



Photo courtesy of Northern Virginia Community College.



“Not only does TAC offer single-source responsibility and accountability for major mechanical renovations and operational results, but they also provide a solution for funding shortfalls.”

*Edward O. Watson, P.E.
Associate Vice Chancellor
Facilities Management Services*

PROJECT AT A GLANCE

Location:

Commonwealth of Virginia, USA

Project type:

Energy Performance Contract
(\$60 million over 4 years)

Number of buildings:

315
(total of 7 million sq.ft. on 40 campuses)

Guaranteed annual savings:

Estimated to exceed \$2 million annually upon completion

Financing:

Combination of general obligation bonds, deferred maintenance, third-party financing and treasury loans

Energy conservation measures:

- Major mechanical systems, including DDCs
- Water retrofits
- Thermal storage
- Lighting
- Windows and doors
- Roofing
- Retrocommissioning

Environmental facts:

VCCS will save energy equivalent to ...

- Reducing CO2 emissions by 12,388 tons
- Removing 2,478 automobiles from the roads
- Planting 3,370 acres of trees

Virginia Community College System

Outdated building systems. Indoor comfort issues. High energy bills. Project funding shortfalls. To resolve these and other issues, TAC Energy Solutions proposed a holistic approach with a performance contract that guaranteed savings to help pay for improvements.

THE CHALLENGE

Established in 1966, the Virginia Community College System (VCCS) provides comprehensive higher education and workforce training programs with “open door” access to all. Today, VCCS has more than 230,000 full- and part-time students enrolled in 23 colleges on 40 campuses across the commonwealth.

Most of the buildings on VCCS campuses were built in the 1960s and '70s. And like many major state institutions, VCCS experienced poor performance of the design/bid/build approach taken for major mechanical systems. Moreover, funding shortfalls often resulted in renovations that treated symptoms rather than the cause of a problem.

VCCS faced a number of challenges, ranging from updating existing buildings while addressing the demand for new space – to establishing funding priorities for new construction and coping with projects that were often underfunded, isolated, symptom-based or building-based.

Motivated by a desire to embrace a holistic rather than piecemeal approach to improving indoor comfort levels for faculty, students and staff alike, VCCS asked 11 energy service companies (ESCOs) to propose a solution. Ultimately, VCCS awarded the performance contract to TAC because of its straightforward proposal, clear chain of command, and thorough understanding of the process.

The performance contract incorporates whole-campus facility audits, project development, system design, construction, commissioning, and long-term performance assurance. TAC guarantees the energy savings generated by renovating systems to

CUSTOMER BENEFITS

- Single-source for renovations and results
- Solution for funding shortfalls
- Institutional knowledge of all systems
- Holistic approach to problem resolution

Virginia Community College System

make them more efficient, and agrees to pay the difference if VCCS does not realize those energy savings.

Perhaps the biggest challenges while working on a college campus include making major mechanical renovations in occupied classrooms and working nights and weekends to remain on tight schedules. With almost two decades of experience working with institutions of higher learning, TAC can assure minimal disruption to ongoing classes.

THE SOLUTION

VCCS teamed with TAC Energy Solutions to manage all major mechanical projects so that VCCS can leverage the savings potential when projects are engineered, installed and commissioned properly.

Taking a cooperative approach to the needs on multiple campuses, TAC and VCCS work closely to set priorities and to keep facilities running during the renovations. Moreover, VCCS relies on TAC's in-depth knowledge of building systems and operations at the various campuses to help VCCS make wise choices regarding facility improvements.

The process is "fluid" at each campus, with two or three buildings being worked on at any given time. Wherever possible, TAC leverages VCCS investments in existing systems while implementing a variety of energy conservation measures (ECMs).

TAC is redesigning and/or replacing HVAC systems, and installing direct digital controls (DDCs) to achieve more effective energy management. T12 lighting is being replaced with more

energy-efficient T8s, and older magnetic ballasts are changed out for newer electronic ones.

Installation of thermal storage systems is maximizing the ability to efficiently store hot water or ice while reducing energy costs. Air leaks in building envelopes are being addressed by caulking, replacing or fixing windows and exterior doors. Roofs are being replaced, insulated or given a reflective coating to improve energy efficiency. And inefficient plumbing fixtures are being replaced or upgraded to conserve water resources.

THE BOTTOM LINE

VCCS signed the audit agreement in July 2004, and TAC went right to work. After three years, TAC had renovated buildings on 20 campuses, generating \$1.3 million in annual savings. VCCS asked TAC to address the unique needs of each college, allowing decision makers on each campus to choose whether to accept TAC's solution.

At each campus, TAC combines sustainable design principles and accountability through building and system commissioning, which results in projects designed with comfort and total cost of ownership in mind. This approach also enables VCCS to maximize energy efficiency and generate utility savings.

VCCS leverages the savings potential when projects are engineered, installed and commissioned properly to fund any shortfalls for major mechanical renovations.

EDUCATION PROFILE

Students have high expectations when they select a college or university. They require a quality education and campus experience at a reasonable cost. State-of-the-art facilities, safety and security are of primary concern. In order to meet rising expectations within this cost-sensitive market, colleges and universities must invest wisely in their facilities as a strategic asset to recruit students and attract faculty and staff.

TAC has proven experience in working with higher education facilities to take advantage of building management solutions that maximize energy efficiency and performance. This leads to a reduction in operating costs and enables the reallocation of saved resources to new programs for students within the same budget.

TAC's holistic approach and knowledge about building operations provides VCCS with information that was previously unavailable with a classic design/bid/build strategy. Knowledge of the needs of colleges gives TAC a better understanding of the challenges faced by VCCS.