



## Introduction

Radon is a colorless and odorless gas that comes from the soil. Exposure to radon over time can cause lung cancer. The U.S. Environmental Protection Agency (EPA) has set a target level of 4 pCi/L and to consider action at 2 pCi/L.

Meridian Consulting conducted short-term radon testing for Bailey Elementary at 4125 Woodlane Drive, Woodbury, MN 55129. Testing was conducted to determine if occupants are exposed to elevated levels of radon. Radon testing was done according to ANSI/AARST MA-MFLB 2023.

## Testing

Testing was conducted from 02/06/2024 to 02/08/2024 using Air Chek Pro Chek radon test kits from Air Chek, Inc. 1936 Butler Bridge Rd, Mills River, NC. 28759, NRPP Certified Lab # 101138 AL.

Testing was conducted by the following Minnesota Department of Health (MDH) licensed radon measurement professionals:

Name	MDH License #	Signature
Wendy German	RMEA-00447	

All ground-contact rooms that are occupied or intended to be occupied were tested. In addition, tests were conducted in all rooms above ground-contact rooms that were not tested. On second floors, ten percent of rooms were tested with at least one test conducted on each story.

## Test Conditions

Radon levels in a building can be influenced by many factors including weather, season, and occupancy patterns. Temporary conditions observed during the testing period may cause the test to not reflect the occupant's risk from radon.

The radon levels stated for this period had the following situations present:

There were no situations present that would interfere with accurate testing.

## Test Results

All test results were less 2 pCi/L.

## Missing or Invalid Test Results

Location	Missing/Invalid/Not Tested	Explanation
n/a	None	n/a

There were no missing tests.

## Quality Assurance and Quality Control

Quality control measurements were conducted in compliance with ANSI/AARST MA-MFLB 2023.

## Recommendations

### Test result is 4.0 pCi/L or greater:

- Fix the building if test results indicate occupants may be exposed to radon concentrations that meet or exceed the EPA action level of 4.0 pCi/L.
- Efforts to reduce radon concentrations are not complete until a retest provides 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 that concentrations meet or exceed the action level, conduct evaluations, corrections, and further testing under radon concentrations have been mitigated to below the action level.
- Retest every 2 years to ensure the system remains effective.

### Test results between 2.0 and 4.0 pCi/L:

- Consider fixing the building if the test results indicate radon levels greater than half of the EPA action level.
- Tests conducted when heating systems are active both day and night are more likely to provide a clear characterization of potential radon hazards.

**When to Retest:**

- Retest every 5 years if no mitigation system is installed.
- Retest in conjunction with the sale of any new or existing building.
- Be certain to test again when any of the following circumstances occur:
  - A new addition is constructed or alterations for building rehab or reconfiguration occur;
  - A ground contact area not previously tested is occupied, or a building is newly occupied;
  - Heating and cooling systems are significantly altered, resulting in changes to air pressure or pressure relationships;
  - Ventilation is significantly altered by extensive weatherization, changes to mechanical systems or comparable procedures;
  - Significant openings to the soil occur due to:
    - Groundwater or slab surface water control systems that are altered or added (ex. sumps, perimeter drain tile, shower/tub retrofits) or,
    - Natural settlement causing major cracks to develop.
  - Earthquakes, construction blasting, or formation of sink holes nearby; or
  - A radon mitigation system is altered, modified, or repaired.

**Radon Information**

Additional information on radon can be found on the Minnesota Department of Health's website at [mn.gov/radon](http://mn.gov/radon) or by contacting them at 651-201-4601 or [health.indoorair@state.mn.us](mailto:health.indoorair@state.mn.us). If you have any questions, please contact us at 320-224-1908 or [wendy@meridianconsult.net](mailto:wendy@meridianconsult.net)

## **Appendix A: Floor Plan Diagram**

[MAP HAS BEEN REMOVED FROM THIS REPORT]

## Appendix B: Test Conditions

- The minimum outdoor temperature that existed 12 hours prior to and during the test period was 25°F. The maximum outdoor temperature was 55°F. The average outdoor temperature was 41°F.
- Weather was mild and rainy. No snow coverage on ground.

