

Each building has been assessed for key factors to determine the potential risk of facilitating the spread of COVID-19 and/or other respiratory viruses. A summary of results for each building analyzed as part of this study is shown below.

Disclaimer – The purpose of this evaluation, and recommendations, is to provide F&T's professional opinion on best practices to reduce risk, as it relates to building mechanical and electrical systems. These recommendations are NOT intended to convey that the risk of Covid (or any other) infection would be completely eliminated by doing any (or all) of the recommendations. F&T is not evaluating other standard, social policies as well (limiting class room sizes, mask wearing, social distancing, etc.).

Building	Existing Risk Score	Improved Score	Risk Mitigation Strategies
<u>Fuller</u>	3.10	2.17	Maximize percentage of outdoor air at unit ventilators, Increase ventilation run time - building flush out, Provide in space HEPA filtration, Maximize ventilation at RTUs, provide space level CO2 monitoring, ensure window functionality and keep open as much as possible, ensure exhaust from nurse's office and isolation room, Increase exhaust run time for all other spaces.
<u>McCarthy</u>	2.64	2.21	Maximize percentage of outdoor air at unit ventilators, Maximize ventilation at RTUs, Increase ventilation run time - building flush out, Provide in space HEPA filtration, provide CO2 monitoring, ensure window functionality and keep open as much as possible, ensure exhaust from nurse's office, increase exhaust to other areas.
<u>Thayer</u>	3.18	2.00	Increase ventilation run time - building flush out, Provide in space HEPA filtration, provide CO2 monitoring, ensure window functionality and keep open as much as possible, ensure exhaust from isolation room, increase exhaust to other areas.
<u>Woodrow Wilson</u>	2.48	1.82	Increase ventilation run time - building flush out, Replace central system filters with minimum MERV-13, Provide in space HEPA filtration, Maximize ventilation at RTUs, provide space level CO2 monitoring, ensure window functionality and keep open as much as possible, ensure exhaust from nurse's office and isolation room, Increase exhaust run time for all other spaces.
<u>Barbieri</u>	2.78	2.02	Provide minimum MERV-13 filters in all RTUs, Increase ventilation run time - building flush out, Provide in space HEPA filtration, Maximize ventilation at RTUs, provide CO2 monitoring, ensure window functionality and keep open as much as possible, ensure exhaust from nurse's office and isolation room.
<u>Brophy</u>	2.78	2.07	Increase ventilation run time - building flush out, Provide in space HEPA filtration, Maximize ventilation at RTUs, provide CO2 monitoring, ensure window functionality and keep open as much as possible, ensure exhaust from nurse's office and isolation room.
<u>Dunning</u>	2.84	2.17	Increase percentage of outdoor air at space level, Increase ventilation run time - building flush out, Provide in space HEPA filtration, Maximize ventilation at RTUs, provide CO2 monitoring, ensure window functionality and keep open as much as possible, ensure exhaust from nurse's office and isolation room.
<u>Walsh Middle School</u>	3.08	2.22	Increase percentage of outdoor air at space level, Increase ventilation run time - building flush out, Provide in space HEPA filtration, Maximize ventilation at RTUs, provide CO2 monitoring, ensure window functionality and keep open as much as possible, ensure exhaust from nurse's office and increase exhaust run time in other areas.
<u>Stapleton</u>	2.90	2.13	Increase percentage of outdoor air at space level, Increase ventilation run time - building flush out, Provide in space HEPA filtration, Maximize ventilation at RTUs, provide CO2 monitoring, ensure window functionality and keep open as much as possible, ensure exhaust from nurse's office and isolation rooms and increase exhaust run time in other areas.
<u>Hemenway</u>	2.76	2.28	Maximize percentage of outdoor air at unit ventilators, Increase ventilation run time - building flush out, Provide in space HEPA filtration, Maximize ventilation at RTUs, provide space level CO2 monitoring, ensure window functionality and keep open as much as possible, ensure exhaust from nurse's office and isolation room, Increase exhaust run time for all other spaces.
<u>Cameron Middle School</u>	2.76	2.02	Increase percentage of outdoor air at central systems, Increase ventilation run time - building flush out, Provide minimum MERV 13 filters in central systems, Provide in space HEPA filtration, Maximize ventilation at RTUs, provide CO2 monitoring, ensure window functionality and keep open as much as possible, ensure exhaust from nurse's office.
<u>Framingham High School</u>	2.30	2.09	Maximize percentage of outdoor air at unit ventilators, Maximize ventilation at RTUs, Increase ventilation run time - building flush out, Provide minimum MERV 13 filters in central systems, Provide in space HEPA filtration, provide CO2 monitoring, ensure window functionality and keep open as much as possible, ensure exhaust from nurse's office and isolation rooms.
<u>Potter Road School</u>	2.86	2.10	Maximize percentage of outdoor air at unit ventilators, Maximize ventilation at RTUs, Increase ventilation run time - building flush out, Provide in space HEPA filtration, provide CO2 monitoring, ensure window functionality and keep open as much as possible, ensure exhaust from nurse's office and isolation rooms, increase exhaust run time to other areas.
<u>King School</u>	2.59	2.08	Maximize percentage of outdoor air at unit ventilators, Maximize ventilation at RTUs, Increase ventilation run time - building flush out, Provide in space HEPA filtration, provide CO2 monitoring, ensure window functionality and keep open as much as possible, ensure exhaust from nurse's office and isolation rooms, increase exhaust to other areas.
<u>Juniper Hill School</u>	3.24	2.21	Maximize percentage of outdoor air at unit ventilators, Maximize ventilation at RTUs, Increase ventilation run time - building flush out, Provide in space HEPA filtration, provide CO2 monitoring, ensure window functionality and keep open as much as possible, ensure exhaust from nurse's office and isolation rooms, increase exhaust to other areas.

Risk	Weight Factor
Airflow Pattern	16%
Ventilation	16%
Filtration	16%
Pressurization	10%
Scheduling	10%
Humidification	16%
Plumbing Operators	4%
Lighting controls	2%
Door Openers	10%
Total	100%

Score Scale	
No Updates Required	<1
Low Risk	1-2
Moderate Risk	2-3
High Risk	3-4

Space Type	Default Priority (1-10)
Typical Classrooms	1
Nurse's Office	2
Break rooms /Lounge	5
Cafeteria	5
Group Bathrooms	4
Assembly Areas	4
Library	4
Private Bathrooms	10
Special Needs	1
Gym	4
Administration	7
Kitchen	6
Specialty Classrooms (shop etc.)	2
Isolation Room	1
Locker Rooms	4



Barbieri School - COVID Risk Assessment - Proposed

Building Description	Masonry building; 2 Levels (1, 2); flat, accessible roof Basement space includes 2 classrooms with garden level windows No substantial building renovations that have reconfigured architectural layout; no doors that appear to be rated; egress stairwells are not rated enclosures
Building Address	100 Dudley Road
Building Date (originally constructed)	1974
Building Square Footage	112,000
Proposed Scope of Work Summary	Provide minimum MERV-13 filters in all RTUs, Increase ventilation run time - building flush out, Provide in space HEPA filtration, Maximize ventilation at RTUs, provide CO2 monitoring, ensure window functionality and keep open as much as possible, ensure exhaust from nurse's office and isolation room.

Key Areas / Usage

	Recommended Strategies																		
	HVAC-1 Increase Vent Quantity (Space Level)	HVAC-2 Increase Vent Fraction (Central Systems)	HVAC-3 Increase Vent Running Time	HVAC-4 Increase Filtration (Central Systems)	HVAC-5 Ensure Window Functionality	HVAC-6 Improve Window/Door Operations (keep open)	HVAC-7 Space CO2 Monitoring	HVAC-8 Retro-CX Central Air Handlers	HVAC-9 Retro-CX Space Terminal Units	HVAC-10 Provide In- Space Air Filtration	HVAC-11 Improve Exhaust from Spaces	HVAC-12 Provide UV-GI Lights (Central Systems)	HVAC-13 Provide UV-GI Lights (Within Spaces)	HVAC-14 Improve Air Flow Directivity (Spaces)	HVAC-15 Add Humidification (Central Systems)	HVAC-16 Add Humidification (Within Spaces)	Elec-1 Provide Lighting Occ Sensors	Elec-2 Provide FA Hold-Opens for Fire Doors	Plumb-1 Provide Sensor Ctrl on Plumb Fixtures
Implementation Complexity:	HIGH	MED	LOW	MED	LOW	LOW	MED	MED	MED	HIGH	MED	HIGH	MED	MED	HIGH	MED	MED	MED	MED
Risk Category Improvment:	Ventilation, airflow pattern, pressurization	Ventilation, pressurization	Ventilation, scheduling	Filtration	Ventilation, airflow pattern	Ventilation, scheduling	Ventilation	Ventilation, pressurization	Ventilation, pressurization	Filtration	Ventilation, airflow pattern, pressurization	Filtration	scheduling	Airflow Pattern, pressurization	Humidification	Humidification	scheduling, lighting controls	Door openers	Plumbing operators
Typical Classrooms	X	✓	✓	✓	✓	✓	✓	✓		✓		X			X	X	X	X	
Library	X	✓	✓	✓	✓		✓	✓		✓		X			X	X	X	X	
Cafeteria	X	✓	✓	✓	✓		✓	✓				X			X		X	X	
Kitchen	X	✓	✓	✓	✓		✓	✓			✓	X			X		X	X	
Nurse's Office	X	✓	✓	✓	✓		✓	✓		✓	✓	X		X	X	X	X	X	
Gym	X	✓	✓	✓			✓	✓				X			X		X	X	
Private Bathrooms	X		✓								✓		X				X	X	X
Group Bathrooms	X		✓								✓		X				X	X	X
Isolation Room	X	✓	✓	✓	✓		✓			✓	✓	X		✓	X	X	X	X	X
Auditorium	X	✓	✓	✓	✓		✓	✓				X			X		X	X	

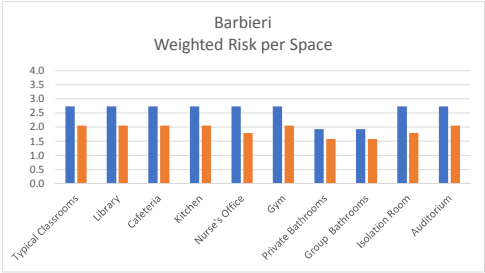
X = applicable, ✓ = proposed

Building Systems Risk Summary - Proposed												
Rate 1-4, 1=meets ASHRAE design guidelines for COVID-19 or N/A, 2=adequate/meets code, 3=poor, 4= None												
	Weight Factor	Typical Classrooms	Library	Cafeteria	Kitchen	Nurse's Office	Gym	Private Bathrooms	Group Bathrooms	Isolation Room	Auditorium	Category Averages
Space Type	-	Typical Classrooms	Library	Cafeteria	Kitchen	Nurse's Office	Gym	Private Bathrooms	Group Bathrooms	Isolation Room	Assembly Areas	
Space Priority	-	1	4	5	6	2	4	10	4	1	4	
Airflow Pattern	16%	2	2	2	2	1	2	2	2	1	2	1.8
Ventilation	16%	1	1	1	1	1	1	1	1	1	1	1.0
Filtration	16%	1	1	1	1	1	1	1	1	1	1	1.0
Pressurization	10%	2	2	2	2	1	2	2	2	1	2	1.8
Scheduling	10%	1	1	1	1	1	1	1	1	1	1	1.0
Humidification	16%	4	4	4	4	4	4	1	1	4	4	3.4
Plumbing Operators	4%	3	3	3	3	3	3	3	3	3	3	3.0
Lighting controls	2%	3	3	3	3	3	3	3	3	3	3	3.0
Door Openers	10%	3	3	3	3	3	3	3	3	3	3	3.0

Total	100%											
Weighted Risk		2.1	2.1	2.1	2.1	1.8	2.1	1.6	1.6	1.8	2.1	
Weight Based on Priority		18%	10%	8%	5%	15%	10%	-4%	10%	18%	10%	100%
Weighted Score Based on Priority		0.4	0.2	0.2	0.1	0.3	0.2	0.0	0.2	0.3	0.2	2.0
Risk Multi	8.2											

School Score (1-4)	2.0 Moderate Risk
Weighted Totals	

Score Scale	
No Updates Required	<1
Low Risk	1-2
Moderate Risk	2-3
High Risk	3-4





Barbieri School - COVID Risk Assessment

Building Description	Masonry building; 2 Levels (1, 2); flat, accessible roof Basement space includes 2 classrooms with garden level windows No substantial building renovations that have reconfigured architectural layout; no doors that appear to be rated; egress stairwells are not rated enclosures
Building Address	100 Dudley Road
Building Date (originally constructed)	1974
Building Square Footage	112,000
HVAC System Description & other key infrastructure observations	<ul style="list-style-type: none">* Hot water heat is provided by gas fired boilers and gas furnaces within the roof top units. There is no glycol in the system.* The gym is served by a roof top unit with overhead air distribution for heating and ventilation. It is not air conditioned.* The school is served by packaged roof top units that provide air for heating, cooling and ventilation. Air distribution in each room is typically overhead via ceiling diffusers. Supplemental heating is provided in rooms via fin tube radiators.* The building currently has a DDC control system to control heating.* Private bathrooms and group bathrooms have manual light switch controls and are mechanically exhausted.* The nurse's office is served by fin tube for heating. Ventilation is provided by operable windows. There is a window mounted A/C unit to provide cooling.* The majority of lighting is operated by toggle type wall switches; one hallway and four recently renovated bathrooms have automatic lighting.* The main office is served by fin tube for heating. Ventilation is provided by operable windows. There is a window mounted A/C unit to provide cooling.* Building has a generator for backup power.* The isolation room is within the nurses suite. The room has no windows, fin tube heat with a manual operator for control and two overhead air vents that appear to be supply.* All plumbing fixtures are manually operated.* The building has a backup generator.

Key Areas / Usage

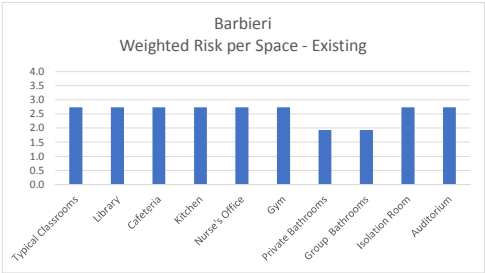
	Recommended Strategies																		
	HVAC-1 Increase Vent Quantity (Space Level)	HVAC-2 Increase Vent Fraction (Central Systems)	HVAC-3 Increase Vent Running Time	HVAC-4 Increase Filtration (Central Systems)	HVAC-5 Ensure Window Functionality	HVAC-6 Improve Window/Door Operations (Keep open)	HVAC-7 Space CO2 Monitoring	HVAC-8 Retro-CX Central Air Handlers	HVAC-9 Retro-CX Space Terminal Units	HVAC-10 Provide In- Space Air Filtration	HVAC-11 Improve Exhaust from Spaces	HVAC-12 Provide UV-GI Lights (Central Systems)	HVAC-13 Provide UV-GI Lights (Within Spaces)	HVAC-14 Improve Air Flow Directivity (Spaces)	HVAC-15 Add Humidification (Central Systems)	HVAC-16 Add Humidification (Within Spaces)	Elec-1 Provide Lighting Occ Sensors	Elec-2 Provide FA Hold-Opens for Fire Doors	Plumb-1 Provide Sensor Ctrl on Plumb Fixtures
Implementation Complexity:	HIGH	MED	LOW	MED	LOW	LOW	MED	MED	MED	HIGH	MED	HIGH	MED	MED	HIGH	MED	MED	MED	MED
Risk Category Imponent:	Ventilation, airflow pattern, pressurization	Ventilation, pressurization	Ventilation, scheduling	Filtration	Ventilation, airflow pattern	Ventilation, scheduling	Ventilation	Ventilation, pressurization	Ventilation, pressurization	Filtration	Ventilation, airflow pattern, pressurization	Filtration	scheduling	Airflow Pattern, pressurization	Humidification	Humidification	scheduling, lighting controls	Door openers	Plumbing operators
Typical Classrooms	X	X	X	X	X	X	X	X		X		X			X	X	X	X	
Library	X	X	X	X	X			X		X		X			X	X	X	X	
Cafeteria	X	X	X	X	X		X	X				X			X		X	X	
Kitchen	X	X	X	X	X			X				X			X		X	X	
Nurse's Office	X	X	X	X	X		X	X		X		X		X	X	X	X	X	
Gym	X	X	X	X			X	X				X			X		X	X	
Private Bathrooms	X		X								X		X				X	X	X
Group Bathrooms	X		X								X		X				X	X	X
Isolation Room	X	X	X	X						X		X			X	X	X	X	X
Auditorium	X	X	X	X			X	X				X			X		X	X	

Building Systems Risk Summary												
Rate 1-4, 1=meets ASHRAE design guidelines for COVID-19 or N/A, 2=adequate/meets code, 3=poor, 4= None												
	Weight Factor	Typical Classrooms	Library	Cafeteria	Kitchen	Nurse's Office	Gym	Private Bathrooms	Group Bathrooms	Isolation Room	Auditorium	Category Averages
Space Type	-	Typical Classrooms	Library	Cafeteria	Kitchen	Nurse's Office	Gym	Private Bathrooms	Group Bathrooms	Isolation Room	Assembly Areas	
Space Priority	-	1	4	5	6	2	4	10	4	1	4	
Airflow Pattern	16%	2	2	2	2	2	2	2	2	2	2	2.0
Ventilation	16%	2	2	2	2	2	2	2	2	2	2	2.0
Filtration	16%	3	3	3	3	3	3	3	1	3	3	2.6
Pressurization	10%	3	3	3	3	3	3	3	3	3	3	3.0
Scheduling	10%	2	2	2	2	2	2	2	2	2	2	2.0
Humidification	16%	4	4	4	4	4	4	1	1	4	4	3.4
Plumbing Operators	4%	3	3	3	3	3	3	3	3	3	3	3.0
Lighting controls	2%	3	3	3	3	3	3	3	3	3	3	3.0
Door Openers	10%	3	3	3	3	3	3	3	3	3	3	3.0

Total	100%											
Weighted Risk		2.7	2.7	2.7	2.7	2.7	2.7	1.9	1.9	2.7	2.7	
Weight Based on Priority		18%	10%	8%	5%	15%	10%	-4%	10%	18%	10%	100%
Weighted Score Based on Priority		0.5	0.3	0.2	0.1	0.4	0.3	0.0	0.2	0.5	0.3	2.8
Risk Multi	8.2											

School Score (1-4)	2.8 Moderate Risk
Weighted Totals	

Score Scale	
No Updates Required	<1
Low Risk	1-2
Moderate Risk	2-3
High Risk	3-4





Brophy School - COVID Risk Assessment - Proposed

Building Description	Masonry building; 2 Levels (1, 2.); flat, accessible roof No substantial building renovations that have reconfigured architectural layout; no doors that appear to be rated; egress stairwells are not rated enclosures
Building Address	575 Pleasant St.
Building Date (originally constructed)	1968
Building Square Footage	66,000
Proposed Scope of Work Summary	Increase ventilation run time - building flush out, Provide in space HEPA filtration, Maximize ventilation at RTUs, provide CO2 monitoring, ensure window functionality and keep open as much as possible, ensure exhaust from nurse's office and isolation room.
Key Areas / Usage	Classrooms, music room, gym, library, nurse, pause, counseling, cafeteria and administration.

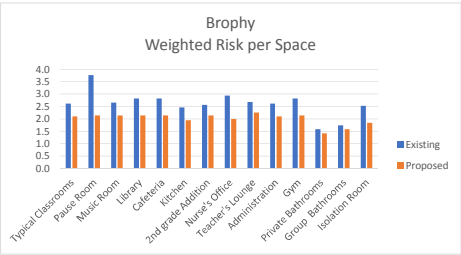
	Recommended Strategies																		
	HVAC-1 Increase Vent Quantity (Space Level)	HVAC-2 Increase Vent Fraction (Central Systems)	HVAC-3 Increase Vent Running Time	HVAC-4 Increase Filtration (Central Systems)	HVAC-5 Ensure Window Functionality	HVAC-6 Improve Window/Door Operations (keep open)	HVAC-7 Space CO2 Monitoring	HVAC-8 Retro-CX Central Air Handlers	HVAC-9 Retro-CK Space Terminal Units	HVAC-10 Provide In-Space Air Filtration	HVAC-11 Improve Exhaust from Spaces	HVAC-12 Provide UV-GI Lights (Central Systems)	HVAC-13 Provide UV-GI Lights (Within Spaces)	HVAC-14 Improve Air Flow Directivity (Spaces)	HVAC-15 Add Humidification (Central Systems)	HVAC-16 Add Humidification (Within Spaces)	Elec-1 Provide Lighting Occ Sensors	Elec-2 Provide FA Hold-Opens for Fire Doors	Plumb-1 Provide Sensor Ctrl on Plumb Fixtures
Implementation Complexity:	HIGH	MED	LOW	MED	LOW	LOW	MED	MED	MED	HIGH	MED	HIGH	MED	MED	HIGH	MED	MED	MED	MED
Risk Category	Ventilation, airflow pattern, pressurization	Ventilation, pressurization	Ventilation, scheduling	Filtration	Ventilation, airflow pattern	Ventilation, scheduling	Ventilation	Ventilation, pressurization	Ventilation, pressurization	Filtration	Ventilation, airflow pattern, pressurization	Filtration	scheduling	Airflow Pattern, pressurization	Humidification	Humidification	scheduling, lighting controls	Door openers	Plumbing operators
Improvement:																			
Typical Classrooms	✓		✓		✓	✓	✓	X	X	✓	X		X	X		X	X	X	X
Pause Room	✓	✓	✓	X		✓	X	X	X	✓	X	X	X	X	X	X	X	X	X
Music Room	✓		✓		✓	✓	✓	X	X	✓	X		X	X		X	X	X	X
Library	✓		✓		✓	✓	✓	X	X	✓	X		X	X		X	X	X	X
Cafeteria		✓	✓	X	✓	✓	✓			✓	X	X	X	X	X		X	X	X
Kitchen		✓	✓	X	✓	✓	X			X	X	X	X	X	X		X	X	X
2nd grade Addition		✓	✓	X	✓	✓	✓			✓	X	X	X	X	X		X	X	X
Nurse's Office	✓		✓		✓	✓	✓	X	X	✓	✓		X	✓		X		X	X
Teacher's Lounge	✓		✓		✓	✓	✓	X	X	✓	X		X	X		X	X	X	X
Administration	✓		✓		✓	✓	✓	X	X	✓	X		X	X		X	X	X	X
Gym	✓	✓	✓	X	✓	✓	✓	X	X	✓	X	X	X	X	X	X	X	X	X
Private Bathrooms			✓				X				X		X	X					X
Group Bathrooms			✓				X				✓		X	X			X		X
Isolation Room	✓	✓	✓	X	✓	✓	✓	X	X	✓	✓	X	X	✓	X	X		X	X

X = applicable, ✓ = proposed

Building Systems Risk Summary - Proposed																	
Rate 1-4, 1=meets ASHRAE design guidelines for COVID-19 or N/A, 2=adequate/meets code, 3=poor, 4= None																	
	Weight Factor	Typical Classrooms	Pause Room	Music Room	Library	Cafeteria	Kitchen	2nd grade Addition	Nurse's Office	Teacher's Lounge	Administration	Gym	Private Bathrooms	Group Bathrooms	Isolation Room	Category Averages	
Space Type	-	Typical Classrooms	Specialty Classrooms (shop etc.)	Specialty Classrooms (shop etc.)	Library	Cafeteria	Kitchen	Typical Classrooms	Nurse's Office	Break rooms /Lounge	Administration	Gym	Private Bathrooms	Group Bathrooms	Isolation Room		
Space Priority (1-10)	-	1	2	2	4	5	6	1	2	5	7	4	10	4	1		
Airflow Pattern	16%	2	2	2	2	2	2	2	2	1	2	2	2	2	3	1	1.9
Ventilation	16%	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0
Filtration	16%	2	2	2	2	2	2	3	2	2	2	2	2	1	1	2	1.9
Pressurization	10%	2	2	2	2	2	2	2	2	1	2	2	2	2	2	1	1.9
Scheduling	10%	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0
Humidification	16%	4	4	4	4	4	4	1	4	4	4	4	4	1	1	4	3.4
Plumbing Operators	4%	1	1	1	1	1	1	4	1	4	4	1	1	4	4	1	2.1
Lighting controls	2%	1	3	3	3	3	3	3	3	3	3	1	3	3	3	1	2.6
Door Openers	10%	3	3	3	3	3	3	3	3	3	3	3	3	1	1	3	2.7
Total	100%	17	19	19	19	19	20	19	20	22	17	19	16	17	15		
Weighted Risk		2.10	2.14	2.14	2.14	2.14	1.94	2.14	2.00	2.26	2.10	2.14	1.42	1.58	1.84		
Weight Based on Priority		12%	11%	11%	7%	5%	3%	12%	11%	5%	1%	7%	-4%	7%	12%	100%	
Weighted Score Based on Priority		0.3	0.2	0.2	0.1	0.1	0.1	0.3	0.2	0.1	0.0	0.1	-0.1	0.1	0.2	2.1	
Risk Multi	7.714285714																

