



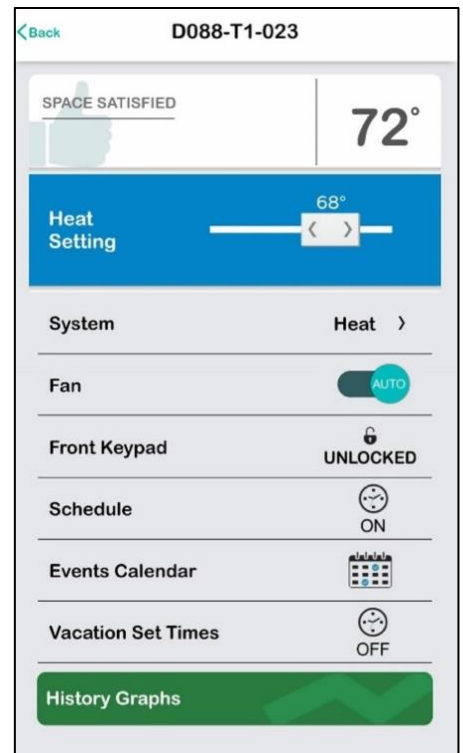
# Small Building Controls Maintenance Success Story

## University of California Davis

In 2019, the UC Davis Energy and Maintenance Team set out to improve the maintenance workflow of the hundreds of small and medium buildings around campus. This initiative replaced traditional stand-alone thermostats with an internet-connected network of thermostats which allowed for centralized data monitoring, control, and troubleshooting through remote interfaces.

### Remote Visibility & Automated System Alerts

Prior to this initiative, comfort calls often required one or more site visits by maintenance staff in order to troubleshoot and resolve issues. By installing web-enabled thermostats to create a centralized control system, maintenance technicians are now alerted of potential problems prior to receiving comfort complaints. For example, in the graphic below, the maintenance technician was alerted that the space temperature was below the heat setting. The technician was then able to remotely reset the ignition module to enable the unit to start heating and get the space back up to a comfortable temperature.



