

IEA, INC.

2022 - 2023 IAQ Walkthrough



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Saint Paul Public Schools Johnson Senior High School

Walkthrough Date:
Wednesday, February 8, 2023

Project Description

IEA conducted an Indoor Air Quality (IAQ) walkthrough at Johnson Senior High School by IEA representative, Erik Holloman. 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 three (3) 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 1963.
- There are additions to the building, in the following year(s): 1983.
- 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					430	0.7	79.0	32.0
1311	1	No		No	542	3.5	24.2	73.9
1310	0	No		No	578	1.9	19.9	72.9
GYMNASIUM 1302	32	No		Yes Horizontal Surfaces	939	0.5	32.0	73.0
1221	0	No		No	603	0.5	20.0	73.4
1218	17	No	• Plants	No	854	0.5	23.2	72.1
1219	26	No		No	26	0.5	21.8	72.5
1217	9	No		No	777	0.5	22.2	72.0
1212	4	No		No	699	0.5	22.1	71.1
1215	0	No		No	626	0.4	21.2	70.9
1208	23	No		No	919	0.5	23.1	71.1
1213	1	No		No	586	0.4	20.6	71.1
1206	0	No		No	686	0.4	21.2	70.9
1209	32	No		No	1,208	0.4	26.2	71.4
1207	26	Yes Musty		No	953	0.5	24.4	71.1
1204	12	No	• Stained Ceiling Tiles	No	790	0.4	22.9	71.1
1203	29	No	• Plants	No	1,130	0.4	25.6	71.6
1201	2	No		No	614	0.4	21.3	71.4
1119	1	No		No	556	0.4	20.4	71.8
1010	24	No		No	892	0.5	22.2	72.1
1112	1	No	• Plants	No	764	0.4	21.9	71.2

Room / Location	Number of Occupants	Odor Present	Observations	Dust Accumulation	CO ₂ (ppm)	CO (ppm)	RH (%)	Temp (°F)
1117	0	No		No	520	0.3	20.4	71.2
1113	0	No		No	518	0.4	20.4	71.4
1113	12	No		No	839	0.4	23.8	71.2
1111	2	No		No	632	0.4	21.9	71.2
1109	29	No		No	831	0.4	24.0	71.2
1107	33	Yes Stuffy		No	1,052	0.4	26.4	71.6
1103	17	Yes Fragrance		No	751	0.4	23.0	71.4
1104	16	Yes Baby powder		No	1,212	0.5	26.1	71.2
1101	1	No		No	527	0.4	21.3	71.1
1102	16	No		No	1,007	0.4	25.3	70.9
1017	6	No		No	626	0.4	22.7	70.9
1501	0	No		No	439	0.3	18.7	72.7
AUDITORIUM 1502	#	No		No	482	0.4	18.7	73.0
1210	3	No		No	554	0.4	20.4	71.6
1601	26	No		No	593	0.4	22.1	72.0
1410 KITCHEN	6	No		No	494	0.5	20.7	72.3
1407 KITCHEN OFFICE	1	No		No	506	0.4	19.6	72.3
CAFETERIA 1401	185	No		No	714	0.5	23.2	73.9
2426	21	No		No	781	0.5	22.5	72.7
2402 CHOIR	21	No		No	629	0.4	22.2	72.1
2407 CHOIR OFFICE	0	No		No	550	0.3	22.1	71.2
2409 BAND	0	No		No	464	0.3	21.1	71.6
2418 BAND OFFICE	0	No		No	462	0.3	21.1	71.8
2424	1	No		No	755	0.4	21.8	72.1
2423	1	Yes Fragrance		No	678	0.4	21.3	72.0

Room / Location	Number of Occupants	Odor Present	Observations	Dust Accumulation	CO ₂ (ppm)	CO (ppm)	RH (%)	Temp (°F)
2422	0	No		No	686	0.4	22.5	71.6
2421	0	No		No	543	0.4	20.8	71.2
2420	1	No		No	655	0.4	22.3	71.1
2401	1	No		No	603	0.5	22.3	72.5
2413	0	No		No	610	0.6	20.9	72.7
2222	1	No		No	562	0.4	21.1	72.0
222B	2	No		No	711	0.4	22.1	71.8
2220	2	No		No	600	0.4	21.4	72.3
2218	1	No		No	542	0.4	20.9	72.1
2211	1	No		No	535	0.4	20.7	72.3
2209	1	Yes Stuffy		No	1,092	0.5	25.9	73.4
2210	20	No		No	1,946	0.5	31.6	73.4
2207	24	No		No	1,143	0.4	26.4	73.9
2208	0	No		No	1,135	0.5	24.9	73.8
2205	0	No		No	833	0.4	21.2	73.6
2206	0	No		No	906	0.5	24.5	73.6
2203	0	No		No	635	0.4	20.5	73.8
2201	0	No		No	675	0.4	22.1	73.2
2125	18	No		No	742	0.4	21.7	72.7
2121	18	No	<ul style="list-style-type: none"> Stained Ceiling Tiles 	No	822	0.4	23.1	72.5
2119	0	No		No	657	0.4	21.8	72.1
2122	0	No		No	820	0.4	22.7	72.3
2120B OFFICE	0	No		No	783	0.4	22.6	71.6
2117	18	No		No	800	0.4	23.4	71.8
2120	4	No		No	835	0.4	23.0	72.1
2115	12	No		No	801	0.4	22.6	72.7
2118	24	No	<ul style="list-style-type: none"> Plants 	No	941	0.4	23.9	72.9
2113	27	No		No	733	0.4	22.7	71.4

