



SHOWCASE PROJECT: MAYO CLINIC: ROCHESTER, MN CAMPUS

SOLUTION OVERVIEW

In 2011, Mayo Clinic leadership committed to reducing the energy use of the Rochester campus by 20 percent by 2020 from a 2010 baseline. The Facilities Operations team, IT staff, and Facilities Project Services team developed and implemented a plan around energy saving strategies that focused on operating and maintaining buildings more efficiently, as well as designing and constructing energy-efficient spaces.

Mayo Clinic worked with Seventhwave's Accelerate Performance Initiative to pilot a new design and construction process that integrates energy performance goals from the beginning of a project through the first year of occupancy. The Accelerate Performance Initiative is a U.S. Department of Energy-funded initiative that empower owners and developers to achieve desired energy performance goals. Mayo Clinic's energy management guidelines include new construction and renovation energy use intensity targets using energy modeling and analysis, operations energy management strategies, and staff engagement procedures. This concept was included in the energy management guidelines to reduce energy consumption across its entire healthcare system.

Together these measures resulted in \$4 million in total energy savings and a 20 percent total energy reduction by October 2017— two years ahead of their 2020 goal.

The 14 million-square-foot integrated medical center in Rochester, Minnesota provides comprehensive diagnosis and treatment in virtually every medical and surgical specialty. The Mayo Clinic campus consists of medical office buildings, clinical and research laboratories, and education centers. The Methodist Campus contains 794 licensed beds and 41 operation rooms and the St. Mary's Campus is a 1265-bed hospital campus with 55 operating rooms.

SECTOR TYPE

Commercial

LOCATION

Rochester, Minnesota

PROJECT SIZE

13,458,850 square feet

SOLUTIONS

The Rochester campus achieved its goal early by integrating energy efficiency in new construction design, making renovations to existing facilities, upgrading utilities and equipment, and inspiring staff to “think green” in their practices at work and at home.

The measures that had a significant impact on reducing Mayo Clinic’s energy consumption and spending included:

Recalibrating BAS
Optimizing the entire Rochester Campus’ building automation system (BAS) had the largest impact on Mayo Clinic’s total energy reduction. The Facilities Operations department adjusted heating and cooling in public areas and included a wider range of temperatures to reduce the strain on temperature control systems.
In the Stabile Building, a clinical laboratory, annual energy consumption reduced by more than 20 percent. This was accomplished by updating the control strategies to more closely fit the current use of each space in the building. Ex: Offices do not require constant maximum airflow, but simply the minimum for proper ventilation and temperature control
LED Lighting Retrofits
LED lighting retrofits were conducted on seven Mayo Clinic parking ramps. The result was an energy savings of over \$309,000 annually as well as a safer, more well-lit environment for visitors and staff.
Upgrading Computers and Monitors
Mayo Clinic’s IT Department has been upgrading workstations as part of its refresh program. New computers and monitors consume about 60 percent less energy than the older models – only 110 watts, down from 285 watts.
Retrofitting Fume Hoods
Upon review of Rochester’s 400 fume hoods, the Facilities Operations team discovered half were left open and operating overnight. To prevent this, the team installed controls to maintain safe airflow – no longer requiring the user to turn the fume hood on and off and reducing the rate of ventilation.
The medical laboratory, the Hilton Building, saved \$40,000 in energy savings annually.
Repairing Duct System Leaks
The constant and high air circulation rate of a healthcare facility can wear down the duct system over time resulting in tiny leaks. The Facilities Operations team identified the leak areas and resealed them with a special product in the system that coagulates where there is a pressure difference near unwanted holes.
This process reduced leaks by 95 percent and reduced annual energy costs by \$162,000 in the research laboratory Guggenheim Building alone.
Estimated annual savings due to duct sealing campus wide is \$505,000.
Insulation Blankets
Steam piping, valves, and traps are extremely hot but can lose heat and waste energy if not properly insulated. Insulation blankets were implemented to retain heat, conserve energy, and reduce the risk of staff getting burned. Estimated annual savings is \$360,000.
Efficient Central Plant Operations

Mayo Clinic's Rochester campus has three central plants to serve all its building energy needs, providing steam and electricity simultaneously through cogeneration and chilled water. Downtown buildings are served by on-site central plants: Franklin Heating Station, Prospect Utility Plant, and Saint Mary's Power Plant.

Heat Recovery Systems

Heat recovery systems are integrated at 9 buildings. The energy recovery system transfers energy from building exhaust air to incoming outside air being supplied to the building, reducing the amount of energy needed to heat outside air in the winter and cool it in the summer.

To maintain efficient performance levels at the Rochester Campus, Mayo Clinic continues to review operations of existing buildings to ensure maximum efficiency and is working to provide real-time monitoring of energy systems to identify additional opportunities for improvement.

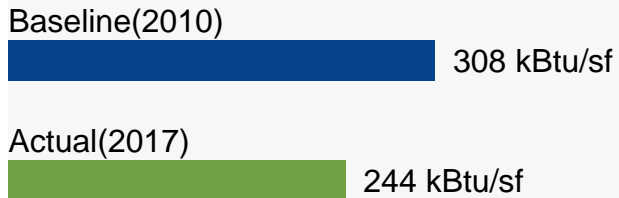
OTHER BENEFITS

Mayo Clinic was recognized for their goal achievement in 2019 by Practice Greenhealth receiving the Emerald Award and the Greening the OR Recognition.

Achieving their goal early enabled Mayo Clinic to commit to an additional goal of 10 percent energy reduction by 2025. The success of their energy savings at the Rochester campus has led to the continued support from leadership to implement energy saving projects and an organization-wide energy policy.

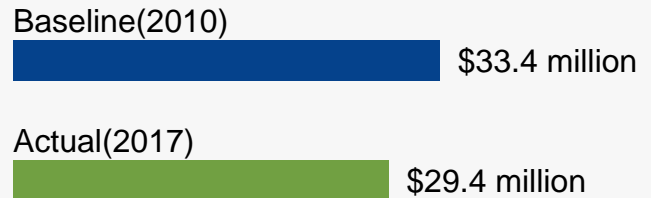
In March 2018, the Facilities and Support Services Department held a celebration event to recognize the efforts of employees involved in energy conservation efforts. Mayo Clinic leaders, including the Vice President/Chief Administrative Officer and the first physician Chair of Mayo Clinic's Green Committee delivered messages of appreciation to staff for demonstrating Mayo Clinic's values of excellence, teamwork, innovation and stewardship. They also encouraged staff to continue to set stretch goals that create additional efficiencies and more environmentally sustainable facilities.

Annual Energy Use



Energy Savings
20%

Annual Energy Cost



Cost Savings
\$4 million



Mayo Clinic Rochester Building Complex