School Score (1-4)	2.07 Moderate Risk
Weighted Totals	

Score Scale	
No Updates Required	<1
Low Risk	1-2
Moderate Risk	2-3
High Risk	3-4





Brophy School - COVID Risk Assessment

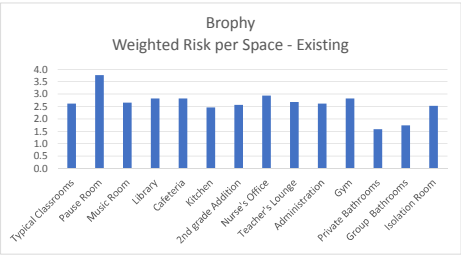
Building Description	Masonry building; 2 Levels (1, 2.); flat, accessible roof No substantial building renovations that have reconfigured architectural layout; no doors that appear to be rated; egress stairwells are not rated enclosures
Building Address	575 Pleasant St.
Building Date (originally constructed)	1968
Building Square Footage	66,000
HVAC System Description & other key infrastructure observations	<ul style="list-style-type: none">* The existing HVAC system includes a Trane packaged air handling unit with approximately 30% outdoor air to serve the core areas. The air handling unit includes a MERV-10 2" filter bank and the unit is provided with a hot water heating coil.* The gym includes a dedicated Sterling makeup air unit (MAU) and a dedicated exhaust fan. The makeup air unit does not include cooling. The space also includes passive relief louvers, ceiling fans and operable windows.* The cafeteria/auditorium has a dedicated makeup air unit (MAU) behind the stage and a dedicated exhaust fan. The space also has ceiling fans and operable windows* Hot water heat is provided by two (2) gas fired Cleaver Brooks boilers. The hot water system does not currently include glycol.* Typical classrooms are served by wall mounted unit ventilators that supplies outdoor air and heating to the space. The return to the unit ventilator is by a linear slot diffuser located at the bottom of the window. There is a wall mounted split chiller and an occupancy sensor for automatic controls are provided.* Kindergarten classrooms contain the same systems as a typical classroom and is provided to sinks with manual operators.* Some of the smaller classrooms are served by the main air handler and include perimeter hot water finned tube radiation when there is no unit ventilator. Some of these classrooms do not have windows.* The building currently has DDC controls and monitoring of outdoor air, static pressure, and airflows at BMS.* The library contains operable windows and manual light switches. Air is supplied from the Main AHU and air is exhausted to a return fan on the roof.* Private and group restrooms both include exhaust.* Counseling areas do not have operable windows, there is a wall mounted air chiller and has an occupant sensor for automatic lighting controls. Outdoor air and heating are provided from a unit ventilator and air is exhausted to a return fan on the roof.* The teachers' lounge includes the same systems as a typical classroom.* The kitchen has exhaust hoods for food prep and the warewasher. Hood exhaust is manual on/off. An occupancy sensor for automatic lighting controls are provided and no there are no window* Group and private bathrooms have manual light switch controls.* The nurse's office has operable windows. Outdoor air and heating are provided from a unit ventilator and air is exhausted to a return fan on the roof. There is a bathroom, wall mounted air conditioner and manually operated lighting controls.* All plumbing fixtures have manual operators.* Pause room has no operable windows and no ventilation* Main office contains an occupant sensor for automatic lighting control and has operable windows. Air is supplied from the Main AHU and air is exhausted to a return fan on the roof.
Key Areas / Usage	Classrooms, music room, gym, library, nurse, pause, counseling, cafeteria and administration.

[illegible]

Building Systems Risk Summary																
Rate 1-4, 1=meets ASHRAE design guidelines for COVID-19 or N/A, 2=adequate/meets code, 3=poor, 4= None																
	Weight Factor	Typical Classrooms	Pause Room	Music Room	Library	Cafeteria	Kitchen	2nd grade Addition	Nurse's Office	Teacher's Lounge	Administration	Gym	Private Bathrooms	Group Bathrooms	Isolation Room	Category Averages
Space Type	-	Typical Classrooms	Specialty Classrooms (shop etc.)	Specialty Classrooms (shop etc.)	Library	Cafeteria	Kitchen	Typical Classrooms	Nurse's Office	Break rooms /Lounge	Administration	Gym	Private Bathrooms	Group Bathrooms	Isolation Room	
Space Priority (1-10)	-	1	2	2	4	5	6	1	2	5	7	4	10	4	1	
Airflow Pattern	16%	2	4	2	3	3	3	2	3	2	2	3	2	3	2	2.6
Ventilation	16%	2	4	2	2	2	2	2	2	2	2	2	2	2	2	2.1
Filtration	16%	3	4	3	3	3	3	3	3	3	3	3	3	1	1	2.8
Pressurization	10%	3	4	3	3	3	3	2	3	2	3	3	2	2	2	2.7
Scheduling	10%	2	4	2	2	2	2	2	2	2	2	2	1	1	2	2.0
Humidification	16%	4	4	4	4	4	4	1	4	4	4	4	4	1	1	3.4
Plumbing Operators	4%	1	1	1	1	1	4	1	4	4	1	1	4	4	1	2.1
Lighting controls	2%	1	3	3	3	3	3	3	3	3	1	3	3	3	1	2.6
Door Openers	10%	3	3	3	3	3	3	3	3	3	3	3	1	1	3	2.7
Total	100%	21	31	23	24	24	24	22	27	25	21	24	17	18	20	
Weighted Risk		2.6	3.8	2.7	2.8	2.8	2.5	2.6	2.9	2.7	2.6	2.8	1.6	1.7	2.5	
Weight Based on Priority		12%	11%	11%	7%	5%	3%	12%	11%	5%	1%	7%	-4%	7%	12%	100%
Weighted Score Based on Priority		0.3	0.4	0.3	0.2	0.1	0.1	0.3	0.3	0.1	0.0	0.2	-0.1	0.1	0.3	2.8
Risk Multi	7.714285714															

School Score (1-4)	2.8 Moderate Risk
Weighted Totals	

Score Scale	
No Updates Required	<1
Low Risk	1-2
Moderate Risk	2-3
High Risk	3-4





Cameron Middle School - COVID Risk Assessment - Proposed

Building Description	Masonry building; 4 Levels (1, 2, 3, 4); flat, accessible roof, with mechanical penthouse Basement space includes 2 classrooms with garden level windows No substantial building renovations that have reconfigured architectural layout; no doors that appear to be rated; egress stairwells are not rated enclosures
Building Address	215 Elm Street
Building Date (originally constructed)	1973
Building Square Footage	114,000
Proposed Scope of Work Summary	Increase percentage of outdoor air at central systems, Increase ventilation run time - building flush out, Provide minimum MERV 13 filters in central systems, Provide in space HEPA filtration, Maximize ventilation at RTUs, provide CO2 monitoring, ensure window functionality and keep open as much as possible, ensure exhaust from nurse's office.
Key Areas / Usage	Classrooms, music room, gym, library, auditorium, art room, science room, nurse's office, cafeteria and administration.

	Recommended Strategies																		
	HVAC-1 Increase Vent Quantity (Space Level)	HVAC-2 Increase Vent Fraction (Central Systems)	HVAC-3 Increase Vent Running Time	HVAC-4 Increase Filtration (Central Systems)	HVAC-5 Ensure Window Functionality	HVAC-6 Improve Window/Door Operations (keep open)	HVAC-7 Space CO2 Monitoring	HVAC-8 Retro-CA Central Air Handlers	HVAC-9 Retro-CA Space Terminal Units	HVAC-10 Provide In-Space Air Filtration	HVAC-11 Improve Exhaust from Spaces	HVAC-12 Provide UV-GI Lights (Central Systems)	HVAC-13 Provide UV-GI Lights (Within Spaces)	HVAC-14 Improve Air Flow Directivity (Spaces)	HVAC-15 Add Humidification (Central Systems)	HVAC-16 Add Humidification (Within Spaces)	Elec-1 Provide Lighting Occ Sensors	Elec-2 Provide FA Hold-Opens for Fire Doors	Plumb-1 Provide Sensor Ctrl on Plumb Fixtures
Implementation Complexity:	HIGH	MED	LOW	MED	LOW	LOW	MED	MED	MED	HIGH	MED	HIGH	MED	MED	HIGH	MED	MED	MED	MED
Risk Category	Ventilation, airflow pattern, pressurization	Ventilation, pressurization	Ventilation, scheduling	Filtration	Ventilation, airflow pattern	Ventilation, scheduling	Ventilation	Ventilation, pressurization	Ventilation, pressurization	Filtration	Ventilation, airflow pattern, pressurization	Filtration	scheduling	Airflow Pattern, pressurization	Humidification	Humidification	scheduling, lighting controls	Door openers	Plumbing operators
Typical Classrooms		✓	✓	✓	✓	✓	✓	X		X	X	X			X	X		X	
Art Room		✓	✓	✓	✓	✓	✓	X		X	X	X			X	X		X	X
Music Room		✓	✓	✓	✓	✓	✓	X		X	X	X			X	X		X	
Library		✓	✓	✓	✓	✓	✓	X		X	X	X			X	X	X	X	
Cafeteria		✓	✓	✓	✓		✓	X		X	X	X			X	X	X	X	X
Kitchen		✓	✓	✓			X	X		X	X	X			X	X		X	X
Auditorium		✓	✓	✓	✓		✓	X		X		X	X	X	X	X	X	X	
Nurse's Office		✓	✓	✓	✓	✓	✓	X		X	✓	X			X	X		X	X
Science Room		✓	✓	✓	✓	✓	✓	X		X	X	X	X		X	X		X	X
Administration		✓	✓	✓	✓	✓	✓	X		X	X	X	X		X	X		X	X
Gym		✓	✓	✓	✓		✓	X		X	X	X			X	X	X	X	X
Private Bathrooms	✓		✓						X		X		X				X		X
Group Bathrooms	✓		✓						X		X		X				X	X	X

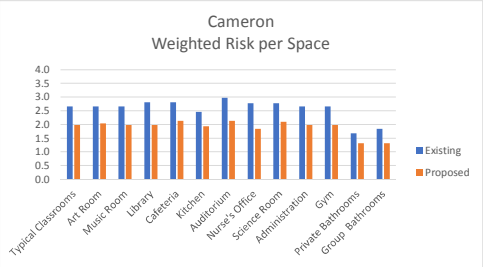
X = applicable, ✓ = proposed

Building Systems Risk Summary - Proposed																
Rate 1-4, 1=meets ASHRAE design guidelines for COVID-19 or N/A, 2=adequate/meets code, 3=poor, 4= None																
	Weight Factor	Typical Classrooms	Art Room	Music Room	Library	Cafeteria	Kitchen	Auditorium	Nurse's Office	Science Room	Administration	Gym	Private Bathrooms	Group Bathrooms		Category Averages
Space Type	-	Typical Classrooms	Specialty Classrooms (shop etc.)	Specialty Classrooms (shop etc.)	Library	Cafeteria	Kitchen	assembly areas	Nurse's Office	Specialty Classrooms (shop etc.)	Administration	Gym	Private Bathrooms	Group Bathrooms		
Space Priority (1-10)	-	1	2	2	4	5	6	4	2	2	7	4	10	4		
Airflow Pattern	16%	2	2	2	2	3	3	3	1	2	2	2	2	2	2	2.2
Ventilation	16%	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0
Filtration	16%	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.1
Pressurization	10%	2	2	2	2	2	2	2	1	2	2	2	2	1	1	1.8
Scheduling	10%	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0
Humidification	16%	4	4	4	4	4	4	1	4	4	4	4	4	1	1	3.3
Plumbing Operators	4%	1	1	1	1	1	1	4	1	4	4	1	1	4	4	2.2
Lighting controls	2%	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3.0
Door Openers	10%	3	3	3	3	3	3	3	3	3	3	3	3	1	1	2.7

Total	100%	18	18	18	18	19	20	19	19	21	18	18	15	15		
Weighted Risk		2.0	2.0	2.0	2.0	2.1	1.9	2.1	1.8	2.1	2.0	2.0	1.3	1.3		
Weight Based on Priority		13%	12%	12%	8%	6%	4%	8%	12%	12%	2%	8%	-3%	8%		100%
Weighted Score Based on Priority		0.3	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.0	0.2	0.0	0.1		2.0
Risk Multi	8.15															

School Score (1-4)	2.0 Moderate Risk
Weighted Totals	

Score Scale	
No Updates Required	<1
Low Risk	1-2
Moderate Risk	2-3
High Risk	3-4





Cameron Middle School - COVID Risk Assessment

Building Description	Masonry building; 4 Levels (1, 2, 3, 4); flat, accessible roof, with mechanical penthouse Basement space includes 2 classrooms with garden level windows No substantial building renovations that have reconfigured architectural layout; no doors that appear to be rated; egress stairwells are not rated enclosures
Building Address	215 Elm Street
Building Date (originally constructed)	1973
Building Square Footage	114,000
HVAC System Description & other key infrastructure observations	<ul style="list-style-type: none">* The gym includes a dedicated makeup air unit (MAU) and a dedicated exhaust fan. The makeup air unit does not include cooling. The space also includes manually operated water fountain, manually operated light switches and operable windows.* The cafeteria has a dedicated makeup air unit (MAU) that serves the cafeteria and kitchen behind the stage and a dedicated exhaust fan with outdoor air and heating. The space also has occupancy sensors for automatic lighting control and operable windows.* Hot water heat is provided by two (2) gas fired Cleaver Brooks boilers. The hot water system does not currently include glycol.* Typical classrooms (Nurse Side) served by wall mounted unit ventilators that supplies outdoor air and heating to the space and is exhausted to a return fan on the roof. There are operable windows, sinks with manual operators, window mounted air conditioner and occupancy sensors for automatic lighting controls.* Typical classrooms (Other side) are served an air handling unit (AHU) that is a part of the central air system. The space has return grille to transfer air within the space to the return fans on the roof. There are operable windows, sink with manual operators and occupancy sensors for automatic lighting controls.* The building currently has DDC controls and monitoring of outdoor air, static pressure, and airflows at BMS.* Science room and Home Economics room, art room has the same systems as a typical classroom with sinks with manual operators.* Computer room has the same systems as a typical classroom.* The library contains operable windows. The space has conditioned air provided from an AHU part of the central system and return grille to transfer air within the space to a return fan on the roof. There is an occupancy sensor for automatic lighting controls. There are perimeter vents that provides heating to the space.* Private and group restrooms both include exhaust and occupancy sensors for automatic lighting controls.* The teachers' lounge is served by wall mounted unit ventilators that supplies outdoor air and heating to the space and is exhausted to a return fan on the roof. There are operable windows and occupancy sensors for automatic lighting controls.* The kitchen has exhaust hoods for food prep. Hood exhaust is manual on/off. An occupancy sensor for automatic lighting controls are provided and no there is no window.* Group and private bathrooms have manual light switch controls and no operable windows.* The nurse's office has operable windows. is served by wall mounted unit ventilators that supplies outdoor air and heating to the space and is exhausted to a return fan on the roof. There are manual light switch control. The bathroom within the space has manual operators and exhaust.* Auditorium has manually operated light switches. The space does not have windows. The space has conditioned air provided from an AHU part of the central system and return grille to transfer air within the space to a return fan on the roof.* All plumbing fixtures have manual operators.* Music room has occupancy sensors providing automatic lighting controls. The space does not have windows. The space has conditioned air
Key Areas / Usage	Classrooms, music room, gym, library, auditorium, art room, science room, nurse's office, cafeteria and administration.

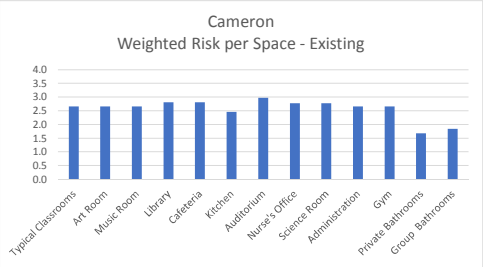
	Recommended Strategies																		
	HVAC-1 Increase Vent Quantity (Space Level)	HVAC-2 Increase Vent Fraction (Central Systems)	HVAC-3 Increase Vent Running Time	HVAC-4 Increase Filtration (Central Systems)	HVAC-5 Ensure Window Functionality	HVAC-6 Improve Window/Door Operations (keep open)	HVAC-7 Space CO2 Monitoring	HVAC-8 Retro-CA Central Air Handlers	HVAC-9 Retro-CA Space Terminal Units	HVAC-10 Provide In-Space Air Filtration	HVAC-11 Improve Exhaust from Spaces	HVAC-12 Provide UV-GI Lights (Central Systems)	HVAC-13 Provide UV-GI Lights (Within Spaces)	HVAC-14 Improve Air Flow Directivity (Spaces)	HVAC-15 Add Humidification (Central Systems)	HVAC-16 Add Humidification (Within Spaces)	Elec-1 Provide Lighting Occ Sensors	Elec-2 Provide FA Hold-Opens for Fire Doors	Plumb-1 Provide Sensor Ctrl on Plumb Fixtures
Implementation Complexity:	HIGH	MED	LOW	MED	LOW	LOW	MED	MED	MED	HIGH	MED	HIGH	MED	MED	HIGH	MED	MED	MED	MED
Risk Category	Ventilation, airflow	Ventilation,	Ventilation,	Filtration	Ventilation,	Ventilation,	Ventilation	Ventilation,	Ventilation,	Filtration	Ventilation,	Filtration	scheduling	Airflow Pattern,	Humidification	Humidification	scheduling,	Door	Plumbing
improvement:	pattern, pressurization	pressurization	scheduling		airflow pattern	scheduling		pressurization	pressurization		airflow pattern, pressurization			pressurization			lighting controls	openers	operators
Typical Classrooms		X	X	X	X	X	X	X		X	X	X			X	X		X	
Art Room		X	X	X	X	X	X	X		X	X	X			X	X		X	X
Music Room		X	X	X	X	X	X	X		X	X	X			X	X		X	
Library		X	X	X	X	X	X	X		X	X	X			X	X	X	X	
Cafeteria		X	X	X			X	X		X	X	X			X	X	X	X	X
Kitchen		X	X	X			X	X		X	X	X			X	X		X	X
Auditorium		X	X	X			X	X		X		X	X	X	X	X	X	X	
Nurse's Office		X	X	X	X	X	X	X		X	X	X		X	X	X		X	X
Science Room		X	X	X	X	X	X	X		X	X	X			X	X		X	X
Administration		X	X	X	X	X	X	X		X	X	X			X	X		X	X
Gym		X	X	X			X	X		X	X	X			X	X	X	X	X
Private Bathrooms	X		X						X		X		X				X		X
Group Bathrooms	X		X						X		X		X			X	X		X

Building Systems Risk Summary																
Rate 1-4, 1=meets ASHRAE design guidelines for COVID-19 or N/A, 2=adequate/meets code, 3=poor, 4= None																
	Weight Factor	Typical Classrooms	Art Room	Music Room	Library	Cafeteria	Kitchen	Auditorium	Nurse's Office	Science Room	Administration	Gym	Private Bathrooms	Group Bathrooms		Category Averages
Space Type	-	Typical Classrooms	Specialty Classrooms (shop etc.)	Specialty Classrooms (shop etc.)	Library	Cafeteria	Kitchen	assembly areas	Nurse's Office	Specialty Classrooms (shop etc.)	Administration	Gym	Private Bathrooms	Group Bathrooms		
Space Priority (1-10)	-	1	2	2	4	5	6	4	2	2	7	4	10	4		
Airflow Pattern	16%	2	2	2	3	3	3	3	2	2	2	2	2	2	3	2.2
Ventilation	16%	2	2	2	2	2	2	3	2	2	2	2	2	2	2	1.9
Filtration	16%	3	3	3	3	3	3	3	3	3	3	3	3	1	1	2.5
Pressurization	10%	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2.7
Scheduling	10%	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1.9
Humidification	16%	4	4	4	4	4	4	1	4	4	4	4	4	1	1	3.1
Plumbing Operators	4%	1	1	1	1	1	1	4	1	4	4	1	1	4	4	2.0
Lighting controls	2%	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2.8
Door Openers	10%	3	3	3	3	3	3	3	3	3	3	3	3	1	1	2.5

Total	100%	23	23	23	24	24	24	25	26	26	23	23	18	19		
Weighted Risk		2.7	2.7	2.7	2.8	2.8	2.5	3.0	2.8	2.8	2.7	2.7	1.7	1.8		
Weight Based on Priority		13%	12%	12%	8%	6%	4%	8%	12%	12%	2%	8%	-3%	8%		100%
Weighted Score Based on Priority		0.4	0.3	0.3	0.2	0.2	0.1	0.2	0.3	0.3	0.1	0.2	0.0	0.1		2.8
Risk Multi	8.15															

School Score (1-4)	2.8 Moderate Risk
Weighted Totals	

Score Scale	
No Updates Required	<1
Low Risk	1-2
Moderate Risk	2-3
High Risk	3-4





Dunning Elementary School - COVID Risk Assessment - Proposed

Building Description	Masonry building; 2 Levels (1, 2); flat, accessible roof, with mechanical penthouse Basement space includes 2 classrooms with garden level windows No substantial building renovations that have reconfigured architectural layout; no doors that appear to be rated; egress stairwells are not rated enclosures
Building Address	48 Frost St.
Building Date (originally constructed)	1961
Building Square Footage	61,500
Proposed Scope of Work Summary	Increase percentage of outdoor air at space level, Increase ventilation run time - building flush out, Provide in space HEPA filtration, Maximize ventilation at RTUs, provide CO2 monitoring, ensure window functionality and keep open as much as possible, ensure exhaust from nurse's office and isolation room.
Key Areas / Usage	Classrooms, music room, gym, library, cafeteria and administration.

