



Date: 11/14/22

Performed by: Andrew Tinklenberg

Location: Bryn Mawr School – 252 Upton Avenue South, Minneapolis, MN 55405

RE: Radon Testing

INTRODUCTION

From January 3 – 6, 2022, initial radon testing was performed within Bryn Mawr School located at 252 Upton Avenue South in Minneapolis, MN. The testing was performed to ensure that radon gas concentrations within the building are below the established regulatory limits. Testing was conducted under normal occupied building conditions in frequently-occupied ground contact rooms and other areas in accordance with ANSI/AARST Protocols for Conducting Measurements of Radon and Radon Decay Products in Schools and Large Buildings 2014 with 1/21 Revisions and Minnesota Department of Health (MDH) guidelines.

SUMMARY OF FINDINGS

Forty-five (45) of the forty-seven (47) areas that were tested were found to have radon gas levels below 4.0 picocuries per liter of air (pCi/L), which is the EPA and MDH action level. (Note: Spike sampling is performed in conjunction with this testing, duplicate (side-by-side) sampling was conducted in select areas at a rate of 10% of areas tested, and “Rooms A, B & C” were the blank samples.)

Offices 101 and 102 in the north wing were found to have radon gas levels above 4.0 picocuries per liter of air (pCi/L). When radon is detected at or above this level, the EPA and MDH recommend follow-up testing in the area. From January 12 – 14, 2022, follow-up testing was performed in Office 101 using a continuous radon monitor (CRM). CRMs are recommended for follow-up testing because they give hour by hour results instead of just an overall average of the radon concentration during the test period. This can be helpful in knowing the radon gas concentrations in an area during occupied times. The CRM results for the follow-up testing were still found to be above 4.0 pCi/L, and so the staff members in both offices were relocated and the rooms kept unoccupied. A ventilation upgrade project for these two rooms was then scheduled and completed in the summer of 2022.

From November 1 – 3 and November 9 – 11, 2022, post-mitigation testing was performed in these two offices again using a CRM. The radon gas concentration during the offices occupied hours, which are from approximately 7:30 AM – 3:00 PM, as well as the overall average radon gas concentration was now found to be below 4.0 pCi/L with an average radon gas concentration of 2.5 pCi/L in Office 101 and 2.3 pCi/L in Office 102. The testing verified that the ventilation system is working properly and maintaining radon gas concentrations below the EPA and MDH action level during occupied hours.

REMARKS

The radon test kits were submitted to and analyzed by AirChek, Inc., 1936 Butler Bridge Rd, Mills River, NC 28759 (MN License #RL-00003). Please refer to the attached AirChek radon testing report and sample diagrams for further information concerning the radon testing, areas that were tested, and the radon levels that were found to be present. MPS' CRM is a Sun Nuclear Model 1030 that was last calibrated on 9/26/22 with bi-annual device performing testing (DPT) completed on 6/17/22. Per MDH requirements, this information will be shared with the local regulatory agency (MDH - health.indoorair@state.mn.us, Phone # 651-201-4601) and incorporated in an MPS' board meeting. The information will also be posted on the EH&S webpage available through the main MPS website and maintained on file by EH&S.

Every effort was made to maintain closed building conditions and HVAC systems are monitored and controlled remotely by MPS Direct Digital Control (DDC) personnel. Any deviation in building conditions or sampling protocol which could have an impact on the testing and test results is described in the summary above. If any unoccupied areas that were not tested are planned for future occupancy, contact EH&S so that the areas can be tested. Unless specified, all QA/QC measurements were within the required limits. Radon testing is to be performed in MPS District buildings every 5 years or any time major renovation activities take place which have the potential to impact the building's foundation or HVAC systems. Refer to the attached test condition summary and ANSI/AARST advisories for additional information concerning the radon testing.

If you have any questions regarding this information, please feel free to contact me. Thank you,



Andrew Tinklenberg
MDH RMEA-00426
NRPP ID# 111389 RT



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Environmental Health & Safety - Facilities Dept.
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612-668-0275 Fax



Attachments

Radon Testing Results
Floor Plans with Sample Locations
Notification Documents
Test Condition Summary
ANSI/AARST Advisory Statements

INITIAL RADON TESTING RESULTS

I5554 / ANDREW TINKLENBERG / MINNEAPOLIS PUBLIC SCHOOLS

Kit Number	Start Date	Start Time	End Date	End Time	Temp.	Facility	Building	Room	Project ID	Floor	Result
11035209	2022-01-03	7:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	CUSTODIAN OFFICE 161A	BRYN MAWR	1	0.7
11035210	2022-01-03	7:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	CUSTODIAN OFFICE 161A	BRYN MAWR	1	0.7
11035211	2022-01-03	7:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	MPLS. KIDS 14	BRYN MAWR	0	< 0.3
11035212	2022-01-03	7:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	MPLS. KIDS 12	BRYN MAWR	0	0.7
11035213	2022-01-03	7:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	MPLS. KIDS 10	BRYN MAWR	0	0.6
11035214	2022-01-03	7:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	CLASS 213	BRYN MAWR	2	< 0.3
11035215	2022-01-03	7:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	CLASS 120	BRYN MAWR	1	0.6
11035216	2022-01-03	7:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	STAFF WORK ROOM 118/119	BRYN MAWR	1	1.6
11035217	2022-01-03	7:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	CLASS 121	BRYN MAWR	1	< 0.3
11035218	2022-01-03	7:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	OFFICE 101	BRYN MAWR	1	9.5
11035219	2022-01-03	7:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	OFFICE 102	BRYN MAWR	1	7.6
11035220	2022-01-03	7:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	OFFICE 103	BRYN MAWR	1	2.7
11035221	2022-01-03	7:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	OFFICE 126	BRYN MAWR	1	1.9
11035222	2022-01-03	7:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	OFFICE 128	BRYN MAWR	1	1.7
11035223	2022-01-03	7:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	CLASS 130	BRYN MAWR	1	< 0.3
11035224	2022-01-03	7:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	CLASS 130	BRYN MAWR	1	< 0.3
11035225	2022-01-03	7:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	MULTI-PURPOSE 131	BRYN MAWR	1	1.4
11035226	2022-01-03	7:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	OFFICE 138	BRYN MAWR	1	0.7
11035227	2022-01-03	7:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	OFFICE 143	BRYN MAWR	1	0.8
11035228	2022-01-03	7:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	CLASS 145	BRYN MAWR	1	< 0.3
11035229	2022-01-03	7:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	CLASS 147	BRYN MAWR	1	0.9
11035230	2022-01-03	7:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	CLASS 149	BRYN MAWR	1	0.8
11035231	2022-01-03	7:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	COMPUTER 151	BRYN MAWR	1	< 0.3
11035232	2022-01-03	7:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	MEDIA 153	BRYN MAWR	1	0.7
11035233	2022-01-03	8:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	OFFICE 153B	BRYN MAWR	1	0.8
11035234	2022-01-03	8:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	CLASS 155	BRYN MAWR	1	< 0.3
11035235	2022-01-03	8:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	KITCHEN 167A	BRYN MAWR	1	1.0
11035236	2022-01-03	8:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	CAFETERIA 167	BRYN MAWR	1	1.0
11035237	2022-01-03	8:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	CLASS 167E	BRYN MAWR	1	1.1
11035238	2022-01-03	8:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	STAFF 171	BRYN MAWR	1	0.7
11035239	2022-01-03	8:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	CLASS 172	BRYN MAWR	1	0.7
11035240	2022-01-03	8:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	CLASS 172	BRYN MAWR	1	0.8
11035241	2022-01-03	8:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	CLASS 173	BRYN MAWR	1	1.0
11035242	2022-01-03	8:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	CLASS 174	BRYN MAWR	1	0.8
11035243	2022-01-03	8:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	CLASS 175	BRYN MAWR	1	0.8

