Tales from the Field:
The Strangest Thing I've Ever Commissioned

By Gerry Timothy, PE, CCM, CCP
Thomas Hood, CMIT, CBCP, CCP
Jim Waldrep, CCP, EBCP, ACEM
Mark Maguire, CCP

As Halloween approaches, we thought it would be the perfect time to share some of the most unusual and unexpected projects MBP has ever commissioned. While commissioning might usually bring to mind buildings and systems, our work often ventures into strange and surprising places. In the spirit of the season, our team members recount their spookiest, most out-of-the-ordinary experiences, from walk-through brain exhibits to choreographed fountain shows and even cemetery expansions. These tales highlight the creativity, problem-solving, and adaptability required to tackle even the strangest commissioning challenges.

THE FRANKLIN INSTITUTE: BRAIN EXHIBIT

In Philadelphia, we took on a commissioning project for an expansion at The Franklin Institute that could certainly be described as unusual, and the museum's walkthrough brain exhibit deserves special mention. Here's what Gerry Timothy, PE, CCM, CCP, MBP's Vice President and Service Line Manager, recalls about this project:

Q. WHAT MADE THIS PROJECT UNUSUAL?

It isn't often you get to commission a museum exhibit, let alone a brain exhibit, where visitors "walk through" the different sections of a human brain!

Q. WHAT WERE THE UNIQUE REQUIREMENTS OR CHALLENGES INVOLVED IN COMMISSIONING THIS PROJECT?

Verifying that the new systems were seamlessly integrated with the existing museum infrastructure was a significant challenge. The addition featured a replacement of the chilled water and condenser water systems while the existing

portions of the museum were operational, making coordination critical. Additionally, we had to guarantee that the systems not only functioned well but also contributed to the building's LEED Silver certification goals.

Q. WERE THERE ANY UNEXPECTED OBSTACLES OR SURPRISES THAT YOU ENCOUNTERED DURING THE COMMISSIONING PROCESS? HOW DID YOU OVERCOME THEM?

During acceptance testing, we discovered that issues with the operation of the condenser water system would cause cavitation of the condenser water pumps at low speeds due to piping configuration because of space limitations in the mechanical room, leading to issues for the operation of the new chillers. We resolved this issue through on-site testing to limit the lower range of flow for the condenser water system to prevent cavitation from occurring. It was a bit like piecing together a puzzle since we had to use a step-by-step approach to ramp down the pump speeds to determine the lower limit.

Q. CAN YOU DESCRIBE ANY INNOVATIVE OR UNCONVENTIONAL SOLUTIONS YOU IMPLEMENTED TO MEET THE PROJECT'S UNIQUE NEEDS?

We implemented advanced building automation and controls that not only regulated HVAC and lighting but also monitored energy usage in real time. This allowed The Franklin Institute to provide comfort for its visitors while maintaining optimal conditions for exhibits.

LONGWOOD GARDENS: DANCING FOUNTAINS

Some of our projects lead us to unexpected places, such as the historic Main Fountain Garden at Longwood Gardens in Kennett Square, Pennsylvania. Gerry Timothy also reveals why revitalizing this iconic 1935-era garden was one of his most unusual commissioning experiences:

Q. WHAT MADE THIS PROJECT UNUSUAL?

The Main Fountain Garden was unlike anything I'd ever commissioned. It's not every day you work on a site where water, music, lights, pyrotechnics, and fireworks come together in a choreographed show!

Q. WHAT WERE THE UNIQUE REQUIREMENTS OR CHALLENGES INVOLVED IN COMMISSIONING THIS PROJECT?

The garden's system was originally built in 1935, which is unique in itself. The five-acre site included complex underground systems with direct buried systems for the fountain water and theatrical lighting systems that hadn't been updated in decades. The challenge was to preserve the fountain's historic nature above ground while

constructing a new utility tunnel system with distribution systems and modern controls below ground for improved functionality, maintainability, and sustainability.

Q. WERE THERE ANY UNEXPECTED OBSTACLES OR SURPRISES THAT YOU ENCOUNTERED DURING THE COMMISSIONING PROCESS? HOW DID YOU OVERCOME THEM?

There were no real surprises to overcome since the project removed the original fountains for off-site restoration while constructing the new utility and infrastructure portions of the project. One of the unique features of the project, however, was that the facility included the construction of two stories of underground utility tunnels so that the operations team could have direct access to all the distribution systems for future maintenance without having to disturb the final plantings in the fountain garden like they had to before with the direct buried systems from the 1930s.

Q. CAN YOU DESCRIBE ANY INNOVATIVE OR UNCONVENTIONAL SOLUTIONS YOU IMPLEMENTED TO MEET THE PROJECT'S UNIQUE NEEDS?

The project incorporated cutting-edge building automation and theatrical control systems to integrate the operation of base building systems to control water, power, and natural gas distribution with the control of the theatrical fountain displays. This integration allowed the end users who program the various theatrical displays to synchronize the fountains with music and lighting in real time, creating a seamless experience for visitors. We also introduced a Preventative Maintenance (PM) Plan, ensuring that Longwood Gardens could maintain the systems effectively for years to come.

