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| ***RADON SCREENING SURVEY***H:\Radon\Abington\Abington Frolio Middle 1071 Washington St\FrolioPic1.jpg**Frolio Middle School****1071 Washington Street****Abington, MA**Prepared by:Massachusetts Department of Public HealthBureau of Environmental HealthIndoor Air Quality ProgramRadon Assessment UnitJanuary, 2019 |

# Background

|  |  |
| --- | --- |
| Dates of Assessment: | 1/14/2019 through 1/16/2019 |
| Building Name: | Frolio Middle School |
| Address: | 1071 Washington Street, Abington, MA |
| Assessment Requested by: | Abington School Department |
| Massachusetts Department of Public Health Bureau of Environmental Health (MDPH/BEH) Staff Conducting Assessment: | Lisa A. Hébert, Senior Technical Radon Specialist, Indoor Air Quality (IAQ) Program, Radon Unit |

# Methods

Radon samples were collected for the purpose of this radon survey using the United States Environmental Protection Agency (US EPA) Method #402-R-92-004 Liquid Scintillation (LS). Sampling devices were obtained through AccuStar Labs, a certified radon laboratory. Thirty four devices were deployed throughout the building for a minimum 48-hour time period. Devices were deployed on 1/14/2019 and collected on 1/16/2019.

# Results

Tests were taken during normal operations at Frolio Middle School. Of the 34 areas where test devices were deployed, devices from 34 areas were collected and submitted to AccuStar Labs. The lab results from the survey appear in Appendix A.

# Discussion

Radon Unit staff reviewed the lab results from AccuStar Labs and found all quality assurance parameters within acceptable limits. Appendix A shows that radon levels in the building ranged from 1.0pCi/L to 17.4pCi/L. Fourteen areas screened had radon levels above the US EPA action guideline of 4 picocuries per liter of air pCi/L. Radon levels were not elevated elsewhere. These rooms were all located on the lowest level of the school and were:

Teacher’s Room/Record room, Supply closet, Sports injury area, Room 101, Chorus, Long Storage Room across hall from chorus, Storage room across hall from Teacher Room,

Electrical Room and adjacent supply room, Old kitchen/break room, Kitchen storage, Old café (side closest to old kitchen).

The rooms tested on first and second floors were below 2pCi/L.

## Radon Gas

According to the National Research Council (NRC, 2009), “low levels of radon are present in all the air we breathe.” Radon is a naturally occurring, radioactive gas that is produced by the natural decay of uranium in the soil. The average outdoor radon level is about 0.4 pCi/L (US EPA, 2009). Once radon is formed, it migrates through various pathways in the soil and can enter a building through cracks, holes, and joints in a building’s foundation (US EPA, 2009). The EPA recommends mitigation for indoor radon levels at or above 4 pCi/L.

According to the US EPA (2009), radon gas “decays into radioactive particles that can get trapped in your lungs when you breathe. As they break down further, these particles release small bursts of energy.” This activity can damage your lung tissue and increase a person’s risk of developing lung cancer (US EPA, 2009). Radon is the leading cause of lung cancer in non-smokers. In 2005, the U.S. Surgeon General issued a health advisory stating that indoor radon is the second leading cause of lung cancer (US EPA, 2013).

# Recommendations

Based on the measurements and observations made during the visit, the following recommendations are made.

It would be prudent to contact ***certified*** radon measurement and mitigation specialists to confirm the results found and to mitigate the radon in the building. The two organizations that certify radon measurement and mitigation specialists are:

National Radon Safety Board (NRSB) [www.nrsb.org](http://www.nrsb.org)

American Association of Radon Scientists and Technologists (AARST) <http://aarst-nrpp.com/wp/>

Access to the rooms with elevated radon levels should be restricted until such time as the building can be mitigated and retested.

It would be prudent for your radon measurement specialist to test the entire lower level (for confirmation purposes) as well as any areas on the second floor that weren’t already tested; those areas above rooms with elevated radon levels; and also above rooms that were unable to be tested due to lack of access.

The rooms that were not tested on the lowest level were:

- Athletic Storage area – (no access)

- Boiler Room (Too hot to test – 93°F)

- Garage (Too cold to test – 35°F)

- Storage area under stairs (no access)

These areas should be tested in the future as well if conditions permit.

Refer to resource manual and other related IAQ documents located on the MDPH’s website for further building-wide evaluations and advice on maintaining public buildings. These documents are available at: <http://mass.gov/dph/iaq>.

