

First Year Building Optimization

## Building System Training Key to Long-Term Optimized Energy Savings

By David MacLean, CPMP, LEED AP BD+C

Facility operators have clear goals – keep occupants comfortable and ensure healthy indoor air quality. It's a big job that has grown even more challenging with the additional demand for energy optimization. Of course, technology can help...with proper training.

Today's HVAC systems are increasingly sophisticated as engineers incorporate advanced sensors and monitoring systems. It is a challenge for building operators to keep track of the nuances of these increasingly complex systems.

As NV5 has worked with clients to design and commission facilities, we've realized that there's a gap in the knowledge transfer between the design/construction team and the facility operators. If that knowledge transfer is imparted via real-life scenarios throughout the first year of occupancy, owners and operators realize improved efficiency, reduced occupant complaints...and financial savings.

### **Building Confidence**

It is important to recognize that a building that is operating per design is not optimized. True optimization can't start until facility operators understand the capabilities and limitations of the advanced systems that are installed and have uncovered the building occupant's operational requirements.

Some owners are reluctant to schedule training because they assume that knowledge transfer occurred during installation and commissioning. They're concerned about the additional cost as well as the additional time spent to complete the training during real-life situational

analysis. Yet, owners routinely contact the controls manufacturer or mechanical contractor if there is a problem and then pay that bill.

At NV5, we've found that quarterly checks of the building automation system (BAS) and HVAC functionality sessions held in the first 12 months of a warranty period, actually saves money and provides tangible and intangible lifecycle benefits.

Optimization training is a dedicated time when facility operators have the undivided attention of the control contractor, mechanical contractor, commissioning agent and mechanical designer. They can solve outstanding issues, ask questions, learn the unique capabilities of their new system, improve routines and build confidence.

Once facility operators are using an advanced building system as intended, the next thing to consider is how to use the system's intelligence, the analytics, beyond day-to-day operations.

### **The Analytics Advantage**

The sensors designed into today's sophisticated building systems gather terabytes of information including trend logs, sensor outputs, PID loop data, etc. The amount of data gathered by any one system is potentially overwhelming. Typically, this information is only used for forensic purposes to find a problem.

In today's world, analytics software automatically captures and analyzes all of that building, energy and equipment data to identify issues, faults and opportunities for savings, allowing facility managers and

owners to make meaningful decisions. With analytics, facility operators can optimize each building to work beyond even the design expectations.

I believe that in the near future virtually all building controls companies will offer some form of analytic optimization system and associated “Call Center” services, providing regular analyses that allow customers to immediately see the cost implications of better optimizing a device or system.

The challenge of tweaking a new or existing building to continually operate per design is just the first step. True optimization requires a commitment to technologies that have finally reached maturity.

In response to client requests, our firm is trained on these platforms and currently partnering with suppliers to deliver true optimization opportunities.

Let us know how we can help you.

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