

February 17, 2023

John Heltunen  
Buffalo-Montrose-Hanover Schools  
214 – 1<sup>st</sup> Avenue NE  
Buffalo, MN 55313




**RE: Parkside Elementary  
Continuous Radon Monitoring Results  
IEA Project #202210997**

Dear Mr. Heltunen:

IEA, Inc. used a continuous radon monitor (CRM) to measure radon levels in Room 109 of the Parkside Elementary building.

The purpose of the monitoring was to determine whether radon levels were within an acceptable range during typical work hours.

The CRM was placed by the following Minnesota Department of Health (MDH) licensed Radon Measurement Professional(s):

Measurement Professional	License Number	Signature
Annie Shimkus	RMEA-00482	

The radon samples were placed by IEA representative, Annie Shimkus, RMEA-00482, a certified radon measurement professional.

Air intakes and ventilation systems were operating in normal condition at the time of placement and retrieval.

## INTRODUCTION

The Minnesota Department of Health (MDH) and the Environmental Protection Agency (EPA) have established a recommended action level in frequently occupied areas of 4.0 picoCuries per liter (pCi/L) for an annual average. The average radon level over each workday was compared to the Action Level.

INSTITUTE FOR ENVIRONMENTAL ASSESSMENT, INC.  
[www.ieasafety.com](http://www.ieasafety.com)

BROOKLYN PARK  
9201 West Broadway, #600  
Brooklyn Park, MN 55445  
763-315-7900 / FAX 763-315-7920  
800-233-9513

MANKATO  
610 North Riverfront Drive  
Mankato, MN 56001  
507-345-8818 / FAX 507-345-5301  
800-233-9513

ROCHESTER  
210 Woodlake Drive SE  
Rochester, MN 55904  
507-281-6664 / FAX 507-281-6695  
800-233-9513

BRainerd  
601 NW 5<sup>th</sup> Street, Ste. #4  
Brainerd, MN 56401  
218-454-0703 / FAX 218-454-0703  
800-233-9513

MARSHALL  
1420 East College Drive  
Marshall, MN 56258  
507-476-3599 / FAX 507-537-6985  
800-233-9513

VIRGINIA  
5525 Emerald Avenue  
Mountain Iron, MN 55768  
218-410-9521  
800-233-9513

Short-term radon testing, conducted on November 29, 2022, indicated a radon level above the EPA-and MDH-recommended Action Level. CRM is recommended to determine if elevated levels are present during occupied times. Radon levels can fluctuate with the operation of the ventilation system as well as with changes in barometric pressure. The CRM provides hourly radon readings so that levels can be evaluated for periods while the room is occupied.

A Radalink, Inc. RADALINK Series 6000 Radon Telemonitor was used for the testing, which is provided and maintained by Radalink, Inc., MDH license #RL-00009, located at 5599 Peachtree Road, in Atlanta, GA 30341.

IEA followed ANSI/AARST MALB 2014 with 1/21 revisions for quality assurance measurements by including duplicate kits.

Client communications and commitments were delivered to the client on the following dates:

- Client Advisories and Authorizations – September 13, 2022
- Facilitating Staff Commitments – September 19, 2022
- Occupant notices – January 5, 2023

## EVALUATION CRITERIA

The MDH and the EPA have established a recommended action level in frequently occupied areas of 4.0 picocuries per liter (pCi/L) for an annual average. Testing was conducted during school days when the building is significantly occupied. Testing was conducted during the heating season when the average outdoor temperature is less than 65°F, as recommended by the MDH, when the ventilation system was operating normally, and windows and doors were closed. Consequently, sampling under these “closed” conditions is when the radon risk is most likely to occur.

The MDH recommends follow-up testing for sampling results that are above the action level. Please refer to the following table for MDH guidelines:

RESULTS (pCi/L)	RECOMMENDED ACTION
LESS THAN 4	Re-test after changes to foundation or HVAC and every 5 years
GREATER THAN 4	Conduct CRM short-term testing during winter months
LESS THAN 4 ( <b>DURING OCCUPANCY</b> ) AFTER CRM TESTING	Repeat CRM testing if not conducted during winter or if conducted during abnormal ventilation. Otherwise consider re-testing after changes to foundation or HVAC and every 5 years
GREATER THAN 4 ( <b>DURING OCCUPANCY</b> ) AFTER CRM TESTING	Reduce radon in rooms to less than 4 through radon mitigation. Conduct CRM testing to verify radon reduction.

## RESULTS & DISCUSSION

From January 30, 2023, to February 1, 2023, continuous radon monitoring was conducted in Room 109 of Parkside Elementary. A CRM was placed in the room for about 48 hours. The MDH recommends a minimum of 48 hours. Days when these rooms were not occupied (e.g., weekends & holidays) were not included in the monitoring. The hourly CRM data is provided in Appendix B.

A summary of the CRM data, including previous results, is provided in the table on the following page.

**Parkside Elementary**

207 3<sup>rd</sup> Street NE  
Buffalo, MN 55313

**Continuous Radon Monitoring Results – February 1, 2023**

Room	Day 1 Average (pCi/L)		Day 2 Average (pCi/L)		Overall Average (pCi/L)		Results from the Previous Testing (pCi/L)
109	12.6	24.4	2.8	4.2	2.7	4.3	4.1
<sup>1</sup> Readings during occupied times: 7 a.m. to 5 p.m. <sup>2</sup> Readings during unoccupied times: 12 a.m. to 7 a.m. and 5 p.m. to 11:59 p.m.							
pCi/L – picoCuries per liter of air							

**Discussion of Results:**

- Average radon levels over the workday in Room 109 was 2.6 pCi/L on the first day of testing, and 2.8 pCi/L on the second day of testing.
- Average radon levels in Room 109 were below the Action Level during the workdays.