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Kit Number	Start Date	Start Time	End Date	End Time	Temp.	Facility	Building	Room	Project ID	Floor	Result
11035244	2022-01-03	8:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	CLASS 176	BRYN MAWR	1	0.8
11035245	2022-01-03	8:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	CLASS 177	BRYN MAWR	1	1.1
11035246	2022-01-03	8:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	CLASS 178	BRYN MAWR	1	1.4
11035247	2022-01-03	8:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	CLASS 179	BRYN MAWR	1	1.8
11035248	2022-01-03	8:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	CLASS 274	BRYN MAWR	1	0.8
11035249	2022-01-03	8:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	GYM 156	BRYN MAWR	1	< 0.3
11035250	2022-01-03	8:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	GYM 156A	BRYN MAWR	1	1.0
11035251	2022-01-03	8:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	OFFICE 148B	BRYN MAWR	1	0.9
11035252	2022-01-03	8:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	OFFICE 140L	BRYN MAWR	1	0.8
11035253	2022-01-03	8:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	OFFICE 140K	BRYN MAWR	1	0.9
11035254	2022-01-03	8:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	OFFICE 140G	BRYN MAWR	1	0.9
11035255	2022-01-03	8:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	OFFICE 140H	BRYN MAWR	1	1.2
11035256	2022-01-03	8:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	OFFICE 140D	BRYN MAWR	1	0.9
11035257	2022-01-03	8:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	HEALTH OFFICE 142	BRYN MAWR	1	0.6
11035258	2022-01-03	8:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	MAIN OFFICE 140	BRYN MAWR	1	0.7
11035259	2022-01-03	8:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	MAIN OFFICE 140	BRYN MAWR	1	0.7
11035260	2022-01-03	8:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	ROOM A	BRYN MAWR	1	< 0.3
11035261	2022-01-03	8:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	ROOM B	BRYN MAWR	1	< 0.3
11035262	2022-01-03	8:00 am	2022-01-06	3:00 pm	70	MPS	BRYN MAWR	ROOM C	BRYN MAWR	1	< 0.3

FOLLOW-UP RADON TESTING RESULTS



Radon Inspection Report

Test Location:

Bryn Mawr - Office 101
252 Upton Ave. S.
Minneapolis, MN 55405

Test For:

Type: Follow Up

Inspected By:

1225 N. 7th Street
Minneapolis, MN 55411
612-668-0310

Bldg. Type: Educational

Test Result: Fail

Overall Average:

11.0 pCi/l

EPA Average:

11.4 pCi/l

Test Device Details:

Serial Number: 246216011
Model Number: 1030
Last Calibration: 10/02/2021
Next Calibration: 10/02/2022
Cal-Factors: 2.35,2.25,2.57,2.24,2.29,2.29
Motion Error: Yes

Test Site Condition:

Test Summary:

CRM Location:	<u>Start:</u>	<u>Stop:</u>	<u>Interval:</u>	<u>Duration:</u>
	01/12/2022 09:39 AM	01/14/2022 09:39 AM	1 hr	48 hr
*First 4 hrs of data excluded	<u>Min:</u>	<u>Max:</u>	<u>Average:</u>	<u>Measurement Units:</u>
Radon Concentration:	7.6	15.6	11.4	pCi/l
Temperature	72.5	76.1	74.4	F
Humidity	21	24	22	%
Pressure	29.22	29.53	29.37	inHg

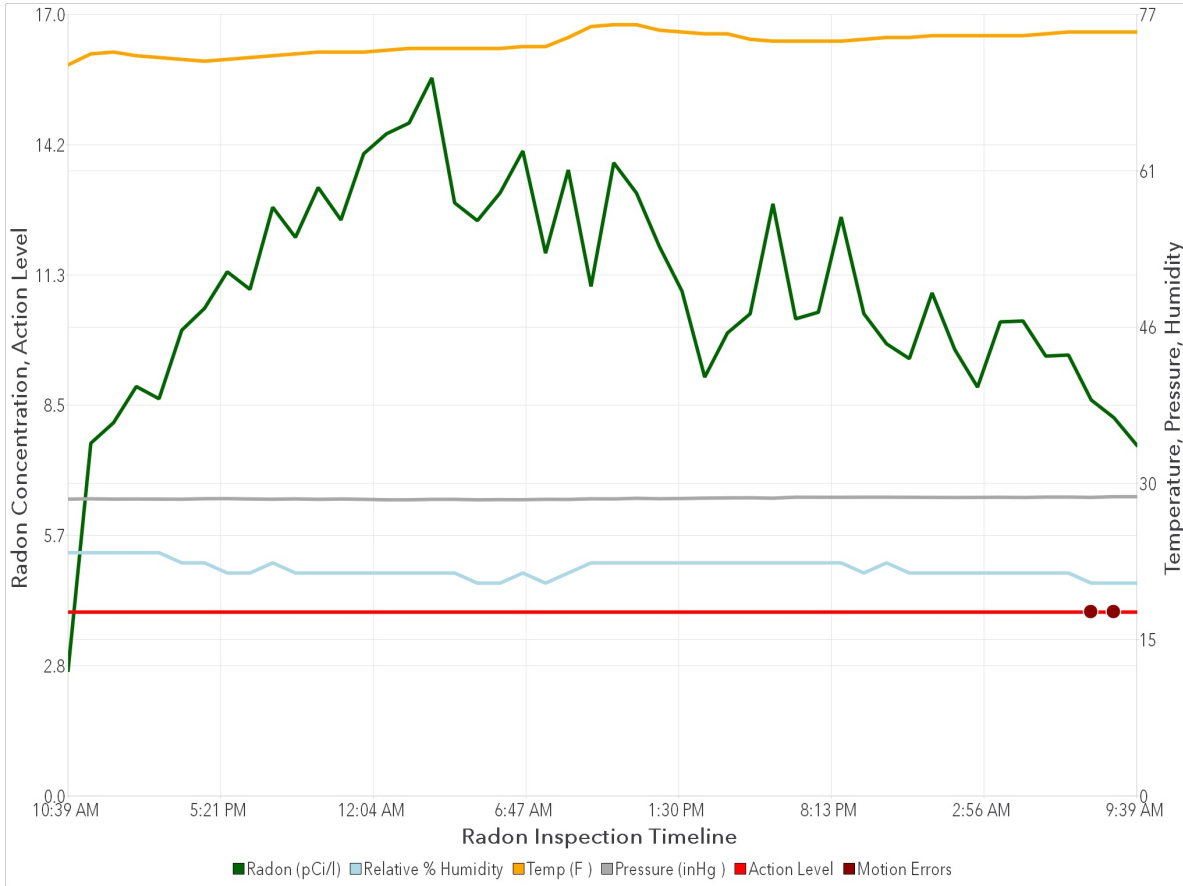
Comments:

Lic/Cert Signature

Inspection Report Date: 01/14/2022



Radon Inspection Chart



Test Result: Fail

Test Location: 252 Upton Ave. S. Minneapolis, MN 55405

Inspection Report Date: 01/14/2022

Test Checklist

- The location of the detector was selected so the detector was not to be disturbed during testing.
- The monitor was not placed in an area of high humidity such as: Kitchen, laundry room, cellar, spa room, garage, crawl space or sump area.
- The detector was not located near drafts caused by HVAC vents, windows and doors.
- The detector was not placed near areas of excessive heat, such as a fireplace or in direct sunlight.
- Portable window fans were removed or sealed in place prior to testing.
- The detector was placed within the breathing zone of at least 20 inches to 6 feet above the floor and at least 1 foot below the ceiling if suspended.
- The detector was not placed within 1 foot of outside walls of the home or within 3 feet of any windows or doors to the exterior of the home.
- Ceiling fans, portable dehumidifiers, portable humidifiers, portable air filters, and all window air conditioners are not operated within 20 feet of the detector.

