

IEA, INC.

2022 - 2023 IAQ Walkthrough



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Saint Paul Public Schools Administration Building

Walkthrough Date:
Monday, December 5, 2022
Retest Date: January 26, 2023

Project Description

IEA conducted an Indoor Air Quality (IAQ) walkthrough at Administration Building 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.

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 six (6) 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 1971.
- The building does utilize walk-off mats.
- There are below grade floors.
- There are no 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					386	0.4	75.0	27.0
111	3	No		No	690	0.1	23.2	64.4
L006	1	No		No	539	0.2	17.9	72.7
114	1	Yes Fragrance	<ul style="list-style-type: none"> Plants 	Yes Air Return	738	0.1	20.3	71.8
112	1	No		No	543	0.0	17.5	71.8
110	3	No		No	855	0.1	19.1	73.8
109	1	No		No	623	0.3	19.4	72.9
113	0	No		Yes Air Return	535	0.1	17.8	72.0
108	0	No	<ul style="list-style-type: none"> Moisture Impacted Materials: Rust; See Appendix A 	No	564	0.1	18.3	70.2
106	1	No		No	544	0.1	18.4	70.3
105	2	No		No	547	0.1	18.3	70.3
118	1	No		No	722	0.1	18.2	71.6
118A	1	No		No	611	0.1	18.9	71.6
115	0	No	<ul style="list-style-type: none"> Stained Ceiling Tiles 	No	513	0.1	18.7	68.0
116	0	No		No	499	0.1	17.9	69.8
117	0	No		No	461	0.1	17.2	71.2
B108	11	No		Yes Ceiling Tiles Around Air Supply	900	0.1	20.0	73.9
B109	0	No		No	533	0.3	16.9	72.3
B111	0	No		No	531	0.1	17.5	72.0
B115	16	No		No	1,126	0.1	23.2	72.5

Room / Location	Number of Occupants	Odor Present	Observations	Dust Accumulation	CO ₂ (ppm)	CO (ppm)	RH (%)	Temp (°F)
RETEST B115	3	No		No	613	1.2	14.3	70.5
118	0	No		No	469	0.1	17.0	71.6
B114	1	No		No	542	0.1	17.3	71.6
B121	1	No		No	586	0.1	18.8	72.1
B122	0	No		No	535	0.1	16.1	73.8
1009	1	No		No	618	0.1	18.1	72.7
1009A	1	No		No	588	0.1	18.6	72.9
1009B	0	No		No	645	0.1	18.1	72.3
1008	0	No		No	542	0.1	17.0	72.1
141	1	No	<ul style="list-style-type: none"> Stained Ceiling Tiles 	No	562	0.1	17.5	71.8
1005	0	No		No	516	0.1	16.9	72.0
1004	1	No		No	643	0.1	18.3	72.0
1003	0	No		No	541	0.1	17.0	72.1
B113	1	Yes Fragrance		No	672	0.1	18.2	71.6
B112	1	No		No	619	0.1	18.0	71.2
B110	1	No		No	525	0.1	17.1	71.4
207	0	No		No	512	0.1	17.0	71.6
212	4	No	<ul style="list-style-type: none"> Plants 	No	554	0.1	17.0	73.2
215	4	No		No	586	0.1	17.1	73.4
210A	1	No	<ul style="list-style-type: none"> Plants 	No	580	0.1	17.4	73.6
211	0	No		No	512	0.1	15.7	73.9
213	0	No		No	600	0.1	18.6	73.9
222	0	No	<ul style="list-style-type: none"> Stained Ceiling Tiles 	No	544	0.1	16.4	73.4
223	3	No	<ul style="list-style-type: none"> Plants 	No	551	0.1	16.2	73.4
230	1	No	<ul style="list-style-type: none"> Moisture Impacted Materials: See Appendix A 	No	560	0.1	16.5	73.6
231	0	No		No	510	0.1	16.2	72.7
224	0	No		No	523	0.1	16.7	71.6
K ZAN CUBICLE	0	No		No	495	0.1	17.0	70.9