**CONCLUSIONS & RECOMMENDATIONS**

It is recommended actions be taken to address results of radon concentrations greater than half the action level (2-4 pCi/L).

The EPA has established recommended guidelines for permissible radon concentrations in schools. The following are general recommendations for frequently occupied areas of schools:

- The building should be retested at least every 5 years and in conjunction with any sale of the building.
- Rooms that were not tested because they were not occupied, should be tested if they become occupied in the future.

In addition, retesting should be conducted when any of the following circumstances occur:

- A new addition is constructed, or a significant renovation occurs
- A ground contact area not previously tested is occupied
- Heating or cooling systems are significantly altered, resulting in changes to air pressures or distribution
- Ventilation is significantly altered by extensive weatherization, changes to mechanical systems, or comparable procedures
- Significant openings to soil occur due to:
  - Ground water or slab surface water control systems (e.g., sumps, perimeter drain tile, shower/tub retrofits, etc.)
  - Natural settlement causing major cracks to develop
  - Earthquakes, construction blasting, or formation of sink holes nearby
  - A mitigation system is altered, modified or repaired
- Rooms should be retested during the winter heating season (i.e., under “closed” conditions) which is typically “worst case” conditions.

Per Minnesota Statutes, section 123B.571, school districts are required to report radon test results at a school board meeting and report results to the MDH. IEA is able to assist with presenting results to the school board, and the MDH reporting. The MDH 'School Radon Testing Form' is located in Appendix E.

For more information regarding radon, see the EPA's A Citizen's Guide to Radon at <http://www.epa.gov/radon>. MDH can be contacted at [health.indoorair@state.mn.us](mailto:health.indoorair@state.mn.us) or 651-201-4601.

## GENERAL COMMENTS

The analysis and opinions expressed in this report are based upon data obtained from continuous radon monitoring at Buffalo-Hanover-Montrose Schools and are representative of the location and time period sampled. 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 radon testing practices. Other than as provided in the preceding sentence and in Proposal #10762 dated September 13, 2022, regarding radon sampling services at the district locations, including the General Conditions attached thereto, no warranties are extended or made.

Should you require additional radon testing or have any questions regarding radon or any other health- or safety-related concerns, please do not hesitate to contact our office.

Sincerely,

Reviewed by,

IEA, Inc.



Margot Pablucci  
EHS Account Manager



Mary Ferrian, CSP  
EHS Division Manager

MP/khb 02172023

Enc.

# **Appendix A**

## *Quality Control Measurements*

## **MDH and ANSI/AARST MALB 2014 Quality Control Measurements**

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IEA followed ANSI/AARST MALB 2014 with 1/21 revisions and MDH recommendations for quality assurance measurements to ensure the accuracy of test results. Quality assurance measurements include side-by-side (comparison or duplicate) measurements.

Comparison measurement devices are placed 4-8 inches apart for the same test period. Comparison measurement devices are stored, placed and retrieved, in the same manner as the other measurements. Since comparison measurements are placed side-by-side, the measured values for radon should be the same. The average of all comparison measurements' relative percent difference (RPD) should not exceed 25%. If they do, an investigation to identify the cause may be warranted and could include repeating the measurements. Comparison measurement averages are listed in Table 1 below.

<b>Table 1: Comparison Device Measurements and Averages</b>			
<b>Location</b>	<b>Test 1 (pCi/L)</b>	<b>Test 2 (pCi/L)</b>	<b>Average (pCi/L)</b>
Room 109	3.5	4.2	3.85

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February 3, 2023

**\*\* LABORATORY ANALYSIS REPORT \*\***

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Radon test result report for:

**BUFFALO MONTROSE HANOVER  
PARKSIDE ELEMENTARY**

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Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11619822	109	2023-01-30 @ 11:00 am	2023-02-01 @ 11:00 am	4.2 ± 0.4	2023-02-03

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Air Chek 1936 Butler Bridge Rd, Mills River, NC 28759-3892 Phone: (828) 684-0893 Fax: (828) 684-8498