Test Result: Fail

Test Location: 252 Upton Ave. S. Minneapolis, MN 55405

Inspection Report Date: 01/14/2022



Test Table

* Data from first 4 hours excluded from EPA calculations

Date/Time	Radon(pCi/l)	Temp(F)	Pres(inHg)	Humidity(%)	Flags
01/12/22 10:39 AM	2.7	72.1	29.29	24	-
01/12/22 11:39 AM	7.7	73.2	29.32	24	-
01/12/22 12:39 PM	8.1	73.4	29.29	24	-
01/12/22 01:39 PM	8.9	73.0	29.30	24	-
01/12/22 02:39 PM	8.6	72.9	29.29	24	-
01/12/22 03:39 PM	10.1	72.7	29.28	23	-
01/12/22 04:39 PM	10.6	72.5	29.33	23	-
01/12/22 05:39 PM	11.4	72.7	29.34	22	-
01/12/22 06:39 PM	11.0	72.9	29.30	22	-
01/12/22 07:39 PM	12.8	73.0	29.28	23	-
01/12/22 08:39 PM	12.2	73.2	29.31	22	-
01/12/22 09:39 PM	13.2	73.4	29.27	22	-
01/12/22 10:39 PM	12.5	73.4	29.30	22	-
01/12/22 11:39 PM	14.0	73.4	29.27	22	-
01/13/22 12:39 AM	14.4	73.6	29.22	22	-
01/13/22 01:39 AM	14.6	73.8	29.22	22	-
01/13/22 02:39 AM	15.6	73.8	29.27	22	-
01/13/22 03:39 AM	12.9	73.8	29.27	22	-
01/13/22 04:39 AM	12.5	73.8	29.22	21	-
01/13/22 05:39 AM	13.1	73.8	29.24	21	-
01/13/22 06:39 AM	14.0	73.9	29.23	22	-
01/13/22 07:39 AM	11.8	73.9	29.27	21	-
01/13/22 08:39 AM	13.6	74.8	29.26	22	-
01/13/22 09:39 AM	11.1	75.9	29.32	23	-
01/13/22 10:39 AM	13.8	76.1	29.31	23	-
01/13/22 11:39 AM	13.1	76.1	29.37	23	-
01/13/22 12:39 PM	12.0	75.6	29.33	23	-
01/13/22 01:39 PM	11.0	75.4	29.35	23	-
01/13/22 02:39 PM	9.1	75.2	29.39	23	-
01/13/22 03:39 PM	10.1	75.2	29.41	23	-
01/13/22 04:39 PM	10.5	74.7	29.42	23	-
01/13/22 05:39 PM	12.9	74.5	29.38	23	-
01/13/22 06:39 PM	10.4	74.5	29.48	23	-
01/13/22 07:39 PM	10.5	74.5	29.47	23	-
01/13/22 08:39 PM	12.6	74.5	29.47	23	-
01/13/22 09:39 PM	10.5	74.7	29.48	22	-
01/13/22 10:39 PM	9.8	74.8	29.48	23	-
01/13/22 11:39 PM	9.5	74.8	29.47	22	-
01/14/22 12:39 AM	10.9	75.0	29.46	22	-
01/14/22 01:39 AM	9.7	75.0	29.45	22	-
01/14/22 02:39 AM	8.9	75.0	29.46	22	-
01/14/22 03:39 AM	10.3	75.0	29.47	22	-
01/14/22 04:39 AM	10.3	75.0	29.45	22	-
01/14/22 05:39 AM	9.6	75.2	29.49	22	-

Test Result: Fail

Test Location: 252 Upton Ave. S. Minneapolis, MN 55405

Inspection Report Date: 01/14/2022



Test Table

* Data from first 4 hours excluded from EPA calculations

<u>Date/Time</u>	<u>Radon(pCi/l)</u>	<u>Temp(F)</u>	<u>Pres(inHg)</u>	<u>Humidity(%)</u>	<u>Flags</u>
01/14/22 06:39 AM	9.6	75.4	29.49	22	-
01/14/22 07:39 AM	8.6	75.4	29.46	21	M
01/14/22 08:39 AM	8.2	75.4	29.53	21	M
01/14/22 09:39 AM	7.6	75.4	29.53	21	-

Test Result: Fail

Test Location: 252 Upton Ave. S. Minneapolis, MN 55405

Inspection Report Date: 01/14/2022

Radon Test Information

Minnesota Notice to Clients

For more information on radon, please contact the Minnesota Department of Health at 651-201-4601 or health.indoorair@state.mn.us or visit their website at <http://www.health.state.mn.us/divs/eh/indoorair/radon/index.html>.

Test Result: Fail

Test Location: 252 Upton Ave. S. Minneapolis, MN 55405

Inspection Report Date: 01/14/2022

POST-MITIGATION RADON TESTING RESULTS



Radon Inspection Report

Test Location:

Bryn Mawr - Room 101
252 Upton Avenue South
Minneapolis, MN 55405

Test For:

Type: Post-Mitigation

Inspected By:

Andrew Tinklenberg
1225 N. 7th Street
Minneapolis, MN 55411
612-668-0310

Bldg. Type: Educational

Test Result: Pass

Overall Average:

2.3 pCi/l

EPA Average:

2.5 pCi/l

Test Device Details:

Serial Number: 246216011
Model Number: 1030
Last Calibration: 09/26/2022
Next Calibration: 09/26/2023
Cal-Factors: 2.52,2.56,2.67,2.52,2.55,2.61
Motion Error: Yes

Test Site Condition:

Condition: Overcast
Wind: South 11-15mph

Test Summary:

CRM Location:	<u>Start:</u> 11/01/2022 10:33 AM	<u>Stop:</u> 11/03/2022 10:33 AM	<u>Interval:</u> 1 hr	<u>Duration:</u> 48 hr
*First 4 hrs of data excluded	<u>Min:</u>	<u>Max:</u>	<u>Average:</u>	<u>Measurement Units:</u>
Radon Concentration:	0.6	4.5	2.5	pCi/l
Temperature	77.2	81.5	80.0	F
Humidity	20	28	24	%
Pressure	29.17	29.36	29.27	inHg

