PROJECT 1: Make Up Air (MAU) Unit Replacement at Wastewater Plant

PROJECT DESCRIPTION: This project includes the installation of a new Make Up Air Unit for the Wastewater Treatment office. Energy recovery of the exhaust airstream is expected to be around 70% efficiency resulting in a savings of ¾ gallon of oil per hour during peak temperature difference

- New roof mounted Energy Recovery Plate type heat exchanger.
- Crane and rigging.
- New fresh air fan with outdoor air hood and prefilters.
- New exhaust fan and ducting tied into existing ducting.
- Hot water reheat coil.
- S.S. Distribution plenum
- Electrical allowance.
- Supply and return piping to existing heating loop.
- Roofing allowance.

PROJECT MANAGEMENT: Guardian Team – John Scheidel - Project Management

SCHEDULE: Completion of project by Guardian Energy Management Solutions LLC, was August 5, 2015.

BUDGET: $99,940.00.

PAYMENTS: $24,985.00 (25% upfront cost) was paid 10/22/2014. Final balance (75%), Invoice #601 for $74,955.00 paid to contractor February 3, 2015.
DEMONSTRATION AND INSTRUCTIONS: Wastewater Treatment Plant personnel were provided turnkey installation of new Energy Recovery Units.

PROJECT 2: Weatherization Improvements at Highway Garage

PROJECT DESCRIPTION: There are unwanted air leakage bypasses between the conditioned garage space and the unconditioned attic space. These bypasses, including an access hatch, flue pipes and electrical fixtures, allow energy loss by air transfer. The existing insulation is a combination of 3.5” fiberglass batt and 5.5” fiberglass batt insulation with an effective R-value of between R-8 and R-12, which is well below the desired level of R-40 for an attic flat. The insulation coverage varies throughout the attic space – there are areas of very good coverage and areas of poor coverage where insulation has been displaced. Guardian recommends Attic Bypass sealing and the installation of 8” loose fill cellulose to resolve these issues.

PROJECT MANAGEMENT: Guardian Team – Adam Segelstrom - Project Management

SCHEDULE: Guardian Energy Management Solutions completed the project on October 27, 2014.

BUDGET: $16,162.00.

PAYMENT: Total cost of $16,162.00 has been paid to the contractor on this project. There were no utility incentives available.

PROJECT 3:
Walk-In Cooler/Freezer EC Motors and Controls at Smith Academy

PROJECT DESCRIPTION: The school cafeteria has a walk-in cooler and walk-in freezer with fan motors that run constantly to maintain temperature ranges. The electrical power used by the
fan motors ends up as heat inside the refrigerated space. By installing 2 speed EC (electronically commutated) motors, the fans will operate at a low speed when no cooling is called for, and at high speed only when the system is actively cooling the refrigerator. In turn, much less heat is introduced into the cooler/freezer. This results in saving in evaporator fan motor energy consumption, the reduction in fan motor heat generated causes a significant reduction in refrigeration operation, saving enough energy at the compressor to almost double the savings provided by the EC motors alone.

**PROJECT MANAGEMENT:** Guardian Team – Adam Segelstrom - Project Management

**SCHEDULE:** Guardian Energy Management Solutions completed the project on December 15, 2014.

**BUDGET:** $6,005.00. The utility incentives approved for this project came in much higher than projected. The original estimate was $952.00, the approved incentive came in at $3,624.00, a difference of $2,672.

**PROJECT COMPLETED:** December 2014.

**PAYMENT:** Invoice #539 for $2,381.00 processed June 2, 2015.

**PROJECT 4: Install (2) 15hp and (2) 25hp VFD's at Smith Academy**

**PROJECT DESCRIPTION:** By installing VFDs to the heating system pump motors, you are adding the opportunity to adjust the motor speed and torque by varying motor input frequency and voltage. Rather than running your motor at 100% at all times, the VFD will turn down the
motor speed based upon the actual need. A VFD can also extend the lifespan for a motor by providing a “soft” start and stop. Circulating pumps are an ideal scenario to implement VFDs to gain energy savings. We are recommending installing VFDs for (2) 15hp and (2) 25hp motors.

**PROJECT MANAGEMENT:** Guardian Team – Adam Segelstrom - Project Management

**SCHEDULE:** All the equipment needed for this project has been ordered and shipped to Smith Academy. Estimated completion date for this project was mid-January 2015.