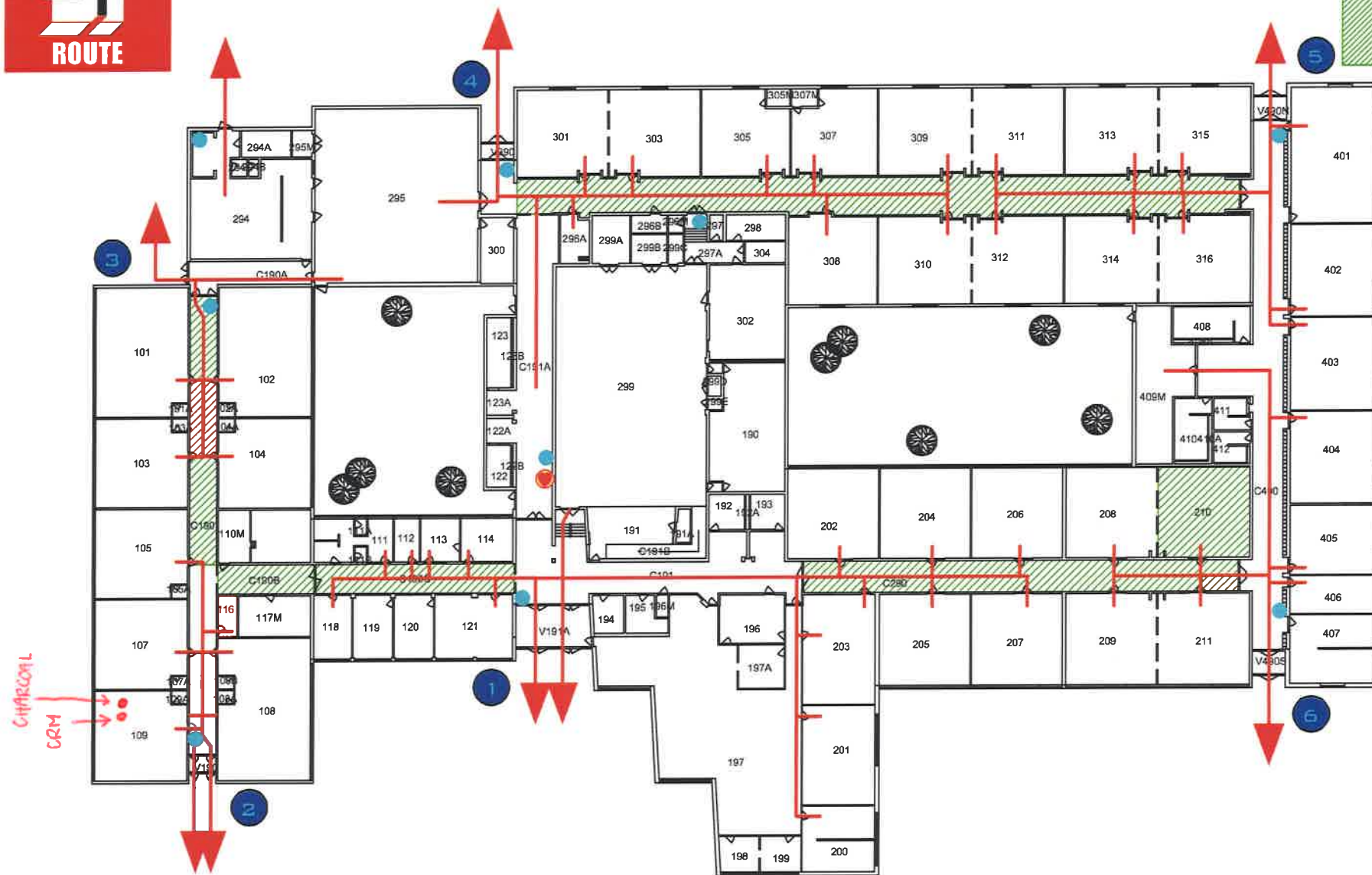
## **Appendix B**

*Maps and Continuous Radon Monitor Hourly Data*





- AED LOCATION
- EXTERIOR DOOR #
- FIRE PULL STATION





# CERTIFIED RADON REPORT

February 1, 2023

Test Number: 2307-346

**Property Inspected:** 207 3rd Street NE, Buffalo, MN 55313

**Licensed Radalink Radon Inspector:**  
**Institute for Environmental Assessment**  
**Jeffrey Athmann**  
**9201 West Broadway**  
**#600**  
**Brooklyn Park, MN 55445**  
**Phone: 763-315-7900**

Test performed for:  
Buffalo-Hanover-Montrose  
214 â 1st Avenue NE  
Buffalo, MN 55313

<b>Fax:</b>		<b>Placed By:</b>	Anastasia Shimkus (MN RMEA-00482)	<b>Temp.</b>	<b>Pressure</b>	<b>R.H.</b>
<b>Calibrated:</b>	12/30/2022 - 12/30/2023	<b>Retrieved By:</b>	Anastasia Shimkus (MN RMEA-00482)	<b>Min:</b>	68.0 29.8	16
<b>Test Started:</b>	01/30/2023 11:12 AM	<b>Test Site:</b>	109	<b>Avg:</b>	69.4 29.9	16
<b>Test Ended:</b>	02/01/2023 11:14 AM	<b>Test Duration:</b>	48 hours	<b>Max:</b>	73.0 30.1	19

**AVERAGE RADON CONCENTRATION:** **3.5 pCi/l**

Test has met minimum EPA sampling duration.

Uncertainty:  $\pm 1.34\%$

Time	01/30/2023		01/31/2023		02/01/2023	
	pCi/l	Flags	pCi/l	Flags	pCi/l	Flags
00:12 am			4.3	P	4.1	P
01:12			4.3	P	5.5	P
02:12			5.2	P	5.5	P
03:12			4.6	P	4.3	P
04:12			7.3	P	5.2	P
05:12			7.4	P	6.1	P
06:12			7.1	P	5.1	P
07:12			6.3	P	6.0	P
08:12			5.1	P	4.7	P
09:12			3.1	P	3.7	P
10:12			2.1	P	3.8	P
11:12			2.7	P	1.7	P
12:12 pm	1.2	P	2.6	P		
01:12	0.9	P	1.7	P		
02:12	1.1	P	2.0	P		
03:12	2.0	P	1.7	P		
04:12	2.5	P	1.3	P		
05:12	1.6	P	1.3	P		
06:12	1.9	P	2.6	P		
07:12	2.9	P	2.5	P		
08:12	2.6	P	4.0	P		
09:12	2.7	P	2.9	P		
10:12	3.1	P	3.5	P		
11:12	3.7	P	3.0	P		

Flags: P= AC Power Disruption; T=Tilt  
Eq. = Equilization Period

While every effort was made to maintain optimum quality control and EPA Protocol during the testing period, neither Radalink, Inc. or its licensed agents provide any warranty, expressed or implied, for the consequences of erroneous test results. There can be some uncertainty with any measurement due to statistical variations, extreme weather changes, operation of the building, and other factors, Radalink, Inc. and its licensed operators shall not be liable under any charge or claim for losses, claims, charges, fees, demands, expenses, or damages resulting from a radon test. This report is subject to the terms on the last page of the document.