		Annual	During the Test
Outdoor Temperatures	Avg. °F	45°	41°
Operating Conditions	Heating (% year)	75%	100%
Operating Conditions	Cooling (% year)	0	0
Operating Conditions	Mixed (% year)	25%	0
Prevailing Operating Condition	Heating/Cooling/Mixed	Heating	Heating



## Appendix C: Quality Control Measurements

Duplicates: Two devices are placed next to each other for the results to be compared. This measures the accuracy and consistency of the lab, and the quality and reproducibility of the testing kits.

Sample ID	Result	Average	Pass/Fail
11448965	< 0.3	< 0.3	Pass
11448966	<0.3		
11448973	0.5	0.4	Pass
11448974	< 0.3		
11448953	0.5	0.6	Pass
11448952	0.7		
11448942	.5	0.5	Pass
11448945	< 0.3		
11448937	0.6	1.0	Pass
11448938	1.3		
11448912	< 0.3	0.3	Pass
11448915	< 0.3		
11448922	< 0.3	0.5	Pass
11448924	0.6		
11448927	0.8	0.8	Pass

11448928	0.7		
11448901	0.5	0.7	Pass
11448902	0.8		

**Blanks:** Devices that are sealed immediately and not exposed to air at different times during the testing process. Transit blanks are sent to the lab immediately after receiving the test kits to verify that no radon has been accumulated through transit. Office blanks are sealed on test day to verify that no radon has been accumulated during storage. Field blanks are sealed and placed throughout the buildings being tested.

Type	Sample ID	Result	Pass/Fail
Transit	7408066	< 0.3	Pass
Transit	7408065	< 0.3	Pass
Transit	7408064	< 0.3	Pass
Office	11726803	< 0.3	Pass
Office	11726802	< 0.3	Pass
Office	11726801	< 0.3	Pass
105	11448964	< 0.3	Pass
139	11448935	< 0.3	Pass
Custodian	11448911	< 0.3	Pass
Nurse	11448904	< 0.3	Pass

**Spikes:** devices that are sent to a third-party lab, where it is exposed to a known concentration of radon. The device is then sent to the lab to compare results. This measures the accuracy of the test kits.

Sample ID	Exposed	Result	Pass/Fail
11726672	10.5	12.2	Pass
11726673	10.5	11.6	Pass
11726674	10.5	12.2	Pass
11726675	10.5	12.4	Pass

11726679	10.5	12.1	Pass
11726680	10.5	10.9	Pass



## Appendix D: Analytical Results

Sample ID	Location	Start Date/Time	End Date/Time	Duplicate	Result
11448986	100	2/6/24 9:00	2/8/24 8:00		< 0.3
11448961	101	2/6/24 9:00	2/8/24 8:00		0.7
11448960	102	2/6/24 9:00	2/8/24 8:00		0.6
11448959	104	2/6/24 9:00	2/8/24 8:00		< 0.3
11448963	105	2/6/24 9:00	2/8/24 8:00		< 0.3
11448981	108	2/6/24 9:00	2/8/24 8:00		0.6
11448943	109	2/6/24 9:00	2/8/24 8:00		0.5
11448965	115	2/6/24 9:00	2/8/24 8:00	< 0.3	< 0.3
11448966	115	2/6/24 9:00	2/8/24 8:00	< 0.3	
11448967	116	2/6/24 9:00	2/8/24 8:00		< 0.3
114488969	117	2/6/24 9:00	2/8/24 8:00		< 0.3
11448970	118	2/6/24 9:00	2/8/24 8:00		< 0.3
11448968	119	2/6/24 9:00	2/8/24 8:00		0.8
11448971	120	2/6/24 9:00	2/8/24 8:00		< 0.3
11448980	121	2/6/24 9:00	2/8/24 8:00		1
11448979	122	2/6/24 9:00	2/8/24 8:00		1.3
11448978	123	2/6/24 9:00	2/8/24 8:00		< 0.3
11448976	124	2/6/24 9:00	2/8/24 8:00		0.6
11448975	125	2/6/24 9:00	2/8/24 8:00		< 0.3
11448973	126	2/6/24 9:00	2/8/24 8:00	0.5	0.4
11448974	126	2/6/24 9:00	2/8/24 8:00	< 0.3	
11448953	127	2/6/24 8:00	2/8/24 8:00	0.5	0.6
11448952	127	2/6/24 8:00	2/8/24 8:00	0.7	
11448954	128	2/6/24 8:00	2/8/24 8:00		0.6
11448955	129	2/6/24 8:00	2/8/24 8:00		0.5
11448956	130	2/6/24 8:00	2/8/24 8:00		0.7
11448957	131	2/6/24 8:00	2/8/24 8:00		0.7
11448958	132	2/6/24 8:00	2/8/24 8:00		1.3
11448948	133	2/6/24 8:00	2/8/24 8:00		0.8
11448947	134	2/6/24 8:00	2/8/24 8:00		0.7
11448949	135	2/6/24 8:00	2/8/24 8:00		0.8
11448944	136	2/6/24 8:00	2/8/24 8:00		0.6
11448946	137	2/6/24 8:00	2/8/24 8:00		< 0.3
11448942	138	2/6/24 8:00	2/8/24 8:00	0.7	0.5
11448945	138	2/6/24 8:00	2/8/24 8:00	< 0.3	
11448934	139	2/6/24 8:00	2/8/24 8:00		0.7

