

IEA, INC.

2022 - 2023 IAQ Walkthrough



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Saint Paul Public Schools The Heights Community School

Walkthrough Date:
Friday, January 20, 2023

Project Description

IEA conducted an Indoor Air Quality (IAQ) walkthrough at The Heights Community School by IEA representative, Sashya Wandmaker. This walkthrough was conducted with the intent of gathering basic air quality and visual observations which will assist the District in making informed and proactive decisions to improve and maintain acceptable air quality in the building. This walkthrough is based upon the Environmental Protection Agency's (EPA's) Tools for Schools IAQ guidelines.

Some observations gathered during the walkthrough may identify issues which may require additional testing, evaluation or further investigation.

The findings, conclusions and recommendations presented herein are believed to be accurate and representative of the building on the date and time of the walkthrough.

GENERAL COMMENTS

The analysis and opinions expressed in this report are based upon data obtained from Saint Paul Public Schools at the indicated locations. This report does not reflect variations in conditions that may occur across the site, property, or facility. Actual conditions may vary and may not become evident without further assessment.

The report is prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted indoor air quality practices. Other than as provided in the preceding sentence, no warranties are extended or made.

Building Information

General information regarding the building was collected during the walkthrough. The information gathered during this process is a vital component, as it is helpful in determining how these items may play a role in possible IAQ related issues.

Below is a summary of the information gathered during the walkthrough:

- The building has five (5) floors.
- The building has not had recent construction.
- There are inoperable windows in the exterior rooms within the building.
- The building was originally constructed in 1941.
- The building does utilize walk-off mats.
- There are below grade floors.
- There are tunnels under portions of the building.

Observations Summary and Air Quality Measurements

Room / Location	Number of Occupants	Odor Present	Observations	Dust Accumulation	CO ₂ (ppm)	CO (ppm)	RH (%)	Temp (°F)
OUTDOORS					381	1.0	76.0	25.0
CUSTODIAL OFFICE	1	No		No	706	0.4	26.5	74.3
1351	0	No		No	491	0.5	17.1	80.4
4250	19	No	<ul style="list-style-type: none"> Plants 	No	998	0.5	24.0	73.9
4252	28	No	<ul style="list-style-type: none"> Condensation 	No	978	0.4	26.0	71.8
4255	21	No	<ul style="list-style-type: none"> Condensation Stained Ceiling Tiles 	No	1,368	0.5	28.5	73.6
4256	2	No	<ul style="list-style-type: none"> Condensation 	No	685	0.4	22.9	71.4
4259	4	No	<ul style="list-style-type: none"> Condensation Moisture Impacted Materials: See Appendix A 	No	479	0.4	18.5	71.8
4258	0	No	<ul style="list-style-type: none"> Plants 	No	442	0.4	18.7	72.0
4247	23	No	<ul style="list-style-type: none"> Stained Ceiling Tiles Plants 	No	1,261	0.5	28.6	70.3
4245	8	No	<ul style="list-style-type: none"> Plants 	Yes Air Return	547	0.3	19.7	72.0
3254	0	No		No	440	0.4	18.4	72.1
3257	5	No		No	526	0.3	18.0	71.6
3252	21	No	<ul style="list-style-type: none"> Condensation 	No	708	0.3	18.6	72.3
3253	0	No	<ul style="list-style-type: none"> Condensation Stained Ceiling Tiles 	No	458	0.3	17.1	74.1
3251	0	No		No	558	0.4	19.6	73.8
3250	0	No		No	463	0.4	17.0	73.2
3250A	1	No		No	458	0.4	17.4	72.3

Room / Location	Number of Occupants	Odor Present	Observations	Dust Accumulation	CO ₂ (ppm)	CO (ppm)	RH (%)	Temp (°F)
3248	20	No	<ul style="list-style-type: none"> Condensation Plants 	No	675	0.4	19.4	72.9
3245	22	No		No	790	0.4	20.4	72.3
3243	11	No	<ul style="list-style-type: none"> Plants 	Yes Ceiling Tiles Around Air Supply	584	0.4	20.4	71.8
3244	0	No		Yes Ceiling Tiles Around Air Supply	450	0.4	19.9	69.4
2254	3	Yes Fragrance		No	517	0.4	19.2	72.0
2255	14	No	<ul style="list-style-type: none"> Stained Ceiling Tiles 	No	582	0.4	18.7	70.7
2245	21	No	<ul style="list-style-type: none"> Bubbling/Peeling Paint: SW corner; See Appendix A Stained Ceiling Tiles Plants 	No	855	0.4	22.7	72.1
2241	0	No	<ul style="list-style-type: none"> Stained Ceiling Tiles 	No	448	0.4	19.5	70.3
2244	21	No	<ul style="list-style-type: none"> Stained Ceiling Tiles 	No	571	0.3	19.9	70.3
2250 MEDIA CENTER	0	No	<ul style="list-style-type: none"> Stained Ceiling Tiles 	No	402	0.4	17.5	71.8
1346	10	No	<ul style="list-style-type: none"> Stained Ceiling Tiles 	No	735	0.5	20.2	73.0
1251	24	No		Yes Horizontal Surfaces, Air Return, Air Supply	592	0.4	23.4	72.3
1248 GYMNASIUM OFFICE	1	No		Yes Tops of pipes	579	0.4	33.0	74.3
2304	1	No		No	511	0.5	16.7	77.5
2102	16	No	<ul style="list-style-type: none"> Plants 	No	756	0.5	19.9	74.5
2307	1	No		No	505	0.4	18.0	74.4