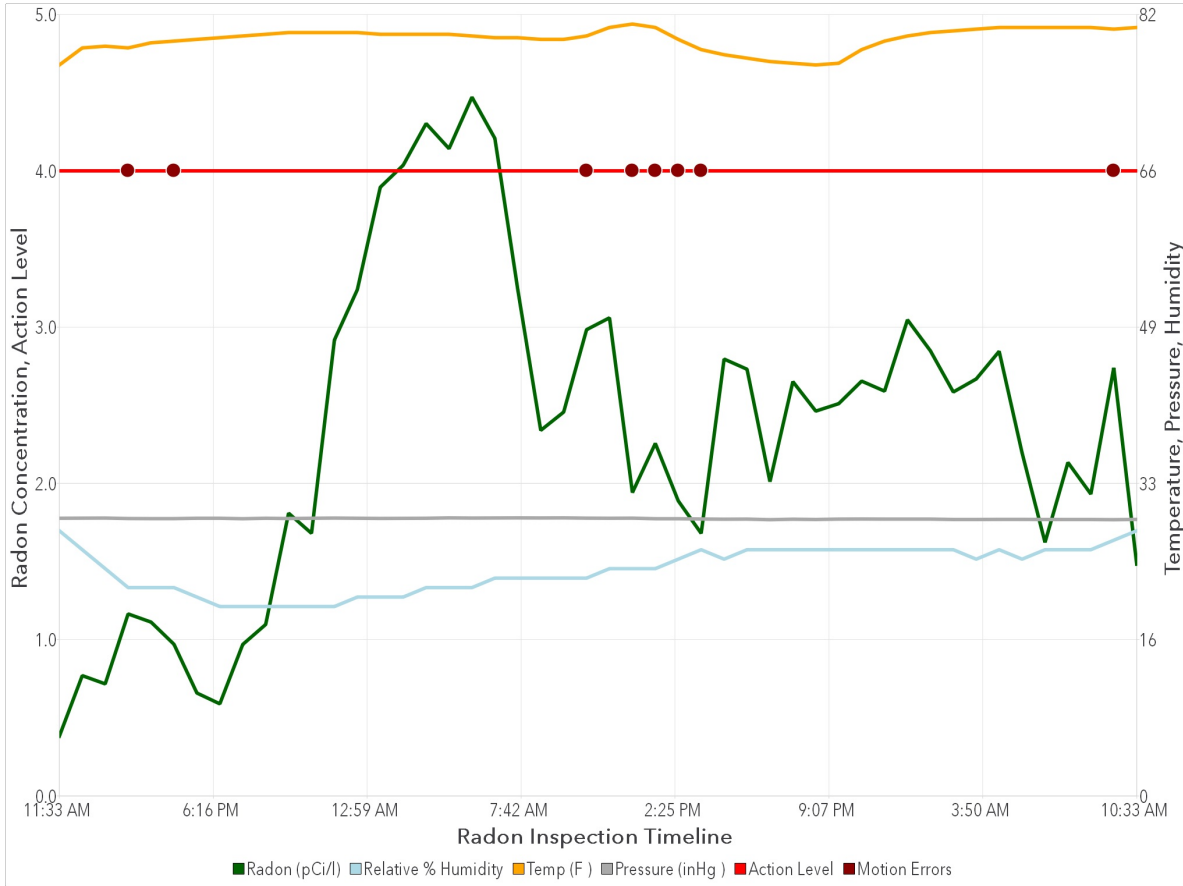
Comments:

Lic/Cert Signature

Inspection Report Date: 11/03/2022



Radon Inspection Chart



Test Result: Pass

Test Location: 252 Upton Avenue South Minneapolis, MN 55405

Inspection Report Date: 11/03/2022

Test Checklist

- The location of the detector was selected so the detector was not to be disturbed during testing.
- The monitor was not placed in an area of high humidity such as: Kitchen, laundry room, cellar, spa room, garage, crawl space or sump area.
- The detector was not located near drafts caused by HVAC vents, windows and doors.
- The detector was not placed near areas of excessive heat, such as a fireplace or in direct sunlight.
- The detector was placed within the breathing zone of at least 20 inches to 6 feet above the floor and at least 1 foot below the ceiling if suspended.
- The detector was not placed within 1 foot of outside walls of the home or within 3 feet of any windows or doors to the exterior of the home.
- Ceiling fans, portable dehumidifiers, portable humidifiers, portable air filters, and all window air conditioners are not operated within 20 feet of the detector.

Test Result: Pass

Test Location: 252 Upton Avenue South Minneapolis, MN 55405

Inspection Report Date: 11/03/2022



Test Table

* Data from first 4 hours excluded from EPA calculations

Date/Time	Radon(pCi/l)	Temp(F)	Pres(inHg)	Humidity(%)	Flags
11/01/22 11:33 AM	0.4	77.2	29.32	28	-
11/01/22 12:33 PM	0.8	79.0	29.33	26	-
11/01/22 01:33 PM	0.7	79.2	29.34	24	-
11/01/22 02:33 PM	1.2	79.0	29.29	22	M
11/01/22 03:33 PM	1.1	79.5	29.28	22	-
11/01/22 04:33 PM	1.0	79.7	29.28	22	M
11/01/22 05:33 PM	0.7	79.9	29.32	21	-
11/01/22 06:33 PM	0.6	80.1	29.32	20	-
11/01/22 07:33 PM	1.0	80.2	29.27	20	-
11/01/22 08:33 PM	1.1	80.4	29.32	20	-
11/01/22 09:33 PM	1.8	80.6	29.29	20	-
11/01/22 10:33 PM	1.7	80.6	29.32	20	-
11/01/22 11:33 PM	2.9	80.6	29.34	20	-
11/02/22 12:33 AM	3.2	80.6	29.32	21	-
11/02/22 01:33 AM	3.9	80.4	29.30	21	-
11/02/22 02:33 AM	4.0	80.4	29.31	21	-
11/02/22 03:33 AM	4.3	80.4	29.32	22	-
11/02/22 04:33 AM	4.1	80.4	29.36	22	-
11/02/22 05:33 AM	4.5	80.2	29.34	22	-
11/02/22 06:33 AM	4.2	80.1	29.35	23	-
11/02/22 07:33 AM	3.2	80.1	29.36	23	-
11/02/22 08:33 AM	2.3	79.9	29.35	23	-
11/02/22 09:33 AM	2.5	79.9	29.36	23	-
11/02/22 10:33 AM	3.0	80.2	29.33	23	M
11/02/22 11:33 AM	3.1	81.1	29.32	24	-
11/02/22 12:33 PM	1.9	81.5	29.33	24	M
11/02/22 01:33 PM	2.3	81.1	29.27	24	M
11/02/22 02:33 PM	1.9	79.9	29.27	25	M
11/02/22 03:33 PM	1.7	78.8	29.24	26	M
11/02/22 04:33 PM	2.8	78.3	29.22	25	-
11/02/22 05:33 PM	2.7	77.9	29.23	26	-
11/02/22 06:33 PM	2.0	77.5	29.17	26	-
11/02/22 07:33 PM	2.7	77.4	29.22	26	-
11/02/22 08:33 PM	2.5	77.2	29.19	26	-
11/02/22 09:33 PM	2.5	77.4	29.23	26	-
11/02/22 10:33 PM	2.7	78.8	29.24	26	-
11/02/22 11:33 PM	2.6	79.7	29.23	26	-
11/03/22 12:33 AM	3.0	80.2	29.23	26	-
11/03/22 01:33 AM	2.8	80.6	29.23	26	-
11/03/22 02:33 AM	2.6	80.8	29.19	26	-
11/03/22 03:33 AM	2.7	81.0	29.19	25	-
11/03/22 04:33 AM	2.8	81.1	29.20	26	-
11/03/22 05:33 AM	2.2	81.1	29.20	25	-
11/03/22 06:33 AM	1.6	81.1	29.19	26	-

Test Result: Pass

Test Location: 252 Upton Avenue South Minneapolis, MN 55405

Inspection Report Date: 11/03/2022



Test Table

* Data from first 4 hours excluded from EPA calculations

<u>Date/Time</u>	<u>Radon(pCi/l)</u>	<u>Temp(F)</u>	<u>Pres(inHg)</u>	<u>Humidity(%)</u>	<u>Flags</u>
11/03/22 07:33 AM	2.1	81.1	29.19	26	-
11/03/22 08:33 AM	1.9	81.1	29.19	26	-
11/03/22 09:33 AM	2.7	81.0	29.17	27	M
11/03/22 10:33 AM	1.5	81.1	29.20	28	-

Test Result: Pass

Test Location: 252 Upton Avenue South Minneapolis, MN 55405

Inspection Report Date: 11/03/2022

Radon Test Information

Minnesota Notice to Clients

For more information on radon, please contact the Minnesota Department of Health at 651-201-4601 or health.indoorair@state.mn.us or visit their website at <http://www.health.state.mn.us/divs/eh/indoorair/radon/index.html>.

