

SAFE INDOOR AIR FOR OREGON SCHOOLS



*McDaniel High School
Air Quality Report*

Room-by-Room

AIR QUALITY PROFILES

Full Online Edition

Browse for rooms by section

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Find a specific room by room number

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013A	100E	118B	141E	163	184	210E	237	FX027
013B	100F	118C	143	163A	185	210F	238	FX045
015	100J	118D	145	163B	186	210G	239	FX105
027	100K	118E	147	165	186F	210J	240	FX131
029	100M	120	155A	165A	187	210K	241	FX145
031	100O	122	155B	165B	189	210L	242	FX245
031A	101	124	156	165C	196	210M	243	FX288
031B	101A	129	157	165D	200	210N	245	G100
031C	102	129A	159A	165E	200A	210P	247	G103
031D	103	129B	159B	165H	201	213	281	G105
031E	104	130	159C	168	201A	215	283	G107
033	104A	131	159D	168A	201H	217	284	G109
037	105	132	159J	168B	202	218	285	G119
039	106	132A	161	171	203	220	286	G121
041	110	133	161A	171A	204	227	287	G121A
043	112B	134	161B	172	205	229	288	G122
045	112C	137	161C	175	206	230	289	G125
047	113	138	161D	176	209	231	290	G125A
100	114	139	161E	177	210	232	291	G134
100A	115	140	161G	179	210B	233	292	G200
100B	116	141	161H	179E1	210C	234	Flex 136	G201
100C	117	141C	161J	181	210D	236	Flex 174	G207
100D	118A	141D	161K	183				

Unmarked Science Prep Room



Ground Floor

McDaniel High School
CLASSROOMS

Room-by-Room Air Quality Profiles



Aerosols linger for over 31 minutes if no air purifier is run.

No air purifier

HVAC system only

4.4 air changes per hour

=

31 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

6.1 air changes per hour

=

23 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

8.5 air changes per hour

=

16 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

B

A+

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0.8

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but only improved airflow somewhat from 3.6 to 4.4

With two air purifiers, most aerosols will clear out in only 16 minutes.



Aerosols linger for over 32 minutes if no air purifier is run.

No air purifier

HVAC system only

4.3 air changes per hour

=

32 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

6.0 air changes per hour

=

23 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

8.4 air changes per hour

=

16 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

B

A+

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0.8

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but only improved airflow somewhat from 3.5 to 4.3

With two air purifiers, most aerosols will clear out in only 16 minutes.



Aerosols linger for over 51 minutes if no air purifier is run.

No air purifier

HVAC system only

2.7 air changes per hour

=

51 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

5.3 air changes per hour

=

26 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

8.9 air changes per hour

=

16 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

C

A+

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0.17

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but only improved airflow marginally from 2.5 to 2.7

With two air purifiers, most aerosols will clear out in only 16 minutes.



Aerosols linger for over 36 minutes if no air purifier is run.

No air purifier

HVAC system only

3.8 air changes per hour

=

36 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

5.9 air changes per hour

=

24 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

8.7 air changes per hour

=

16 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

B-

A+

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0.43

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but only improved airflow somewhat from 3.4 to 3.8

With two air purifiers, most aerosols will clear out in only 16 minutes.

McDaniel High School

Room 039

Regular Classroom



Aerosols linger for over 38 minutes if no air purifier is run.

No air purifier

HVAC system only

3.7 air changes per hour

=

38 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

5.7 air changes per hour

=

24 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

8.5 air changes per hour

=

16 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

B⁻

A⁺

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0.47

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but only improved airflow somewhat from 3.2 to 3.7

With two air purifiers, most aerosols will clear out in only 16 minutes.



Aerosols linger for over 38 minutes if no air purifier is run.

No air purifier

HVAC system only

3.6 air changes per hour

=

38 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

5.6 air changes per hour

=

25 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

8.3 air changes per hour

=

17 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

B-

A+

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0.48

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but only improved airflow somewhat from 3.2 to 3.6

With two air purifiers, most aerosols will clear out in only 17 minutes.

McDaniel High School

Room 043

Regular Classroom



Aerosols linger for over 38 minutes if no air purifier is run.

No air purifier

HVAC system only

3.6 air changes per hour

=

38 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

5.6 air changes per hour

=

25 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

8.3 air changes per hour

=

17 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

B⁻

A⁺

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0.48

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but only improved airflow somewhat from 3.2 to 3.6

With two air purifiers, most aerosols will clear out in only 17 minutes.



Aerosols only linger for ~18 minutes if no air purifier is run.

<p>No air purifier</p> <p>HVAC system only</p> <p>7.8 air changes per hour</p>	<p>HVAC + one air purifier</p> <p>Add Intellipure at half speed </p> <p>9.1 air changes per hour</p>
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A+

Grade possible with consistent use of air purifier

With just one air purifier, most aerosols will clear out in only 15 minutes.

MERV 13 filters	Increase in air changes/hour due to better furnace filters	1.7
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Airflows in most of McDaniel’s flexible learning rooms were not measured.

Flex FX027	? air changes per hour	? air changes per hour
Flex FX045	? air changes per hour	? air changes per hour

McDaniel High School
Room 047
 Regular Classroom



Aerosols linger for over 29 minutes if no air purifier is run.

No air purifier

HVAC system only

4.8 air changes per hour

=

29 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

6.7 air changes per hour

=

21 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

9.3 air changes per hour

=

15 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

B+

A+

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0.94

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but only improved airflow somewhat from 3.8 to 4.8

With two air purifiers, most aerosols will clear out in only 15 minutes.



First Floor

McDaniel High School
CLASSROOMS

Room-by-Room Air Quality Profiles



Aerosols linger for over 39 minutes if no air purifier is run.

No air purifier

HVAC system only

3.6 air changes per hour

=

39 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

5.0 air changes per hour

=

27 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

7.0 air changes per hour

=

20 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants



Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0.65

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but only improved airflow somewhat from 2.9 to 3.6

With two air purifiers, most aerosols will clear out in only 20 minutes.

Community CO₂ Monitoring

Carbon dioxide data from SIAFOS families in Room 113

Monitor: Aranet4
CO₂ in parts per million (ppm)

Occupants:
Board room ~40
Room 113 ~42

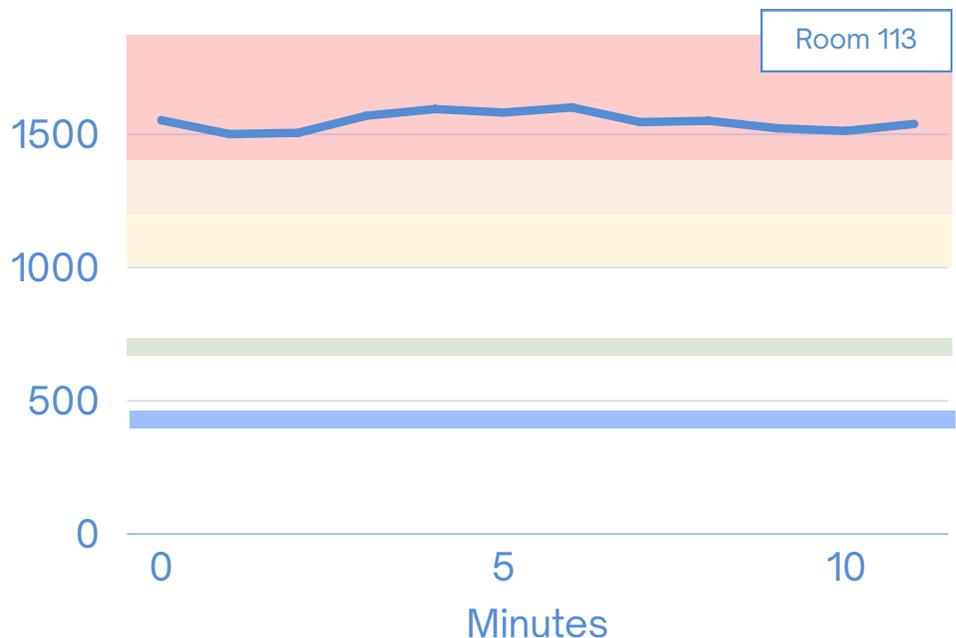
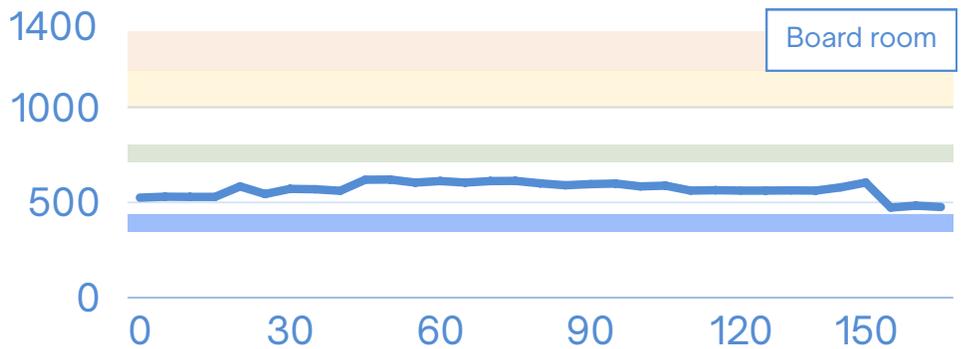
Excellent ventilation in the school board meeting room keeps CO₂ low.

Room 113 fills up with CO₂ and respiratory aerosols as students and staff breathe, talk, cough, and sneeze.

Outdoor air ~450 ppm

Ideal goal for upper limit = 700 ppm

>1000 ppm = especially poor ventilation



Additional days of community data in Room 113: none

CO₂ was 2.6x higher than in the board room, with ~the same number of people.

Equivalent CO₂ possible with 2 air purifiers

795 ppm

Two Medify's at speed 2 won't filter CO₂ — but together with the room's MERV 13 filters, they would provide enough clean air to match how much outdoor air would be needed to have lowered this day's CO₂ from 1601 ppm to 795 ppm. That's why this room needs two air purifiers.

McDaniel High School
Room 115
 Regular Classroom



Aerosols linger for over 32 minutes if no air purifier is run.

No air purifier

HVAC system only

4.3 air changes per hour

=

32 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

6.0 air changes per hour

=

23 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

8.4 air changes per hour

=

16 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

B

A+

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0.77

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but only improved airflow somewhat from 3.5 to 4.3

With two air purifiers, most aerosols will clear out in only 16 minutes.

Community CO₂ Monitoring

Carbon dioxide data from SIAFOS families in Room 115

Monitor: Aranet4
CO₂ in parts per million (ppm)

Occupants:
Board room ~40
Room 115 ~40

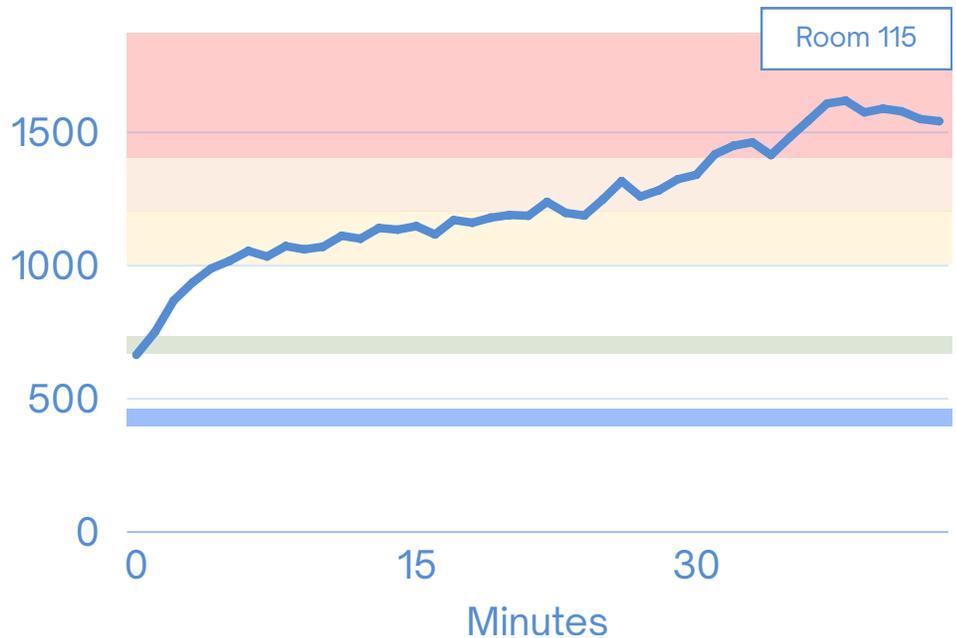
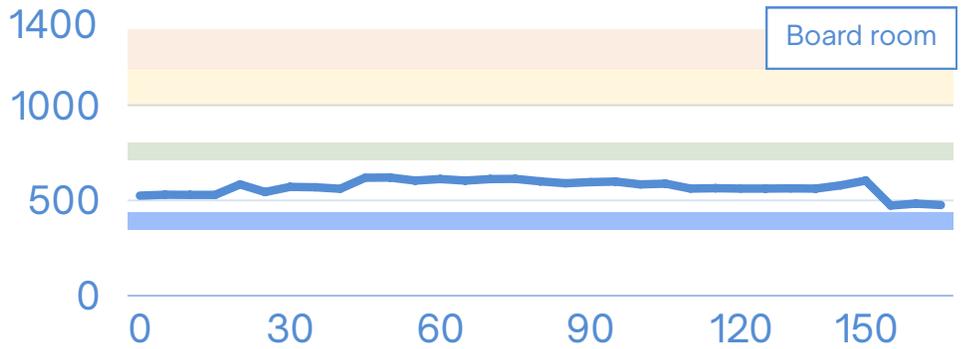
Excellent ventilation in the school board meeting room keeps CO₂ low.

Room 115 fills up with CO₂ and respiratory aerosols as students and staff breathe, talk, cough, and sneeze.

Outdoor air ~450 ppm

Ideal goal for upper limit = 700 ppm

>1000 ppm = especially poor ventilation



Additional days of community data in Room 115: none

CO₂ was 2.6x higher than in the board room, with the same number of people.

Equivalent CO₂ possible with 2 air purifiers

730 ppm

Two Medify's at speed 2 won't filter CO₂ — but together with the room's MERV 13 filters, they would provide enough clean air to match how much outdoor air would be needed to have lowered this day's CO₂ from 1619 parts per million to 730 parts per million. That's why this room needs both.

McDaniel High School
Room 117
 Regular Classroom



Aerosols linger for over 34 minutes if no air purifier is run.

No air purifier

HVAC system only

4.1 air changes per hour

=

34 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

5.8 air changes per hour

=

24 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

8.2 air changes per hour

=

17 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

B-

A+

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0.74

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but only improved airflow somewhat from 3.3 to 4.1

With two air purifiers, most aerosols will clear out in only 17 minutes.



Aerosols linger for over 38 minutes if no air purifier is run.

No air purifier

HVAC system only

3.6 air changes per hour

=

38 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

5.5 air changes per hour

=

25 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

8.1 air changes per hour

=

17 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

B-

A+

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0.46

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but only improved airflow somewhat from 3.1 to 3.6

With two air purifiers, most aerosols will clear out in only 17 minutes.

