OM&M Plans Made Easy!

Dan Hylland

Agenda

- What is an OM&M plan?
- Why is this important?
- Basic requirements for OM&M plans
- What does an OM&M plan look like?
- MDH OM&M plan template
- 12 items of an OM&M plan
- Final thoughts

What is an OM&M plan

- Basic information about the radon mitigation system that helps to make sure that occupants are protected from radon as long as the building is occupied

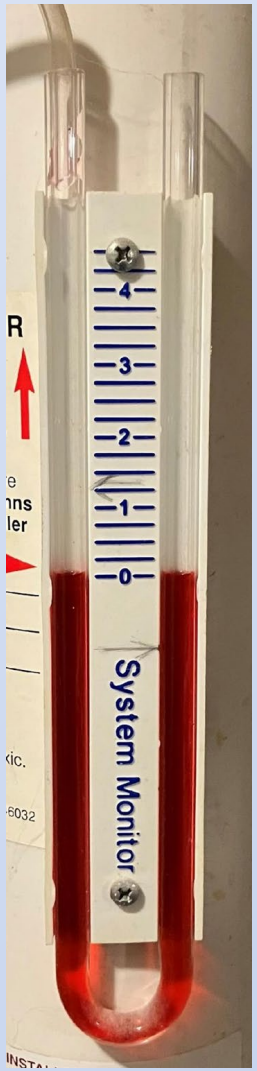
- Operation, maintenance, and monitoring (OM&M) plan

Why is this important?

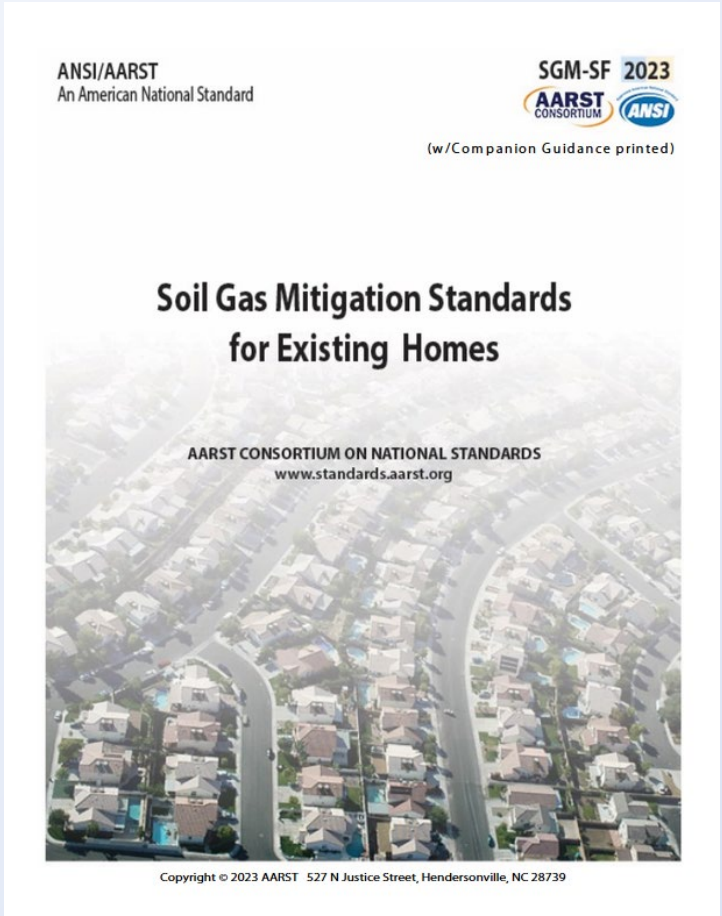
- In general – contractors struggle with paperwork
  - 12 years as a mitigator and I never had a compliant OM&M plan

