



## **NYSERDA Indoor Air Quality Analysis**

### **July Preliminary Report**

#### **Prepared for**

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## 1.0 July Progress to Date

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During July, EMCOR Services Betlem (EMCOR) has focused on gathering information and an understanding of the customers' facilities and operations.

### **WP-01 – Rochester Museum and Science Center**

Rochester Museum and Science Center's (RMSC) work plan (WP-01) was approved on 7/15 and the Planetarium's first site visit was conducted on 7/21. EMCOR reviewed available layout and space usage drawings to gain a general understanding of the Planetarium. EMCOR plans on visiting the Museum 7/31 to review the current equipment and operations. EMCOR has 12 months of utility data from RMSC and will request 12 more months for a total of two years for the utility analysis.

As the next steps, EMCOR will review the information they have gathered and develop a preliminary energy conservation list for IAQ projects.

### **WP-02 – Finger Lakes Community College**

The work plan (WP-02) for Finger Lakes Community College (FLCC) was approved on 6/30. By that time FLCC had provided 12 months of utility bills, supply and delivery, prior to the pandemic. EMCOR has requested the 12 months of utility data prior to the already received data in order to meet the threshold for WP-02 Task 1. EMCOR will work to complete the ASHRAE safe operation baseline per Task 1 once this is received.

The first site visits were conducted on 7/6/20 and 7/7/20. During these site visits, EMCOR collected 90 days-worth of available trend data for air handling units (AHUs) 1 through 16. The trend data ran from 4/8/20 through 7/6/20 and included information such as AHU status (on/off), airflows (supply, return, outdoor, exhaust) for a selection of units, and air temperatures (discharge, return, mixed). EMCOR also completed a thorough audit of the AHUs, visiting each one to document nameplate information, unit layout and approximate dimensions, and existing filtration. EMCOR interviewed building operator staff during these first visits to better understand how systems have been used over the past 4 months and what plans or goals are in place for operation as the facility moves towards occupancy. With these site visits, EMCOR completed WP-02 Tasks 2 and 3.

EMCOR intends to start the feasibility, energy, and economic analysis for the potential IAQ measures as laid out in WP-02 Task 4 during the week of 7/20/20.

## 2.0 Study Findings to Date

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### WP-01 – Rochester Museum and Science Center

#### *RMSC – Planetarium*

After the first site visit, EMCOR is developing the initial ECM list and exploring capabilities of acquiring logged data from the current Johnson Controls building management system. After the first walk-through, EMCOR believes that there is an opportunity to implement an assortment of system-level UVGI systems in the air handlers that serve the theater, offices, and lobby spaces. There are multiple spaces that have stand-alone split systems where upper-air UVGI may work best. In addition to UVGI, EMCOR is exploring in the opportunity to increase MERV filter ratings and modify the outdoor air ventilation strategies.

#### **Next Steps**

- Gather, organize, and analyze the available logged data.
- Finish creating the IAQ measure list.
- Develop ASHRAE safe operation plan and calculate the baseline energy consumption.
- Develop energy impact calculations for the identified IAQ measures.

#### *RMSC – Museum*

The initial site visit for the Museum is scheduled for Friday, July 31<sup>st</sup>.

#### **Next Steps**

- Develop preliminary IAQ measure list.
- Develop ASHRAE safe operation plan and calculate the baseline energy consumption.
- Gather, organize, and analyze available logged data.
- Develop energy impact calculations for the identified IAQ measures.

#### **Proposed Work Plan Adjustments**

None at this time.

#### **Lessons Learned**

None at this time.

### WP-02 – Finger Lakes Community College

The initial site visits and conversations with building operators revealed which of the AHUs are most important to focus on for this analysis. Three of the AHUs – AC-01, AC-03, and AC-05 – were not to be prioritized for implementation of UVGI or additional filtration due to their age. Each of these units is slated to be replaced within the very near future and instead, FLCC requested that guidance be given on the design of these replacement units.

Additionally, it was revealed that many of the AHUs have been upgraded to MERV-13 filtration for several years now, with the MERV-8 filters remaining as pre-filters. EMCOR will focus on the units which only use MERV-8 filtration for the analysis of filtration measures.

Building operators also revealed that one AHU, AC-12, has been fitted with a UVGI system for coil cleaning in the past few years as a pilot project. This system which was manufactured by Fresh-Aire UV was used for a short period of time and has since been abandoned. There are still replacement lamps and components for the system available at the site. Many AHUs at the site seem to be candidates for system-level UVGI.

### **Lessons Learned**

One of the measures that building operators at FLCC have undertaken is shutting off the fans on the fan coil units throughout the building. According to the operators, recommendations have been made to turn off terminal recirculating equipment within the space to mitigate the risk of transmission of viruses. As a result, all fan coil units are operating as radiant only heating and cooling systems.

### **Proposed Work Plan Adjustments**

None at this time.

### **Next Steps**

- Develop preliminary IAQ measure list.
- Develop ASHRAE safe operation plan and calculate baseline energy consumption.
- Develop energy impact calculations for the identified IAQ measures.