



Cascade Radon, Inc.  
Testing, Mitigation,  
Systems Design  
CCB 180537 / CASCARI927C1  
Fed ID 26-1809992

12839 NE Airport Way Bldg. 9  
Portland, Oregon 97230  
Phone: (503) 421-4813  
Fax: (503) 281-6170  
Office@CascadeRadon.com

# **Beaumont Middle School**

**(C-65190)**

**4043 NE Fremont Street, Portland, OR 97212**

**March 2, 2018**



Cascade Radon, Inc.  
Testing, Mitigation,  
Systems Design  
CCB 180537 / CASCARI927C1  
Fed ID 26-1809992

12839 NE Airport Way Bldg. 9  
Portland, Oregon 97230  
Phone: (503) 421-4813  
Fax: (503) 281-6170  
Office@CascadeRadon.com

## **Purpose**

**Initial testing was performed March 14, 2016 to March 17, 2016 by PBS Engineering and Environmental Inc. Testing indicated 7 pCi/L in room 26A/Gym of the building. PBS performed additional testing starting in October 2016 to April 2017 as a confirmation long-term test to determine if mitigation was needed. The result of this 6 month test was 6.0 pCi/L in room 26A/Gym. Cascade Radon was hired to diagnose room 26A and develop a mitigation strategy to reduce the radon levels.**

**The installation of a sub-slab depressurization system was used to reduce the radon below the EPA action level of 4 pCi/L. See attached pages for a description of the system components and post-mitigation testing.**



**The suction point is located in a storage room adjacent to the gym. The vent piping continues to the mechanical room above and then to fan location on the roof. The system includes a manometer (pressure gauge), which is a simple means of seeing the system is working mechanically. A manometer also shows how much negative pressure (depressurization) the system is creating. It is understood such a pressure gauge DOES NOT monitor radon levels.**





**This system required a RadonAway GP501 model fan, which is designed for the denser soil found beneath the concrete slab. For secure and durable mounting, a strut channel stand was constructed to support the fan and electrical components. If left to operate continuously the lifespan of this fan typically is 10 to 15 years.**

# **Credentials**

**Cascade Radon, Inc.**  
**12839 NE Airport Way Bldg. 9**  
**Portland, OR 97230**  
**(503)421-4813**  
**office@cascaderadon.com**  
**CCB180537**  
**CASCARI977C1**  
**NEHA/NRPP# 104815RMT**  
**NRSB# 1G0008**

**Snyder Roofing of Oregon LLC**  
**12650 SW Hall Blvd.**  
**Tigard, OR 97223**  
**(503)620-5252**  
**Snyder-builds.com**  
**CCB135987**

**Christensen Electric, Inc.**  
**17201 NE Sacramento Street**  
**Portland, OR 97230**  
**(503)419-3300**  
**info@christenson.com**  
**CCB458**



**CASCADE RADON, INC.**

Testing, Mitigation,  
Systems Design  
CCB 180537 / CASCARI927C1

12839 NE Airport Way  
Portland, OR 97230  
Phone: (503) 421-4813  
Fax: (503) 281-6170  
[Office@CascadeRadon.com](mailto:Office@CascadeRadon.com)

March 2, 2018

C-65190

To: Portland Public Schools  
501 N. Dixon Street  
Portland, OR 97227

RE: Beaumont Middle School  
4043 NE Freemont St.  
Portland, OR 97212

Effective: December 29, 2017

Cascade Radon, Inc. warrants that all work has been performed in a workmanlike manner and according to the best standard practices. All materials and equipment are new, unless otherwise specified, and of first quality.

Cascade Radon, Inc. guarantees that the installation will maintain average, long-term, indoor radon levels, based upon approved 9 month duration Alpha-Track testing at or below 4 pCi/L for a period of 10 years.

With the exception of the exhaust fan unit(s), Cascade Radon, Inc. warrants that all labor, work, materials and equipment will be free from faults in material or workmanship for period of ten (10) years from the date of substantial completion.

Includes 5-year manufactures replacement warranty on exhaust fan unit(s), beginning at time of initial activation, with any related work and materials provided at no cost to the Client.

All warranties and guarantees are transferable to future owners of the same property.