11448937	140	2/6/24 8:00	2/8/24 8:00	0.6	1
11448938	140	2/6/24 8:00	2/8/24 8:00	1.3	
11448936	140A	2/6/24 8:00	2/8/24 8:00		< 0.3
11448912	147	2/6/24 8:00	2/8/24 8:00	< 0.3	< 0.3
11448915	147	2/6/24 8:00	2/8/24 8:00	< 0.3	
11448984	152	2/6/24 9:00	2/8/24 8:00		< 0.3
11448985	153	2/6/24 9:00	2/8/24 8:00		< 0.3
11448950	155	2/6/24 8:00	2/8/24 8:00		0.6
11448972	156	2/6/24 9:00	2/8/24 8:00		< 0.3
11448951	157	2/6/24 8:00	2/8/24 8:00		0.7
11448977	158	2/6/24 9:00	2/8/24 8:00		0.8
11448906	159	2/6/24 8:00	2/8/24 7:00		0.7
11448908	160	2/6/24 8:00	2/8/24 7:00		0.8
11448907	162	2/6/24 8:00	2/8/24 7:00		< 0.3
114448921	180	2/6/24 8:00	2/8/24 8:00		< 0.3
11448922	181	2/6/24 8:00	2/8/24 8:00	< 0.3	0.5
11448924	181	2/6/24 8:00	2/8/24 8:00	0.6	
11448925	182	2/6/24 8:00	2/8/24 8:00		< 0.3
11448926	183	2/6/24 8:00	2/8/24 8:00		< 0.3
11448927	184	2/6/24 8:00	2/8/24 8:00	0.8	0.8
11448928	184	2/6/24 8:00	2/8/24 8:00	0.7	
11448929	185	2/6/24 8:00	2/8/24 8:00		0.9
11448930	186	2/6/24 8:00	2/8/24 8:00		0.6
11448931	187	2/6/24 8:00	2/8/24 8:00		< 0.3
11448932	188	2/6/24 8:00	2/8/24 8:00		< 0.3
11448933	189	2/6/24 8:00	2/8/24 8:00		0.6
11448923	190	2/6/24 8:00	2/8/24 8:00		0.6
11448940	201	2/6/24 9:00	2/8/24 8:00		1.3
1144896	202	2/6/24 9:00	2/8/24 8:00		< 0.3
11448941	Commons	2/6/24 8:00	2/8/24 8:00		0.6
11448939	Commons 2	2/6/24 8:00	2/8/24 8:00		< 0.3
11448913	Custodian	2/6/24 8:00	2/8/24 7:00		0.6
11448919	Gym A	2/6/24 8:00	2/8/24 8:00		0.5
11448920	Gym A 2	2/6/24 8:00	2/8/24 8:00		0.7
11448917	Gym B	2/6/24 8:00	2/8/24 8:00		0.6
11448918	Gym B 2	2/6/24 8:00	2/8/24 8:00		0.8
11448914	Gym C	2/6/24 8:00	2/8/24 8:00		0.8
11448916	Gym C 2	2/6/24 8:00	2/8/24 8:00		1
11448910	Kitchen	2/6/24 8:00	2/8/24 7:00		0.7

