

Manchester School District



Update

It has been one year since the City of Manchester launched its partnership with ARAMARK Engineering Solutions. In the past year, a great deal of activity has taken place on several fronts. ARAMARK has completed over 90 separate energy projects in the city schools and municipal buildings. The cost for this effort exceeds \$1.5 million and will produce an annual energy savings exceeding \$360,000.

Phase II of the approved energy projects will start in January and includes additional heating and ventilation control upgrades and lighting retrofit projects. The lighting projects will include motion sensors along with new lamps and ballasts in the common areas of the schools. This work will take place at Central and Memorial High Schools, Parker Varney, McDonough, Gossler, Jewett and Smyth Elementary Schools.

A new city website, "Sustainability Manchester" has been created. This website can be accessed by going to the following link: <http://www.manchesternh.gov/website/Departments/Facilities/SustainabilityManchester/tabid/2907/Default.aspx>

This site has information about the energy program and other details related to sustainability. This is the second edition of the Manchester School District Energy Program Newsletter, with the first issue released in September of 2011.

Program Activities

In the upcoming months, several more of Manchester's public schools will gain the ENERGY STAR Certification. This certification means that the building operates in a manner that is greater than 75% of other buildings in the same category and size. Manchester already has one school that received this honor, Highland Goffs Falls Elementary School.

During the installation of energy retrofit projects, ARAMARK is seeking utility rebates on behalf of the City. To date, these rebates have exceeded \$115,000 from both the National Grid and Public Service Company of New Hampshire. These funds provide enhanced return-on-investment on the actual projects along with the annual projected energy savings.

Retro-commissioning is underway in several schools, which is another program taking place as part of the Energy Program provided by ARAMARK. See page 4 of this newsletter for more information on our retro-commissioning efforts.

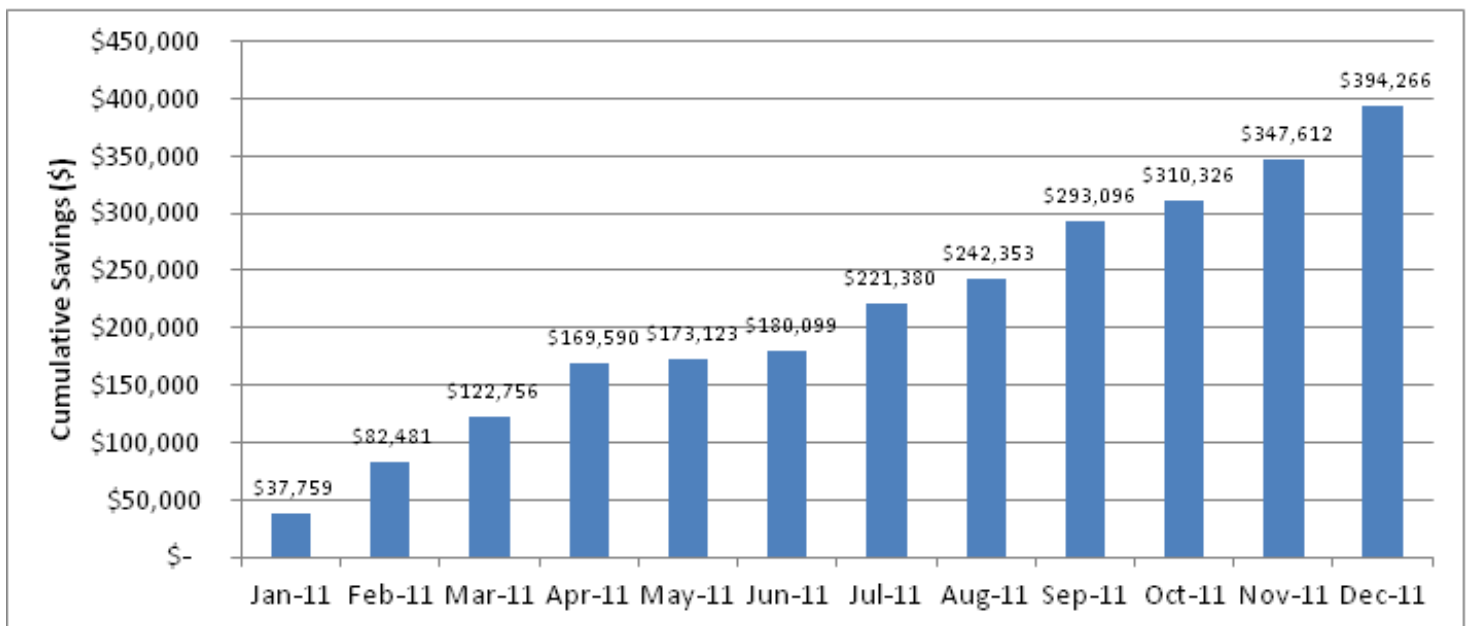
Other activities include remote monitoring of space temperatures during unoccupied periods such as the recent holiday break. The schools energy policy requires temperature standards for both occupied and unoccupied periods. The mission for this work is to have the schools comfortable when the staff and students arrive and save energy when they are not in use. This is a formidable task when you look at the 2.3 million square feet that makes up the Manchester School District.

