

QUEENS COLLEGE SCIENCE BUILDING

ENERGY EFFICIENCY/HVAC

Annual Electric
Energy Savings:

942,000 kWh

Annual Gas
Energy Savings:

11,000 MMBtu

Estimated Annual Savings:

\$408,000

IMPROVEMENT DETAILS

- Converted existing standard flow vertical sash fume hoods to low velocity, high performance hoods with horizontal sliding sashes
- Replaced existing fume hood exhaust fans with high entrainment fume hood exhaust fans
- Separated office areas from labs
- Installed return air units for offices areas
- Replaced central station air handling units with small units equipped with variable speed drives for supply and return fans
- Added VAV boxes for non-lab areas
- Upgraded lighting
- Installed steam system

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GOALS AND CHALLENGES

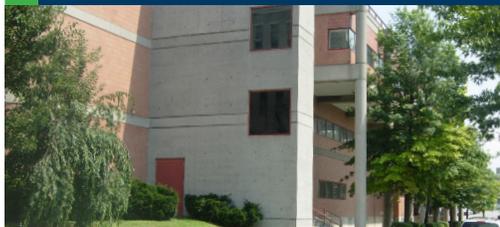
Established in 1937, Queens College is a public university with 40 buildings across 80 acres. The 205,000 ft² Science Building, built in 1986, serves as its primary science facility. Willdan was responsible for the facility energy assessment, design, and construction management to evaluate the building's options for mechanical systems upgrades.

A primary objective was to rectify persistent occupant comfort and operational issues in laboratory and office spaces due to compromised effectiveness of the building's HVAC systems. A second objective was to deliver energy and monetary savings through energy efficiency.

SOLUTIONS AND RESULTS

Willdan's solution included HVAC and fume hood modifications that were designed and installed to reduce ventilation in all areas to the amount required by typical lab building standards.

The project also reduced the outside air required for laboratory ventilation, improved indoor air by introducing proper dispersion of the fume hood exhaust, provided enhanced safety for lab users, and improved control of the temperature and humidity in the laboratories and office areas.



More than one-third of the building consists of chemistry, biology, physics, and animal laboratories, while the rest is made up of office spaces, corridors, classrooms, and mechanical rooms. Willdan evaluated and implemented measures to upgrade the building's mechanical systems.