



55 Water Street

Building Owner:

New Water Street Corporation

Region: New York City

Number of Buildings: 1

FlexTech Consultant:

Jaros, Baum & Bolles Consulting Engineers, LLP

Sector:

Commercial Real Estate

Square Footage:

3,583,167 sq.ft.

Pre-COVID Condition:

- Filters: MERV 15
- Ventilation: 20 variable air volume central air handling systems (various configurations and vintages) deliver air to variable air volume terminal boxes with reheat capabilities. The building also utilizes perimeter induction units.
- Outside Air: 2,791,400 CFM/ 15%

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					
Maximum Outdoor Air Increase.	Not Recommended	-226,750	-25,747	-\$687,838	\$6,000
2 Hour Flush Pre and Post Occupancy					
Totals:		-226,750	-25,747	-\$687,838	\$6,000
Energy Efficiency Package Measures Evaluated					
Package 1: MERV 15, Design Outdoor Air Levels, Portable Air Cleaners, 3 Outdoor Air Change Flush Pre & Post Occupancy	Not Recommended	-1,022,987	23,262	\$424,141	\$740,850
Package 2: MERV 15, Design Outdoor Air Levels, Portable Air Cleaners, UV-C, 3 Outdoor Air Change Flush Pre & Post Occupancy	Recommended	-349,636	23,063	\$527,313	\$486,500
Package 3: MERV 16, Design & Practical Outdoor Air Levels, Portable Air Cleaners, 3 Outdoor Air Change Flush Pre & Post Occupancy	Not Recommended	-321,133	19,282	\$436,216	\$333,750
Recommended Measure Totals:		-349,636	23,063	\$527,313	\$486,500

- 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



Key Notes

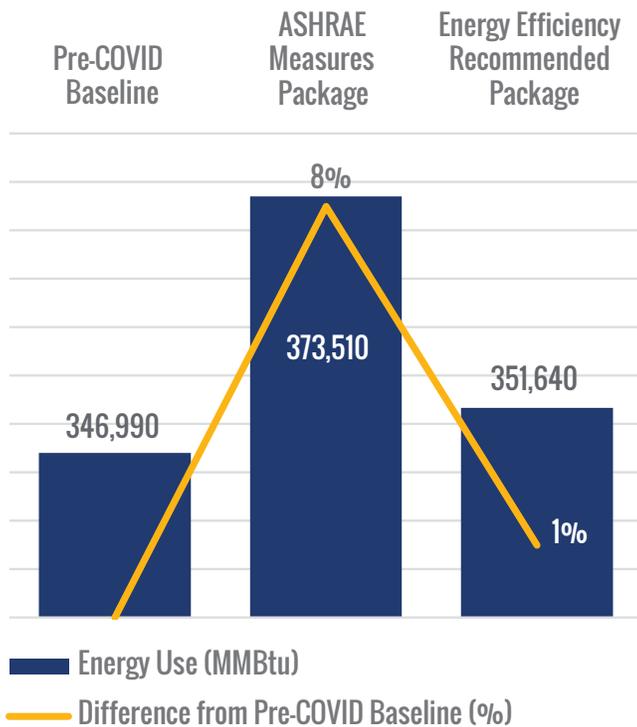
Measure recommendations are based on the ability to achieve five effective air changes per hour (ACHe) at design airflow rates with minimized energy, carbon, and cost impact. This study revealed only the units serving the Primary Air for the 4th to 13th Floors and 16th to 33rd Floors on the North and West regions and units serving the Concourse North would require additional IAQ enhancements to meet the target five ACHe.

Package 2 presented the most significant estimated annual energy cost savings but does not have a significantly higher estimated first cost. While Package 3 has a lower upfront cost, this approach has a higher 10-year cost of ownership and will save less energy and carbon than Package 2.

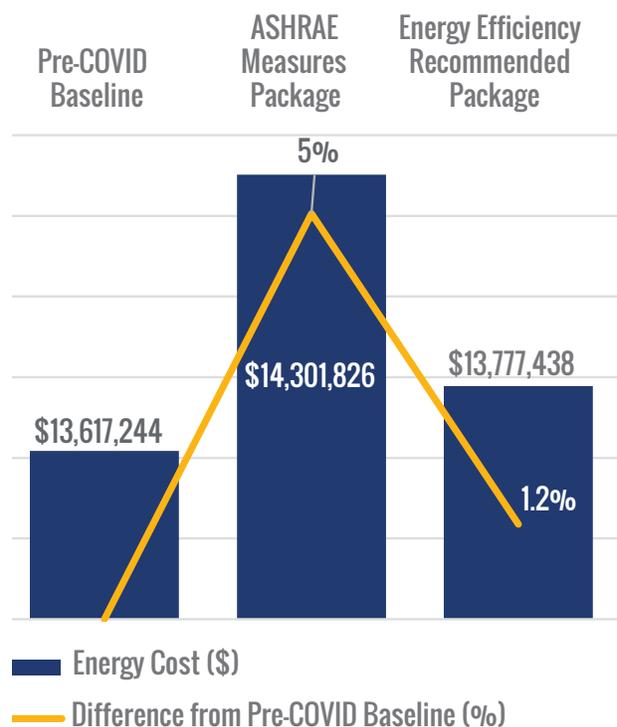
Early ASHRAE guidance suggested a two-hour flushing period before and after occupancy at maximum outdoor air levels. An alternative flushing approach of targeting three outdoor air changes before and after occupancy at practical outdoor air levels would take 75 minutes across the buildings.

Impact Results

Energy Use Impacts



Energy Cost Impacts



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