# ENVIRONMENTAL DATA

MONITOR-TEST NUMBER: 2307-346

Property Inspected: 207 3rd Street NE  
Buffalo, MN 55313

	01/30/2023			01/31/2023			02/01/2023		
<u>Time</u>	<u>Temp</u>	<u>InHg</u>	<u>RH</u>	<u>Temp</u>	<u>InHg</u>	<u>RH</u>	<u>Temp</u>	<u>InHg</u>	<u>RH</u>
00:12 am				68.0	30.0	16	68.0	29.8	16
01:12				68.0	30.0	16	68.0	29.8	16
02:12				68.0	30.0	16	68.0	29.8	16
03:12				68.0	30.0	16	68.0	29.8	16
04:12				68.0	29.9	16	68.0	29.8	16
05:12				68.0	29.9	16	68.0	29.8	16
06:12				68.0	29.9	16	68.0	29.8	16
07:12				68.0	29.9	16	69.0	29.8	16
08:12				69.0	29.9	16	69.0	29.8	16
09:12				71.0	29.9	19	71.0	29.8	16
10:12				71.0	29.9	19	71.0	29.9	16
11:12				71.0	29.9	16	71.0	29.9	16
12:12 pm	73.0	30.1	19	71.0	29.9	19			
01:12	73.0	30.1	19	73.0	29.9	19			
02:12	73.0	30.1	16	71.0	29.9	16			
03:12	71.0	30.1	16	71.0	29.9	16			
04:12	71.0	30.1	16	71.0	29.9	16			
05:12	71.0	30.1	16	71.0	29.8	16			
06:12	69.0	30.1	16	69.0	29.8	16			
07:12	69.0	30.1	16	69.0	29.8	16			
08:12	68.0	30.0	16	69.0	29.8	16			
09:12	68.0	30.0	16	69.0	29.8	16			
10:12	68.0	30.0	16	69.0	29.8	16			
11:12	68.0	30.0	16	69.0	29.8	16			

AVERAGE RADON CONCENTRATION:

3.5 pCi/l



Reviewed and certified by

*Terry Howell*

Terry Howell, Quality Assurance Mgr.  
Radalink, Inc. NRPP 135791T

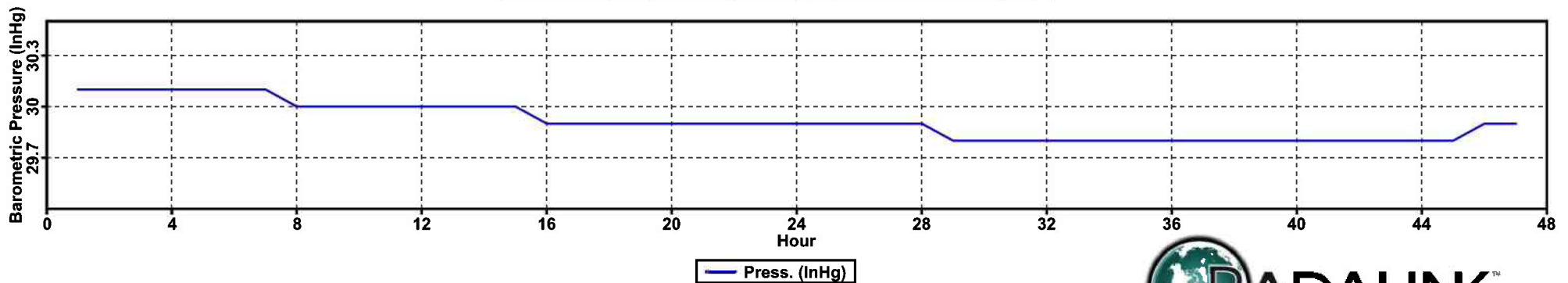
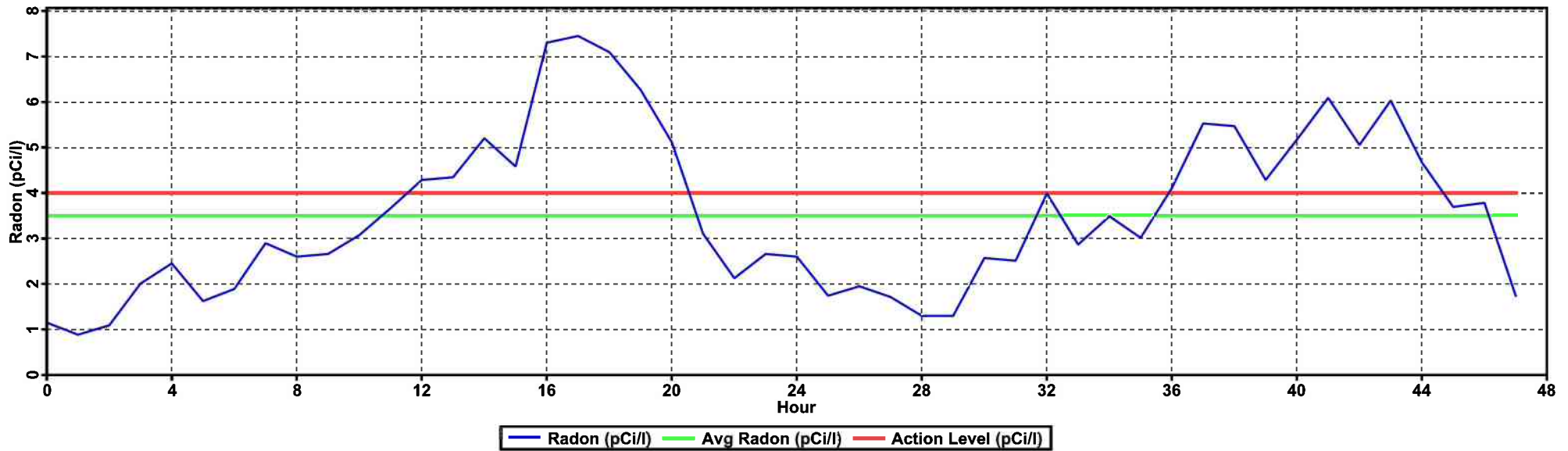
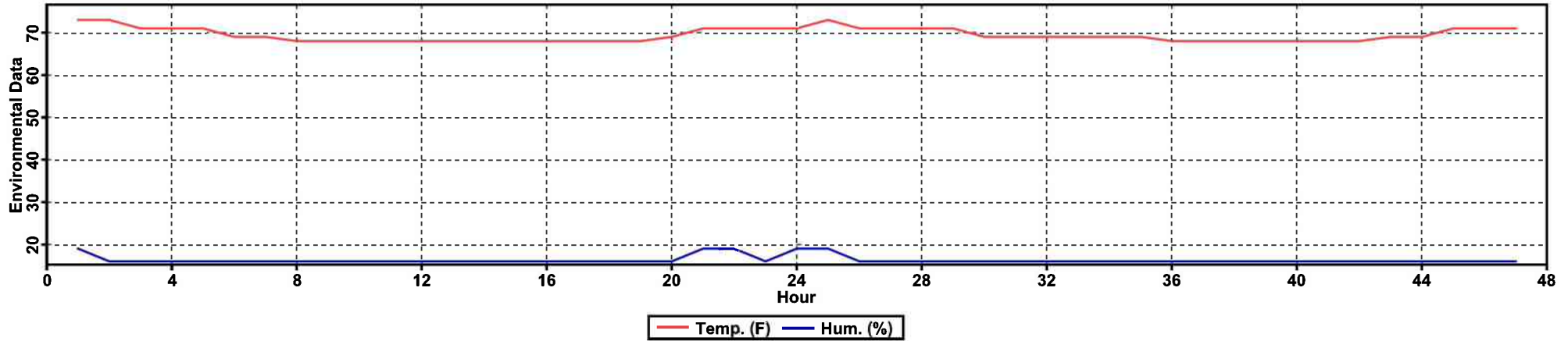
	Minimum	Average	Maximum	Variance
Temperature:	68.0	69.4	73.0	2.42
Barometric Pressure:	29.8	29.9	30.1	0.01
Relative Humidity:	16	16	19	0.86

NOTE: The first hour's environmental data is excluded from the table above.

Radalink, Inc. 5599 Peachtree Road Atlanta, GA 30341 Phone: (800)295-4655

# GRAPHICAL DATA VIEW

MONITOR-TEST NUMBER: 2307-346



Property Inspected: 207 3rd Street NE, Buffalo, MN 55313

**AVERAGE RADON CONCENTRATION: 3.5 pCi/l**





Date: 2023-02-01

## Test Proviso

Re: Certified Radon Report #: 2307-346 Dated: 2023-02-01

Performed At: 207 3rd Street NE, Buffalo, MN 55313

**This report does not contain results for every measurement performed at this address. Other locations within the dwelling were tested. In accordance with Illinois regulation, do not conclude mitigation is unnecessary until results of all measurements have been received and are below the 4 pCi/l Action Level. The state of Illinois recommends that a radon control system not be installed until all measurements have been received.**

## NOTICE OF INSPECTION FOR ALL FACILITATING STAFF

A radon test is scheduled for:

Building: Parkside Elementary  
Test Start Date: 01-30-2023 Test End Date: 02-01-2023

Please help to maintain the required test conditions throughout the building

1. All windows and exterior doors must be kept closed (aside from momentary entry or exit) for 12 hours before and during the test.
2. Heating and cooling systems must be set to normal occupied operating temperatures.
3. Test devices are not to be disturbed.

Further guidance on required building conditions are located on the next page.

Test devices are not dangerous in anyway. The type of devices used for this testing will include:

**Short-term test kits.** It is important that these devices are fully open and not covered. They will be analyzed by a laboratory.

**Continuous radon monitors.** These are electronic devices that record hourly radon readings.

**Long-term test kits.** It is important that these devices are not covered. They will be analyzed by a laboratory.

### Declaration of Observed Compliance

Failure to reasonably maintain test conditions can lead to unnecessary expense, disruptions and unreliable data.