Room / Location	Number of Occupants	Odor Present	Observations	Dust Accumulation	CO ₂ (ppm)	CO (ppm)	RH (%)	Temp (°F)
2305	0	No	<ul style="list-style-type: none"> Moisture Impacted Materials: Cracking cement wall; See Appendix A 	No	513	0.4	18.5	74.3
2309	1	No	<ul style="list-style-type: none"> Stained Ceiling Tiles 	No	481	0.4	17.1	73.8
2104A	1	Yes Food		No	975	0.4	22.7	73.0
2109	0	No		No	421	0.4	17.5	72.5
2114	17	No		Yes Air Return	680	0.4	21.7	69.6
2116	2	No		Yes Air Return, Air Supply	550	0.4	21.2	68.9
2115	8	No	<ul style="list-style-type: none"> Stained Ceiling Tiles 	Yes Air Return	572	0.4	21.2	67.8
2109A	7	No		No	577	0.4	19.9	73.6
2113	17	No		Yes Air Return	667	0.4	27.1	68.5
2111	0	No		Yes Air Return	519	0.4	21.0	70.2
1110 CAFETERIA	38	No	<ul style="list-style-type: none"> Stained Ceiling Tiles 	No	629	0.4	22.2	72.0
1102	3	No		Yes NE corner	606	0.5	27.7	75.4
1105	10	No	<ul style="list-style-type: none"> Moisture Impacted Materials: See Appendix A Suspect Microbial Growth: See Appendix A 	Yes Air Return	706	0.5	21.2	71.2
1107	6	No		Yes Air Return	501	0.4	20.3	71.8
1109	0	No		Yes Air Return	401	0.4	17.6	72.3
1111	22	No	<ul style="list-style-type: none"> Stained Ceiling Tiles 	Yes Air Return	815	0.4	19.8	71.6
4257	0	No		No	502	0.4	19.6	72.3

Room / Location	Number of Occupants	Odor Present	Observations	Dust Accumulation	CO ₂ (ppm)	CO (ppm)	RH (%)	Temp (°F)
1114	0	No	• Stained Ceiling Tiles	Yes Air Return	479	0.4	21.0	71.1
2104	18	No	• Stained Ceiling Tiles	No	615	0.5	19.2	72.1
2102A	1	Yes Food		No	1,005	0.4	23.3	73.0
1253 STAGE	0	No		No	554	0.4	21.9	73.4
2303	0	No		No	449	0.4	16.7	76.8
2000	2	No		No	583	0.5	21.2	72.7
2004	1	No	• Stained Ceiling Tiles	No	593	0.5	21.7	72.5
2003	0	No		No	475	0.5	20.1	72.0
2002	0	No		No	542	0.4	21.8	70.5
2301	0	No		Yes Air Supply	494	0.4	21.7	70.0

Summary of Concerns & Recommendations

See below for IEA's list of concern areas and recommendations:

Indoor Air Quality Parameters/Guidelines

IEA recorded area(s) with carbon dioxide measurements above 1,200 ppm in the room(s) listed below. IEA considers carbon dioxide measurements above 1,200 ppm as an indication of a possible ventilation issue. The ventilation system(s) serving the location(s) with these levels should be evaluated.

- 4247
- 4255

IEA recorded area(s) with humidity levels outside the ASHRAE recommended range of 30 - 60%. Relative humidity levels identified in area(s) listed below were found to be outside these guidelines. Low humidity levels tend to dry mucous membranes which may result in increased susceptibility to irritation. Elevated humidity levels can lead to condensation and provide conditions conducive to fungal growth. Low relative humidity is common in buildings during the heating season. An evaluation of the ventilation system controls, performance and operation is recommended.

- IEA identified fifty-nine (59) rooms with relative humidity levels below 30%. However, this is common for non-humidified buildings during the heating season and is not considered an issue.

IEA recorded area(s) with temperatures outside the recommended range. During the heating season, ASHRAE recommends that temperatures be between 68°F and 75°F. Evaluation of temperature controls and/or ventilation system performance and operation is recommended.

- 1102
- 2303
- 1351
- 2304
- 2115

Odors

Odors were detected during the site visit in the building. If the source of the odor cannot be easily identified, IEA can provide further investigation or recommendations.

- 2102A *Food*
- 2254 *Fragrance*
- 2104A *Food*

Moisture-Impacted Building Material Concerns

Moisture-impacted building materials should be repaired or replaced when discoloration or water staining is observed. Moisture-impacted building materials can be a source for microbial growth. The source for the moisture infiltration should be investigated and repaired if not easily identified.

- 1105
- 4259
- 2305 *Cracking cement wall*

Stained Ceiling Tiles

Stained ceiling tiles were found in the room(s) shown below. The impacted ceiling tiles should be removed and replaced, and the cause of the moisture repaired.

