

Delivering Peace-of-Mind Through Ongoing Commissioning



CASE STUDY
PREPARED AND PRESENTED BY

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Project at a Glance

Location: Florida

Facility: Cancer Research Facility and Hospital

7 Minute Read

The Problem

A large hospital infrastructure in Florida had a historic struggle with new buildings not running the way they were designed. Whether it was lack of quality control during construction, inefficient maintenance, or poorly designed systems that were not running well, buildings old and new seemed to be falling apart. This consistent problem ranged from buildings constructed in the mid-80s to newly constructed buildings. Facility Managers shouldn't have to struggle with new buildings failing prematurely.

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Building systems data has proven to be extremely helpful in tracking operations, but some smart buildings throw data from every direction leaving managers with “alarm fatigue” and wondering which notifications are the most important, and which are just background noise. Smart buildings should not burden facility managers but be a formidable and reliable resource for making the best decisions for their facilities. This hospital infrastructure was facing this challenge when they hired Synergy to perform and implement Ongoing Commissioning (Cx) on a newly constructed building.

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HIGHLIGHTS

- **Ongoing Commissioning allows Facility Managers to have an advocate in learning their new building.**
- **Through Data Analytics, the client was able to navigate the issue before receiving a phone call from a frustrated co-worker.**
- **Synergy pulls out the important data points and key metrics to provide the owner with an easy-to-consume dashboard.**

The Plan

Most building projects pass the baton from design to construction to Facility Managers. But when contractors hand over the building keys, the Facility Managers are just learning the nuances of that building. Traditional Commissioning is typically completed at the end of construction, sends in a report, leaving the Facility Managers to figure out their building. One or two days of owner training can't be expected to prepare facility personnel to efficiently operate the complex controls systems in today's smart buildings.



Rather than going this route, Synergy suggested Ongoing Commissioning which would allow the Facility Manager to have an advocate in learning their new building. Traditional functional testing can only evaluate the system at a snapshot in time. Synergy wanted to make sure the building sequences, flows, and mechanics were all performing efficiently during different operating conditions and uses during the first year of occupancy (through the warranty phase).

Deploying Ongoing Commissioning allowed our client's Facility Managers to spot problems and effectively take action.

Deployment Arrangements

Synergy met with the Owner prior to design to develop a sound Owner's Project Requirements (OPR) document that outlined the goals and requirements for the BAS and Fault Detection and Data Analytics (FDDA) systems. Building data analytics was implemented by integrating the new open-source building automation system into Synergy's online platform. Consequently, this equipped the owner with an energy-efficient building with integration capabilities for virtually all building systems.

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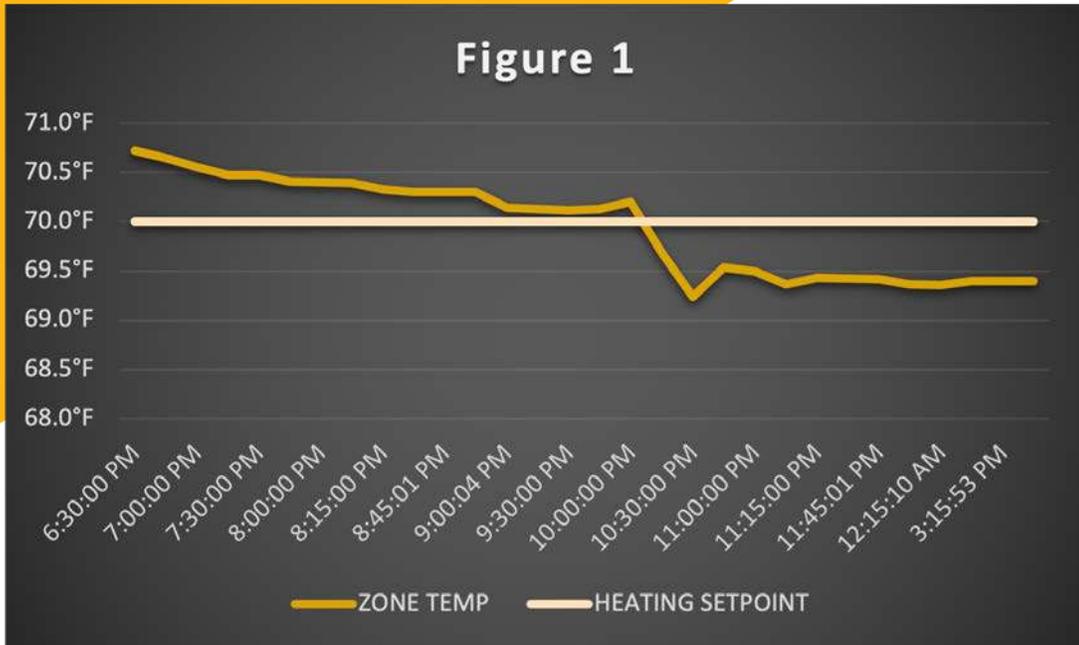
For example, a hot water valve stopped working 3 months after the building opened. It was nobody's fault, other than the heating valve failed, even though it passed initial Functional testing. Through data analytics, Synergy was able to identify this deficiency before the end-user even noticed. Rather than receiving a cold call from a frustrated co-worker, the Facilities team was able to coordinate a warranty repair and proactively address the problem.