Disturbing test devices can also cause unreliable or invalid test results.

- Please report in a timely manner if required test conditions are not maintained.
- Please sign and return this form once the test is complete.

To the best of my knowledge, the required conditions were maintained during the test. Yes

Name: Dan Mannz

Signature:

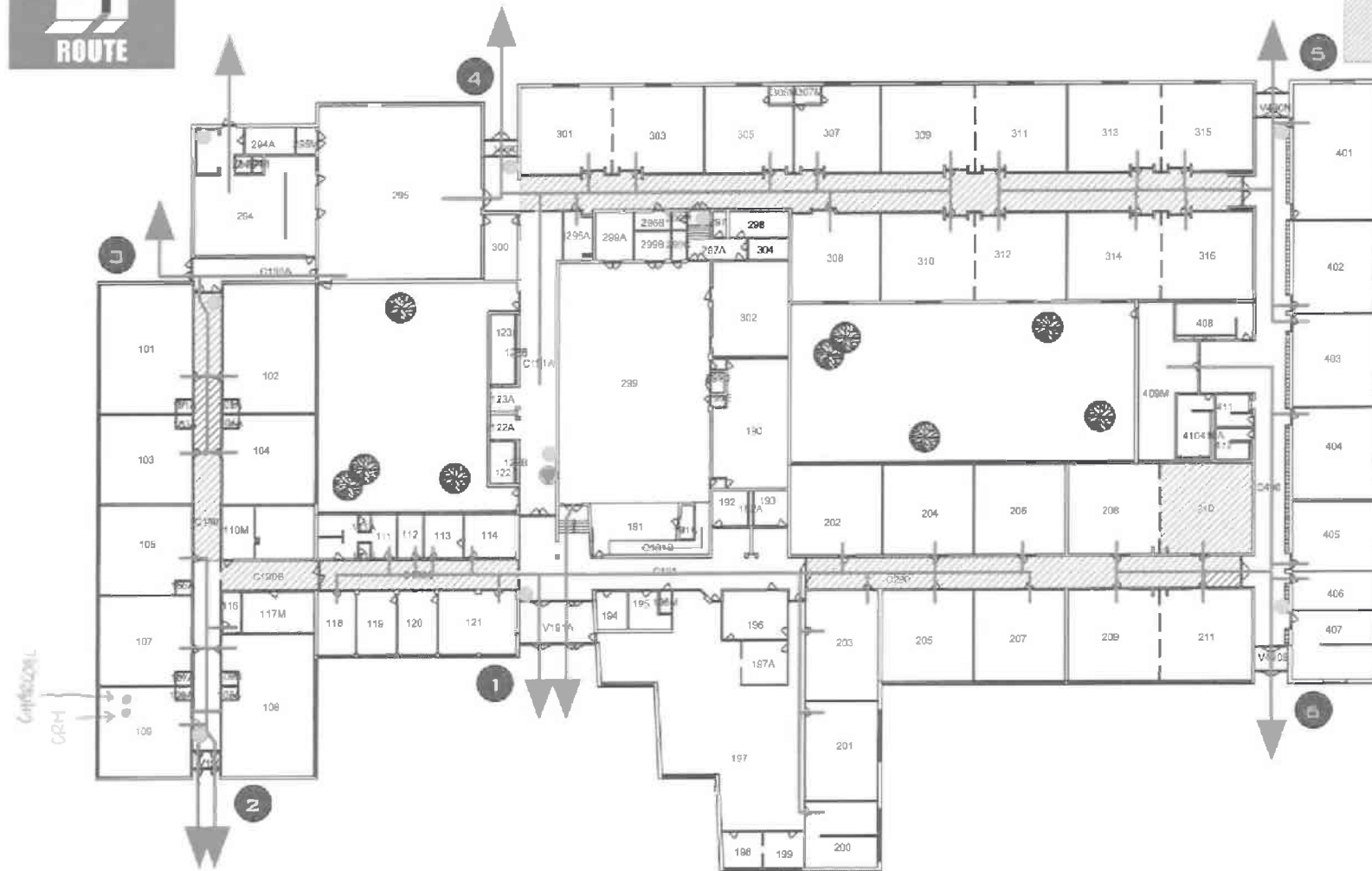


Licensed Measurement Professional:

Amanda Edberg RMEA-00041



- AED LOCATION
- EXTERIOR DOOR #
- FIRE PULL STATION



INSTITUTE FOR  
ENVIRONMENTAL ASSESSMENT

8201 West Broadway, Brooklyn Park, MN 55445

TEL: 763.433.7000 FAX: 763.433.7001  
WWW.IEA-MN.COM

PARKSIDE ELEMENTARY SCHOOL  
FIRST LEVEL FLOOR PLAN NOV. 2010





# HOW TO INTERPRET YOUR TEST RESULTS

THIS REPORT RELATES ONLY TO THE LOCATION(S) TESTED DURING THE MEASUREMENT PERIOD

These results should be interpreted in accordance with the EPA's guidance as published in EPA Publication No. 402-K-008 "Home Buyer's and Seller's Guide to Radon" and EPA Publication No. 402-K92-001, "Citizen's Guide to Radon".

**Because radon is the second leading cause of lung cancer**, the World Health Organization (WHO) and the U.S. Surgeon General recommend testing all homes for radon and mitigating those with an average concentration above the U.S. EPA action level of 4 picocuries per Liter (4 pCi/L) or higher. Even if your test result is below 4 pCi/L, mitigation may provide additional reduction of the risk of lung cancer. Find more information at [Radalink.com/results](http://Radalink.com/results).