McDaniel High School
Room 122
 Regular Classroom



Aerosols linger for over 41 minutes if no air purifier is run.

No air purifier

HVAC system only

3.3 air changes per hour

=

41 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

5.1 air changes per hour

=

27 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

7.5 air changes per hour

=

18 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants



Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0.43

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but only improved airflow somewhat from 2.9 to 3.3

With two air purifiers, most aerosols will clear out in only 18 minutes.

Community CO₂ Monitoring

Carbon dioxide data from SIAFOS families in Room 122

Monitor: Aranet4
CO₂ in parts per million (ppm)

Occupants:
Board room ~40
Room 122 ~33

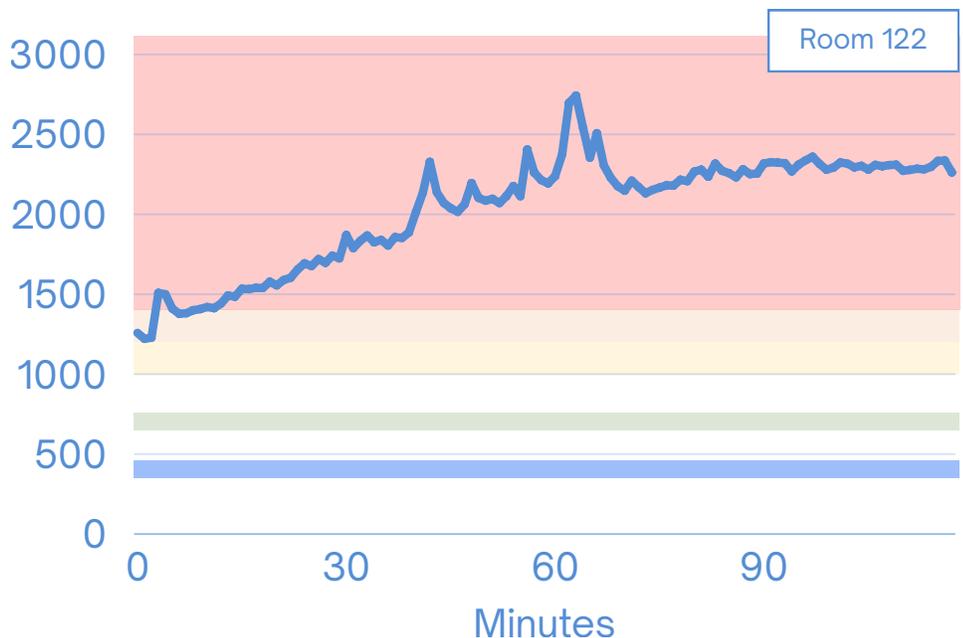
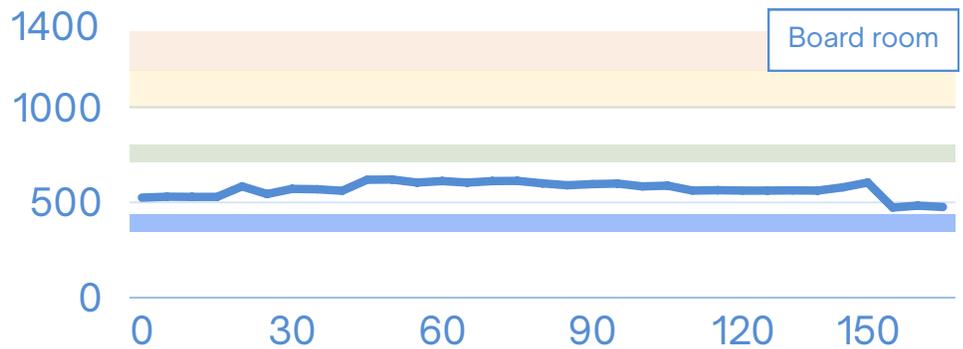
Excellent ventilation in the school board meeting room keeps CO₂ low.

Room 122 fills up with CO₂ and respiratory aerosols as students and staff breathe, talk, cough, and sneeze.

Outdoor air ~450 ppm

Ideal goal for upper limit = 700 ppm

>1000 ppm = especially poor ventilation



Additional days of community data in Room 122: none

CO₂ in Rm 122 spiked past 2700 ppm — despite fewer occupants.

Equivalent CO₂ possible with 2 air purifiers

820 ppm

Two Medify's at speed 2 won't filter CO₂ — but together with the room's MERV 13 filters, they would provide enough clean air to match how much outdoor air would be needed to have lowered this day's CO₂ from 2742 parts per million to 820 parts per million. That's why this room needs both.



Aerosols linger for over 27 minutes if no air purifier is run.

<p>No air purifier HVAC system only</p> <p>5.2 air changes per hour</p>	<p>HVAC + one air purifier Add Intellipure at half speed</p> <p>9.2 air changes per hour</p> 
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A+

Grade possible with consistent use of air purifier

With just one air purifier, most aerosols will clear out in only 15 minutes.

MERV 13 filters	Increase in air changes/hour due to better furnace filters	0.66
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Airflows in most of McDaniel’s flexible learning rooms were not measured.

Flex FX131	? air changes per hour	? air changes per hour
Flex FX145	? air changes per hour	? air changes per hour



Aerosols linger for over 39 minutes if no air purifier is run.

No air purifier

HVAC system only

3.6 air changes per hour

=

39 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

5.5 air changes per hour

=

25 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

8.2 air changes per hour

=

17 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

B-

A+

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0.48

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but only improved airflow somewhat from 3.1 to 3.6

With two air purifiers, most aerosols will clear out in only 17 minutes.

McDaniel High School

Room 183

Regular Classroom



Aerosols linger for over 38 minutes if no air purifier is run.

No air purifier

HVAC system only

3.6 air changes per hour

=

38 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

5.6 air changes per hour

=

25 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

8.3 air changes per hour

=

17 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

B⁻

A⁺

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0.49

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but only improved airflow somewhat from 3.1 to 3.6

With two air purifiers, most aerosols will clear out in only 17 minutes.



Aerosols linger for over 38 minutes if no air purifier is run.

No air purifier

HVAC system only

3.7 air changes per hour

=

38 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

5.7 air changes per hour

=

24 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

8.4 air changes per hour

=

16 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

B-

A+

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0.5

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but only improved airflow somewhat from 3.2 to 3.7

With two air purifiers, most aerosols will clear out in only 16 minutes.

McDaniel High School
Room 187
 Regular Classroom



Aerosols linger for over 38 minutes if no air purifier is run.

No air purifier

HVAC system only

3.7 air changes per hour

=

38 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

5.7 air changes per hour

=

24 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

8.4 air changes per hour

=

16 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

B⁻

A⁺

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0.51

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but only improved airflow somewhat from 3.2 to 3.7

With two air purifiers, most aerosols will clear out in only 16 minutes.

Community CO₂ Monitoring

Carbon dioxide data from SIAFOS families in Room 187

Monitor: Aranet4
CO₂ in parts per million (ppm)

Occupants:
Board room ~40
Room 187 ~18

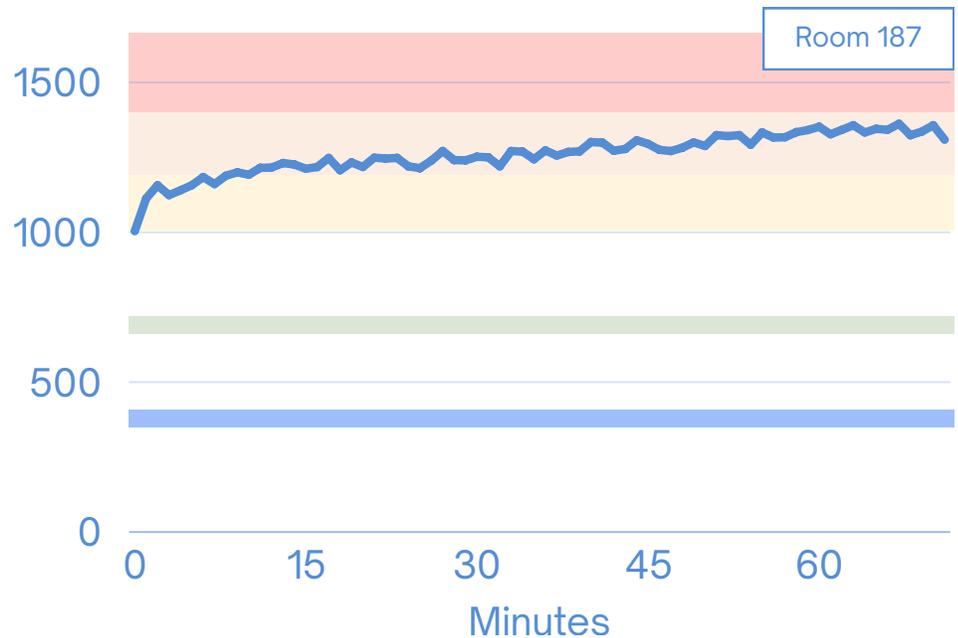
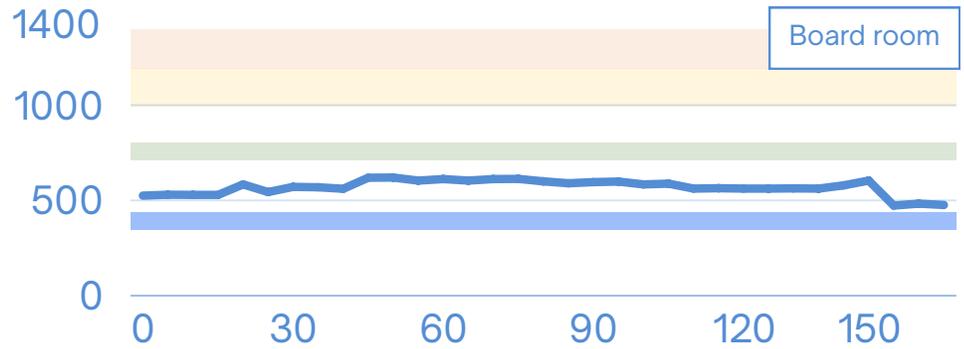
Excellent ventilation in the school board meeting room keeps CO₂ low.

Room 187 fills up with CO₂ and respiratory aerosols as students and staff breathe, talk, cough, and sneeze.

Outdoor air ~450 ppm

Ideal goal for upper limit = 700 ppm

>1000 ppm = especially poor ventilation



Additional days of community data in Room 187: none

CO₂ was twice as high as in the board room despite half the number of people.

Equivalent CO₂ possible with 2 air purifiers

630 ppm

Two Medify's at speed 2 won't filter CO₂ — but together with the room's MERV 13 filters, they would provide enough clean air to match how much outdoor air would be needed to have lowered this day's CO₂ from 1362 parts per million to 630 parts per million. That's why this room needs both.

McDaniel High School

Room 189

Regular Classroom



Aerosols linger for over 38 minutes if no air purifier is run.

No air purifier

HVAC system only

3.6 air changes per hour

=

39 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

5.6 air changes per hour

=

25 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

8.4 air changes per hour

=

17 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

B⁻

A⁺

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0.45

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but only improved airflow somewhat from 3.1 to 3.6

With two air purifiers, most aerosols will clear out in only 17 minutes.



Second Floor

McDaniel High School **CLASSROOMS**

Room-by-Room Air Quality Profiles

McDaniel High School
Room 215
 Regular Classroom



Aerosols linger for over 1 hour if no air purifier is run.

No air purifier

HVAC system only

2.3 air changes per hour

=

1 hour

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

4.1 air changes per hour

=

33 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

6.6 air changes per hour

=

21 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

D+

B+

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but did not improve airflow

With two air purifiers, most aerosols will clear out in only 21 minutes.



Aerosols linger for over 56 minutes if no air purifier is run.

No air purifier

HVAC system only

2.5 air changes per hour

=

56 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

4.4 air changes per hour

=

32 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

6.9 air changes per hour

=

20 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

D+

A+

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but did not improve airflow

With two air purifiers, most aerosols will clear out in only 20 minutes.

McDaniel High School

Room 218

ELL / ESL Classroom



Aerosols linger for over 1 hour if no air purifier is run.

No air purifier

HVAC system only

2.2 air changes per hour

=

1 hour 2 min

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

4.1 air changes per hour

=

34 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

6.7 air changes per hour

=

21 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

D+

B+

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but did not improve airflow

With two air purifiers, most aerosols will clear out in only 21 minutes.



Aerosols linger for over 57 minutes if no air purifier is run.

No air purifier

HVAC system only

2.4 air changes per hour

=

57 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

4.2 air changes per hour

=

33 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

6.7 air changes per hour

=

20 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

D+

B+

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but did not improve airflow

With two air purifiers, most aerosols will clear out in only 20 minutes.

Community CO₂ Monitoring

Carbon dioxide data from SIAFOS families in Room 220

Monitor: Aranet4
CO₂ in parts per million (ppm)

Occupants:
Board room ~40
Room 220 ~30

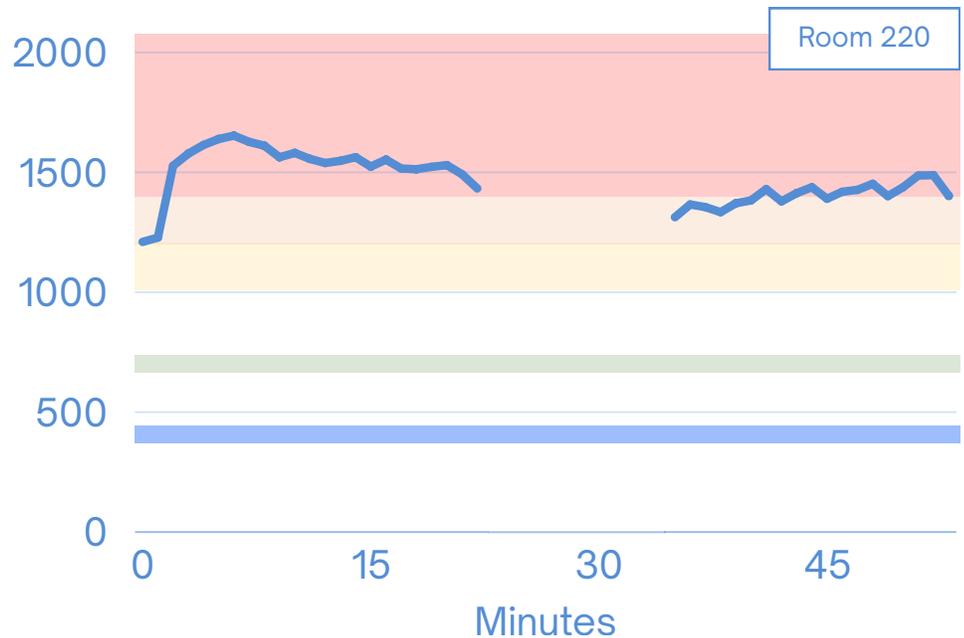
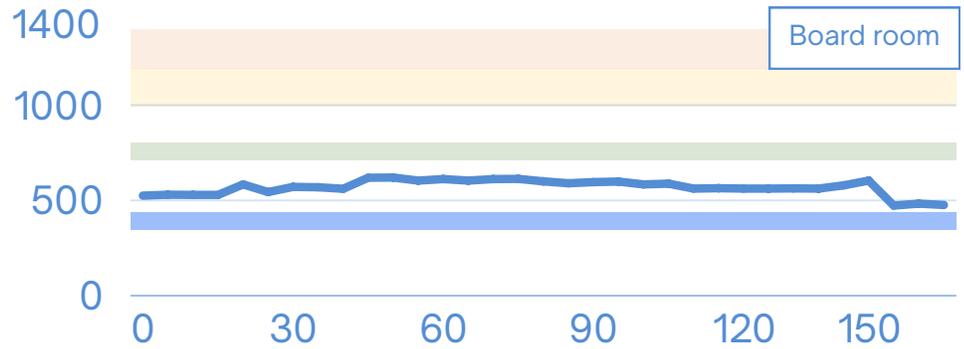
Excellent ventilation in the school board meeting room keeps CO₂ low.