	Recommended Strategies - Proposed																		
	HVAC-1 Increase Vent Quantity (Space Level)	HVAC-2 Increase Vent Fraction (Central Systems)	HVAC-3 Increase Vent Running Time	HVAC-4 Increase Filtration (Central Systems)	HVAC-5 Ensure Window Functionality	HVAC-6 Improve Window/Door Operations (keep open)	HVAC-7 Space CO2 Monitoring	HVAC-8 Retro-CX Central Air Handlers	HVAC-9 Retro-CX Space Terminal Units	HVAC-10 Provide In- Space Air Filtration	HVAC-11 Improve Exhaust from Spaces	HVAC-12 Provide UV-GI Lights (Central Systems)	HVAC-13 Provide UV-GI Lights (Within Spaces)	HVAC-14 Improve Air Flow Directivity (Spaces)	HVAC-15 Add Humidification (Central Systems)	HVAC-16 Add Humidification (Within Spaces)	Elec-1 Provide Lighting Occ Sensors	Elec-2 Provide FA Hold-Opens for Fire Doors	Plumb-1 Provide Sensor Ctrl on Plumb Fixtures
Implementation Complexity:	HIGH	MED	LOW	MED	LOW	LOW	MED	MED	MED	HIGH	MED	HIGH	MED	MED	HIGH	MED	MED	MED	MED
Risk Category improvement:	Ventilation, airflow pattern, pressurization	Ventilation, pressurization	Ventilation, scheduling	Filtration	Ventilation, airflow pattern	Ventilation, scheduling	Ventilation	Ventilation, pressurization	Ventilation, pressurization	Filtration	Ventilation, airflow pattern, pressurization	Filtration	scheduling	Airflow Pattern, pressurization	Humidification	Humidification	scheduling, lighting controls	Door openers	Plumbing operators
Typical Classrooms	✓		✓		✓	✓	✓		✓	✓	X		X	X		X	X	X	X
Library	✓		✓			X	✓		✓	✓			X	X		X	X	X	
Cafeteria	✓		✓		✓	✓	✓		✓	✓	X		X	X		X	X	X	
Kitchen	✓		✓			X	X		✓	X			X	X		X	X	X	X
Isolation Room	✓		✓				✓		✓	✓	✓		X	X		X	X	X	
Nurse's Office	✓		✓		✓	✓	✓		✓	✓	✓		X	X		X	X	X	X
Teacher's Lounge	✓		✓		✓	✓	✓		✓	✓	X		X	X		X	X	X	
Administration	✓		✓		✓	✓	✓		✓	✓			X	X		X	X	X	
Gym		✓	✓	X	✓	✓	✓	✓		✓	X	X			X		X	X	
Private Bathrooms	X		✓		✓	✓			X		X		X	X		X	X		X
Group Bathrooms	X		✓						X		X		X	X		X	X		X
X = applicable, ✓ = proposed																			

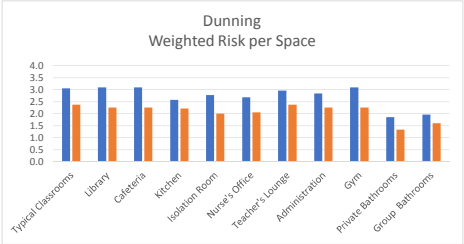
X = applicable, ✓ = proposed

Building Systems Risk Summary - Proposed																
Rate 1-4, 1=meets ASHRAE design guidelines for COVID-19 or N/A, 2=adequate/meets code, 3=poor, 4= None																
	Weight Factor	Typical Classrooms	Library	Cafeteria	Kitchen	Isolation Room	Nurse's Office	Teacher's Lounge	Administration	Gym	Private Bathrooms	Group Bathrooms				Category Averages
Space Type	-	Typical Classrooms	Library	Cafeteria	Kitchen	Isolation Room	Nurse's Office	Teacher's Lounge	Administration	Gym	Private Bathrooms	Group Bathrooms				
Space Priority (1-10)	-	1	4	5	6	1	2	5	7	4	10	4	SELECT SPACE TYPE	SELECT SPACE TYPE	SELECT SPACE TYPE	
Airflow Pattern	16%	2	2	2	2	1	1	2	2	2	2	3				1.9
Ventilation	16%	1	1	1	2	1	1	1	1	1	1	2				1.2
Filtration	16%	2	2	2	3	2	2	2	2	2	2	1				1.9
Pressurization	10%	2	2	2	2	1	1	2	2	2	2	1				1.6
Scheduling	10%	1	1	1	1	1	1	1	1	1	1	1				1.0
Humidification	16%	4	4	4	1	4	4	4	4	4	4	1				3.2
Plumbing Operators	4%	4	1	1	4	1	4	4	4	1	1	4				2.6
Lighting controls	2%	4	4	4	4	4	1	4	4	4	4	1				3.5
Door Openers	10%	4	4	4	4	4	4	4	4	4	4	1				3.5

Total	100%	24	21	21	23	19	19	24	21	21	16	15				
Weighted Risk		2.4	2.3	2.3	2.2	2.0	2.1	2.4	2.3	2.3	1.3	1.6	0.0	0.0	0.0	
Weight Based on Priority		16%	10%	8%	6%	16%	14%	8%	4%	10%	-2%	10%	0%	0%	0%	100%
Weighted Score Based on Priority		0.4	0.2	0.2	0.1	0.3	0.3	0.2	0.1	0.2	0.0	0.2	0.0	0.0	0.0	2.2
Risk Multi	8.91															

School Score (1-4)	2.2 Moderate Risk
Weighted Totals	

Score Scale	
No Updates Required	<1
Low Risk	1-2
Moderate Risk	2-3
High Risk	3-4





Dunning Elementary School - COVID Risk Assessment

Building Description	Masonry building; 2 Levels (1, 2); flat, accessible roof, with mechanical penthouse Basement space includes 2 classrooms with garden level windows No substantial building renovations that have reconfigured architectural layout; no doors that appear to be rated; egress stairwells are not rated enclosures
Building Address	48 Frost St.
Building Date (originally constructed)	1961
Building Square Footage	61,500
HVAC System Description & other key infrastructure observations	<ul style="list-style-type: none">* The gym includes a dedicated makeup air unit (MAU) and a dedicated exhaust fan. The space also includes manually operated water fountain, manually operated light switches and operable windows.* The cafeteria has outdoor air, cooling and heating supplied from a unit ventilator for and air is exhausted to a return fan on the roof. The space also has manual lighting controls and operable windows.* Hot water heat is provided by two (2) gas fired boilers. The hot water system does not currently include glycol.* Isolation rooms will be the Vice Principal's office. There are no operable windows and the space is provided with air conditioning.* Typical classrooms are served by wall mounted unit ventilators that supplies outdoor air cooling, and heating to the space. The return to the unit ventilator is by a linear slot diffuser located at the bottom of the window. Air within the space is exhausted to a return fan on the roof. There will also a sink and manual lighting controls.* The building currently has DDC controls and monitoring of outdoor air, static pressure, and airflows at BMS.* The library contains operable windows and manual light switches. Outdoor air, cooling and heating is supplied from a unit ventilator for and air is exhausted to a return fan on the roof.* Group restrooms include exhaust, operable windows and manual light switch controls.* The teachers' lounge is served by wall mounted unit ventilators that supplies outdoor air and heating to the space and is exhausted to a return fan on the roof. There are operable windows and manual lighting controls.* The kitchen has exhaust hoods for food prep. Hood exhaust is manual on/off. There are manual light switch controls.* Private have manual light switch controls, exhaust and no operable windows.* The nurse's office has operable windows. is served by wall mounted unit ventilators that supplies outdoor air and heating to the space and is exhausted to a return fan on the roof. There are a window air conditioner unit and manual light switch control. The bathroom within the space has manual operators and exhaust.* All plumbing fixtures have manual operators.* Main office contains manually operated light switches. Air is supplied from a unit ventilator for outdoor air cooling and heating. Air within the space is exhausted to a return fan on the roof. The bathroom within the space has manually operated plumbing fixtures. There are operable windows and window mounted air conditioning units.* Building has a generator for backup power.* Isolation room has no windows. The space has conditioned air provided from an AHU part of the central system and return grille to transfer air within the space to a return fan on the roof.
Key Areas / Usage	Classrooms, music room, gym, library, cafeteria and administration.

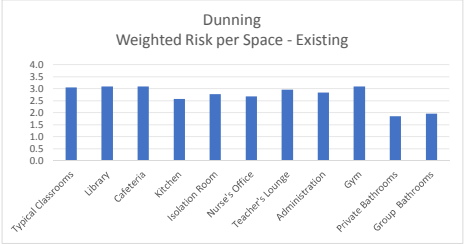
	Recommended Strategies																		
	HVAC-1 Increase Vent Quantity (Space Level)	HVAC-2 Increase Vent Fraction (Central Systems)	HVAC-3 Increase Vent Running Time	HVAC-4 Increase Filtration (Central Systems)	HVAC-5 Ensure Window Functionality	HVAC-6 Improve Window/Door Operations (keep open)	HVAC-7 Space CO2 Monitoring	HVAC-8 Retro-CX Central Air Handlers	HVAC-9 Retro-CX Space Terminal Units	HVAC-10 Provide In-Space Air Filtration	HVAC-11 Improve Exhaust from Spaces	HVAC-12 Provide UV-GI Lights (Central Systems)	HVAC-13 Provide UV-GI Lights (Within Spaces)	HVAC-14 Improve Air Flow Directivity (Spaces)	HVAC-15 Add Humidification (Central Systems)	HVAC-16 Add Humidification (Within Spaces)	Elec-1 Provide Lighting Occ Sensors	Elec-2 Provide FA Hold-Opens for Fire Doors	Plumb-1 Provide Sensor Ctrl on Plumb Fixtures
Implementation Complexity:	HIGH	MED	LOW	MED	LOW	LOW	MED	MED	MED	HIGH	MED	HIGH	MED	MED	HIGH	MED	MED	MED	MED
Risk Category Improvement:	Ventilation, airflow pattern, pressurization	Ventilation, pressurization	Ventilation, scheduling	Filtration	Ventilation, airflow pattern	Ventilation, scheduling	Ventilation	Ventilation, pressurization	Ventilation, pressurization	Filtration	Ventilation, airflow pattern, pressurization	Filtration	scheduling	Airflow Pattern, pressurization	Humidification	Humidification	scheduling, lighting controls	Door openers	Plumbing operators
Typical Classrooms	X		X		X	X	X		X	X	X		X	X		X	X	X	X
Library	X		X				X		X	X			X	X		X	X	X	
Cafeteria	X		X		X	X	X		X	X	X		X	X		X	X	X	
Kitchen	X		X				X		X	X	X		X	X		X	X	X	X
Isolation Room	X		X				X		X	X	X		X	X		X	X	X	
Nurse's Office	X		X		X	X	X		X	X	X		X	X		X		X	X
Teacher's Lounge	X		X		X	X	X		X	X	X		X	X		X	X	X	
Administration	X		X		X	X	X		X	X			X	X		X	X	X	
Gym		X	x	X	X	X	X	X		X	X	X			X		X	X	
Private Bathrooms	X		X		X	X			X		X		X	X		X	X		X
Group Bathrooms	X		X						X		X		X	X		X	X		X

Building Systems Risk Summary															
Rate 1-4, 1=meets ASHRAE design guidelines for COVID-19 or N/A, 2=adequate/meets code, 3=poor, 4= None															
	Weight Factor	Typical Classrooms	Library	Cafeteria	Kitchen	Isolation Room	Nurse's Office	Teacher's Lounge	Administration	Gym	Private Bathrooms	Group Bathrooms			Category Averages
Space Type	-	Typical Classrooms	Library	Cafeteria	Kitchen	Isolation Room	Nurse's Office	Teacher's Lounge	Administration	Gym	Private Bathrooms	Group Bathrooms			
Space Priority (1-10)	-	1	4	5	6	1	2	5	7	4	10	4			
Airflow Pattern	16%	2	3	3	2	3	2	2	2	3	2	3			2.5
Ventilation	16%	3	3	3	3	2	2	3	3	3	3	3			2.8
Filtration	16%	3	3	3	3	2	2	3	3	3	1	1			2.5
Pressurization	10%	3	3	3	3	3	3	2	2	3	3	3			2.8
Scheduling	10%	2	2	2	2	2	2	2	2	2	1	1			1.8
Humidification	16%	4	4	4	1	4	4	4	4	4	1	1			3.2
Plumbing Operators	4%	4	1	1	4	1	4	4	1	1	4	4			2.6
Lighting controls	2%	4	4	4	4	4	4	4	4	4	4	1			3.5
Door Openers	10%	4	4	4	4	4	4	4	4	4	1	1			3.5

Total	100%	29	27	27	26	25	24	28	25	27	20	18			
Weighted Risk		3.1	3.1	3.1	2.6	2.8	2.7	3.0	2.8	3.1	1.9	2.0			
Weight Based on Priority		16%	10%	8%	6%	16%	14%	8%	4%	10%	-2%	10%	100%		
Weighted Score Based on Priority		0.5	0.3	0.2	0.2	0.4	0.4	0.2	0.1	0.3	0.0	0.2	2.8		
Risk Multi	8.91														

School Score (1-4)	2.8 Moderate Risk
Weighted Totals	

Score Scale	
No Updates Required	<1
Low Risk	1-2
Moderate Risk	2-3
High Risk	3-4





Framingham High School - COVID Risk Assessment - Proposed

Building Description	Masonry building; 4 Levels (1, 2); flat, accessible roof, with mechanical penthouse Basement space includes 2 classrooms with garden level windows No substantial building renovations that have reconfigured architectural layout; no doors that appear to be rated; egress stairwells are not rated enclosures
Building Address	115 A Street
Building Date (originally cons	1961
Building Square Footage	396,000
Proposed scope of work summary	Maximize percentage of outdoor air at unit ventilators, Maximize ventilation at RTUs, Increase ventilation run time - building flush out, Provide minimum MERV 13 filters in central systems, Provide in space HEPA filtration, provide CO2 monitoring, ensure window functionality and keep open as much as possible, ensure exhaust from nurse's office and isolation rooms.
Key Areas / Usage	Classrooms, music room, gym, library, auditorium, art room, science room, nurse's office, cafeteria and administration.

	Recommended Strategies - Proposed																		
	HVAC-1 Increase Vent Quantity (Space Level)	HVAC-2 Increase Vent Fraction (Central Systems)	HVAC-3 Increase Vent Running Time	HVAC-4 Increase Filtration (Central Systems)	HVAC-5 Ensure Window Functionality	HVAC-6 Improve Window/Door Operations (keep open)	HVAC-7 Space CO2 Monitoring	HVAC-8 Retro-CX Central Air Handlers	HVAC-9 Retro-CX Space Terminal Units	HVAC-10 Provide In-Space Air Filtration	HVAC-11 Improve Exhaust from Spaces	HVAC-12 Provide UV-GI Lights (Central Systems)	HVAC-13 Provide UV-GI Lights (Within Spaces)	HVAC-14 Improve Air Flow Directivity (Spaces)	HVAC-15 Add Humidification (Central Systems)	HVAC-16 Add Humidification (Within Spaces)	Elec-1 Provide Lighting Occ Sensors	Elec-2 Provide FA Hold-Opens for Fire Doors	Plumb-1 Provide Sensor Ctrl on Plumb Fixtures
Implementation Complexity:	HIGH	MED	LOW	MED	LOW	LOW	MED	MED	MED	HIGH	MED	HIGH	MED	MED	HIGH	MED	MED	MED	MED
	Ventilation, airflow pattern, pressurization	Ventilation, pressurization	Ventilation, scheduling	Filtration	Ventilation, airflow pattern	Ventilation, scheduling	Ventilation	Ventilation, pressurization	Ventilation, pressurization	Filtration	Ventilation, airflow pattern, pressurization	Filtration	scheduling	Airflow Pattern, pressurization	Humidification	Humidification	scheduling, lighting controls	Door openers	Plumbing operators
Risk Category Improvement:																			
Typical Classrooms	✓		✓		✓	✓	✓		X	✓	X		X	X		X	X	X	
Art Room	✓				✓	✓	✓		X	✓	X		X	X		X	X	X	X
Music Room		✓	✓	✓	✓	✓	✓	X		✓	X	X			X	X	X	X	
Library		✓	✓	✓	✓	✓	✓	X		✓	X	X			X	X	X	X	
Cafeteria		✓	✓	✓	✓	✓	✓			✓	✓	X			X		X	X	X
Kitchen		✓	✓	✓	✓		X	X		X	✓	X			X	X	X	X	X
Nurse's Office		✓	✓	✓	✓	✓	✓	X		✓	✓	X			X	X	X	X	X
Science Room		✓	✓	✓	✓	✓	✓	X		✓	X	X			X	X	X	X	X
Auditorium		✓	✓	✓	✓		✓	X				X			X		X	X	
Woodshop	✓		✓		✓	✓	✓		X				X	X		X	X	X	X
Administration		✓	✓	✓	✓	✓	✓	X		✓	X	X			X	X	X	X	
Gym		✓	✓	✓	✓	✓	✓			✓	X	X			X	X	X	X	X
Locker Rooms		✓	✓	✓	✓	✓	✓					X			X		X		X
Isolation Room		✓	✓	✓	✓	✓	✓	X			✓	X			X	X	X	X	
Private Bathrooms	X		✓		✓	✓	X		X		X		X	X		X	X		X
Group Bathrooms	X		✓		✓		X		X		X		X	X		X	X		X

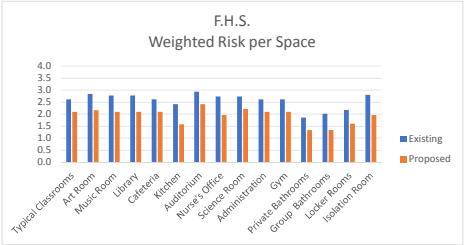
X = applicable, ✓ = proposed

Building Systems Risk Summary - Proposed																	
Rate 1-4, 1=meets ASHRAE design guidelines for COVID-19 or N/A, 2=adequate/meets code, 3=poor, 4= None																	
	Weight Factor	Typical Classrooms	Art Room	Music Room	Library	Cafeteria	Kitchen	Auditorium	Nurse's Office	Science Room	Administration	Gym	Private Bathrooms	Group Bathrooms	Locker Rooms	Isolation Room	Category Averages
Space Type	-	Typical Classrooms	Specialty Classrooms (shop etc.)	Specialty Classrooms (shop etc.)	Library	Cafeteria	Kitchen	assembly areas	Nurse's Office	Specialty Classrooms (shop etc.)	Administration	Gym	Private Bathrooms	Group Bathrooms	Locker Rooms	Isolation Room	
Space Priority (1-10)	-	1	2	2	4	5	6	4	2	2	7	4	10	4	4	1	
Airflow Pattern	16%	2	2	2	2	2	2	1	3	1	2	2	2	2	2	2	1.9
Ventilation	16%	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0
Filtration	16%	1	1	1	1	1	1	1	2	1	1	1	1	1	2	1	1.1
Pressurization	10%	2	2	2	2	2	2	2	2	1	2	2	2	1	2	2	1.7
Scheduling	10%	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0
Humidification	16%	4	4	4	4	4	4	1	4	4	4	4	4	1	1	4	3.2
Plumbing Operators	4%	1	1	1	1	1	1	4	1	4	4	1	1	4	4	4	2.4
Lighting controls	2%	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4.0
Door Openers	10%	4	4	4	4	4	4	4	4	4	4	4	4	1	1	1	3.4

Total	100%	20	20	20	20	20	19	22	21	23	20	20	16	16	18	21	
Weighted Risk		2.1	2.2	2.1	2.1	2.1	1.6	2.4	2.0	2.2	2.1	2.1	1.3	1.3	1.6	2.0	
Weight Based on Priority		12%	10%	10%	6%	5%	3%	6%	10%	10%	1%	6%	-4%	6%	6%	12%	100%
Weighted Score Based on Priority		0.2	0.2	0.2	0.1	0.1	0.0	0.2	0.2	0.2	0.0	0.1	0.0	0.1	0.1	0.2	2.1
Risk Multi	7.73																

School Score (1-4)	2.1 Moderate Risk
Weighted Totals	

Score Scale	
No Updates Required	<1
Low Risk	1-2
Moderate Risk	2-3
High Risk	3-4





Framingham High School - COVID Risk Assessment

Building Description	Masonry building; 4 Levels (1, 2); flat, accessible roof, with mechanical penthouse Basement space includes 2 classrooms with garden level windows No substantial building renovations that have reconfigured architectural layout; no doors that appear to be rated; egress stairwells are not rated enclosures
Building Address	115 A Street
Building Date (originally constructed)	1961
Building Square Footage	396,000
HVAC System Description & other key infrastructure observations	<ul style="list-style-type: none">* The gym includes a dedicated remote terminal unit (RTU) and a dedicated heated return unit (HRU). The makeup air unit does not include cooling. The space also includes manual water fountain, ceiling fans and operable windows.* Remote Terminal Units have filters that have 65% efficiency. The filters in the HRU are 20"x25"x2".* The cafeteria has two (2) dedicated remote terminal units (RTU) that serves the cafeteria and kitchen and a dedicated exhaust fan. The space also has manual lighting control and operable windows.* The kitchen has exhaust hoods for food prep. Hood exhaust is manual on/off. An occupancy sensor for automatic lighting controls are provided and no there is no window.* Hot water heat is provided by two (2) gas fired boilers. The hot water system does not currently include glycol.* Typical classrooms are served by wall mounted unit ventilators that supplies outdoor air, cooling and heating to the space. Air is exhausted from the space to a HRU on the roof.* The building currently has DDC controls and monitoring of outdoor air, static pressure, and airflows at BMS.* Science room, art room has the same systems as a typical classroom with sinks with manual operators.* The library contains operable windows and manual light switches. Air is supplied from central air system and air is exhausted to a return fan on the roof.* Private and group restrooms both include exhaust and manual lighting controls.* The teachers' lounge includes the same systems as a science classroom.* Woodshop has a dust collector and operable windows. There are also sinks and there is no air conditioning within the space.* Group and private bathrooms have manual light switch controls.* Locker rooms have operable windows and manual lighting controls. Air within the space is exhausted to an HRU on the roof.* Isolation room has operable windows. Air is supplied from the central system and air is exhausted to a return fan on the roof. There are manual light switch controls within the space. The bathroom associated with the isolation room has exhaust.* The nurse's office has operable windows. Outdoor air and heating are provided from a unit ventilator and air is exhausted to a return fan on the roof. There is a wall mounted air conditioner and manually operated lighting controls.* Auditorium has manual lighting controls. The space does not have windows. The space has conditioned air provided from a dedicated RTU and return grille to transfer air within the space to a HRU on the roof.* All plumbing fixtures have manual operators.* Music rooms have manual lighting controls and no windows. The space has conditioned air provided from an AHU part of the central system and return grille to transfer air within the space to a Heated Return Unit (HRU) on the roof. The sink within the space has manual operators.
Key Areas / Usage	Classrooms, music room, gym, library, auditorium, art room, science room, nurse's office, cafeteria and administration.

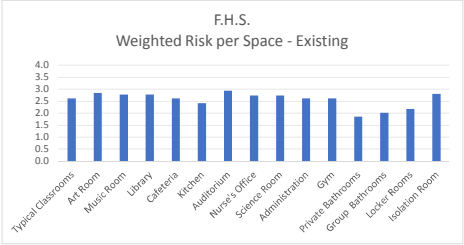
	Recommended Strategies																		
	HVAC-1 Increase Vent Quantity (Space Level)	HVAC-2 Increase Vent Fraction (Central Systems)	HVAC-3 Increase Vent Running Time	HVAC-4 Increase Filtration (Central Systems)	HVAC-5 Ensure Window Functionality	HVAC-6 Improve Window/Door Operations (keep open)	HVAC-7 Space CO2 Monitoring	HVAC-8 Retro-CX Central Air Handlers	HVAC-9 Retro-CX Space Terminal Units	HVAC-10 Provide In-Space Air Filtration	HVAC-11 Improve Exhaust from Spaces	HVAC-12 Provide UV-GI Lights (Central Systems)	HVAC-13 Provide UV-GI Lights (Within Spaces)	HVAC-14 Improve Air Flow Directivity (Spaces)	HVAC-15 Add Humidification (Central Systems)	HVAC-16 Add Humidification (Within Spaces)	Elec-1 Provide Lighting Occ Sensors	Elec-2 Provide FA Hold-Opens for Fire Doors	Plumb-1 Provide Sensor Ctrl on Plumb Fixtures
Implementation Complexity:	HIGH	MED	LOW	MED	LOW	LOW	MED	MED	MED	HIGH	MED	HIGH	MED	MED	HIGH	MED	MED	MED	MED
	Ventilation, airflow pattern, pressurization	Ventilation, pressurization	Ventilation, scheduling	Filtration	Ventilation, airflow pattern	Ventilation, scheduling	Ventilation	Ventilation, pressurization	Ventilation, pressurization	Filtration	Ventilation, airflow pattern, pressurization	Filtration	scheduling	Airflow Pattern, pressurization	Humidification	Humidification	scheduling, lighting controls	Door openers	Plumbing operators
Risk Category Improvement:																			
Typical Classrooms	X		X		X	X	X		X	X	X		X	X		X	X	X	
Art Room	X		X			X	X		X	X	X		X	X		X	X	X	X
Music Room		X	X	X			X	X		X	X	X		X			X	X	
Library		X	X	X	X	X	X	X		X	X	X			X		X	X	
Cafeteria		X	X	X	X	X	X	X		X	X	X			X		X	X	X
Kitchen		X	X	X			X	X		X	X	X			X		X	X	X
Nurse's Office		X	X	X	X	X	X	X		X	X	X			X		X	X	X
Science Room		X	X	X		X	X	X		X	X	X			X		X	X	X
Auditorium		X	X	X			X	X				X			X		X	X	
Woodshop	X		X		X	X	X		X				X	X		X		X	X
Administration		X	X	X		X	X	X		X	X	X			X		X	X	
Gym		X	X	X		X	X	X		X	X	X			X		X	X	X
Locker Rooms		X	X	X	X	X	X					X			X				X
Isolation Room		X	X	X	X	X	X	X				X			X		X	X	
Private Bathrooms	X		X		X	X	X		X		X		X	X		X	X		X
Group Bathrooms	X		X		X		X		X		X		X	X		X	X		X

Building Systems Risk Summary																	
Rate 1-4, 1=meets ASHRAE design guidelines for COVID-19 or N/A, 2=adequate/meets code, 3=poor, 4= None																	
	Weight Factor	Typical Classrooms	Art Room	Music Room	Library	Cafeteria	Kitchen	Auditorium	Nurse's Office	Science Room	Administration	Gym	Private Bathrooms	Group Bathrooms	Locker Rooms	Isolation Room	Category Averages
Space Type	-	Typical Classrooms	Specialty Classrooms (shop etc.)	Specialty Classrooms (shop etc.)	Library	Cafeteria	Kitchen	assembly areas	Nurse's Office	Specialty Classrooms (shop etc.)	Administration	Gym	Private Bathrooms	Group Bathrooms	Locker Rooms	Isolation Room	
Space Priority (1-10)	-	1	2	2	4	5	6	4	2	2	7	4	10	4	4	1	
Airflow Pattern	16%	2	3	3	3	2	3	3	2	2	2	2	2	2	3	3.0	2.5
Ventilation	16%	2	2	2	2	2	2	3	2	2	2	2	3	3	3.0	2.0	2.3
Filtration	16%	2	2	2	2	2	2	2	2	2	2	2	1	1	2.0	2.0	1.9
Pressurization	10%	3	3	3	3	3	3	3	3	3	3	3	2	2	2.0	2.0	2.7
Scheduling	10%	2	2	2	2	2	2	2	2	2	2	2	2	2	2.0	2.0	2.0
Humidification	16%	4	4	4	4	4	4	1	4	4	4	4	1	1	1.0	4.0	3.2
Plumbing Operators	4%	1	1	1	1	1	4	1	4	4	1	1	4	4	4.0	4.0	2.4
Lighting controls	2%	4	4	4	4	4	4	4	4	4	4	4	4	4	4.0	4.0	4.0
Door Openers	10%	4	4	4	4	4	4	4	4	4	4	4	1	1	1.0	4.0	3.4

Total	100%	24	25	25	25	24	25	26	27	27	24	24	20	21	22	27	
Weighted Risk		2.6	2.8	2.8	2.8	2.6	2.4	2.9	2.7	2.7	2.6	2.6	1.9	2.0	2.2	2.8	
Weight Based on Priority		12%	10%	10%	6%	5%	3%	6%	10%	10%	1%	6%	-4%	6%	6%	12%	100%
Weighted Score Based on Priority		0.3	0.3	0.3	0.2	0.1	0.1	0.2	0.3	0.3	0.0	0.2	0.0	0.1	0.1	0.3	2.8
Risk Multi	7.73																

School Score (1-4)	2.3 Moderate Risk
Weighted Totals	

Score Scale	
No Updates Required	<1
Low Risk	1-2
Moderate Risk	2-3
High Risk	3-4





Fuller School - COVID Risk Assessment - Proposed

Building Description	Masonry building; 1 Levels (1); flat, accessible roof Crawl space with several small air handling units No substantial building renovations that have reconfigured architectural layout; no doors that appear to be rated; egress stairwells are not rated enclosures
Building Address	115 A Street
Building Date (originally cons	1961
Building Square Footage	396,000
Proposed scope of work summary	Maximize percentage of outdoor air at unit ventilators, Increase ventilation run time - building flush out, Provide in space HEPA filtration, Maximize ventilation at RTUs, provide space level CO2 monitoring, ensure window functionality and keep open as much as possible, ensure exhaust from nurse's office and isolation room, Increase exhaust run time for all other spaces.
Key Areas / Usage	Classrooms, music room, gym, library, auditorium, art room, science room, nurse's office, cafeteria and administration.

