



CASE STUDY
MaST Community Charter School
Philadelphia, Pennsylvania

MaST Community Charter School in Philadelphia contracted with GreenTech Energy Services to design and implement a lighting retrofit throughout the entire school. Outdated HID fixtures in the gymnasium and multipurpose room were replaced with state-of-the-art T5 HO fluorescent fixtures with lens covers and cages. The new fixtures provide instant on and off, which eliminates warm-up time, and dramatically increased light levels. GreenTech also installed occupancy sensors in the classrooms and offices, resulting in significantly lower energy usage.



Another component of the energy solution was an HVAC retrofit. GreenTech partnered with PaceControls to install their HVAC controller, which established optimal run times for the compressors and burner units. By reducing overall compressor runtime, the controller increased efficiency and reduced energy costs. In addition, GreenTech installed Thermonomics, a refrigerant enhancer that prevented oil buildup on the heat exchanger. This reduced friction in the flow of the refrigerant, increased the heat transfer rate, increased efficiency, and prolonged the life of the HVAC system.

Building Location	Program Cost	Payback Period	EXISTING LIGHTING USAGE		ENERGY SAVINGS			ENERGY COST SAVINGS				
			KW Usage	KWH Usage	KW Saved	KWH Saved PACE/THERMONOMICS	TOTAL KWH Saved	KWH Savings PACE/THERMONOMICS	KWH Energy Savings	CCF Energy Savings	Operation Savings	Total Savings
K THRU 12 OLD SCHOOL	\$128,582	6.6	103	263,640	30		129,858		\$15,583		\$3,857	\$19,440
PACE CONTROLS	\$30,776	1.3	327	353,100	53	57,090	57,090	\$6,851	\$6,851	\$15,061	\$923	\$22,835
THERMONOMICS	\$13,500	2.9	327	353,100		35,310	35,310	\$4,237	\$4,237		\$405	\$4,642
Totals	\$172,858	3.7	757	969,840	83	92,400	222,258	\$11,088	\$26,671	\$15,061	\$5,186	\$46,917

ENVIRONMENTAL IMPACT

Reduction in Carbon Dioxide (pounds) 194,787
 Reduction in Sulfur Dioxide (grams) 727,203
 Reduction in Nitrogen Oxide (grams) 324,644

Since MaST is a math, science and technology school, we were asked by many students what we as a school were doing to go green. We felt that Greentech would help us meet the needs of our students to address environmental issues. Secondly, our PECO bills were getting out of hand and we thought there were other technological measures we could take to help alleviate these high energy bills. After Greentech and its partner PaceControls implemented their plan for MaST, we started to see our utilities bill drop by \$2500 to \$3000 per month. That's significant!!

Richard Trzaska
 Chief Administrative Officer, MaST Community Charter School