

Commissioning a Net-Zero Building

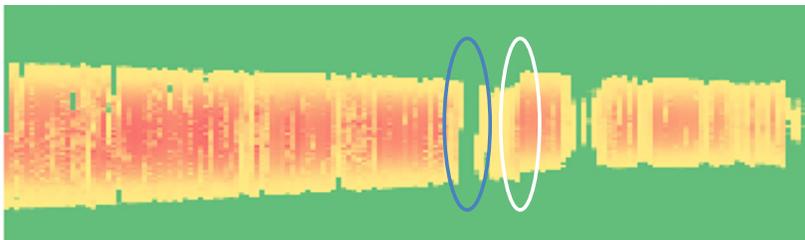
The City of St. Louis Park wanted to replace the existing Westwood Hills Nature Center with a new building featuring the most advanced systems to showcase the possibilities of focusing on sustainability and energy efficient design. This new building also had to be consistent with the center's nature-focused mission.

Center for Energy and Environment's engineering team was selected to commission this building to make sure that the unique systems installed were operating properly and would meet the goals set to obtain the net-zero energy certification. Some of these systems included ground source heat pumps for air and water heating, in-floor radiant heating, energy recovery for the delivery of fresh air and a 100 kW photovoltaic array on the roof to produce the energy the building needed.

“CEE worked closely with our architects and engineers to identify issues during the commissioning process and work to find resolutions to improve building operation which helps the City of St. Louis Park get closer to the Net-Zero goal for the Westwood Hills Nature Center.”

Jason West, City of St Louis
Park Recreation Superintendent

The heat map below shows data from July through December 2020. A series of changes are visible over the course of the year: a reduction in daylight hours across seasons as can be observed by the narrowing of the yellow and red area on the graph, an early-season snowstorm that covered the array (blue circle), and even the clock shift due to daylight savings time (white circle).



Center for Energy and Environment

ENGINEERING FOR EFFICIENCY

Problems

- Highly integrated systems that needed to operate properly for the building to meet its goals
- Full commissioning of all systems
- Coordination of system setpoints—critical to avoid energy waste

Solutions

- CEE's full-service commission resulted in more detail on the control systems so that functional performance testing could be completed.
- Engineers discovered that one of the meters used to measure energy consumption was not reading correctly. They implemented a solution that resulted in accurate consumption data, which is critical for net-zero energy certification.
- There were **61 issues** discovered through the commissioning process. CEE used its issue tracking software to notify contractors of problems, leading to quicker resolution and thus less energy waste.

Square Footage

- 9,000 ft²