

Building Performance Tracking Success Story

Santa Clara County

To help optimize and maintain building performance, Santa Clara County (SCC) chose Fault Detection & Diagnostics (FDD) as a key element of their overall management strategy. The SCIwatch FDD tool has been installed at SCC's Berger and East Wing facilities, to support existing building commissioning (EBCx) projects and ensure that energy savings persist long term.

The FDD tool at the East Wing facility was effective in identifying HVAC system issues immediately, including failures in 120 of 426 variable air volume (VAV) boxes. According to Lin Ortega, Utilities Engineer Program Manager with Santa Clara, "150 faults were automatically identified with a 90% accuracy rate. This accuracy was a big driver for purchasing the tool for the Berger facility."

The primary reason Santa Clara chose to leverage a FDD tool was to avoid the potential energy cost increases that occur when systems degrade over time. By pinpointing system failures, FDD tools help maintain fine-tuned HVAC systems and the associated energy savings achieved through EBCx.

The FDD tool was installed at the Berger facility as an overlay to their existing Building Automation System (BAS) to carry out the following functions:

- **Avoiding Energy Waste:** *Potential* faults are identified before they become *actual* failures, allowing for proactive system management. Failures are prioritized based on cost and duration.
- **Tenant Comfort Assurance:** Maintenance staff uses the tool to identify and address issues before tenants experience comfort issues.

What is Building Performance Tracking?

The process of monitoring facility data on a regular basis to continually improve building energy performance. The four steps below detail the fundamental process for tracking, analyzing, diagnosing, and resolving issues with heating, ventilation, and air conditioning (HVAC) and lighting systems.

1. Collect data and track performance
2. Detect performance issues
3. Diagnose issues and identify solutions
4. Fix issues and verify results

Building performance is tracked on an ongoing basis and incorporated as part of standard processes.



Santa Clara County's Berger Building

"FDD toolsets can be used to preserve the energy status of the building."

— Lin Ortega, Utilities Engineer Program Manager,
Santa Clara County

Quick Facts

FACILITY NAME:	Berger Building
OWNER:	Santa Clara County
LOCATION:	Santa Clara, CA
TYPE:	Multi-tenant commercial office
GROSS SQUARE FOOTAGE:	386,550 (3 buildings)
FDD TOOL FUNCTIONALITY USED BY SANTA CLARA:	
	■ Fault detection
	■ Maintaining tenant comfort
	■ Work-order generation

- **Work-Order Generation:** The FDD tool links with SCC's Computerized Maintenance Management System (CMMS), to ensure that resources are focused on resolving problems.

SCC recognizes that the installation of the tool alone will not ensure a building's energy performance; facility-wide culture, accountability, and training are also critical.

- **Culture.** SCC has corporate initiatives to reduce greenhouse gas emission levels. Management supports the use of tools such as the FDD tool and is working to facilitate acceptance of the tool across all levels of the organization.
- **Accountability.** SCC has appointed a project lead to be held responsible for the success of implementing the FDD tool. This individual delegates responsibility to the maintenance staff, but is ultimately responsible for the overall uptake and application of the tool. The presence of a single, designated point-person is a best practice, and is needed to ensure successful implementation of a FDD tool.
- **Training.** The maintenance staff at Santa Clara received valuable training on the FDD tool. Training of appropriate staff is essential to encourage buy-in of the tool to ensure the tool's potential is maximized.

Lessons Learned

SCC's experience implementing SClwatch at the Berger facility reflects many common lessons learned in implementing FDD tools:

- Look within an organization for tools, best practices, and experiences that can be shared across a portfolio or campus.
- Successful FDD tool installations require buy-in and acceptance across all levels within an organization.
- Encourage adoption and use of tools with corporate goals and performance incentives.

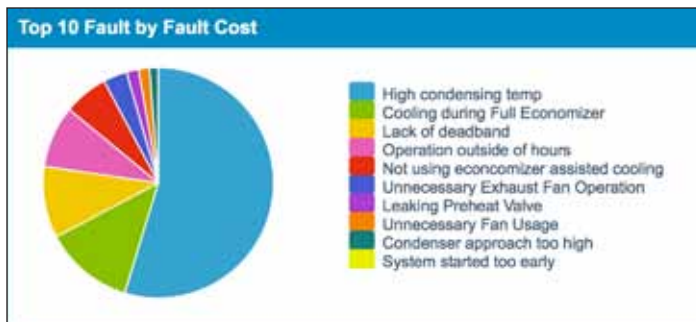
Building Performance Tracking 101

Elements of a supportive working environment:

- Clear goals
- Time and resources to utilize tools, analyze identified issues, and perform corrective action
- Sufficient training on tool capabilities
- Incorporate energy performance metrics in management reporting
- Communication among stakeholders
- Support from facility managers, building operators, financial decision-makers and senior management
- Direct digital controls and building-level energy meters
- IT support and server storage

"SClwatch will quantify what a failure is costing Santa Clara County, and that helps us prioritize."

— Lin Ortega, Utilities Engineer Program Manager,
Santa Clara County



Example of the type of data available through SClwatch™ FDD software.



About this Success Story

This case study was developed by the California Commissioning Collaborative (CCC) with funding from the California Energy Commission's Public Interest Energy Research (PIER) program.

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View more case studies and download a free copy of **The Building Performance Tracking Handbook** at <http://www.cacx.org/PIER/handbook.html>