Manistee Area Public Schools Phase III

Phase I:	**1990**	Project cost $ 250,000 Annual Savings $ 25,000
Phase II:	**2000**	Project cost $ 1,300,000 Annual Savings $ 150,000
Phase III:	**2013**	Project cost $ 2,350,000 Annual Savings $ 148,000

Type of Project:	Guaranteed Energy Savings Performance Project
Location:	Manistee, MI
No of Bldgs:	5 (Approx. 325,000 Sq. Ft.)
# of Students:	1,700
Project Description:	Honeywell's role: General Contractor for Energy Performance Contract work, Energy Auditing, Design Engineering, Project Management, Commissioning, Performance Measurement & Verification, Warranty Services, Maintenance Agreements.

List of Improvements:

- Energy Management System Upgrade
- Condensing Boiler Installation – (3) buildings
- Temperature Control Retrofits
- Mechanical System Retrofits
- Constant Volume AHU Converted to VAV System
- Energy Efficient Motor Installation
- Lighting Retrofits
- Building Envelope
- Pipe Insulation
- Electric Pool Cover
- Ceiling Replacement
- HVAC Maintenance Program Development

Phase III Project Implementation
December 2012-October 2013

Source of Funds
Qualified Zone Academy Bond

Annual Energy Savings
$116,000

Annual Operational Savings
$31,400

One Time Gas & Electric Utility Rebate
$69,244

Total Honeywell Energy Project Amount
$2,350,000

Total Roof Amount
$650,000

Client Contact
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BACKGROUND

The Manistee Area Public School District is located in Manistee Michigan and serves roughly 1,700 students in the District. This was the third energy project implemented between the District and Honeywell. The Phase III energy project was developed to assist the District in replacing a roof that lacked the necessary funding. The strategy entailed developing an energy project that would not only pay for itself with savings from the existing budget but also generate surplus savings, above and beyond the cost of the energy project, that could be redirected to help pay for the roof. The strategy also included utilizing Qualified Zone Academy Bonds as a financing tool that allowed the District to borrow money for the energy project and the roof at 0% for fifteen (15) years.

SOLUTIONS

The facility upgrade program was designed to generate surplus savings by implementing quick payback - energy efficient items that also upgraded and replaced aging infrastructure.

The biggest contributor for surplus savings was the lighting retrofits and replacement. This included a mixture of low wattage T8 lamps, hybrid ballasts and reflector systems. There were also T5 systems installed in gymnasiums and LED systems on the exterior of the buildings. The energy efficiency and utility rebates made this a solid opportunity. Other key contributors were: DDC installation and modified control sequences, energy efficient motors, building envelope – caulking, sealing and foaming, pipe insulation and an electric pool cover installed on a therapy pool.

