

Executive Summary

This study was performed to understand how your facility is currently using energy and identify ways to reduce energy use and operating expenses.

Specific areas of concern that were identified by the owner for evaluation include their heating bills.

The following energy efficiency measures (EEMs) and observations to reduce energy use were identified during the site visit:

- **Lighting Retrofit & Controls** – Replace interior lighting with LEDs and install occupancy controls in lower use spaces.
- **Improve Temperature Control** – Replace the thermostats with Wi-Fi units so that the board and the staff have real time controls.
- **Insulate Building Envelope** – Increase the building R-Value across each of the floors and seal up any penetrations.
- **Install Duct Insulation** – Insulate the heating ducts in the basement.
- **Insulate Pipes** – Insulate the heating hot water pipes and domestic hot water pipes in the basement.
- **Install High Efficiency Furnace** – Upgrade the furnace to the most efficient oil fired option (similar to the new boiler that was recently upgraded).
- **Replace Air Conditioners** – Install new high efficiency AC units
- **Install Air Source Heat Pumps** – Replace the AC units with Heat Pumps. Use the existing furnace and boiler systems for peak loads.
- **Install Ground Source Heat Pumps** – Replace the oil-fired heating equipment and the AC units with new GSHP technologies.

These Energy Efficiency Measures are summarized in the Project Summary Table below and discussed in more detail in the Energy Efficiency Measures section of this report.

Project Summary Table

Energy Efficiency Measures				\$ Savings & Cost		
EEM #	Measure Status	EEM Description	Reduction in Greenhouse Gas Emissions (Lbs. CO2e/Year)	Total Annual Savings	Install Costs	Simple Payback (years)
EEM-1	R	Interior Lighting Retrofit	4,271	\$ 614	\$ 3,735	6.1
EEM-2	R	Improve Temperature Control	4,414	\$ 753	\$ 800	1.1
EEM-3	R	Insulate Building Envelope	25,639	\$ 4,365	\$ 35,657	8.2
EEM-4	RS	Install Duct Insulation	483	\$ 82	\$ 407	4.9
EEM-5	R	Insulate Heating And Domestic Hot Water Pipes	442	\$ 69	\$ 171	2.5
EEM-6	NR	Install High Efficiency Furnaces	1,913	\$ 326	\$ 5,500	16.9
EEM-7	NR	Replace Air Conditioners	487	\$ 74	\$ 10,435	142.0
Total of Recommended Measures: 34,766 \$ 5,800 \$ 40,363 7.0						

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Measure Status Explanation:

(I) - Implemented: Measure has been installed

(R) - Recommended: Energy saved with a reasonable payback (within measure life)

(NR) - Not Recommended: When payback exceeds measure life and equipment is not at end of life

(RME) - Recommended Mutually Exclusive: Energy is saved and recommended over other options for a particular measure **(ME) - Mutually Exclusive:** Non-recommended option(s) to a Recommended Mutually Exclusive (RME) measure

(RNE) - Recommended Non-Energy: Recommended based on other, non-energy factors such as comfort, water savings or equipment at end of life

(RS) - Recommended for Further Study: For measures that require analysis beyond the scope of this program.

(BE) – Building Electrification: Measures that should be considered based on greenhouse gas reductions, eliminating on-site use of fossil fuels, or other sustainability factors