Test Result: Pass

Test Location: 252 Upton Avenue South Minneapolis, MN 55405

Inspection Report Date: 11/03/2022



Radon Inspection Report

Test Location:

Bryn Mawr - Office 102
252 Upton Avenue South
Minneapolis, MN 55405

Test For:

Type: Post-Mitigation

Inspected By:

Andrew Tinklenberg
1225 N. 7th Street
Minneapolis, MN 55411
612-668-0310

Bldg. Type: Educational

Test Result: Pass

Overall Average:

2.2 pCi/l

EPA Average:

2.3 pCi/l

Test Device Details:

Serial Number: 246216011
Model Number: 1030
Last Calibration: 09/26/2022
Next Calibration: 09/26/2023
Cal-Factors: 2.52,2.56,2.67,2.52,2.55,2.61
Motion Error: Yes

Test Site Condition:

Condition: Recent Rainfall

Test Summary:

CRM Location:	<u>Start:</u> 11/09/2022 10:23 AM	<u>Stop:</u> 11/11/2022 10:23 AM	<u>Interval:</u> 1 hr	<u>Duration:</u> 48 hr
*First 4 hrs of data excluded	<u>Min:</u>	<u>Max:</u>	<u>Average:</u>	<u>Measurement Units:</u>
Radon Concentration:	0.4	4.9	2.3	pCi/l
Temperature	74.8	79.0	77.8	F
Humidity	17	36	30	%
Pressure	28.96	29.32	29.15	inHg

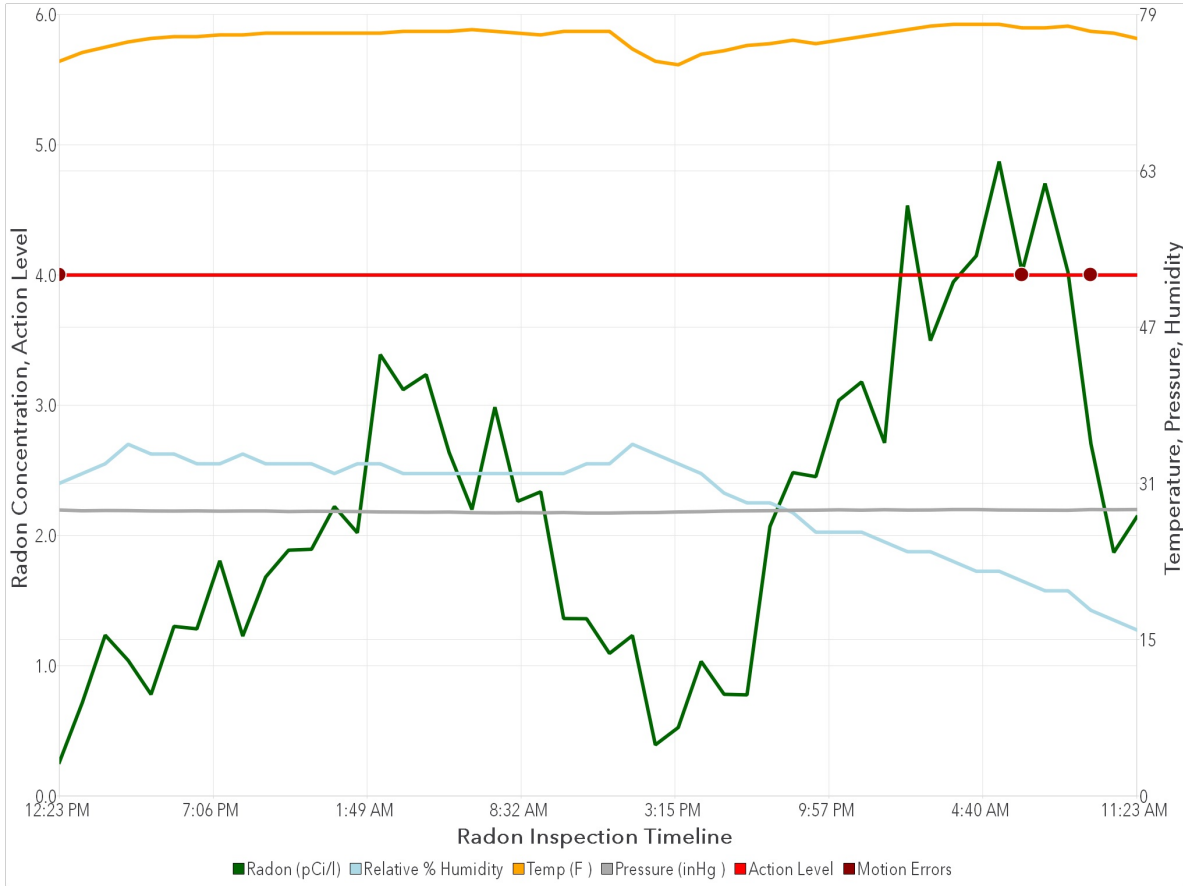
Comments:

Lic/Cert Signature

Inspection Report Date: 11/11/2022



Radon Inspection Chart



Test Result: Pass

Test Location: 252 Upton Avenue South Minneapolis, MN 55405

Inspection Report Date: 11/11/2022



Test Checklist

- The location of the detector was selected so the detector was not to be disturbed during testing.
- The monitor was not placed in an area of high humidity such as: Kitchen, laundry room, cellar, spa room, garage, crawl space or sump area.
- The detector was not located near drafts caused by HVAC vents, windows and doors.
- The detector was not placed near areas of excessive heat, such as a fireplace or in direct sunlight.
- The detector was placed within the breathing zone of at least 20 inches to 6 feet above the floor and at least 1 foot below the ceiling if suspended.
- The detector was not placed within 1 foot of outside walls of the home or within 3 feet of any windows or doors to the exterior of the home.