11448909	Kitchen Office	2/6/24 8:00	2/8/24 7:00		0.8
11448901	Main Office	2/6/24 7:00	2/8/24 7:00	0.5	0.7
11448902	Main Office	2/6/24 7:00	2/8/24 7:00	0.8	
11448982	Media 1	2/6/24 9:00	2/8/24 8:00		< 0.3
11448983	Media 2	2/6/24 9:00	2/8/24 8:00		< 0.3
11448903	Nurse	2/6/24 7:00	2/8/24 7:00		< 0.3
11448905	Wrkrm	2/6/24 8:00	2/8/24 8:00		< 0.3

## **Appendix E: Test Notifications**

## Client Advisories Prior to Testing

Testing will be conducted in compliance with ANSI/AARST MA-MFLB 2023 and the Minnesota Radon Licensing Act.

- Tests will be done in 100% ground contact residential units and non-residential rooms that are occupied or intended to be occupied.
- In addition, 10% of residential units and non-residential rooms will be tested on each upper floor, with a minimum of one test per floor.
- Quality control measurements will be done at 10% duplicates (extended testing option), 5% blanks, and 3% spikes.
- Closed-building conditions must be maintained at least 12-hours prior to and during the test.

There are two test options that comply with the standards:

Time-Sensitive Testing	Extended Testing
Tests at each location are tested using two short-term test devices or a continuous radon monitor	Tests at each location are conducted using a single short-term test device
	All locations that meet or exceed the action level (4.0 pCi/L) are retested
Decisions to mitigate are based on the results of the average of the two short-term test devices or the average from a continuous radon monitor	Decisions to mitigate are based on the results of the average of the two rounds of testing

Failure to reasonably maintain test conditions can lead to unnecessary expense, disruptions, and unreliable data. Disturbing test devices can also cause reliable and invalid test results.

To aid in proper test conditions, the measurement professional will:

- Inform the person responsible for building operations of the required test conditions,
- Ensure “Radon Test in Progress” signs are posted in prominent locations,
- Attempt to obtain a signed statement from onsite supervisors or facilitating staff members that they will aid in the quality control of closed-building conditions, and
- Conduct a visual inspection upon detector placement and retrieval to ensure all closed-building conditions are met.

**Please provide, in writing, a list of who is authorized to receive test data and at which junctures data should be provided.**



## Instructions for Notifying Individual of Test Conditions

Proper notification is essential to get compliance with required testing conditions.

Enclosed are notification forms for facilitating staff such as authorized building supervisors, maintenance staff, teachers, or office managers. Facilitating staff should ensure closed-building conditions are met in non-residential spaces at least 12-hours prior to the test and maintained during the test period.

