

DEVALLES ELEMENTARY SCHOOL HVAC ASSESSMENT REPORT FOR SCHOOL RE-OPENING



General:

1. The purpose of this report is to give an overview of the potential measures that may be applied to the building HVAC systems and spaces to provide a safer environment for students, teachers, and staff to return to school this year. The diversity of space types and systems require different solutions and strategies to be considered to improve the interior environment.
2. This report does not make recommendations on occupant density, reconfiguration of spaces, cleaning procedures, or implementation of touch-free procedures. The District is urged to seek guidance from the Massachusetts Department of Elementary and Secondary Education (DESE) and the Centers for Disease Control (CDC) on these and other issues related to the COVID-19 virus.
3. This report does not make any certification, determination nor render any opinion, as to whether the building reviewed within this assessment is safe to reoccupy or not. Determination to reoccu-

py the building is the sole purview of the Superintendent of Schools for the City/Town of New Bedford.

4. Buildings included within this report are:

DeValles Elementary School; visited on 8/26/2020; 9:30 AM. DeValles school delegate present during site tour: Darcie Aungst.

Potential HVAC Strategies:

1. Increased Ventilation:

- a. Increasing outside air ventilation rates can be an effective strategy to reduce airborne concentrations of viruses, bacteria, and other contaminants.
- b. Operable windows provide a good source of fresh air, which at times can provide a significantly higher amount compared to mechanical ventilation systems. Since this air cannot be filtered directly, the surrounding environment must be low in airborne contaminants to avoid bringing in unhealthy air which could lead to other issues.
- c. Since the use of operable windows is manually controlled by the space occupants, some discretion must be used in determining when to apply this measure. Opening windows during cold weather can lead to loss of space temperature control and increased heating energy consumption. Where mechanical systems have cooling capabilities, the cooling system should be turned off where possible when the windows are open. The amount that a window should be opened should also be considered based on wind speed and outside air temperature to help prevent uncomfortable conditions.
- d. Wherever technology-based strategies are installed such as bipolar ionization systems described later, opening windows for increased ventilation should not be used as it will reduce the effectiveness of the system.
- e. Generally, the use of operable windows is expected to provide a higher benefit than increasing mechanical ventilation rates albeit under less controlled conditions that may still lead to comfort issues.
- a. Ventilation control strategies also include operation of the building exhaust systems. Verifying the operation of the toilet room exhaust systems and setting them to operate for at least 4-hours after occupancy should be considered, since these spaces can potentially be a source for high contamination. Operating continuously may also be considered to provide additional dilution of airborne contaminants that may linger overnight. Installation of hands-free faucets and toilet fixtures should also be considered as a long-term measure to reduce the potential of spread by touching surfaces.

4. Long-Term Strategies:

- a. Long-term strategies include the installation of airflow system technologies and space treatments. These strategies generally have a higher cost than short-term strategies.
- d. Portable Air Filtration Units
 - 1) Portable filtration units are available in various sizes that can be used in areas that do not have sufficient air circulation or outside air ventilation systems.
 - 2) These units can include multiple levels of filtration including HEPA filters as well as bipolar ionization, and UV-C technologies.

Strategies for Various System Types:

Strategies by Building:

1. DeValles:

a. Classrooms

- 1) Ventilation for the classrooms is provided by operable windows. Operable windows along with high ceiling heights will assist in introducing fresh outdoor air to classrooms.



Typical Classroom



Teachers Bathroom with Operable Windows

- 2) Heating is provided by two-pipe steam radiators. These radiators can mitigate cold outdoor infiltration due to keeping windows open.
- 3) Bathroom exhaust fans are recommended to operate concurrently with the ventilation systems wherever possible.
 - a. These exhaust fans should be verified for correct operation.



Girls Bathroom Exhaust Fan



Boys Bathroom Exhaust Fan

b. Hallways and Cafeteria

- a. Hallways have operable windows and should be treated similarly to classrooms. Windows should be opened whenever possible and low outdoor air temperatures should be mitigated with steam radiators.



Typical Hallway

c. 1st Floor Gym and Common Areas



1st Floor Gym

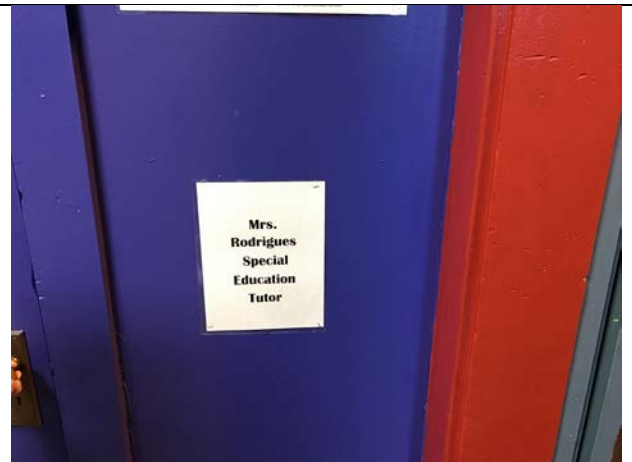


1st Floor Gym with Operable Windows

- a. The 1st Floor Gym and other common local areas do not have any ventilation other than operable windows. These should be treated as classrooms whenever being occupied.
- b. The Councilor's office located in this general area has no ventilation and no operable windows. This space is not recommended for continual occupancy.
- d. Basement Councilor's office and Special Education Office has no ventilation and no operable windows. These spaces are not recommended for continual occupancy.



Basement Councilor's Office



Special Education Office

[https://balaconsultingengineers-my.sharepoint.com/personal/pas_bala_com/Documents/School Assessments/60-20-424_New Bedford/Reports/New Bedford DeValles- HVAC Review_PAS.docx](https://balaconsultingengineers-my.sharepoint.com/personal/pas_bala_com/Documents/School%20Assessments/60-20-424_New%20Bedford/Reports/New%20Bedford%20DeValles-HVAC%20Review_PAS.docx)