Room 220 fills up with CO₂ and respiratory aerosols as students and staff breathe, talk, cough and sneeze.

Outdoor air ~450 ppm

Ideal goal for upper limit = 700 ppm

>1000 ppm = especially poor ventilation



Additional days of community data in Room 220: none

Staff and students in Rm 220 rebreathed 1 in 31 of each others' breaths.

Equivalent CO₂ possible with 2 air purifiers

765 ppm

Two Medify's at speed 2 won't filter CO₂ — but they would provide enough clean air to match how much outdoor air would be needed to have lowered this day's CO₂ from 1653 parts per million to 765 parts per million. That's why this room needs both.



Aerosols linger for over 1 hour if no air purifier is run.

No air purifier

HVAC system only

1.8 air changes per hour

=

1 hour 16 min

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

4.3 air changes per hour

=

32 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

7.8 air changes per hour

=

18 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

D+

A

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but did not improve airflow

With two air purifiers, most aerosols will clear out in only 18 minutes.

McDaniel High School
Room 231
 Regular Classroom



Aerosols linger for over 55 minutes if no air purifier is run.

No air purifier

HVAC system only

2.5 air changes per hour

=

55 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

4.6 air changes per hour

=

30 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

7.6 air changes per hour

=

18 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants



Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but did not improve airflow

With two air purifiers, most aerosols will clear out in only 18 minutes.

Community CO₂ Monitoring

Carbon dioxide data from SIAFOS families in Room 231

Monitor: Aranet4
CO₂ in parts per million (ppm)

Occupants:
Board room ~40
Room 231 ~30

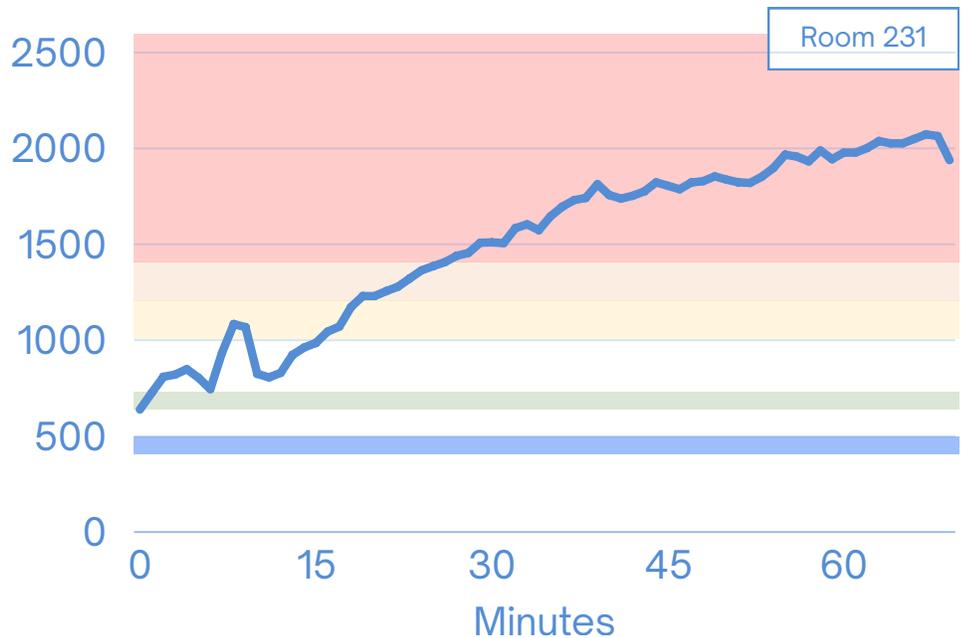
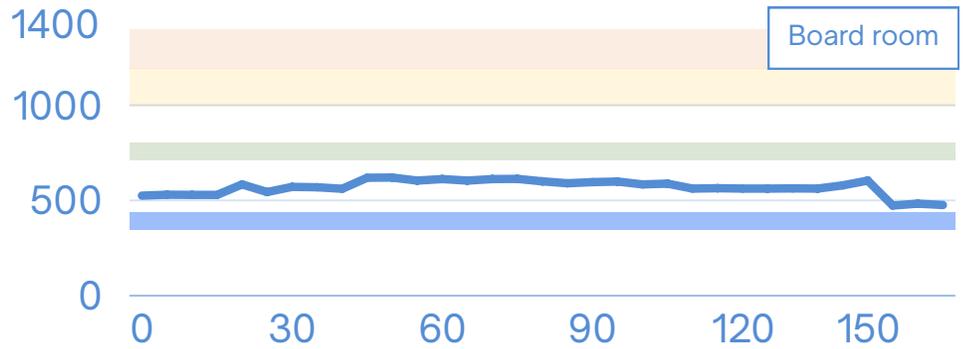
Excellent ventilation in the school board meeting room keeps CO₂ low.

Room 231 fills up with CO₂ and respiratory aerosols as students and staff breathe, talk, cough, and sneeze.

Outdoor air ~450 ppm

Ideal goal for upper limit = 700 ppm

>1000 ppm = especially poor ventilation



Additional days of community data in Room 231: none

Staff and students in Rm 231 rebreathed 1 in 23 of each others' breaths.

Equivalent CO₂ possible with 2 air purifiers

800 ppm

Two Medify's at speed 2 won't filter CO₂ — but they would provide enough clean air to match how much outdoor air would be needed to have lowered this day's CO₂ from 2100 parts per million to 800 parts per million. That's why this room needs both.

McDaniel High School

Room 234

Regular Classroom



Aerosols linger for over 54 minutes if no air purifier is run.

No air purifier

HVAC system only

2.5 air changes per hour

=

54 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

4.6 air changes per hour

=

30 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

7.5 air changes per hour

=

18 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

C-

A

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but did not improve airflow

With two air purifiers, most aerosols will clear out in only 18 minutes.



Aerosols linger for over 51 minutes if no air purifier is run.

No air purifier

HVAC system only

2.7 air changes per hour

=

51 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

4.7 air changes per hour

=

30 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

7.4 air changes per hour

=

19 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

C-

A

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but did not improve airflow

With two air purifiers, most aerosols will clear out in only 19 minutes.

McDaniel High School

Room 238

Regular Classroom



Aerosols linger for over 1 hour if no air purifier is run.

No air purifier

HVAC system only

2.2 air changes per hour

=

1 hour 3 min

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

4.0 air changes per hour

=

34 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

6.6 air changes per hour

=

21 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

C-

B+

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but did not improve airflow

With two air purifiers, most aerosols will clear out in only 21 minutes.



Aerosols linger for over 53 minutes if no air purifier is run.

No air purifier

HVAC system only

2.6 air changes per hour

=

53 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

4.7 air changes per hour

=

30 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

7.5 air changes per hour

=

18 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

C-

A

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but did not improve airflow

With two air purifiers, most aerosols will clear out in only 18 minutes.

McDaniel High School

Room 240

Regular Classroom



Aerosols linger for over 1 hour if no air purifier is run.

No air purifier

HVAC system only

2.2 air changes per hour

=

1 hour 2 min

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

4.0 air changes per hour

=

34 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

6.5 air changes per hour

=

21 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

D+

B+

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but did not improve airflow

With two air purifiers, most aerosols will clear out in only 18 minutes.



Aerosols linger for over 53 minutes if no air purifier is run.

No air purifier

HVAC system only

2.6 air changes per hour

=

53 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

4.7 air changes per hour

=

30 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

7.5 air changes per hour

=

18 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

C-

A

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but did not improve airflow

With two air purifiers, most aerosols will clear out in only 18 minutes.

McDaniel High School

Room 242

Regular Classroom



Aerosols linger for over 1 hour if no air purifier is run.

No air purifier

HVAC system only

2.1 air changes per hour

=

1 hour 5 min

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

3.9 air changes per hour

=

35 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

6.4 air changes per hour

=

21 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

D

B

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but did not improve airflow

With two air purifiers, most aerosols will clear out in only 21 minutes.



Aerosols linger for over 53 minutes if no air purifier is run.

No air purifier

HVAC system only

2.6 air changes per hour

=

53 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

4.7 air changes per hour

=

30 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

7.5 air changes per hour

=

18 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

C-

A

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but did not improve airflow

With two air purifiers, most aerosols will clear out in only 18 minutes.

McDaniel High School
Room 247
 Regular Classroom



Aerosols linger for over 1 hour if no air purifier is run.

No air purifier

HVAC system only

1.9 air changes per hour

=

1 hour 13 min

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

3.9 air changes per hour

=

36 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

6.6 air changes per hour

=

21 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

D

B+

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but did not improve airflow

With two air purifiers, most aerosols will clear out in only 21 minutes.



Aerosols linger for over 55 minutes if no air purifier is run.

No air purifier

HVAC system only

2.5 air changes per hour

=

55 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

4.6 air changes per hour

=

30 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

7.5 air changes per hour

=

18 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

C-

A

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but did not improve airflow

With two air purifiers, most aerosols will clear out in only 18 minutes.

McDaniel High School

Room 283

Regular Classroom



Aerosols linger for over 53 minutes if no air purifier is run.

No air purifier

HVAC system only

2.6 air changes per hour

=

53 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

4.7 air changes per hour

=

29 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

7.7 air changes per hour

=

18 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

C-

A

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but did not improve airflow

With two air purifiers, most aerosols will clear out in only 18 minutes.



Aerosols linger for over 1 hour if no air purifier is run.

No air purifier

HVAC system only

2.2 air changes per hour

=

1 hour 2 min

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

4.0 air changes per hour

=

34 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

6.5 air changes per hour

=

21 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

D+

B+

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but did not improve airflow

With two air purifiers, most aerosols will clear out in only 21 minutes.

McDaniel High School

Room 285

Regular Classroom



Aerosols linger for over 54 minutes if no air purifier is run.

No air purifier

HVAC system only

2.6 air changes per hour

=

54 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

4.8 air changes per hour

=

29 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

7.7 air changes per hour

=

18 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

C-

A

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but did not improve airflow

With two air purifiers, most aerosols will clear out in only 18 minutes.



Aerosols linger for over 1 hour if no air purifier is run.

No air purifier

HVAC system only

2.3 air changes per hour

=

1 hour 1 min

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

4.3 air changes per hour

=

32 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

6.9 air changes per hour

=

20 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

D+

B+

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but did not improve airflow

With two air purifiers, most aerosols will clear out in only 20 minutes.

McDaniel High School
Room 287
 Regular Classroom



Aerosols linger for over 55 minutes if no air purifier is run.

No air purifier

HVAC system only

2.5 air changes per hour

=

55 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

4.7 air changes per hour

=

30 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

7.6 air changes per hour

=

18 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants



Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but did not improve airflow

With two air purifiers, most aerosols will clear out in only 18 minutes.



Aerosols linger for over 52 minutes if no air purifier is run.

No air purifier

HVAC system only

2.6 air changes per hour

=

52 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

4.8 air changes per hour

=

29 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

7.8 air changes per hour

=

18 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

C-

A

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but did not improve airflow

With two air purifiers, most aerosols will clear out in only 18 minutes.

McDaniel High School

Room 290

Regular Classroom



Aerosols linger for over 58 minutes if no air purifier is run.

No air purifier

HVAC system only

2.4 air changes per hour

=

58 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

4.4 air changes per hour

=

31 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

7.2 air changes per hour

=

19 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

D+

A

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but did not improve airflow

With two air purifiers, most aerosols will clear out in only 19 minutes.



Aerosols linger for over 57 minutes if no air purifier is run.

No air purifier

HVAC system only

2.4 air changes per hour

=

57 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

4.4 air changes per hour

=

31 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

7.2 air changes per hour

=

19 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

D+

A

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

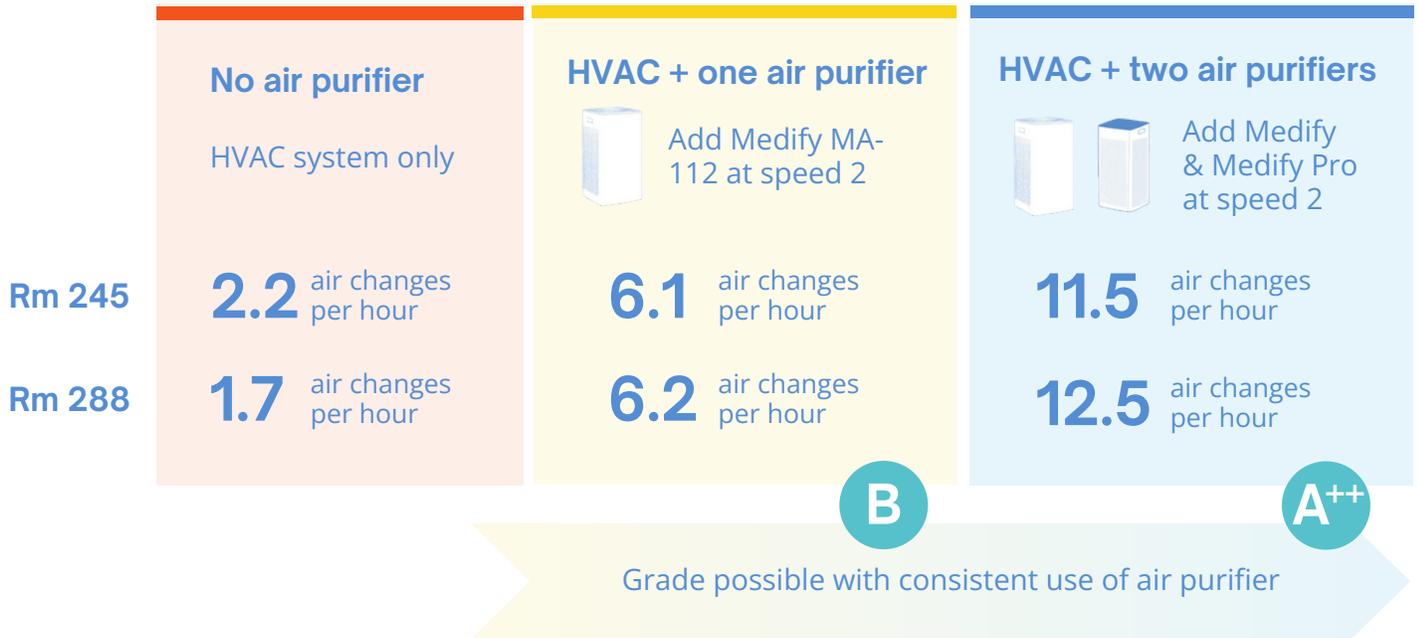
0

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but did not improve airflow

With two air purifiers, most aerosols will clear out in only 19 minutes.



