



Christine Clancy, P.E.  
DPW Commissioner

TO: JoAnn Belanger, Board of Health Chairperson and Members of the Board of Health

FROM: Christine Clancy, P.E., DPW Commissioner

DATE: August 27, 2020

RE: Status summary of Freshman Academy 2019 Indoor Air Quality Report and MSBA Boiler and Roof Replacement Projects.

An indoor air quality assessment report was completed in December 2019 of the Freshman Academy as a follow up to an assessment completed in 2017.

The completed indoor air testing included testing of carbon dioxide levels, temperature, relative humidity, carbon monoxide, and fine particulate matter (PM2.5). The air quality results showed improvements from the 2017 results yet still exceedances in the carbon dioxide levels. Carbon dioxide levels that exceed the MDPH guidelines of 800 parts per million (ppm) typically indicate lack of air exchange or ventilation. DPW, the Health Department, and The School Department conducted a site visit of the Freshman Academy in February 2020 to review the report findings and develop a response plan. In the midst of developing a response plan, the COVID-19 pandemic occurred.

With the onset of COVID-19 and the heightened concern of ventilation in any indoor environment, the City has prioritized efforts to optimize ventilation across all 30 school buildings, including the Freshman Academy. The City's efforts being completed as part of the COVID related school reopening procedures, and as recommended by the Massachusetts Department of Elementary and Secondary Education (DESE), will address concerns raised in the indoor air quality assessment completed at the Freshman Academy. The following measures are in progress or have been completed at the Freshman Academy:

- 1. Maintenance and Repairs of HVAC System.** The DPW Lands & Buildings Department, working with other departments, are evaluating each building's HVAC system to optimize each HVAC system. 14 exhaust fans that exist on the roof of the Freshman Academy were recently repaired so that all exhaust fans are operational. The City has completed an assessment of exhaust fans across all 30 schools. During the evaluation, approximately 50% were found to be functioning. DPW Lands & Building staff is prioritizing these repairs and working on overtime as needed to make all exhaust fans fully functional at all 30 school buildings. Other necessary preventative maintenance and repairs will be made on the Freshman Academy's HVAC system prior to school reopening.



Christine Clancy, P.E.  
DPW Commissioner

- 2. 3rd Party HVAC Assessment:** Following DESE's reopening guidelines, the City of Lowell has contracted with an HVAC consultant to complete a 3rd party HVAC assessment of the City Schools. Garcia, Galuska, and DeSousa Consulting Engineers, who is also on the Lowell High School Project team is finalizing their HVAC assessment for the upcoming school building reopening, which will include recommendations for the Freshman Academy building. The City anticipates receiving a final report in the first week in September.

Per DESE's recommended guidelines, the HVAC assessment will provide recommendations to optimize each building's existing HVAC system. Optimization considerations include upgrading filters where feasible in ventilations systems; utilizing classrooms with only windows; providing repairs, maintenance, and cleaning of supply, exhaust, and return air systems; and supplementing classrooms spaces with HEPA air purifiers to simulate the functions of a MERV 13 filter.

- 3. Air Purifiers:** The City has started to receive an order of 1000 (high efficiency particulate air/absorbing) HEPA air purifiers recently purchased by the City. These air purifiers will be utilized in each classroom and other spaces within the school systems. This purchase cost the City \$400,000. These are critical to filter and clean the air in our schools as it simulates a MERV 13 filter, which is a filter that collects any particles of up to 0.3 microns in size, allowing cleaned air to pass through the filter. These particles include dust, allergens, pollen, dander, odors, mold, and bacteria.
- 4. Windows:** Approximately 80% of all windows in the Freshman Academy are operational. While a minimum of one window will be operational in each classroom, DPW is attempting to make more than one or all windows in a classroom operational as feasible. This work will be completed over the next couple of weeks.
- 5. Building Flushout:** Per DESE' recommended guidelines, DPW will be completing a building flushout 7 days prior to school reopening. This includes operating HVAC systems 24/7 at 100% outdoor airflow. DESE also recommends operating HVAC systems 2 hours before and after each school day. This will be coordinated between DPW and the School Department. The initial building flushout and the daily additional outdoor airflow being brought into the building will improve ventilation, which should also equate to a decrease in carbon dioxide levels that were noted in the December 2019 report.

The Board of Health has also asked for an update on the ongoing MSBA roof and boiler replacement projects. The ongoing roof and boiler MSBA projects are being coordinated with the school reopening efforts. Boilers are being replaced at Bailey, Daley, Greenhalge, McAuliffe,



Christine Clancy, P.E.  
DPW Commissioner

Rogers/STEM, and Sullivan Schools, and roofs are being replaced at Bailey and Sullivan Schools. These projects are part of the MSBA's 2019 Accelerated Repair Program (ARP), representing an estimated \$13.6 million worth of work. The MSBA will fund approximately 80% of this work, with the City funding the remaining 20%. The projects are all on track to be completed by mid-October. Any work that remains to be completed once the schools are occupied will be done when students are not present in the buildings. Below are some progress photos of the Boilers that are being installed:



*(Left) New Bailey School Boilers; (Right) New Daley School Boilers*

DPW and the School Department are coordinating on a daily basis and working extended hours to ensure that the schools can safely reopen with optimized ventilation in all schools and including in the Freshman Academy. While the efforts dedicated to the school reopening preparations were originally intended to address the ongoing COVID pandemic, these measures will also address the concerns raised in the December 2019 Freshman Academy Indoor Air Quality Report.

Thank you.



City of Lowell Department of Public Works  
1365 Middlesex Street • Lowell, MA 01852  
P: 978.674.4111 • F: 978.970.4071  
[www.LowellMA.gov](http://www.LowellMA.gov)

---

Christine Clancy, P.E.  
*DPW Commissioner*

CC: Eileen Donoghue, City Manager  
Kara Keefe Mullin, Assistant City Manager  
Alex Magee, Assistant to the City Manager, Interim Director of Finance and  
Administration (DPW)