

# CASE STUDY



## VIRGINIA BEACH CITY PUBLIC SCHOOLS: WOODSTOCK ELEMENTARY SCHOOL Discovering Big Savings Through The Retro-Commissioning Process

### CHALLENGE

Retro-Commissioning (RCx) is a term that refers to the process of commissioning an existing facility for the first time. In March of 2015, Virginia Beach City Public Schools reached out to MBP to provide RCx services for Woodstock Elementary School. This 86,645-square-foot, one-story elementary school was built in 1957, and underwent a modernization of the existing school and construction of a new wing in 2003.

The RCx process for this school had to be implemented without disrupting the occupants, with the goal of improving:

- Energy performance
- Occupant comfort
- Equipment life
- Operation and maintenance (O&M) trouble calls

### SOLUTION

The RCx activities focused on resolving heating, ventilation, and air conditioning (HVAC) related issues by identifying and evaluating deficiencies in the mechanical systems, including issues associated with thermal comfort of occupants.

These energy conservation measures (ECMs) identified 135 issues, some of which had never been corrected by the installing contractors when the building opened in 2003. The ECM issues were grouped into the following categories:

- Calibration
- Failed Equipment
- BAS Graphics
- Maintenance and Repair
- Control Programming
- Test, Adjust, and Balance

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## RESULT

Correction of these ECMs resulted in a measurable effect on the performance of the building.

The month of April 2016 saw a reduction in natural gas usage of approximately 67% from the previous three-year average. The total 2016 natural gas savings was \$12,000, and total utility bill savings was \$35,000 for 2016.

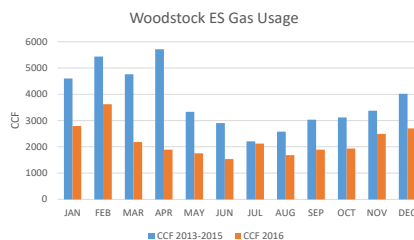
The RCx pilot was a proven success, and the project resulted in a total gas/electric reduction of 22% in utility bills for the school district. This equates to a return on investment of 1.5 years.

*“MBP provided retro-commissioning services to Virginia Beach City Public Schools (VBCPS) at Woodstock Elementary School, identifying 135 issues. During the year after MBP performed its services, we experienced a reduction in our combined gas and electrical utility bills, for a savings of approximately \$35,000.”*

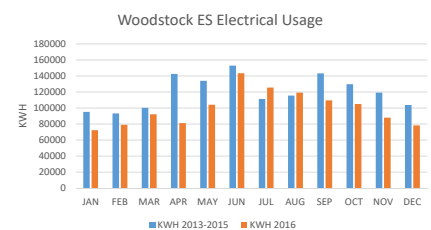
Tony Arnold, PE  
Executive Director of Facilities  
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Public Schools

WOODSTOCK ELEMENTARY ELECTRICAL USAGE				
	KWH 2013-2015	KWH 2016	% REDUCTION	COST SAVINGS
JAN	95100	72300	24%	\$2,133
FEB	93100	78900	15%	\$1,328
MAR	100200	92100	8%	\$758
APR	142500	81000	43%	\$5,922
MAY	133900	104100	22%	\$2,851
JUN	152800	143400	6%	\$879
JUL	111300	125400	-13%	(\$1,327)
AUG	115400	119100	-3%	(\$351)
SEP	143100	109500	23%	\$3,151
OCT	129600	105000	19%	\$2,303
NOV	119200	87900	26%	\$2,303
DEC	103700	78300	24%	\$2,415

*The month of April 2016 saw a 43% reduction in electrical savings compared to the previous three-year average.*



*April 2016 saw a reduction of approximately 67% from the last three-year average, with a total 2016 gas savings of \$12,000.*



*The chart above shows a summary of overall energy use compared to the electrical performance in 2016.*