

IEA, INC.

2022 - 2023 IAQ Walkthrough



Contact Us:

BROOKLYN PARK OFFICE

9201 W. BROADWAY, #600
BROOKLYN PARK, MN 55445
763-315-7900

MANKATO OFFICE

610 N. RIVERFRONT DRIVE
MANKATO, MN 56001
507-345-8818

ROCHESTER OFFICE

210 WOOD LAKE DRIVE SE
ROCHESTER, MN 55904
507-281-6664

BRAINERD OFFICE

601 NW 5TH STREET SUITE #4
BRAINERD, MN 56401
218-454-0703

MARSHALL OFFICE

1420 EAST COLLEGE DRIVE
MARSHALL, MN 56258
507-476-3599

VIRGINIA OFFICE

5525 EMERALD AVENUE
MOUNTAIN IRON, MN 55768
218-410-9521

www.ieasafety.com

info@ieasafety.com

800-233-9513

Saint Paul Public Schools Harding Senior High School

Walkthrough Date:
Friday, January 13, 2023

Project Description

IEA conducted an Indoor Air Quality (IAQ) walkthrough at Harding Senior High School by IEA representative, Eddie Anderson & David McNeill. 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 one (1) floor.
- 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 1964.
- There are additions to the building, in the following year(s): 1996 and 1998.
- 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					654	0.3	35.6	17.2
1214	0	No		No	522	0.5	15.8	72.7
1212	0	No		No	458	0.5	15.3	70.6
1208	0	No	Stained Ceiling Tiles	No	461	0.4	15.9	70.3
1209	0	No	Stained Ceiling Tiles	No	442	0.4	15.7	70.7
1206	30	No		No	706	0.5	16.9	70.3
CUSTODIAL OFFICE	3	No		No	613	0.5	18.3	72.5
1205A	0	No		No	450	0.4	16.2	68.9
1205	32	No		No	734	0.5	17.9	71.2
1204	0	No		No	437	0.4	15.5	69.8
AUDITORIUM	0	No		No	416	0.4	14.9	69.6
STAGE	0	No		No	414	0.4	15.0	69.3
1215	1	Yes Dirty or Dusty Carpet	Plants	No	464	0.5	14.6	72.0
1216	0	Yes Dirty or Dusty Carpet		No	651	0.5	15.6	71.5
AUTO SHOP	0	No		No	431	0.4	15.0	70.5
1244 ART	26	No		No	819	0.4	16.6	72.1
1244A	0	No		No	734	0.4	17.8	72.5
1244	1	No		No	855	0.5	18.8	72.5
1245	6	No		No	928	0.5	17.2	72.5

Room / Location	Number of Occupants	Odor Present	Observations	Dust Accumulation	CO ₂ (ppm)	CO (ppm)	RH (%)	Temp (°F)
1246	6	No		No	758	0.5	16.1	72.9
1247	0	No		No	671	0.5	17.6	73.2
1240	0	No		No	594	0.5	16.0	72.0
1600	0	No	• Plants	No	502	0.4	16.2	69.6
1601	0	No		No	517	0.4	15.8	70.0
1605	0	No		No	537	0.4	16.4	69.8
1606	0	No		No	499	0.4	16.4	68.7
1609	0	No		No	529	0.4	16.1	69.1
1610	0	No		No	517	0.4	15.8	69.4
1615	0	No	• Plants	No	449	0.4	14.9	70.0
1616	0	No		No	457	0.4	15.0	70.2
1617	0	No		No	444	0.4	14.2	71.1
1618	0	No		No	459	0.4	14.2	71.6
1622	0	No		No	445	0.5	14.6	70.7
1621	0	No		No	453	0.4	14.7	69.8
1627	0	No		No	458	0.4	14.9	70.0
ROOM ACROSS FROM 1627	0	No		No	495	0.4	14.7	70.2
PREK KITCHEN	0	No		No	457	0.4	4.4	70.3
1631	0	No		No	452	0.3	14.3	70.7
1632	0	No		No	463	0.4	14.4	70.5
1633	0	No		No	449	0.4	14.7	70.3
1301	14	No		No	1,149	0.5	21.6	70.9
1302	34	No		No	976	0.5	22.8	70.2
1303	0	No		No	937	0.5	19.6	70.7
1305	24	No		No	752	0.6	18.5	70.5
1306	0	No		No	780	0.5	18.6	70.3
1307	17	No		No	862	0.6	20.2	70.0
1308	15	No		No	1,138	0.5	22.7	69.6
1309	0	No		No	657	0.6	18.5	69.6

