

## Case Study

# Pharmacy Benefits Provider Ensures Effective, Efficient Data Center

A leading provider of prescription coverage for employees of businesses, health plans, unions and state and local governments across the U.S. planned to build a new data center and office building adjacent to its company headquarters. The pharmacy benefits provider has long been committed to sustainable design and construction, having incorporated LEED standards and best practices in sustainability into the design and construction of new buildings for more than a decade now. Therefore, the company sought LEED certification for the office portion of the project.

To support this effort, the provider engaged WorkingBuildings, part of Trinity Consultants, to perform Level Four (L4) and Level Five (L5) commissioning services to help prevent long-term maintenance issues and wasted energy, ensuring that the data center and office would operate efficiently and effectively over the life of the building.

With the commissioning process critical to ensuring high performance, the company wanted to proactively identify any design and construction issues related to the building's mechanical, electrical, fire alarm, fire protection and plumbing systems. Better system performance not only optimizes data center performance, but also decreases energy consumption and operation and maintenance costs while increasing availability and safety—all of which were key goals for the company.



### Challenge

The company wanted to ensure that the mechanical, electrical, fire alarm, fire protection and plumbing systems in a new data center and office space would operate efficiently and effectively throughout the building's lifecycle.



### Solution

WorkingBuildings partnered with the company and its design and construction teams to perform L4 and IST (L5) testing.



### Result

By analyzing and testing a wide variety of scenarios, WorkingBuildings was able to identify and recommend corrections for nearly 200 design and construction issues, helping to ensure reliability and performance of the facility.

## Challenge

WorkingBuildings was asked to perform L4 and L5 commissioning services for the company's new 140,000-square-foot data center and call center, which were designed with health-wise, environmentally friendly features to meet LEED certification requirements. L4 commissioning consists of functional performance testing that puts each piece of equipment through a full cycle in a variety of scenarios, with systems tested and adjusted to run according to owner/operator standards. With a large open floor plan and extensive computer equipment generating heat in the data center, the company needed to ensure that it could properly cool the facility.

The company also wanted to conduct Integrated Systems Testing (L5; IST), the final test of reliability before opening a data center. In the IST process, the electrical power is disconnected while all systems are running to verify that there is a seamless transition to backup power systems so the data center can remain operational—a critical consideration for a benefits provider serving more than 100 million members.

## Solution

WorkingBuildings began by reviewing design drawings, focusing on how the system was intended to work and providing clarity to the construction teams working on the building. As a Tier III (with aspects of Tier IV) data center with multiple uninterruptible power supply (UPS) units backed up by closed-transition switchgears, the building included independent, physically isolated systems intended to ensure redundancy for every component. When operating as intended, this acts to prevent any event—planned or unplanned—from disrupting operations. The distribution systems were tied together in multiple locations to provide additional redundancy. Cooling for the data center was provided by two redundant chiller plants to supply cool water to computer room air handling (CRAH) units spaced throughout the data center areas.

As construction progressed, the team conducted site visits to verify that the systems were being installed as designed, were accessible and would be maintainable for the life of the building. Then, the team tested each piece of equipment included in the mechanical, electrical, fire alarm, fire protection and plumbing systems to ensure that they were going through the designed sequence of operations in all potential scenarios and that the fault systems were integrating properly.

Finally, the team performed IST (L5) testing to simulate the load on the building's systems and ensure that each system would continue to function properly in the case of equipment failure or a power outage. Throughout the process, WorkingBuildings collaborated closely with design and construction teams to ensure that everyone was working toward the goal of a fully functional, operating building.

## Result

The WorkingBuildings commissioning team identified nearly 200 design and construction issues during this project, enabling the project teams to prevent a wide variety of long-term maintenance and operating issues.

In one test, the team discovered that a pump used in the chilled water system didn't recognize a failure scenario as a failure; if not corrected, it could have caused the system to overheat and shut down in the case of an actual, real-world failure. The team recommended solutions, then re-tested the pump to ensure that the problem had been addressed.

In another test during the IST portion of the process, the team discovered that a relay failed to detect that power had been cut off and didn't send the signal to start the generator—a failure that if left uncorrected could have caused the building to lose power to half of its electrical system.

With a membership base of more than 100,000, ensuring that buildings and systems remain operational is mission critical. WorkingBuildings' comprehensive vulnerability analysis and impact scenarios do more than just anticipate failure—they help companies prepare for it.