If you have any questions or concerns, please call the Massachusetts Department of Public Health Radon Assessment Unit at (413) 586-7525.

**References**

National Research Council (MRC). 1999. *Risk Assessment of Radon in Drinking Water,* National Academy Press.

United States Environmental Protection Agency (US EPA). 2009. “A Citizen’s Guide to Radon. The Guide To Protecting Yourself and Your Family From Radon”. US Environmental Protection Agency. EPA402/K-09/001. January 2009.

United States Environmental Protection Agency (US EPA). 2013. “Home Buyers and Seller’s Guide to Radon”. US Environmental Protection Agency. EPA402/K-13/002. September 2013.

**Appendix A**

**Radon Survey Results**

NELAC NY 11769

NRPP 103216 AL NRSB ARL0017

Laboratory Report for: Property Tested:

EPA Method #402-R-92-004

Liquid Scintillation NRPP Device Code 8088 NRSB Device Code 12193

Peter Schafer-Abington Public Schools

Frolio Middle School

1071 Washington Street 1071 Washington Street

Abington MA 02351 Abington MA 02351

|  |  |  |
| --- | --- | --- |
| Log Number | Device Number | ResultTest Exposure Duration: Area Tested pCi/L |
| 2422225 | 3135995 | 01/14/2019 | 8:00 am | 01/16/2019 | 9:05 am | Room 108 | 2.1 |
| 2422226 | 3135996 | 01/14/2019 | 8:05 am | 01/16/2019 | 9:05 am | Room 107 | 2.5 |
| 2422227 | 3135997 | 01/14/2019 | 8:10 am | 01/16/2019 | 9:05 am | Room 106 | 3.3 |
| 2422228 | 3135848 | 01/14/2019 | 8:10 am | 01/16/2019 | 9:10 am | Room 105 | 3.6 |
| 2422229 | 3135849 | 01/14/2019 | 8:10 am | 01/16/2019 | 9:10 am | Room 104 | 2.8 |
| 2422230 | 3135850 | 01/14/2019 | 8:15 am | 01/16/2019 | 9:15 am | Room 103 | 2.4 |
| 2422231 | 3135851 | 01/14/2019 | 8:20 am | 01/16/2019 | 9:15 am | Teacher's Room-Records | 7.9 |
| 2422232 | 3135852 | 01/14/2019 | 8:25 am | 01/16/2019 | 9:15 am | Girls Locker Room | 3.4 |
| 2422233 | 3135853 | 01/14/2019 | 8:25 am | 01/16/2019 | 9:20 am | Coaches Office | 3.0 |
| 2422234 | 3135854 | 01/14/2019 | 8:30 am | 01/16/2019 | 9:20 am | Closet | 3.4 |
| 2422235 | 3135856 | 01/14/2019 | 8:35 am | 01/16/2019 | 9:20 am | Supply Closet | 12.3 |

**Comment:**

Per ANSI/AARST MAH 2014, requirements for test locations within a room were not met (Kitchen and Closet). Your

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Test Performed By: Lisa Hebert

Distributed by: Dept of Public Health-Western Regional

Date Received: 01/17/2019

Date Logged:

01/17/2019

Date Analyzed: 01/18/2019

Date Reported:

01/18/2019

**Disclaimer:**

Report Reviewed By: \_ \_\_\_\_ \_\_\_ \_\_\_

Report Approved By: \_\_\_ \_\_\_ \_\_\_ \_\_\_\_ \_\_

Shawn Price, Director of Laboratory Operations, AccuStar Labs

The uncertainty of this radon measurement is ~+/- 10 %. Factors contributing to uncertainty include statistical variations, daily and seasonal variations in radon concentrations, sample collection techniques and operation of the dwelling. Interference with test conditions may influence the test results.

