

Preliminary Findings Report #2 - 8/24/20

	<u>North Colonie SD</u>	<u>Albany Medical Center</u>	<u>Pratt Institute</u>
Work Plan Tasks Completed	<ul style="list-style-type: none"> Collected utility data for each school and have calculated a pre-COVID baseline for electrical and thermal consumption. Surveys at greater depth are be ongoing throughout the duration of the study. Comprehensive spreadsheet breaking down all heating and ventilation systems as well as our proposed IAQ recommendations has been created and is being filled out as field work continues (refer to 'Existing Conditions' row). Elementary schools field work has been completed IAQ technology vendors have been contacted in order to obtain budget pricing and other information. 	<ul style="list-style-type: none"> Collected utility data for Medical College and South Clinical Campus and have calculated a pre-COVID baseline for electrical and thermal consumption. Surveys at greater depth are to be ongoing throughout the duration of the study. Comprehensive spreadsheet breaking down all heating and ventilation systems as well as our proposed IAQ recommendations has been created and is being filled out as field work continues (SCC field work has been completed). Refer to 'Existing Conditions' row below. Guth DeConzo has initiated the process to be granted remote access to the AMC BMS IAQ technology vendors have been contacted in order to obtain budget pricing and other information 	<ul style="list-style-type: none"> NYSERDA IAQ paperwork and applications are in the process of being filled out and completed by client. Client says paperwork should be filled out and returned on 8/26.
Study Findings	<ul style="list-style-type: none"> Existing mechanical drawings and TAB Reports for all schools have been compiled and review of the drawings has started and is ongoing. Guth DeConzo has also obtained remote access to North Colonie SD BMS system. Facility filter inventory log has been obtained. This documents the schedule and type of filter replacements around the facility. We are going to recommend a more structured and streamlined approach to compile this filter information to allow for a more clear and concise inventory. There are opportunities throughout all the schools for short term strategies to increase the IAQ in rooms that utilize energy recovery units or return air units. In the short term, we are proposing an increase in outdoor air changes wherever possible. Guth DeConzo has obtained the preliminary schedule for the schools (i.e. certain grades will have certain time frames they are in the schools) 	<ul style="list-style-type: none"> Existing mechanical drawings and TAB Reports for all schools have been compiled and review of the drawings has started and is ongoing. Facility regularly keeps up with filter replacement. Documentation of replacements are kept on notecards on units themselves. We have been conducting more research into bi-polar ionization. Case studies and other literature has been passed along. O2 Prime (Siemens) claims to have a zero ozone producing needle point ionization technology. AMC staff have expressed interest. 	N/A
Existing Conditions	<ul style="list-style-type: none"> Shaker Middle School - utilizes heat recovery units to serve classrooms. Other spaces use return air units with outdoor air and return air mixing box. Shaker Middle School - Some perimeter rooms use unit ventilators to condition the space. These unit ventilators take out outdoor air through the perimeter wall and mix with return air from the space. Shaker High School - uses a combination of heat recovery units, return air units and unit ventilators around the perimeter. Shaker High School - it was noted by staff that the 'Wrestling Room' (rooms A102A and A105A) was having trouble with space temperature and comfort. Appears as though a make-up air unit was installed in the ceiling with supplemental heat provided by cabinet unit heaters. Airflow measurements were taken and air change rates were calculated in order to further identify a possible solution (room experiences about 5.5 ACH). We are exploring options to increase IAQ in this unique space. Latham Ridge Elementary - uses return air AHUs to provide ventilation to some pods of rooms. Rooms within those pods are then cooled using rooftop units. Other rooms are conditioned using unit ventilators or variable refrigerant flow units. Heat is provided through radiant floor heating. Blue Creek Elementary - is served by a combination of return air AHUs, plate and frame heat recovery units and unit ventilators. Heat is provided by radiant floor heating. Boght Hills Elementary - served by a combination of return air air handling units, energy wheel and plate and frame heat recovery units as well as unit ventilators or variable refrigerant flow units. Southgate Elementary - served by a combination of return air air handling units, plate and frame energy recovery units (with VAV boxes) and unit ventilators. 	<ul style="list-style-type: none"> South Clinical Campus - the spaces in this building are served by a combination of return air AHUs and energy recovery units. All of the units in this building are on variable speed drives and are able to be ramped up or down depending on the need. South Clinical Campus - Short Stay RTU-01 (serving the post op. short stay area of the campus) is already equipped with a steam humidifier manifold as well as UV lighting in the unit at the cooling coil. South Clinical Campus - it was noted by the AMC staff that AHU-02 serving the radiology area could use a full replacement in the near future. Medical College - Field work for this building has not yet commenced. We have obtained HVAC data from existing drawings but need to get on site for verification. 	