Room / Location	Number of Occupants	Odor Present	Observations	Dust Accumulation	CO ₂ (ppm)	CO (ppm)	RH (%)	Temp (°F)
1310	26	No		No	958	0.4	19.9	71.2
1311	0	No		No	917	0.5	20.4	70.3
1313	8	No		No	683	0.5	18.0	71.2
1312	25	No		No	1,294	0.5	23.0	71.6
1315	6	No		No	749	0.6	18.0	71.8
1317	6	No		No	683	0.6	17.6	70.9
1323	0	No		No	482	0.4	14.8	72.0
1316	9	No		No	1,181	0.6	22.6	72.3
1324	3	No		No	790	0.5	18.3	71.6
1325	15	No		No	1,046	0.6	21.7	71.4
1326	1	No		No	655	0.5	18.0	68.5
1328	26	No		No	1,257	0.6	24.4	69.1
1329	23	No		No	1,056	0.6	22.2	70.7
1333	16	No		No	942	0.5	20.8	70.3
1334	1	No		No	786	0.5	19.8	69.3
1358	3	No		No	673	0.4	17.3	70.3
1142	0	No		No	533	0.5	15.6	70.3
1020	0	No	• Stained Ceiling Tiles	No	573	0.4	15.8	70.7
1021	1	No		No	637	0.5	15.7	71.9
1022	0	No		No	585	0.5	16.2	71.6
1018	1	No		No	630	0.5	16.5	71.6
1014	8	No	• Condensation • Stained Ceiling Tiles	No	896	0.5	18.2	71.4
1017	0	No		No	552	0.4	15.2	71.6
1015	0	No		No	574	0.5	16.1	70.5
1010	1	No		No	662	0.5	16.2	70.7
1017	1	No	• Stained Ceiling Tiles	No	812	0.5	16.3	70.9

Room / Location	Number of Occupants	Odor Present	Observations	Dust Accumulation	CO ₂ (ppm)	CO (ppm)	RH (%)	Temp (°F)
1011	1	No	• Stained Ceiling Tiles	No	630	0.4	16.1	71.1
1012	1	No		No	682	0.5	16.8	70.9
1006	0	No		No	576	0.4	16.3	70.7
1007	0	No		No	612	0.4	16.4	71.1
1003	0	No	• Plants	No	584	0.4	15.3	72.9
1005	1	No	• Plants	No	710	0.5	16.3	73.9
1001	4	No		No	680	0.5	16.7	73.2
CAFETERIA	75	No		No	786	0.5	21.3	71.8
KITCHEN	6	No		No	723	0.5	24.5	67.6
1103	0	No		No	841	0.5	24.0	69.3
1126/1127	0	No		No	624	0.5	17.2	69.8
1241	0	No	• Plants	No	622	0.4	17.2	69.6
1140	2	No		No	647	0.4	17.4	69.8
1139	6	No		No	696	0.4	17.5	70.0
1138	2	No		No	868	0.4	19.0	70.3
1129	0	No		No	759	0.4	18.5	71.1
1129	1	No	• Stained Ceiling Tiles	No	573	0.5	16.5	70.2
1130	0	No		No	582	0.4	16.2	70.2
1134	2	No	• Stained Ceiling Tiles	No	567	0.5	16.7	69.4
1137	0	No		No	574	0.4	17.0	69.1
1136	0	No		No	586	0.4	17.6	68.7
1135	0	No		No	559	0.4	17.9	69.1
1133	14	No		No	693	0.4	19.6	68.7
1131	8	No	• Stained Ceiling Tiles	No	794	0.4	18.9	70.7
1110	22	No		No	988	0.5	26.6	69.1
1114	1	No		No	577	0.4	21.9	71.2

