDING commissioning, the process of giving your building's systems a check-up, is making more sense for more building types. The process can save you money and energy, in many cases paying for itself within a couple of years.

Photo by Timothy Hursley [enlarge]
The Bellevue Library was recently re-commissioned to fine-tune its systems and make sure they are working efficiently.

Amanda Potter is director of the large commercial sector at Portland Energy Conservation, a pioneer in the field of building commissioning. Over time, she said, the systems that go into buildings have become more complex. But often, systems aren't programmed or installed correctly, which wastes huge amounts of energy and money.

"It's not very uncommon in a large commercial building that you're heating and cooling the same space at the same time," she said.

Potter said commissioning a building can save between 5 percent and 15 percent of energy costs in a typical commercial building. "There's a lot of untapped energy savings out there and it's very cost effective."

Commissioning a building when it is new allows the owner to know it is functioning as designed. Commissioning a building years after it has been in operation, or retrocommissioning, allows the owner to make sure systems are working properly and haven't broken down over time.

Eliot Crowe, program manager at Portland Energy Conservation, said the general cost to

commission a new building is around $1 per square foot, and commissioning an existing building is around 27 cents per square foot.

Why it's worth it

Pete Keithly, principal owner with Keithly Barber Associates, has seen everything from pumps running backwards to control systems that don't work. For Keithly, the biggest benefit of commissioning a new building is quality assurance. In general, he said, building owners have had to get used to a lower quality of construction. But if you pay many millions of dollars for a new building, you want to make sure it's functioning correctly.

"If the approach is not orchestrated and coordinated and organized, then a lot of it tends not to get done or it's just ineffective," he said. "That's really what building commissioning is all about. Good quality assurance ... and making sure it gets completed and documented."

Greg Whiting, manager of conservation resources at Seattle City Light, said energy savings are beneficial, though they are really the least important effect of improving a building's efficiency. Energy improvements, he said, will almost always result in better comfort, operability and capital value. But people don't often look at the other benefits of commissioning. "That's the real reason to do it and really, the energy savings aspect of it is a bonus," he said.

Commissioning conference

Want to know more about building commissioning and the latest trends and technologies that make commercial buildings work properly and efficiently? Attend the 17th National Conference on Building Commissioning July 3-5 at the Seattle Sheraton. A discount is available for those who register before May 8. For more information, visit www.peci.org/ncbc.

Generally, Whiting said building commissioning teams find so many problems that the process ends up saving money for the owner.

Amanda Sturgeon, senior associate at the Seattle office of Perkins + Will, said building commissioning is a fairly common practice because clients usually understand it will have a short payback of between three and five years. It's used by all different types of clients, though she said it is used most by public clients who are going to hold onto a building for a long time.

"Commissioning is usually an easy thing to sell to clients," she said. "For the building owners, it's just a big advantage to know what got built is as it is designed."

Some clients, she said, choose to commission a building because of a bad experience in the past.

A growing field

Keithly said building commissioning is becoming more integrated across all aspects of construction. When it began, it was used by public projects and long-term owners. Now, he said it is used by private and public development, and with different disciplines such as contractors and engineers suggesting it.

"I think you're seeing it becoming more and more refined so that it's more and more effective," he said.

For it to work best, Keithly said it is critical to consider building commissioning from the very beginning of a project so all members of the project team can work together.

Though building commissioning is growing, it represents a small fraction of overall building stock. Potter said the percentage of buildings that get commissioned is under 10 percent.

“There aren't enough people to do this work, even though the percentage of buildings that are getting commissioned is still pretty small it's growing very quickly,” she said. “Even in this economic climate, there aren't enough providers to do all the work that's out there.”

Keithly said that's because it takes a “strange and extensive” mix of experience and skills to be effective at the job. Though most building commissioners have a background in mechanical engineering, the skills required will change depending on the system an owner wants to commission.

“Any building system, really, can be commissioned. It just depends on what the owner wants,” he said. “Building commissioning is not something that everybody's cut out for. You have to understand building systems really well.”

Keithly said it's also a difficult job because it is truly integrated; commissioners deal with all people working on a project, from the owner and contractor to the maintenance and design teams.

“It takes a lot of talent to get in there and be effective without being seen as some kind of a policeman,” he said.

One driver of commissioning, Keithly said, has been reducing the amount of warranty issues at the close out of a new project. Often, things that were designed in the project were never done. “There's just no one there to make sure that those things get done,” he said.

Another driver has been LEED, which requires commissioning. Potter said this has been “huge.”

Whiting says we are still at the point where fewer people know about building commissioning than those who do know about it. But he said more people are asking about it now than they did before, possibly because of the economic situation.

Convincing the client

Whiting said there are a number of barriers in getting companies to invest in energy-efficiency work. Even though it is a significant cost of operations, he said energy costs are often hidden or buried in overall operation and maintenance expenses. The person who pays the energy bill will also often have no connection with the budget.

“For most businesses, energy is an afterthought,” he said.

If businesses do have energy managers, they're often so busy with other work that efficiency is not a priority. And when businesses save money, the person responsible for the savings may not be rewarded, or benefit from those savings.

These barriers, Whiting said, make it difficult to give money away. Seattle City Light spends $11 million a year on energy-efficiency aspects. It has a program that will pay businesses to hire energy managers, and make their existing buildings more efficient.

Another tool, offered only to the utility's biggest customers, measures energy use online every 15 minutes and allows energy managers to compare energy use at different times. The utility is currently refining its programs for new buildings.

Whiting said it's hard to find customers willing to invest in energy efficiency. “I have people that are out there pounding the streets that are looking for people to give money to,” he said.

Whiting said the larger the company, the more likely it is to have someone working with energy and utility incentives. Big new buildings or retrofits are also likely to draw the utility's attention. It's the medium-sized companies, he said, that would most benefit from energy upgrades and the utility's programs.

“The electric bill shows up and it's this very mysterious thing,” he said. “People don't necessarily grasp where it comes from in the first place or understand the effect of leaving lights on or turning thermostats up or down. The less sophisticated their facility, the more surprised they are.”

Whiting sees commissioning and retrocommissioning growing in popularity as people realize it has a short payback and as they consider energy as a place to save expenses in the tight economy.

Keithly said existing buildings are seeing more interest.

“If I can show an owner how to save 10 percent on their energy bill with virtually no cost or very low cost... there's very few owners, I think, that would not do that, especially as energy costs rise,” he said.

Potter said she sees the field growing because of exposure.

“Once a building owner does one building, then they want to do all the buildings that make sense,” she said.

Katie Zemtseff can be reached by email or by phone at (206) 622-8272.

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