Also, during the Ongoing Commissioning process, through data analytics, Synergy picked up on a humidity issue in an unoccupied space. Facility Managers were trying to save money by changing the temperature in the space, but doing this inadvertently caused the humidity levels to increase. If this was left unnoticed, this humidity issue had the potential to cause organic growth in the space which would have cost tens of thousands of dollars in remediation efforts and clean-up. By catching this early on, our client not only averted a major problem but learned valuable information about their facility.

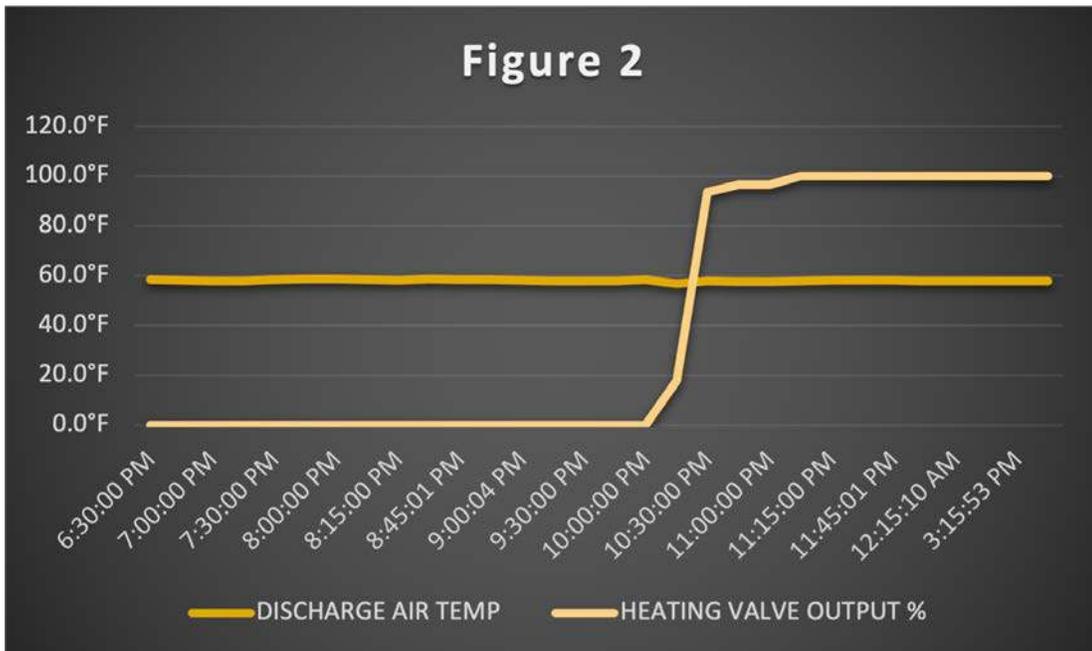
Smart buildings offer amazing technology to equip the user, but sometimes the tech has a tendency to run ahead of the facility manager; spitting out data faster than it can be consumed. Using experience-based analytics, Synergy pulls out the most important data points and key metrics to provide the owner with an easy-to-consume dashboard. This allows the Cx Agent and the Owner the ability to focus on problem equipment/areas and skip over properly operating systems. With Synergy's Data Analytics running behind the scenes, Facility Managers can run with the data, not feel as though they are fighting to stay ahead of the technology.



The failure occurred during unoccupied hours and the end-users never had to make a cold-call. The issue was repaired the following day.



The space temperature began dropping at approximately 6:30 PM. Note that at approximately 10:30 PM the space temp had dropped below the heating setpoint.



At approximately 10:30 PM there was a call for reheat and the system sent a signal to the heating valve to begin opening. The faulty reheat valve was identified when the discharge air temperature did not increase when the valve was commanded open.



Owner Success

Ongoing Commissioning bridges the gap between construction and operations. The most complicated buildings tend to be energy efficient by design. With construction just finishing, the most skilled people who understand the building are walking out the door, unless the owner has a Commissioning Agent who works side-by-side with the Facility Manager to get to know the building.

Another benefit of Ongoing Commissioning is increased productivity for end-users. Studies have shown that buildings with poor indoor air quality can impact users' cognitive ability which decreases productivity and impacts good decision making. With Synergy monitoring and tracking the sensors, the data analytics will notify the Facility Managers with an alarm, or will recommend increasing outdoor air intake; whichever is best for the situation. Data Analytics makes way for continual improvement before it is a problem.

One of the challenges that Facility Managers may need to be aware of when considering Ongoing Commissioning is getting approval with cyber-security as IT departments do not typically like new technology or services dropped onto their server. This hurdle needs to be considered early on during the design process.

Another consideration during the design process, that may benefit the project, is to ensure the entire team understands the end-goal; from design, construction, contractors,

facility managers, and end-users. From beginning to end, make sure to discuss critical elements such as; performance targets, meters, fault detection reporting, and using data analytics for compliance. These can always be included later on, but the process is much smoother when taken into consideration during the design phase.

Ongoing Commissioning should not be a one-time thing. The goal is for the owners to know and understand their buildings. With this project, Synergy was contracted for one year with the company to validate the building was operating the way it was designed and flagged potential problems for immediate action. The building is monitored by the analytic software beyond the first year. Ongoing Commissioning runs through not just the warranty phase, but through the life of the building. If the Owner prefers, Synergy can keep the analytics operational and train their teams to identify issues themselves through the analytical software.

By hiring Synergy to perform Ongoing Commissioning, this client received the peace of mind knowing the newly constructed building had the tools needed to ensure it would operate effectively, have a long life-cycle, and occupants would enjoy the building comfort, unlike previous buildings without Ongoing Commissioning.

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