



Williamsville Central School District

Building Owner:

Williamsville Central School District

Region: Western New York

Number of Buildings: 4

FlexTech Consultant:

Wendel Energy Services, LLC

Sector:

PreK-12 School

Square Footage:

496,200 sq.ft.

Pre-COVID Condition:

- Filters: Predominantly MERV 8; up to MERV 13 for some units
- Ventilation: This school district uses a combination of central HVAC, including dedicated outside air systems and unit ventilators to provide outside air into the buildings with a combined total supply airflow of 215,530 CFM
- Outside Air: 67%/ 144,750 CFM

Study Overview

NYSERDA funded this energy efficiency indoor air quality study that identified the energy use associated with the ASHRAE Epidemic Task Force (ETF) Building Readiness guidance¹ HVAC-related measures aimed at preventing the risk of COVID-19 infection that are feasible at the building. Additionally, the study investigated alternate opportunities that were more energy efficient, yet equally risk adverse from an indoor air quality perspective, as the ASHRAE guidance measures.

Measures Evaluated

| Measure Name | Measure Status | Electric Savings (kWh) | Fossil Fuel Savings (MMBtu) | Energy Cost Savings (\$) | Measure Cost (\$) |
|---|-----------------|------------------------|-----------------------------|--------------------------|-------------------|
| ASHRAE Epidemic Task Force (ETF) Guidelines Measures Evaluated | | | | | |
| Pre & Post Occupancy Purge | Not Recommended | -235,538 | -4,355 | -\$35,341 | \$0 |
| Increased Ventilation | Not Recommended | -23,671 | -996 | -\$6,942 | \$0 |
| MERV-13 Filter Upgrades | Recommended | -73,028 | 0 | -\$4,163 | \$35,376 |
| Shutdown Energy Recovery | Recommended | -13,057 | -2,188 | -\$13,429 | \$0 |
| Totals: | | -345,294 | -7,539 | -\$59,875 | \$35,376 |
| Energy Efficiency Package Measures Evaluated | | | | | |
| HVAC Equipment Improvements ² | Not Recommended | 5,435 | 2,410 | \$14,552.00 | \$769,408.00 |
| HVAC Equipment Improvements ² | Recommended | 106,803 | 5,655 | \$36,345.00 | \$1,614,081.00 |
| HVAC Controls Improvement ² | Not Recommended | 146,345 | 1,438 | \$14,132.00 | \$421,396.00 |
| HVAC Controls Improvement ² | Recommended | 584,908 | 3,867 | \$48,596.00 | \$554,544.00 |
| Lighting Improvement ² | Not Recommended | 205,274 | -28 | \$11,787.00 | \$301,886.00 |
| Lighting Improvement ² | Recommended | 662,521 | -57 | \$66,312.00 | \$1,089,746.00 |
| Domestic Water System Improvements ² | Not Recommended | 0 | 301 | \$2,048.00 | \$117,184.00 |
| Domestic Water System Improvements ² | Recommended | 0 | 21 | \$6,970.00 | \$12,824.00 |
| Recommended Measures Totals: | | 1,354,232 | 9,486 | \$158,223.00 | \$3,271,195.00 |

• All energy use and energy cost values are presented on an annual basis

• Negative values represent increased use/cost

• The Energy Efficiency Package Measure savings are presented with the ASHRAE ETF Guidelines Measures Totals as the baseline

¹ The ASHRAE ETF guidance used for this study was based on one or more of the following document versions: Building Readiness v.5-21-2020, Commercial v.4-20-2020, Schools & Universities v. 5-5-2020, Healthcare v. 6-17-2020, Filtration & Disinfection v. 5-27-2020, ERV Practical Guide v. 6-9-2020

² See the Key Notes on the next page for additional detail.

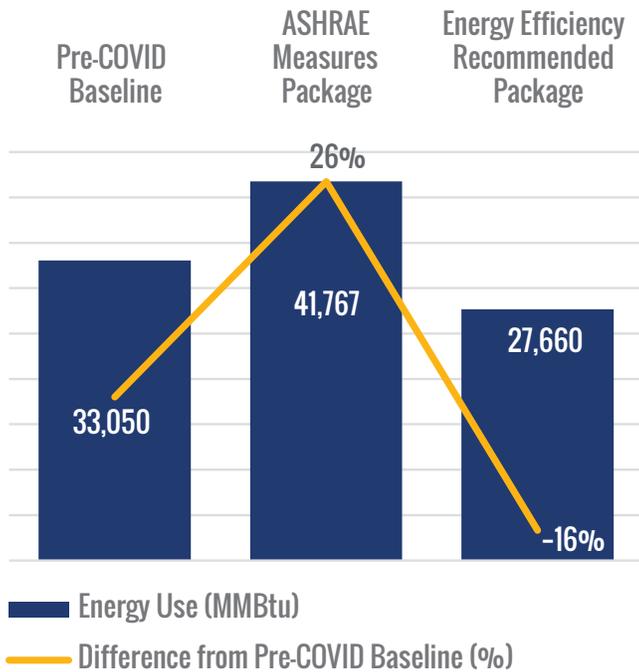


Key Notes

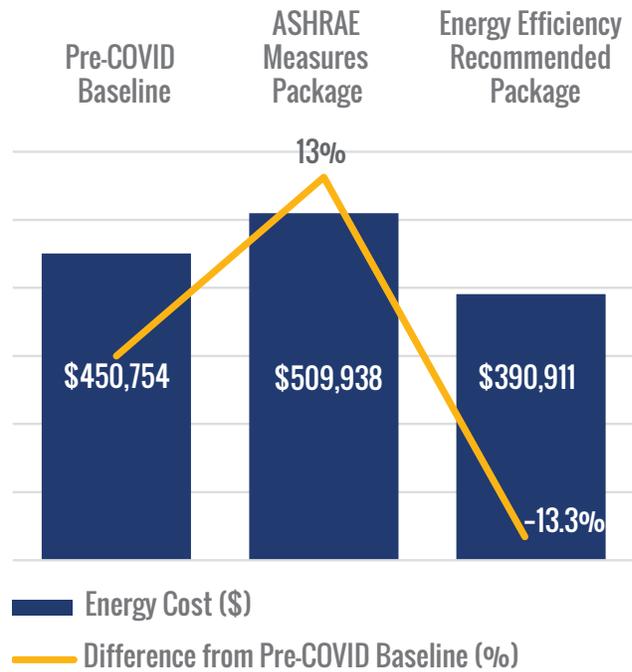
- This study looked at a few measures that were quickly dropped due to very high paybacks or low to no impacts on the ASHRAE baseline recommendations, namely Aeroseal in the ductwork, boiler reset controls, chilled water reset, steam trap replacements, solar ventilation heat recovery, retro-commissioning, kitchen ventilation controls, low-flow fixtures and instantaneous hot water.
- The energy efficiency package measures are grouped into high-level categories spanning all four buildings that were part of the study. The categories are further broken out by recommended and not recommended measures. The individual measures and recommendation statuses per building are available in the full report.

Impact Results

Energy Use Impacts



Energy Cost Impacts



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