Room / Location	Number of Occupants	Odor Present	Observations	Dust Accumulation	CO ₂ (ppm)	CO (ppm)	RH (%)	Temp (°F)
ROOM ACROSS CROM PREK KITCHEN	0	No		No	432	0.4	14.4	70.5
OUTDOORS					501	0.3	80.1	21.1
1366	8	No		No	513	0.2	13.4	69.5
1380 WAITING ROOM	1	No		No	701	0.1	16.0	70.0
1380	1	No		No	662	0.1	14.4	72.0
1381	1	No		No	658	0.1	14.8	70.5
1383	0	No		No	608	0.1	13.6	70.4
1382	1	No		No	532	0.1	13.7	70.0
1376	0	No		No	600	0.1	13.7	71.8
1375	1	No		No	575	0.2	13.7	71.4
1374	0	No		No	567	0.2	13.5	71.2
1373	0	No		No	549	0.1	13.7	71.0
1372	0	No		No	560	0.1	13.7	70.8
1370	0	No		No	537	0.2	13.6	71.0
1371	2	No		No	630	0.2	14.7	71.5
1378	1	No		No	662	0.1	14.7	71.7
1364	0	No		No	532	0.2	13.3	70.4
1363	1	No		No	536	0.1	14.2	69.2
1361	2	No		No	546	0.2	14.4	69.8
1359	15	No		No	548	0.1	14.0	70.0
1358	30	No		Yes Air Return, Air Supply	690	0.0	15.3	70.6
1355	2	No		No	641	0.1	14.6	71.6
1356	10	No		No	642	0.1	14.6	72.1
1354	0	No		No	610	0.1	13.9	73.9
1352	0	No		No	731	0.2	14.8	73.3
1347	1	No	• Plants	No	737	0.1	15.2	72.8

Room / Location	Number of Occupants	Odor Present	Observations	Dust Accumulation	CO ₂ (ppm)	CO (ppm)	RH (%)	Temp (°F)
1348	1	Yes Fragrance		No	710	0.1	14.6	73.2
1349	1	No		No	739	0.1	14.6	73.8
1350	0	No		No	700	0.1	13.7	74.0
1351	1	No		No	667	0.2	13.5	74.0
1352 OFFICE	0	No		No	699	0.2	13.9	73.9
1402	9	No	• Stained Ceiling Tiles	No	588	0.2	14.4	71.2
1404	15	No		No	690	0.1	16.0	70.8
1403	2	No		Yes Air Supply	770	0.2	17.0	70.6
1405	30	No		No	806	0.2	17.5	70.4
1407	35	No	• Stained Ceiling Tiles	No	717	0.1	16.4	70.3
1406	30	No		No	767	0.2	17.3	70.0
1410	30	No		No	891	0.1	18.9	70.3
1409	2	No		No	642	0.1	15.8	69.7
1411	25	No		No	820	0.1	18.3	69.3
1412	20	No		No	688	0.1	18.3	69.9
1413	20	No		No	819	0.1	17.0	70.4
1415	20	No		No	834	0.1	17.0	70.9
1416	2	No		No	710	0.1	14.7	75.4
1417	1	No		Yes Air Supply	771	0.2	15.4	72.5
1420	25	No		No	987	0.1	17.7	71.9
1418	0	No	• Stained Ceiling Tiles	No	699	0.1	15.1	70.7
1421	1	No		No	738	0.1	16.2	70.9
1440	20	No		No	713	0.1	15.3	71.1
1419	10	No		No	815	0.1	16.4	70.8