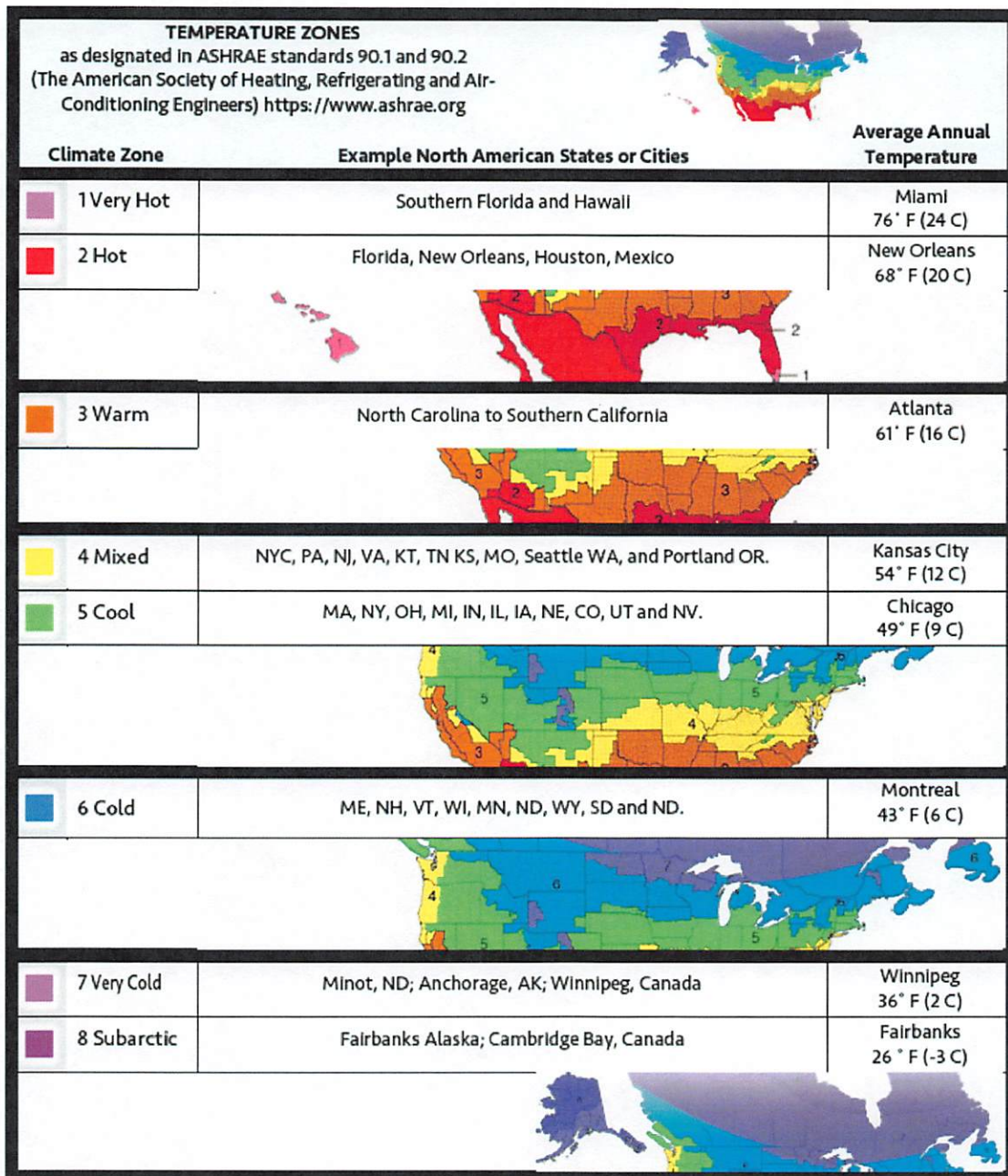
In addition, notifications must be distributed to all occupants of tested and not-tested units and contain:

- Scheduled dates and times for test device placement and retrieval,
- Essential closed-building requirements portrayed in Table 4-A of the ANSI/AARST standard and that these conditions are required no later than 12 hours prior to the test and throughout the test period,
- Information on how to obtain federal or state radon health guidance, and
- Local contact information for inquiries, such as the authorized building supervisor.

Enclosed are notification forms for occupants. Please distribute notifications to occupants at least 24 hours prior to testing. Notifications also need to be posted in prominent areas such as entry doors and community bulletins.

## Normal Occupied Building Conditions

Minnesota is in Temperature Zones 6 and 7. Across the state, the prevailing HVAC condition is heating. Radon testing is recommended during the heating season.