Energy Program Performance Summary

Nov. & Dec. 2011 Performance	Contract Year to Date (since January 2011)	Total Performance to Date (since January 2011)
Consumption Reduction ¹ : <ul style="list-style-type: none"> Energy Reduction: 12.8% 	Consumption Reduction ¹ : <ul style="list-style-type: none"> Energy Reduction: 10.6% 	Consumption Reduction ¹ : <ul style="list-style-type: none"> Energy reduction: 10.6%
Financial Savings: \$83,941 <ul style="list-style-type: none"> Electricity: \$65,032 Natural Gas: \$18,909 	Financial Savings: \$394,266 <ul style="list-style-type: none"> Electricity: \$266,385 Natural Gas: \$127,882 	Financial savings: \$394,266 <ul style="list-style-type: none"> Electricity: \$266,385 Natural Gas: \$127,882
Greenhouse Gas Emissions Avoided: <ul style="list-style-type: none"> 501,030 lbs of CO2 	Greenhouse Gas Emissions Avoided: <ul style="list-style-type: none"> 2,480,917 lbs of CO2 	Greenhouse Gas Emissions Avoided: <ul style="list-style-type: none"> 2,480,917 lbs of CO2

¹ Comparisons are made to the Base Year. Base Year periods vary slightly for some meters but all fall between July 2009 and June 2010.

Cumulative Savings



Current Profile (Past 12 months)

- Energy Intensity: 59 kBtu/SqFt

Baseline Profile (July 2009 – June 2010)

- Energy Intensity: 60 kBtu/SqFt

Improved School Building Envelope

Three District schools saw their building envelope improved as part of the Energy Program: West High, Middle School at Parkside, and Beech Elementary School all received upgrades and improvements to seal their total building envelope. All three of these schools have controlled conditioned ventilation to meet the needs of the occupants. Reducing additional outside air was the main goal of the building envelope improvements. These improvements included exterior door weather-stripping, caulking cracks, and building joints, sealing openings between walls and roof joints, and roof penetrations. In the cold weather months, fresh air must be heated as it enters the building ventilation systems. Unwanted fresh air (drafts) add to the heating load of the building, increasing discomfort and energy expenses. Many schools built before current energy codes did not fully seal all the areas in which outside air could enter the building. In total, over 60 exterior doors received new weather-stripping and over 2,000 linear feet of joints were sealed as part of this project. The heating savings from this project is projected to save more than \$12,000 in fuel savings on an annual basis.



Retro-Commissioning at a School Near You

ARAMARK started a retro-commissioning project in the District this past November and will be continuing this project during the winter months. Retro-commissioning improves how building equipment and systems function together. Depending on the age of the building, retro-commissioning can often resolve problems that occurred during design or construction, or address problems that have developed throughout the building's life. In all, retro-commissioning improves a building's operations and maintenance procedures to enhance overall building performance.