Room / Location	Number of Occupants	Odor Present	Observations	Dust Accumulation	CO ₂ (ppm)	CO (ppm)	RH (%)	Temp (°F)
1441	1	Yes Fragrance		Yes Air Return	799	0.2	16.7	70.8
1439	0	No		No	835	0.1	17.0	70.8
1443	1	No		No	854	0.1	16.9	71.0
1442	1	No		No	857	0.1	16.4	71.4
1438	20	No		No	918	0.1	17.2	71.2
1444	0	No		No	789	0.1	15.9	70.8
1445	15	No		No	870	0.1	17.0	70.9
1446	20	No		No	863	0.1	17.1	71.0
1452	25	No		No	877	0.1	0.0	70.7
1448	25	No		No	780	0.1	16.4	69.6
1450	8	No		No	771	0.1	17.5	69.9
1451	3	No	• Plants	No	691	0.1	16.3	70.2
1453	15	No	• Plants	No	774	0.2	17.2	70.2
1455	4	No		No	739	0.2	16.6	70.0
1454	20	No		No	755	0.1	17.4	70.1
1456	30	No		No	809	0.1	17.7	70.2
1457	1	No		No	698	0.1	16.5	69.9
1459	1	No		No	711	0.1	16.9	70.2
1458	1	No		Yes Air Supply	744	0.1	17.0	70.5
1462	0	No		Yes Air Return	725	0.1	16.4	72.1
1461	0	No		No	679	0.2	15.2	71.8
1460	0	No		No	606	0.3	14.9	69.6
1323	1	No		No	582	0.1	13.9	70.8
1432	15	No		No	910	0.2	17.1	71.7
1433	1	No		No	846	0.1	16.8	71.5
1434	30	No		No	948	0.1	17.9	70.8
1435	2	No		No	856	0.2	17.4	70.9

Room / Location	Number of Occupants	Odor Present	Observations	Dust Accumulation	CO ₂ (ppm)	CO (ppm)	RH (%)	Temp (°F)
1436	10	No		No	944	0.1	17.8	71.2
1437	20	No		No	991	0.1	18.8	71.7
1431	0	No	• Plants	No	841	0.1	16.9	72.4
1430	1	No		No	874	0.2	17.1	72.7
1428	0	No		No	880	0.2	16.5	72.9
1429	0	No		No	913	0.1	16.8	72.9
1426	15	No		No	914	0.2	16.8	71.5
1427	30	No		No	1,054	0.1	19.9	72.5
1424	10	No		No	897	0.2	16.8	71.9
1425	25	Yes Stuffy		No	1,069	0.0	20.3	72.3
1422	1	No		No	892	0.1	16.9	71.8
1423	20	No		No	992	0.2	19.2	71.8
1340E	5	No		No	844	0.1	17.1	72.1
1340W	10	No		No	810	0.2	16.5	72.4
1343	1	No		Yes Air Supply	850	0.1	16.6	72.7
1342	2	No	• Stained Ceiling Tiles	No	826	0.1	16.7	73.5
1341	3	No		No	862	0.1	16.2	74.1
1345	20	No		Yes Air Supply	946	0.1	16.6	74.1
1118A	1	No		No	712	0.1	16.7	71.6
1121	1	No		No	571	0.1	14.1	70.1
1123	1	No		No	471	0.1	12.3	71.3
1120	1	No		No	463	0.1	11.7	71.3
1112E	1	No		No	804	0.2	13.6	71.0
1112W	2	No		No	499	0.1	13.1	70.9
1117	1	No		No	676	0.2	16.8	73.1

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.

- 1312
- 1328

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 two hundred (200) 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.

- 1416
- 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.

- 1215 *Dirty or Dusty Carpet*
- 1216 *Dirty or Dusty Carpet*
- 1348 *Fragrance*
- 1425 *Stuffy*
- 1441 *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.

- 1011 • 1208
- 1014 • 1209
- 1017 • 1342
- 1020 • 1402
- 1129 • 1407
- 1131 • 1418
- 1134

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.

- 1014

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.

- 1003 • 1431
- 1005 • 1451
- 1215 • 1453
- 1241 • 1600
- 1347 • 1615

Dust Accumulation

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

- | | |
|--------------------------------------|--------------------------|
| • 1343 <i>Air Supply</i> | • 1417 <i>Air Supply</i> |
| • 1345 <i>Air Supply</i> | • 1441 <i>Air Return</i> |
| • 1358 <i>Air Return, Air Supply</i> | • 1458 <i>Air Supply</i> |
| • 1403 <i>Air Supply</i> | • 1462 <i>Air Return</i> |