## Client Authorizations & Communications

### Client and Facilitating Staff Member Contact Information

Client/Authorized Agent Kyle Uecker phone (651) 425-6299  
Onsite Supervisor Principals at each building phone \_\_\_\_\_  
Building/Dwelling Access Wendy has full access phone \_\_\_\_\_  
HVAC Operations Kyle Uecker phone \_\_\_\_\_  
Other Contact/Title \_\_\_\_\_ phone \_\_\_\_\_

### Radon Testing Professional Contact Information

Scheduling/Logistics Wendy German phone (651) 425-6277  
Onsite Supervisor same phone \_\_\_\_\_  
Field Technician same phone \_\_\_\_\_  
Field Technician \_\_\_\_\_ phone \_\_\_\_\_

### Staff authorized for responding to occupant and public inquiries:

Name/Title Kyle Uecker phone \_\_\_\_\_  
Name/Title \_\_\_\_\_ phone \_\_\_\_\_

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

Name/Title Kyle Uecker phone \_\_\_\_\_  
Name/Title \_\_\_\_\_ phone \_\_\_\_\_

### Frequency of Reports

☐ prior to testing    ☐ after each phase of testing    ☒ when testing is complete

Minnesota Department of Health | Indoor Air Unit | PO Box 64975 | St. Paul, MN 55164 | 651-201-4601  
[health.indoorair@state.mn.us](mailto:health.indoorair@state.mn.us) | [www.health.state.mn.us](http://www.health.state.mn.us) | [mngov/radon](http://mngov/radon)

08/17/2023 | To obtain this information in a different format, call: 651-201-4601.



# Notice of Inspection for Building Occupants

**A radon test is scheduled for:**

**Building: Bailey Elementary**

**Test Start Date: 2/6/24      Test End Date: 2/8/24**

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 at 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.

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.

The test devices are not dangerous in any way, if a test gets incidentally moved, please put it back where it was originally placed. If you think a test has been heavily tampered with (smashed, ripped, moved) please leave me a note so that I can research its validity.

More information about radon in Minnesota can be found online at [mn.gov/radon](https://mn.gov/radon).

If you have any questions or concerns, please contact:

Wendy German

South Washington County Schools

Facilities – Health and Safety

[wgerman@sowashco.org](mailto:wgerman@sowashco.org)

651-425-6277



## Client Commitment to Compliance

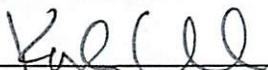
### Management Commitment:

To the extent reasonably possible, I, on behalf of **Bailey Elementary**, commit to helping ensure that building conditions required to achieve reliable radon tests are met, as portrayed herein.

To the extent reasonably possible, I commit to helping ensure that building conditions required to achieve reliable radon tests are met, as portrayed herein, by accepting the following responsibilities:

1. **Building Preparation:** I accept responsibility that, no later than 12 hours prior to testing, each building scheduled for testing will be reviewed for compliance with closed-building requirements.
2. **Compliance Verification:** I accept responsibility for taking actions that could include adjustments to HVAC units and repairs where completion is required no later than 12 hours prior to testing.

Client/Authorized Agent: **Kyle Uecker**

Signature:  Date: 1/23/24

### Building On-Site Supervisor Commitment:

To the extent reasonably possible, I commit to helping ensure that building conditions required to achieve reliable radon tests are met, as portrayed herein, by accepting the following responsibilities:

1. **Prior Notifications:** Notices will be distributed to all staff and posted in publicly accessible areas in a timely manner.
2. **Access:** Access will be provided to each location being tested within a building with intent to access all locations on the same day for both the event of placing testing devices and a second event for retrieving test devices.

On-Site Supervisor/Principal: **Kristine McDonald**

Signature:  Date: 2-2-24



# RADON TEST IN PROGRESS

from

to

Start Date

End Date

# RADON TEST IN PROGRESS

from

to

Start Date

End Date

## Required closed-building conditions

(12 hours prior to the test and during the test)

### Keep closed

**Windows & Exterior doors**  
*(except for momentary use)*

### Set to normal

**Heating & Cooling systems**  
*keep between about 65° - 80° F)*

### Set to lowest outdoor ventilation

**Systems that temporarily ventilate with outdoor air for seasonal comfort or energy savings**

### Avoid excessive operation

**Clothes dryers, range hoods and bathroom fans**

### Do not operate

**Whole-house and window fans**

**Fireplaces that burn solid, liquid or gas fuels, unless they are the primary sources of heat for the building**

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