Aerosols linger for over 1 hour if no air purifier is run.



With just one air purifier, most aerosols will clear out in only 12 minutes.

MERV 13 filters	Increase in air changes/hour due to better furnace filters	0
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Airflows in most of McDaniel's flexible learning rooms were not measured.

Flex FX245	? air changes per hour	? air changes per hour
Flex FX288	? air changes per hour	? air changes per hour



McDaniel High School
COMMON SPACES
Room-by-Room Air Quality Profiles

McDaniel High School

Library 129

Media Center/Library



Aerosols linger for over 43 minutes even with two air purifiers, but McDaniel's library has a reservoir of clean air at typical library occupancies.

No air purifier

HVAC system only

2.6 air changes per hour

=

52 minutes

to clear out 90% of the students' and librarians' respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

2.9 air changes per hour

=

48 minutes

to clear out 90% of the students' and librarians' respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

3.2 air changes per hour

=

43 minutes

to clear out 90% of the students' and librarians' respiratory aerosols and other indoor air pollutants

F**D-**

Library's clean air is higher than these grades suggest

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0.57

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution and improved airflow from 2 to 2.6

This large library's scores don't tell the full story

The McDaniel library gets low scores based on air changes, but the room is uniquely large; air changes don't account for how comparatively few people likely use this large space at any one time. While SIAFOS needs more information on occupancies to fully evaluate the library, the size of the room means there is more clean air at typical library occupancies than these scores reflect. The library's equivalent CO₂ data may better reflect its clean air levels.

Community CO₂ Monitoring

Carbon dioxide data from SIAFOS families in Library 129

Monitor: Aranet4
CO₂ in parts per million (ppm)

Occupants:
Board room - 40
Library - 36

Excellent ventilation in the school board meeting room keeps CO₂ low.

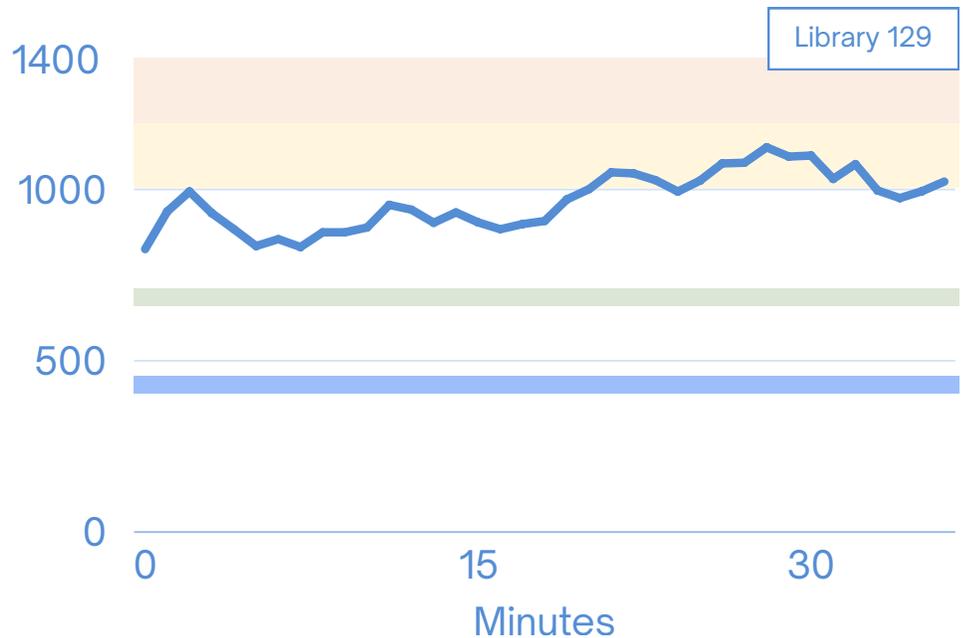
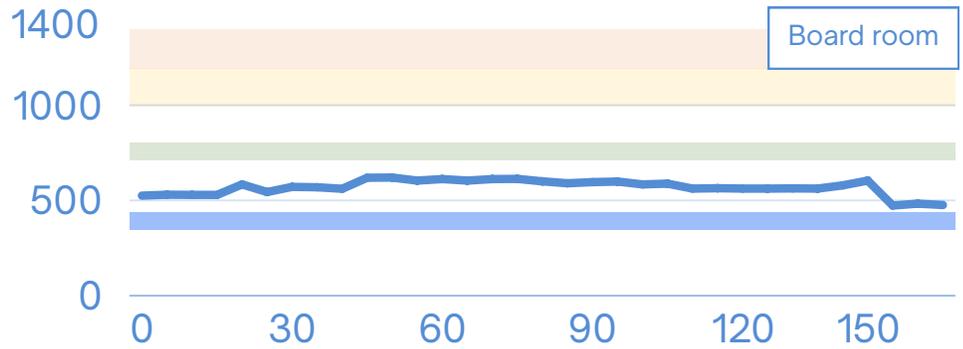
McDaniel's library fills up with CO₂ but recirculation and filtration will clear aerosols well *at this occupancy*.

Outdoor air ~450 ppm

Ideal goal for upper limit = 700 ppm

>1000 ppm = especially poor ventilation

Additional days of community data in Room 129: none



CO₂ was high but recirculation and filtration can match this occupancy.

Equivalent CO₂ possible with 2 air purifiers

563 ppm

Two Medify's at speed 2 won't filter CO₂ — but together with the room's MERV 13 filters, they would provide enough clean air to match how much outdoor air would be needed to lower this day's CO₂ from 1123 parts per million to 563 parts per million. That's why this room needs both.

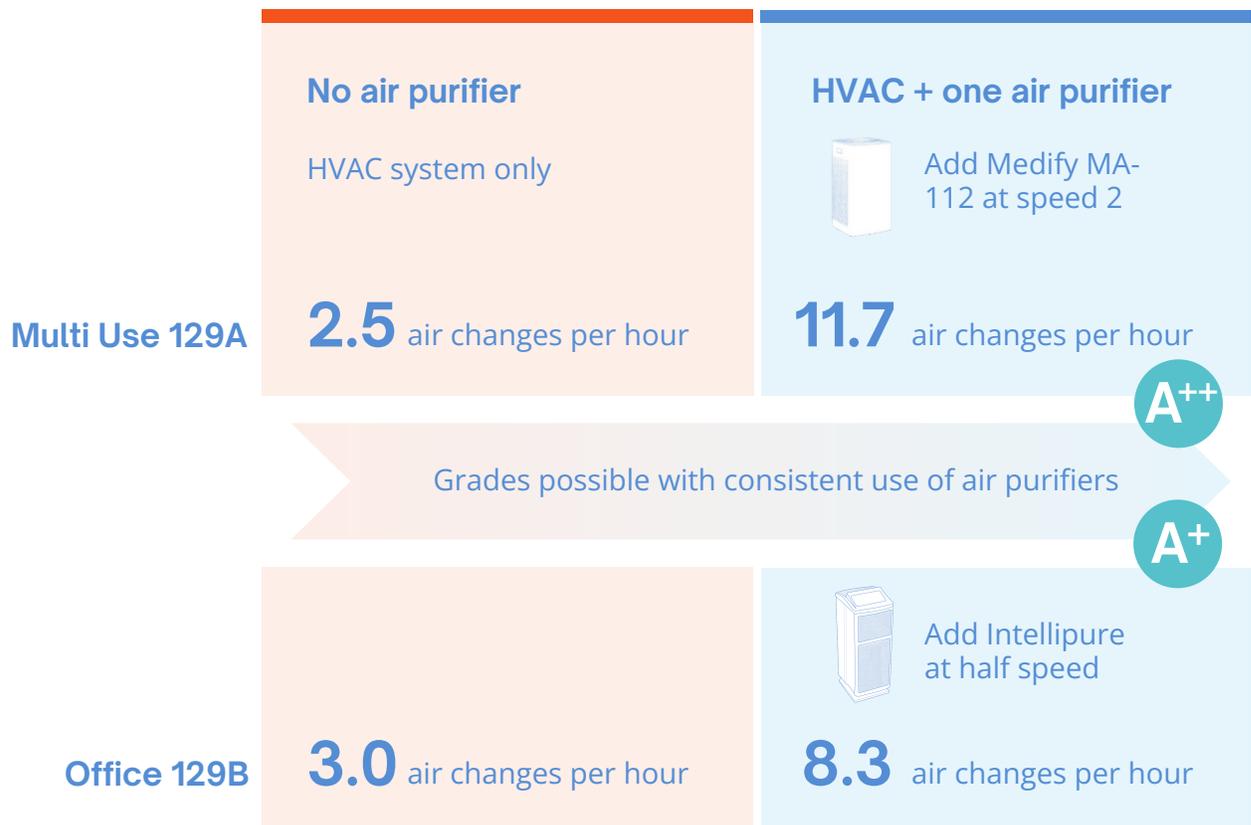
McDaniel High School

Rooms 129A & B

Multi-Use & Media Center Office



Aerosols linger for over 46 minutes if no air purifier is run in small library rooms.



With just one air purifier, most aerosols will clear out in only 12 to 17 minutes.

MERV 13 filters

Increase in air changes/hour
due to better furnace filters**0.95 - 1.1**

Work Room 131

Text Storage / Work Room



Aerosols linger for over 1 hour if no air purifier is run.

No air purifier

HVAC system only

1.9 air changes per hour

=

1 hour 13 min

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

3.4 air changes per hour

=

41 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

5.4 air changes per hour

=

26 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

D-

C

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0.55

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but only improved airflow somewhat from 1.3 to 1.9.

With two air purifiers, most aerosols will clear out in only 26 minutes.

McDaniel High School

Flexible Learning

Room FX105



Aerosols linger for over 31 minutes if no air purifier is run.

No air purifier

HVAC system only

4.5 air changes per hour

=

31 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

5.5 air changes per hour

=

25 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

7.0 air changes per hour

=

20 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

B-

A

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

1.5

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution. MERV 13's also improved airflow, raising it from 3 to 4.5.

With two air purifiers, most aerosols will clear out in only 20 minutes.



Airflow in the Commons was not measured. But with community CO₂ monitoring, we can estimate it.

No air purifier

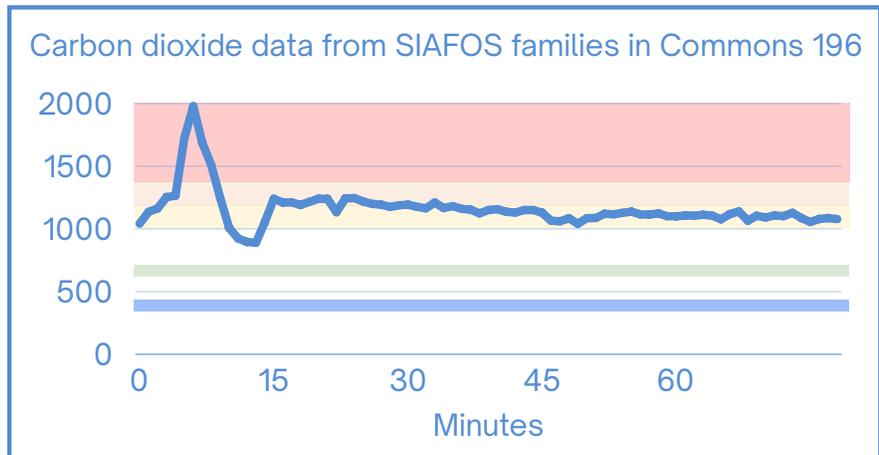
HVAC system only

? air changes per hour

=

? minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants



Estimate of outdoor airflow via HVAC

~1.3 air changes per hour

Based on 8.5 hours of data across 3 dates total, estimates of outdoor air changes/hour ranged from 0.7 to 1.3

District air purifiers are not a good match for the Commons.

MERV 13 filters

Increase in air changes/hour due to better furnace filters

?

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but their impact on airflow in this room cannot be estimated



Two air purifiers only adds

0.08 air changes per hour

Two units will not meaningfully improve clean airflow

Two Medify air purifiers at speed 2 would only increase air changes per hour in the Commons by 0.08. These units are too small to improve overall clean airflow in such a large space. District air purifiers are better placed in other rooms.

McDaniel High School

Server 184

Cafeteria Common Space



Aerosols linger for over 29 minutes if no air purifier is run.

No air purifier

HVAC system only

4.8 air changes per hour

=

29 minutes

to clear out 90% of the students' and staff's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

6.2 air changes per hour

=

22 minutes

to clear out 90% of the students' and staff's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

8.1 air changes per hour

=

17 minutes

to clear out 90% of the students' and staff's respiratory aerosols and other indoor air pollutants

B**A+**

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

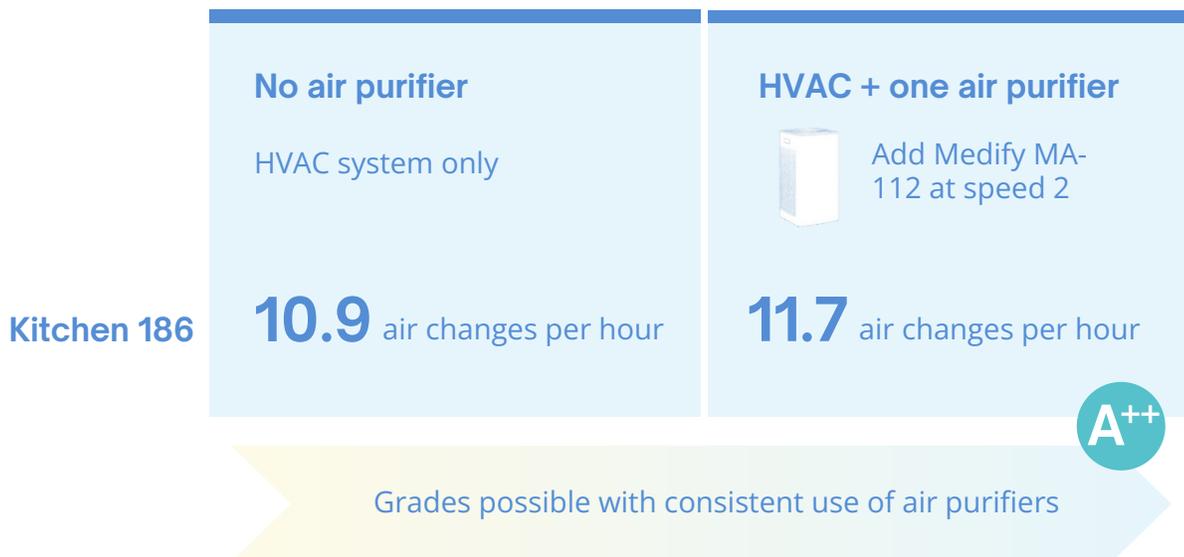
1.6

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution. MERV 13 also improved airflow, raising it from ~3.2 to 4.8.

With two air purifiers, most aerosols will clear out in only 17 minutes.



Aerosols only linger for ~13 minutes if no air purifier is run.



With just one air purifier, most aerosols will clear out in only 12 minutes.

