



Rudin Management Company – 3 Times Square

Building Owner:

Rudin Management Company

Region: New York City

Number of Buildings: 1

FlexTech Consultant:

Jaros, Baum & Bolles Consulting Engineers, LLP

Sector:

Commercial Real Estate

Square Footage:

842,000 sq.ft.

Pre-COVID Condition:

- Filters: MERV 15
- Ventilation: Twenty-seven (27) floor-by-floor variable air volume chilled water air handling units, equipped with demand control ventilation and airside energy recovery
- Outside Air: 622,600 CFM/ 8% average

- 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

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	-668,164	-12,436	-\$235,985	\$6,000
2 Hour Flush Pre and Post Occupancy					
Disable Demand Control Ventilation					
Disable Energy Recovery Ventilation					
Totals:		-668,164	-12,436	-\$235,985	\$6,000
Energy Efficiency Package Measures Evaluated					
Package 1: MERV 15, Practical Outdoor Air Levels, 3 Outdoor Air Change Flush Pre & Post Occupancy	Not Recommended	187,692	7,233	\$123,660	\$6,000
Package 2: MERV 15, Design Outdoor Air Levels, 3 Outdoor Air Change Flush Pre & Post Occupancy, Portable Air Cleaners	Not Recommended	-2,161,073	11,139	\$27,333	\$1,437,750
Package 3: MERV 16, Design Outdoor Air Levels, 3 Outdoor Air Change Flush Pre & Post Occupancy	Optional	361,700	10,526	\$184,940	\$10,118
Package 4: MERV 15, Design Outdoor Air Levels, 3 Outdoor Air Change Flush Pre & Post Occupancy, UV-C in Central AHUs	Not Recommended	284,203	11,126	\$188,356	\$799,000
Optional Package Totals:		361,700	10,526	184,940	10,118

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



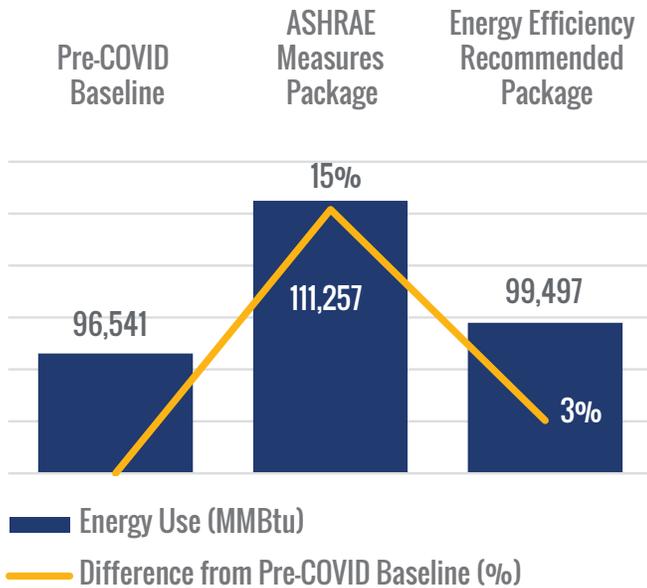
Key Notes

Measure recommendations are based on the ability to achieve five effective air changes per hour at design airflow rates with minimized energy, carbon, and cost impact. This study revealed increasing outdoor air and MERV filtration levels and installing ultraviolet germicidal irradiation units or portable air cleaners would not be necessary based on the pre-COVID operations exceeding five effective air changes at design airflow; however, if additional effective air changes per hour were desired, package 3 is the recommended option.

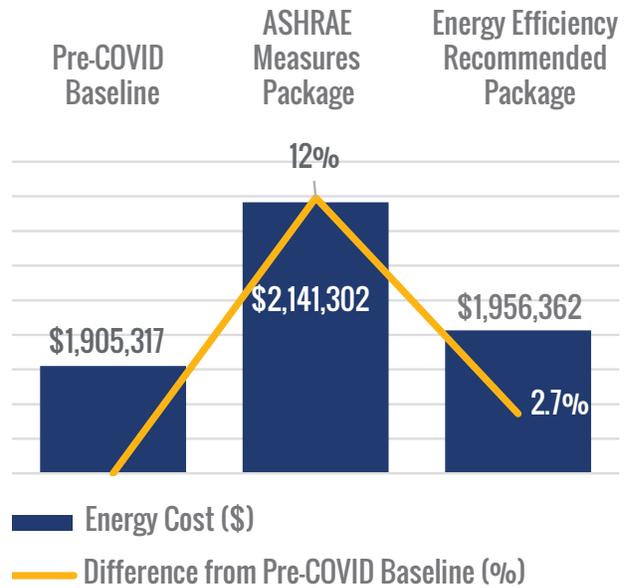
Early ASHRAE guidance suggested a two-hour flushing period before and after occupancy at maximum outdoor air levels. Although an alternative flushing approach of targeting three outdoor air changes before and after occupancy at design outdoor air levels would take 130 minutes at MoMA Queens, this method will reduce energy, cost, and carbon in comparison.

Impact Results

Energy Use Impacts



Energy Cost Impacts



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