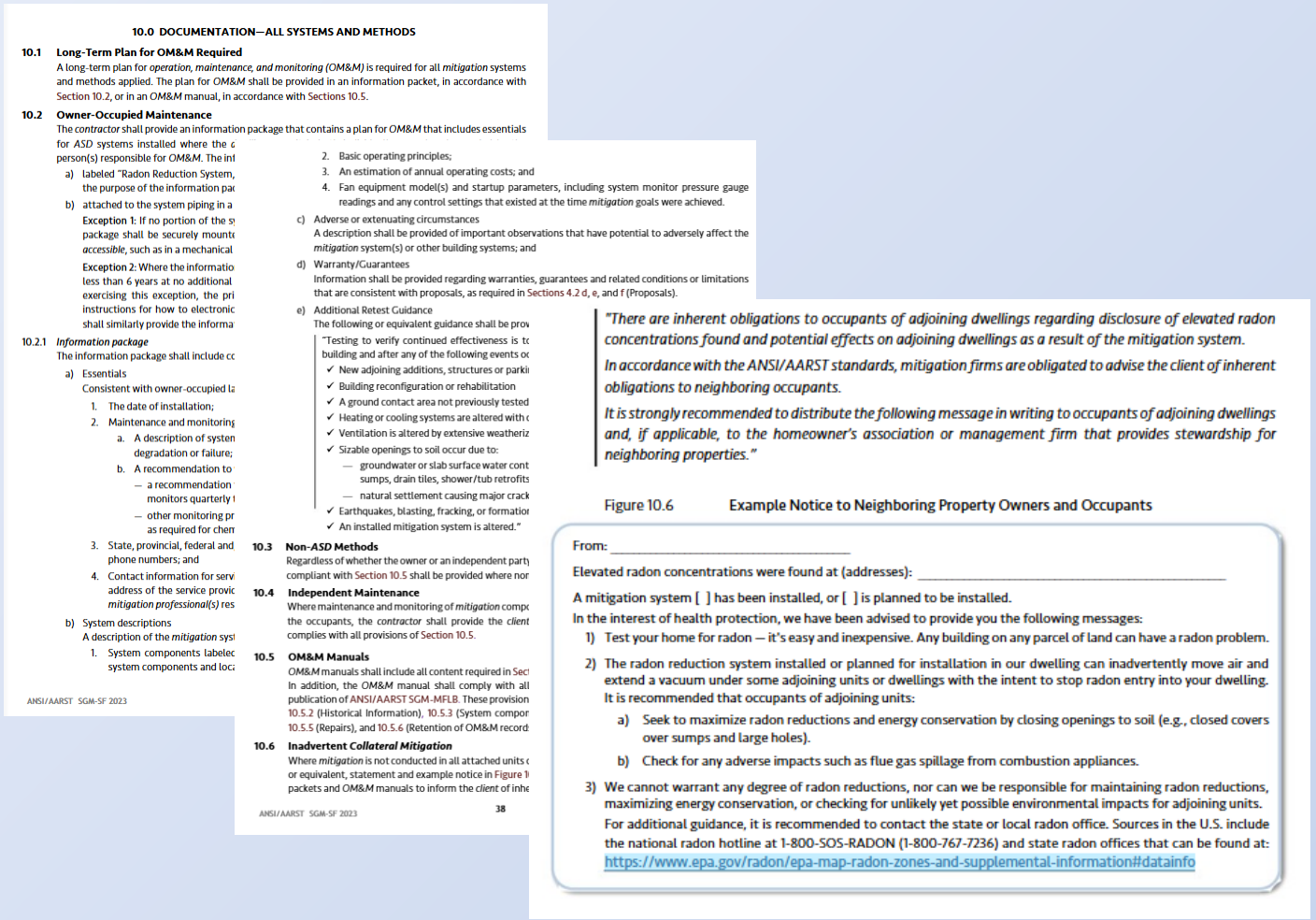
- Most systems inspected in first year of licensing didn't have one at all
- OM&M deficiencies are still the most common violations

- MDH created the OM&M plan template after 1st year of licensing
- Currently on version 2 - will update after next publication
- MDH template has helped a lot - issues are still common



Basic requirements for OM&M plans





10.0 DOCUMENTATION—ALL SYSTEMS AND METHODS

10.1 Long-Term Plan for OM&M Required
A long-term plan for *operation, maintenance, and monitoring (OM&M)* is required for all *mitigation* systems and methods applied. The plan for *OM&M* shall be provided in an information packet, in accordance with Section 10.2, or in an *OM&M* manual, in accordance with Sections 10.5.

10.2 Owner-Occupied Maintenance
The *contractor* shall provide an information package that contains a plan for *OM&M* that includes essentials for *ASD* systems installed where the
person(s) responsible for *OM&M*. The in
a) labeled "Radon Reduction System,
the purpose of the information pa
b) attached to the system piping in a
Exception 1: If no portion of the s
package shall be securely mounte
accessible, such as in a mechanical
Exception 2: Where the informatio
less than 6 years at no additional
exercising this exception, the pri
instructions for how to electronic
shall similarly provide the informa

10.2.1 *Information package*
The information package shall include c
a) Essentials
Consistent with owner-occupied
1. The date of installation;
2. Maintenance and monitorin
a. A description of systen
degradation or failure;
b. A recommendation to
— a recommendation
monitors quarterly
— other monitoring pr
as required for cher
3. State, provincial, federal and
phone numbers; and
4. Contact information for serv
address of the service provic
mitigation professional(s) res
b) System descriptions
A description of the *mitigation* sys
1. System components labelec
system components and loc

