Scranton School District

Summary of Draft GPI Ventilation Study Presented by D'Huy Engineering, Inc. Scranton Regular Board Meeting

March 1, 2021

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Executive Summary of Draft GPI Ventilation Study

The Scranton School District (SSD) is currently in the early planning stages of a Facilities Improvement Plan that is focused on prioritizing, budgeting, and implementing Capital Improvements to improve the District's aging facilities and replace infrastructure that is at the end of its life cycle.

The District recognizes that current COVID-19 guidelines provide additional facilities challenges including cleaning, sanitizing, social distancing, and other parameters that are required to be implemented in accordance with safe health practices. One area that is especially important for buildings is air quality, and in particular, fresh air to reduce the potential for COVID-19 transmission.

Greenman-Pedersen, Inc. (GPI) recommendations for improving building HVAC system ventilation performance:

1. Identify any areas where mechanical ventilation is not functioning as designed or is not available.
2. Perform repairs where feasible and/or identify temporary measures until repairs are implemented.
3. Determine where MERV 13 filtration is feasible.
4. Assess a long-term solution to incorporate bipolar ionization where MERV 13 filtration is not feasible.
5. After the above is complete, consider Measurement and Verification of the systems in order to verify that the mechanical ventilation is operating as originally intended.

ASHRAE and CDC Guidelines

ASHRAE Guidance for Reopening Schools

- **Inspection and Maintenance** –
    - Consider assessing the condition of HVAC Systems and make necessary repairs.
- **Ventilation –**
    - Provide a good supply of outside air.
    - Recommend 2-hour pre and post occupancy air purging of buildings each day.
    - Consider 24-hour pre-purge of building air prior to initial re-occupancy.
- **Filtration –**
    - For recirculated air systems recommend use of MERV-13 filters where system performance is not adversely impacted.
- **Air Cleaning –**
    - Where filters are not feasible in recirculated air systems recommend supplementing spaces with air cleaners such as UV and Technology specific equipment.

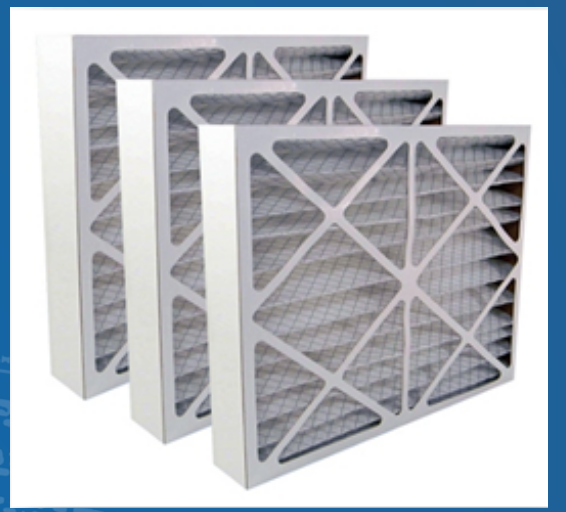
CDC Guidance for Operating Schools During COVID-19

- Follows ASHRAE guidance.
- Recommends increasing circulation of outdoor air as much as possible including opening of windows when conditions permit.

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MERV 13 and Bipolar Ionization

MERV 13 Filters



- **MERV** = **M**inimum **E**fficiency **R**eporting **V**alue - Filter rating system defined by ASHRAE.
- The higher the MERV rating the better the filter is at trapping specific types of particles.
- Higher MERV ratings – Recommended when HVAC systems recirculate air.
- Higher MERV ratings = more resistance to airflow or increased pressure drop.
- Not all HVAC systems are able to handle the increased pressure drop which causes a reduction in ventilation air.

Technology Specific Equipment - Bipolar Ionization



- Creates positive and negative oxygen ions which attach to viruses and neutralize them.
- Units are compact and can be easily mounted inside existing HVAC equipment and ductwork.
- Quiet and unobtrusive in the classroom environment.
- Provide measurable performance increases by counting the number of ions present in the air before and after installation.
- Provides added benefits by mitigating mold spores, pollen, bacteria and odors.

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Ventilation Improvements Summary

SCRANTON SCHOOL DISTRICT	DRAFT GPI Ventilation Study								
	Built	Reno	Maintain HVAC System Functionality and Cleanliness	Perform Systems Flush Out	Open Operable Windows Whenever Practical	Upgrade Filters	Add Portable Air Purifiers	Schools With No Mechanical Ventilation	Verify Ventilation Airflow Rates
HIGH SCHOOLS									
Scranton HS	2001	none	X	X	X	18 AHUs	59	N/A	X
W. Scranton HS	1927	none	X	X	X	N/A	N/A	Locker Rooms & Vice Principal's Office near Room 117	X
INTERMEDIATE SCHOOLS									
W. Scranton IS	1975	none	X	X		15 AHUs	N/A	N/A	X
S. Scranton IS	1937	none	X	X	X	N/A	N/A	N/A	X
NE Scranton IS*	1904	1930, 1999	X	X	X			IN PROGRESS*	X
ELEMENTARY SCHOOLS									
John Adams ES	1931	1965+/-	X	X	X	N/A	N/A	Cafeteria & Library, Computer CR, Art CR, and Teacher's Lounge in Basement	X
Neil Armstrong ES	1969		X	X		Multipurpose	33	N/A	
George Bancroft ES	1928	1960's	X	X	X	N/A	20	Lunchroom and rooms on 1st & 2nd Floors	X
John F Kennedy ES	1964	1983	X	X	X	AHUs	21	N/A	X
McNichols Plaza Building	1977		X	X		AHUs	N/A	N/A	X
Monticello	Leased		X	X		AHUs	N/A	N/A	X
Robert Morris ES	1895	1966	X	X	X	Multipurpose	20	Secretary & Principal's office (1st Flr) Art CR, Counseling room, Teacher workroom in Basement	X
William Prescott ES	1966	none	X	X	X	Multipurpose	16	Basement, Principal & Secretary's office (1st Flr), Teacher's lounge (2nd Flr)	X
Charles Sumner ES	1968		X	X	X	Multipurpose	15	Speech Therapy Rooms (3) and Reading specialist in main corridor. Nurse, Secretary, Principal, & Teacher's Lounge near main office.	X
Isaac Tripp ES	2011	none	X	X	X	AHUs	N/A	N/A	X
Whittier Annex	Leased				X	N/A	15	Building	
John Greenleaf Whittier ES	1896	1966	X	X	X	AHUs	N/A	N/A	X
Frances Willard ES	1928	1960	X	X	X	N/A	N/A	Nurse's Office	X
MISC.									
Memorial Stadium	1949	2010 +/-	IN PROGRESS						
Administration Building	1910	1966			X	N/A	N/A	Building	
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*Northeast Scranton IS Ventilation System is included in Summer 2021 Priority Projects.

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Discussion