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NELAC NY 11769

NRPP 103216 AL NRSB ARL0017

Laboratory Report for: Property Tested:

EPA Method #402-R-92-004

Liquid Scintillation NRPP Device Code 8088 NRSB Device Code 12193

Peter Schafer-Abington Public Schools

Frolio Middle School

1071 Washington Street 1071 Washington Street

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|  |  |  |
| --- | --- | --- |
| Log Number | Device Number | ResultTest Exposure Duration: Area Tested pCi/L |
| 2422236 | 3135857 | 01/14/2019 | 8:35 am | 01/16/2019 | 9:20 am | Sports Injury Area | 9.9 |
| 2422237 | 3135858 | 01/14/2019 | 8:40 am | 01/16/2019 | 9:25 am | Boys Locker Room Closet | 2.7 |
| 2422238 | 3135859 | 01/14/2019 | 8:40 am | 01/16/2019 | 9:25 am | Team Room | 2.4 |
| 2422239 | 3135860 | 01/14/2019 | 8:45 am | 01/16/2019 | 9:25 am | Old Shower Area | 3.1 |
| 2422240 | 3135861 | 01/14/2019 | 8:45 am | 01/16/2019 | 9:25 am | Boys Locker Room | 1.9 |
| 2422241 | 3135862 | 01/14/2019 | 8:50 am | 01/16/2019 | 9:30 am | Room 101 | 5.5 |
| 2422242 | 3135863 | 01/14/2019 | 8:10 am | 01/16/2019 | 9:05 am | QA-1 | 3.4 |
| 2422243 | 3135864 | 01/14/2019 | 8:15 am | 01/16/2019 | 9:15 am | QA-2 | 2.7 |
| 2422244 | 3135865 | 01/14/2019 | 8:40 am | 01/16/2019 | 9:30 am | QA-3 | < 0.4 |
| 2422245 | 3135866 | 01/14/2019 | 8:50 am | 01/16/2019 | 9:30 am | Chorus | 8.6 |
| 2422246 | 3135867 | 01/14/2019 | 8:55 am | 01/16/2019 | 9:35 am | Storage | 11.0 |

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|  |  |  |
| --- | --- | --- |
| Log Number | Device Number | ResultTest Exposure Duration: Area Tested pCi/L |
| 2422247 | 3135868 | 01/14/2019 | 9:00 am | 01/16/2019 | 9:35 am | Closet | 17.4 |
| 2422248 | 3135869 | 01/14/2019 | 9:00 am | 01/16/2019 | 9:40 am | Electrical | 4.4 |
| 2422249 | 3135870 | 01/14/2019 | 9:00 am | 01/16/2019 | 9:40 am | Supply | 4.4 |
| 2422250 | 3135871 | 01/14/2019 | 9:05 am | 01/16/2019 | 9:40 am | Custodial Office | 3.4 |
| 2422251 | 3135872 | 01/14/2019 | 9:05 am | 01/16/2019 | 9:45 am | Adjunct Council | 3.6 |
| 2422252 | 3135873 | 01/14/2019 | 9:10 am | 01/16/2019 | 9:45 am | Old Kitchen-Break Room | 4.2 |
| 2422253 | 3135874 | 01/14/2019 | 9:10 am | 01/16/2019 | 9:45 am | Kitchen Storage | 5.5 |
| 2422254 | 3135875 | 01/14/2019 | 9:10 am | 01/16/2019 | 9:45 am | Old Café | 4.0 |
| 2422255 | 3135876 | 01/14/2019 | 9:15 am | 01/16/2019 | 9:45 am | Old Café 2 | 3.7 |
| 2422256 | 3135877 | 01/14/2019 | 9:20 am | 01/16/2019 | 9:50 am | Room 210 | 0.8 |
| 2422257 | 3135878 | 01/14/2019 | 9:25 am | 01/16/2019 | 9:50 am | Room 201 | 1.3 |

**Comment:**

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|  |  |  |
| --- | --- | --- |
| Log Number | Device Number | ResultTest Exposure Duration: Area Tested pCi/L |
| 2422258 | 3135879 | 01/14/2019 | 9:25 am | 01/16/2019 | 9:55 am | Accounting | 1.2 |
| 2422259 | 3135880 | 01/14/2019 | 9:30 am | 01/16/2019 | 9:55 am | Room 206 | 1.0 |
| 2422260 | 3135881 | 01/14/2019 | 9:30 am | 01/16/2019 | 9:55 am | Room 305 | 1.2 |
| 2422261 | 3135882 | 01/14/2019 | 9:35 am | 01/16/2019 | 9:55 am | Room 306 | 1.2 |
| 2422262 | 3135883 | 01/14/2019 | 8:50 am | 01/16/2019 | 9:30 am | QA-4 | 8.5 |
| 2422263 | 3135884 | 01/14/2019 | 8:55 am | 01/16/2019 | 9:35 am | QA-5 | 13.2 |
| 2422264 | 3135885 | 01/14/2019 | 9:35 am | 01/16/2019 | 9:50 am | QA-6 | < 0.4 |

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