



Large Midtown Manhattan Commercial Office Building #3

Building Owner:

Real Estate Trust Company

Region:

New York City

Number of Buildings:

1

FlexTech Consultant:

Goldman Copeland Associates, P.C.

Sector:

Commercial Real Estate

Square Footage:

729,000 sq.ft.

Pre-COVID Condition:

- Filters: MERV 12

• Ventilation:

Unconditioned outside air is provided to the air handling units via two dedicated outdoor air fans that are fitted with variable frequency drives and operate to maintain a static pressure set point of 0.15 psi in the middle floors of the building. There is one air handler on each floor that feeds into a single outdoor air riser of constant dimensions, with mechanical balancing dampers at each floor to enable control of outside air supply into each floor. These dampers are interlocked with the air handler on the floor, opening when the unit is in operation.

• Outside Air:

61,500 CFM/ 12%

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					
Increase outside air levels	Not Recommended	-19,509.0	-1,147.4	-\$50,318	\$0
Add interior humidification	Not Recommended	-677,735.0	0.0	-\$129,378	\$1,694,000
Upgrade filters from MERV 13 to 14	Recommended	-35,200.0	0.0	-\$6,688	\$27,100
Increase ventilation hours of operation (no conditioning)	Recommended	-357,869.0	-385.7	-\$83,613	\$0
Test and balance toilet exhaust system	Recommended	Not Evaluated			\$6,100
Test and balance supply fans with focus on outdoor air levels	Recommended	Not Evaluated			\$12,100
Totals:		-1,090,313	-1,533	-269,997	1,739,300
Energy Efficiency Package Measures Evaluated					
Install UVGI lights at supply air coils	Recommended	167,599.0	0.0	\$31,844	\$288,000
Reduce outdoor air levels	Recommended	19,509.0	1,323.0	\$57,365	\$0
Monitor indoor air quality	Recommended	Not Evaluated			\$74,500
Local HEPA filter units	Recommended	Not Evaluated			\$0
Add upper room UVGI for tenant spaces	Optional	-681,178.0	0.0	-\$129,424	\$4,234,000
Recommended Measures Totals:		187,108	1,323	\$89,209	\$362,500

• 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

¹The 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



NYSERDA

Key Notes

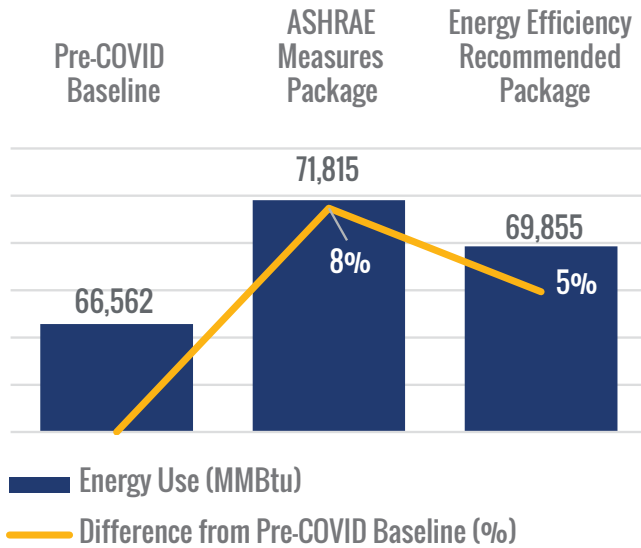
Adding interior humidification will be relatively expensive and requires significant labor. During winter months a high difference in humidity between the interior and exterior of the building could lead to mold and interstitial condensation.

Placement of local HEPA filter units in areas with more concentrated groups of people is impractical for use in larger tenant floors but could be beneficial for areas such as lobbies or conference rooms. Further investigation is required to determine costs and effectiveness.

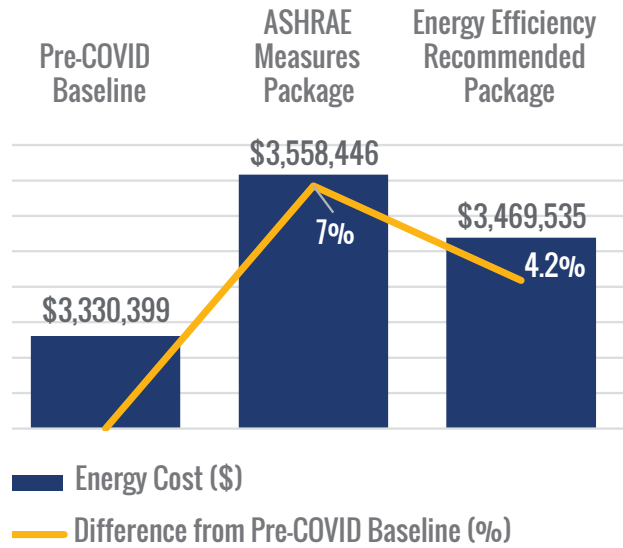
Upper room UVGI installation is optionally recommended due to cost, access, and expected resistance from stakeholders.

Impact Results

Energy Use Impacts



Energy Cost Impacts



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