Test Result: Pass

Test Location: 252 Upton Avenue South Minneapolis, MN 55405

Inspection Report Date: 11/11/2022



Test Table

* Data from first 4 hours excluded from EPA calculations

Date/Time	Radon(pCi/l)	Temp(F)	Pres(inHg)	Humidity(%)	Flags
11/09/22 11:23 AM	0.3	75.2	29.27	32	M
11/09/22 12:23 PM	0.7	76.1	29.19	33	-
11/09/22 01:23 PM	1.2	76.6	29.22	34	-
11/09/22 02:23 PM	1.0	77.2	29.21	36	-
11/09/22 03:23 PM	0.8	77.5	29.17	35	-
11/09/22 04:23 PM	1.3	77.7	29.16	35	-
11/09/22 05:23 PM	1.3	77.7	29.18	34	-
11/09/22 06:23 PM	1.8	77.9	29.15	34	-
11/09/22 07:23 PM	1.2	77.9	29.17	35	-
11/09/22 08:23 PM	1.7	78.1	29.17	34	-
11/09/22 09:23 PM	1.9	78.1	29.11	34	-
11/09/22 10:23 PM	1.9	78.1	29.14	34	-
11/10/22 11:23 PM	2.2	78.1	29.13	33	-
11/10/22 12:23 AM	2.0	78.1	29.11	34	-
11/10/22 01:23 AM	3.4	78.1	29.07	34	-
11/10/22 02:23 AM	3.1	78.3	29.06	33	-
11/10/22 03:23 AM	3.2	78.3	29.04	33	-
11/10/22 04:23 AM	2.6	78.3	29.06	33	-
11/10/22 05:23 AM	2.2	78.4	29.00	33	-
11/10/22 06:23 AM	3.0	78.3	28.98	33	-
11/10/22 07:23 AM	2.3	78.1	29.00	33	-
11/10/22 08:23 AM	2.3	77.9	28.98	33	-
11/10/22 09:23 AM	1.4	78.3	29.01	33	-
11/10/22 10:23 AM	1.4	78.3	28.96	34	-
11/10/22 11:23 AM	1.1	78.3	28.96	34	-
11/10/22 12:23 PM	1.2	76.5	29.00	36	-
11/10/22 01:23 PM	0.4	75.2	29.01	35	-
11/10/22 02:23 PM	0.5	74.8	29.07	34	-
11/10/22 03:23 PM	1.0	75.9	29.10	33	-
11/10/22 04:23 PM	0.8	76.3	29.16	31	-
11/10/22 05:23 PM	0.8	76.8	29.18	30	-
11/10/22 06:23 PM	2.1	77.0	29.20	30	-
11/10/22 07:23 PM	2.5	77.4	29.24	29	-
11/10/22 08:23 PM	2.5	77.0	29.25	27	-
11/10/22 09:23 PM	3.0	77.4	29.29	27	-
11/10/22 10:23 PM	3.2	77.7	29.25	27	-
11/11/22 11:23 PM	2.7	78.1	29.30	26	-
11/11/22 12:23 AM	4.5	78.4	29.26	25	-
11/11/22 01:23 AM	3.5	78.8	29.27	25	-
11/11/22 02:23 AM	3.9	79.0	29.32	24	-
11/11/22 03:23 AM	4.1	79.0	29.32	23	-
11/11/22 04:23 AM	4.9	79.0	29.27	23	-
11/11/22 05:23 AM	4.0	78.6	29.26	22	M
11/11/22 06:23 AM	4.7	78.6	29.25	21	-

Test Result: Pass

Test Location: 252 Upton Avenue South Minneapolis, MN 55405

Inspection Report Date: 11/11/2022



Test Table

* Data from first 4 hours excluded from EPA calculations

<u>Date/Time</u>	<u>Radon(pCi/l)</u>	<u>Temp(F)</u>	<u>Pres(inHg)</u>	<u>Humidity(%)</u>	<u>Flags</u>
11/11/22 07:23 AM	4.0	78.8	29.24	21	-
11/11/22 08:23 AM	2.7	78.3	29.32	19	M
11/11/22 09:23 AM	1.9	78.1	29.30	18	-
11/11/22 10:23 AM	2.1	77.5	29.32	17	-

Test Result: Pass

Test Location: 252 Upton Avenue South Minneapolis, MN 55405

Inspection Report Date: 11/11/2022

Radon Test Information

Minnesota Notice to Clients

For more information on radon, please contact the Minnesota Department of Health at 651-201-4601 or health.indoorair@state.mn.us or visit their website at <http://www.health.state.mn.us/divs/eh/indoorair/radon/index.html>.

