

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 Como Park Senior High School

Walkthrough Date:
Thursday, January 19, 2023
March 24, 2023

Project Description

IEA conducted an Indoor Air Quality (IAQ) walkthrough at Como Park Senior High School by IEA representative, Sashya Wandmaker & Jon Gorostiaga. 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 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 1954.
- There are additions to the building, in the following year(s): 1978 and 1993.
- 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					400	0.5	91.0	32.0
1001	4	No	• Plants	No	559	0.4	25.5	70.7
1002	1	No		No	587	0.4	24.9	71.1
1006	0	No		No	556	0.4	24.3	71.2
1004	0	No		No	502	0.4	23.3	71.4
1003	0	No		No	515	0.4	23.7	71.4
1009	1	No		No	634	0.4	24.6	71.1
1011	0	No		No	522	0.4	23.7	71.2
1013	0	No	• Moisture Impacted Materials: See Appendix A	No	535	0.4	23.5	71.4
1015	0	No		No	535	0.4	23.6	71.6
1027	0	Yes Fragrance		No	580	0.4	24.3	71.8
1025	0	No		No	567	0.4	23.8	71.8
1019	1	No		No	565	0.4	24.3	72.3
1021	0	No		No	498	0.4	22.8	72.1
1017	1	No		No	620	0.4	24.3	72.1
1022	0	No		No	531	0.4	23.4	71.2
1024	0	No		No	542	0.4	24.1	70.9
1026	0	No		No	493	0.4	23.4	71.1
1036	0	No		No	519	0.4	23.2	71.1
1018	1	No		No	537	0.4	23.9	70.9
1016	3	No		No	641	0.4	25.5	70.3
1014	0	No		No	587	0.4	25.3	70.5

Room / Location	Number of Occupants	Odor Present	Observations	Dust Accumulation	CO ₂ (ppm)	CO (ppm)	RH (%)	Temp (°F)
1101 GYMNASIUM	33	No	<ul style="list-style-type: none"> Bubbling/Peeling Paint: See Appendix A 	Yes Horizontal Surfaces, Air Supply	568	0.4	26.1	70.9
1105A	0	No		No	444	0.4	24.2	71.2
1103A	0	Yes Musty		No	451	0.4	24.6	70.7
1142 WRESTLING ROOM	0	No		No	409	0.4	25.2	70.0
1136 WRESTLING	0	No		No	417	0.4	26.5	69.1
1146 FIELD HOUSE	24	Yes Rubber/plastic		Yes Horizontal Surfaces	527	0.3	25.5	69.8
1112B	0	No	<ul style="list-style-type: none"> Bubbling/Peeling Paint: On ceiling in shower area; See Appendix A 	No	442	0.4	25.2	72.0
1128	1	No		No	488	0.4	26.9	68.5
1106	0	No		No	430	0.4	28.8	69.4
1104	0	No	<ul style="list-style-type: none"> Moisture Impacted Materials: Water stains on pipes; Rusting around ice machine; See Appendix A 	Yes Air Supply	446	0.4	33.4	67.6
1119	0	No		Yes Air Return	392	0.4	23.6	70.2
1113A	1	Yes Fragrance		No	524	0.5	25.6	70.0
1113	3	No	<ul style="list-style-type: none"> Live Animals 	Yes Air Return	553	0.5	26.4	68.9
1109	0	No		No	506	0.4	25.7	69.1
1114B	0	No		No	451	0.2	28.5	80.2
1109A	0	No		No	498	0.4	25.6	69.6
1107	0	No		No	497	0.4	25.1	69.8