Mobile app allows for remote scheduling and setpoint changes

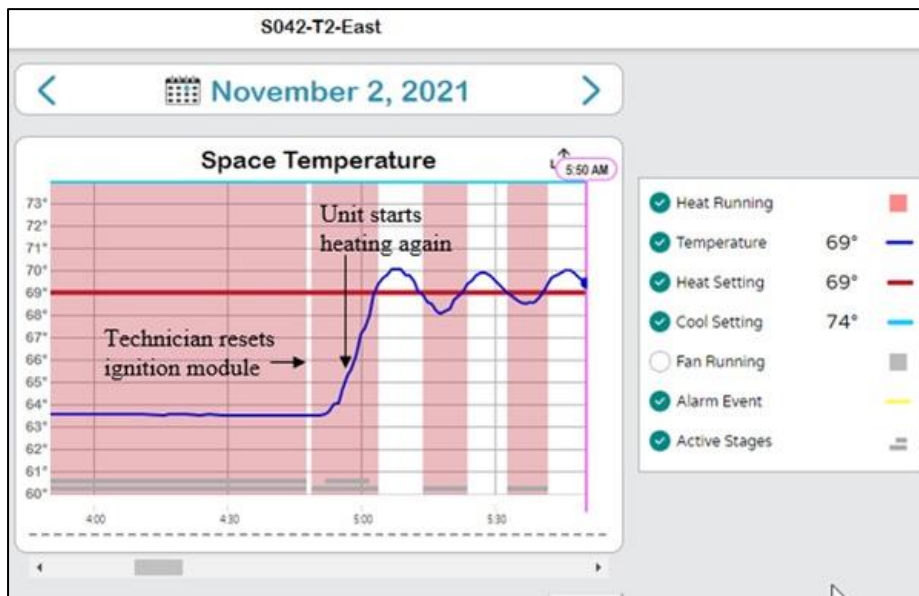


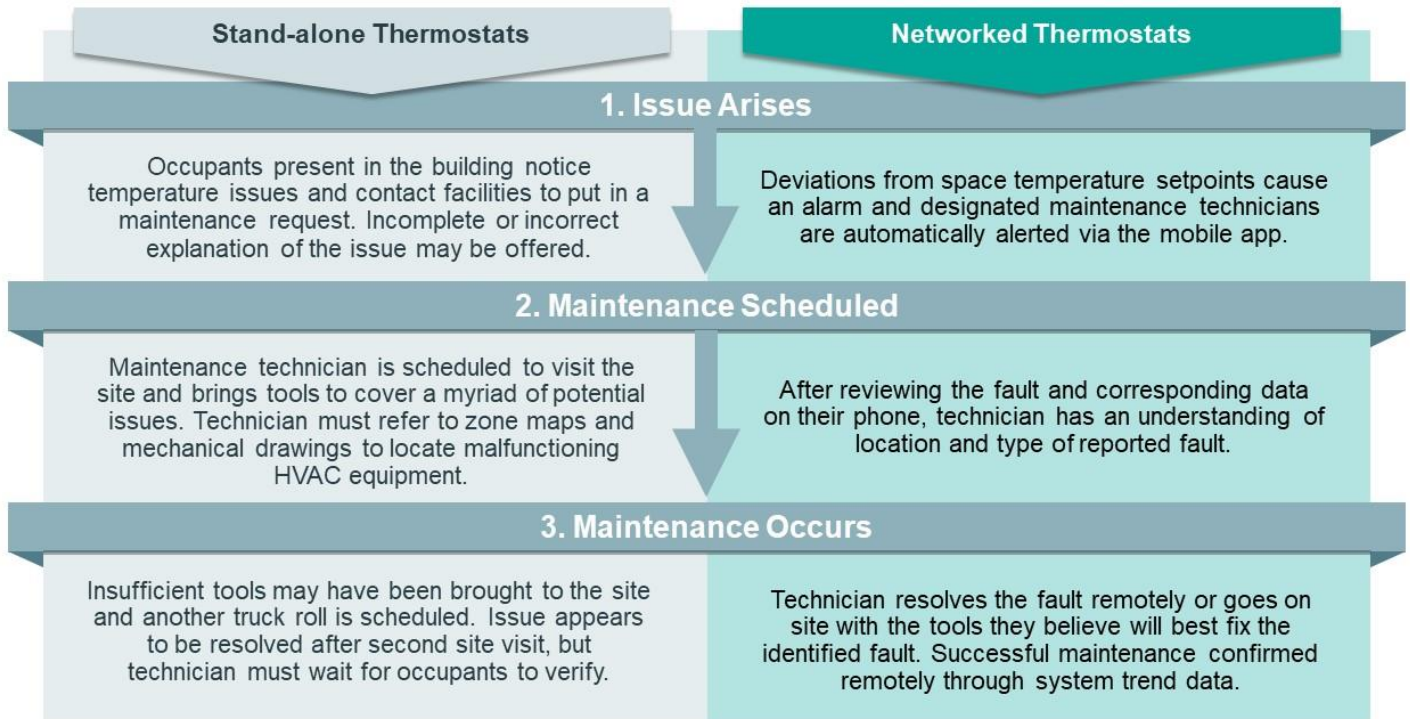
Figure depicting how maintenance technicians can be alerted of issues before receiving comfort complaints.

*“With this project, we know when a unit has an issue before occupants even call in a complaint, and we can look at operating data on the platform to prepare our field work and resolve issues more quickly.”*

Nico Fauchier-Magnan,  
UC Davis Energy Engineer Supervisor

The centralized control system tracks equipment sensor data and automatically alerts the maintenance team to abnormalities that indicate issues such as loss of refrigerant charge, failures in furnace ignition valves, compressors, or economizers. Maintenance teams can access live and historical sensor data from HVAC equipment as well as adjust temperature setpoints and change building scheduling remotely, all through a mobile app. The workflow comparison on the next page shows how the maintenance process has been simplified and improved through the addition of networked controls.

# Transforming Maintenance Workflow



*The workflow comparison above shows the previous maintenance process with stand-alone thermostats (left) and the new and improved process after the install of networked thermostats*

## Improved Maintenance Drives Expansion

While energy savings was a major motivator for the initial small building controls pilot, the sweeping improvements to maintenance processes became the stronger driver for expansion to all small building types throughout UC Davis' portfolio.

Improved scheduling and energy savings are still a primary goal, but operational visibility and insights are invaluable to the maintenance team and also benefit occupants.

UC Davis' maintenance teams now spend less time troubleshooting and reduce the number of potentially disruptive site visits, leading to more comfortable and efficient spaces.

### Quick Facts

Controls Provider:	Pelican
Project Location:	UC Davis
Building Type:	Office, childcare center, lab
Average Building Size:	5,000 ft <sup>2</sup>
Total buildings with controls solution:	101
Median energy saved:	28% whole building

*The Smarter Small Buildings Campaign is a program sponsored by the US Department of Energy to promote the implementation of enhanced controls and monitoring for small and medium commercial buildings. The Campaign accelerates improved HVAC to advance comfort and savings for through technical assistance, best practice resources, and peer exchange. Find out more at [SmarterSmallBuildings.lbl.gov](http://SmarterSmallBuildings.lbl.gov)*