

SUSTAINABILITY SERVICES

Commissioning

The commissioning of a building is the process of ensuring the design meets the owner's project requirements and that systems and equipment are properly installed and operate in accordance with the sequence of operations. When considering the long-term benefits, commissioning is a cost effective way to verify a building is aligned for energy efficient success and will continue to be successful throughout its lifecycle. Transwestern Sustainability Services performs all aspects of building commissioning.

While state-of-the-art systems and equipment may be installed, if set points and programming are incorrect, energy savings will not be realized. Commissioning the building systems to work together efficiently is key to a sustainable, energy efficient facility. Transwestern Sustainability Services' (TSS) approach to commissioning is a planned, systematic quality control process that begins at project conception and involves the owner, design team, contractors, maintenance staff and building occupants.

NEW CONSTRUCTION COMMISSIONING

Commissioning of newly constructed buildings minimizes the negative impact buildings have on the environment by verifying the mechanical systems are designed and constructed to operate according to the Owner's Project Requirements, Basis of Design and Construction documents. TSS leads, reviews and oversees the completion of the commissioning process and serves as an objective advocate for the owner.

RETRO-COMMISSIONING

Retro-commissioning of an existing building includes developing a sequence of operations that identifies current operating requirements, conducting tests to determine whether the building and its base systems are operating in accordance with that plan and identifying any necessary changes or repairs. Retro-commissioning optimizes energy efficiency by ensuring that systems are operating as intended. Properly executed retro-commissioning reduces costs for maintenance, repairs and resource consumption. In addition, indoor air quality is improved, enhancing building occupants' health and productivity.

ONGOING COMMISSIONING

Ongoing commissioning is a continuous process that proactively identifies and corrects system problems to maintain optimal building performance. It includes regular measurement, sequencing of mechanical systems and comparative analysis of the building's energy consumption.

RE-COMMISSIONING

Re-commissioning a building ensures that systems are designed, installed, functionally tested and capable of being operated and maintained to perform in conformity with the design intent of the building after a full commissioning process has previously occurred.



Chicago Transit Authority headquarters - Chicago, Ill.
Certified LEED Platinum in 2012

Case Studies

Chicago Transit Authority – Chicago, Ill.

The Chicago Transit Authority (CTA) headquarters, located at 567 Lake Street, is a Class A trophy office building comprised of 428,000 square feet. A Transwestern-managed building, the property was initially LEED® (Leadership in Energy and Environmental Design) Gold certified in 2007 utilizing the LEED for Existing Buildings: Operations and Maintenance™ rating system. In March 2012, the building was recertified LEED Platinum by the U.S. Green Building Council (USGBC). The TSS team faced a major challenge, dramatically revamping the building operations and maintenance systems.

COMMISSIONING HIGHLIGHTS

- Analyzed building systems that consume energy and created a breakdown of energy end-uses.
- Identified operational issues and capital improvements needed to improve the building's energy performance, occupant comfort and equipment longevity.
- Implemented an ongoing commissioning program that includes elements of planning, system testing, performance verification, corrective action response, ongoing measurement and documentation to proactively address operating issues.

QUANTIFIABLE RESULTS

- Reduction of building supply/return fan run times resulted in an annual savings of \$42,182.
- Implementation of automatic reset control of chilled water, discharge air and duct static pressure resulted in \$9,786 annual savings.
- Optimizing control of outside air dampers during unoccupied run time periods produced \$4,000 annual savings.



Glen Hills Middle School - Glendale, Wis.
Certified LEED Gold in 2013

Glen Hills Middle School – Glendale, Wis.

Built in 1971, Glen Hills Middle School is a three-story brick facility that accommodates fourth through eighth grades. Amenities include a swimming pool and two air conditioned gyms. In 2008, the school set a goal to improve overall building efficiency and coordination between building systems. Glen Hills utilized ENERGY STAR® Portfolio Manager™ to track energy and cost improvements, but did not see the expected results. In September 2011, TSS began an 18-month commissioning process of Glen Hills to determine the existing efficiency of the building and implement cost-saving improvements.

COMMISSIONING HIGHLIGHTS

- Reviewed building systems and operations, all building automated system (BAS) run times and set points, time schedules and sequence of operations.
- Reprogrammed BAS sequence to more closely match the operating hours of the school, reducing run times by 267 hours per week.
- Reduced chiller run time to match the occupancy periods, cutting 16 hours per week.
- Incorrectly installed hot water boilers caused boilers to run continuously while maintaining a water loop temperature of 200°F. Reprogrammed boiler run times and lowered the water temperature to manufacturer recommendations.
- Reprogrammed solar collection system with the BAS to save natural gas consumption on heating the pool year-round.
- Performed after-hours audit to determine what building equipment, classroom equipment and lighting was left on overnight. More than half of classroom equipment was powered during unoccupied periods. By encouraging staff to power down equipment, off-peak electrical consumption has been reduced.
- Corrected all entries in ENERGY STAR Portfolio Manager once commissioning process had been completed, bringing the school's score up 26 points.

QUANTIFIABLE RESULTS

- 14 percent annual energy consumption reduction.
- \$43,607 energy cost savings per year.
- 1,781,490 kBtu reduction per year.
- Improved ENERGY STAR rating from 66 to 92 in an 18-month period.