Room / Location	Number of Occupants	Odor Present	Observations	Dust Accumulation	CO ₂ (ppm)	CO (ppm)	RH (%)	Temp (°F)
1224	0	No	<ul style="list-style-type: none"> Stained Ceiling Tiles 	No	518	0.4	25.5	70.9
1218	24	No	<ul style="list-style-type: none"> Moisture Impacted Materials: Water staining on ceiling and pipe; See Appendix A Plants 	Yes Horizontal Surfaces, Floor	604	0.4	22.6	72.7
1212	1	No	<ul style="list-style-type: none"> Stained Ceiling Tiles 	No	580	0.5	25.8	70.5
1214	17	No	<ul style="list-style-type: none"> Stained Ceiling Tiles Plants 	No	655	0.5	25.9	71.1
1214A	0	No		No	553	0.4	24.7	71.2
1216	13	No		No	742	0.4	24.5	71.6
1218	11	No	<ul style="list-style-type: none"> Live Animals Plants 	Yes Air Return	712	0.4	25.6	71.8
1222A	2	No	<ul style="list-style-type: none"> Plants 	No	625	0.5	27.5	71.4
1222	6	No	<ul style="list-style-type: none"> Aquariums (fish) Live Animals Plants 	Yes Air Return	620	0.4	25.9	71.4
1222B	0	No		No	601	0.4	26.2	71.1
1038	1	No		No	585	0.5	25.5	70.5
1007	0	No	<ul style="list-style-type: none"> Moisture Impacted Materials: Rusty windowsill; See Appendix A 	No	509	0.5	24.6	71.2
1005	0	No	<ul style="list-style-type: none"> Moisture Impacted Materials: Rusty window sill; See Appendix A 	No	618	0.4	26.6	69.8
1218 OFFICE	1	No		No	453	0.4	22.4	72.7
1226	24	No		Yes Pipes	749	0.5	26.7	70.3
1237	12	No		No	638	0.4	26.9	68.4
1235	0	No		No	593	0.4	26.8	68.4
1215	0	No	<ul style="list-style-type: none"> Bubbling/Peeling Paint: See Appendix A 	No	588	0.4	26.8	68.4
1217	0	No	<ul style="list-style-type: none"> Bubbling/Peeling Paint: See Appendix A 	No	635	0.4	27.4	68.5

Room / Location	Number of Occupants	Odor Present	Observations	Dust Accumulation	CO ₂ (ppm)	CO (ppm)	RH (%)	Temp (°F)
1219	0	No		No	600	0.4	26.9	68.7
1233	1	No		No	617	0.4	27.4	68.7
1227	0	No		No	581	0.4	26.7	68.5
1229	0	No		No	585	0.4	26.7	68.5
1031 AUDITORIUM	0	No		No	466	0.4	24.5	70.0
1033 STAGE	0	No	<ul style="list-style-type: none"> Bubbling/Peeling Paint: NW Corner; See Appendix A Efflorescence: NW corner, South wall and near SW corner; See Appendix A 	Yes Air Return	475	0.5	23.7	70.9
1204	0	No		No	858	0.5	27.9	69.6
1208	0	No	<ul style="list-style-type: none"> Stained Ceiling Tiles 	No	592	0.4	25.7	70.0
1206	5	Yes Fragrance	<ul style="list-style-type: none"> Stained Ceiling Tiles 	No	1,033	0.5	29.2	70.2
1311 CUSTODIAN OFFICE	1	No		No	595	0.5	27.0	70.0
1304 KITCHEN	3	No		No	860	0.6	27.2	70.0
1307B OFFICE	1	No		No	714	0.4	25.5	70.2
1305 CAFETERIA	3	No		No	531	0.5	25.2	70.3
1303 OFFICE	0	No		No	515	0.4	24.2	71.1
1601	5	No		No	770	0.4	24.5	71.6
1603	17	No		No	851	0.4	27.4	70.9
1606	1	No		No	570	0.5	24.3	70.9
1606A	0	No		No	598	0.4	25.0	70.2
1605	11	No		No	742	0.4	25.2	71.6
1607	18	No	<ul style="list-style-type: none"> Plants 	No	779	0.4	26.9	71.6
1609	7	No		No	986	0.5	30.0	71.8
1611 OFFICE	0	No		No	728	0.5	25.0	72.1
1615	5	No	<ul style="list-style-type: none"> Plants 	No	644	0.4	24.8	70.9

Room / Location	Number of Occupants	Odor Present	Observations	Dust Accumulation	CO ₂ (ppm)	CO (ppm)	RH (%)	Temp (°F)
1701	28	No		No	1,406	0.4	36.1	70.2
RETEST 1701	8	No		No	991	0.0	18.8	68.9
1703	21	No		No	814	0.4	28.2	70.7
1709	19	No		No	1,042	0.4	30.7	70.2
1708	12	No		No	1,074	0.3	29.4	70.7
1716	20	No		No	894	0.4	27.4	70.5
1706	0	No		No	720	0.4	25.8	71.1
1618	23	No		No	1,222	0.4	31.3	71.2
RETEST 1618	12	No		No	733	0.0	17.8	68.9
1616	10	No		No	865	0.4	26.7	71.2
1614 OFFICE	0	No		No	654	0.3	24.8	71.1
1612 OFFICE	0	No		No	658	0.4	24.7	71.1
1608 OFFICE	1	No		No	679	0.4	25.0	71.1
1501 OFFICE	3	No		No	686	0.4	25.9	70.9
1503 OFFICE	1	No		No	742	0.3	26.4	69.8
1505 OFFICE	0	No		No	622	0.3	25.8	69.8
1507 OFFICE	1	No		No	787	0.4	27.3	70.0
1509 OFFICE	0	No		No	574	0.3	25.3	70.0
1511 OFFICE	1	No	• Stained Ceiling Tiles	No	604	0.4	25.1	70.0
1513 OFFICE	2	No		No	681	0.4	25.9	70.0
1512 OFFICE	1	No		No	603	0.3	25.4	70.2
1514 OFFICE	0	No		No	577	0.4	25.1	69.6
1811 CUBICLES	1	No		No	745	0.2	26.9	69.4
1506 CONFERENCE	0	No		No	578	0.4	25.8	68.5
1803 OFFICE	1	No		No	779	0.4	25.8	71.1
1711	0	Yes Fragrance, Dirty or Dusty Carpet		No	793	0.4	26.7	70.3
1711A OFFICE	0	No		No	727	0.4	25.5	70.3