MERV 13 filters	Increase in air changes/hour due to better furnace filters	3.9
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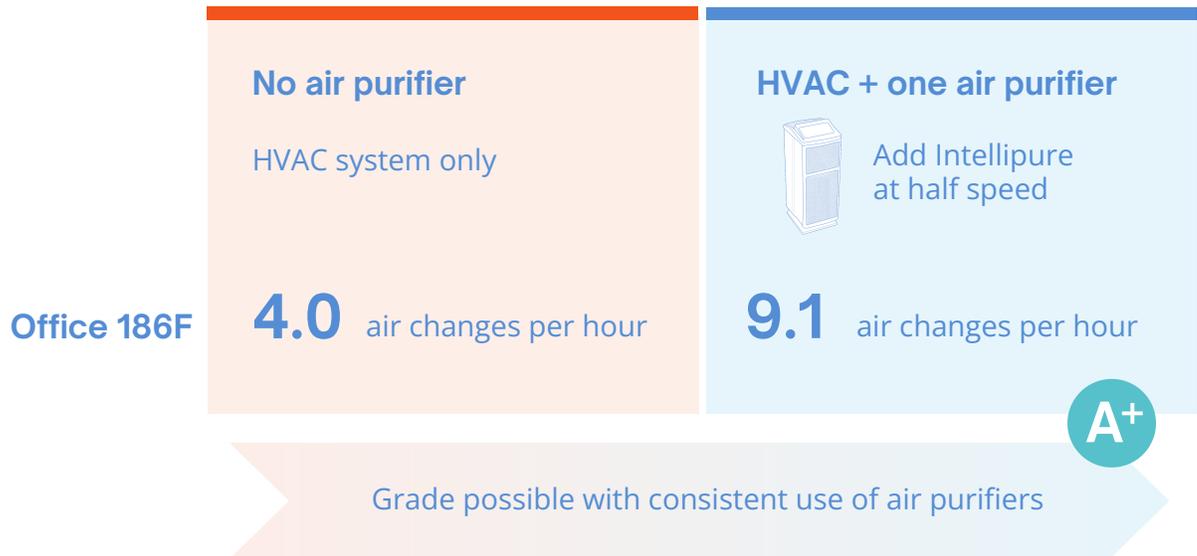
McDaniel High School

Office 186F

Kitchen Office



Aerosols linger for over 34 minutes if no air purifier is run.



With just one air purifier, most aerosols will clear out in only 15 minutes.

MERV 13 filters	Increase in air changes/hour due to better furnace filters	0.9
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McDaniel High School **CTE ROOMS**

Room-by-Room Air Quality Profiles

McDaniel High School

Art 2D

Art Classroom 176



Aerosols linger for over 26 minutes if no air purifier is run.

No air purifier

HVAC system only

5.2 air changes per hour

=

26 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

6.6 air changes per hour

=

21 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

8.6 air changes per hour

=

16 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

B+

A+

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

1.1

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution. MERV 13's also improved airflow, raising it from 4.1 to 5.2.

With two air purifiers, most aerosols will clear out in only 16 minutes.



Aerosols linger for over 25 minutes if no air purifier is run.

No air purifier

HVAC system only

6.4 air changes per hour

=

22 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

7.7 air changes per hour

=

18 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

9.5 air changes per hour

=

15 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

A

A+

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

1.4

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution. MERV 13's also improved airflow, raising it from 5 to 6.4.

With two air purifiers, most aerosols will clear out in only 15 minutes.



Aerosols linger for over 2 hours if no air purifier is run.

No air purifier

HVAC system only

1.1 air changes per hour

=

2 hours

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

2.9 air changes per hour

=

48 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

5.4 air changes per hour

=

26 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

F

C

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but did not improve airflow

With two air purifiers, most aerosols will clear out in only 26 minutes.



Aerosols linger for over 25 minutes if no air purifier is run.

No air purifier

HVAC system only

5.5 air changes per hour

=

25 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

7.3 air changes per hour

=

19 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

9.7 air changes per hour

=

14 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

A

A+

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

1.1

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution. MERV 13's also improved airflow, raising it from 4.3 to 5.4.

With two air purifiers, most aerosols will clear out in only 14 minutes.

Computer Sci

CTE Computer Science Room 138



Aerosols linger for over 33 minutes if no air purifier is run.

No air purifier

HVAC system only

4.2 air changes per hour

=

33 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

5.4 air changes per hour

=

26 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

7.1 air changes per hour

=

20 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants



Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0.97

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution. MERV 13's also improved airflow, raising it from 3.3 to 4.2.

With two air purifiers, most aerosols will clear out in only 20 minutes.



Aerosols linger for over 24 minutes if no air purifier is run.

No air purifier

HVAC system only

5.6 air changes per hour

=

24 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

6.3 air changes per hour

=

22 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

7.3 air changes per hour

=

19 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

B

A

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

1.6

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution. MERV 13's also improved airflow, raising it from 4.0 to 5.6.

With two air purifiers, most aerosols will clear out in only 19 minutes.

Digital Media

CTE Digital Media Room 132



Aerosols linger for over 36 minutes if no air purifier is run.

No air purifier

HVAC system only

3.8 air changes per hour

=

36 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

5.4 air changes per hour

=

26 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

7.6 air changes per hour

=

18 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

C

A

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but did not improve airflow

With two air purifiers, most aerosols will clear out in only 18 minutes.



Aerosols linger for over 32 minutes if no air purifier is run.

No air purifier

HVAC system only

4.4 air changes per hour

=

32 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

5.6 air changes per hour

=

25 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

7.3 air changes per hour

=

19 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

B-

A

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

1.0

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution. MERV 13's also improved airflow, raising it from 3.4 to 4.4.

With two air purifiers, most aerosols will clear out in only 19 minutes.

McDaniel High School

Flex 136

CTE Flex Room



Aerosols linger for over 40 minutes if no air purifier is run but only 22 minutes with an air purifier.

	<p>No air purifier</p> <p>HVAC system only</p> <p>Flex 136 3.5 air changes per hour</p>	<p>HVAC + one air purifier</p> <p> Add Medify MA-112 at speed 2</p> <p>6.2 air changes per hour B</p>
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Flex 174

CTE Flex Room



Aerosols linger for over 26 minutes if no air purifier is run but only 17 minutes with an air purifier.

	<p>No air purifier</p> <p>HVAC system only</p> <p>Flex 174 5.3 air changes per hour</p>	<p>HVAC + one air purifier</p> <p> Add Medify MA-112 at speed 2</p> <p>8.3 air changes per hour A+</p>
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Aerosols linger for over 34 minutes if no air purifier is run.

No air purifier

HVAC system only

4.1 air changes per hour

=

34 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

5.2 air changes per hour

=

26 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

6.8 air changes per hour

=

20 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

C

B+

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0.9

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution. MERV 13's also improved airflow, raising it from 3.2 to 4.1.

With two air purifiers, most aerosols will clear out in only 20 minutes.

Photography

Photography Room 172



Aerosols linger for over 20 minutes if no air purifier is run.

No air purifier

HVAC system only

6.9 air changes per hour

=

20 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

8.3 air changes per hour

=

17 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

10.3 air changes per hour

=

13 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants



Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

1.9

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution. MERV 13's also improved airflow, raising it from 5.0 to 6.9.

With two air purifiers, most aerosols will clear out in only 13 minutes.

Small Art Rooms

Kiln, Glaze, Screen Printing



Airflows in these rooms were not measured.

If airflow is similar to the Digital Media room, aerosols linger for over 36 minutes with no air purifier on.

	<p>No air purifier HVAC system only</p> <p>3.8 air changes per hour*</p> <p>3.8 air changes per hour*</p>	<p>HVAC + one air purifier Add Intellipure at half speed</p> <p>7.8 air changes per hour</p> <p>7.8 air changes per hour</p>
<p>Kiln 168A</p> <p>Glaze 168B</p>		
<p>Grades possible with consistent use of air purifiers</p>		
	<p>3.8 air changes per hour*</p>	<p>Add Medify MA-112 at speed 2</p> <p>13 air changes per hour</p>
<p>Screen Print 132A</p>		

A

A++

With just one air purifier, most aerosols will likely clear out in 18 minutes or less.

*If these small art rooms have HVAC airflows similar to the Digital Media room, then they get ~3.8 air changes per hour.

MERV 13 filters	Increase in air changes/hour due to better furnace filters	?
<p>The impact of MERV 13 filters cannot be estimated for these rooms.</p>		

Textiles

CTE Textiles Room 137



Aerosols linger for over 37 minutes if no air purifier is run.

No air purifier

HVAC system only

3.7 air changes per hour

=

37 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

5.8 air changes per hour

=

24 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

8.6 air changes per hour

=

16 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

B⁻

A⁺

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0.5

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but only improved airflow somewhat from 3.2 to 3.7

With two air purifiers, most aerosols will clear out in only 16 minutes.



McDaniel High School
HEALTH & DAYCARE
Room-by-Room Air Quality Profiles

McDaniel High School

Toddler Room

Toddler Room 159B



Aerosols linger for over 31 minutes if no air purifier is run.

<p>No air purifier</p> <p>HVAC system only</p> <p>4.5 air changes per hour</p> <p>=</p> <p>31 minutes</p> <p>to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants</p>	<p>HVAC + one air purifier</p>  <p>Add Medify MA-112 at speed 2</p> <p>8.0 air changes per hour</p> <p>=</p> <p>17 minutes</p> <p>to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants</p>
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A+

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0.8

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but only improved airflow somewhat from 3.6 to 4.4

With just one air purifier, most aerosols clear out in only 17 minutes.

Crawler Room

Crawler Room 159C



Aerosols linger for over 27 minutes if no air purifier is run.

No air purifier

HVAC system only

5.1 air changes per hour

=

27 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

9.0 air changes per hour

=

15 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

A+

MERV 13 filters

Increase in air changes/hour due to better furnace filters

1.4

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution. MERV 13's also improved airflow, raising it from 3.7 to 5.1.

Grades possible with consistent use of air purifiers

With just one air purifier, most aerosols clear out in only 15 minutes.

McDaniel High School

Infant Room 159D

Daycare Infant Room + Nap Area



Aerosols linger for over 42 minutes if no air purifier is run.

No air purifier

HVAC system only

3.3 air changes per hour

=

42 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

5.8 air changes per hour

=

24 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

9.2 air changes per hour

=

15 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

B-

A+

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0.67

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but only improved airflow somewhat from 2.6 to 3.3

With two air purifiers, most aerosols will clear out in only 15 minutes.

Office 159A

Daycare office



Aerosols linger for over 34 minutes if no air purifier is run.

<p>No air purifier</p> <p>HVAC system only</p> <p>4.1 air changes per hour</p>	<p>HVAC + one air purifier</p> <p>Add Intellipure at half speed </p> <p>9.3 air changes per hour</p>
<p>Grade possible with consistent use of air purifier </p>	

With just one air purifier, most aerosols will clear out in only 15 minutes.

MERV 13 filters	Increase in air changes/hour due to better furnace filters	1.1
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Airflows in the Breastfeeding room and the daycare's kitchen were not measured.

Breastfeeding 157	? air changes per hour	6+ air changes per hour
Kitchen 159J	? air changes per hour	? air changes per hour

McDaniel High School

Health Rooms

Nurse's office & Health offices



Aerosols only linger for ~17 minutes if no air purifier is run.

	No air purifier HVAC system only	HVAC + one air purifier Add Intellipure at half speed 
Office 1000	8.5 air changes per hour	13 air changes per hour
Office 161A	9.3 air changes per hour	14 air changes per hour
Office 161C	8.3 air changes per hour	13 air changes per hour
Conference Rm 161D	13 air changes per hour	16 air changes per hour
Lab 161E	13 air changes per hour	17 air changes per hour

A++

Grades possible with consistent use of air purifiers

If air purifiers are added to these rooms, lower capacity Intellipure units would be sufficient / sized well for them, and aerosols would clear out in only 8 to 11 minutes.

MERV 13 filters

Increase in air changes/hour
due to better furnace filters

2.8 - 4.4

MERV 13 filters significantly improved clean airflow in these health and nurse's office rooms.

Health 161

Health Center Waiting / Reception



Aerosols linger for over 40 minutes if no air purifier is run but only 16 minutes with a Medify air purifier.

Health 161 & Reception 161K

<p>No air purifier</p> <p>HVAC system only</p> <p>3.5 air changes per hour</p>	<p>HVAC + one air purifier</p> <p>Add Medify MA-112 at speed 2 </p> <p>8.8 air changes per hour </p>
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Sick/Exam Rooms

Nurse's Room & Health Center



Aerosols linger for over 27 minutes if no air purifier is run but only ~17 minutes with an Intellipure air purifier.

Sick Room 100M

Exam 161J

<p>No air purifier</p> <p>HVAC system only</p> <p>5.1 air changes per hour</p> <p>5.3 air changes per hour</p>	<p>HVAC + one air purifier</p> <p>Add Intellipure at half speed </p> <p>8.0 air changes per hour </p> <p>9.7 air changes per hour </p>
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McDaniel High School

Health Rooms

Office & Exam Rooms



Aerosols linger for over 22 minutes if no air purifier is run in these rooms.

	No air purifier HVAC system only	HVAC + one air purifier Add Intellipure at half speed 
Office 161B	6.8 air changes per hour	10 air changes per hour
Exam 161G	6.6 air changes per hour	11 air changes per hour
Exam 161H	6.2 air changes per hour	11 air changes per hour

A⁺⁺

Grades possible with consistent use of air purifiers

With just one air purifier, most aerosols will clear out in only 14 minutes.

MERV 13 filters

Increase in air changes/hour
due to better furnace filters**1.8 - 2.3**



McDaniel High School
PERFORMING ARTS
Room-by-Room Air Quality Profiles

Choir Room 163

Performing Arts Classroom



Aerosols linger for over 45 minutes if no air purifier is run.

No air purifier

HVAC system only

3.1 air changes per hour

=

45 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

3.9 air changes per hour

=

36 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

5.0 air changes per hour

=

28 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

D

C

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0.63

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but only improved airflow somewhat from 2.5 to 3.1

With two air purifiers, most aerosols will clear out in only 28 minutes.

Band Room 165

Performing Arts Classroom



Aerosols linger for over 1 hour if no air purifier is run.

No air purifier

HVAC system only

2.0 air changes per hour

=

1 hour 8 min

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

2.5 air changes per hour

=

56 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

3.2 air changes per hour

=

44 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

F

D-

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0.39

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but only improved airflow somewhat from 1.6 to 2

With two air purifiers, most aerosols will clear out in 44 minutes.

An improvement, but still far too long

Practice Rooms

Performing Arts



Aerosols linger for over 33 minutes if no air purifier is run in small practice rooms.

		No air purifier HVAC system only	HVAC + one air purifier Add Intellipure at half speed 
Small Practice Rooms	Rm 163B	4.1 air changes per hour	16 air changes per hour
	Rm 165B	4.0 air changes per hour	16 air changes per hour
	Rm 165C	4.2 air changes per hour	16 air changes per hour
	Rm 165D	4.2 air changes per hour	16 air changes per hour
	Rm 165E	3.6 air changes per hour	15 air changes per hour
A++			
Grades possible with consistent use of air purifiers			
Large Practice Room		HVAC system only	Add Medify MA-112 at speed 2 
	Rm 165H	5.8 air changes per hour	12 air changes per hour
A+			

With just one air purifier, most aerosols will clear out in only 9 to 12 minutes.