Warranty or service inquires, please call (503) 421-4813

Sincerely,  
Wade Gervais  
Division Manager  
Cascade Radon, Inc.



## TEST DETAILS:

Beaumont Middle School  
 4043 NE Fremont St  
 Portland, OR 97212

Portland Public Schools

**Test Start Date/Time:** Wednesday, December 27, 2017 // 9:00 AM

**Test End Date/Time:** Friday, December 29, 2017 // 9:00 AM

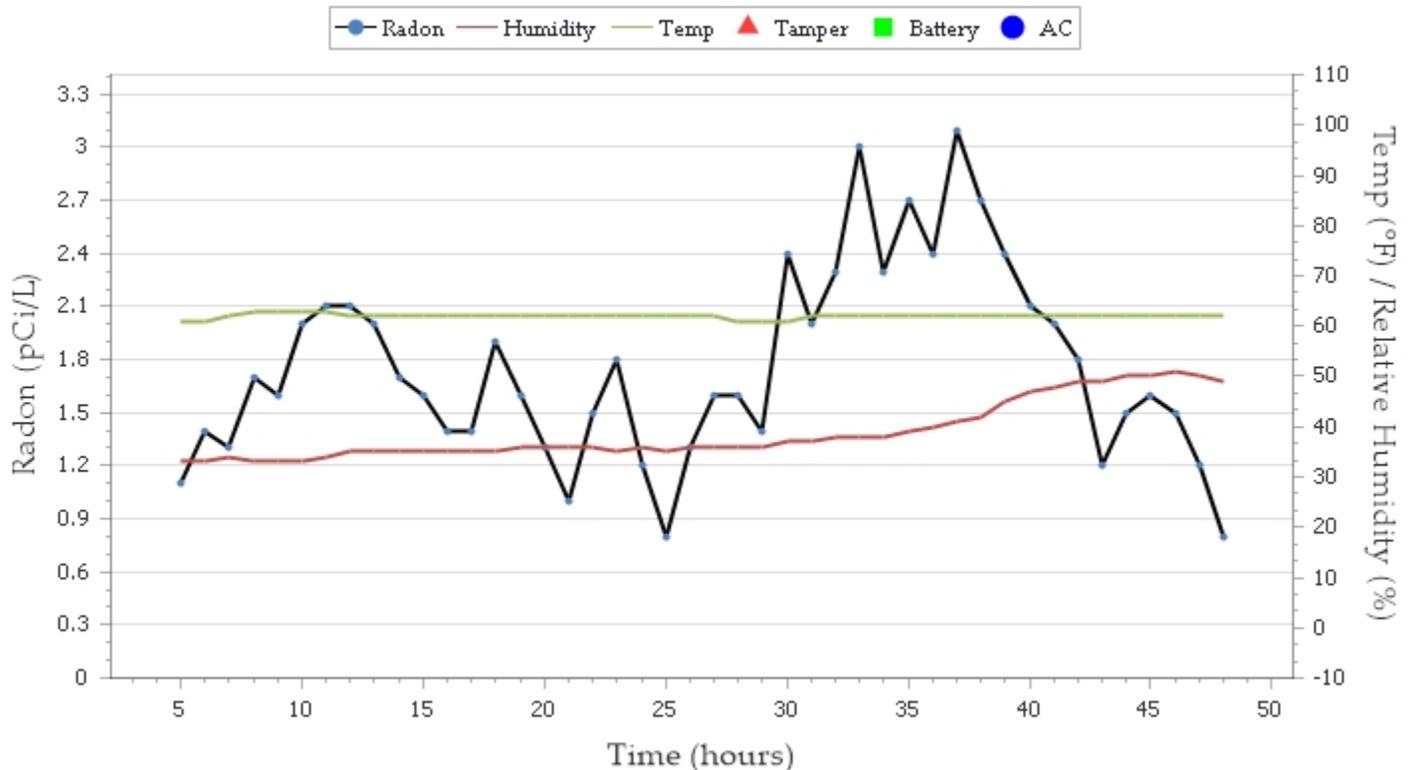
**Location of Instrument:** Gym Stage

**Notes:**

## TEST RESULTS:

**Average:** 1.7 pCi/L

**Test ID#** 80295



*Tamara C Linde*

1/3/18

Tamara Linde

Date

Certification #:

License 1:

CCB 180537/ CASCARI927C1

License 2:

NRPP 108946RT, 108953RT



## INTERVAL REPORT:

Hour	T	B	AC	pCi/L	Temp	Humd	Alpha
1	*		*	0.4	62	34	13
2				0.7	61	33	25
3				1.4	62	33	46
4				1.4	61	31	47
5				1.1	61	33	38
6				1.4	61	33	48
7				1.3	62	34	45
8				1.7	63	33	58
9				1.6	63	33	52
10				2.0	63	33	66
11				2.1	63	34	71
12				2.1	62	35	71
13				2.0	62	35	65
14				1.7	62	35	58
15				1.6	62	35	52
16				1.4	62	35	46
17				1.4	62	35	46
18				1.9	62	35	64
19				1.6	62	36	52
20				1.3	62	36	44
21				1.0	62	36	33
22				1.5	62	36	51
23				1.8	62	35	59
24				1.2	62	36	42
25				0.8	62	35	26
26				1.3	62	36	43
27				1.6	62	36	53
28				1.6	61	36	55
29				1.4	61	36	47
30				2.4	61	37	78
31				2.0	62	37	66
32				2.3	62	38	75
33				3.0	62	38	100
34				2.3	62	38	77
35				2.7	62	39	90
36				2.4	62	40	78
37				3.1	62	41	103
38				2.7	62	42	88
39				2.4	62	45	80
40				2.1	62	47	71
41				2.0	62	48	67
42				1.8	62	49	59
43				1.2	62	49	39
44				1.5	62	50	51
45				1.6	62	50	52
46				1.5	62	51	50
47				1.2	62	50	42
48				0.8	62	49	28

**Minimum:** 0.8 pCi/L      **Maximum:** 3.1 pCi/L      **Average:** 1.7 pCi/L

*Tamara C Linde*

Tamara Linde

1/3/18

Date

Certification #:

License 1:

CCB 180537/ CASCARI927C1

Tamara Linde  
Cascade Radon  
12839 NE Airport Way  
Portland, OR 97230  
Phone: 503-421-4813  
office@cascaderadon.com

Fax: 503-281-6170



---

License 2:

NRPP 108946RT, 108953RT



**CERTIFICATE OF CALIBRATION  
RadStar RS800 Continuous Monitor**

This instrument has been calibrated in accordance with the procedures set forth by the manufacturer.  
Please retain this certificate for your records

Cal Date: 10-20-17 Last Cal Date: 10/07/16 Next Cal Date: 10-20-18  
Device Serial Number: 1715 Device Type: RS800  
Device Status: Passed  Failed  Radon Chamber: TC 103 B

NRPP Chamber#TC103	Radon Gas Concentration: <u>19.4 pCi/l</u>
CRM Serial Numbers: <u>4183 2173 2178</u>	
Chamber Temperature: <u>70.1 °F</u>	Chamber Humidity: <u>46.6 %RH</u>
Start Chamber Exposure: <u>10/16/17 10:00</u>	Stop Chamber Exposure: <u>10/18/17 08:00</u>

Calibration Number (as found, if applicable) 333 *Calib#=(10240/(Hourly Counts/pCi/l))*  
Calibration Number (Final) 333 Calibrated By: [Signature]

**RadonAway 3 Saber Way Ward Hill, Massachusetts 01835 978-521-3703**

This RadStar Continuous Radon Monitor has been calibrated by the Manufacturer using a standard operating procedure for the calibration of the RS800, TP010 Rev F. This procedure provides for the following performance checks:

- System Functional Checks
- Battery Check
- Back Ground Check in Nitrogen 0.1 pCi/l 17 cph
- Chamber Exposure in known Radon Gas Concentration
- Adjustment to Calibration Number, if necessary
- Adjustment to Background, if necessary
- Verification Chamber Exposure, if necessary

*(As Tested Background is Integrated into Instrument Calculation Program. Do Not Adjust Readings by Background)*

The manufacturer, RadonAway performs quarterly inter-comparisons with a Secondary Chamber

