

IEA, INC.

# 2022 - 2023 IAQ Walkthrough



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## Saint Paul Public Schools Mississippi Elementary School

Walkthrough Date:  
Monday, November 21, 2022

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## Project Description

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IEA conducted an Indoor Air Quality (IAQ) walkthrough at Mississippi Elementary School by IEA representative, Nick Lundgren. 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.

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## Building Information

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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 two (2) floors.
- The building has not had recent construction.
- There are operable and inoperable windows in the exterior rooms within the building.
- The building was originally constructed in 1952.
- There are additions to the building, in the following year(s): 1962, 1966, 1985, 1990, 1993 and 2001.
- 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 <sub>2</sub> (ppm)	CO (ppm)	RH (%)	Temp (°F)
OUTDOORS					400	1.0	75.0	32.0
1103	1	No		No	590	0.5	18.0	71.2
GYM	12	No		No	820	0.5	19.0	71.6
1010	9	No	<ul style="list-style-type: none"> <li>Stained Ceiling Tiles</li> </ul>	No	656	0.5	18.1	71.2
1004	2	No		No	750	0.5	18.3	73.2
1005	0	No	<ul style="list-style-type: none"> <li>Stained Ceiling Tiles</li> </ul>	No	694	0.5	17.7	73.8
1110	60	No	<ul style="list-style-type: none"> <li>Stained Ceiling Tiles</li> </ul>	No	990	0.5	34.4	72.7
KITCHEN	2	No	<ul style="list-style-type: none"> <li>Moisture Impacted Materials: See Appendix A</li> </ul>	Yes Ceiling Tiles Around Air Supply	965	0.5	37.7	76.8
1110A	2	No	<ul style="list-style-type: none"> <li>Stained Ceiling Tiles</li> </ul>	No	1,072	0.6	31.3	75.2
1113	1	No	<ul style="list-style-type: none"> <li>Stained Ceiling Tiles</li> </ul>	No	664	0.4	18.1	73.8
1111	5	No	<ul style="list-style-type: none"> <li>Stained Ceiling Tiles: See Appendix A</li> <li>Suspect Microbial Growth: Associated with ceiling tile</li> </ul>	No	495	0.3	16.9	72.1
1111A	0	No	<ul style="list-style-type: none"> <li>Housekeeping: See Appendix A</li> </ul>	No	492	0.3	17.1	70.7
1211	19	Yes Fragrance	<ul style="list-style-type: none"> <li>Bubbling/Peeling Paint: Dark spots throughout ledge under window; See Appendix A</li> </ul>	No	950	0.3	21.3	73.8
1212	21	No	<ul style="list-style-type: none"> <li>Stained Ceiling Tiles</li> <li>Plants</li> </ul>	No	906	0.3	0.1	74.5
1213	5	No		No	1,400	0.3	24.4	75.0
1214	22	No		No	914	0.3	20.7	72.0
1215	19	No	<ul style="list-style-type: none"> <li>Plants</li> </ul>	No	2,122	0.4	33.5	70.5

Room / Location	Number of Occupants	Odor Present	Observations	Dust Accumulation	CO <sub>2</sub> (ppm)	CO (ppm)	RH (%)	Temp (°F)
1216	1	No		Yes Horizontal Surfaces, Air Supply	927	0.3	22.0	72.9
1219	0	No	• Plants	No	879	0.3	21.8	72.3
1218	1	No		No	982	0.2	21.4	71.6
1220	0	No	• Bubbling/Peeling Paint: On windowsill behind the air supply. • Plants	No	640	0.1	20.7	73.2
1221	1	No	• Bubbling/Peeling Paint: Peeling paint on windowsill behind air supply • Plants	No	1,135	0.2	28.7	72.5
1223	1	No	• Plants	No	1,044	0.2	24.5	72.1
1230	1	No	• Plants	No	637	0.2	20.2	71.8
1225	0	No		No	774	0.2	22.7	72.3
2228	20	No		No	1,744	0.3	26.5	73.8
2225	23	No		No	1,170	0.3	24.6	72.7
2222	3	Yes Musty		No	1,254	0.2	22.0	72.7
2221	22	No	• Plants	No	1,320	0.4	25.4	73.0
2223	4	No		No	1,165	0.4	23.8	72.3
2220	22	No		No	1,724	0.3	27.5	73.0
2211	0	No	• Plants	No	1,370	0.3	24.8	73.2
2213	21	No		No	1,425	0.4	26.1	74.8
2212	21	No		No	1,270	0.5	27.4	73.5
2215	13	No	• Plants	No	1,267	0.4	25.0	71.4
2214	22	No	• Plants • Taxidermy	No	1,213	0.4	26.8	72.7
2216	1	No		No	1,113	0.4	22.4	73.0
2217	1	No		No	973	0.3	21.1	73.8
2218	10	No	• Plants	No	886	0.3	19.5	73.9
2219	7	No		No	1,346	0.4	24.4	73.2