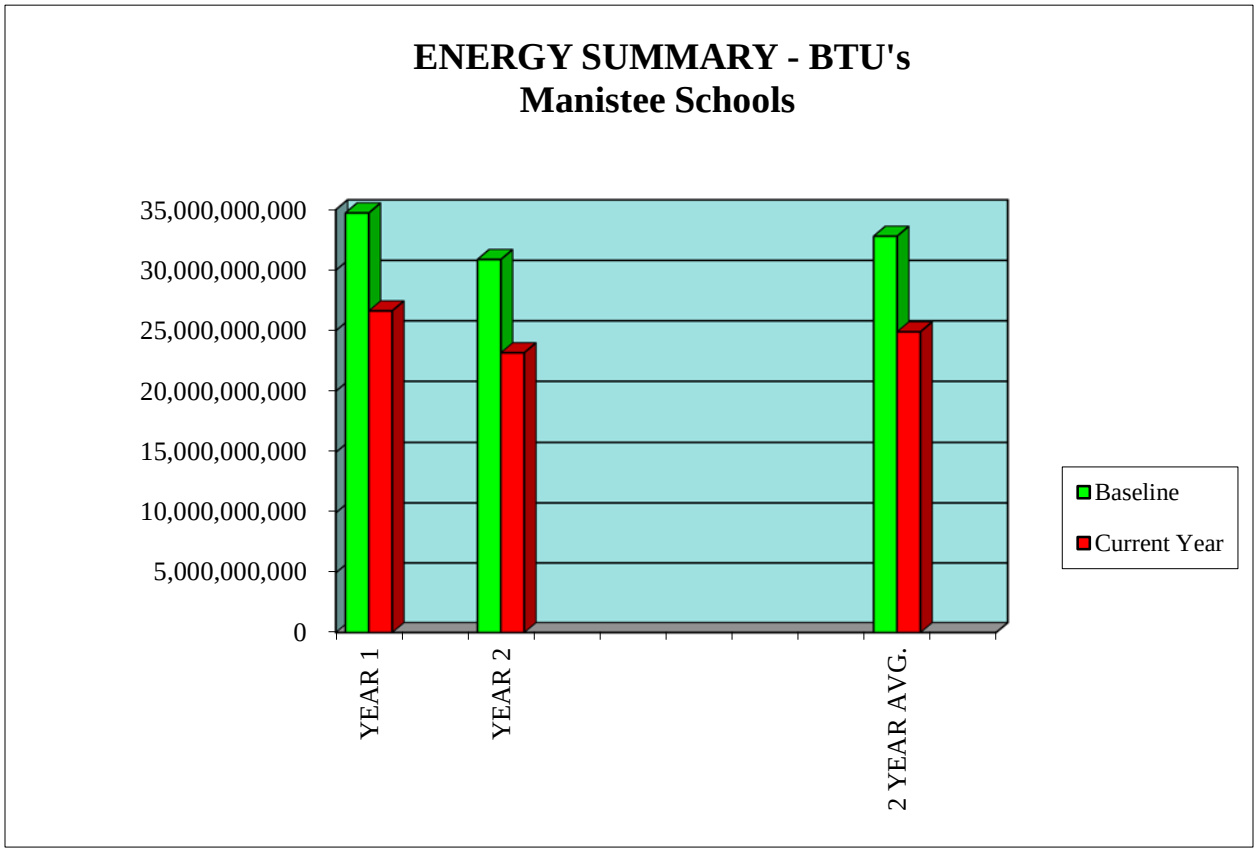
There were also capital projects at the facility with energy efficiency benefits. Condensing boilers were added to the existing boiler systems at three buildings. These 90% efficient boilers provide the buildings heating source for a majority of the heating season. A control panel to sequence the boilers (existing and new) based on heating requirements was also installed. The control panel is accessible from the central energy management system. The sequencing control panel determines which boiler to operate to maximize energy efficiency. This increases energy efficiency and decreases maintenance costs, as the older existing boilers will see decreased run times, while prolonging existing boiler life.

Another capital project was converting five (5) large constant volume air handling systems at the High School to variable air volume (VAV) systems. This improves efficiency by allowing the District to reduce fan speeds when spaces do not require full amounts of ventilation, heating or cooling based on a time schedule and the occupancy in the space.

OTHER BENEFITS

Additional benefits of these projects include:

- Reduced greenhouse gas (GHG) emissions
- Reduced operating and maintenance costs of $ 31,400 per year
- Improved learning environment for students and faculty to assist the district with Student Achievement goals



BTU SUMMARY	YEAR 1	YEAR 2	2 YEAR AVG.
Baseline BTU's	34,734,438,354	30,890,623,354	32,812,530,854
Current Year BTU's	26,639,132,422	23,174,931,768	24,907,032,095
Usage %	-23%	-25%	-24%

COST SUMMARY	YEAR 1	YEAR 2	2 YEAR AVG.
Baseline Dollars	$491,803	$456,918	$474,361
Current Year Dollars	$382,789	$347,481	$365,135
Usage %	-22%	-24%	-23%