Room / Location	Number of Occupants	Odor Present	Observations	Dust Accumulation	CO ₂ (ppm)	CO (ppm)	RH (%)	Temp (°F)
1713 OFFICE	0	No		No	749	0.4	25.3	71.1
1717	3	No	• Plants	No	764	0.4	25.9	70.5
1717A	0	No		No	843	0.4	27.0	70.0
1726	17	No		No	934	0.3	28.4	70.2
1724	25	No	• Plants	No	1,052	0.4	29.0	70.7
1722 OFFICE	0	No		No	742	0.4	25.7	70.9
1718	18	No		No	1,155	0.4	28.8	70.7
RETEST 1718	22	No		No	957	0.0	20.3	69.1
1401	18	No		No	710	0.3	27.7	69.4
1304 OFFICE	3	No		No	661	0.3	25.8	70.0
1409	22	No		No	822	0.4	29.8	70.0
1405	0	No		No	776	0.4	30.0	70.3
1411	2	No	• Stained Ceiling Tiles	No	584	0.4	26.1	68.9
1413 OFFICE	1	No		No	626	0.3	26.7	69.1
1415	2	No		No	594	0.3	25.9	69.4
1416 CUBICLES	0	No		No	607	0.4	26.1	69.8
1412 OFFICE	0	No		No	607	0.4	25.8	69.6
1312	25	Yes Fragrance		No	965	0.3	29.3	70.0
1203	1	No		No	881	0.4	29.4	71.1
1205	15	No		No	948	0.5	29.4	70.5
1207	22	No		No	751	0.4	26.8	70.3
1209	14	No		No	718	0.4	27.6	70.2
1211	17	No		No	809	0.5	29.2	69.6
1712	21	No		No	982	0.4	29.9	70.2
2303 CUBICLES	0	Yes Food		No	724	0.5	26.8	71.2
2313 LIBRARY	1	No		No	700	0.4	26.4	71.1
2307 CONFERENCE	0	No		No	641	0.4	25.8	70.9

Room / Location	Number of Occupants	Odor Present	Observations	Dust Accumulation	CO ₂ (ppm)	CO (ppm)	RH (%)	Temp (°F)
2311 OFFICE	0	No		No	747	0.4	27.0	70.5
2302	0	Yes Fragrance		No	735	0.3	27.5	70.3
2306 WORKROOM	0	No	• Plants	No	644	0.4	26.5	70.7
2601	24	No		No	1,205	0.5	30.7	70.5
RETEST 2601	12	No		No	870	0.0	18.5	70.9
2603	10	No		No	1,012	0.5	28.5	70.2
2605	13	No		No	886	0.4	27.5	71.2
2606	18	No		No	999	0.4	28.2	71.2
2609 CUBICLES	0	No		No	674	0.4	25.6	70.3
2611	24	No		No	904	0.4	27.5	71.8
2613	20	No		No	992	0.4	29.0	71.2
2616 OFFICE	1	No		No	716	0.5	26.0	71.1
2614 OFFICE	3	No		No	811	0.4	26.7	71.2
2617	12	No	• Plants	No	776	0.4	26.0	72.1
2624	13	No		No	836	0.4	26.4	72.0
2618	3	No		No	855	0.4	26.4	71.1
2613	3	No		No	801	0.4	27.0	70.9
2626	10	No		No	978	0.4	28.2	70.7
2701	14	No		No	805	0.4	26.3	71.4
2703	15	No		No	896	0.5	27.4	71.2
2708	1	No		No	859	0.4	28.8	71.1
2707 CUBICLES	0	No		No	698	0.4	26.2	70.2
2709	20	No		No	972	0.3	30.7	69.8
2712	18	No		No	798	0.3	26.1	71.8
2713	15	No		No	862	0.4	27.2	71.6
2714	15	No		No	814	0.4	27.3	70.9
2716 OFFICE	0	Yes Fragrance		No	660	0.5	25.7	70.2