During the winter months, ARAMARK will focus on retro-commissioning the heating plants and zone controls. Each boiler and hot water pumping system will be tested to verify that it operates as efficiently as possible. All schools in the District are equipped with automated control systems; called Direct Digital Controls. These systems automatically operate all the heating equipment to maintain a set of standards. As each system is inspected, all deficiencies found will be reported to the City for further action. During this process, adjustments to some systems will be made, and diagnostics such as trend studies will be conducted to monitor how the systems react to changes in the outside air over time. The City's Facilities Staff will participate in the process for training purposes and to support the work required to complete the field activities. Zone temperature controls, such as the heating in the classrooms, will also be monitored to verify that they are meeting comfort standards and the school's energy policy. All efforts will focus on two core objectives; maintaining comfort in support of the education environment and conserving energy by operating the schools in the most efficient manner with the existing mechanical equipment.

Everyone benefits from retro-commissioning. For the School District, retro-commissioning will reduce building operating costs that can lead to lower operating expense. School Administration will notice fewer occupant complaints and increased ability to manage the space and the mechanical systems. The building staff will receive training and improved documentation, and building occupants will be more comfortable.

Energy Savings Ideas

HEAT & COOL EFFICIENTLY

As much as half of the energy used in your home goes to heating and cooling. So making smart decisions about your home's heating, ventilating, and air conditioning (HVAC) system can have a positive affect on your utility bills — and your comfort. Below are four easy steps to increase the efficiency of your heating and cooling system:

1. Change your Air Filter Regularly

Check your filter every month, especially during heavy use months (winter and summer). If the filter looks dirty after a month, change it. At a minimum, change the filter every three months.

2. Tune-up your HVAC Equipment Yearly

Just as a tune-up for your car can improve your gas mileage, a yearly tune-up of your heating and cooling system can improve efficiency and comfort.

3. Install a Programmable Thermostat

A programmable thermostat is ideal for people who are away from home during set periods of time throughout the week. Through proper use of pre-programmed settings, a programmable thermostat can save you approximately \$180 annually in energy costs.

4. Seal your Heating and Cooling Ducts

Ducts that move air to-and-from a forced air furnace, central air conditioner, or heat pump is a source of energy waste. Sealing and insulating ducts can improve the efficiency of your heating and cooling system by as much as 20% — and sometimes much more.

For more information visit: http://www.energystar.gov/ia/partners/publications/pubdocs/HeatingCoolingGuide%20FINAL_9-4-09.pdf?486e-d879

Superintendent
Thomas J. Brennan

Assistant Superintendent
Michael Tursi

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EPA Recognizes Manchester High School West on Energy Reduction Efforts

At a student assembly of over 700 Manchester High School West students and an additional 700 watching live from classrooms, EPA congratulated the Schools accomplishments in reducing energy use and their involvement in the ENERGY STAR Battle of the Buildings. Out of the eleven New England buildings that entered the competition, Manchester West had the second largest reduction in energy use and was the top New England School in the Competition.

This year, the Battle of the Buildings competition featured teams from 245 buildings across the country in a head-to-head battle to save energy, reduce costs, and protect people's health and the environment. The competition tracked their monthly energy consumption using the EPA ENERGY STAR online tool from September 1, 2010 through August 31, 2011.

The competitors saved a combined total of more than 240 million kBtus (thousand British thermal units) of energy and \$5.2 million on utility bills annually by improving their operations and maintenance and upgrading equipment and technology. This is equivalent to the average amount of electricity used by more than 3,600 homes annually.

At Manchester West specifically, energy use was cut by 16% saving almost \$75,000/year on utility bills. The Greenhouse Gas emissions reduced by the School was the equivalent of taking 31 cars off the road, and the electricity used by almost 14 homes per year.

ENERGY STAR was started by the EPA in 1992 as a market-based partnership to reduce Greenhouse Gas emissions through energy efficiency. Today, the ENERGY STAR label can be found on more than 60 products as well as new homes and commercial and industrial buildings that meet strict energy-efficiency specifications set by the EPA. Last year alone, Americans, with the help of ENERGY STAR, saved \$18 billion on their energy bills while reducing the greenhouse gas emissions equivalent to those of 33 million vehicles.

More Information: Energy Star "Battle of the Buildings" challenge: <http://www.energystar.gov/index.cfm?fuseaction=buildingcontest.index>