MERV 13 filters	Increase in air changes/hour due to better furnace filters	0.85 - 1.7
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Offices

Band & Choir Offices, Box Office



Aerosols linger for over 54 minutes if no air purifier is run.

Choir Office 163A Band Office 165A	No air purifier HVAC system only	HVAC + one air purifier Add Medify MA-112 at speed 2
	1.5 air changes per hour 2.5 air changes per hour	13 air changes per hour 8.8 air changes per hour

A+

Grades possible with consistent use of air purifiers

A++

Theater Office 171A	6.1 air changes per hour	Add Intellipure at half speed 11 air changes per hour
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With just one air purifier, most aerosols will clear out in only 16 minutes or less.

Airflow in McDaniel’s Box Office was not measured.

Box Office 179E1	? air changes per hour	Add Medify MA-112 at speed 2 7+ air changes per hour
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McDaniel High School

Blackbox Theater

Blackbox Theater Room 171



Airflow in the blackbox theater was not measured.
 If airflow is similar to the main theater, aerosols linger for over an hour with no air purifier on.

No air purifier

HVAC system only

2.0 air changes per hour*

=

1 hour

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

2.8 air changes per hour

=

49 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

3.8 air changes per hour

=

36 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

F

D

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

?

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but their impact on airflow in this room cannot be estimated

With two air purifiers, most aerosols likely clear out in only 36 minutes.

*If the Blackbox theater has HVAC airflows similar to the main theater, then it gets ~2 air changes per hour.

Dress Room 175

Dressing Room/Make-up



Aerosols linger for over 1 hour if no air purifier is run.

No air purifier

HVAC system only

1.9 air changes per hour

=

1 hour 14 min

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

3.7 air changes per hour

=

37 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

6.2 air changes per hour

=

22 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

D

B

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0.5

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but only improved airflow somewhat from 1.4 to 1.9.

With two air purifiers, most aerosols will clear out in 22 minutes.

Theater & Stage

Rooms 177 & 179



Aerosols linger for over 1 hour, but these air purifiers are not a good match.

No air purifier

HVAC system only

2.1 air changes per hour

=

1 hour 7 min

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

2.1 air changes per hour

=

1 hour 4 min

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

2.2 air changes per hour

=

1 hour 2 min

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

F

F

These units do not meaningfully improve clean airflow

MERV 13 filters

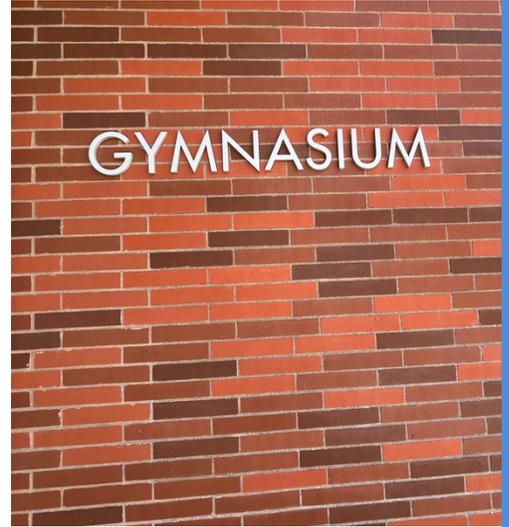
Increase in air changes/hour due to better furnace filters

0.5

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but only improved airflow somewhat from 1.6 to 2.1

These air purifiers are too small for theaters of this size.

If theater amplification allows for running units at full speed / higher noise levels, three Medify Pro's would provide some marginal improvement in the theater's clean airflow - 2.6 air changes / 53 minutes to clear 90%.



McDaniel High School

PHYSICAL EDUCATION

Room-by-Room Air Quality Profiles

McDaniel High School

Wrestling/Dance

Physical Education Room G100



Aerosols linger for over 24 minutes if no air purifier is run.

No air purifier

HVAC system only

5.8 air changes per hour

=

24 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

6.4 air changes per hour

=

22 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

7.2 air changes per hour

=

19 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

B

A

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

1.26

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution. MERV 13 also improved airflow, raising it from ~4.5 to 5.8.

With two air purifiers, most aerosols will clear out in only 19 minutes.

P.E. activities produce more indoor air pollutants / aerosols. Excellent air cleaning is critical.

Training G103

Physical Education Training Room



Aerosols linger for over 43 minutes if no air purifier is run.

No air purifier

HVAC system only

3.2 air changes per hour

=

43 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

6.7 air changes per hour

=

21 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

12 air changes per hour

=

12 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

B+

A++

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0.85

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but only improved airflow somewhat from 2.35 to 3.2

With two air purifiers, most aerosols will clear out in only 12 minutes.

P.E. activities produce more indoor air pollutants / aerosols. Excellent air cleaning is critical.

Sports Rooms

Team Rooms & Coaches' Offices



Aerosols linger for only ~15 minutes, even without air purifiers.

	No air purifier HVAC system only	HVAC + one air purifier Add Intellipure at half speed 
Team Rm G107	13 air changes per hour	15 air changes per hour
Team Rm G109	13 air changes per hour	15 air changes per hour
Team Rm G119	9 air changes per hour	11 air changes per hour
Office G121A	11 air changes per hour	14 air changes per hour
Office G125A	11 air changes per hour	14 air changes per hour

A++

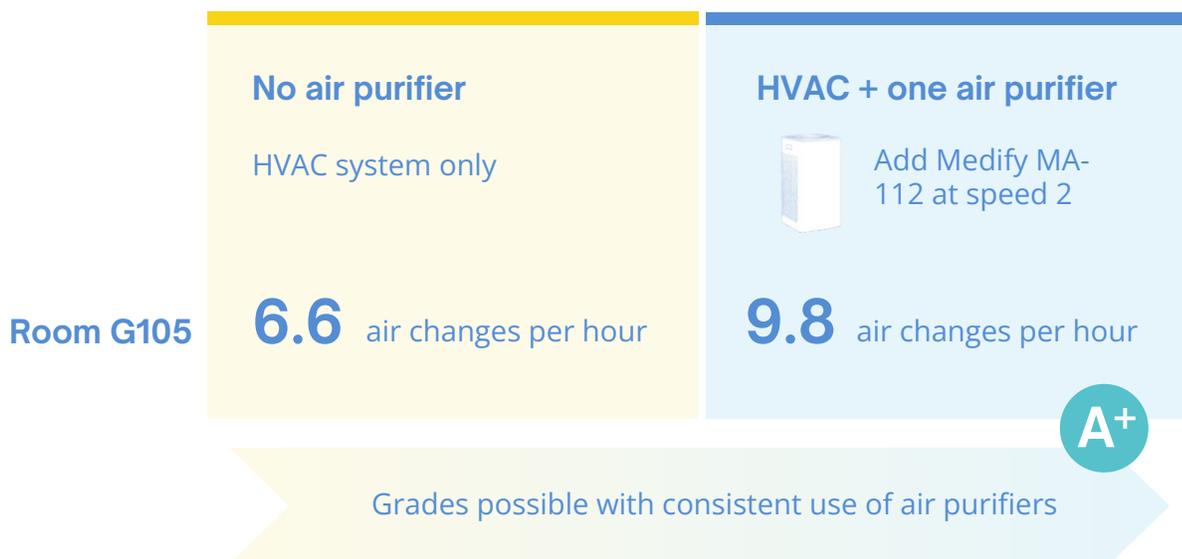
Grades possible with consistent use of air purifiers

Air purifiers in these rooms might be better used in rooms that do not meet targets.

MERV 13 filters	Increase in air changes/hour due to better furnace filters	3.3 - 4.0
MERV 13 filters significantly improved clean airflow in these team rooms and coaches' offices.		



Aerosols linger for only 21 minutes if no air purifier is run.



With just one air purifier, most aerosols will clear out in only 14 minutes.

MERV 13 filters	Increase in air changes/hour due to better furnace filters	1.8
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McDaniel High School

Weight Room

Physical Education Room G122



Aerosols linger for over 43 minutes if no air purifier is run.

No air purifier

HVAC system only

3.2 air changes per hour

=

43 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

3.9 air changes per hour

=

36 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

4.8 air changes per hour

=

29 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

D

C-

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0.68

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but only improved airflow somewhat from 2.5 to 3.2

With two air purifiers, most aerosols will clear out in only 29 minutes.

Locker Rooms

Boy's Locker G121 & Girl's Locker G125



Airflows in the locker rooms were not measured.

If airflow is similar to the weight room, aerosols linger for over 43 minutes with no air purifier on.

No air purifier

HVAC system only

3.2 air changes per hour*

=

43 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

4.6 air changes per hour*

=

30 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

6.5 air changes per hour*

=

21 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

C-

B

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

?

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but their impact on airflow in this room cannot be estimated

With two air purifiers, most aerosols likely clear out in only 21 minutes.

*If the locker rooms have HVAC airflows similar to the weight room, then it gets ~3.2 air changes per hour.

McDaniel High School

Main Gym

Physical Education Room G200



Aerosols linger for over an hour, but these air purifiers are not a good match.

No air purifier

HVAC system only

2.3 air changes per hour

=

60 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

2.4 air changes per hour

=

59 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

2.4 air changes per hour

=

57 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

F

F

These units do not meaningfully improve clean airflow

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0.6

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution and improved airflow from 1.7 to 2.3

These air purifiers are too small for gyms of this size.

The Medify air purifiers are a poor match for improving airflow in the main gym. Gym activities also frequently result in these types of units getting broken. These models of air purifiers are better placed in other rooms.

Community CO₂ Monitoring

Carbon dioxide data from SIAFOS families in the Main Gym

Monitor: Aranet4
CO₂ in parts per million (ppm)

Occupants:
Board room ~40
Main Gym ~275

Excellent ventilation in the school board meeting room keeps CO₂ low.

The Gym fills with CO₂ as students and staff breathe, but recirculation clears aerosols well *at this specific occupancy and low activity level.*

Outdoor air ~450 ppm

Ideal goal for upper limit = 700 ppm

>1000 ppm = especially poor ventilation

Additional days of community data in Room 231: none



CO₂ was high but recirculation in the gym was well-matched to this occupancy.

Equivalent CO₂ accounting for recirculation

660 ppm

Recirculation of air through the HVAC system provides enough clean air to match how much outdoor air would be needed to have lowered this day's CO₂ from 1169 parts per million to 660 parts per million. **However, higher occupancies and activity levels may not have sufficient clean air. SIAFOS and partners need more information on occupancies and use of the gym to fully evaluate the gym's clean airflow.**

McDaniel High School

Auxillary Gym

Physical Education Room G201



Aerosols linger for nearly an hour, but these air purifiers are not a good match.

No air purifier

HVAC system only

2.4 air changes per hour

=

57 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at full speed

2.7 air changes per hour

=

51 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at full speed

3.1 air changes per hour

=

45 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

F

D-

At full speed, some improvement is possible

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0.6

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution and improved airflow from 1.8 to 2.4

These air purifiers are probably better placed in other rooms.

The Medify air purifiers are not a great match for improving airflow in the auxillary gym. Gym activities also frequently result in these types of units getting broken. ***SIAFOS and partners also need more information on occupancies and use of the auxillary gym to fully evaluate its clean airflow.***

Concessions

Concessions G207



Airflow in the concessions room in the gym was not measured.

Room G207	No air purifier HVAC system only	HVAC + one air purifier  Add Medify MA-112 at speed 2
	? air changes per hour	11+ air changes per hour

A++

Grades possible with consistent use of air purifiers

With just one air purifier, most aerosols will clear out in only 12 minutes.

MERV 13 filters	Increase in air changes/hour due to better furnace filters	?
The impact of MERV 13 filters cannot be estimated for this space.		

Food/Clothing

Food Pantry/Clothing Closet G134



Airflow in the Food Pantry was not measured.

If airflow is similar to the weight room, aerosols linger for over 43 minutes with no air purifier on.

No air purifier

HVAC system only

3.2 air changes per hour*

=

43 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

5.7 air changes per hour*

=

24 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

9.1 air changes per hour*

=

15 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

B+

A+

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

?

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but their impact on airflow in this room cannot be estimated

With two air purifiers, most aerosols may clear out in 15 minutes — but definitely in only 23 minutes.

*If the Food Pantry has an HVAC airflow similar to the weight room, then it gets ~3.2 air changes per hour.



Student & Partner Offices

McDaniel High School **SCHOOL OFFICES**

Room-by-Room Air Quality Profiles

McDaniel High School

Student Govt

Student Government Room 027



Aerosols linger for over 25 minutes if no air purifier is run but only 16 minutes with an Intellipure air purifier.

	<p>No air purifier</p> <p>HVAC system only</p>	<p>HVAC + one air purifier</p>  <p>Add Intellipure at half speed</p>
Student Gov Room	5.5 air changes per hour	8.6 air changes per hour A+

Student Store

Student Store Room 124



Aerosols linger for over 28 minutes if no air purifier is run but only 18 minutes with a Medify air purifier.

	<p>No air purifier</p> <p>HVAC system only</p>	<p>HVAC + one air purifier</p>  <p>Add Medify MA-112 at speed 2</p>
Student Store	4.9 air changes per hour	7.7 air changes per hour A



Aerosols linger for over 33 minutes if no air purifier is run.

No air purifier

HVAC system only

4.1 air changes per hour

=

33 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

5.5 air changes per hour

=

25 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

7.5 air changes per hour

=

18 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

B-

A

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

1.27

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution. MERV 13's also improved airflow, raising it from 2.87 to 4.14.

With two air purifiers, most aerosols will clear out in only 18 minutes.

McDaniel High School

Partner Offices

Office 031A, 031D, and 031E



Aerosols linger for over 45 minutes if no air purifier is run in these partner offices.

	No air purifier HVAC system only	HVAC + one air purifier Add Intellipure at half speed 
Office 031A	3.2 air changes per hour	8.7 air changes per hour
Office 031D	3.1 air changes per hour	9.2 air changes per hour
Office 031E	2.9 air changes per hour	8.7 air changes per hour

A+

Grades possible with consistent use of air purifiers

With just one air purifier, most aerosols will clear out in only 16 minutes.

Partner Office

Office 031C

HVAC system only
8.7 air changes per hour



Aerosols linger for only ~16 minutes, even without air purifiers.

Partner Office

Office 031B



Aerosols linger for over 25 minutes if no air purifier is run but only 13 minutes with an Intellipure air purifier.

No air purifier

HVAC system only

Office 031B

5.6 air changes per hour

HVAC + one air purifier



Add Intellipure at half speed

11 air changes per hour

A⁺⁺

Partner Offices

Conference Room 029



Aerosols linger for over 26 minutes if no air purifier is run but only 17 minutes with an Intellipure air purifier.