	Recommended Strategies - Proposed																		
	HVAC-1 Increase Vent Quantity (Space Level)	HVAC-2 Increase Vent Fraction (Central Systems)	HVAC-3 Increase Vent Running Time	HVAC-4 Increase Filtration (Central Systems)	HVAC-5 Ensure Window Functionality	HVAC-6 Improve Window/Door Operations (keep open)	HVAC-7 Space CO2 Monitoring	HVAC-8 Retro-CX Central Air Handlers	HVAC-9 Retro-CX Space Terminal Units	HVAC-10 Provide In-Space Air Filtration	HVAC-11 Improve Exhaust from Spaces	HVAC-12 Provide UV-GI Lights (Central Systems)	HVAC-13 Provide UV-GI Lights (Within Spaces)	HVAC-14 Improve Air Flow Directivity (Spaces)	HVAC-15 Add Humidification (Central Systems)	HVAC-16 Add Humidification (Within Spaces)	Elec-1 Provide Lighting Occ Sensors	Elec-2 Provide FA Hold-Opens for Fire Doors	Plumb-1 Provide Sensor Ctrl on Plumb Fixtures
Implementation Complexity:	HIGH	MED	LOW	MED	LOW	LOW	MED	MED	MED	HIGH	MED	HIGH	MED	MED	HIGH	MED	MED	MED	MED
	Ventilation, airflow pattern, pressurization	Ventilation, pressurization	Ventilation, scheduling	Filtration	Ventilation, airflow pattern	Ventilation, scheduling	Ventilation	Ventilation, pressurization	Ventilation, pressurization	Filtration	Ventilation, airflow pattern, pressurization	Filtration	scheduling	Airflow Pattern, pressurization	Humidification	Humidification	scheduling, lighting controls	Door openers	Plumbing operators
Risk Category Improvement:																			
Typical Classrooms	✓		✓		✓	✓	✓		X	✓	X		X	X		X	X	X	
Art Room	✓		✓		✓	✓	✓		X	✓	X		X	X		X	X	X	X
Music Room		✓	✓	X	✓	✓	✓	X		✓	X	X			X		X	X	
Library		✓	✓	X	✓	✓	✓	X		✓	X	X			X		X	X	
Cafeteria		✓	✓	X	✓	✓	✓	X		X	✓	X			X		X	X	X
Kitchen		✓	✓	X			X	X		X	✓	X			X		X	X	X
Nurse's Office		✓	✓	X	✓	✓	✓	X		✓	✓	X			X		X	X	X
Science Room		✓	✓	X	✓	✓	✓	X		✓	X	X			X		X	X	X
Auditorium		✓	✓	X			✓	X				X			X		X	X	
Woodshop	✓		✓				✓		X				X	X		X	X	X	X
Administration		✓	✓	X	✓	✓	✓	X		✓	X	X			X		X	X	
Gym		✓	✓	X	✓	✓	✓	X		X	X	X			X		X	X	X
Locker Rooms		✓	✓	X	✓	✓	X				✓	X			X		X		X
Isolation Room		✓	✓	X	✓	✓	✓	X		✓	✓	X			X		X	X	
Private Bathrooms	X		✓		✓	✓	X		X		✓			X	X	X	X		X
Group Bathrooms	X		✓		✓	✓	X		X		✓			X	X	X	X		X

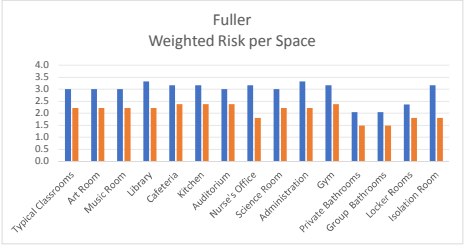
X = applicable, ✓ = proposed

Building Systems Risk Summary																	
Rate 1-4, 1=meets ASHRAE design guidelines for COVID-19 or N/A, 2=adequate/meets code, 3=poor, 4= None																	
	Weight Factor	Typical Classrooms	Art Room	Music Room	Library	Cafeteria	Kitchen	Auditorium	Nurse's Office	Science Room	Administration	Gym	Private Bathrooms	Group Bathrooms	Locker Rooms	Isolation Room	Category Averages
Space Type	-	Typical Classrooms	Specialty Classrooms (shop etc.)	Specialty Classrooms (shop etc.)	Library	Cafeteria	Kitchen	assembly areas	Nurse's Office	specialty classrooms (shop etc.)	Administration	Gym	Private Bathrooms	Group Bathrooms	Locker Rooms	Isolation Room	
Space Priority (1-10)	-	1	2	2	4	5	6	4	2	2	7	4	10	4	4	1	
Airflow Pattern	16%	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1.9
Ventilation	16%	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0
Filtration	16%	2	2	2	2	3	3	3	3	2	2	3	1	1	3	1	2.1
Pressurization	10%	2	2	2	2	2	2	2	1	2	2	2	1	1	1	1	1.7
Scheduling	10%	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0
Humidification	16%	4	4	4	4	4	4	4	4	4	4	4	4	1	1	4	3.4
Plumbing Operators	4%	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3.0
Lighting controls	2%	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3.0
Door Openers	10%	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3.0

Total	100%	21	21	21	21	22	22	22	18	21	21	22	16	16	18	18	
Weighted Risk		2.2	2.2	2.2	2.2	2.4	2.4	2.4	1.8	2.2	2.2	2.2	2.4	1.5	1.5	1.8	
Weight Based on Priority		12%	10%	10%	6%	5%	3%	6%	10%	10%	1%	6%	-4%	6%	6%	12%	100%
Weighted Score Based on Priority		0.3	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.0	0.2	0.0	0.1	0.1	0.2	2.2
Risk Multi	7.73																

School Score (1-4)	2.2 Moderate Risk
Weighted Totals	

Score Scale	
No Updates Required	<1
Low Risk	1-2
Moderate Risk	2-3
High Risk	3-4





Fuller School - COVID Risk Assessment

Building Description	Masonry building; 1 Levels (1); flat, accessible roof Crawl space with several small air handling units No substantial building renovations that have reconfigured architectural layout; no doors that appear to be rated; egress stairwells are not rated enclosures
Building Address	115 A Street
Building Date (originally constructed)	1961
Building Square Footage	396,000
HVAC System Description & other key infrastructure observations	<ul style="list-style-type: none">* The main office suite, library and cafeteria are served by heating and ventilation (H&V) units located in the crawlspace that are in poor condition.* The auditorium and band room are served by H&V units located in mechanical rooms that distribute air to ceiling mounted diffusers.* Typical classrooms are served by wall mounted unit ventilators that supply air for ventilation and heating. The rooms have supplemental fin tube radiators. There is a window mounted A/C unit to provide cooling. Air within the space is exhausted to a return fan on the roof. The rooms also included operable windows.* Corridors have operable windows for ventilation.* Lighting is manually controlled via toggle switches* Plumbing fixtures are manually operated* The isolation room has one operable window for ventilation and fin tube for heating. The bathroom has mechanical exhaust and operable windows.
Key Areas / Usage	Classrooms, music room, gym, library, auditorium, art room, science room, nurse's office, cafeteria and administration.

	Recommended Strategies																		
	HVAC-1 Increase Vent Quantity (Space Level)	HVAC-2 Increase Vent Fraction (Central Systems)	HVAC-3 Increase Vent Running Time	HVAC-4 Increase Filtration (Central Systems)	HVAC-5 Ensure Window Functionality	HVAC-6 Improve Window/Door Operations (keep open)	HVAC-7 Space CO2 Monitoring	HVAC-8 Retro-CX Central Air Handlers	HVAC-9 Retro-CX Space Terminal Units	HVAC-10 Provide In-Space Air Filtration	HVAC-11 Improve Exhaust from Spaces	HVAC-12 Provide UV-GI Lights (Central Systems)	HVAC-13 Provide UV-GI Lights (Within Spaces)	HVAC-14 Improve Air Flow Directivity (Spaces)	HVAC-15 Add Humidification (Central Systems)	HVAC-16 Add Humidification (Within Spaces)	Elec-1 Provide Lighting Occ Sensors	Elec-2 Provide FA Hold-Opens for Fire Doors	Plumb-1 Provide Sensor Ctrl on Plumb Fixtures
Implementation Complexity:	HIGH	MED	LOW	MED	LOW	LOW	MED	MED	MED	HIGH	MED	HIGH	MED	MED	HIGH	MED	MED	MED	MED
Risk Category Improvement:	Ventilation, airflow pattern, pressurization	Ventilation, pressurization	Ventilation, scheduling	Filtration	Ventilation, airflow pattern	Ventilation, scheduling	Ventilation	Ventilation, pressurization	Ventilation, pressurization	Filtration	Ventilation, airflow pattern, pressurization	Filtration	scheduling	Airflow Pattern, pressurization	Humidification	Humidification	scheduling, lighting controls	Door openers	Plumbing operators
Typical Classrooms	X		X		X	X	X		X	X	X		X	X		X	X	X	
Art Room	X		X			X	X		X	X	X		X	X		X	X	X	X
Music Room		X	X	X			X	X		X	X	X			X		X	X	
Library		X	X	X		X	X	X		X	X	X			X		X	X	
Cafeteria		X	X	X		X	X	X		X	X	X			X		X	X	X
Kitchen		X	X	X			X	X		X	X	X			X		X	X	X
Nurse's Office		X	X	X		X	X	X		X	X	X			X		X	X	X
Science Room		X	X	X		X	X	X		X	X	X			X		X	X	X
Auditorium		X	X	X			X	X				X			X		X	X	
Woodshop	X		X				X		X				X	X		X		X	X
Administration		X	X	X		X	X	X		X	X	X			X		X	X	
Gym		X	X	X			X	X		X	X	X			X		X	X	X
Locker Rooms		X	X	X		X	X					X			X		X		X
Isolation Room		X	X	X		X	X	X				X			X		X	X	
Private Bathrooms	X		X		X	X	X		X		X		X	X		X	X		X
Group Bathrooms	X		X		X		X		X		X		X	X		X	X		X

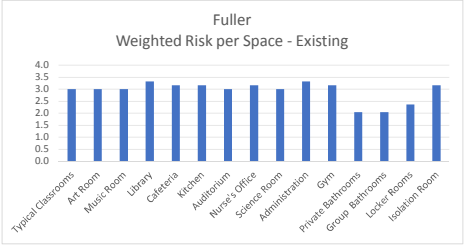
X = applicable, ✓ = proposed

Building Systems Risk Summary - Proposed																	
Rate 1-4, 1=meets ASHRAE design guidelines for COVID-19 or N/A, 2=adequate/meets code, 3=poor, 4= None																	
	Weight Factor	Typical Classrooms	Art Room	Music Room	Library	Cafeteria	Kitchen	Auditorium	Nurse's Office	Science Room	Administration	Gym	Private Bathrooms	Group Bathrooms	Locker Rooms	Isolation Room	Category Averages
Space Type	-	Typical Classrooms	Specialty Classrooms (shop etc.)	Specialty Classrooms (shop etc.)	Library	Cafeteria	Kitchen	assembly areas	Nurse's Office	specialty classrooms (shop etc.)	Administration	Gym	Private Bathrooms	Group Bathrooms	Locker Rooms	Isolation Room	
Space Priority (1-10)	-	1	2	2	4	5	6	4	2	2	7	4	10	4	4	1	
Airflow Pattern	16%	2	2	2	4	3	3	2	3	2	4	3	2	2	2	2	2.6
Ventilation	16%	3	3	3	3	3	3	3	3	3	3	3	2	2	2	3	2.8
Filtration	16%	3	3	3	3	3	3	3	3	3	3	3	1	1	3	3	2.7
Pressurization	10%	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3.0
Scheduling	10%	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3.0
Humidification	16%	4	4	4	4	4	4	4	4	4	4	4	1	1	1	4	3.4
Plumbing Operators	4%	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3.0
Lighting controls	2%	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3.0
Door Openers	10%	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3.0

Total	100%	27	27	27	29	28	28	27	28	27	29	28	21	21	23	28	
Weighted Risk		3.0	3.0	3.0	3.3	3.2	3.2	3.0	3.2	3.0	3.3	3.2	2.0	2.0	2.4	3.2	
Weight Based on Priority		12%	10%	10%	6%	5%	3%	6%	10%	10%	1%	6%	-4%	6%	6%	12%	100%
Weighted Score Based on Priority		0.3	0.3	0.3	0.2	0.1	0.1	0.2	0.3	0.3	0.0	0.2	0.0	0.1	0.2	0.4	3.1
Risk Multi	7.73																

School Score (1-4)	3.1 High Risk
Weighted Totals	

Score Scale	
No Updates Required	<1
Low Risk	1-2
Moderate Risk	2-3
High Risk	3-4





Hemenway Elementary School - COVID Risk Assessment - Proposed

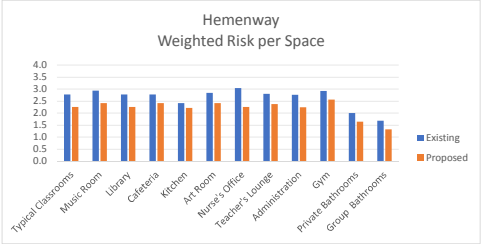
Building Description	Masonry building; 2 Levels (1, 2); flat, accessible roof, with mechanical penthouse Basement space includes 2 classrooms with garden level windows No substantial building renovations that have reconfigured architectural layout; no doors that appear to be rated; egress stairwells are not rated enclosures
Building Address	729 Water St.
Building Date (originally constructed)	1965
Building Square Footage	61,500
Proposed Scope of Work Summary	Maximize percentage of outdoor air at unit ventilators, Increase ventilation run time - building flush out, Provide in space HEPA filtration, Maximize ventilation at RTUs, provide space level CO2 monitoring, ensure window functionality and keep open as much as possible, ensure exhaust from nurse's office and isolation room, Increase exhaust run time for all other spaces.
Key Areas / Usage	Classrooms, music room, gym, library, art room, cafeteria and administration.

Building Systems Risk Summary																
Rate 1-4, 1=meets ASHRAE design guidelines for COVID-19 or N/A, 2=adequate/meets code, 3=poor, 4= None																
	Weight Factor	Typical Classrooms	Music Room	Library	Cafeteria	Kitchen	Art Room	Nurse's Office	Teacher's Lounge	Administration	Gym	Private Bathrooms	Group Bathrooms			Category Averages
Space Type	-	Typical Classrooms	Specialty Classrooms (shop etc.)	Library	Cafeteria	Kitchen	Specialty Classrooms (shop etc.)	Nurse's Office	Teacher's Lounge Break rooms /Lounge	Administrator	Gym	Private Bathrooms	Group Bathrooms			
Space Priority (1-10)	-	1	2	4	5	6	2	2	5	7	4	10	4	SELECT SPACE TYPE	SELECT SPACE TYPE	
Airflow Pattern	16%	2	3	2	2	2	3	3	2	2	3	3	2			2.4
Ventilation	16%	1	1	1	1	2	1	1	1	1	1	2	1			1.2
Filtration	16%	2	2	2	2	3	2	1	2	2	2	3	1			2.0
Pressurization	10%	2	2	2	2	2	2	1	2	2	2	2	1			1.8
Scheduling	10%	1	1	1	1	1	1	1	1	1	1	1	1			1.0
Humidification	16%	4	4	4	4	4	1	4	4	4	4	4	1			3.3
Plumbing Operators	4%	1	1	1	1	4	1	4	4	1	1	4	4			2.3
Lighting controls	2%	4	4	4	4	4	4	3	4	3	3	3	3			3.6
Door Openers	10%	4	4	4	4	4	4	4	4	4	4	1	1			3.5

Total	100%	21	22	21	22	23	22	22	24	20	22	17	15			
Weighted Risk		2.3	2.4	2.3	2.4	2.2	2.4	2.3	2.4	2.2	2.6	1.6	1.3	0.0	0.0	
Weight Based on Priority		15%	13%	9%	7%	5%	13%	13%	7%	3%	9%	-3%	9%	0%	0%	100%
Weighted Score Based on Priority		0.3	0.3	0.2	0.2	0.1	0.3	0.3	0.2	0.1	0.2	0.0	0.1	0.0	0.0	2.3
Risk Multi	8.67															

School Score (1-4)	2.3 Moderate Risk
Weighted Totals	

Score Scale	
No Updates Required	<1
Low Risk	1-2
Moderate Risk	2-3
High Risk	3-4





Hemenway Elementary School - COVID Risk Assessment

Building Description	Masonry building; 2 Levels (1, 2); flat, accessible roof, with mechanical penthouse Basement space includes 2 classrooms with garden level windows No substantial building renovations that have reconfigured architectural layout; no doors that appear to be rated; egress stairwells are not rated enclosures
Building Address	729 Water St.
Building Date (originally constructed)	1965
Building Square Footage	61,500
HVAC System Description & other key infrastructure observations	<ul style="list-style-type: none">* The gym includes a dedicated makeup air unit (MAU) and a dedicated exhaust fan. The space also includes manually operated water fountain, manually operated light switches and operable windows.* The cafeteria has a dedicated makeup air unit (MAU) that serves the cafeteria and kitchen and a dedicated exhaust fan with outdoor air and heating. The space also has manual lighting controls and operable windows. There is also a unit ventilator to provide heating and outdoor air to the space.* Hot water heat is provided by two (2) gas fired boilers. The hot water system does not currently include glycol.* Typical classrooms are served by wall mounted unit ventilators that supplies outdoor air cooling, and heating to the space. The return to the unit ventilator is by a linear slot diffuser located at the bottom of the window. Air within the space is exhausted to a return fan on the roof. There will also be a refillable water dispenser.* The building currently has DDC controls and monitoring of outdoor air, static pressure, and airflows at BMS.* The library contains operable windows and manual light switches. Outdoor air and heating is supplied from a unit ventilator for and air is exhausted to a return fan on the roof. There is a window mounted air conditioner unit to provide cooled air.
Key Areas / Usage	<ul style="list-style-type: none">* Ground restrooms include exhaust, operable windows and occupancy sensors for automatic lighting controls. Classrooms, music room, gym, library, art room, cafeteria and administration.

