



Ruxton Towers Apartments Towson, MD



COMPREHENSIVE ENERGY EFFICIENCY TREATMENT

Ruxton Towers is a ten story, 200+ unit apartment building, with commercial space, located in historic Towson, MD. The multi-use professional and residential building was built in 1968 and much of the building energy system was original. ENGIE Services U.S. (ENGIE) analyzed, designed, and implemented a comprehensive turnkey energy system upgrade for the apartment building.

THE PARTNERSHIP

The improvements encompassed a complete overhaul of the HVAC systems, extensive lighting system upgrade, and installation of high-quality windows to improve the comfort of the occupants, reduce operating cost, optimize operations, and increase the property's value.

To modernize and reduce operating costs, ENGIE identified several energy conservation opportunities which qualified for grants from the Maryland Energy Administration, Baltimore Gas & Electric (BG&E), and tax savings. Ruxton Towers Apartments benefited from total incentives of more than \$449,000. Additionally, ENGIE ensured that all equipment upgrades were planned and executed with minimal disruption to tenant comfort.

The central heating and cooling plant, located in the basement mechanical room, which includes all of the pumps, piping, valves and other fittings required to move hot and chilled water throughout the facility, needed to be overhauled. Aging boilers and chillers needed to be upgraded and the property management team strived for better control over the building terminal units.

New high-efficiency condensing boilers and a magnetic-bearing centrifugal chiller now provide heating and cooling. Coupled with new terminal units and an improved central

Program Summary

- Annual Energy Savings: 572,000 kWh
- Total Incentives: \$449,000
- BGE Incentives: \$127,000
- MEA Grant: \$238,000
- EPACT (179D): \$84,000
- Final Cost: \$2,554,000
- Installation Cost: \$2,993,000
- Annual Savings:
 - Electricity & Gas: \$79,000
 - Water / Sewer: \$4,300
 - Maintenance: \$4,500
 - Total: \$87,800

Technical Scope

- Upgraded HVAC systems and implemented extensive lighting system upgrades
- Installed new, high-quality windows
- Upgraded chiller, and boilers in central heating and cooling plant

Technical Scope (continued)

- Optimized mechanical plant, including plate and frame heat exchangers, pumps, and automated control valves
- Installed new building energy management system (BEMS)
- Replaced terminal units including fan coil unit (FCU) and water source heat pumps (WSHP)

Energy Efficiency Measures

- Lighting
- Controls
- HVAC

plant piping system, the new mechanical systems are delivering significant operating cost reduction, simplified operations, and improved tenant comfort.

3 DIMENSIONS OF IMPACT

ENGIE is committed to building three dimensions of impact in every customer's future:



Supporting People

- Upgrading the HVAC system greatly improved occupant comfort and reduced energy consumption.
- A new Building Energy Management System (BEMS) allowed managers automatic control of the central heating and cooling plant, with a web-based graphical user interface custom-developed for the property management team.



Saving Money

- Energy efficiency measures designed and implemented by ENGIE reduced Ruxton Towers' annual energy cost by over \$87,000 (a reduction of 25%).
- The combined utility incentives, tax benefits, and energy efficiency grants reduced the total project cost by \$449,000.



Protecting the Environment

- The energy savings of 572,000 kWh per year and 23,000 therms of gas per year, is equivalent to removing 117 cars from the road for one year.
- The new heat exchanger provides heat rejection during the summer months, replacing the old city water heat exchanger, saving \$4,300 in water costs, or 530,000 gallons per year.



Mechanical room before (left). Central Plant after (right) retrofit.