No air purifier

HVAC system only

Conf Rm 029

5.3 air changes per hour

HVAC + one air purifier



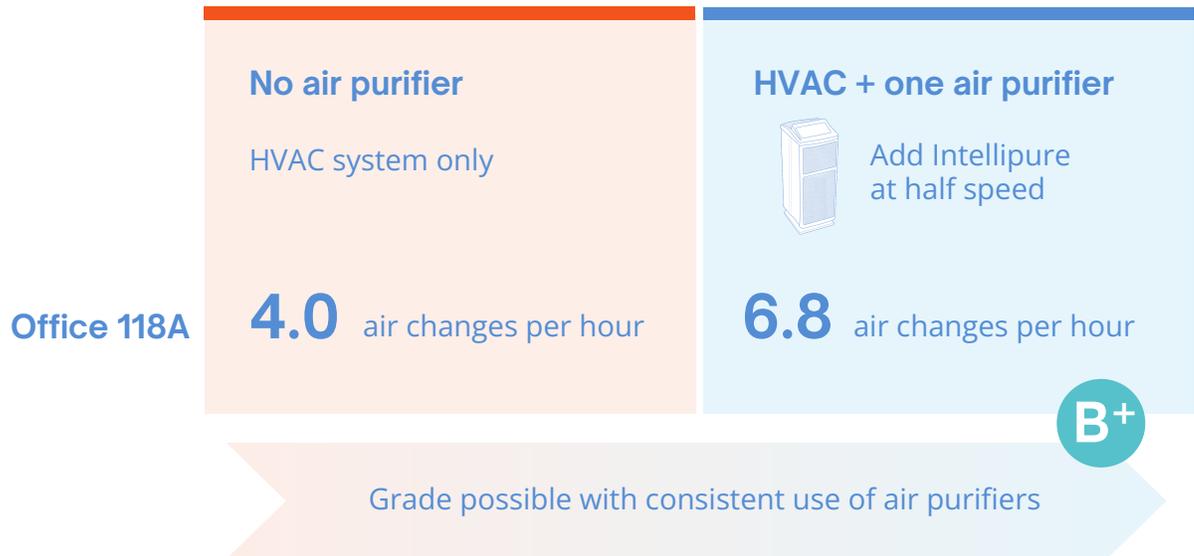
Add Intellipure at half speed

8 air changes per hour

A⁺



Aerosols linger for over 35 minutes if no air purifier is run.



With just one air purifier, most aerosols will clear out in only 20 minutes.

A Medify unit would provide 12 air changes per hour to this office; however, the Medify unit may be physically larger than this small office can accommodate.

MERV 13 filters	Increase in air changes/hour due to better furnace filters	1.1
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Teacher Collaboration Offices

McDaniel High School

SCHOOL OFFICES

Room-by-Room Air Quality Profiles



Aerosols linger for over 50 minutes if no air purifier is run.

No air purifier

HVAC system only

2.8 air changes per hour

=

50 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

4.9 air changes per hour

=

28 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

7.8 air changes per hour

=

18 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants



Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0.8

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but only improved airflow somewhat from 2 to 2.8

With two air purifiers, most aerosols will clear out in only 18 minutes.



Aerosols linger for over 36 minutes if no air purifier is run.

No air purifier

HVAC system only

3.9 air changes per hour

=

36 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

6.9 air changes per hour

=

20 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

11.1 air changes per hour

=

12 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

B+

A++

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

1.1

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but only improved airflow somewhat from 2.8 to 3.9

With two air purifiers, most aerosols will clear out in only 12 minutes.



Aerosols linger for over 43 minutes if no air purifier is run.

No air purifier

HVAC system only

3.2 air changes per hour

=

43 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

5.0 air changes per hour

=

27 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

7.5 air changes per hour

=

18 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants



Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0.9

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but only improved airflow somewhat from 2.3 to 3.2

With two air purifiers, most aerosols will clear out in only 18 minutes.



Aerosols linger for over 2 hours if no air purifier is run.

No air purifier

HVAC system only

1.0 air changes per hour

=

2 hour 20 min

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

3.2 air changes per hour

=

44 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

6.1 air changes per hour

=

22 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

D-

B

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but did not improve airflow

With two air purifiers, most aerosols will clear out in only 22 minutes.



Aerosols linger for over 45 minutes if no air purifier is run.

No air purifier

HVAC system only

3.1 air changes per hour

=

45 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

5.7 air changes per hour

=

24 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

9.4 air changes per hour

=

15 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

B-

A+

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but did not improve airflow

With two air purifiers, most aerosols will clear out in only 15 minutes.



Admin & Staff Offices

McDaniel High School **SCHOOL OFFICES**

Room-by-Room Air Quality Profiles

McDaniel High School

Main Office 100

Reception/Waiting Room



Aerosols linger for over 1 hour if no air purifier is run.

No air purifier

HVAC system only

1.5 air changes per hour

=

1 hour 29 min

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

4.7 air changes per hour

=

30 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

9.0 air changes per hour

=

15 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

C-

A+

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0.38

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but only improved airflow somewhat from 1.17 to 1.55

With two air purifiers, most aerosols will clear out in only 15 minutes.



Aerosols linger for over 1 hour if no air purifier is run.

No air purifier

HVAC system only

2.3 air changes per hour

=

1 hour

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

5.5 air changes per hour

=

25 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

9.9 air changes per hour

=

14 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

B-

A+

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0.6

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but only improved airflow somewhat from 1.7 to 2.3

With two air purifiers, most aerosols will clear out in only 14 minutes.

McDaniel High School

Staff Offices

Attendance Room & Bookkeeper



Aerosols linger for over 49 minutes if no air purifier is run in these offices.

	No air purifier HVAC system only	HVAC + one air purifier Add Intellipure at half speed
Attendance 110	2.8 air changes per hour	7.0 air changes per hour
Book Rm 114	2.8 air changes per hour	7.5 air changes per hour



A

Grades possible with consistent use of air purifiers

With just one air purifier, most aerosols will clear out in only 20 minutes.

Conference Rm

Conference Room 100J

HVAC system only
8.1 air changes per hour



Aerosols linger for only ~17 minutes, even without air purifiers.

Principal's Office

Office 100B



Aerosols linger for over 24 minutes if no air purifier is run but only 16 minutes with an Intellipure air purifier.

No air purifier

HVAC system only

Office 100B

5.6 air changes per hour

HVAC + one air purifier



Add Intellipure at half speed

8.6 air changes per hour

A+

Dean Office

Office 100F



Aerosols linger for over 30 minutes if no air purifier is run but only 15 minutes with an Intellipure air purifier.

No air purifier

HVAC system only

Office 100F

4.6 air changes per hour

HVAC + one air purifier



Add Intellipure at half speed

9.4 air changes per hour

A+

McDaniel High School

Vice Principal

Office 100C



Aerosols linger for only ~22 minutes if no air purifier is run & only 13 minutes with an Intellipure air purifier.

	<p>No air purifier</p> <p>HVAC system only</p>	<p>HVAC + one air purifier</p> <p> Add Intellipure at half speed</p>
Office 100C	6.3 air changes per hour	10 air changes per hour A⁺⁺

Vice Principal

Office 100E

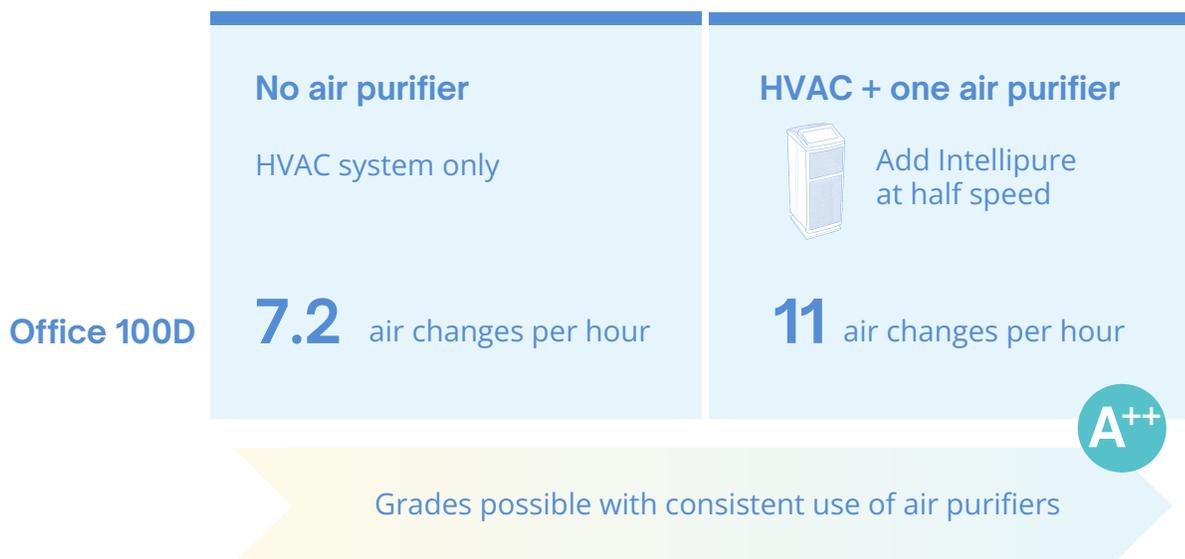


Aerosols linger for only ~20 minutes if no air purifier is run & only 13 minutes with an Intellipure air purifier.

	<p>No air purifier</p> <p>HVAC system only</p>	<p>HVAC + one air purifier</p> <p> Add Intellipure at half speed</p>
Office 100E	6.8 air changes per hour	10.5 air changes per hour A⁺⁺



Aerosols only linger for ~19 minutes if no air purifier is run.



With just one air purifier, most aerosols will clear out in only 12 minutes.

MERV 13 filters	Increase in air changes/hour due to better furnace filters	2.5
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McDaniel High School

Resource Officer

Resource Officer Office 102



Aerosols linger for over 24 minutes if no air purifier is run but only 12 minutes with an Intellipure air purifier.

Office 102	<p>No air purifier</p> <p>HVAC system only</p> <p>5.6 air changes per hour</p>	<p>HVAC + one air purifier</p> <p> Add Intellipure at half speed</p> <p>11 air changes per hour A++</p>
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Work Room

Work Room 112C



Aerosols linger for over 25 minutes if no air purifier is run but only 13 minutes with a Medify air purifier.

Work Room 112C	<p>No air purifier</p> <p>HVAC system only</p> <p>5.5 air changes per hour</p>	<p>HVAC + one air purifier</p> <p> Add Medify MA-112 at speed 2</p> <p>10 air changes per hour A++</p>
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Aerosols linger for over 43 minutes if no air purifier is run.

AD SUP 118D

No air purifier

HVAC system only

3.2 air changes per hour

HVAC + one air purifier



Add Intellipure at half speed

7.6 air changes per hour

A

Grades possible with consistent use of air purifiers

With just one air purifier, most aerosols will clear out in only 18 minutes.

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0.9

McDaniel High School

Campus Monitor

Campus Monitors Room 100K



Aerosols linger for over 31 minutes if no air purifier is run but only 15 minutes with an Intellipure air purifier.

	<p>No air purifier</p> <p>HVAC system only</p>	<p>HVAC + one air purifier</p> <p> Add Intellipure at half speed</p>
Room 100K	4.4 air changes per hour	9.2 air changes per hour A+

Custodians

Custodian Break Room 155B

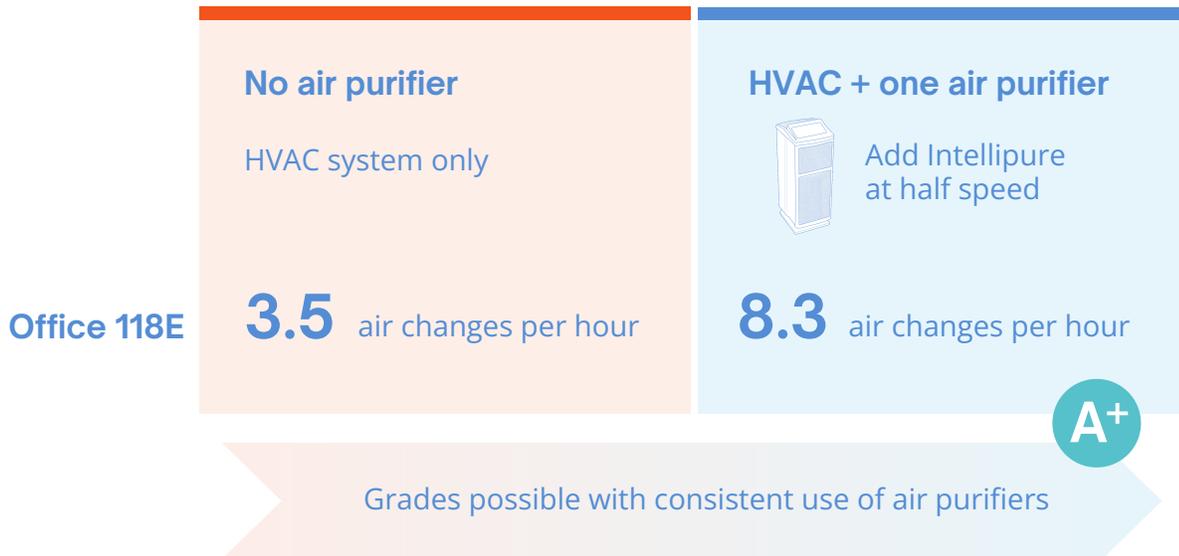


Aerosols linger for over 32 minutes if no air purifier is run but only 12 minutes with a Medify air purifier.

	<p>No air purifier</p> <p>HVAC system only</p>	<p>HVAC + one air purifier</p> <p> Add Medify MA-112 at speed 2</p>
Room 155B	4.4 air changes per hour	11 air changes per hour A++



Aerosols linger for over 39 minutes if no air purifier is run.



With just one air purifier, most aerosols will clear out in only 17 minutes.

MERV 13 filters	Increase in air changes/hour due to better furnace filters	1.0
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McDaniel High School

Offices

Custodian, Bus, AD Offices



Aerosols linger for only ~21 minutes if no air purifier is run in these offices.

	No air purifier HVAC system only	HVAC + one air purifier Add Intellipure at half speed
Bus 118B	6.8 air changes per hour	11 air changes per hour
AD 118C	6.5 air changes per hour	10 air changes per hour
Custodian 155A	6.8 air changes per hour	11 air changes per hour

A++

Grades possible with consistent use of air purifiers

With just one air purifier, most aerosols will clear out in only 13 minutes.

Staff Room

Staff Room 112B

HVAC system only
11 air changes per hour



Aerosols linger for only ~12 minutes, even without air purifiers.



Counseling, Speech & Psychology

McDaniel High School

SCHOOL OFFICES

Room-by-Room Air Quality Profiles

McDaniel High School

Counseling

Waiting/Reception 210



Aerosols linger for nearly 3 hours if no air purifier is run but only 20 minutes with a Medify air purifier.

Waiting/Recep 210

No air purifier

HVAC system only

0.8 air changes per hour**HVAC + one air purifier**

Add Medify MA-112 at speed 2

7.0 air changes per hour**A**

Conference Rm

Counseling Conference Rm 209



Aerosols linger for over 28 minutes if no air purifier is run but only 16 minutes with a Medify air purifier.

Conf Rm 209

No air purifier

HVAC system only

4.9 air changes per hour**HVAC + one air purifier**

Add Medify MA-112 at speed 2

8.7 air changes per hour**A+**



Aerosols linger for over 2 hours if no air purifier is run in counseling offices.