Room / Location	Number of Occupants	Odor Present	Observations	Dust Accumulation	CO <sub>2</sub> (ppm)	CO (ppm)	RH (%)	Temp (°F)
1304	11	No		No	1,030	0.2	23.0	70.9
1309	1	No	<ul style="list-style-type: none"> <li>Stained Ceiling Tiles</li> </ul>	No	842	0.1	22.3	71.8
1310	18	No		No	1,130	0.2	23.9	71.4
1311	0	No	<ul style="list-style-type: none"> <li>Housekeeping: See Appendix A</li> </ul>	No	1,558	0.3	26.4	70.2
1313	3	No		No	975	0.1	24.2	69.3
1314	12	Yes Paint		No	804	0.1	22.0	70.0
1315	0	No		No	845	0.1	21.8	68.5
1315 NORTH	2	No	<ul style="list-style-type: none"> <li>Stained Ceiling Tiles</li> </ul>	No	978	0.1	23.8	68.5
1316	13	No		No	1,187	0.1	24.8	69.3
1318	2	No		No	1,002	0.1	24.2	69.3
1322	15	No		No	1,525	0.3	28.0	70.0
1320	7	No	<ul style="list-style-type: none"> <li>Stained Ceiling Tiles</li> </ul>	No	1,305	0.2	25.8	70.2
1325	15	No	<ul style="list-style-type: none"> <li>Stained Ceiling Tiles</li> </ul>	No	2,273	0.3	32.7	70.3
1323	2	No	<ul style="list-style-type: none"> <li>Stained Ceiling Tiles</li> </ul>	No	1,450	0.3	27.1	69.4
1321	1	No	<ul style="list-style-type: none"> <li>Stained Ceiling Tiles</li> </ul>	No	978	0.2	24.7	69.8
OUTDOORS					462	0.3	65.0	31.0

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## Summary of Concerns & Recommendations

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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.

- 1213
- 1215
- 1311
- 1320
- 1322
- 1323
- 1325
- 2211
- 2212
- 2213
- 2214
- 2215
- 2219
- 2220
- 2221
- 2222
- 2228

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 forty-nine (49) 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.

- 1110A
- KITCHEN

### **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.

- 1211 *Fragrance*
- 1314 *Paint*
- 2222 *Musty*

**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.

- KITCHEN

**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.

- 1005
- 1010
- 1110
- 1110A
- 1111
- 1113
- 1212
- 1309
- 1315 NORTH
- 1320
- 1321
- 1323
- 1325

**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.

- 1111 *Associated with ceiling tile*

**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.

- 1211 *Dark spots throughout ledge under window*
- 1220 *On windowsill behind the air supply.*
- 1221 *Peeling paint on windowsill behind air supply*



**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.

- 1212
- 1215
- 1219
- 1220
- 1221
- 1223
- 1230
- 2211
- 2214
- 2215
- 2218
- 2221

**Taxidermy**

IEA observed area(s) with taxidermy mounts present. Individuals with allergies or asthma may be sensitive to dust, animal fur, or dander, and may have a reaction when exposed to these allergens. IEA recommends using an alternative to taxidermy mounts if allergen symptoms are found by occupants within the classroom.

- 2214

**Poor Housekeeping**

Area(s) identified by IEA as having poor housekeeping (excessive clutter, excessive dust/debris on horizontal surfaces, etc.) were documented within the building. Poor housekeeping can limit building maintenance from conducting a proper cleaning of the area. This can result in elevated potential for allergen issues in sensitized individuals due to dirt and debris loading. Poor housekeeping can also allow for pest (insects and rodents) issues in the space.

- 1111A
- 1311

**Dust Accumulation**

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

- 1216 *Horizontal Surfaces, Air Supply*
- KITCHEN *Ceiling Tiles Around Air Supply*

# **Appendix A**

## Photo Documentation



**KITCHEN**

**Moisture Impacted Materials**



**1111**

**Stained Ceiling Tiles**



**1111A**

**Housekeeping**



**1211**

**Bubbling/Peeling Paint**



1311  
Housekeeping