NRPP Device Code 476 Device group 18 USEPA Verified

Radon Measurement Specialist:

NRSB #6SS0002, NRPP #100842RT

*The RadStar RS800 is distributed by Accustar Labs 888-580-9596*



## TEST DETAILS:

Beaumont Middle School  
 4043 NE Fremont St  
 Portland, OR 97212

Portland Public Schools

**Test Start Date/Time:** Wednesday, December 27, 2017 // 9:00 AM

**Test End Date/Time:** Friday, December 29, 2017 // 9:00 AM

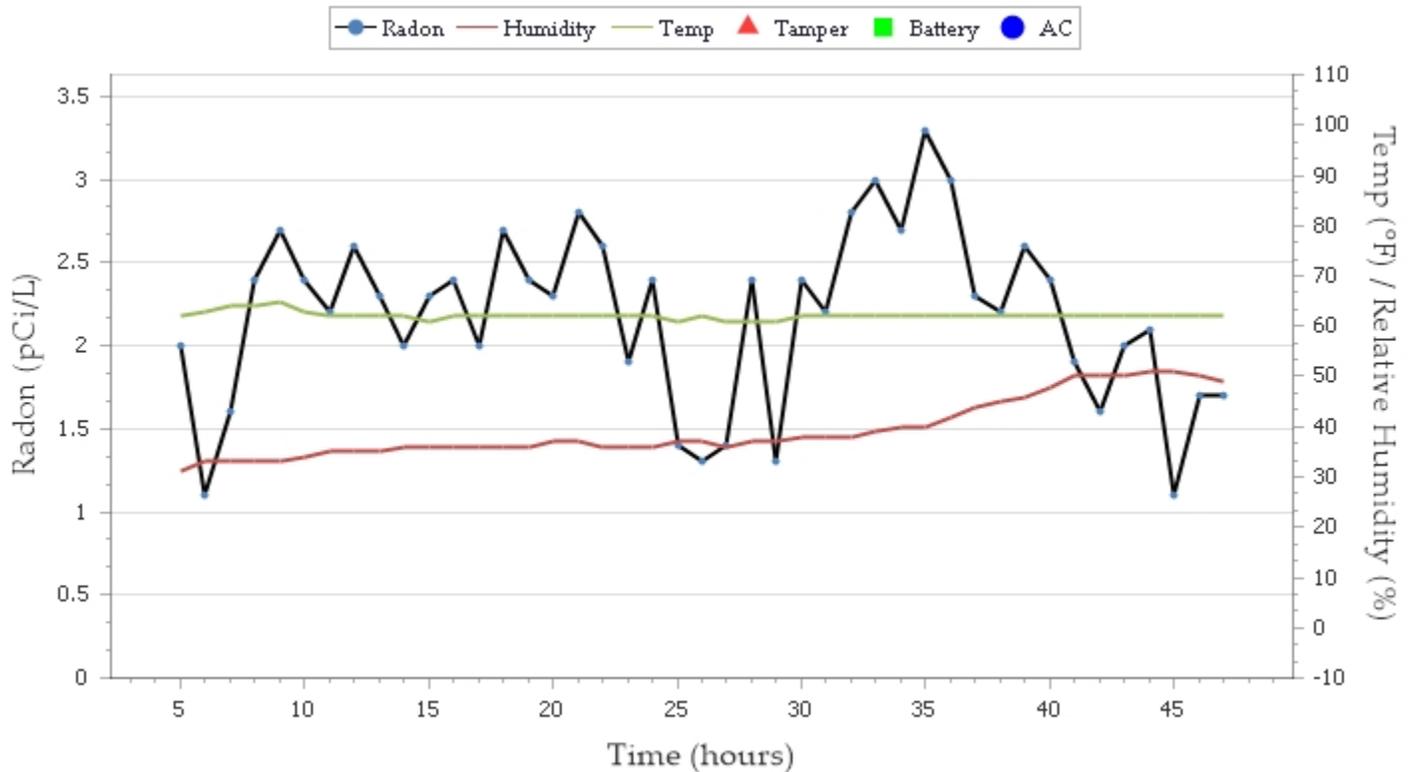
**Location of Instrument:** Gym near water fountain