- 1110 CAFETERIA
- 1111
- 1114
- 1346
- 2004
- 2104
- 2115
- 2241
- 2244
- 2245
- 2250 MEDIA CENTER
- 2255
- 2309
- 3253
- 4247
- 4255

Suspect Microbial Growth Concerns

IEA observed building materials with possible microbial growth that should be removed and/or cleaned under controlled conditions, per the Minnesota Department of Health *Recommended Best Practices for Mold Remediation in Minnesota Schools* guidelines (<https://www.health.state.mn.us/communities/environment/air/docs/schools/remediation.pdf>) or following the Institute of Inspection, Cleaning and Restoration (IICRC) S520 Standard and Guide for Professional Mold Remediation to prevent possible contamination of adjacent locations and impact to building occupants. Further assessment or fungal sampling may be necessary to identify a scope of work for a professional mold remediation contractor.

- 1105

Bubbling/Peeling Paint Concerns

IEA observed bubbling/peeling paint in area(s) within the room(s) listed below. Bubbling/peeling paint can be caused by moisture issues. IEA recommends investigating the cause and repairing the paint. IEA recommends ensuring that the paint is not lead-based prior to disturbance.

- 2245 *SW corner*

Condensation Concerns

IEA located area(s) where condensation was forming. Condensation on interior sources can increase the humidity in the area and may become a source of microbial growth. Temperature differentials that cause condensation on surfaces may suggest a ventilation concern and should be evaluated. Window condensation and frost can also contribute to condensation during extreme cold outdoor temperatures.

- 3248
- 3252
- 3253
- 4252
- 4255
- 4256
- 4259

Plants

Plants in an occupied location can be a source of allergens to sensitized individuals due to the pollen and soil mold. It is recommended that plants be removed from locations occupied by sensitized individuals. If plants are to remain in the area, IEA recommends that plants should not be placed near air unit ventilators or air supply diffusers. Additionally, plants should be watered from the bottom. These measures will help control pollen and mold spores from becoming airborne.

- 2102 • 4245
- 2245 • 4247
- 3243 • 4250
- 3248 • 4258

Dust Accumulation

IEA observed dust accumulation in the following room(s) and recommend that the specified area is wiped clean using a damp rag.

- | | | |
|----------------------------|--------------------------------------------------------|---------------------------------------------------|
| • 1102 | <i>NE corner</i> | • 2111 <i>Air Return</i> |
| • 1105 | <i>Air Return</i> | • 2113 <i>Air Return</i> |
| • 1107 | <i>Air Return</i> | • 2114 <i>Air Return</i> |
| • 1109 | <i>Air Return</i> | • 2115 <i>Air Return</i> |
| • 1111 | <i>Air Return</i> | • 2116 <i>Air Return, Air Supply</i> |
| • 1114 | <i>Air Return</i> | • 2301 <i>Air Supply</i> |
| • 1248 GYMNASIUM
OFFICE | <i>Tops of pipes</i> | • 3243 <i>Ceiling Tiles Around Air
Supply</i> |
| • 1251 | <i>Horizontal Surfaces, Air Return, Air
Supply</i> | • 3244 <i>Ceiling Tiles Around Air
Supply</i> |
| | | • 4245 <i>Air Return</i> |

Appendix A

Photo Documentation



4259

Moisture-Impacted Materials



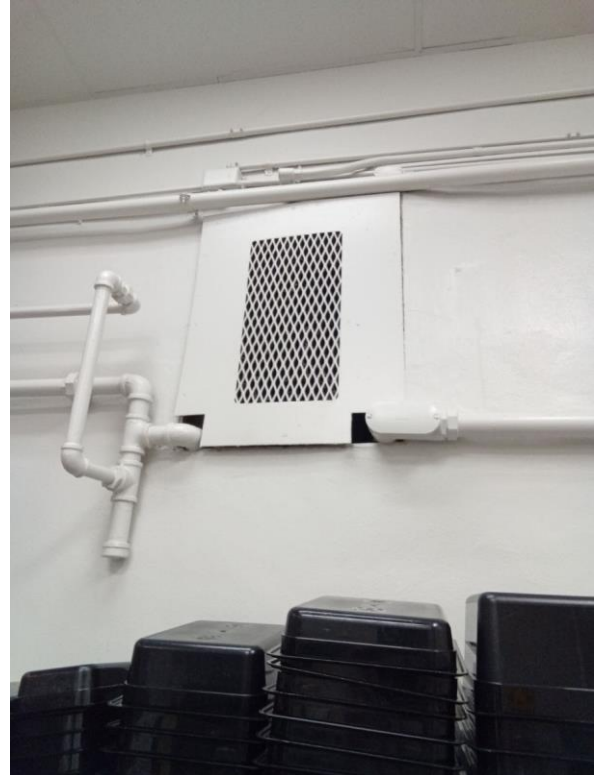
2245

Bubbling/Peeling Paint



2305

Moisture-Impacted Materials



1102

Dust



1105

Moisture-Impacted Materials



1105

Suspect Microbial Growth