

Critical Environments Require Critical Commissioning

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Project at at Glance

Location: Michigan

Facility: Higher Education Science Building

6 minute read



HIGHLIGHTS

- Aggressive goals for energy efficiency required adjustments for end-users.
- The facility housed critical research which proved the need for thorough Commissioning.

A university in Michigan set out to construct a new state-of-the-art science building. This new structure would be complete with high-end equipment to track plants in their growing rooms with scientists who understood what their critical environments needed. Temperature sensors and expensive microscopes were already part of the end-user workflow and were taken into consideration during design. Their environment was critical to their work.

The university embodies the belief that commissioning should be part of every project as they follow the FGI guidelines, which require a Commissioning Plan. Synergy was hired to do Enhanced Commissioning and Fundamental Commissioning. These services define the Owners Project Requirements early on in the project and are verified during design, construction and occupancy, and operations phases to ensure a successful building is turned over.

THE PLAN

In creating the Owners Project Requirement (OPR) for the project, the university outlined some aggressive energy efficiency goals. Typically, a science building with a wide assortment of high-end equipment can be an energy drain. Setting a new standard of energy efficiency with this LEED building, the owners knew this facility would be complex and had to decide on aggressive set-back temperatures. Heating and cooling set-points required occupancy sensors in order to drive the desired energy efficiency.

Synergy outlined and followed the standard Commissioning Plan which takes the client's facility and their teams through three main phases: Design, Construction, and Occupancy and Operations. Synergy was involved in the Design phase with the OPR helping the client understand the temperature set-point goals. The construction phase involved static testing, installation inspections, start-ups and testing, adjusting and balancing to make sure the systems worked properly. After that, functional testing and training were held with the owner's Building Automation System (BAS) and operations team.

During the final Occupancy and Operations phase, it is recommended for end-users to understand how the space is to be used correctly. When the building was complete, Synergy followed up with a bi-weekly meeting, then monthly meetings with the Facility Managers. This enabled continued discussion around the building operations. Open and ongoing communication aids users in understanding that the expectations of the building are met and full awareness of its internal operations are understood.

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DEPLOYMENT ARRANGEMENT

When the building opened, the biggest experts on the construction deployment were leaving the facility as their job was complete. Synergy acts as a bridge between construction and operations and leads training with facility teams. This particular training involved commissioning and system-level training. During this training, the client designated a spot in their mechanical room for digital files, O&M and document storage. It was incredibly valuable to the facility team to know where they could locate all the vital documents for the building, including the systems manual. This manual listed all the systems within the facility and how they integrated with each other internally; including the procedures, tasks, and periods of maintenance.

In creating energy efficiency, the university widely employed

chilled beams in the design. This enabled the science labs to have individual environments within the same air-handler, but allowed for each room to have a set temperature. With such a large installation of chilled beams, without proper training, the facility teams would have had a larger challenge in understanding how the building operated. The control parameters and technology were far different than what they had used in their other laboratories.

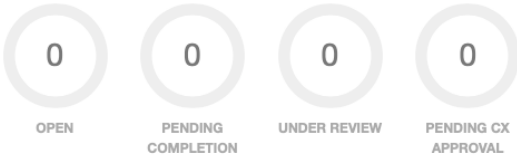
As the end-users began utilizing the space, they questioned the design as they didn't think the building was operating as it should. When they were arriving at the space in the morning, it was a chilly 68 degrees; the agreed upon temperature set-point during the OPR. The space would cool down again when the end-users left for lunch and would face the temperatures reducing during their absence.

After listening to the end-user's

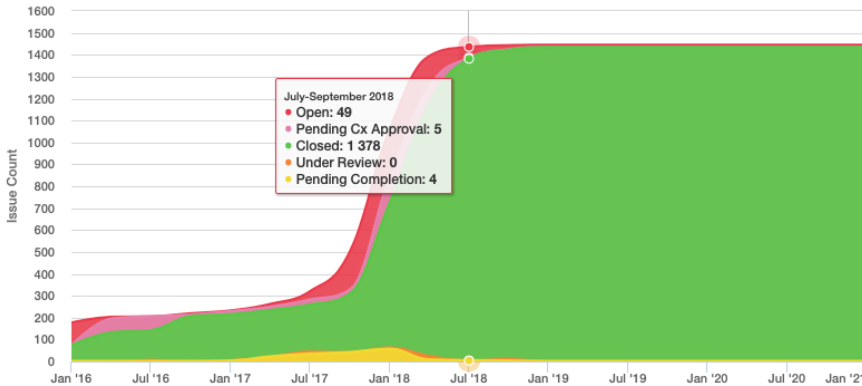
Synergy bridges the gap between construction and operations and always leads training with facility teams.

concerns, Synergy's first line of defense was to test the hot and cold for operational issues. Once these measures proved the spaces were working correctly, the construction team supplied educational pamphlets and held a training for the end-users. During the design phase and OPR, they all agreed upon the temperature set-points, but it took some understanding for the end-users adjusting to the way the temperature sensors operated. Synergy's performance testing and training gave the owner and end-users confidence that the building was operating as intended.





TIME TO CLOSE →
96.34 days
 Average time for an issue to reach a final status.
 (Closed)



DISCIPLINES WITH THE MOST ACTIVE ISSUES

1	Temperature Controls	<div style="width: 100%;"></div>
2	Security	<div style="width: 100%;"></div>
3	Mechanical	<div style="width: 100%;"></div>
4	Doors	<div style="width: 100%;"></div>
5	Plumbing	<div style="width: 100%;"></div>

ASSETS WITH THE MOST ISSUES

1	Security	208
2	Plumbing	94
3	Lighting	25
4	AHU-6 - TERMINAL AIR UNIT	16
5	Fire Alarm - Tower B	16

Example of Synergy's Commissioning Management Software

OWNER SUCCESS

The enhanced training sessions and central location for tangible building files reduced the barrier of the operations team not knowing where to locate the key documentation. This central location and knowledge improved the team's ability to perform operations and maintenance.

By trusting Synergy with Commissioning, the facility manager and scientists were able to trust the data from their building; that it was performing with LEED quality energy efficiency. The OPR was met and the scientists were able to focus on their core business.



Do you have a building that needs Commissioning?
 Scan this QR Code to talk to us!