Room / Location	Number of Occupants	Odor Present	Observations	Dust Accumulation	CO ₂ (ppm)	CO (ppm)	RH (%)	Temp (°F)
2726	2	No		No	667	0.3	25.5	70.7
2728	20	No		No	1,001	0.4	28.7	70.9
2732	21	Yes Fragrance		No	1,266	0.4	31.5	71.4
RETEST 2732	26	No		No	1,160	0.0	22.2	70.1
2734	0	No		No	713	0.4	25.7	71.6
2736	1	No		No	719	0.5	25.7	71.2
2738	15	No		No	903	0.5	28.4	70.7
2742	17	No		No	932	0.4	29.0	70.2
2744 OFFICE	0	No		No	680	0.3	26.1	70.7
2715	2	No		No	785	0.4	27.1	70.2

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.

- 1618
- 2601
- 1701
- 2732

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 March 24, 2023, to repeat the walkthrough. The “retest” data is included in this report for reference.

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 sixty-two (162) 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.

- 1104
- 1114B

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.

- | | | | |
|--------------------|-----------------------|-----------------|---|
| • 1027 | <i>Fragrance</i> | • 1711 | <i>Fragrance, Dirty or Dusty Carpet</i> |
| • 1103A | <i>Musty</i> | • 2302 | <i>Fragrance</i> |
| • 1113A | <i>Fragrance</i> | • 2303 CUBICLES | <i>Food</i> |
| • 1146 FIELD HOUSE | <i>Rubber/plastic</i> | • 2716 OFFICE | <i>Fragrance</i> |
| • 1206 | <i>Fragrance</i> | • 2732 | <i>Fragrance</i> |
| • 1312 | <i>Fragrance</i> | | |

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.

- 1005 *Rusty window sill*
- 1007 *Rusty windowsill*
- 1013
- 1104 *Water stains on pipes; Rusting around ice machine*
- 1218 *Water staining on ceiling and pipe*

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.

- 1206
- 1208
- 1212
- 1214
- 1224
- 1411
- 1511 OFFICE

Efflorescence Concerns

IEA identified area(s) with efflorescence within the room(s) listed below. IEA recommends the moisture concern causing the efflorescence be investigated. Building materials should be repaired or replaced.

- 1033 STAGE *NW corner, South wall and near SW corner*

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.

- 1033 STAGE *NW Corner*
- 1101 GYMNASIUM
- 1112B *On ceiling in shower area*
- 1215
- 1217

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.

- 1001
- 1214
- 1218
- 1222
- 1222A
- 1607
- 1615
- 1717
- 1724
- 2306 WORKROOM
- 2617

Live Animals / Aquariums

IEA observed live animal(s). Prior to having animals, the Building Principal should be consulted. Consult parents about potential allergies in a take-home note with students or during parent-teacher conferences. IEA recommends that the animal and cages/cases are regularly cleaned/maintained and stored away from air supply and return vents.

- 1113 • 1222
- 1218 • 1222

Dust Accumulation

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

- | | | | |
|------------------|--|--------------------|-----------------------------------|
| • 1033 STAGE | <i>Air Return</i> | • 1146 FIELD HOUSE | <i>Horizontal Surfaces</i> |
| • 1101 GYMNASIUM | <i>Horizontal Surfaces, Air Supply</i> | • 1218 | <i>Air Return</i> |
| • 1104 | <i>Air Supply</i> | • 1218 | <i>Horizontal Surfaces, Floor</i> |
| • 1113 | <i>Air Return</i> | • 1222 | <i>Air Return</i> |
| • 1119 | <i>Air Return</i> | • 1226 | <i>Pipes</i> |