Room / Location	Number of Occupants	Odor Present	Observations	Dust Accumulation	CO ₂ (ppm)	CO (ppm)	RH (%)	Temp (°F)
234	0	No		No	514	0.1	17.4	70.9
233	0	No		No	584	0.1	17.6	71.4
232	0	No		No	500	0.1	16.9	71.4
235	0	No	• Plants	No	500	0.1	16.8	71.4
237	0	No		No	504	0.1	16.9	71.6
K WEYANDT OFFICE	0	No		No	502	0.1	16.9	72.0
239	0	No		No	500	0.1	16.7	71.6
221	0	No		No	502	0.1	16.8	71.2
218	1	No		No	533	0.1	17.0	71.8
214	2	No		No	645	0.1	18.5	72.9
B203	4	No	• Stained Ceiling Tiles	No	538	0.1	16.5	72.5
B206	5	No	• Plants	No	546	0.1	16.5	73.9
207A	0	No		No	506	0.1	16.2	69.5
207B	0	No		No	553	0.1	18.5	72.5
B206 NORTH	1	No		No	652	0.1	16.5	73.2
208A	2	No	• Plants	No	560	0.1	17.1	72.5
B214	1	No		No	668	0.2	19.7	72.1
B212	1	No		No	693	0.1	20.8	73.0
B211	2	No		No	608	0.1	17.6	73.4
B214 CONFERENCE ROOM	0	No		No	523	0.1	16.3	73.2
B213	1	No		No	564	0.1	18.1	73.6
350	0	No		No	522	0.1	18.2	69.8
329B	1	No	• Plants	No	585	0.1	19.2	70.9
349	0	No		No	508	0.1	17.7	71.8
348	0	No	• Plants	No	490	0.1	16.6	72.0
347	1	No		No	524	0.1	16.9	72.3
328	3	No		No	564	0.1	17.3	72.3
330	5	No		No	602	0.1	17.1	72.5
343	0	No		No	502	0.1	16.6	72.7

Room / Location	Number of Occupants	Odor Present	Observations	Dust Accumulation	CO ₂ (ppm)	CO (ppm)	RH (%)	Temp (°F)
345	0	No		No	539	0.1	16.9	72.0
344	1	No	• Plants	No	564	0.1	19.9	71.8
339	0	No		No	515	0.2	17.3	70.2
338	1	No		No	537	0.1	17.1	70.0
331	1	No		No	630	0.1	19.4	71.1
332	4	No		No	594	0.1	17.7	71.6
329A	1	No		No	615	0.1	17.8	72.0
340	0	No	• Stained Ceiling Tiles	No	535	0.1	17.0	71.8
337	0	No		No	497	0.1	16.8	71.1
346	1	No		No	573	0.1	17.9	70.7
326	0	No		No	503	0.1	17.1	70.3
325	0	No	• Plants	No	606	0.1	20.7	70.5
324	1	No		No	604	0.2	18.9	71.4
322	1	No	• Plants	No	569	0.1	17.4	72.5
323	1	No		No	601	0.1	18.3	72.9
315	1	No		No	528	0.2	17.2	71.1
314	2	No		No	604	0.1	18.8	70.7
311	1	No		No	534	0.2	17.3	71.6
313	3	No	• Plants	No	608	0.1	17.5	72.0
309	0	No		No	509	0.2	16.8	71.1
308	0	No		No	520	0.1	17.4	70.0
310	1	No		No	535	0.1	19.1	70.2
342	1	No		No	545	0.1	17.4	70.9
442	0	No		No	616	0.1	21.0	67.6
441	0	No	• Plants	No	665	0.3	19.1	70.0
440	0	No		No	533	0.4	17.5	70.7
341	1	No		No	551	0.1	19.3	71.1
438	1	No	• Plants	No	615	0.3	19.1	71.2
437	0	No	• Plants	No	505	0.3	17.0	71.2

Room / Location	Number of Occupants	Odor Present	Observations	Dust Accumulation	CO ₂ (ppm)	CO (ppm)	RH (%)	Temp (°F)
436	0	No	• Plants	No	507	0.3	17.1	71.2
435	1	No	• Plants	No	548	0.2	21.0	72.0
J REESE CUBICLES	1	No	• Plants	No	540	0.3	16.7	72.7
433	0	No		No	508	0.3	16.3	72.3
426	0	No		No	499	0.3	16.6	71.4
414	1	No		No	560	0.3	17.4	71.2
425	1	No		No	553	0.2	17.1	71.1
424	1	No		No	549	0.1	16.9	73.0
423	0	No	• Plants	No	497	0.1	16.8	72.3
420	0	No	• Plants	No	498	0.2	16.2	72.3
M MARSICAL CUBICLE	2	No		No	606	0.2	17.4	72.7
443	6	No		No	791	0.2	19.5	73.0
446	1	No		No	564	0.3	16.4	72.9
419	0	Yes Stale		No	500	0.2	15.7	72.9
418	0	No		No	502	0.2	15.6	73.2
417	1	No		No	547	0.1	15.6	75.0
415	0	No	• Plants	No	545	0.3	15.7	74.8
A SUCHON CUBICLE	1	No	• Plants	No	569	0.3	16.1	74.1
M SAUNDERS CUBICLES	4	No	• Plants	No	556	0.2	16.4	73.4
410	0	No		No	566	0.1	18.2	73.6
409	0	No		No	563	0.1	14.0	77.4
CAFETERIA	0	No		No	509	0.1	16.0	71.4
511	0	No		No	500	0.1	15.9	71.4
RECEPTION	0	No	• Plants	No	521	0.1	15.8	72.7
529	0	No		No	520	0.1	15.7	73.2
528	1	No	• Plants	No	542	0.1	15.6	73.4
527	0	No		No	510	0.1	15.2	73.8