**The Radalink Radon TeleMonitor** (NRPP Device # 00472, NRSB Device # 31814) or **The Radalink AirCat® Monitor** (NRPP Device # 00477, NRSB Device # 31815) used to perform this test is EPA, NRSB and/or NRPP approved and meets the Single Test Option requirements (EPA 402-R-93-003, Section 3.2.3) for conducting radon measurements in the context of a real estate transaction and may be used for determining the necessity for radon mitigation.

**Radon reduction systems work!** Professionally installed radon mitigation systems can reduce the radon levels in your home by up to 99%. Thousands of people have reduced radon levels in their homes. Maintaining a radon reduction system takes little effort to keep the system working properly and the radon levels low. EPA recommends that you have a qualified contractor (NRPP certified or state licensed) fix your home if radon levels are confirmed to be 4 pCi/L or higher. Find a licensed mitigator at [Radalink.com/mitigators](http://Radalink.com/mitigators). For more information on how to reduce your radon health risk, contact your state radon office:

Alabama	800-582-1866	Illinois	217-782-1325	Montana	800-546-0483	Rhode Island	401-222-7796
Alaska	907-269-8000	Indiana	800-272-9723	Nebraska	402-471-1005	South Carolina	800-768-0362
Arizona	602-255-4845	Iowa	800-383-5992	Nevada	888-723-6610	South Dakota	800-438-3367
Arkansas	501-661-2301	Kansas	800-693-5343	New Hampshire	603-271-4052	Tennessee	800-232-1139
California	800-745-7236	Kentucky	502-564-4856	New Jersey	800-648-0394	Texas	800-293-0753
Colorado	800-846-3986	Louisiana	225-765-0160	New Mexico	505-476-8608	Utah	800-458-0145
Connecticut	860-509-7367	Maine	207-287-5743	New York	800-458-1158	Vermont	800-439-8550
Delaware	302-744-4546	Maryland	866-703-3266	North Carolina	828-712-0972	Virginia	804-864-8150
Washington DC	202-535-2999	Massachusetts	800-723-6695	North Dakota	701-328-5188	Washington	360-236-3253
Florida	800-543-8279	Michigan	517-284-1837	Ohio	800-523-4439	West Virginia	800-922-1255
Georgia	706-542-9165	Minnesota	800-798-9050	Oklahoma	405-702-5162	Wisconsin	888-569-7236
Hawaii	808-586-4700	Mississippi	800-626-7739	Oregon	971-673-0490	Wyoming	307-777-6015
Idaho	800-445-8647	Missouri	573-751-6160	Pennsylvania	800-237-2366		

**USEPA Radon Program website: [www.epa.gov/radon](http://www.epa.gov/radon) and radon hotline 800-767-7236**

**SURGEON GENERAL HEALTH ADVISORY:** "Indoor radon is the second-leading cause of lung cancer in the U.S. and breathing it over prolonged periods can present a significant health risk to families all over the country. More than 20,000 Americans die of radon-related lung cancer every year. It's important to know that this threat is completely preventable. Radon can be detected with a simple test and fixed through well-established venting techniques."

**CONSUMER FEDERATION OF AMERICA:** "Consumers need to know about the health of a house they are considering purchasing, including whether there is a radon problem, and if so, how to fix it." *The EPA Home Buyer's and Sellers Guide to Radon* provides practical consumer information that every homebuyer needs to know.

**FLORIDA NOTICE TO CLIENTS:** An organization or individual certified by the Florida Dept. of Health to perform radon or radon progeny measurements or radon mitigation services provides this Notice to you. Any questions, comments, or complaints regarding the persons performing these measurement or mitigation services may be directed to the Florida Dept. of Health, Bureau of Facility Programs, Radon Indoor Air Quality, 4052 Bald Cypress Way, Bin #A08, Tallahassee, Florida 32399-1710.

**Florida Dept. of Health contact: 800-543-8279**

**MAINE NOTICE TO CLIENTS:** As per 22 MRSA, Sec. 771, results of this test will be reported to the Maine Dept. of Health and Human Services. Any questions, comments, or complaints concerning individuals or firms providing radon related services in Maine should be directed to: Radiation Control Program 11 State House Station Augusta, ME 04333-0010

**Maine Dept. of Health contact: 207-287-5743**

**PENNSYLVANIA NOTICE TO CLIENTS:** The Radon Certification Act requires that anyone who provides radon-related service or product to the general public must be certified by the Pennsylvania Department of Environmental Protection. You are entitled to evidence of certification from any person who provides such services or products. You are also entitled to a price list for services or products offered. All radon measurement data will be sent to the Department as required in the Act and will be kept confidential. If you have any questions, comments or complaints concerning persons who provide radon-related services, please contact the Department at the Bureau of Radiation Protection, Dept. Of Environmental Protection, P.O. Box 8469, Harrisburg, PA 17105-8469.