**Notes:**

## TEST RESULTS:

**Average:** 2.1 pCi/L

**Test ID#** 80381



*Tamara C Linde*

1/3/18

Tamara Linde

Date

Certification #:

License 1:

CCB 180537/ CASCARI927C1

License 2:

NRPP 108946RT, 108953RT



## INTERVAL REPORT:

Hour	T	B	AC	pCi/L	Temp	Humd	Alpha
1				0.7	62	36	24
2				1.6	62	34	51
3				2.1	62	33	65
4				1.6	62	31	50
5				2.0	62	31	62
6				1.1	63	33	36
7				1.6	64	33	52
8				2.4	64	33	75
9				2.7	65	33	86
10				2.4	63	34	76
11				2.2	62	35	69
12				2.6	62	35	81
13				2.3	62	35	73
14				2.0	62	36	63
15				2.3	61	36	71
16				2.4	62	36	75
17				2.0	62	36	64
18				2.7	62	36	86
19				2.4	62	36	75
20				2.3	62	37	72
21				2.8	62	37	87
22				2.6	62	36	83
23				1.9	62	36	61
24				2.4	62	36	74
25				1.4	61	37	46
26				1.3	62	37	41
27				1.4	61	36	45
28				2.4	61	37	74
29				1.3	61	37	41
30				2.4	62	38	74
31				2.2	62	38	69
32				2.8	62	38	89
33				3.0	62	39	93
34				2.7	62	40	85
35				3.3	62	40	103
36				3.0	62	42	93
37				2.3	62	44	72
38				2.2	62	45	69
39				2.6	62	46	82
40				2.4	62	48	75
41				1.9	62	50	61
42				1.6	62	50	50
43				2.0	62	50	62
44				2.1	62	51	65
45				1.1	62	51	35
46				1.7	62	50	53
47				1.7	62	49	53

**Minimum:** 1.1 pCi/L      **Maximum:** 3.3 pCi/L      **Average:** 2.1 pCi/L

*Tamara C Linde*

1/3/18

Tamara Linde

Date

Certification #:

License 1:

CCB 180537/ CASCARI927C1

License 2:

NRPP 108946RT, 108953RT



**CERTIFICATE OF CALIBRATION  
RadStar RS800 Continuous Monitor**

This instrument has been calibrated in accordance with the procedures set forth by the manufacturer.  
Please retain this certificate for your records

Cal Date: 2-2-17 Last Cal Date: 01/04/16 Next Cal Date: 2-2-18  
Device Serial Number: 1984 Device Type: RS800  
Device Status: Passed  Failed  Radon Chamber: TC 103 B

NRPP Chamber#TC103	Radon Gas Concentration: <u>16.5 pCi/l</u>
CRM Serial Numbers: <u>4183 2173 2178</u>	
Chamber Temperature: <u>69.5 °F</u>	Chamber Humidity: <u>33.5 %RH</u>
Start Chamber Exposure: <u>01/27/17 11:00</u>	Stop Chamber Exposure: <u>01/31/17 08:00</u>

Calibration Number (as found, if applicable) 296 Calib#=(10240/(Hourly Counts/pCi/l))  
Calibration Number (Final) 316 Calibrated By: [Signature]

**RadonAway 3 Saber Way Ward Hill, Massachusetts 01835 978-521-3703**

This RadStar Continuous Radon Monitor has been calibrated by the Manufacturer using a standard operating procedure for the calibration of the RS800, TP010 Rev E. This procedure provides for the following performance checks:

- System Functional Checks
- Battery Check
- Back Ground Check in Nitrogen 0.1 pCi/l 15 cph
- Chamber Exposure in known Radon Gas Concentration
- Adjustment to Calibration Number, if necessary
- Adjustment to Background, if necessary
- Verification Chamber Exposure, if necessary

*(As Tested Background is Integrated into Instrument Calculation Program, Do Not Adjust Readings by Background)*

The manufacturer, RadonAway performs quarterly inter-comparisons with a Secondary Chamber

NRPP Device Code 476 Device group 18 USEPA Verified

Radon Measurement Specialist:

NRSB #6SS0002, NRPP #100842RT

**The RadStar RS800 is distributed by Accustar Labs 888-580-9596**