	No air purifier HVAC system only	HVAC + one air purifier Add Intellipure at half speed 
Office 210B	1.2 air changes per hour	6.9 air changes per hour
Office 210C	1.2 air changes per hour	6.8 air changes per hour
Office 210D	1.1 air changes per hour	6.5 air changes per hour
B+		
Grades possible with consistent use of air purifiers		
B		
Office 210E	1.1 air changes per hour	6.1 air changes per hour
Office 210F	1.1 air changes per hour	6.4 air changes per hour

With just one air purifier, most aerosols will clear out in only 23 minutes.

A Medify unit would provide 16+ air changes per hour to these offices; however, the Medify units may be physically larger than these small offices can accommodate.

MERV 13 filters	Increase in air changes/hour due to better furnace filters	0
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Psych & Speech

Psychologist & Speech Offices



Aerosols linger for 2 hours if no air purifier is run in speech/psych offices.

	No air purifier HVAC system only	HVAC + one air purifier Add Intellipure at half speed 
Psych 210J	1.1 air changes per hour	6.2 air changes per hour
Psych 210K	1.1 air changes per hour	6.4 air changes per hour
Speech 210L	1.1 air changes per hour	6.3 air changes per hour
D/A 210P	1.2 air changes per hour	6.1 air changes per hour
B		
Grades possible with consistent use of air purifiers		
		A
Speech 210N	1.3 air changes per hour	7.3 air changes per hour

With just one air purifier, most aerosols will clear out in only 23 minutes.

A Medify unit would provide 16+ air changes per hour to these offices; however, the Medify units may be physically larger than these small offices can accommodate.

MERV 13 filters	Increase in air changes/hour due to better furnace filters	0
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Interns 201H

Room 201H



Aerosols linger for over an hour if no air purifier is run but only 11 minutes with a Medify air purifier.

Room 201H	No air purifier HVAC system only 2.0 air changes per hour	HVAC + one air purifier  Add Medify MA-112 at speed 2* 13 air changes per hour A++
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IT Repair 116

Room 116



Airflow in the IT Repair room was not measured. Aerosols will only linger for 12 minutes with a Medify air purifier.

Room 116	No air purifier HVAC system only ? air changes per hour	HVAC + one air purifier  Add Medify MA-112 at speed 2* 11 air changes per hour A++
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McDaniel High School

Conference Rm

Conference Room 210G



Aerosols linger for nearly 2 hours if no air purifier is run but only 20 minutes with a Medify air purifier.

	<p>No air purifier</p> <p>HVAC system only</p> <p>1.2 air changes per hour</p>	<p>HVAC + one air purifier</p> <p> Add Medify MA-112 at speed 2</p> <p>12 air changes per hour A⁺⁺</p>
Conf Room 210G		

Conference Rm

Large Conference Room 210M



Aerosols linger for nearly and hour-and-a-half if no air purifier is run but only 14 minutes with an air purifier.

	<p>No air purifier</p> <p>HVAC system only</p> <p>1.6 air changes per hour</p>	<p>HVAC + one air purifier</p> <p> Add Medify MA-112 at speed 2</p> <p>10 air changes per hour A⁺⁺</p>
Conf Rm 210M		



McDaniel High School
SCIENCE LABS

Room-by-Room Air Quality Profiles

McDaniel High School

Room 101

General Science Lab / CTE



Aerosols only linger for ~18 minutes if no air purifier is run.

No air purifier

HVAC system only

7.9 air changes per hour

=

18 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

9.2 air changes per hour

=

15 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

11.1 air changes per hour

=

12 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

A⁺**A⁺⁺**

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

2.1

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution. MERV 13's also improved airflow, raising it from ~5.7 to 7.9.

With two air purifiers, most aerosols will clear out in only 12 minutes.

Science lab activities often produce more indoor air pollutants. Excellent air cleaning is useful.



Aerosols only linger for ~18 minutes if no air purifier is run.

No air purifier

HVAC system only

7.5 air changes per hour

=

18 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

8.8 air changes per hour

=

16 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

10.6 air changes per hour

=

13 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

A+

A++

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

2.0

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution. MERV 13's also improved airflow, raising it from ~5.5 to 7.5.

With two air purifiers, most aerosols will clear out in only 13 minutes.

Science lab activities often produce more indoor air pollutants. Excellent air cleaning is useful.

McDaniel High School

Room 104

General Science Lab



Aerosols only linger for ~26 minutes if no air purifier is run.

No air purifier

HVAC system only

5.2 air changes per hour

=

26 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

6.5 air changes per hour

=

21 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

8.3 air changes per hour

=

17 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

B+**A+**

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

1.16

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution. MERV 13's also improved airflow, raising it from ~4.1 to 5.2.

With two air purifiers, most aerosols will clear out in only 17 minutes.

Science lab activities often produce more indoor air pollutants. Excellent air cleaning is useful.



Aerosols only linger for ~18 minutes if no air purifier is run.

No air purifier

HVAC system only

7.8 air changes per hour

=

18 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

9.1 air changes per hour

=

15 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

11.0 air changes per hour

=

13 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

A+

A++

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

2.1

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution. MERV 13's also improved airflow, raising it from ~5.7 to 7.8.

With two air purifiers, most aerosols will clear out in only 13 minutes.

Science lab activities often produce more indoor air pollutants. Excellent air cleaning is useful.

McDaniel High School

Room 106

General Science Lab



Aerosols only linger for ~17 minutes if no air purifier is run.

No air purifier

HVAC system only

8.3 air changes per hour

=

17 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

9.6 air changes per hour

=

14 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

11.3 air changes per hour

=

12 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

A+**A++**

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

2.3

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution. MERV 13's also improved airflow, raising it from ~6 to 8.3.

With two air purifiers, most aerosols will clear out in only 12 minutes.

Science lab activities often produce more indoor air pollutants. Excellent air cleaning is useful.

Lab Room 200

Science Lab - Chemistry



Aerosols only linger for ~24 minutes if no air purifier is run.

No air purifier

HVAC system only

5.8 air changes per hour

=

24 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

7.0 air changes per hour

=

20 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

8.6 air changes per hour

=

16 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

A

A+

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

1.39

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution. MERV 13's also improved airflow, raising it from ~4.4 to 5.8.

With two air purifiers, most aerosols will clear out in only 16 minutes.

Science lab activities often produce more indoor air pollutants. Excellent air cleaning is useful.

McDaniel High School

Lab Room 201

General Science Lab



Aerosols only linger for ~20 minutes if no air purifier is run.

No air purifier

HVAC system only

6.9 air changes per hour

=

20 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

8.2 air changes per hour

=

17 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

10.1 air changes per hour

=

14 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

A+**A++**

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

1.79

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution. MERV 13's also improved airflow, raising it from ~5.1 to 6.9.

With two air purifiers, most aerosols will clear out in only 14 minutes.

Science lab activities often produce more indoor air pollutants. Excellent air cleaning is useful.



Aerosols only linger for ~22 minutes if no air purifier is run.

No air purifier

HVAC system only

6.4 air changes per hour

=

22 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

7.6 air changes per hour

=

18 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

9.3 air changes per hour

=

15 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

A

A+

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

1.54

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution. MERV 13's also improved airflow, raising it from ~4.8 to 6.4.

With two air purifiers, most aerosols will clear out in only 15 minutes.

Science lab activities often produce more indoor air pollutants. Excellent air cleaning is useful.

McDaniel High School

Lab Room 203

General Science Lab



Aerosols only linger for ~21 minutes if no air purifier is run.

No air purifier

HVAC system only

6.5 air changes per hour

=

21 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

7.8 air changes per hour

=

18 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

9.6 air changes per hour

=

14 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

A**A+**

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

1.65

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution. MERV 13's also improved airflow, raising it from ~4.8 to 6.5.

With two air purifiers, most aerosols will clear out in only 14 minutes.

Science lab activities often produce more indoor air pollutants. Excellent air cleaning is useful.



Aerosols only linger for ~23 minutes if no air purifier is run.

No air purifier

HVAC system only

6.0 air changes per hour

=

23 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

7.2 air changes per hour

=

19 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

8.8 air changes per hour

=

16 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

A

A+

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

1.51

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution. MERV 13's also improved airflow, raising it from ~4.5 to 6.

With two air purifiers, most aerosols will clear out in only 16 minutes.

Science lab activities often produce more indoor air pollutants. Excellent air cleaning is useful.

McDaniel High School

Lab Room 205

General Science Lab



Aerosols only linger for ~20 minutes if no air purifier is run.

No air purifier

HVAC system only

7.0 air changes per hour

=

20 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

8.3 air changes per hour

=

17 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

10.2 air changes per hour

=

14 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

A⁺**A⁺⁺**

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

1.81

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution. MERV 13's also improved airflow, raising it from ~5.2 to 7.

With two air purifiers, most aerosols will clear out in only 14 minutes.

Science lab activities often produce more indoor air pollutants. Excellent air cleaning is useful.



Aerosols linger for over 47 minutes if no air purifier is run.

No air purifier

HVAC system only

2.9 air changes per hour

=

47 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

4.1 air changes per hour

=

34 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

5.8 air changes per hour

=

24 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

C⁻

A

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but did not improve airflow

With two air purifiers, most aerosols will clear out in only 24 minutes.

Prep Rooms

Science Lab Prep Rooms



Airflows in McDaniel’s science lab prep rooms were not measured.

		No air purifier HVAC system only	HVAC + one air purifier Add Medify MA-112 at speed 2
Science Prep Rooms	Rm 101A	? air changes per hour	6+ air changes per hour
	Rm 104A	? air changes per hour	6+ air changes per hour
	Rm 200A	? air changes per hour	6+ air changes per hour
	Rm 201A	? air changes per hour	6+ air changes per hour
	Unmarked Prep Rm	? air changes per hour	6+ air changes per hour

B

Grades possible with consistent use of air purifiers

With just one air purifier, science prep rooms would likely get at least 6 air changes per hour, clearing aerosols out in only 23 minutes or less.

Room dimensions were not provided, but estimates of room volumes based on the airflow report map allow for estimates of air changes per hour added by a Medify air purifier.

MERV 13 filters	Increase in air changes/hour due to better furnace filters	?
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McDaniel High School

SPECIAL EDUCATION

Room-by-Room Air Quality Profiles

McDaniel High School

Room 133

Learning Resource Center



Aerosols linger for over 36 minutes if no air purifier is run.

No air purifier

HVAC system only

3.8 air changes per hour

=

36 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

5.9 air changes per hour

=

23 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

8.8 air changes per hour

=

16 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

B⁻**A⁺**

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0.45

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but only improved airflow somewhat from 3.4 to 3.8

With two air purifiers, most aerosols will clear out in only 16 minutes.



Aerosols linger for over 38 minutes if no air purifier is run.

No air purifier

HVAC system only

3.7 air changes per hour

=

38 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

5.8 air changes per hour

=

24 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

8.7 air changes per hour

=

16 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

B-

A+

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0.7

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but only improved airflow somewhat from 3 to 3.7.

With two air purifiers, most aerosols will clear out in only 16 minutes.

McDaniel High School

Room 141

Intensive Skills Room



Aerosols linger for over 50 minutes if no air purifier is run.

No air purifier

HVAC system only

2.8 air changes per hour

=

50 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

4.9 air changes per hour

=

28 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

7.9 air changes per hour

=

18 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

C-**A**

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0.5

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but only improved airflow somewhat from 2.3 to 2.8.

With two air purifiers, most aerosols will clear out in only 18 minutes.

Sensory-Active

Sensory-Active Room 141C



Aerosols linger for over an hour if no air purifier is run but only 13 minutes with a Medify air purifier.

	No air purifier HVAC system only	HVAC + one air purifier  Add Medify MA-112 at speed 2*
Room 141C	2.2 air changes per hour	11 air changes per hour A⁺⁺

*Floor model units are not always a fit in sensory rooms. SIAFOS is consulting with SPED teachers at other schools about possible solutions, and we hope to connect with McDaniel SPED staff for input as well.

SPED Office

Office 141D



Aerosols linger for over 33 minutes if no air purifier is run but only 12 minutes with an Intellipure air purifier.

	No air purifier HVAC system only	HVAC + one air purifier  Add Intellipure at half speed
Office 141D	4.2 air changes per hour	11 air changes per hour A⁺⁺

McDaniel High School

Sensory Support

Sensory Support Room 141E



Aerosols linger for only 13 minutes in this sensory room, even without an air purifier.

No air purifier

HVAC system only

11 air changes per hour

MERV 13 filters

Increase in air changes/hr due to better furnace filters

3.3

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution. They also improved airflow significantly from 7.7 to 11.

McDaniel High School

SPED Conference

SPED Conference Room 143



Aerosols linger for only 15 minutes in this sensory room, even without an air purifier.

No air purifier

HVAC system only

9.4 air changes per hour

MERV 13 filters

Increase in air changes/hr due to better furnace filters

2.8

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution. They also improved airflow significantly from 6.6 to 9.4.



Aerosols linger for over 29 minutes if no air purifier is run.

No air purifier

HVAC system only

4.8 air changes per hour

=

29 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

6.7 air changes per hour

=

21 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

9.3 air changes per hour

=

15 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

B+

A+

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

1.0

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution. MERV 13's also improved airflow, raising it from 3.8 to 4.8.

With two air purifiers, most aerosols will clear out in only 15 minutes.

McDaniel High School

Room 232

Learning Resource Center



Aerosols linger for over 1 hour if no air purifier is run.

No air purifier

HVAC system only

2.3 air changes per hour

=

1 hour 1 min

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

4.3 air changes per hour

=

32 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

6.9 air changes per hour

=

20 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

D⁺**B⁺**

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but did not improve airflow

With two air purifiers, most aerosols will clear out in only 20 minutes.



Aerosols linger for over 55 minutes if no air purifier is run.

No air purifier

HVAC system only

2.5 air changes per hour

=

55 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + one air purifier



Add Medify MA-112 at speed 2

4.7 air changes per hour

=

29 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

HVAC + two air purifiers



Add Medify & Medify Pro at speed 2

7.7 air changes per hour

=

18 minutes

to clear out 90% of the students' and teacher's respiratory aerosols and other indoor air pollutants

C-

A

Grades possible with consistent use of air purifiers

MERV 13 filters

Increase in air changes/hour due to better furnace filters

0

The new MERV 13 filters in the HVAC system are important for filtering out wildfire smoke and car pollution but did not improve airflow

With two air purifiers, most aerosols will clear out in only 18 minutes.

THANKS TO OUR PARTNERS AND COMMUNITY ADVOCATES

This report was developed by Safe Indoor Air For Oregon Schools (SIAFOS) in collaboration with clean air advocates, scientists, and PPS community members committed to improving indoor air quality in Portland Public Schools.

We invite parents, teachers, administrators, and community members to join us in advocating for clean, healthy air in every classroom.

Learn more, sign on to our letter, or get involved at safeairoregon.org.

LET'S BRING CLEAN AIR TO YOUR SCHOOL

We're here to support parents, teachers, principals, and PPS staff working to improve classroom air. If you'd like help understanding airflow data, requesting air purifiers, or using them effectively, reach out to us at info@safeairoregon.org

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