SAS Case Study:
SAS + Brady = Amazing Smart Campus!

The SAS campus in Cary, North Carolina is a great example of high-functioning, conservation-minded building operations. In addition to most of its 25 buildings being LEED-certified, the physical operations of each building are closely monitored and managed to contribute to the success of the company and its sustainability program. Brady has a long history of helping SAS manage their buildings. For more than 40 years, they have kept the SAS buildings operating well using the most effective and efficient building systems and controls available.

In 2018, SAS identified an opportunity to pilot the platform among their own building portfolio, noting two campus buildings as ideal candidates for the project. As Cliff Creech, SAS Manager of Facilities Services, explains, "We need to be able to use analytics data from the platform to help identify and respond to a variety of potentially unseen operational issues on campus. Improving operational efficiency results in better environmental control and increases potential for energy use cost savings. This may also help us predict and prevent the possible catastrophic failures as well."

Implementation

The pilot project connects two buildings that house offices, meeting rooms, a large executive briefing center, a cafeteria and other common use areas, encompassing a total area of 507,000 square feet.

Pilot program implementation began by connecting a dedicated server and computer to the building controls networks. The building models were loaded to the platform and the system began gathering the incoming data and pumping it to the SAS cloud database for analysis. Brady's subject matter experts reviewed the operational data and provided the information to the SAS facilities engineers. The engineers used the insights provided by SAS' rich analytics to proactively address operational issues in the buildings. They also began using the visual data reports to better understand issues and provide feedback to the data scientists on the platform's usability and accuracy.

"Improving operational efficiency results in better environmental control and increases potential for energy use cost savings"

Cliff Creech,
SAS Manager of Facilities Services

As the pilot project progressed, Brady and the facilities engineers increased collaboration by comparing realtime data to the predictive modeling data. This enabled Brady and the SAS analytics team to fine-tune the predictive models so they were more accurate for visualizing potential issues before they became full-blown problems. The Brady-SAS team continues to evaluate the data and adjust the models to optimize system operations and management.

Results

The advanced analytics platform is revealing important—and sometimes unexpected—insights into the buildings' physical operations. SAS facilities engineers now have greater visibility into building operations and can more efficiently:

- troubleshoot occupant comfort issues
- identify potential problems before they disrupt operations
- precisely plan for room schedules and seasonal weather changes

The SAS facility engineers find the dashboard displays of the environmental conditions inside the buildings very helpful in their efforts to maintain occupant comfort (Figure 1).

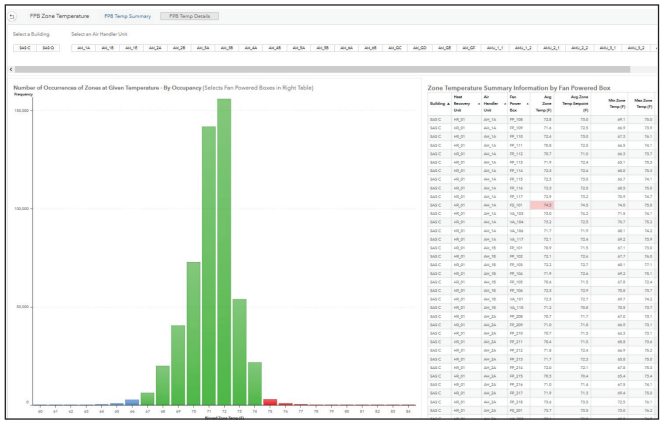

Figure 1: *Dashboard readout of indoor environment parameters.*

Occupant comfort is monitored in other ways as well. For example, the deep data provided by the platform revealed that several carbon dioxide and humidity sensors were reading inaccurately (Figure 2). Although the building sensors indicated the temperature was within the system setpoint, the rooms were quite uncomfortable. The facility engineers were able to recalibrate the faulty sensors and improve occupant comfort.

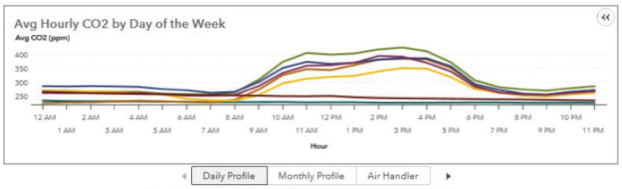

Figure 2: *Misreading CO2 sensors vs correct readings.*

One contributor to these savings was the unanticipated efficiency of the building, qualifying it for a smaller transformer and better rate plan from the electrical utility company. The SAS team discovered this opportunity when they were building an energy rate model within the platform. After working with the utility company, the building was switched back to a better rate resulting in more than $30,000 of annual savings.

The platform also identified heat recovery units that were operating improperly in the outdoor air intake (Figure 3). Using the platform to correct the operating parameters of the units is estimated to save $15,000 during the winter heating season alone.

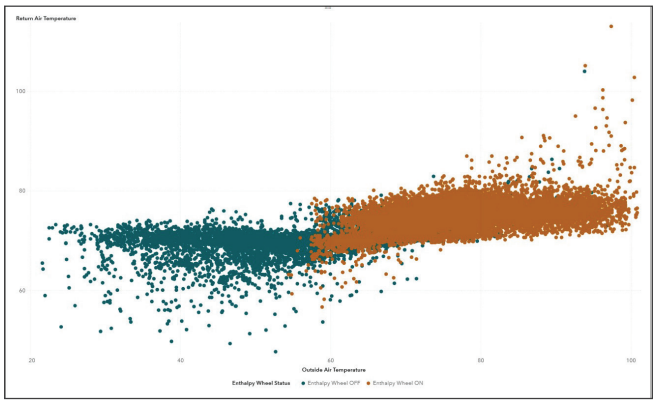

Figure 3: *Heat recovery unit return air temperature performance.*

The SAS sustainability team is also benefitting from the advanced analytics platform. The

sustainability team is accountable to SAS executive management for energy and other efficiencies across the SAS campus. “We need high-end data and results to show our management that we are making progress,” explains Jerry Williams, SAS Environmental Sustainability Program Manager. Thanks to the deep, detailed data provided by the platform, the team has uncovered many previously unknown opportunities for improvement.

For example, the identified cost savings achieved for electricity and natural gas use translates into natural resource savings and a reduced carbon footprint. This type of data and progress is just what the sustainability team looks for to advance SAS’ sustainability achievements.

These examples demonstrate that even in high-end, newer buildings such as those on the SAS campus, the Activate solution, powered by SAS, provides data that can improve comfort, energy savings and sustainability. It is also helping SAS as they plan for new buildings on its growing campus to build smart campus technologies from the ground up!