Room / Location	Number of Occupants	Odor Present	Observations	Dust Accumulation	CO ₂ (ppm)	CO (ppm)	RH (%)	Temp (°F)
526	0	No		No	525	0.1	15.1	73.9
531	2	No		No	537	0.1	16.5	74.5
525	0	No		No	512	0.1	14.9	74.7
524A	0	No		No	512	0.2	14.7	74.8
524	1	No		No	519	0.2	14.9	74.1
517	1	No		No	524	0.1	17.2	73.6
516	1	No		No	551	0.1	15.5	73.9
534	2	No	• Plants	No	545	0.1	15.2	74.5
533	1	No		No	544	0.1	15.8	74.5
514	1	No	• Plants	No	531	0.1	15.1	74.3
535	0	No		No	524	0.2	15.2	73.6
530	2	No	• Plants	No	595	0.1	16.5	73.6
515	1	No		No	531	0.1	16.2	74.8
513	2	No	• Plants	No	554	0.2	15.0	74.5

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 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 forty-six (146) 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.

After IEA completed the initial IAQ walkthrough, the ventilation system(s) serving rooms with carbon dioxide measurements at or above 1,100 ppm were evaluated by SPPS. After ventilation adjustments or repairs were made, IEA returned to those rooms on January 26, 2023, to repeat the walkthrough. The "retest" data is included in this report for reference.

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.

- 111
- 409
- 442

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.

- 114 *Fragrance*
- 419 *Stale*
- B113 *Fragrance*

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.

- 108 *Rust*
- 230

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.

- 115
- 141
- 222
- 340
- B203

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.

- 114
- 208A
- 210A
- 212
- 223
- 235
- 313
- 322
- 325
- 329B
- 344
- 348
- 415
- 420
- 423
- 435
- 436
- 437
- 438
- 441
- 513
- 514
- 528
- 530
- 534
- A SUCHON CUBICLE
- B206
- J REESE CUBICLES
- M SAUNDERS CUBICLES
- RECEPTION

Dust Accumulation

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

- 113 *Air Return*
- 114 *Air Return*
- B108 *Ceiling Tiles Around Air Supply*

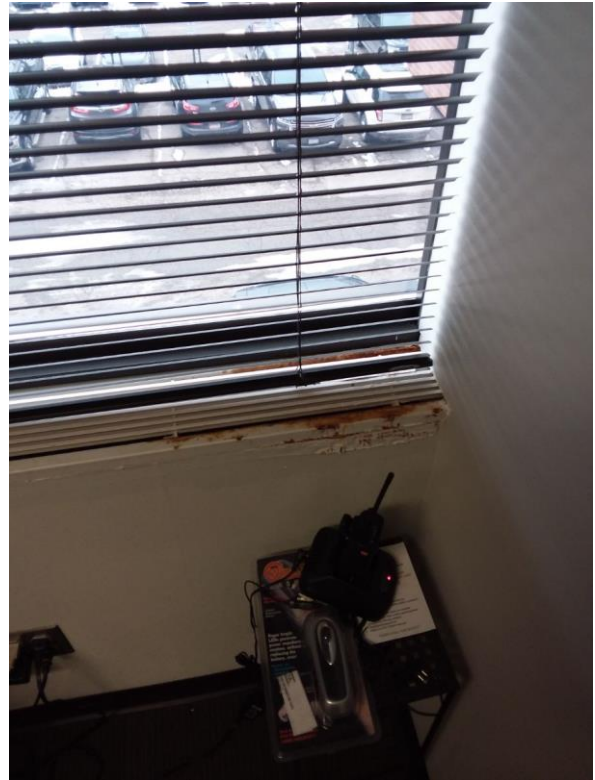
Appendix A

Photo Documentation



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Moisture-Impacted Materials



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Moisture-Impacted Materials