Appendix A

Photo Documentation



1013

Moisture-Impacted Materials



1101 GYMNASIUM

Bubbling/Peeling Paint



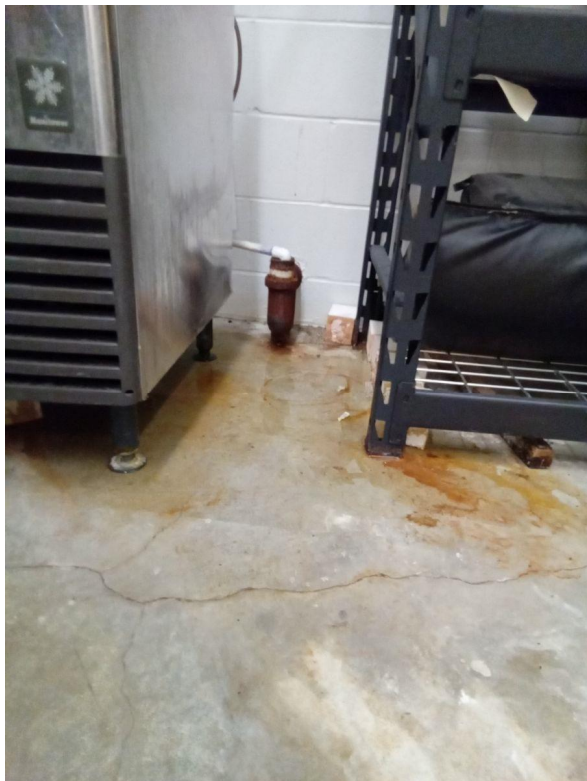
1112B

Bubbling/Peeling Paint



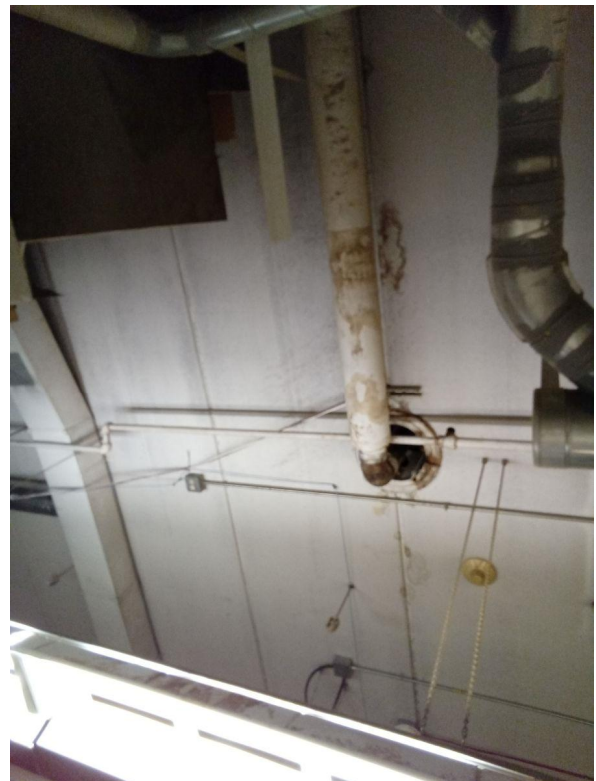
1104

Moisture-Impacted Materials



1104

Moisture-Impacted Materials



1218

Moisture-Impacted Materials



1007

Moisture-Impacted Materials



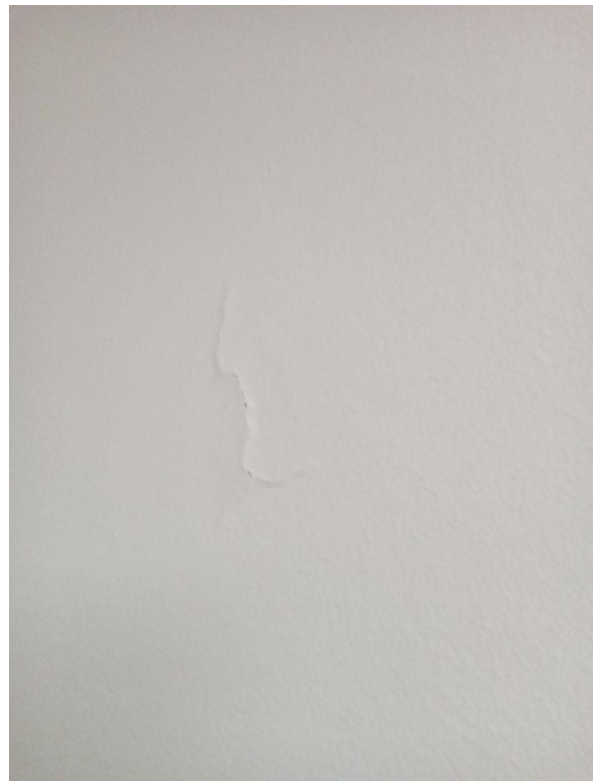
1005

Moisture-Impacted Materials



1215

Bubbling/Peeling Paint



1217

Bubbling/Peeling Paint



1033 STAGE

Bubbling/Peeling Paint



1033 STAGE

Efflorescence