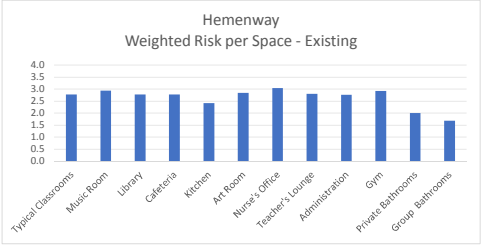
	Recommended Strategies																		
	HVAC-1 Increase Vent Quantity (Space Level)	HVAC-2 Increase Vent Fraction (Central Systems)	HVAC-3 Increase Vent Running Time	HVAC-4 Increase Filtration (Central Systems)	HVAC-5 Ensure Window Functionality	HVAC-6 Improve Window/Door Operations (keep open)	HVAC-7 Space CO2 Monitoring	HVAC-8 Retro-CX Central Air Handlers	HVAC-9 Retro-CX Space Terminal Units	HVAC-10 Provide In-Space Air Filtration	HVAC-11 Improve Exhaust from Spaces	HVAC-12 Provide UV-GI Lights (Central Systems)	HVAC-13 Provide UV-GI Lights (Within Spaces)	HVAC-14 Improve Air Flow Directivity (Spaces)	HVAC-15 Add Humidification (Central Systems)	HVAC-16 Add Humidification (Within Spaces)	Elec-1 Provide Lighting Occ Sensors	Elec-2 Provide FA Hold-Opens for Fire Doors	Plumb-1 Provide Sensor Ctrl on Plumb Fixtures
Implementation Complexity:	HIGH	MED	LOW	MED	LOW	LOW	MED	MED	MED	HIGH	MED	HIGH	MED	MED	HIGH	MED	MED	MED	MED
Risk Category Improvement:	Ventilation, airflow pattern, pressurization	Ventilation, pressurization	Ventilation, scheduling	Filtration	Ventilation, airflow pattern	Ventilation, scheduling	Ventilation	Ventilation, pressurization	Ventilation, pressurization	Filtration	Ventilation, airflow pattern, pressurization	Filtration	scheduling	Airflow Pattern, pressurization	Humidification	Humidification	scheduling, lighting controls	Door openers	Plumbing operators
Typical Classrooms	X		X		X	X	X		X	X	X		X	X		X	X	X	
Music Room		X	X	X		X	X	X			X	X			X		X	X	X
Library	X		X		X	X	X		X	X	X		X	X		X	X	X	X
Cafeteria		X	X	X	X		X	X			X	X			X		X	X	X
Kitchen	X		X				X		X	X	X		X	X		X	X	X	X
Art Room		X	X	X		X	X	X			X	X			X		X	X	
Nurse's Office		X	X	X	X		X	X			X	X			X		X	X	X
Teacher's Lounge	X		X		X	X	X		X	X	X		X	X		X	X	X	X
Administration	X		X		X	X	X		X	X	X		X	X		X	X	X	X
Gym		X	X	X	X		X	X			X	X			X		X	X	X
Private Bathrooms	X		X				X		X	X	X		X	X		X	X		X
Group Bathrooms	X		X		X		X		X	X	X		X	X		X			X

Building Systems Risk Summary																
Rate 1-4, 1=meets ASHRAE design guidelines for COVID-19 or N/A, 2=adequate/meets code, 3=poor, 4= None																
	Weight Factor	Typical Classrooms	Music Room	Library	Cafeteria	Kitchen	Art Room	Nurse's Office	Teacher's Lounge	Administration	Gym	Private Bathrooms	Group Bathrooms			Category Averages
Space Type	-	Typical Classrooms	Specialty Classrooms (shop etc.)	Library	Cafeteria	Kitchen	Specialty Classrooms (shop etc.)	Nurse's Office	Teacher's Lounge Break rooms /Lounge	Administrator	Gym	Private Bathrooms	Group Bathrooms			
Space Priority (1-10)	-	1	2	4	5	6	2	2	5	7	4	10	4	SELECT SPACE TYPE	SELECT SPACE TYPE	
Airflow Pattern	16%	2	3	2	2	2	3	3	2	2	3	3	2			2.4
Ventilation	16%	2	2	2	2	2	2	2	2	2	2	3	2			2.1
Filtration	16%	3	3	3	3	3	3	3	3	3	3	1	1			2.7
Pressurization	10%	3	3	3	3	3	3	3	2	3	3	3	2	2		2.7
Scheduling	10%	2	2	2	2	2	2	2	2	2	2	2	2	2		2.0
Humidification	16%	4	4	4	4	4	1	4	4	4	4	4	1	1		3.3
Plumbing Operators	4%	1	1	1	1	4	1	4	4	1	1	4	4			2.3
Lighting controls	2%	4	4	4	4	4	4	3	4	3	3	3	3			3.6
Door Openers	10%	4	4	4	4	4	4	4	4	4	4	1	1			3.5

Total	100%	25	26	25	25	25	25	28	27	24	25	20	18			
Weighted Risk		2.8	2.9	2.8	2.8	2.4	2.8	3.0	2.8	2.8	2.9	2.0	1.7	0.0	0.0	
Weight Based on Priority		15%	13%	9%	7%	5%	13%	13%	7%	3%	9%	-3%	9%	0%	0%	100%
Weighted Score Based on Priority		0.4	0.4	0.2	0.2	0.1	0.4	0.4	0.2	0.1	0.3	-0.1	0.2	0.0	0.0	2.8
Risk Multi	8.67															

School Score (1-4)	2.8 Moderate Risk
Weighted Totals	

Score Scale	
No Updates Required	<1
Low Risk	1-2
Moderate Risk	2-3
High Risk	3-4





Juniper Hill Elementary School - COVID Risk Assessment - Proposed

Building Description	Masonry building; 1 Level; flat, accessible roof, basement mechanical room
Building Address	29 Upper Joclyn Avenue
Building Date (originally con	1959
Building Square Footage	44,300
Proposed Scope of Work Summary	Maximize percentage of outdoor air at unit ventilators, Maximize ventilation at RTUs, Increase ventilation run time - building flush out, Provide in space HEPA filtration, provide CO2 monitoring, ensure window functionality and keep open as much as possible, ensure exhaust from nurse's office and isolation rooms, increase exhaust to other areas.
Key Areas / Usage	Preschool classrooms, gym, speech therapy, cafeteria, administrative offices

	Recommended Strategies - Proposed																		
	HVAC-1 Increase Vent Quantity (Space Level)	HVAC-2 Increase Vent Fraction (Central Systems)	HVAC-3 Increase Vent Running Time	HVAC-4 Increase Filtration (Central Systems)	HVAC-5 Ensure Window Functionality	HVAC-6 Improve Window/Door Operations (keep open)	HVAC-7 Space CO2 Monitoring	HVAC-8 Retro-CX Central Air Handlers	HVAC-9 Retro-CX Space Terminal Units	HVAC-10 Provide In- Space Air Filtration	HVAC-11 Improve Exhaust from Spaces	HVAC-12 Provide UV-GI Lights (Central Systems)	HVAC-13 Provide UV-GI Lights (Within Spaces)	HVAC-14 Improve Air Flow Directivity (Spaces)	HVAC-15 Add Humidification (Central Systems)	HVAC-16 Add Humidification (Within Spaces)	Elec-1 Provide Lighting Occ Sensors	Elec-2 Provide FA Hold-Opens for Fire Doors	Plumb-1 Provide Sensor Ctrl on Plumb Fixtures
Implementation Complexity:	HIGH	MED	LOW	MED	LOW	LOW	MED	MED	MED	HIGH	MED	HIGH	MED	MED	HIGH	MED	MED	MED	MED
Risk Category	Ventilation, airflow pattern, pressurization	Ventilation, pressurization	Ventilation, scheduling	Filtration	Ventilation, airflow pattern	Ventilation, scheduling	Ventilation	Ventilation, pressurization	Ventilation, pressurization	Filtration	Ventilation, airflow pattern, pressurization	Filtration	scheduling	Airflow Pattern, pressurization	Humidification	Humidification	scheduling, lighting controls	Door openers	Plumbing operators
Improvement:																			
Typical Classrooms	✓		✓		✓	✓	✓		X	✓	X		X			X	X	X	X
Speech Area		✓	✓	X	✓	✓	✓	X		✓		X			X	X	X	X	X
Cafeteria	✓		✓		✓	✓	✓		X	X	X		X			X	X	X	X
Kitchen											✓								
Isolation Room	✓		✓		✓	✓	✓			✓	✓		X	X		X	X	X	X
Nurse's Office	✓		✓		✓	✓	✓			✓	✓		X	X		X	X	X	X
Teacher's Lounge	✓		✓		✓	✓	✓			✓	X		X	X		X	X	X	X
Administration	✓		✓		✓	✓	✓			✓			X	X		X	X	X	X
Gym		✓	✓	X	✓	✓	✓	X			X		X		X		X	X	X
Private Bathrooms	X		✓							X	✓		X	X		X	X		X
Group Bathrooms	X		✓							X	✓		X	X		X	X		X

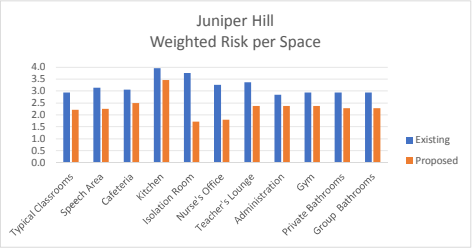
X = applicable, ✓ = proposed

Building Systems Risk Summary - Proposed																
Rate 1-4, 1=meets ASHRAE design guidelines for COVID-19 or N/A, 2=adequate/meets code, 3=poor, 4= None																
	Weight Factor	Typical Classrooms	Speech Area	Cafeteria	Kitchen	Isolation Room	Nurse's Office	Teacher's Lounge	Administration	Gym	Private Bathrooms	Group Bathrooms				Category Averages
Space Type	-	Typical Classrooms	Specialty Classrooms (shop etc.)	Cafeteria	Kitchen	Isolation Room	Nurse's Office	Break rooms /Lounge	Administration	Gym	Private Bathrooms	Group Bathrooms				
Space Priority (1-10)	-	1	2	5	6	1	2	5	7	4	10	4	SELECT SPACE TYPE	SELECT SPACE TYPE	SELECT SPACE TYPE	
Airflow Pattern	16%	2	2	2	4	1	1	3	2	2	3	3				2.3
Ventilation	16%	1	1	1	4	1	1	1	1	1	2	2				1.5
Filtration	16%	2	2	3	4	1	1	2	3	3	1	1				2.1
Pressurization	10%	2	2	2	2	1	1	2	2	2	1	1				1.6
Scheduling	10%	1	1	1	1	1	1	1	1	1	1	1				1.0
Humidification	16%	4	4	4	4	4	4	4	4	4	4	4				4.0
Plumbing Operators	4%	3	1	3	3	1	3	3	3	3	3	3				2.6
Lighting controls	2%	3	4	4	4	3	3	3	3	3	3	3				3.3
Door Openers	10%	3	4	4	4	3	3	3	3	3	3	3				3.3

Total	100%	21	21	24	30	16	18	22	22	22	21	21				
Weighted Risk		2.2	2.3	2.5	3.5	1.7	1.8	2.4	2.4	2.4	2.3	2.3	0.0	0.0	0.0	
Weight Based on Priority		16%	14%	8%	5%	16%	14%	8%	3%	10%	-3%	10%	0%	0%	0%	100%
Weighted Score Based on Priority		0.4	0.3	0.2	0.2	0.3	0.3	0.2	0.1	0.2	-0.1	0.2	0.0	0.0	0.0	2.2
Risk Multi	8.55															

School Score (1-4)	2.2 Moderate Risk
Weighted Totals	

Score Scale	
No Updates Required	<1
Low Risk	1-2
Moderate Risk	2-3
High Risk	3-4





Juniper Hill Elementary School - COVID Risk Assessment

Building Description	Masonry building; 1 Level; flat, accessible roof, basement mechanical room
Building Address	29 Upper Joclyn Avenue
Building Date (originally con	1959
Building Square Footage	44,300
HVAC System Description & other key infrastructure observations	<ul style="list-style-type: none">* The gym includes a dedicated heating and ventilation (H&V) unit. The space also includes manually operated water fountain, manually operated light switches and operable windows. There is no A/C within the space.* The cafeteria has outdoor air and heating supplied from a unit ventilator and fin tube radiation. Air is exhausted via low wall grilles to a fan on the roof. There is no A/C within the space. The space also has ceiling fans and operable windows.* Hot water heat is provided by two (2) gas fired boilers. There is no glycol in the system.* The speech area is of modular construction with demountable non-full height partitions. The space is served by a single roof top unit.* Typical classrooms are served by wall mounted unit ventilators that supply air for ventilation and heating. There is a window mounted A/C unit to provide cooling. Air within the space is exhausted to a return fan on the roof. The rooms also included operable windows.* The building currently has a DDC control system to control heating.* The corridors have operable windows for ventilation.* The teachers' lounge is served by a wall mounted ductless split unit. The space has no mechanical ventilation or windows.* Private bathrooms and group bathrooms have manual light switch controls, exhaust and no operable windows.* The nurse's office is served by fin tube for heating. Ventilation is provided by operable windows. There is a window mounted A/C unit to provide cooling.* All lighting is operated by toggle type wall switches; one hallway has automatic lighting.* The main office is served by fin tube for heating. Ventilation is provided by operable windows. There is a window mounted A/C unit to provide cooling.* Building has a generator for backup power.* The isolation room is an interior room with no mechanical ventilation, windows or heat. The toilet room for the isolation room is across the corridor and although had an exhaust vent, no airflow was detected. The sink is located in the corridor.
Key Areas / Usage	Preschool classrooms, gym, speech therapy, cafeteria, administrative offices

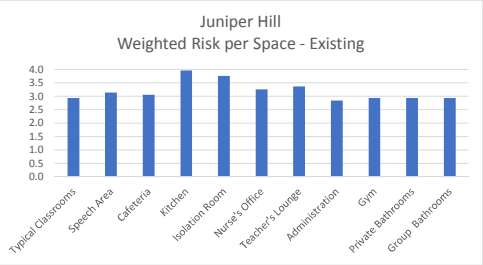
	Recommended Strategies																		
	HVAC-1 Increase Vent Quantity (Space Level)	HVAC-2 Increase Vent Fraction (Central Systems)	HVAC-3 Increase Vent Running Time	HVAC-4 Increase Filtration (Central Systems)	HVAC-5 Ensure Window Functionality	HVAC-6 Improve Window/Door Operations (keep open)	HVAC-7 Space CO2 Monitoring	HVAC-8 Retro-CA Central Air Handlers	HVAC-9 Retro-CA Space Terminal Units	HVAC-10 Provide In- Space Air Filtration	HVAC-11 Improve Exhaust from Spaces	HVAC-12 Provide UV-GI Lights (Central Systems)	HVAC-13 Provide UV-GI Lights (Within Spaces)	HVAC-14 Improve Air Flow Directivity (Spaces)	HVAC-15 Add Humidification (Central Systems)	HVAC-16 Add Humidification (Within Spaces)	Elec-1 Provide Lighting Occ Sensors	Elec-2 Provide FA Hold-Opens for Fire Doors	Plumb-1 Provide Sensor Ctrl on Plumb Fixtures
Implementation Complexity:	HIGH	MED	LOW	MED	LOW	LOW	MED	MED	MED	HIGH	MED	HIGH	MED	MED	HIGH	MED	MED	MED	MED
Risk Category Improvement:	Ventilation, airflow pattern, pressurization	Ventilation, pressurization	Ventilation, scheduling	Filtration	Ventilation, airflow pattern	Ventilation, scheduling	Ventilation	Ventilation, pressurization	Ventilation, pressurization	Filtration	Ventilation, airflow pattern, pressurization	Filtration	scheduling	Airflow Pattern, pressurization	Humidification	Humidification	scheduling, lighting controls	Door openers	Plumbing operators
Typical Classrooms	X		X		X	X			X	X	X		X			X	X	X	X
Speech Area		X	X	X	X	X		X				X			X	X	X	X	X
Cafeteria	X		X		X	X			X	X	X		X			X	X	X	X
Kitchen																			
Isolation Room	X		X			X				X	X		X	X		X	X	X	X
Nurse's Office	X		X		X	X				X	X		X	X		X	X	X	X
Teacher's Lounge	X		X			X				X	X		X	X		X	X	X	X
Administration	X		X		X	X				X			X	X		X	X	X	X
Gym		X	X	X	X	X		X			X	X			X		X	X	X
Private Bathrooms	X		X							X	X		X	X		X	X		X
Group Bathrooms	X		X							X	X		X	X		X	X		X

Building Systems Risk Summary																
Rate 1-4, 1=meets ASHRAE design guidelines for COVID-19 or N/A, 2=adequate/meets code, 3=poor, 4= None																
	Weight Factor	Typical Classrooms	Speech Area	Cafeteria	Kitchen	Isolation Room	Nurse's Office	Teacher's Lounge	Administration	Gym	Private Bathrooms	Group Bathroom s				Category Averages
Space Type	-	Typical Classrooms	Specialty Classrooms (shop etc.)	Cafeteria	Kitchen	Isolation Room	Nurse's Office	Break rooms /Lounge	Administration	Gym	Private Bathrooms	Group Bathrooms				
Space Priority (1-10)	-	1	2	5	6	1	2	5	7	4	10	4				
Airflow Pattern	16%	2	2	2	2	4	4	3	3	2	2	3	3			2.7
Ventilation	16%	2	3	2	4	4	4	3	3	2	2	3	3			2.8
Filtration	16%	3	3	3	4	4	4	3	3	3	3	1	1			2.8
Pressurization	10%	3	3	3	4	4	4	3	4	2	3	3	3			3.2
Scheduling	10%	4	4	4	4	4	4	4	4	4	4	4	4			4.0
Humidification	16%	4	4	4	4	4	4	4	4	4	4	4	4			4.0
Plumbing Operators	4%	3	1	3	3	1	3	3	3	3	3	3	3			2.6
Lighting controls	2%	3	4	4	4	3	3	3	3	3	3	3	3			3.3
Door Openers	10%	3	4	4	4	3	3	3	3	3	3	3	3			3.3

Total	100%	27	28	29	35	31	29	30	26	27	27	27				
Weighted Risk		2.9	3.1	3.1	4.0	3.8	3.3	3.4	2.8	2.9	2.9	2.9				
Weight Based on Priority		16%	14%	8%	5%	16%	14%	8%	3%	10%	-3%	10%				100%
Weighted Score Based on Priority		0.5	0.4	0.2	0.2	0.6	0.5	0.3	0.1	0.3	-0.1	0.3				3.2
Risk Multi	8.55															

School Score (1-4)	3.2 High Risk
Weighted Totals	

Score Scale	
No Updates Required	<1
Low Risk	1-2
Moderate Risk	2-3
High Risk	3-4





King School - COVID Risk Assessment - Proposed

Building Description	Masonry building; 2 Levels (1, 2); flat, accessible roof
Building Address	454 Water St.
Building Date (originally cons	1957
Building Square Footage	50,000
Proposed Scope of Work Summary	Maximize percentage of outdoor air at unit ventilators, Maximize ventilation at RTUs, Increase ventilation run time - building flush out, Provide in space HEPA filtration, provide CO2 monitoring, ensure window functionality and keep open as much as possible, ensure exhaust from nurse's office and isolation rooms, increase exhaust to other areas.
Key Areas / Usage	Classrooms, gym, library, lecture hall, cafeteria and administration.

	Recommended Strategies - Proposed																		
	HVAC-1 Increase Vent Quantity (Space Level)	HVAC-2 Increase Vent Fraction (Central Systems)	HVAC-3 Increase Vent Running Time	HVAC-4 Increase Filtration (Central Systems)	HVAC-5 Ensure Window Functionality	HVAC-6 Improve Window/Door Operations (keep open)	HVAC-7 Space CO2 Monitoring	HVAC-8 Retro-CX Central Air Handlers	HVAC-9 Retro-CX Space Terminal Units	HVAC-10 Provide In-Space Air Filtration	HVAC-11 Improve Exhaust from Spaces	HVAC-12 Provide UV-GI Lights (Central Systems)	HVAC-13 Provide UV-GI Lights (Within Spaces)	HVAC-14 Improve Air Flow Directivity (Spaces)	HVAC-15 Add Humidification (Central Systems)	HVAC-16 Add Humidification (Within Spaces)	Elec-1 Provide Lighting Occ Sensors	Elec-2 Provide FA Hold-Opens for Fire Doors	Plumb-1 Provide Sensor Ctrl on Plumb Fixtures
Implementation Complexity:	HIGH	MED	LOW	MED	LOW	LOW	MED	MED	MED	HIGH	MED	HIGH	MED	MED	HIGH	MED	MED	MED	MED
	Ventilation, airflow pattern, pressurization	Ventilation, pressurization	Ventilation, scheduling	Filtration	Ventilation, airflow pattern	Ventilation, scheduling	Ventilation	Ventilation, pressurization	Ventilation, pressurization	Filtration	Ventilation, airflow pattern, pressurization	Filtration	scheduling	Airflow Pattern, pressurization	Humidification	Humidification	scheduling, lighting controls	Door openers	Plumbing operators
Risk Category improvement:																			
Typical Classrooms	✓		✓		✓	✓	✓		X	✓	X		X	X		X	X	X	
Isolation Room	✓		✓			✓	✓		X	✓	✓	X	X	X		X	X	X	
Library	✓		✓			✓	✓		X	✓	X	X	X	X		X	X	X	
Cafeteria		✓	✓	X		✓	✓	X		X	X	X			X			X	X
Kitchen		✓	✓	X		✓	X	X		X	✓	X			X			X	X
Lecture Hall	✓		✓			✓	✓		X	✓	X		X	X		X	X	X	
Nurse's Office	✓		✓			✓	✓		X	✓	✓	X	X	X		X	X	X	X
Teacher's Lounge	✓		✓			✓	✓		X	✓	X		X	X		X	X	X	X
Administration	✓		✓			✓	✓		X	✓	X		X	X		X	X	X	X
Gym		✓	✓	X		✓	✓	X		X	X	X		X	X		X	X	X
Private Bathrooms	X		✓				X		X		✓		X	X		X			X
Group Bathrooms	X		✓				X		X		✓		X	X		X			X

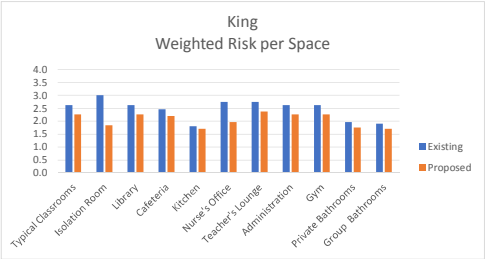
X = applicable, ✓ = proposed

Building Systems Risk Summary - Proposed

Rate 1-4, 1=meets ASHRAE design guidelines for COVID-19 or N/A, 2=adequate/meets code, 3=poor, 4= None																
	Weight Factor	Typical Classrooms	Isolation Room	Library	Cafeteria	Kitchen	Nurse's Office	Teacher's Lounge	Administration	Gym	Private Bathrooms	Group Bathrooms				Category Averages
Space Type	-	Typical Classrooms	Isolation Room	Library	Cafeteria	Kitchen	Nurse's Office	Break rooms /Lounge	Administration	Gym	Private Bathrooms	Group Bathrooms				
Space Priority (1-10)	-	1	1	4	5	6	2	5	7	4	10	4	SELECT SPACE TYPE	SELECT SPACE TYPE	SELECT SPACE TYPE	
Airflow Pattern	16%	2	1	2	2	2	1	2	2	2	3	3				1.8
Ventilation	16%	1	1	1	1	1	2	1	1	1	2	2				1.2
Filtration	16%	2	1	2	2	2	1	2	2	2	1	1				1.5
Pressurization	10%	2	1	2	2	2	1	2	2	2	2	2				1.7
Scheduling	10%	1	1	1	1	1	1	1	1	1	1	1				0.9
Humidification	16%	4	4	4	4	1	4	4	4	4	1	1				2.9
Plumbing Operators	4%	1	1	1	1	1	4	4	1	1	4	4				2.2
Lighting controls	2%	4	4	4	1	1	4	4	4	4	4	1				2.9
Door Openers	10%	4	4	4	4	1	4	4	4	4	1	1				2.9
Total	100%	21	18	21	18	16	21	24	21	21	19	16				
Weighted Risk		2.3	1.8	2.3	2.2	1.7	2.0	2.4	2.3	2.3	1.8	1.7	0.0	0.0	0.0	
Weight Based on Priority		16%	16%	10%	8%	6%	14%	8%	4%	10%	-2%	10%	0%	0%	0%	100%
Weighted Score Based on Priority		0.4	0.3	0.2	0.2	0.1	0.3	0.2	0.1	0.2	0.0	0.2	0.0	0.0	0.0	2.1
Risk Multi	8.91															

School Score (1-4)	2.1 Moderate Risk
Weighted Totals	

Score Scale	
No Updates Required	<1
Low Risk	1-2
Moderate Risk	2-3
High Risk	3-4





King School - COVID Risk Assessment

Building Description	Masonry building; 2 Levels (1, 2); flat, accessible roof
Building Address	454 Water St.
Building Date (originally constructed)	1957
Building Square Footage	50,000
HVAC System Description & other key infrastructure observations	<ul style="list-style-type: none">* The gym includes a heating and ventilating (H&V) unit and operable windows high in the sapce.* The cafeteria has an indoor air handling unit and outdoor condensing unit that provides air for ventilation and cooling. Fin tube is provided along the perimeter for heating.* Hot water heat is provided by two (2) gas fired boilers. The hot water system does not currently include glycol.* Typical classrooms are served by wall mounted unit ventilators that supplies air for ventilation and heating. Southwest classrooms have window mounted A/C unit to provide cooling. Northeast classrooms and the administration spaces have packaged roof top units with ceiling air distribution for cooling. Air within the space is exhausted to a return fan on the roof. The rooms also included operable windows.* Teacher's Lounge has manual lighting controls and operable windows. There is a bathroom connected to the space.* Group bathrooms have an occupant sensor for automatic controls and exhaust.* The building currently has DDC controls and monitoring of outdoor air, static pressure, and airflows at BMS.* The library contains operable windows and manual light switches. Outdoor air, cooling and heating is supplied from a unit ventilator for and air is exhausted to a return fan on the roof.* The kitchen has exhaust hoods for food prep. Hood exhaust is manual on/off. There are occupant sensors for automatic lighting controls. The same AHU that serves the cafeteria serves the kitchen.* Private bathrooms have manual light switch controls, exhaust and no operable windows.* Corridor has magnetic door holds that are being monitored by the existing FA system and there are occupant sensors for automatic lighting controls.* The nurse's office has operable windows. Space is served by wall mounted unit ventilators that supplies outdoor air and heating to the space and is exhausted to a return fan on the roof. There are a window mounted air conditioner unit and manual light switch controls.* All plumbing fixtures have manual operators.* Main office contains manually operated light switches. Air is supplied from a unit ventilator for outdoor air and heating. Cooled air is provided to the space via window mounted air conditioning unit. Air within the space is exhausted to a return fan on the roof.* Building has a generator for backup power.* Isolation room has no windows. The space is served by a unit ventilator providing outside air, cooling and heating. There is a bathroom with exhaust connected to the Isolation room.
Key Areas / Usage	Classrooms, gym, library, lecture hall, cafeteria and administration.