**Department at the Bureau of Radiation Protection: 717-783-3594**

**RHODE ISLAND NOTICE TO CLIENTS:** This notice is provided to you by an organization or individual licenses and/or certified by the Rhode Island Dept. of Health to perform radon measurements. Any questions, comments, or complaints regarding the person performing these measurements may be directed to the RI Dept. of Health, Radon Control Program, 3 Capitol Hill Room 206, Providence RI 02908-5097

**Rhode Island Dept. of Health contact: 401-222-7796**



## **Appendix C**

*Signed Non-Interference Agreement*

## NOTICE OF INSPECTION FOR ALL FACILITATING STAFF

A radon test is scheduled for:

Building: Parkside Elementary

Test Start Date: 01-30-2023

Test End Date: 02-01-2023

Please help to maintain the required test conditions throughout the building

1. All windows and exterior doors must be kept closed (aside from momentary entry or exit) for 12 hours before and during the test.
2. Heating and cooling systems must be set to normal occupied operating temperatures.
3. Test devices are not to be disturbed.

Further guidance on required building conditions are located on the next page.

Test devices are not dangerous in anyway. The type of devices used for this testing will include:

**Short-term test kits.** It is important that these devices are fully open and not covered. They will be analyzed by a laboratory.

**Continuous radon monitors.** These are electronic devices that record hourly radon readings.

**Long-term test kits.** It is important that these devices are not covered. They will be analyzed by a laboratory.

Declaration of Observed Compliance

Failure to reasonably maintain test conditions can lead to unnecessary expense, disruptions and unreliable data.

Disturbing test devices can also cause unreliable or invalid test results.

- Please report in a timely manner if required test conditions are not maintained.
- Please sign and return this form once the test is complete.

To the best of my knowledge, the required conditions were maintained during the test.

Yes

Name:

Dan Mannz

Signature:



Licensed Measurement Professional:

Amanda Edberg RMEA-00041

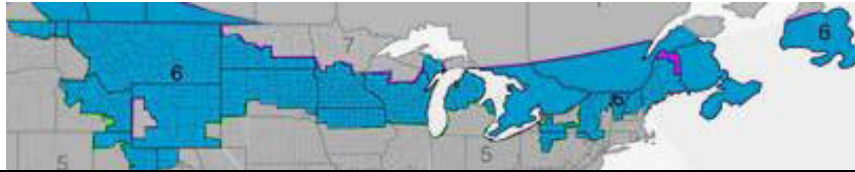
## More Detailed Guidance for Staff

Required Closed-Building Conditions	
Windows	Keep Closed, Seal broken windows closed
External doors (except for normal entry or exit)	Keep Closed
Heating & Cooling Systems	Set to normal operating conditions
Bathroom fans	Operate normally
Fireplaces (including gas)	Do not operate
Auxiliary or temporary systems that bring air into the building	Do not operate (unless an integral part of HVAC or supplies make-up air for combustion appliances)
Exhaust systems (ex. from shops, laundries, kitchens)	Avoid excessive operation
Interior doors, Stairwells, Fire Doors	Operate Normally
Garage doors	Operate normally
Ceiling Fans, Portable Fans	Do not blow directly on the test device
Window AC Units	Operate in recirculation mode only
Window Fans	Do not operate. Seal shut or remove.
Humidifiers, Dehumidifiers, Portable Air Cleaners	Operate Normally
Central Vacuum Cleaner Systems	Operate Normally
Passive crawl space vents	Operate normally
Crawlspace exhaust systems for humidity control	Operate normally
Passive Vents for Combustion Make-Up Air	Leave Open
Combustion Appliance Vents	Operate Normally
Passive Solar Systems	Operate Normally
Attic Vent Fans	Operate Normally
Evaporative Cooling Systems	Do not operate
Required for Test Locations Within a Room	
Place detectors within the general <b>breathing zone</b>  Locate detectors <b>no less than:</b>	3 feet from exterior doors, windows or other openings to the outdoors
	20 inches above the floor
	4 inches from other test devices and objects
	1 foot below the ceiling
Place detectors where they are not easily disturbed:	Select a place in an occupied area where the detectors are unlikely to be moved
Place detectors where they are not influenced by other factors:	Do not place devices in closets, crawlspaces, cupboards, sumps or nooks within building foundations
	Do not place devices in area with high air movement (ex. mechanical areas, furnace closets)
	Do not place devices in areas of high humidity (ex. kitchens, bathrooms, laundry rooms)
	Do not place devices near drafts from HVAC systems or fans
	Do not place test devices near heat sources (ex. appliances, radiators, fireplaces, direct sunlight)
	Do not place detectors on devices that produce radiation (ex. natural stone counters, pool tables, rock collections)

## **Appendix D**

### *Average Building Operating Conditions Comparison*

### Climate Zone 6 (includes Southern MN)



		Averages			During the Test
		24 Hour	Daytime	Daytime 9-Month	Prevailing During the Test
<b>Operating Condition</b>	Outdoor Temperature	45 °F	50 °F	N/A	-4 °F The ground was covered in snow and ice.
	Heating Conditions	75%	66%	88%	100%
	Cooling Conditions	-	16%	11%	0%
	Mixed Conditions	25%	16%	-	0%
<b>Normal Operating Condition</b>		<ul style="list-style-type: none"> <li>• Heating conditions</li> <li>• No variance in outdoor air ventilation</li> </ul>			<ul style="list-style-type: none"> <li>• Heating conditions</li> <li>• No variance in outdoor air ventilation</li> </ul>
<b>Condition less likely to inhibit characterization of a radon hazard</b>		<ul style="list-style-type: none"> <li>• Heating and air distribution systems active</li> </ul>			<ul style="list-style-type: none"> <li>• Heating and air distribution systems active</li> </ul>