

IEA, INC.

# 2022 - 2023 IAQ Walkthrough



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## Saint Paul Public Schools Highwood Hills Elementary School

Walkthrough Date:  
Friday, February 17, 2023

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## Project Description

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IEA conducted an Indoor Air Quality (IAQ) walkthrough at Highwood Hills Elementary School by IEA representative, Eddie Anderson. 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 1974.
- There are additions to the building, in the following year(s): 1999.
- 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					652	1.2	4.9	7.1
2318	0	No	• Taxidermy	No	526	0.1	7.2	71.7
2318C	0	No		No	544	0.1	6.7	72.6
2317	0	No		No	502	0.2	6.3	70.1
2315	2	No		No	636	0.1	7.8	71.1
2313	2	No	• Plants	No	545	0.1	6.3	72.3
2316	0	No	• Plants	Yes Air Return	568	0.1	7.2	72.1
2314	0	No	• Plants	No	548	0.1	6.4	71.6
2312	0	No		No	504	0.1	6.4	70.8
2311	0	No		No	669	0.0	7.5	71.0
2302	0	No		No	567	0.1	6.3	72.0
2304	0	No		No	546	0.1	6.1	72.3
2306	1	No		No	870	0.1	9.2	72.0
2310	0	No		No	552	0.1	6.8	72.1
2309	0	No		No	519	0.1	6.0	70.9
2303	0	No		No	554	0.1	7.6	71.0
2404	0	No	• Plants	No	625	0.1	7.7	71.4
2402	0	No		No	617	0.1	7.9	71.6
2406	2	No		No	765	0.1	8.3	72.6
2407 KITCHEN	4	No		No	611	0.1	6.5	74.7

Room / Location	Number of Occupants	Odor Present	Observations	Dust Accumulation	CO <sub>2</sub> (ppm)	CO (ppm)	RH (%)	Temp (°F)
2410 CAFETERIA	29	No		No	607	0.1	6.5	74.8
CUSTODIAL OFFICE	1	No		No	602	0.1	8.1	73.3
2230	18	No		No	816	0.1	9.5	73.4
2005	1	No		No	622	0.1	7.3	72.5
2006	0	No	• Plants	No	578	0.1	7.4	71.4
2004 PRINCIPALS	1	No		No	686	0.1	8.6	71.4
2003	1	No		No	609	0.1	7.9	71.5
2001 MAIN OFFICE	2	No		No	595	0.1	7.4	71.7
2011	2	No	• Plants	No	714	0.1	8.3	72.0
2009/OFFICE-2	0	No		No	603	0.1	7.4	71.7
2007	0	No		No	581	0.1	7.7	71.0
2416	0	No		No	569	0.1	7.5	70.5
2422/2427	1	No		No	598	0.1	7.9	70.9
2421	0	No	• Plants	No	607	0.1	7.5	71.8
2423	1	No		No	674	0.1	8.1	72.1
2424	2	No		No	625	0.1	7.8	71.7
2426	2	No		No	689	0.1	7.5	72.9
2506	0	No		No	591	0.1	7.2	71.5
2505	1	No		No	573	0.1	7.1	71.1
2504	6	No		No	601	0.1	7.3	71.4
2503	17	No		No	773	0.1	8.6	71.5
2502	0	No		No	547	0.1	6.8	71.4

Room / Location	Number of Occupants	Odor Present	Observations	Dust Accumulation	CO <sub>2</sub> (ppm)	CO (ppm)	RH (%)	Temp (°F)
2607	0	No		No	538	0.1	6.8	71.1
2606	19	No		No	861	0.1	10.5	72.3
2605	7	No		No	600	0.1	7.4	71.2
2603	0	No	• Plants	No	566	0.1	7.3	71.5
2602	0	No		No	538	0.1	6.6	72.3
2104A	0	No	• Taxidermy	No	654	0.1	8.9	71.5
2104 GYMNASIUM	19	No	• Bubbling/Peeling Paint: Peeling paint and wall damage in multiple locations; See Appendix A	Yes Air Return, Air Supply	731	0.1	9.0	71.2
2604	5	No		No	569	0.1	7.1	71.9
2507	1	No		No	548	0.1	6.8	71.8
2101	0	No		No	637	0.1	8.4	71.1
2201	1	No		No	688	0.1	9.0	71.9
2203	1	No	• Plants	No	679	0.1	8.7	71.3
2220 NURSE	2	No		No	774	0.1	9.9	71.2
2221	0	No		No	665	0.1	9.0	71.1
2222	0	No		No	672	0.1	9.2	70.9
2223	0	No		No	649	0.1	9.1	70.7
2225	0	No		No	620	0.1	9.1	70.4
MEDIA CENTER	3	No		No	597	0.1	7.9	70.6
1603	25	No		No	672	0.1	9.0	71.6
1604	0	No		No	570	0.1	7.7	71.0
754	0	No		No	588	0.1	7.1	70.9
1605	0	No		No	563	0.1	7.1	71.3
1606	0	No		No	572	0.1	7.1	71.1
1607	0	No	• Plants	No	554	0.1	6.8	71.2

Room / Location	Number of Occupants	Odor Present	Observations	Dust Accumulation	CO <sub>2</sub> (ppm)	CO (ppm)	RH (%)	Temp (°F)
1502	0	No		No	589	0.1	7.5	71.8
1504	0	No		No	572	0.1	7.1	70.9
1505	2	No		No	572	0.1	7.1	70.9
1506	21	No		No	721	0.1	8.9	71.2
1507	0	No		No	551	0.1	6.9	71.3
2020A MEDIA OFFICE	0	No		No	586	0.1	8.2	70.9
1103	0	Yes Stuffy		No	532	0.1	6.8	74.5
1112	0	No		No	553	0.1	7.0	75.1
1104	0	No		No	587	0.1	6.1	73.8
1107	0	No		No	545	0.1	6.8	73.8
1108	0	Yes Musty		No	547	0.2	7.3	72.3

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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 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 seventy-six (76) 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.

- 1112

### **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.

- 1103                      *Stuffy*    • 1108                      *Musty*

### **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.

- 2104                      *Peeling paint and wall damage in multiple locations*  
GYMNASIUM



**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.

- 1607
- 2006
- 2011
- 2203
- 2313
- 2314
- 2316
- 2404
- 2421
- 2603

**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.

- 2104A
- 2318

**Dust Accumulation**

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

- 2104                      *Air Return, Air Supply*
  - 2316                      *Air Return*
- GYMNASIUM

# **Appendix A**

## Photo Documentation



2104 GYMNASIUM  
Bubbling/Peeling Paint