**BUDGET:** $47,027. The utility incentive of $16,200 has been approved by WMECO.

**PROJECT COMPLETED:** December 2014.

**PAYMENT:** Invoice #602 for $30,827.00 was processed on February 3, 2015.

**PROJECT 5: Walk In Cooler/Freezer EC Motors and Controls at Hatfield Elementary School**

**PROJECT DESCRIPTION:** The school cafeteria has a walk-in cooler and walk-in freezer with fan motors that run constantly to maintain temperature ranges. The electrical power used by the fan motors ends up as heat inside the refrigerated space. By installing 2 speed EC (electronically commutated) motors, the fans will operate at a low speed when no cooling is called for, and at high speed only when the system is actively cooling the refrigerator. In turn, much less heat is introduced into the cooler/freezer. This results in saving in evaporator fan motor energy consumption, the reduction in fan motor heat generated causes a significant reduction in refrigeration operation, saving enough energy at the compressor to almost double the savings provided by the EC motors alone.

**PROJECT MANAGEMENT:** Guardian Team – Adam Segelstrom - Project Management
SCHEDULE: Guardian Energy Management Solutions completed the project on December 15, 2014.

BUDGET: $5,714.00. The utility incentives approved for this project came in much higher than projected. The original estimate was $952.00, the approved incentive came in at $3,350.00, a difference of $2,398.00.

PAYMENT: Invoice #517 for $5,714.00 minus WMECO Incentive $-3,350.00 for a balance of $2,364.00 which was processed January 12, 2015.

PROJECT 6: Weatherization Improvements – Hatfield Elementary School

PROJECT DESCRIPTION: Make repairs and improvements to the existing building envelope to reduce air infiltration. The following areas will be addressed to achieve energy savings.

- Roof-Wall Intersection – the roof-wall intersection is a source of unwanted air leakage in the rear single story, flat roof area. The exterior flashing and finishes at the roof-wall intersection in this space are not air-tight. This system is allowing significant infiltration/ exfiltration.
- Doors – daylight at the bottom of door systems is a clear indicator of a pathway for unwanted infiltration/ exfiltration at the doors. The brush door bottom and double door center weather stripping material that is in place throughout the school is not an optimal product for stopping infiltration/ exfiltration.
- Compartmentalization at Doors – the door isolating the Boiler Room and the occupied spaces of the building is not weather stripped. The Boiler Room has outdoor air louvers; the different interior environments of the mechanical space and the school should be isolated.

PROJECT MANAGEMENT: Guardian Team – Adam Segelstrom - Project Management

SCHEDULE: Guardian Energy Management Solutions completed the project on February 12, 2015.

BUDGET: $4,774.00. Utility incentives were approved at $3,600.00 for Berkshire Gas.

PAYMENT: Balance on Invoice #657, dated 2/6/2015 for $1,174 was paid 2/18/2015.
Door Weather Stripping – clear daylight around the door shows a direct pathway for unwanted air leakage.

Door Weather Stripping – the existing weather stripping is damaged and is no longer stopping air infiltration/exfiltration at the center and bottom of the door system.

Roof-Wall Intersection Air Sealing – the exterior flashing and finishes at the roof-wall intersection are not constructed to stop air leakage.

Roof-Wall Intersection Air Sealing – gaps at the roof and unsealed gaps around framing components create pathways for unwanted infiltration/exfiltration.

Roof-Wall Intersection Air Sealing – gaps at the roof and unsealed gaps around framing components create pathways for unwanted infiltration/exfiltration.

Door Weather Stripping – clear daylight around the door shows a direct pathway for unwanted air leakage.
PROJECT 7: DPW GARAGE CONDENSING UNIT HEATERS

PROJECT DESCRIPTION: Install two (2) condensing heating units at Highway Garage. Guardian Energy Management will provide materials and equipment.

PROJECT MANAGEMENT: Guardian Team – John Scheidel - Project Management

SCHEDULE: Guardian Energy Management Solutions completed the project on October 7, 2015

BUDGET: Total project cost $16,381.00. There is a utility incentive of $1,500.00 for a total budget of $14,881.00. The project has eligible rebates that can be applied after completion of project with submission of final invoice.


TOTAL EXPENDITURES TO DATE - $167,729.00

In conclusion, personnel at each facility location was given a demonstration of installations and operation, prior to approval of substantial completion.

For purposes of reporting future energy savings, please contact Public Works/Facilities Director Phil Genovese, dpwdirector@townofhatfield.org, 413-247-9200, extension 106.

Find the Green Communities Report on the Town of Hatfield webpage at: http://www.townofhatfield.org/Pages/index