Room / Location	Number of Occupants	Odor Present	Observations	Dust Accumulation	CO ₂ (ppm)	CO (ppm)	RH (%)	Temp (°F)
2111	9	No		No	781	0.3	23.5	71.6
2107A	0	No		No	940	0.3	23.6	72.0
2109	0	No		No	889	0.3	23.3	71.8
2107	15	No		No	1,076	0.4	25.1	72.5
2114	30	No		No	1,685	0.4	31.0	72.5
2112	12	No	• Plants	No	937	0.3	24.8	72.7
2212B	2	No		No	654	0.3	20.6	74.3
2110	3	No		No	597	0.3	21.8	72.9
2105A	2	No		No	541	0.3	22.0	72.5
2105B	1	No		No	528	0.3	22.0	72.7
2105C	0	No		No	532	0.3	22.0	72.3
2212	2	No	• Plants	No	695	0.4	21.3	73.6
2103	7	No		No	623	0.3	23.1	72.0
2108	2	No		No	518	0.3	21.7	71.6
2101A	2	No		No	562	0.3	23.1	71.2
2101B	2	No		No	566	0.3	23.3	70.9
2101C	0	No		No	508	0.3	23.1	70.9
2102	0	No		No	485	0.3	21.6	71.4
0216	0	No		No	745	0.4	24.4	72.0
0216 OFFICE	0	No		No	714	0.4	23.8	71.6
0218	21	No		No	747	0.4	28.4	71.2
0217	8	No		No	765	0.4	26.1	71.1
0215	7	No		No	980	0.4	27.2	71.4
0214	9	No		No	840	0.3	25.9	71.6
0211	22	No		No	723	0.3	24.6	71.1
0208	1	No		Yes Horizontal Surfaces	556	0.3	22.3	71.2

Room / Location	Number of Occupants	Odor Present	Observations	Dust Accumulation	CO ₂ (ppm)	CO (ppm)	RH (%)	Temp (°F)
0208C	0	No	<ul style="list-style-type: none"> Stained Ceiling Tiles 	Yes Horizontal Surfaces	578	0.3	22.8	70.9
0204	0	No		No	575	0.3	22.2	70.2
0201	0	No		No	475	0.3	22.7	69.8
0202B	0	No		No	455	0.3	22.5	70.0
0202A	12	No		No	495	0.3	22.9	70.2
1007B	0	No		No	515	0.3	23.4	70.5
1006E	2	No		No	532	0.3	23.8	70.9
1006D	0	No		No	482	0.3	22.6	71.1
1006C	0	No		No	479	0.3	23.1	70.9
CONFERENCE ROOM	3	No		No	639	0.3	24.7	70.7
1006B	0	No		No	511	0.3	23.6	70.6
1006A	0	No		No	612	0.3	24.1	71.4
1001 OFFICE	2	No		No	598	0.3	23.7	71.8
1003C	0	No		No	568	0.3	23.3	72.0
1003D	1	No		No	772	0.3	26.0	72.3
1003B	1	Yes Stuffy		No	624	0.3	23.0	75.0
1003E2	1	No		No	643	0.3	23.1	74.8
1003A	0	Yes Fragrance		No	472	0.3	20.6	74.7
1005A	1	No		No	655	0.4	23.0	73.2
1005B	1	No		No	542	0.3	22.6	72.7
1005C	1	No		No	535	0.4	22.8	72.5
1005D	2	No		No	804	0.3	25.6	72.1
1005E	1	No		No	659	0.3	25.0	72.0
1005F	0	No		No	525	0.3	23.2	72.0
1027	2	No		No	654	0.3	24.1	71.8
1019 NURSE	2	No		No	636	0.3	24.6	71.4

Room / Location	Number of Occupants	Odor Present	Observations	Dust Accumulation	CO ₂ (ppm)	CO (ppm)	RH (%)	Temp (°F)
1018 NURSE	0	No		No	620	0.3	23.9	71.4
1027 NURSE	2	No		No	719	0.3	24.9	71.6
1018	0	No		No	516	0.4	22.9	70.6
1010A	2	No		No	694	0.3	24.3	71.8
1011	2	No		No	734	0.3	24.1	72.7
1012	1	No		No	702	0.3	23.7	72.9
1013	2	No		No	658	0.3	23.1	73.4

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.

- 1104
- 1209
- 2114
- 2210

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 one hundred and twenty-nine (129) 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.

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.

- 1003A *Fragrance*
- 1003B *Stuffy*
- 1103 *Fragrance*
- 1104 *Baby powder*
- 1107 *Stuffy*
- 1207 *Musty*
- 2209 *Stuffy*
- 2423 *Fragrance*

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.

- 0208C
- 1204
- 2121

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.

- 1112 • 2112
- 1203 • 2118
- 1218 • 2212

Dust Accumulation

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

- 0208 *Horizontal Surfaces* • GYMNASIUM 1302 *Horizontal Surfaces*
- 0208C *Horizontal Surfaces*