	Recommended Strategies																		
	HVAC-1 Increase Vent Quantity (Space Level)	HVAC-2 Increase Vent Fraction (Central Systems)	HVAC-3 Increase Vent Running Time	HVAC-4 Increase Filtration (Central Systems)	HVAC-5 Ensure Window Functionality	HVAC-6 Improve Window/Door Operations (keep open)	HVAC-7 Space CO2 Monitoring	HVAC-8 Retro-CX Central Air Handlers	HVAC-9 Retro-CX Space Terminal Units	HVAC-10 Provide In-Space Air Filtration	HVAC-11 Improve Exhaust from Spaces	HVAC-12 Provide UV-GI Lights (Central Systems)	HVAC-13 Provide UV-GI Lights (Within Spaces)	HVAC-14 Improve Air Flow Directivity (Spaces)	HVAC-15 Add Humidification (Central Systems)	HVAC-16 Add Humidification (Within Spaces)	Elec-1 Provide Lighting Occ Sensors	Elec-2 Provide FA Hold-Opens for Fire Doors	Plumb-1 Provide Sensor Ctrl on Plumb Fixtures
Implementation Complexity:	HIGH	MED	LOW	MED	LOW	LOW	MED	MED	MED	HIGH	MED	HIGH	MED	MED	HIGH	MED	MED	MED	MED
Risk Category improvement:	Ventilation, airflow pattern, pressurization	Ventilation, pressurization	Ventilation, scheduling	Filtration	Ventilation, airflow pattern	Ventilation, scheduling	Ventilation	Ventilation, pressurization	Ventilation, pressurization	Filtration	Ventilation, airflow pattern, pressurization	Filtration	scheduling	Airflow Pattern, pressurization	Humidification	Humidification	scheduling, lighting controls	Door openers	Plumbing operators
Typical Classrooms	X		X		X	X	X		X	X	X		X	X		X	X	X	
Isolation Room	X		X				X		X	X	X	X	X	X		X	X	X	
Library	X		X			X	X		X	X	X	X	X	X		X	X	X	X
Cafeteria		X	X	X		X	X	X		X	X	X			X			X	X
Kitchen		X	X	X		X	X	X		X	X	X			X			X	X
Lecture Hall	X		X				X		X	X	X		X	X		X	X	X	
Nurse's Office	X		X			X	X		X	X	X	X	X	X		X	X	X	X
Teacher's Lounge	X		X			X	X		X	X	X		X	X		X	X	X	X
Administration	X		X			X	X		X	X	X		X	X		X	X	X	X
Gym		X	X	X		X	X	X		X	X	X			X		X	X	X
Private Bathrooms	X		X				X		X		X		X	X		X			X
Group Bathrooms	X		X				X		X		X		X	X		X			X

Building Systems Risk Summary - Existing

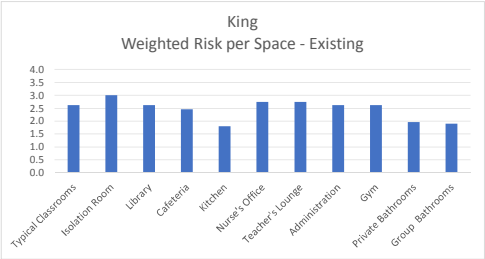
Rate 1-4, 1=meets ASHRAE design guidelines for COVID-19 or N/A, 2=adequate/meets code, 3=poor, 4= None

	Weight Factor	Typical Classrooms	Isolation Room	Library	Cafeteria	Kitchen	Nurse's Office	Teacher's Lounge	Administration	Gym	Private Bathrooms	Group Bathrooms				Category Averages
Space Type	-	Typical Classrooms	Isolation Room	Library	Cafeteria	Kitchen	Nurse's Office	Break rooms /Lounge	Administration	Gym	Private Bathrooms	Group Bathrooms				
Space Priority (1-10)	-	1	1	4	5	6	2	5	7	4	10	4	SELECT SPACE TYPE	SELECT SPACE TYPE	SELECT SPACE TYPE	
Airflow Pattern	16%	2	3	2	2	2	2	2	2	2	3	3				2.1
Ventilation	16%	2	3	2	2	2	2	2	2	2	2	2				1.9
Filtration	16%	2	2	2	2	2	2	2	2	2	1	1				1.7
Pressurization	10%	3	3	3	2	2	3	3	3	3	3	3				2.6
Scheduling	10%	2	2	2	2	2	2	2	2	2	2	2				1.8
Humidification	16%	4	4	4	4	1	4	4	4	4	1	1				2.9
Plumbing Operators	4%	1	1	1	1	4	4	4	1	1	4	4				2.2
Lighting controls	2%	4	4	4	1	1	4	4	4	4	4	1				2.9
Door Openers	10%	4	4	4	4	1	4	4	4	4	1	1				2.9

Total	100%	24	26	24	20	17	27	27	24	24	21	18				
Weighted Risk		2.6	3.0	2.6	2.5	1.8	2.7	2.7	2.6	2.6	2.0	1.9	0.0	0.0	0.0	
Weight Based on Priority		16%	16%	10%	8%	6%	14%	8%	4%	10%	-2%	10%	0%	0%	0%	100%
Weighted Score Based on Priority		0.4	0.5	0.3	0.2	0.1	0.4	0.2	0.1	0.3	0.0	0.2	0.0	0.0	0.0	2.6
Risk Multi	8.91															

School Score (1-4)	2.6 Moderate Risk
Weighted Totals	

Score Scale	
No Updates Required	<1
Low Risk	1-2
Moderate Risk	2-3
High Risk	3-4





McCarthy School - COVID Risk Assessment - Proposed

Building Description	Masonry building; 2 Levels (1, 2); flat, accessible roof
Building Address	8 Flagg Drive
Building Date (originally constructed)	1952, major renovation 1994
Building Square Footage	94,936
Proposed Scope of Work Summary	Maximize percentage of outdoor air at unit ventilators, Maximize ventilation at RTUs, Increase ventilation run time - building flush out, Provide in space HEPA filtration, provide CO2 monitoring, ensure window functionality and keep open as much as possible, ensure exhaust from nurse's office, increase exhaust to other areas.
Key Areas / Usage	

	Recommended Strategies - Proposed																		
	HVAC-1 Increase Vent Quantity (Space Level)	HVAC-2 Increase Vent Fraction (Central Systems)	HVAC-3 Increase Vent Running Time	HVAC-4 Increase Filtration (Central Systems)	HVAC-5 Ensure Window Functionality	HVAC-6 Improve Window/Door Operations (keep open)	HVAC-7 Space CO2 Monitoring	HVAC-8 Retro-CX Central Air Handlers	HVAC-9 Retro-CX Space Terminal Units	HVAC-10 Provide In-Space Air Filtration	HVAC-11 Improve Exhaust from Spaces	HVAC-12 Provide UV-GI Lights (Central Systems)	HVAC-13 Provide UV-GI Lights (Within Spaces)	HVAC-14 Improve Air Flow Directivity (Spaces)	HVAC-15 Add Humidification (Central Systems)	HVAC-16 Add Humidification (Within Spaces)	Elec-1 Provide Lighting Occ Sensors	Elec-2 Provide FA Hold-Opens for Fire Doors	Plumb-1 Provide Sensor Ctrl on Plumb Fixtures
Implementation Complexity:	HIGH	MED	LOW	MED	LOW	LOW	MED	MED	MED	HIGH	MED	HIGH	MED	MED	HIGH	MED	MED	MED	MED
Risk Category	Ventilation, airflow pattern, pressurization	Ventilation, pressurization	Ventilation, scheduling	Filtration	Ventilation, airflow pattern	Ventilation, scheduling	Ventilation	Ventilation, pressurization	Ventilation, pressurization	Filtration	Ventilation, airflow pattern, pressurization	Filtration	scheduling	Airflow Pattern, pressurization	Humidification	Humidification	scheduling, lighting controls	Door openers	Plumbing operators
Improvement:																			
Typical Classrooms	✓		✓		✓	✓	✓		X	✓						X	X		X
Art Room	✓		✓				✓		X	✓						X	X		X
Music Room	✓		✓				✓		X	✓						X	X		
Cafeteria		✓	✓	X			✓	X				X			X		X		X
Kitchen				X				X			✓	X			X		X		X
Kindergarten	✓		✓				✓		X	✓						X	X		X
Nurse's Office	✓		✓		✓	✓	✓			✓						X	X		X
Teacher's Lounge							✓			✓						X	X		X
Administration					✓	✓	✓			✓						X	X		
Gym	✓	✓	✓	X			✓					X			X		X		X
Group Bathrooms											✓		X				X		X

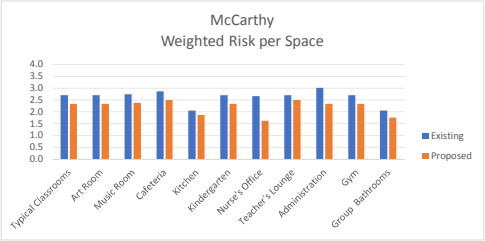
X = applicable, ✓ = proposed

Building Systems Risk Summary - Proposed																
Rate 1-4, 1=meets ASHRAE design guidelines for COVID-19 or N/A, 2=adequate/meets code, 3=poor, 4= None																
	Weight Factor	Typical Classrooms	Art Room	Music Room	Cafeteria	Kitchen	Kindergarten	Nurse's Office	Teacher's Lounge	Administration	Gym	Group Bathrooms				Category Averages
Space Type	-	Typical Classrooms	Specialty Classrooms (shop etc.)	Specialty Classrooms (shop etc.)	Cafeteria	Kitchen	Typical Classrooms	Nurse's Office	Break rooms /Lounge	Administration	Gym	Group Bathrooms				
Space Priority (1-10)	-	1	2	2	5	6	1	2	5	7	4	4	SELECT SPACE TYPE	SELECT SPACE TYPE	SELECT SPACE TYPE	
Airflow Pattern	16%	2	2	2	3	2	2	1	2	2	2	2				2.0
Ventilation	16%	1	1	1	1	2	1	1	2	1	1	2				1.3
Filtration	16%	2	2	2	2	1	2	1	2	2	2	1				1.7
Pressurization	10%	2	2	2	2	2	2	1	2	2	2	1				1.8
Scheduling	10%	1	1	1	1	1	1	1	1	1	1	1				1.0
Humidification	16%	4	4	4	4	1	4	4	4	4	4	4	1			3.5
Plumbing Operators	4%	3	3	4	3	3	3	3	3	3	3	3	3			3.1
Lighting controls	2%	4	4	4	4	4	4	4	4	4	4	4	4			4.0
Door Openers	10%	4	4	4	4	4	4	1	4	4	4	4	4			3.7

Total	100%															
Weighted Risk		2.3	2.3	2.4	2.5	1.9	2.3	1.6	2.5	2.3	2.3	1.8	0.0	0.0	0.0	
Weight Based on Priority		16%	13%	13%	5%	3%	16%	13%	5%	0%	8%	8%	0%	0%	0%	100%
Weighted Score Based on Priority		0.4	0.3	0.3	0.1	0.1	0.4	0.2	0.1	0.0	0.2	0.1	0.0	0.0	0.0	2.2
Risk Multi	7.09															

School Score (1-4)	2.2 Moderate Risk
Weighted Totals	

Score Scale	
No Updates Required	<1
Low Risk	1-2
Moderate Risk	2-3
High Risk	3-4





McCarthy School - COVID Risk Assessment

Building Description	Masonry building; 2 Levels (1, 2); flat, accessible roof
Building Address	8 Flagg Drive
Building Date (originally constructed)	1952, major renovation 1994
Building Square Footage	94,936
HVAC System Description & other key infrastructure observations	<ul style="list-style-type: none">* Hot water heat is provided by dual fuel boilers. There is no glycol in the system.* The gym includes a dedicated heating and ventilation (H&V) unit with ceiling air distribution. Fin tube radiators are located high on the wall along windows. The space has several ceiling fans.* The cafetorium has a dedicated air handling unit with sidewall distribution that provides air for heating, ventilation and cooling.* Typical classrooms are served by wall mounted unit ventilators that supply air for ventilation and heating. Air within the space is exhausted to a return fan on the roof. The rooms also included operable windows.* The library includes a dedicated air handling unit with ceiling air distribution that provides air for heating, ventilation and cooling.* The building currently has a DDC control system to control heating.* The corridors are mechanically ventilated.* All lighting is operated by toggle type wall switches; one hallway has automatic lighting.* Plumbing fixtures are manually operated.* Building has a generator for backup power.* The isolation room is an interior room with no mechanical ventilation, windows or heat. The toilet room for the isolation room is across the corridor and although had an exhaust vent, no airflow was detected. The sink is located in the corridor.
Key Areas / Usage	

	Recommended Strategies																		
	HVAC-1 Increase Vent Quantity (Space Level)	HVAC-2 Increase Vent Fraction (Central Systems)	HVAC-3 Increase Vent Running Time	HVAC-4 Increase Filtration (Central Systems)	HVAC-5 Ensure Window Functionality	HVAC-6 Improve Window/Door Operations (keep open)	HVAC-7 Space CO2 Monitoring	HVAC-8 Retro-CX Central Air Handlers	HVAC-9 Retro-CX Space Terminal Units	HVAC-10 Provide In-Space Air Filtration	HVAC-11 Improve Exhaust from Spaces	HVAC-12 Provide UV-GI Lights (Central Systems)	HVAC-13 Provide UV-GI Lights (Within Spaces)	HVAC-14 Improve Air Flow Directivity (Spaces)	HVAC-15 Add Humidification (Central Systems)	HVAC-16 Add Humidification (Within Spaces)	Elec-1 Provide Lighting Occ Sensors	Elec-2 Provide FA Hold-Opens for Fire Doors	Plumb-1 Provide Sensor Ctrl on Plumb Fixtures
Implementation Complexity:	HIGH	MED	LOW	MED	LOW	LOW	MED	MED	MED	HIGH	MED	HIGH	MED	MED	HIGH	MED	MED	MED	MED
Risk Category Improvement:	Ventilation, airflow pattern, pressurization	Ventilation, pressurization	Ventilation, scheduling	Filtration	Ventilation, airflow pattern	Ventilation, scheduling	Ventilation	Ventilation, pressurization	Ventilation, pressurization	Filtration	Ventilation, airflow pattern, pressurization	Filtration	scheduling	Airflow Pattern, pressurization	Humidification	Humidification	scheduling, lighting controls	Door openers	Plumbing operators
Typical Classrooms					X				X	X						X	X		X
Art Room									X	X						X	X		X
Music Room									X	X						X	X		
Cafeteria		X		X				X				X			X		X		X
Kitchen				X				X				X			X		X		X
Kindergarten									X	X						X	X		X
Nurse's Office						X										X	X		X
Teacher's Lounge																X	X		X
Administration						X										X	X		
Gym	X	X		X								X			X		X		X
Group Bathrooms											X		X				X		X

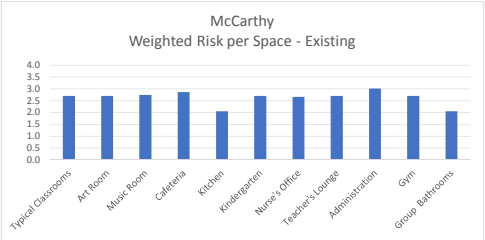
Building Systems Risk Summary - Existing

Rate 1-4, 1=meets ASHRAE design guidelines for COVID-19 or N/A, 2=adequate/meets code, 3=poor, 4= None															
	Weight Factor	Typical Classrooms	Art Room	Music Room	Cafeteria	Kitchen	Kindergarten	Nurse's Office	Teacher's Lounge	Administration	Gym	Group Bathrooms			Category Averages
Space Type	-	Typical Classrooms	Specialty Classrooms (shop etc.)	Specialty Classrooms (shop etc.)	Cafeteria	Kitchen	Typical Classrooms	Nurse's Office	Break rooms /Lounge	Administration	Gym	Group Bathrooms			
Space Priority (1-10)	-	1	2	2	5	6	1	2	5	7	4	4			
Airflow Pattern	16%	2	2	2	3	2	2	3	2	3	3	2	2		2.3
Ventilation	16%	2	2	2	2	2	2	2	2	2	2	2	2		2.0
Filtration	16%	2	2	2	2	1	2	2	2	3	2	1			1.9
Pressurization	10%	2	2	2	2	2	2	3	2	2	2	2			2.1
Scheduling	10%	3	3	3	3	3	3	3	3	3	3	3			3.0
Humidification	16%	4	4	4	4	1	4	4	4	4	4	1			3.5
Plumbing Operators	4%	3	3	4	3	3	3	3	3	3	3	3			3.1
Lighting controls	2%	4	4	4	4	4	4	4	4	4	4	4			4.0
Door Openers	10%	4	4	4	4	4	4	1	4	4	4	4			3.7

Total	100%														
Weighted Risk		2.7	2.7	2.7	2.9	2.1	2.7	2.7	2.7	3.0	2.7	2.1			
Weight Based on Priority		16%	13%	13%	5%	3%	16%	13%	5%	0%	8%	8%			100%
Weighted Score Based on Priority		0.4	0.4	0.4	0.2	0.1	0.4	0.3	0.1	0.0	0.2	0.2			2.6
Risk Multi	7.09														

School Score (1-4)	2.6 Moderate Risk
Weighted Totals	

Score Scale	
No Updates Required	<1
Low Risk	1-2
Moderate Risk	2-3
High Risk	3-4





Potter School - COVID Risk Assessment - Proposed

Building Description	Masonry building; 2 Levels (1, 2,); flat, accessible roof
Building Address	575 Pleasant St.
Building Date (originally cons	1968
Building Square Footage	66,000
Proposed Scope of Work Summary	Maximize percentage of outdoor air at unit ventilators, Maximize ventilation at RTUs, Increase ventilation run time - building flush out, Provide in space HEPA filtration, provide CO2 monitoring, ensure window functionality and keep open as much as possible, ensure exhaust from nurse's office and isolation rooms, increase exhaust run time to other areas.
Key Areas / Usage	Classrooms, music room, gym, library, nurse, medically fragile, counseling, cafeteria and administration.

Building Systems Risk Summary - Existing

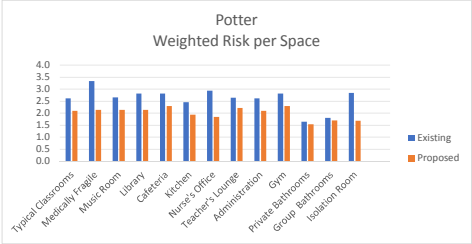
Rate 1-4, 1=meets ASHRAE design guidelines for COVID-19 or N/A, 2=adequate/meets code, 3=poor, 4= None																
	Weight Factor	Typical Classrooms	Medically Fragile	Music Room	Library	Cafeteria	Kitchen	Nurse's Office	Teacher's Lounge	Administration	Gym	Private Bathrooms	Group Bathrooms	Isolation Room		Category Averages
Space Type	-	Typical Classrooms	Special Needs	Specialty Classrooms (shop etc.)	Library	Cafeteria	Kitchen	Nurse's Office	Break rooms /Lounge	Administration	Gym	Private Bathrooms	Group Bathrooms	Isolation Room		
Space Priority (1-10)	-	1	1	2	4	5	6	2	5	7	4	10	4	1	SELECT SPACE TYPE	
Airflow Pattern	16%	2	2	2	2	2	2	1	2	2	2	2	2	3.0	1	1.9
Ventilation	16%	1	1	1	1	1	1	1	1	1	1	1	2	2.0	1	1.2
Filtration	16%	2	2	2	2	2	3	3	1	2	2	3	1	1.0	1	1.9
Pressurization	10%	2	2	2	2	2	2	2	1	2	2	2	2	2.0	1	1.8
Scheduling	10%	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0
Humidification	16%	4	4	4	4	4	1	4	4	4	4	4	1	1.0	4.0	3.3
Plumbing Operators	4%	1	1	1	1	1	1	4	4	1	1	1	4	4.0	1.0	2.2
Lighting controls	2%	1	3	3	3	3	3	3	1	1	3	1	1	1.0	1.0	2.1
Door Openers	10%	3	3	3	3	3	3	3	3	3	3	3	1	1.0	3.0	2.7

Total	100%	17	19	19	19	20	20	19	20	17	20	15	16	14	0	
Weighted Risk		2.1	2.1	2.1	2.1	2.3	1.9	1.8	2.2	2.1	2.3	1.5	1.7	1.7	0.0	
Weight Based on Priority		13%	13%	12%	8%	6%	4%	12%	6%	2%	8%	-4%	8%	13%	0%	100%
Weighted Score Based on Priority		0.3	0.3	0.2	0.2	0.1	0.1	0.2	0.1	0.0	0.2	0.0	0.1	0.2	0.0	2.1
Risk Multi	8.00															

School Score (1-4)	2.1 Moderate Risk
Weighted Totals	

Score Scale	
No Updates Required	<1
Low Risk	1-2
Moderate Risk	2-3
High Risk	3-4

[\(Cover\)](#)





Potter School - COVID Risk Assessment

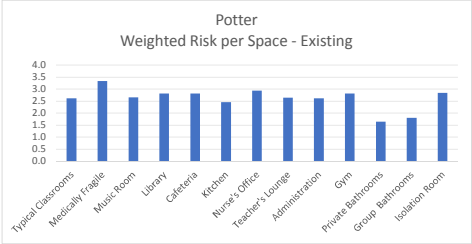
Building Description	Masonry building; 2 Levels (1, 2,); flat, accessible roof
Building Address	575 Pleasant St.
Building Date (originally cons	1968
Building Square Footage	66,000
HVAC System Description & other key infrastructure observations	<ul style="list-style-type: none">* The existing HVAC system includes a Trane packaged air handling unit with approximately 30% outdoor air to serve the core areas. The air handling unit includes a MERV-10 2" filter bank and the unit is provided with a hot water heating coil.* The gym includes a dedicated makeup air unit (MAU) and a dedicated exhaust fan. The makeup air unit does not include cooling. The space also includes passive releif louvers, ceiling fans and operable windows.* The cafeteria/auditorium has a dedicated makeup air unit (MAU) behind the stage and a dedicated exhaust fan. The space also has ceiling fans and operable windows* Hot water heat is provided by two (2) gas fired Cleaver Brooks boilers. The hot water system does not currently include glycol.* Typical classrooms are served by wall mounted unit ventilators that supplies outdoor air and heating to the space and a wall mounted split chiller. The return to the unit ventilator is by a linear slot diffuser located at the bottom of the window.* The building currently has DDC controls and monitoring of outdoor air, static pressure, and airflows at BMS.* The library contains operable windows and manual light switches. Air is supplied from the Main AHU and air is exhausted to a return fan on the roof.* Private and group restrooms both include exhaust and occupancy sensors for automatic lighting controls.* The teachers' lounge includes the same systems as a typical classroom with an occupancy sensor.
Key Areas / Usage	Classrooms, music room, gym, library, nurse, medically fragile, counseling, cafeteria and administration.