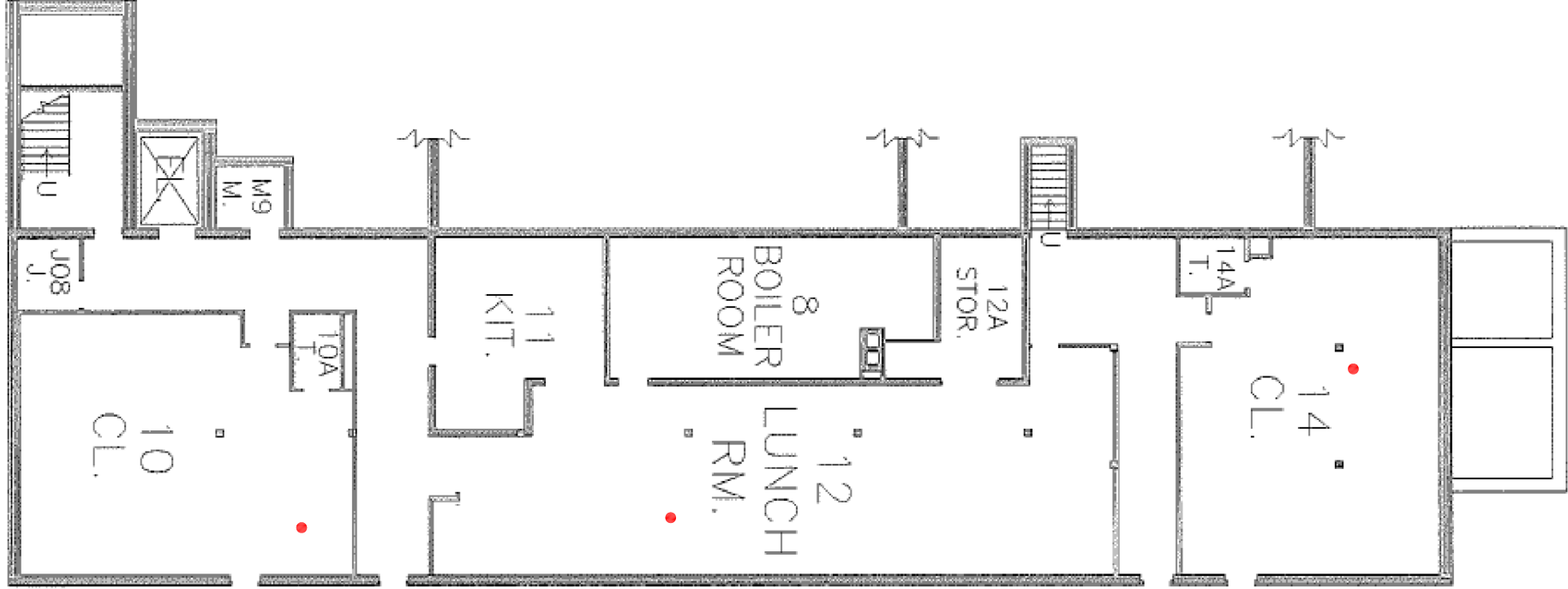
Test Result: Pass

Test Location: 252 Upton Avenue South Minneapolis, MN 55405

Inspection Report Date: 11/11/2022

FLOOR PLANS WITH SAMPLE LOCATIONS

DIAGRAM #1 - RADON SAMPLE LOCATIONS



GROUND FLOOR PLAN

PREPARED ON: 1/7/22
 BY: ANDREW TINKLENBERG
 EH&S SAFETY SPECIALIST

BRYN MAWR SCHOOL
 252 UPTON AVE. S.
 MINNEAPOLIS, MN 55405



DIAGRAM #2 - RADON SAMPLE LOCATIONS



FIRST FLOOR PLAN



BRYN MAWR SCHOOL
 252 UPTON AVE. S.
 MINNEAPOLIS, MN 55405

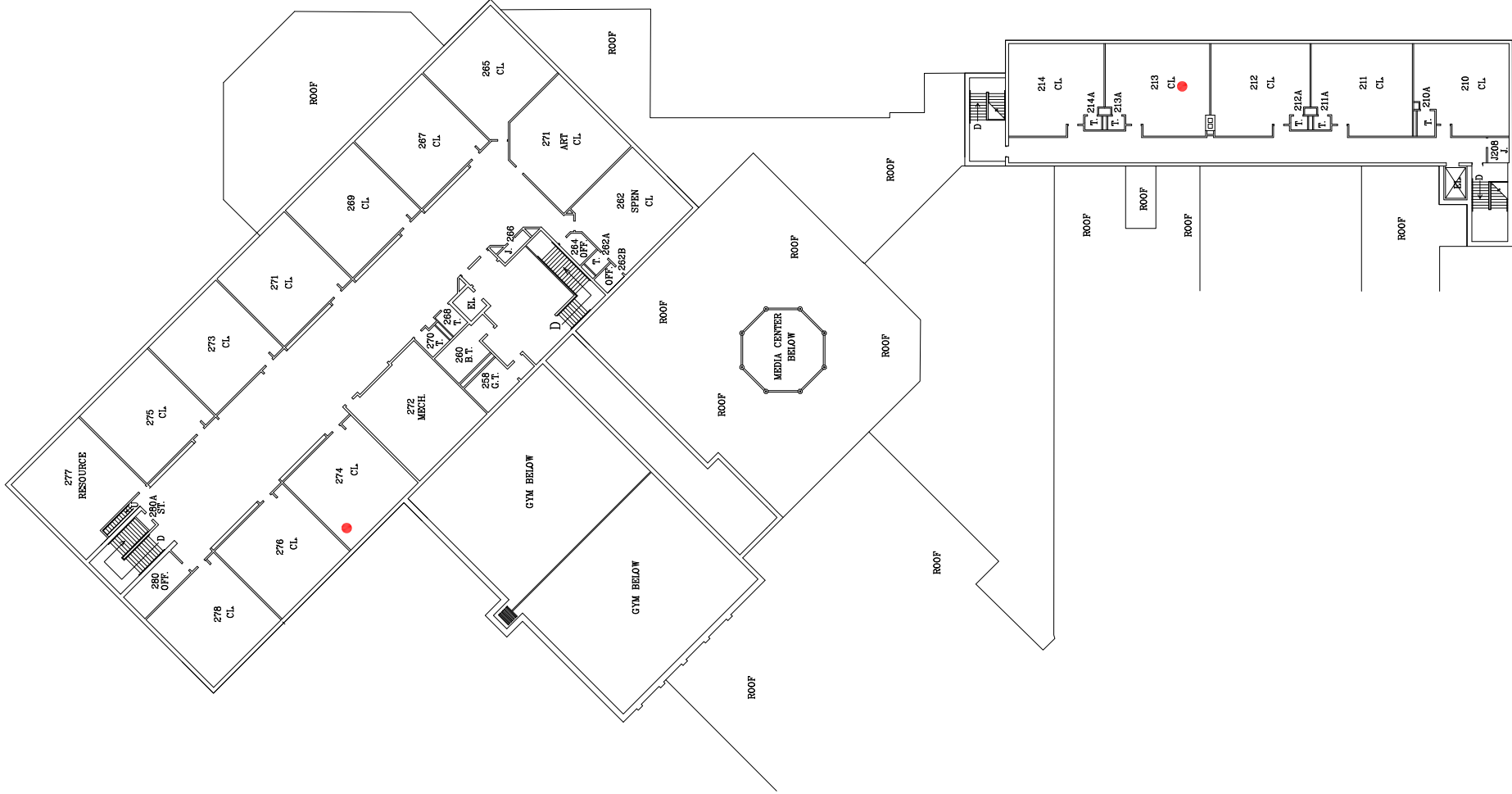
MINNEAPOLIS
 PUBLIC SCHOOLS
 Urban Education - Global Citizens.



PAGE
 2 of 3

PREPARED ON: 1/17/22
 BY: ANDREW TINKLENBERG
 EH&S SAFETY SPECIALIST

DIAGRAM #3 - RADON SAMPLE LOCATIONS



SECOND FLOOR PLAN



PREPARED ON: 1/17/22
 BY: ANDREW TINKLENBERG
 EH&S SAFETY SPECIALIST

BRYN MAWR SCHOOL
 252 UPTON AVE. S.
 MINNEAPOLIS, MN 55405

MINNEAPOLIS
 PUBLIC SCHOOLS
 Urban Education. Global Citizens.



NOTIFICATION DOCUMENTS



MINNEAPOLIS
PUBLIC SCHOOLS

Urban Education. Global Citizens.

Environmental Health & Safety

Office: (612) 668-0310

Direct: (612) 668-0306

Andrew Tinklenberg

Safety Specialist

Environmental Health & Safety

RADON TESTING NOTIFICATION (2022)

Bryn Mawr School

The District will be conducting short-term radon testing at Bryn Mawr School. Radon is a naturally occurring radioactive gas that is created from the breakdown of Radium that is naturally present in soil. Radon can enter buildings from the soil through gaps, cracks and holes in the foundation. Radon testing is performed periodically and is being performed based on Minnesota Department of Health recommendations and protocols. As per the recommendations, frequently occupied, ground level or ground contact areas will be the focus of the testing. Sampling locations will be selected that provide the best representation of these areas.

If your room is selected for testing, please do your part by ensuring that the devices are not removed or tampered with in any way. The devices are small, rectangular envelopes, approximately 4 by 6 inches and will typically be hung from the ceiling or an interior wall. The short-term radon detectors are planned to be placed and collected January 3 – 6, 2022. When available, sample results will be shared with your principal and placed on the EH&S webpage available through the main MPS website.

An example of the detector is pictured below:



Thank you very much for your cooperation. If you have questions, please contact me at 612-668-0306 or andrew.tinklenberg@mpls.k12.mn.us

Notice of Inspection - Radon Survey in Progress

An important step is being taken to ensure a safe and healthy building. Testing for radon is recommended for all homes and schools.

Radon is a naturally occurring radioactive gas that can be present in some buildings are concentrations greater than recommended. In the United States, radon exposure is the second leading cause of lung cancer and it is the leading cause of lung cancer in nonsmokers.

Radon testing is scheduled for:

Building(s): Bryn Mawr

Building Area(s): Throughout

Test Start Date: 1/3/22

Test End Date: 1/6/22

Access into your unit/room is: required not required

PLEASE START THE FOLLOWING BY:

Please help to maintain the following required test conditions:

- **Windows and Doors** need to be kept closed (aside from momentary entry and exit) on all levels of the building including areas not being tested,
- **Heating and cooling systems** need to set to normal temperatures (65-80°F),
- **Bathroom fans** should operate normally,
- Do not operate wood-burning or natural gas **fireplaces**,
- **Energy recovery ventilators (ERV) or heat recovery ventilators (HRV)** should be set to the lowest level they are used at through the year, and
- Avoid excessive operation of **exhaust systems** that draw air from laundries, workshops, community kitchens.

For inquiries or reporting concerns:

Contact Person: Andrew Tinklenberg

Phone: 612-668-0306

Visit mn.gov/radon for more information about radon

Authorizations and Lines of Communications

Please complete the following to help us clarify lines of communication and responsibilities.

Staff authorized to respond to occupant and public inquiries:

Title/Name: Lee Setter Phone: 612-668-0310 Email: lee.setter@mpls.k12.mn.us

Title/Name: Phone: Email:

Person(s) authorized to receive report data and any incremental reports:

Title/Name: Lee Setter Phone: 612-668-0310 Email: lee.setter@mpls.k12.mn.us

Title/Name: Andrew Tinklenberg Phone: 612-668-0306 Email: andrew.tinklenberg@mpls.k12.mn.us

Frequency of reports: Prior to testing After each phase of testing When testing is complete

Client & Facilitating Staff Contact Information

Client/Authorized Agent: Lee Setter Phone: 612-668-0310 Email: lee.setter@mpls.k12.mn.us

Onsite Supervisor: Andrew Tinklenberg Phone: 612-668-0306 Email: andrew.tinklenberg@mpls.k12.mn.us

Building Access: Andrew Tinklenberg Phone: 612-668-0306 Email: andrew.tinklenberg@mpls.k12.mn.us

HVAC Operations: Jason Kohnen Phone: 612-668-0338 Email: Jason.kohnen@mpls.k12.mn.us

Other Contacts (Title/Name): Phone: Email:

Radon Testing Professional Contact Information:

Scheduling/Logistics: Andrew Tinklenberg Phone: 612-668-0306 Email: andrew.tinklenberg@mpls.k12.mn.us

On-site Professional: Andrew Tinklenberg Phone: 612-668-0306 Email: andrew.tinklenberg@mpls.k12.mn.us

Licensed Field Technician: Andrew Tinklenberg Phone: 612-668-0306 Email: andrew.tinklenberg@mpls.k12.mn.us

Licensed Field Technician: Phone: Email:

Client Commitment to Compliance

By signing below, I am committing to help ensure that building conditions required to achieve reliable radon tests are met.

