



## The Mark Hotel

**Building Owner:**

The Mark Hotel

**Region:** New York City

**Number of Buildings:** 1

**FlexTech Consultant:**

Vidaris, Inc.

**Sector:**

Hospitality

**Square Footage:**

185,000 sq.ft.

**Pre-COVID Condition:**

- Filters: MERV7
- Ventilation:  
The building has two packaged rooftop units and various air handling units. The rooftop units are designed for 100% outdoor air. The C-5, 1-1, and 1-2 air handling units serving the lobby and casual dining room are designed for 45% outdoor air in the summer and 100% outdoor air in the winter. The guest room fan coil units receive ventilation air from the corridors that are served by the rooftop units. The kitchen is served by a 100% outdoor air make-up unit.

- Outside Air:  
15-30%, 792,000 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 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>					
Maximum Outdoor Air Increase	Not Recommended	-57,491	-917	-\$17,212	\$0
MERV 13 Filters	Recommended	-10,685	0	-\$1,678	\$6,411
2 Hour Flush Pre and Post Occupancy	Recommended	-5,423	-50	-\$1,301	\$0
Totals:		-73,599	-967	-\$20,191	\$6,411
<b>Energy Efficiency Package Measures Evaluated</b>					
In-duct UVGI in Common Areas	Recommended	-13,649	0	-\$2,143	\$64,975
Upper Room UVGI in Kitchen	Recommended	-1,051	0	-\$165	\$7,113
Minimum Outdoor Air	Recommended	51,683	588	\$13,361	\$0
Kitchen Hood Controls	Recommended	11,503	109	\$2,782	\$10,000
EC Motors in Fan Coil Units	Recommended	25,256	0	\$3,965	\$12,219
Totals:		73,742.0	696.9	\$17,800.00	\$94,307.00

- 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

<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

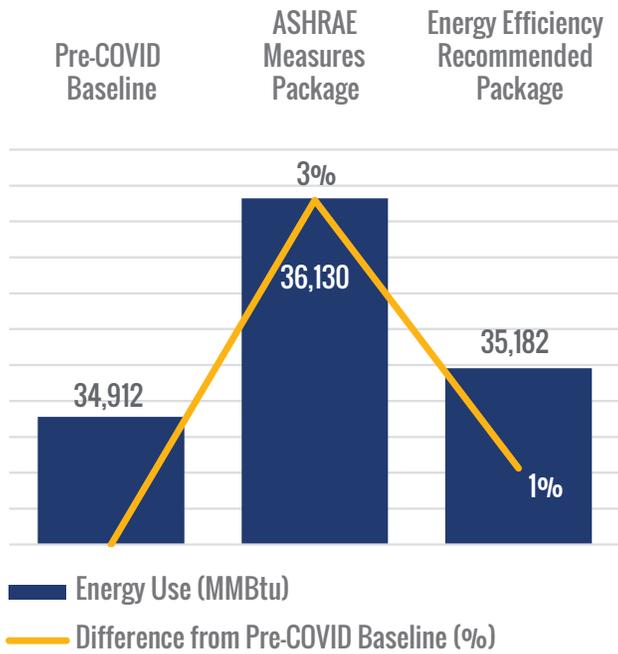


## Key Notes

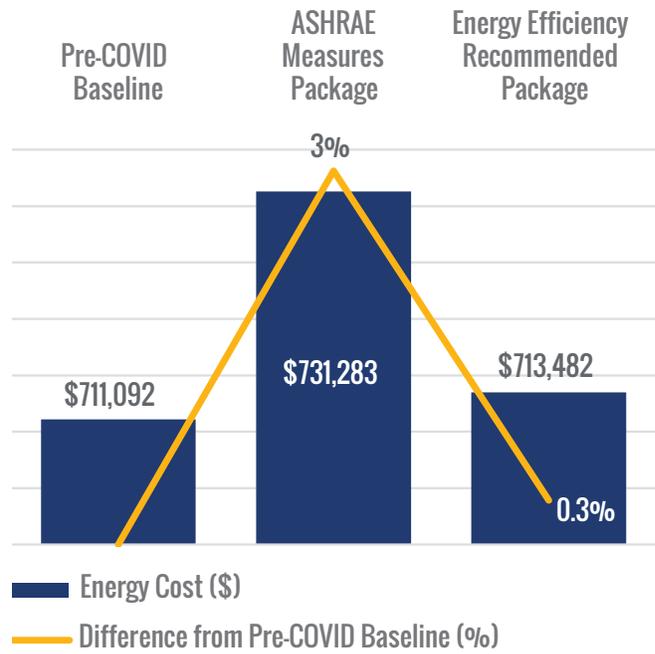
- Installing ultraviolet germicidal irradiation in the ductwork of the air handling units serving the common areas is recommended in conjunction with increasing the filtration in the AHUs to MERV 13 and reducing outdoor air intake from 100% to ASHRAE 62.1 Standard recommended levels. This results in excellent effective hourly air changes per the Harvard T.H. Chan School of Public Health Schools for Health Risk Reduction Strategies for Reopening Schools Report recommendations.
- The building already instituted a pre- and post-occupancy flush in the common areas, which is recommended to continue supporting increased indoor air quality and reduce the risk of pathogen transmission.

## Impact Results

Energy Use Impacts



Energy Cost Impacts



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