	Recommended Strategies																		
	HVAC-1 Increase Vent Quantity (Space Level)	HVAC-2 Increase Vent Fraction (Central Systems)	HVAC-3 Increase Vent Running Time	HVAC-4 Increase Filtration (Central Systems)	HVAC-5 Ensure Window Functionality	HVAC-6 Improve Window/Door Operations (Keep open)	HVAC-7 Space CO2 Monitoring	HVAC-8 Retro-CX Central Air Handlers	HVAC-9 Retro-CX Space Terminal Units	HVAC-10 Provide In-Space Air Filtration	HVAC-11 Improve Exhaust from Spaces	HVAC-12 Provide UV-GI Lights (Central Systems)	HVAC-13 Provide UV-GI Lights (Within Spaces)	HVAC-14 Improve Air Flow Directionity (Spaces)	HVAC-15 Add Humidification (Central Systems)	HVAC-16 Add Humidification (Within Spaces)	Elec-1 Provide Lighting Occ Sensors	Elec-2 Provide FA Hold-Opens for Fire Doors	Plumb-1 Provide Sensor Ctrl on Plumb Fixtures
Implementation Complexity:	HIGH	MED	LOW	MED	LOW	LOW	MED	MED	MED	HIGH	MED	HIGH	MED	MED	HIGH	MED	MED	MED	MED
Risk Category Improvement:	Ventilation, airflow pattern, pressurization	Ventilation, pressurization	Ventilation, scheduling	Filtration	Ventilation, airflow pattern	Ventilation, scheduling	Ventilation	Ventilation, pressurization	Ventilation, pressurization	Filtration	Ventilation, airflow pattern, pressurization	Filtration	scheduling	Airflow Pattern, pressurization	Humidification	Humidification	scheduling, lighting controls	Door openers	Plumbing operators
Typical Classrooms	X		X		X	X	X	X	X	X	X		X	X		X	X	X	X
Medically Fragile	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Music Room	X		X		X	X	X	X	X	X	X		X	X	X	X	X	X	X
Library	X		X		X	X	X	X	X	X	X		X	X	X	X	X	X	X
Cafeteria		X		X	X	X	X			X	X	X		X	X		X	X	X
Kitchen		X	X	X	X	X	X	X	X	X	X	X		X	X		X	X	X
Nurse's Office	X				X	X	X	X	X	X	X		X	X		X		X	X
Teacher's Lounge	X		X		X	X	X	X	X	X	X		X	X		X	X	X	X
Administration	X		X		X	X	X	X	X	X	X		X	X		X	X	X	X
Gym	X	X		X	X	X	X	X	X	X		X		X	X		X	X	X
Private Bathrooms			X				X			X	X		X	X					X
Group Bathrooms			X				X				X		X	X			X		X
Isolation Room	X	X	X	X	X	X		X	X	X		X		X	X	X		X	X

Building Systems Risk Summary - Existing																
Rate 1-4, 1=meets ASHRAE design guidelines for COVID-19 or N/A, 2=adequate/meets code, 3=poor, 4= None																
	Weight Factor	Typical Classrooms	Medically Fragile	Music Room	Library	Cafeteria	Kitchen	Nurse's Office	Teacher's Lounge	Administration	Gym	Private Bathrooms	Group Bathrooms	Isolation Room		Category Averages
Space Type	-	Typical Classrooms	Special Needs	Specialty Classrooms (shop etc.)	Library	Cafeteria	Kitchen	Nurse's Office	Break rooms /Lounge	Administration	Gym	Private Bathrooms	Group Bathrooms	Isolation Room		
Space Priority (1-10)	-	1	1	2	4	5	6	2	5	7	4	10	4	1	SELECT SPACE TYPE	
Airflow Pattern	16%	2	3	2	3	3	3	3	2	2	2	3	2	3.0		2.6
Ventilation	16%	2	3	2	2	2	2	2	2	2	2	2	2	3.0		2.2
Filtration	16%	3	3	3	3	3	3	3	3	3	3	3	1	1.0		2.7
Pressurization	10%	3	4	3	3	3	3	3	2	3	3	3	2	2.0		2.8
Scheduling	10%	2	4	2	2	2	2	2	2	2	2	2	2	2.0		2.2
Humidification	16%	4	4	4	4	4	4	1	4	4	4	4	1	1.0		3.3
Plumbing Operators	4%	1	1	1	1	1	1	4	4	1	1	4	4	1.0		2.2
Lighting controls	2%	1	3	3	3	3	3	3	1	1	3	1	1	1.0		2.1
Door Openers	10%	3	3	3	3	3	3	3	3	3	3	1	1.0	3.0		2.7
Total	100%	21	28	23	24	24	24	27	23	21	24	16	17	22	0	
Weighted Risk		2.6	3.3	2.7	2.8	2.8	2.5	2.9	2.6	2.6	2.8	1.6	1.8	2.8	0.0	
Weight Based on Priority		13%	13%	12%	8%	6%	4%	12%	6%	2%	8%	-4%	8%	13%	0%	100%
Weighted Score Based on Priority		0.4	0.4	0.3	0.2	0.2	0.1	0.3	0.2	0.1	0.2	0.0	0.1	0.4	0.0	2.9
Risk Multi	8.00															

School Score (1-4)	2.9 Moderate Risk
Weighted Totals	

Score Scale	
No Updates Required	<1
Low Risk	1-2
Moderate Risk	2-3
High Risk	3-4





Stapleton Elementary School - COVID Risk Assessment - Proposed

Building Description	Masonry building; 2 Levels (1, 2); flat, accessible roof
Building Address	25 Elm Street
Building Date (originally con	1956
Building Square Footage	56,426
Proposed Scope of Work Summary	Increase percentage of outdoor air at space level, Increase ventilation run time - building flush out, Provide in space HEPA filtration, Maximize ventilation at RTUs, provide CO2 monitoring, ensure window functionality and keep open as much as possible, ensure exhaust from nurse's office and isolation rooms and increase exhaust run time in other areas.
Key Areas / Usage	Classrooms, music room, gym, library, nurse, pause, counseling, cafeteria and administration.

	Recommended Strategies - Proposed																		
	HVAC-1 Increase Vent Quantity (Space Level)	HVAC-2 Increase Vent Fraction (Central Systems)	HVAC-3 Increase Vent Running Time	HVAC-4 Increase Filtration (Central Systems)	HVAC-5 Ensure Window Functionality	HVAC-6 Improve Window/Door Operations (keep open)	HVAC-7 Space CO2 Monitoring	HVAC-8 Retro-CX Central Air Handlers	HVAC-9 Retro-CX Space Terminal Units	HVAC-10 Provide In-Space Air Filtration	HVAC-11 Improve Exhaust from Spaces	HVAC-12 Provide UV-GI Lights (Central Systems)	HVAC-13 Provide UV-GI Lights (Within Spaces)	HVAC-14 Improve Air Flow Directivity (Spaces)	HVAC-15 Add Humidification (Central Systems)	HVAC-16 Add Humidification (Within Spaces)	Elec-1 Provide Lighting Occ Sensors	Elec-2 Provide FA Hold-Opens for Fire Doors	Plumb-1 Provide Sensor Ctrl on Plumb Fixtures
Implementation Complexity:	HIGH	MED	LOW	MED	LOW	LOW	MED	MED	MED	HIGH	MED	HIGH	MED	MED	HIGH	MED	MED	MED	MED
Risk Category	Ventilation, airflow pattern, pressurization	Ventilation, pressurization	Ventilation, scheduling	Filtration	Ventilation, airflow pattern	Ventilation, scheduling	Ventilation	Ventilation, pressurization	Ventilation, pressurization	Filtration	Ventilation, airflow pattern, pressurization	Filtration	scheduling	Airflow Pattern, pressurization	Humidification	Humidification	scheduling, lighting controls	Door openers	Plumbing operators
Improvement:																			
Typical Classrooms	✓		✓		✓	✓	✓		X	✓	X		X	X		X	X	X	X
Art Room	✓		✓		✓	✓	✓		X	✓	X		X	X		X	X	X	X
Music Room	✓		✓		✓	✓	✓		X	✓	X		X	X		X	X	X	
Library	✓		✓		✓	✓	✓		X	✓	X		X	X		X	X	X	
Cafeteria	✓		✓		✓	✓	✓		X	X	X		X	X		X	X	X	X
Kitchen	✓		✓		✓	✓	X		X	X	✓		X	X		X	X	X	X
Kindergarten	✓		✓		✓	✓	✓		X	✓	X		X	X		X	X	X	X
Nurse's Office	✓		✓		✓	✓	✓		X	✓	✓		X	X		X	X	X	X
Teacher's Lounge	✓		✓		✓	✓	✓		X	✓	X		X	X		X	X	X	X
Administration	✓		✓		✓	✓	✓		X	✓	X		X	X		X	X	X	
Gym		✓	✓	X	✓	✓	✓	X			X	X			X		X	X	X
Private Bathrooms			✓				X				✓						X		X
Group Bathrooms			✓				X				✓						X		X
Isolation Room	✓	✓	✓	X	✓	✓	✓	X	X	✓	✓	X	X	X	X	X	X	X	X

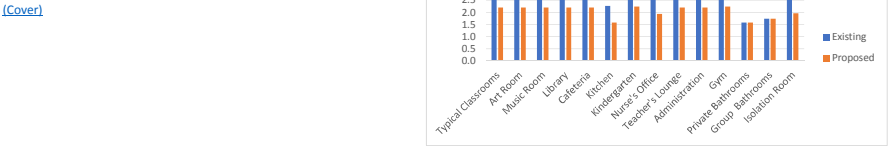
X = applicable, ✓ = proposed

Building Systems Risk Summary - Proposed																	
Rate 1-4, 1=meets ASHRAE design guidelines for COVID-19 or N/A, 2=adequate/meets code, 3=poor, 4= None																	
	Weight Factor	Typical Classrooms	Art Room	Music Room	Library	Cafeteria	Kitchen	Kindergarten	Nurse's Office	Teacher's Lounge	Administration	Gym	Private Bathrooms	Group Bathrooms	Isolation Room	Category Averages	
Space Type	-	Typical Classrooms	Specialty Classrooms (shop etc.)	Specialty Classrooms (shop etc.)	Library	Cafeteria	Kitchen	Typical Classrooms	Nurse's Office	Break rooms /Lounge	Administrator	Gym	Private Bathrooms	Group Bathrooms	Isolation Room		
Space Priority (1-10)	-	1	2	2	4	5	6	1	2	5	7	4	10	4	1		
Airflow Pattern	16%	2	2	2	2	2	2	2	1	2	2	2	2	2.0	3.0	1	1.9
Ventilation	16%	1	1	1	1	1	1	1	1	1	1	1	1	2.0	2.0	1	1.1
Filtration	16%	2	2	2	2	2	2	2	1	2	2	2	2	1.0	1.0	1	1.7
Pressurization	10%	2	2	2	2	2	2	2	1	2	2	2	2	2.0	2.0	1	1.9
Scheduling	10%	1	1	1	1	1	1	1	1	1	1	1	1	1.0	1.0	1	1.0
Humidification	16%	4	4	4	4	4	4	1	4	4	4	4	4	1.0	1.0	4.0	3.4
Plumbing Operators	4%	1	1	1	1	1	1	4	1	4	1	1	1	4.0	4.0	4.0	2.1
Lighting controls	2%	1	1	1	1	1	1	3	3	3	1	1	3	3.0	3.0	4.0	2.1
Door Openers	10%	4	4	4	4	4	4	1	4	4	4	4	4	1.0	1.0	4.0	3.4

Total	100%	18	18	18	18	18	17	20	20	18	18	20	17	18	21		
Weighted Risk		2.2	2.2	2.2	2.2	2.2	1.6	2.2	1.9	2.2	2.2	2.2	1.6	1.7	2.0		
Weight Based on Priority		12%	11%	11%	7%	5%	3%	12%	11%	5%	1%	7%	-4%	7%	12%	100%	
Weighted Score Based on Priority		0.3	0.2	0.2	0.2	0.1	0.1	0.3	0.2	0.1	0.0	0.2	-0.1	0.1	0.2		
Risk Multi	7.71																2.1

School Score (1-4)	2.1 Moderate Risk
Weighted Totals	

Score Scale	
No Updates Required	<1
Low Risk	1-2
Moderate Risk	2-3
High Risk	3-4





Stapleton Elementary School - COVID Risk Assessment

Building Description	Masonry building; 2 Levels (1, 2); flat, accessible roof
Building Address	25 Elm Street
Building Date (originally constructed)	1956
Building Square Footage	56,426
HVAC System Description & other key infrastructure observations	<ul style="list-style-type: none">* The gym includes a dedicated makeup air unit (MAU) and a dedicated exhaust fan. A vent tube provides heating for the space. The space also includes manually operated light switches and operable windows.* The cafeteria has outdoor air, cooling and heating supplied from a unit ventilator for and air is exhausted to a return fan on the roof. The space also has manual lighting controls, ceiling fans and operable windows.* Hot water heat is provided by two (2) gas fired boilers. The hot water system does not currently include glycol.* Isolation rooms will be the Vice Principal's office. There are no operable windows and the space is provided with air conditioning.* Typical classrooms are served by wall mounted unit ventilators that supplies outdoor air, cooling and heating to the space. The return to the unit ventilator is by a linear slot diffuser located at the bottom of the window. Air within the space is exhausted to a return fan on the roof. There is also a sink and manual lighting controls.* Teacher's Lounge, Kindergarten rooms and art room has the same systems as a typical classroom.* Music Room is served by wall mounted unit ventilators supplies heating to the space. There are operable windows and manual lighting controls.* Guidance Suite has operable windows and manual light switch controls. The offices within the suite are served by wall mounted unit ventilators that supplies outdoor, air cooling, and heating to the space.* Group bathrooms are served by wall mounted unit ventilators that supplies outdoor air, cooling, and heating to the space. Air within the space is exhausted to a return fan on the roof* The building currently has DDC controls and monitoring of outdoor air, static pressure, and airflows at BMS.* The library contains operable windows and manual light switches. Outdoor air, cooling and heating is supplied from a unit ventilator for and air is exhausted to a return fan on the roof.* The kitchen has exhaust hoods for food prep. Hood exhaust is manual on/off. There are manual light switch controls and operable windows.* Private bathrooms have manual light switch controls, exhaust and no operable windows.* Corridor does not have any door holds on fire-rated doors. They are currently held open by a foot stop and are closed during operational hours.* The nurse's office has operable windows. is served by wall mounted unit ventilators that supplies outdoor air and heating to the space and is exhausted to a return fan on the roof. There are a wall mounted air conditioner unit and manual light switch controls. The bathroom within the space has manual operators and exhaust.* All plumbing fixtures have manual operators.* Main office contains manually operated light switches. Air is supplied from a unit ventilator for outdoor air and heating. Cooled air is provided to the space via wall mounted air conditioning unit. Air within the space is exhausted to a return fan on the roof. There are operable windows and a sink within the space.* Building has a generator for backup power.* Isolation room has no windows. The space has conditioned air provided from an AHU part of the central system and return grille to transfer air within the space to a return fan on the roof.
Key Areas / Usage	Classrooms, music room, gym, library, nurse, pause, counseling, cafeteria and administration.

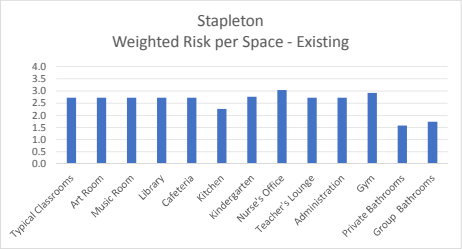
[illegible]

Building Systems Risk Summary - Existing																	
Rate 1-4, 1=meets ASHRAE design guidelines for COVID-19 or N/A, 2=adequate/meets code, 3=poor, 4= None																	
	Weight Factor	Typical Classrooms	Art Room	Music Room	Library	Cafeteria	Kitchen	Kindergarten	Nurse's Office	Teacher's Lounge	Administration	Gym	Private Bathrooms	Group Bathrooms	Isolation Room	Category Averages	
Space Type	-	Typical Classrooms	Specialty Classrooms (shop etc.)	Specialty Classrooms (shop etc.)	Library	Cafeteria	Kitchen	Typical Classrooms	Nurse's Office	Break rooms /Lounge	Administrator	Gym	Private Bathrooms	Group Bathrooms	Isolation Room		
Space Priority (1-10)	-	1	2	2	4	5	6	1	2	5	7	4	10	4	1		
Airflow Pattern	16%	2	2	2	2	2	2	3	3	2	2	2	3	2.0	3.0	4.0	2.4
Ventilation	16%	2	2	2	2	2	2	2	2	2	2	2	2	2.0	2.0	4.0	2.8
Filtration	16%	3	3	3	3	3	3	3	3	3	3	3	3	1.0	1.0	4.0	2.2
Pressurization	10%	3	3	3	3	3	3	3	3	3	3	3	3	2.0	2.0	4.0	2.2
Scheduling	10%	2	2	2	2	2	2	2	2	2	2	2	2	1.0	1.0	4.0	3.0
Humidification	16%	4	4	4	4	4	4	1	4	4	4	4	4	1.0	1.0	4.0	1.7
Plumbing Operators	4%	1	1	1	1	1	1	4	1	4	1	1	1	4.0	4.0	4.0	2.8
Lighting controls	2%	1	1	1	1	1	1	3	3	1	1	1	3	3.0	3.0	4.0	2.3
Door Openers	10%	4	4	4	4	4	4	1	4	4	4	4	4	1.0	1.0	4.0	2.3

Total	100%	22	22	22	22	22	22	24	28	22	22	22	25	17	18	36	
Weighted Risk		2.7	2.7	2.7	2.7	2.7	2.3	2.8	3.0	2.7	2.7	2.7	2.9	1.6	1.7	4.0	
Weight Based on Priority		12%	11%	11%	7%	5%	3%	12%	11%	5%	1%	7%	-4%	7%	12%	100%	
Weighted Score Based on Priority		0.3	0.3	0.3	0.2	0.1	0.1	0.3	0.3	0.1	0.0	0.2	-0.1	0.1	0.5		
Risk Multi	7.71																2.9

School Score (1-4)	2.9 Moderate Risk
Weighted Totals	

Score Scale	
No Updates Required	<1
Low Risk	1-2
Moderate Risk	2-3
High Risk	3-4





Thayer School - COVID Risk Assessment - Proposed

Building Description	Masonry building; 3 Levels (B, 1, 2); pitched roof
Building Address	50 Lawrence Street
Building Date (originally constructed)	1905
Building Square Footage	10,800
Proposed Scope of Work Summary	Increase ventilation run time - building flush out, Provide in space HEPA filtration, provide CO2 monitoring, ensure window functionality and keep open as much as possible, ensure exhaust from isolation room, increase exhaust to other areas.
Key Areas / Usage	

	Recommended Strategies																		
	HVAC-1 Increase Vent Quantity (Space Level)	HVAC-2 Increase Vent Fraction (Central Systems)	HVAC-3 Increase Vent Running Time	HVAC-4 Increase Filtration (Central Systems)	HVAC-5 Ensure Window Functionality	HVAC-6 Improve Window/Door Operations (keep open)	HVAC-7 Space CO2 Monitoring	HVAC-8 Retro-CX Central Air Handlers	HVAC-9 Retro-CX Space Terminal Units	HVAC-10 Provide In-Space Air Filtration	HVAC-11 Improve Exhaust from Spaces	HVAC-12 Provide UV-GI Lights (Central Systems)	HVAC-13 Provide UV-GI Lights (Within Spaces)	HVAC-14 Improve Air Flow Directivity (Spaces)	HVAC-15 Add Humidification (Central Systems)	HVAC-16 Add Humidification (Within Spaces)	Elec-1 Provide Lighting Occ Sensors	Elec-2 Provide FA Hold-Opens for Fire Doors	Plumb-1 Provide Sensor Ctrl on Plumb Fixtures
Implementation Complexity:	HIGH	MED	LOW	MED	LOW	LOW	MED	MED	MED	HIGH	MED	HIGH	MED	MED	HIGH	MED	MED	MED	MED
Risk Category improvement:	Ventilation, airflow pattern, pressurization	Ventilation, pressurization	Ventilation, scheduling	Filtration	Ventilation, airflow pattern	Ventilation, scheduling	Ventilation	Ventilation, pressurization	Ventilation, pressurization	Filtration	Ventilation, airflow pattern, pressurization	Filtration	scheduling	Airflow Pattern, pressurization	Humidification	Humidification	scheduling, lighting controls	Door openers	Plumbing operators
Typical Classrooms	✓	✓	✓	X	✓	✓	✓		X	✓			X			X	X	X	X
Private Bathrooms						✓				X	✓		X	X		X	X	X	X
Isolation Room					✓	✓	✓			✓	✓		X	X		X	X	X	X

X = applicable, ✓ = proposed

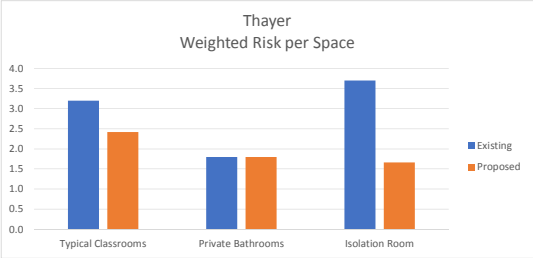
Building Systems Risk Summary - Existing

Rate 1-4, 1=meets ASHRAE design guidelines for COVID-19 or N/A, 2=adequate/meets code, 3=poor, 4= None															
	Weight Factor	Typical Classrooms	Private Bathrooms	Isolation Room											Category Averages
Space Type	-	Typical Classrooms	Private Bathrooms	Isolation Room											
Space Priority (1-10)	-	1	2	1	SELECT SPACE TYPE	SELECT SPACE TYPE	SELECT SPACE TYPE	SELECT SPACE TYPE	SELECT SPACE TYPE	SELECT SPACE TYPE	SELECT SPACE TYPE	SELECT SPACE TYPE	SELECT SPACE TYPE	SELECT SPACE TYPE	
Airflow Pattern	16%	2	2	1											1.7
Ventilation	16%	2	2	1											1.7
Filtration	16%	2	1	1											1.3
Pressurization	10%	2	2	1											1.7
Scheduling	10%	1	3	1											1.7
Humidification	16%	4	1	4											3.0
Plumbing Operators	4%	1	4	4											3.0
Lighting controls	2%	4	4	4											4.0
Door Openers	10%	4	1	1											2.0

Total	100%														
Weighted Risk		2.4	1.8	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Weight Based on Priority		42%	17%	42%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Weighted Score Based on Priority		1.0	0.3	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0
Risk Multi	2.67														

School Score (1-4)	2.0 Moderate Risk
Weighted Totals	

Score Scale	
No Updates Required	<1
Low Risk	1-2
Moderate Risk	2-3
High Risk	3-4





Thayer School - COVID Risk Assessment

Building Description	Masonry building; 3 Levels (B, 1, 2); pitched roof
Building Address	50 Lawrence Street
Building Date (originally constructed)	1905
Building Square Footage	10,800
HVAC System Description & other key infrastructure observations	<ul style="list-style-type: none">* Low pressure steam heating is provided by a gas fired boiler.* Terminal heat is provided by radiators located throughout the spaces. Radiators are controlled by manually adjusted thermostatic regulators.* Air conditioning is provided in four classrooms via packaged air conditioners located above the ceilings. Air is distributed to ceiling supply diffusers.* The heating system is on DDC control to enable the boiler only.* The Isolation Room has operable windows, a steam radiator and a bathroom that is not exhausted.* Lighting is manually controlled via toggle switches* Plumbing fixtures are all manually operated
Key Areas / Usage	

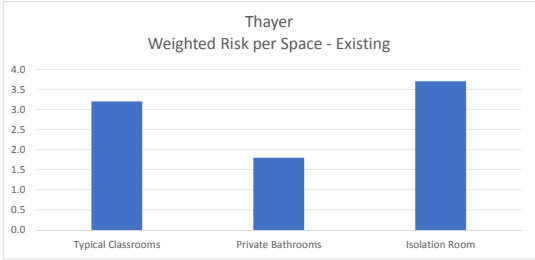
	Recommended Strategies																		
	HVAC-1 Increase Vent Quantity (Space Level)	HVAC-2 Increase Vent Fraction (Central Systems)	HVAC-3 Increase Vent Running Time	HVAC-4 Increase Filtration (Central Systems)	HVAC-5 Ensure Window Functionality	HVAC-6 Improve Window/Door Operations (keep open)	HVAC-7 Space CO2 Monitoring	HVAC-8 Retro-CX Central Air Handlers	HVAC-9 Retro-CX Space Terminal Units	HVAC-10 Provide In-Space Air Filtration	HVAC-11 Improve Exhaust from Spaces	HVAC-12 Provide UV-GI Lights (Central Systems)	HVAC-13 Provide UV-GI Lights (Within Spaces)	HVAC-14 Improve Air Flow Directivity (Spaces)	HVAC-15 Add Humidification (Central Systems)	HVAC-16 Add Humidification (Within Spaces)	Elec-1 Provide Lighting Occ Sensors	Elec-2 Provide FA Hold-Opens for Fire Doors	Plumb-1 Provide Sensor Ctrl on Plumb Fixtures
Implementation Complexity:	HIGH	MED	LOW	MED	LOW	LOW	MED	MED	MED	HIGH	MED	HIGH	MED	MED	HIGH	MED	MED	MED	MED
Risk Category improvement:	Ventilation, airflow pattern, pressurization	Ventilation, pressurization	Ventilation, scheduling	Filtration	Ventilation, airflow pattern	Ventilation, scheduling	Ventilation	Ventilation, pressurization	Ventilation, pressurization	Filtration	Ventilation, airflow pattern, pressurization	Filtration	scheduling	Airflow Pattern, pressurization	Humidification	Humidification	scheduling, lighting controls	Door openers	Plumbing operators
Typical Classrooms	X	X	X	X					X	X			X			X	X	X	X
Private Bathrooms										X	X		X	X		X	X	X	X
Isolation Room					X	X				X	X		X	X		X	X	X	X

