



## Large Midtown Manhattan Commercial Office Building #2

### 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:

641,000 sq.ft.

### Pre-COVID Condition:

- Filters: MERV 13

- Ventilation: One air handling unit provides ventilation air via VAV boxes to the interior zone for each floor. Two exterior induction units handle the north and south fenestration zones, floors 4-10 and floors 11-26. The primary air from the induction unit air handler induces another 60% of room air. Both air systems are capable of drawing in 100% outside air although approximately two thirds of the induction unit air is recirculated.

- Outside Air: 69,785 CFM/ 17%

## 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 guidance<sup>1</sup> 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 (\$)
<b>ASHRAE Epidemic Task Force (ETF) Guidelines Measures Evaluated</b>					
Increase outside air levels	Not Recommended	-819,636.0	-18,905.4	-\$614,911	\$0
Add interior humidification	Not Recommended	0.0	-2,894.1	-\$108,970	\$1,393,900
Upgrade filters from MERV 13 to 14	Recommended	-42,771.0	0.0	-\$7,478	\$34,800
Increase ventilation hours of operation (no conditioning)	Recommended	-223,509.0	0.0	-\$152,995	\$0
Test and balance toilet exhaust system	Recommended	Not Evaluated			\$7,300
Test and balance supply fans with focus on outdoor air levels	Recommended	Not Evaluated			\$19,400
Totals:		-1,085,916	-21,799	-\$884,354	\$1,455,400
<b>Energy Efficiency Package Measures Evaluated</b>					
Install UVGI lights at supply air coils	Recommended	182,688.0	0.0	\$31,943	\$188,800
Reduce outdoor air levels	Recommended	819,636.0	18,905.4	\$614,911	\$0
Monitor indoor air quality	Optional	Not Evaluated			\$66,600
Local HEPA filter units	Optional	Not Evaluated			\$0
Add upper room UVGI for tenant spaces	Optional	-599,009.0	0.0	-\$104,736	\$3,723,300
Recommended Measures Totals:		1,002,324	18,905	\$646,854	\$188,800

• 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

<sup>1</sup> 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

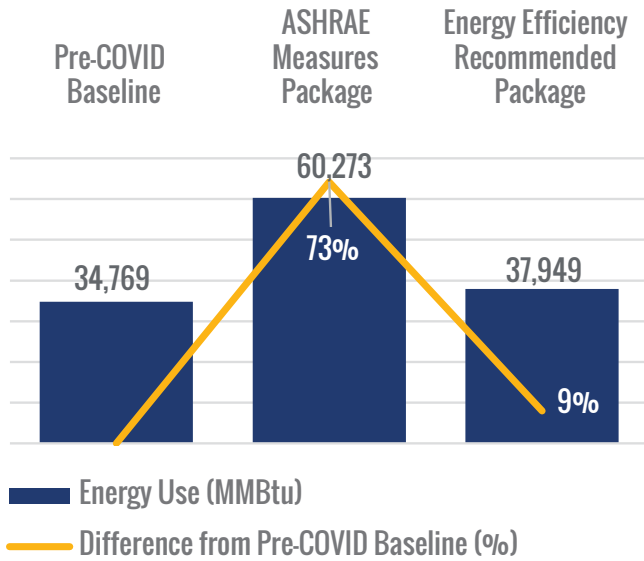


## Key Notes

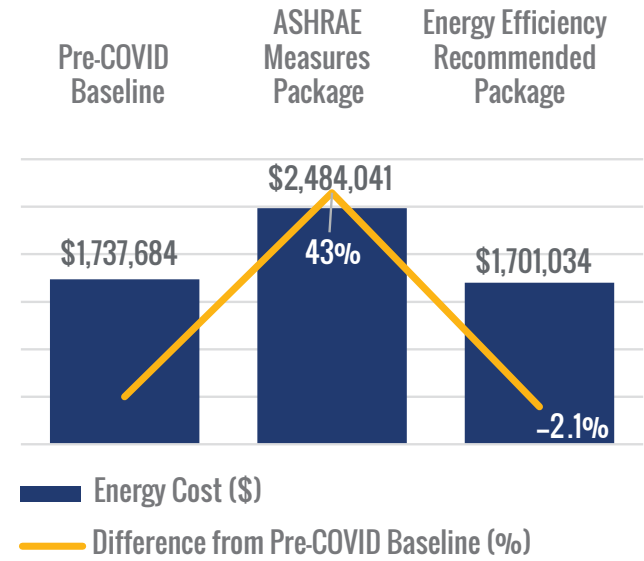
Adding interior humidification will be relatively expensive and requires significant labor. During winter months a high difference in humidity between the interior and exterior of the building could lead to mold and interstitial condensation. Increasing outdoor air levels to 100% will significantly increase cost and stretch the building's heating and cooling capacity.

## Impact Results

Energy Use Impacts



Energy Cost Impacts



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