Preliminary Findings Report #2 - 8/24/20

<p>Proposed Strategies</p>	<ul style="list-style-type: none"> • We are proposing increasing the outdoor air exchange rate wherever possible. In rooms/areas that are served by air handling units or heat recovery units, we are proposing that the facility either run the units at full capacity (if they are 100% outdoor air) or modulate the outdoor air damper to allow for more outdoor air (if the units are return air units). This is more of a short term strategy for the upcoming months when schools open. • Rooms that are served only by unit ventilators or VRF units, we are proposing opening the windows. This is more of a short term strategy for the upcoming months when school opens. • We are exploring an approach to use the facility's BMS and CO2 sensors to control units based on occupant density (i.e. larger group of people gathered in the classroom = higher airflow) • Filter upgrades are proposed across the board on all units in all schools. • UV-C is being explored as an option for units where possible (much more cost effective when UV light can be installed inside of unit and no extra duct work construction is required). • Stand alone combination HEPA/UV units are being explored as they have been brought up numerous times by facility staff. These units are plugged into a regular 120V wall outlet and are placed directly in the room. Sound criteria is a concern with these. 	<ul style="list-style-type: none"> • Upon further research into bi-polar ionization, and the expressed interest in this technology by the AMC staff, we have found a ionization technology that claims to produce no negative ozone effects (O2 Prime Bi-Polar Ionization). We intend to pass along case studies and other information on this product. This is a potential strategy to be used pending necessary research and approval. • UV-C is being explored as an option for units where possible (much more cost effective when UV light can be installed inside of unit and no extra duct work construction is required). 	
<p>Lessons Learned</p>	<ul style="list-style-type: none"> • We encountered inconsistent filter names and types in North Colonie's filter lists. We are suggesting a new approach to the facility to inventory and monitor their filter inventory and maintenance schedule would be beneficial for all parties. The use of proper nomenclature and vocabulary when compiling a filter inventory is essential for proper documentation. 	<ul style="list-style-type: none"> • Certain areas of the South Clinical Campus would be better accessed after hours (after 6pm) as stated by the staff. Operating and patient rooms are more easily surveyed when not in use. 	<p>N/A</p>
<p>Work Plan Adjustments</p>	<ul style="list-style-type: none"> • Shaker Middle School existing drawings have inconsistent room names with what is actually being constructed/changed in the field. This is due to a change order that occurred during construction. We have obtained the 'as-built' room names and will adjust accordingly. • Ozone generation has been completely ruled out as an IAQ option. All clients have expressed no interest in this technology. 	<ul style="list-style-type: none"> • We have not encountered any obstacles that render a need for any adjustments in our work plan. We will continue on with the proposed work plan. • Ozone generation has been completely ruled out as an IAQ option. All clients have expressed no interest in this technology. 	<p>N/A</p>
<p>Next Steps</p>	<ul style="list-style-type: none"> • Surveys of mechanical systems and existing drawings throughout the schools shall continue. • Determine which IAQ technology and/or strategy will work best for the various spaces/schools. • Produce energy savings calculation spreadsheets based on our knowledge of IAQ technology costs, building utility data and our ability to monitor system usage through the BMS. • Conduct lighting audit for UVGI purposes and pricing 	<ul style="list-style-type: none"> • Surveys of mechanical systems and existing drawings throughout Medical College shall continue. • Conduct lighting audit for UVGI purposes and pricing. • Determine which IAQ technology and/or strategy will work best for the various spaces/schools. • Produce energy savings calculation spreadsheets based on our knowledge of IAQ technology costs, building utility data and our ability to monitor system usage through the BMS. 	<ul style="list-style-type: none"> • Commence on-site surveys of mechanical systems. Inquire about receiving remote access to facility's BMS system