Building Systems Risk Summary - Existing																
Rate 1-4, 1=meets ASHRAE design guidelines for COVID-19 or N/A, 2=adequate/meets code, 3=poor, 4= None																
	Weight Factor	Typical Classrooms	Private Bathrooms	Isolation Room												Category Averages
Space Type	-	Typical Classrooms	Private Bathrooms	Isolation Room												
Space Priority (1-10)	-	1	2	1	SELECT SPACE TYPE	SELECT SPACE TYPE	SELECT SPACE TYPE	SELECT SPACE TYPE	SELECT SPACE TYPE	SELECT SPACE TYPE	SELECT SPACE TYPE	SELECT SPACE TYPE	SELECT SPACE TYPE	SELECT SPACE TYPE		
Airflow Pattern	16%	3	2	4												3.0
Ventilation	16%	3	2	4												3.0
Filtration	16%	3	1	4												2.7
Pressurization	10%	2	2	4												2.7
Scheduling	10%	4	3	4												3.7
Humidification	16%	4	1	4												3.0
Plumbing Operators	4%	1	4	4												3.0
Lighting controls	2%	4	4	4												4.0
Door Openers	10%	4	1	1												2.0

Total	100%															
Weighted Risk		3.2	1.8	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Weight Based on Priority		42%	17%	42%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Weighted Score Based on Priority		1.3	0.3	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2
Risk Multi	2.67															

School Score (1-4)	3.2 High Risk
Weighted Totals	

Score Scale	
No Updates Required	<1
Low Risk	1-2
Moderate Risk	2-3
High Risk	3-4





Woodrow Wilson School - COVID Risk Assessment - Proposed

Building Description	Masonry building; 2 Levels; flat, accessible roof
Building Address	169 LeLand Street
Building Date (originally constructed)	1998
Building Square Footage	100,695
Proposed Scope of Work Summary	Increase ventilation run time - building flush out, Replace central system filters with minimum MERV-13, Provide in space HEPA filtration, Maximize ventilation at RTUs, provide space level CO2 monitoring, ensure window functionality and keep open as much as possible, ensure exhaust from nurse's office and isolation room, Increase exhaust run time for all other spaces.
Key Areas / Usage	

	Recommended Strategies - Proposed																		
	HVAC-1 Increase Vent Quantity (Space Level)	HVAC-2 Increase Vent Fraction (Central Systems)	HVAC-3 Increase Vent Running Time	HVAC-4 Increase Filtration (Central Systems)	HVAC-5 Ensure Window Functionality	HVAC-6 Improve Window/Door Operations (keep open)	HVAC-7 Space CO2 Monitoring	HVAC-8 Retro-CX Central Air Handlers	HVAC-9 Retro-CX Space Terminal Units	HVAC-10 Provide In-Space Air Filtration	HVAC-11 Improve Exhaust from Spaces	HVAC-12 Provide UV-GI Lights (Central Systems)	HVAC-13 Provide UV-GI Lights (Within Spaces)	HVAC-14 Improve Air Flow Directivity (Spaces)	HVAC-15 Add Humidification (Central Systems)	HVAC-16 Add Humidification (Within Spaces)	Elec-1 Provide Lighting Occ Sensors	Elec-2 Provide FA Hold-Opens for Fire Doors	Plumb-1 Provide Sensor Ctrl on Plumb Fixtures
Implementation Complexity:	HIGH	MED	LOW	MED	LOW	LOW	MED	MED	MED	HIGH	MED	HIGH	MED	MED	HIGH	MED	MED	MED	MED
Risk Category improvement:	Ventilation, airflow pattern, pressurization	Ventilation, pressurization	Ventilation, scheduling	Filtration	Ventilation, airflow pattern	Ventilation, scheduling	Ventilation	Ventilation, pressurization	Ventilation, pressurization	Filtration	Ventilation, airflow pattern, pressurization	Filtration	scheduling	Airflow Pattern, pressurization	Humidification	Humidification	scheduling, lighting controls	Door openers	Plumbing operators
Library		✓	✓	✓			✓	X	X	✓		X	X		X	X	X	X	
Group Bathrooms	X		✓					X			✓		X				X	X	X
Corridor		✓	✓	✓	✓	✓		X				X	X		X		X	X	
Typical Classrooms		✓	✓	✓	✓	✓	✓	X		✓		X	X	X	X	X	X	X	X
Isolation Room		✓	✓	✓	✓	✓	✓	X		✓	✓	X	X	X	X	X	X	X	X
Administration		✓	✓	✓	✓	✓	✓	X		✓		X	X	X	X	X	X	X	
Nurse's Office	✓	✓	✓	✓			✓	X		✓	✓	X	X	X	X	X	X		X

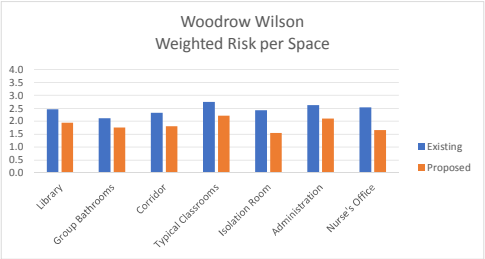
X = applicable, ✓ = proposed

Building Systems Risk Summary - Proposed																	
Rate 1-4, 1=meets ASHRAE design guidelines for COVID-19 or N/A, 2=adequate/meets code, 3=poor, 4= None																	
	Weight Factor	Library	Group Bathrooms	Corridor	Typical Classrooms	Isolation Room	Administration	Nurse's Office									Category Averages
Space Type	-	Library	Group Bathrooms	Assembly Areas	Typical Classrooms	Isolation Room	Administration	Nurse's Office									
Space Priority (1-10)	-	4	4	4	1	1	7	2	SELECT SPACE TYPE	SELECT SPACE TYPE	SELECT SPACE TYPE	SELECT SPACE TYPE	SELECT SPACE TYPE	SELECT SPACE TYPE	SELECT SPACE TYPE	SELECT SPACE TYPE	
Airflow Pattern	16%	1	2	2	2	1.0	2	1									1.6
Ventilation	16%	1	1	1	1	1	1	1									1.0
Filtration	16%	1	1	1	1	1	1	1									1.0
Pressurization	10%	2	2	2	2	1	2	1									1.7
Scheduling	10%	1	1	1	1	1	1	1									1.0
Humidification	16%	4	1	4	4	4.0	4	4									3.6
Plumbing Operators	4%	1	3	1	4	1.0	1	4									2.1
Lighting controls	2%	4	4	4	4	4.0	4	4									4.0
Door Openers	10%	4	4	1	4	1.0	4	1									2.7

Total	100%																
Weighted Risk		1.9	1.8	1.8	2.2	1.5	2.1	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Weight Based on Priority		11%	11%	11%	24%	24%	-2%	20%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Weighted Score Based on Priority		0.2	0.2	0.2	0.5	0.4	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8
Risk Multi	6.57																

School Score (1-4)	1.8 Low Risk
Average of Weighted Totals	

Score Scale	
No Updates Required	<1
Low Risk	1-2
Moderate Risk	2-3
High Risk	3-4





Woodrow Wilson School - COVID Risk Assessment

Building Description	Masonry building; 2 Levels; flat, accessible roof
Building Address	169 LeLand Street
Building Date (originally constructed)	1998
Building Square Footage	100,695
HVAC System Description & other key infrastructure observations	<ul style="list-style-type: none">* Building is fully air conditioned by seven variable air volume (VAV) AHUs which currently include MERV 8 filtration. Existing MERV 8 filters are scheduled to be replaced with MERV 14. AHU #s 1, 2, 3, 6, and 7 are equipped with humidification but the humidifiers have been turned off due to moisture problems.* Air handling units include hot water and chilled water coils and are scheduled to be running at 10% OA typically with the capability to ramp up to 25%.* The library includes ceiling supply air along the perimeter of the space, finned tube radiation perimeter heating, and the ceiling return is located on the corridor side of the space. This indicates all airflow would be directed towards the corridor.* Group bathrooms include metering faucets and manual flush operators. Supply and exhaust air is provided.* Corridor spaces include operable windows and also are supplied with air from the central air handling system.* Typical classrooms include operable windows, supply and return at the ceiling with sidewall supply on opposite sides of the room. Plumbing fixtures are manually operated.* No Lighting controls.* the COVID Isolation room is an interior space which includes both supply and return air.* A typical office space includes ceiling supply and return, finned tube radiation, and operable windows.* The school nurse's space includes ceiling supply and return, curtained rest beds, and separate bathrooms with manually operated fixtures.
Key Areas / Usage	

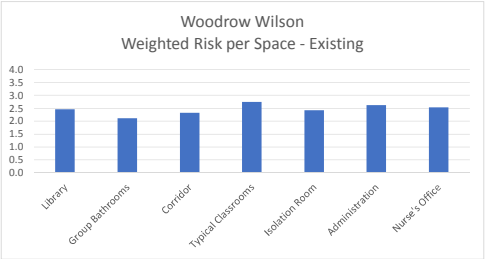
[illegible]

Building Systems Risk Summary - Existing																	
Rate 1-4, 1=meets ASHRAE design guidelines for COVID-19 or N/A, 2=adequate/meets code, 3=poor, 4= None																	
	Weight Factor	Library	Group Bathrooms	Corridor	Typical Classrooms	Isolation Room	Administration	Nurse's Office									Category Averages
Space Type	-	Library	Group Bathrooms	Assembly Areas	Typical Classrooms	Isolation Room	Administration	Nurse's Office									
Space Priority (1-10)	-	4	4	4	1	1	7	2	SELECT SPACE TYPE	SELECT SPACE TYPE	SELECT SPACE TYPE	SELECT SPACE TYPE	SELECT SPACE TYPE	SELECT SPACE TYPE	SELECT SPACE TYPE	SELECT SPACE TYPE	
Airflow Pattern	16%	1	2	2	2	2.0	2	2									2.4
Ventilation	16%	2	2	2	2	2.0	2	2									2.8
Filtration	16%	2	1	2	2	2.0	2	2									2.2
Pressurization	10%	2	2	2	2	3.0	2	3									2.2
Scheduling	10%	3	3	3	3	3.0	3	3									3.0
Humidification	16%	4	1	4	4	4.0	4	4									1.7
Plumbing Operators	4%	1	3	1	4	1.0	1	4									2.8
Lighting controls	2%	4	4	4	4	4.0	4	4									2.3
Door Openers	10%	4	4	1	4	1.0	4	1									2.3

Total	100%																
Weighted Risk		2.5	2.1	2.3	2.7	2.4	2.6	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Weight Based on Priority		11%	11%	11%	24%	24%	-2%	20%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Weighted Score Based on Priority		0.3	0.2	0.3	0.7	0.6	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5
Risk Multi	6.57																

School Score (1-4)	2.5 Moderate Risk
Average of Weighted Totals	

Score Scale	
No Updates Required	<1
Low Risk	1-2
Moderate Risk	2-3
High Risk	3-4





Walsh Middle School - COVID Risk Assessment - Proposed

Building Description	Masonry building; 2 Levels, flat, accessible roof
Building Address	301 Brook Street
Building Date (originally constructed)	1969
Building Square Footage	201,000
Proposed Scope of Work Summary	Increase percentage of outdoor air at space level, Increase ventilation run time - building flush out, Provide in space HEPA filtration, Maximize ventilation at RTUs, provide CO2 monitoring, ensure window functionality and keep open as much as possible, ensure exhaust from nurse's office and increase exhaust run time in other areas.
Key Areas / Usage	Classrooms, music room, gym, library, auditorium, art room, science room, cafeteria and administration.

Recommended Strategies - Proposed																			
	HVAC-1 Increase Vent Quantity (Space Level)	HVAC-2 Increase Vent Fraction (Central Systems)	HVAC-3 Increase Vent Running Time	HVAC-4 Increase Filtration (Central Systems)	HVAC-5 Ensure Window Functionality	HVAC-6 Improve Window/Door Operations (keep open)	HVAC-7 Space CO2 Monitoring	HVAC-8 Retro-CX Central Air Handlers	HVAC-9 Retro-CX Space Terminal Units	HVAC-10 Provide In-Space Air Filtration	HVAC-11 Improve Exhaust from Spaces	HVAC-12 Provide UV-GI Lights (Central Systems)	HVAC-13 Provide UV-GI Lights (Within Spaces)	HVAC-14 Improve Air Flow Directivity (Spaces)	HVAC-15 Add Humidification (Central Systems)	HVAC-16 Add Humidification (Within Spaces)	Elec-1 Provide Lighting Occ Sensors	Elec-2 Provide FA Hold-Opens for Fire Doors	Plumb-1 Provide Sensor Ctrl on Plumb Fixtures
Implementation Complexity:	MED	MED	LOW	MED	LOW	LOW	MED	MED	MED	HIGH	MED	HIGH	MED	HIGH	HIGH	MED	MED	MED	MED
Risk Category improvement:	Ventilation, airflow pattern, pressurization	Ventilation, pressurization	Ventilation, scheduling	Filtration	Ventilation, airflow pattern	Ventilation, scheduling	Ventilation	Ventilation, pressurization	Ventilation, pressurization	Filtration	Ventilation, airflow pattern, pressurization	Filtration	scheduling	Airflow Pattern, pressurization	Humidification	Humidification	scheduling, lighting controls	Door openers	Plumbing operators
Typical Classrooms	✓		✓		✓	✓	✓		X	X	X		X			X	X	X	
Art Room	✓		✓		✓	✓	✓		X	X	X		X			X	X	X	X
Music Room	✓		✓		✓	✓	✓		X	X	X		X			X	X	X	
Library		✓	✓	X	✓	✓	✓	✓		X	X	X			X		X	X	
Cafeteria		✓	✓	X	✓	✓	✓	✓		X	X	X		X	X		X	X	
Kitchen				X		✓	✓	✓		X	✓	X		X	X		X	X	X
Auditorium	✓		✓				✓		X	X			X			X	X	X	
Nurse's Office			✓		✓	✓	✓			X	✓		X			X	X	X	X
Science Room	✓		✓		✓	✓	✓		X	X	X		X			X	X	X	X
Administration					✓	✓	✓			X			X			X	X	X	X
Gym		✓	✓	X		✓	✓	✓		X	X	X			X		X	X	X
Private Bathrooms	X		✓		✓				X		✓		X				X		X
Group Bathrooms	X		✓		✓				X		✓		X				X		X

X = applicable, ✓ = proposed

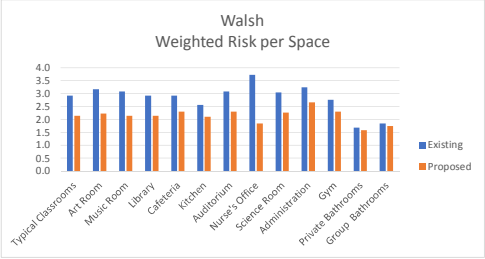
Building Systems Risk Summary - Proposed

Rate 1-4, 1=meets ASHRAE design guidelines for COVID-19 or N/A, 2=adequate/meets code, 3=poor, 4= None																
	Weight Factor	Typical Classrooms	Art Room	Music Room	Library	Cafeteria	Kitchen	Auditorium	Nurse's Office	Science Room	Administration	Gym	Private Bathrooms	Group Bathrooms		Category Averages
Space Type	-	Typical Classrooms	Specialty Classrooms (shop etc.)	Specialty Classrooms (shop etc.)	Library	Cafeteria	Kitchen	Assembly Areas	Nurse's Office	Specialty Classrooms (shop etc.)	Administration	Gym	Private Bathrooms	Group Bathrooms		
Space Priority (1-10)	-	1	2	2	4	5	6	4	2	2	7	4	10	4	SELECT SPACE TYPE	
Airflow Pattern	16%	2	2	2	2	2	3	2	1	2	3	2	2.0	3.0		2.0
Ventilation	16%	1	1	1	1	1	1	1	1	1	2	1	2.0	2.0		1.2
Filtration	16%	2	2	2	2	2	3.0	3	3	1	2	2	3	1.0	1.0	1.9
Pressurization	10%	2	2	2	2	2	2	2	1	2	3	2	2.0	2.0		1.9
Scheduling	10%	1	1	1	1	1	1	1	1	1	2	1	1	1		1.0
Humidification	16%	4	4	4	4	4.0	1	4	4	4	4	4	1.0	1.0		3.1
Plumbing Operators	4%	1	3	1	1	1.0	4	1	4	4	1	1	4.0	4.0		2.1
Lighting controls	2%	3	3	3	3	3.0	3	3	3	3	3	3	3.0	3.0		2.8
Door Openers	10%	3	3	3	3	3.0	3	3	3	3	3	3	1.0	1.0		2.5

Total	100%	19	21	19	19	20	21	20	19	22	23	20	17	18	0	
Weighted Risk		2.1	2.2	2.1	2.1	2.3	2.1	2.3	1.8	2.3	2.7	2.3	1.6	1.7	0.0	
Weight Based on Priority		13%	12%	12%	8%	6%	4%	8%	12%	12%	2%	8%	-3%	8%	0%	100%
Weighted Score Based on Priority		0.3	0.3	0.2	0.2	0.1	0.1	0.2	0.2	0.3	0.1	0.2	0.0	0.1	0.0	
Risk Multi	8.15															2.2

School Score (1-4)	2.22 Moderate Risk
Weighted Totals	

Score Scale	
No Updates Required	<1
Low Risk	1-2
Moderate Risk	2-3
High Risk	3-4





Walsh Middle School - COVID Risk Assessment

Building Description	Masonry building; 2 Levels, flat, accessible roof
Building Address	301 Brook Street
Building Date (originally constructed)	1969
Building Square Footage	201,000
HVAC System Description & other key infrastructure observations	<ul style="list-style-type: none">* The gym includes a two heating and ventilating (H&V) units with overhead air distribution and low return.* The cafeteria has a dedicated H&V unit with underfloor air distribution at the perimeter. The unit is newer. The space also has operable windows.* The kitchen and servery has a dedicated H&V unit with overhead air distribution. The unit is newer.* Steam heating is provided by low pressure dual fuel boilers.* The building currently has DDC controls for the heating system.* Typical classrooms are served by wall mounted unit ventilators that supplies air for ventilation and heating. A second unit ventilator exhausts the spaces.* The building currently has DDC controls and monitoring of outdoor air, static pressure, and airflows at BMS.* The library has sidewall supply grilles that provide air for ventilation and heating. The space also has perimeter fin tube radiation for heating.* The teachers' lounge has wall convectors for heating and operable windows for ventilation.* Group and private bathrooms have manual light switch controls.* Isolation room is a large bathroom with one sidewall exhaust grille. The room is interior and has no operable windows or ventilation supply.* The nurse's office has perimeter fin tube for heating, operable windows for ventilation and an exhausted bathroom.* The Auditorium has an overhead air distribution system and is served by a single H&V unit located in a mezzanine on the stage.* All plumbing fixtures have manual operators.* The lecture hall has an overhead air distribution system and is served by a single H&V unit located in a mechanical closet. The room has no windows.* The main office has perimeter heating and window A/C units to provide cooling. Operable windows are provided for ventilation.* Corridor has magnet door holds on fire-rated doors. There are occupant sensors for automatic lighting control.* Isolation room has no windows and window mounted air conditioner and is exhausted to a return fan on the roof. The bathroom to be used by patrons in the isolation room has exhaust and manual operators on plumbing equipment.
Key Areas / Usage	Classrooms, music room, gym, library, auditorium, art room, science room, cafeteria and administration.

	Recommended Strategies																		
	HVAC-1 Increase Vent Quantity (Space Level)	HVAC-2 Increase Vent Fraction (Central Systems)	HVAC-3 Increase Vent Running Time	HVAC-4 Increase Filtration (Central Systems)	HVAC-5 Ensure Window Functionality	HVAC-6 Improve Window/Door Operations (Keep open)	HVAC-7 Space CO2 Monitoring	HVAC-8 Retro-CX Central Air Handlers	HVAC-9 Retro-CX Space Terminal Units	HVAC-10 Provide In-Space Air Filtration	HVAC-11 Improve Exhaust from Spaces	HVAC-12 Provide UV-GI Lights (Central Systems)	HVAC-13 Provide UV-GI Lights (Within Spaces)	HVAC-14 Improve Air Flow Directivity (Spaces)	HVAC-15 Add Humidification (Central Systems)	HVAC-16 Add Humidification (Within Spaces)	Elec-1 Provide Lighting Occ Sensors	Elec-2 Provide FA Hold-Opens for Fire Doors	Plumb-1 Provide Sensor Ctrl on Plumb Fixtures
Implementation Complexity:	MED	MED	LOW	MED	LOW	LOW	MED	MED	MED	HIGH	MED	HIGH	MED	HIGH	HIGH	MED	MED	MED	MED
Risk Category improvement:	Ventilation, airflow pattern, pressurization	Ventilation, pressurization	Ventilation, scheduling	Filtration	Ventilation, airflow pattern	Ventilation, scheduling	Ventilation	Ventilation, pressurization	Ventilation, pressurization	Filtration	Ventilation, airflow pattern, pressurization	Filtration	scheduling	Airflow Pattern, pressurization	Humidification	Humidification	scheduling, lighting controls	Door openers	Plumbing operators
Typical Classrooms	X		X		X	X			X	X	X		X			X	X	X	
Art Room			X		X	X			X	X	X		X			X	X	X	X
Music Room			X		X	X			X	X	X		X			X	X	X	
Library		X	X	X	X	X		X		X	X	X			X		X	X	
Cafeteria		X	X	X	X	X		X		X	X	X		X	X		X	X	X
Kitchen			X	X		X		X		X	X	X			X		X	X	X
Auditorium	X		X				X		X	X			X			X	X	X	
Nurse's Office			X		X	X				X	X		X			X	X	X	X
Science Room			X		X	X			X	X	X		X			X	X	X	X
Administration			X		X	X				X			X			X	X	X	X
Gym	X	X	X	X		X		X		X	X	X			X		X	X	X
Private Bathrooms	X		X		X				X		X		X				X		X
Group Bathrooms	X		X		X				X		X		X				X		X

Building Systems Risk Summary - Existing

Rate 1-4, 1=meets ASHRAE design guidelines for COVID-19 or N/A, 2=adequate/meets code, 3=poor, 4= None																
	Weight Factor	Typical Classrooms	Art Room	Music Room	Library	Cafeteria	Kitchen	Auditorium	Nurse's Office	Science Room	Administration	Gym	Private Bathrooms	Group Bathrooms		Category Averages
Space Type	-	Typical Classrooms	Specialty Classrooms (shop etc.)	Specialty Classrooms (shop etc.)	Library	Cafeteria	Kitchen	Assembly Areas	Nurse's Office	Specialty Classrooms (shop etc.)	Administration	Gym	Private Bathrooms	Group Bathrooms		
Space Priority (1-10)	-	1	2	2	4	5	6	4	2	2	7	4	10	4	SELECT SPACE TYPE	
Airflow Pattern	16%	3	3	3	2	3.0	3	3	4	3	4	2	2.0	3.0		2.7
Ventilation	16%	2	3	3	3	2.0	2	3	3	2	3	2	2.0	2.0		2.3
Filtration	16%	3	3	3	3	3.0	3	3	4	3	3	3	1.0	1.0		2.6
Pressurization	10%	3	3	3	3	3.0	3	3	4	3	3	3	2.0	2.0		2.7
Scheduling	10%	3	3	3	3	3.0	3	3	4	3	3	3	2.0	2.0		2.7
Humidification	16%	4	4	4	4	4.0	1	4	4	4	4	4	1.0	1.0		3.1
Plumbing Operators	4%	1	3	1	1	1.0	4	1	4	4	1	1	4.0	4.0		2.1
Lighting controls	2%	3	3	3	3	3.0	3	3	3	3	3	3	3.0	3.0		2.8
Door Openers	10%	3	3	3	3	3.0	3	3	3	3	3	3	1.0	1.0		2.5

Total	100%	25	28	26	25	25	25	26	33	28	27	24	18	19	0	
Weighted Risk		2.9	3.2	3.1	2.9	2.9	2.6	3.1	3.7	3.0	3.2	2.8	1.7	1.8	0.0	
Weight Based on Priority		13%	12%	12%	8%	6%	4%	8%	12%	12%	2%	8%	-3%	8%	0%	100%
Weighted Score Based on Priority		0.4	0.4	0.4	0.2	0.2	0.1	0.2	0.4	0.4	0.1	0.2	0.0	0.1	0.0	3.1
Risk Multi	8.15															

School Score (1-4)	3.08 High Risk
Weighted Totals	

Score Scale	
No Updates Required	<1
Low Risk	1-2
Moderate Risk	2-3
High Risk	3-4