VETERANS ADMINISTRATION: CEMETERY EXPANSION

In West Palm Beach, Florida, our team took on a commissioning project with a unique setting—the expansion of the Veterans Administration Cemetery. Working on this site added a different dimension to commissioning, combining technical challenges with the sensitivity of the setting. Here's what Mark Maguire, a Project Manager at MBP, recalls about this memorable project:

Q. WHAT MADE THIS PROJECT UNUSUAL?

It's not often you work on a cemetery, and this project included commissioning over 9,750 precast concrete crypts of varying sizes and types—not something you do every day!

Q. WHAT WERE THE UNIQUE REQUIREMENTS OR CHALLENGES INVOLVED IN COMMISSIONING THIS PROJECT?

In addition to the regular mechanical, electrical, and plumbing scope, the project also involved installing thousands of precast concrete crypts and connecting new irrigation piping and accessories to the existing system. Additionally,

the project required precise integration with the cemetery's GPS and Geographic Information Systems (GIS) to map and manage the crypt placements accurately for future cemetery operations.

Q. WERE THERE ANY UNEXPECTED OBSTACLES OR SURPRISES THAT YOU ENCOUNTERED DURING THE COMMISSIONING PROCESS? HOW DID YOU OVERCOME THEM?

The crypts were sampled to inspect for any defects that may have occurred during the manufacturing, shipping, or installation process. A backhoe was used to lift the crypt lids and inspect the crypts. The lids were checked for defects such as fractures, missing pieces, and penetrations from the rebar molds. The numbers painted on the outside of the lid also needed to be verified with the number painted on the inside of the crypt.

It was challenging to enter the crypts to check for proper drainage and inspect for defects at the bottom, and getting out was even trickier. Make sure you have a ladder to get out!

DOMINION ENERGY – HIGH VOLTAGE TESTING FACILITY

MBP is currently working on a unique facility for Dominion Energy, replacing an outdated high-voltage testing site for distribution equipment. Here's what Thomas Hood, CMIT, CCP, a Project Manager at MBP, had to share about this project:

Q. WHAT MADE THIS PROJECT UNUSUAL?

In addition to replacing the old testing site, this new facility includes office spaces, labs, a large seven-story high-voltage testing area, and the unique Relay Depot with its Faraday Cage.

Q. WHAT WERE THE UNIQUE REQUIREMENTS OR CHALLENGES INVOLVED IN COMMISSIONING THIS PROJECT?

Safety is paramount with high voltage. To protect personnel from potential electrical contact, the facility had to meet strict isolation and grounding requirements, including grounding mats and isolation mats. Adding the Faraday Cage in the Relay Depot was crucial, preventing electrical interference and ensuring a safe space for high-voltage testing without disrupting other systems.

NCDOT: LIGHTING UP HIGHWAYS

There are times when our projects take us in different directions—literally. MBP commissioned an unusual project with the North Carolina Department of Transportation (NCDOT) to replace the interstate highway lighting system with GE's LED LightGrid smart control system. Here's what Jim Waldrep, CCP, EBCP, ACEM, Service Line Manager, had to share:

Q. WHAT MADE THIS PROJECT UNUSUAL?

This project wasn't about commissioning a building but rather a smart lighting system across the state's highways. We were tasked with testing 10,000 control nodes, 75 underpass lighting contactors, and 300 gateways.

Q. WHAT WERE THE UNIQUE REQUIREMENTS OR CHALLENGES INVOLVED IN COMMISSIONING THIS PROJECT?

The biggest challenge was ensuring safety while working along busy interstate highways. To avoid any risks to personnel or disrupting the traffic, we created a Quality Control "sandbox" at the Efland weigh station between Durham and Greensboro. All on-site testing was done there, away from the highway, and then we used remote access software for the rest of the state.

Q. CAN YOU DESCRIBE ANY INNOVATIVE OR UNCONVENTIONAL SOLUTIONS YOU IMPLEMENTED TO MEET THE PROJECT'S UNIQUE NEEDS?

One of the most fascinating parts of this project was using GE's innovation. Each highway light fixture had a cloud-connected controller that provided real-time GPS coordinates, power usage, and status updates. I was able to test the fixtures remotely from the safety of my office, reducing the need for on-site testing and increasing efficiency.

Like walking through a haunted house, these commissioning experiences remind us that sometimes the most significant challenges come from what you don't see coming. Commissioning is as much about adaptability as it is about technical expertise. Each unconventional project challenged us to think differently, solve problems creatively, and integrate new solutions into complex environments. Happy Halloween!

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