Management

Help Onsite Supervisors and Building Operations Staff maintain closed-building conditions and meet the requirements list above.

Name: Andrew Tinklenberg@mpls.k12.mn.us


Signature: 

Date: 1/3/22

Onsite Supervisor

To help ensure reliable radon tests, the onsite supervisor will:

- **Prior Notification:** distribute notices to all building occupants no later than the day before testing. Notices must be given to all occupants regardless if their unit/room is being tested and posted in publicly accessible areas such as corridors, elevators, and offices.
- **Access:** provide access to each test location within the building on the same day for the event of placing test devices and a second event for retrieving test devices.
- Name: Andrew Tinklenberg@mpls.k12.mn.us


Signature: 

Date: 1/3/22

Building Operations Staff

To help ensure reliable radon tests, Building Operations Staff will:

- **Building Preparation:** no later than 12 hours prior to the start of the test, review each building scheduled for testing for compliance with closed-building requirements.
- **Compliance Verification:** verify closed-building conditions and ensure that any repairs or adjustments that impact these conditions are completed 12 hours prior to the start of the test. Initial when verified.
- Name: Andrew Tinklenberg@mpls.k12.mn.us

Signature: 

Date: 1/3/22

Building Address: Bryn Mawr - 252 Upton Ave. S., Mpls., MN Date Completed: 1/3/22 Initials: AJT

CLIENT COMMITMENT TO COMPLIANCE

Actions Required at Least 12 hour prior to test and throughout	
Windows	Close or seal on all levels of the building, including areas not being tested Exception: Do not close openings to outside to outside air designed to provide air needed for combustion appliances.
External doors (except for normal entry or exit)	
Other openings to the exterior (as a result of disrepair, incomplete construction or structural defect)	
Heating & Cooling Systems	Set to normal occupied temperatures: 65° - 80°F (Maintenance inspection of systems are recommended prior to testing)
Variable Outdoor Air Ventilation Systems (if applicable) Systems such as manually operated dampers, energy economizer systems, energy recovery ventilators (ERV), or heat recovery ventilators (HRV) that seasonally vary outdoor air ventilation for energy savings or comfort	Close outside air inlet dampers or set to minimum outdoor air intake settings that apply at all times of the year when a building is significantly occupied
Window Air Conditioners	Dampers to outside air shall be closed
Variable Air Volume (VAV) Systems (if applicable) Systems that temper room temperature using thermostats to vary the volume of heated or cooled air coming into rooms	Set all thermostats to between 65° - 80°F in all rooms that are served by the system
Return-Air Ducts laid in Soil (if applicable) Return-air ductwork is located under a slab, or otherwise laid in soil.	All testing company immediately
Heating, ventilation, and air conditioning (HVAC) setback in non-residential locations If non-residential rooms are operating with HVAC setback temperatures during nights or weekends that are outside of normal occupied temperatures of 65° - 80°F	Alter to retain temperatures within range of 65° - 80°F Or contact the testing company



Bryn Mawr Test Condition Summary

January 3-14, 2022 – Minneapolis, MN (Climate Zone 6)

	Annually	During Testing
Outdoor Temperatures	Average = 46° F	Max. = 30° F Min. = -8° F Average = 11° F
Operating Conditions (Heating/Cooling)	Heating – 50% Cooling – 25% Mixed – 25%	Heating – 100% Cooling – 0% Mixed – 0%
Air Distribution Systems	Intermittent during summer	Active

* - Note: Moderate snowfall and winds with low/negative temperatures were recorded during the latter portion of the testing period.

November 1-11, 2022 – Minneapolis, MN (Climate Zone 6)

	Annually	During Testing
Outdoor Temperatures	Average = 46° F	Max. = 73° F Min. = 38° F Average = 57° F
Operating Conditions (Heating/Cooling)	Heating – 50% Cooling – 25% Mixed – 25%	Heating – 100% Cooling – 0% Mixed – 0%
Air Distribution Systems	Intermittent during summer	Active

* - Note: Some rainfall was recorded during the testing period.

Informative Advisories

- Fluctuations in radon concentrations are usually caused by either:
 - changes in the strength of indoor air pressures that draw soil gas into a building; or
 - changes in the volume of outside air entering a building.
- Clear characterization of a radon hazard is more likely to occur when:
 - Outdoor temperatures extend below 65°F (18°C), at least intermittently, which causes natural indoor air pressures that draw radon laden soil gas into a building; and
 - Heating or cooling distribution fans are at least intermittently active during a test.
- Measurements more likely to reflect an occupant’s exposure to radon are measurements conducted under conditions that most closely align to the building operating conditions that prevail during the greatest amount of time each year.

* - Above advisory information is taken from page 31 of the ANSI/AARST Standard, “Protocols for Conducting Measurements of Radon and Radon Decay Products in Schools and Large Buildings, 2014 with 1/21.” Additional advisory notes/information will be added when necessary.

ANSI/AARST ADVISORY STATEMENTS

8-A Reporting Low Radon Concentrations

Consider fixing the building if test results indicate radon concentrations greater than half the action level, (e.g., between 2 and 4 pCi/L). Responsible care requires repeating initial testing procedures for all building(s) at least every 5 years and in conjunction with any sale of a building. Radon testing should also be conducted when any of the following circumstances occur:

- a new addition is constructed or alterations for building reconfiguration or rehabilitation occur;
- a ground contact area not previously tested is occupied, or a building is newly occupied;
- heating or cooling systems are significantly altered, resulting in changes to air pressures or pressure relationships;
- ventilation is significantly altered by extensive weatherization, changes to mechanical systems or comparable procedures;
- significant openings to soil occur due to:
 - groundwater or slab surface water control systems that are altered or added (e.g., sumps, perimeter drain tile, shower/tub retrofits, etc.) or,
 - natural settlement causing major cracks to develop;
- earthquakes or construction blasting, fracking or formation of sink holes nearby; or
- a mitigation system is altered, modified or repaired.

Should testing indicate concentrations that meet or exceed the action level, conduct evaluations, corrections and further testing until radon concentrations have been mitigated to below the action level.

Table 8-B Reporting Elevated Radon Concentrations

Fix the building. Test results indicate occupants may be exposed to radon concentrations that meet or exceed the action level. Efforts to reduce radon concentrations are not complete until retests provide evidence of effectiveness. The initial retest should be conducted within 30 days after mitigation efforts and system installations.

Post-mitigation clearance testing to confirm each building is fixed requires testing all buildings that demonstrated elevated radon concentrations:

- 1) in all ground-contact rooms and dwellings,
- 2) in not less than 10% of non-residential rooms and dwellings on each upper floor.

Should testing indicate concentrations that meet or exceed the action level, conduct evaluations, corrections and further testing until radon concentrations have been mitigated to below the action level.

* - Above advisory information is taken from page 28-29 of the ANSI/AARST Standard, "Protocols for Conducting Measurements of Radon and Radon Decay Products in Schools and Large Buildings, 2014 with 1/21 Revisions." Additional advisory notes/information will be added when necessary.