

## SHOWCASE PROJECT: UVA'S CLARK HALL

### SOLUTION OVERVIEW

Clark Hall is a mixed-use academic building that opened in 1932 to house the UVA School of Law, and currently houses the university's Department of Environmental Sciences and Charles L. Brown Science & Engineering Library. Because the building serves many purposes, the project required significant amount of input from its different stakeholders. Multiple departments and student groups utilize this space daily. Clark Hall is home to classrooms, office space, a library, a café, laboratories, exhibits, and lecture halls. Performing renovations required a great deal of customization to ensure the building operated appropriately for each space.

Clark Hall was expanded twice while it was still the Law School, in 1949 and in 1962. A large addition to the back of the building, which included the Charles L. Brown Science and Engineering Library, was completed in 2003.

### SECTOR TYPE

Education

### LOCATION

Charlottesville, Virginia

### PROJECT SIZE

181,000 Square Feet

### FINANCIAL OVERVIEW

Project Cost: \$2 Million

### SOLUTIONS

The objective of the Clark Hall [Delta Force](#) project was to reduce the overall annual utility consumption of Clark Hall, improve the building's operating efficiency and effectiveness, and contribute to UVA's sustainability plan goals by reducing its carbon footprint.

Historic Clark Hall was recently converted to serve the Department of Environmental Science and added a "wet lab". UVA considered this a good internal performance contracting opportunity.

Savings Measure	Cost	Savings Achieved	Notes
Converted to LED	\$100,000	Over 50% lighting	Converted all

lighting		energy savings	interior and exterior fixtures from fluorescent lamps to LED, approximately 4,000 total
Upgraded HVAC controls	\$750,000	\$150,000 annually	Updated from old pneumatic controls to the latest direct digital electronic controls
Replaced HVAC control valves	\$100,000	\$50,000 annually	Upgrading from pneumatic to electronic control valves eliminated the need for a temperature controls air compressor
Recalibrated air handling units (AHU)	\$100,000	\$50,000 annually	Conducted full testing and calibration of AHU controls and verified performance based on operational requirements
Repaired energy recovery ventilation (ERV) system	\$24,000	\$25,000 annually	Laboratory exhaust ERV
Recalibrated and reduced laboratory airflow rates	\$20,000	\$78,000 annually	Adjustments were made in lab office and support spaces only - air change rates were not reduced in actual research labs. Research labs are a future target to achieve additional savings through a Smarts Labs program.

Installed low-flow toilets and faucet aerators	\$20,000	47% of bathroom water use	
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## **OTHER BENEFITS**

Clark Hall achieved LEED® v4 for Building Operations + Maintenance Silver certification – the first building in Virginia to do so. This achievement was made possible by the commitment of UVA and its Facilities Management team to sustainable operations and maintenance practices such as green housekeeping, pest management, landscape management and waste management, as well as the commitment of Clark Hall's occupants to alternative transportation, green procurement and sustainable dining.

## Annual Energy Use

(Source EUI)

Baseline(2014)

451 kBtu/sq. ft.

Actual(2018)

156 kBtu/sq. ft.

## Energy Savings

65%

## Annual Energy Cost

Baseline(2014)

\$1,200,000

Actual(2018)

\$450,000

## Cost Savings

\$750,000



Clark Hall Atrium



UVA Sustainability Office engaging students on the new efficiency measures



Clark Hall Façade