

LORAIN COUNTY JOINT VOCATIONAL SCHOOL



OBERLIN, OHIO – Heating, Ventilation, and Air Conditioning (HVAC); and Motors Projects

Established in 1971, Lorain County Joint Vocational School (JVS) provides career and technical training for high school students and adults in Lorain County. Located on a 10-acre campus that houses both a career and technical high school and an adult career center, it's one of the largest facilities of its kind in the state of Ohio. Students of Lorain County JVS gain technical skills for numerous occupations through the many specialized programs offered.

PROJECT GOALS: Reduce energy usage and operating costs while improving lighting and HVAC system quality.

SOLUTION: Replace existing lighting with efficient technology, upgrade existing HVAC system with energy saving measures, and install efficient motors.

PROJECT SUMMARY: In 2011, Lorain County JVS completed two energy efficiency projects focused on HVAC and lighting technology. The school coordinated with Qual-Air HVAC and Sterling Professional Group to install multiple variable frequency drives (VFDs) and efficient motors to match air flow to actual demands in the HVAC system. Lorain County JVS also worked with South Shore Electric to complete a daylighting project in the east wing of the school.

Due to the success of the first two projects, Lorain County JVS completed lighting and mechanical upgrade projects in 2013, as part of the Energy Conservation Program (House Bill 264). Existing lighting across the school was upgraded to high-performance T8 (HPT8) fixtures, compact fluorescent lights (CFLs) and light-emitting diodes (LEDs).

All motors in mechanical rooms at the school were replaced with National Electrical Manufacturers Association (NEMA) super premium motors. The chilled water loop was re-piped to create a primary-secondary system, allowing for variable flow in the secondary loop. VFDs were added to new motors on two secondary hot water loops, and were also used to control six fans on an air handler unit. In addition, the domestic hot water boiler was replaced with a solar system.

Efficiency Smart energy consultants coordinated with the school's contractors for all of the projects, reviewing the specifications of the projects to verify saving amounts.. The new HVAC and motor upgrades allowed the system to operate at a reduced capacity when needed, thus saving energy. The installed daylight sensors reduced the need for artificial lighting and the new efficient lighting reduced operating costs and improved lighting quality



PROJECT FACTS AT A GLANCE

Annual kWh Savings:
1,418,600 (combined)

Annual Cost Savings:
\$128,000 (combined)

Lifetime Cost Savings:
\$1,546,700 (combined)

Payback:
7.22 years (average)

Annual CO₂ Reduction:
2,725,900 pounds
(combined)

PROJECT PARTNERS

Duane Auble, Plant Manager, Lorain County Joint Vocation School

Stephen Rogers, Contractor General, Ameresco

Paul Maitino, Contractor HVAC, Qual-Air HVAC

Jeff Snodgrass, Contractor General, Sterling Professional Group

Jason Wynne, Engineer Electrical, South Shore Electric

Steve Dupee, Utility Director, City of Oberlin

Doug McMillan, Energy Services & Sustainability Manager, City of Oberlin