ANSI/AARST SGM-SF 2023

2. Basic operating principles;
3. An estimation of annual operating costs; and
4. Fan equipment model(s) and startup parameters, including system monitor pressure gauge readings and any control settings that existed at the time *mitigation* goals were achieved.

c) Adverse or extenuating circumstances
A description shall be provided of important observations that have potential to adversely affect the *mitigation* system(s) or other building systems; and

d) Warranty/Guarantees
Information shall be provided regarding warranties, guarantees and related conditions or limitations that are consistent with proposals, as required in Sections 4.2 d, e, and f (Proposals).

e) Additional Retest Guidance
The following or equivalent guidance shall be prov
"Testing to verify continued effectiveness is t
building and after any of the following events o
✓ New adjoining additions, structures or parki
✓ Building reconfiguration or rehabilitation
✓ A ground contact area not previously tested
✓ Heating or cooling systems are altered with
✓ Ventilation is altered by extensive weatheriz
✓ Sizable openings to soil occur due to:
— groundwater or slab surface water cont
sumps, drain tiles, shower/tub retrofits
— natural settlement causing major crack
✓ Earthquakes, blasting, fracking, or formatio
✓ An installed mitigation system is altered."

10.3 Non-*ASD* Methods
Regardless of whether the owner or an independent part
compliant with Section 10.5 shall be provided where nor

10.4 Independent Maintenance
Where maintenance and monitoring of *mitigation* compo
the occupants, the *contractor* shall provide the *client*
complies with all provisions of Section 10.5.

10.5 OM&M Manuals
OM&M manuals shall include all content required in Sec
In addition, the *OM&M* manual shall comply with all
publication of ANSI/AARST SGM-MFLB. These provision
10.5.2 (Historical Information), 10.5.3 (System compor
10.5.5 (Repairs), and 10.5.6 (Retention of OM&M record

10.6 Inadvertent *Collateral Mitigation*
Where *mitigation* is not conducted in all attached units
or equivalent, statement and example notice in Figure 1
packets and *OM&M* manuals to inform the *client* of inhe

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"There are inherent obligations to occupants of adjoining dwellings regarding disclosure of elevated radon concentrations found and potential effects on adjoining dwellings as a result of the mitigation system.

In accordance with the ANSI/AARST standards, mitigation firms are obligated to advise the client of inherent obligations to neighboring occupants.

It is strongly recommended to distribute the following message in writing to occupants of adjoining dwellings and, if applicable, to the homeowner's association or management firm that provides stewardship for neighboring properties."

Figure 10.6 Example Notice to Neighboring Property Owners and Occupants

From: _____

Elevated radon concentrations were found at (addresses): _____

A mitigation system [ ] has been installed, or [ ] is planned to be installed.

In the interest of health protection, we have been advised to provide you the following messages:

1) Test your home for radon — it's easy and inexpensive. Any building on any parcel of land can have a radon problem.
2) The radon reduction system installed or planned for installation in our dwelling can inadvertently move air and extend a vacuum under some adjoining units or dwellings with the intent to stop radon entry into your dwelling. It is recommended that occupants of adjoining units:
   a) Seek to maximize radon reductions and energy conservation by closing openings to soil (e.g., closed covers over sumps and large holes).
   b) Check for any adverse impacts such as flue gas spillage from combustion appliances.
3) We cannot warrant any degree of radon reductions, nor can we be responsible for maintaining radon reductions, maximizing energy conservation, or checking for unlikely yet possible environmental impacts for adjoining units.

For additional guidance, it is recommended to contact the state or local radon office. Sources in the U.S. include the national radon hotline at 1-800-SOS-RADON (1-800-767-7236) and state radon offices that can be found at: https://www.epa.gov/radon/epa-map-radon-zones-and-supplemental-information#datainfo

Basic requirements for OM&M plans

- Required for **ALL** mitigation systems and methods
  - All building types - regardless of who is responsible for the system
- Labeled to describe the purpose of the information package
  - “Radon Reduction System” or “Soil Gas Reduction System”
- **Attached** to the system piping in a visible location within interior spaces

What does an OM&M plan look like?

What does an OM&M plan look like?

MDH OM&M plan template

- Created to meet ANSI/AARST requirements
- For active soil depressurization (ASD) systems
- mn.gov/radon
  - “Licensing for Radon Professionals”
  - “Forms”
    - OM&M Plan (PDF)
    - OM&M Plan (Word)
    - OM&M Manual for Systems Not Maintained by the Occupant (PDF)
    - OM&M Manual for Systems Not Maintained by the Occupant (Template) (Word)
- Tried to create basic template covering minimum requirements
- Easy to customize
- Some items are on the primary label

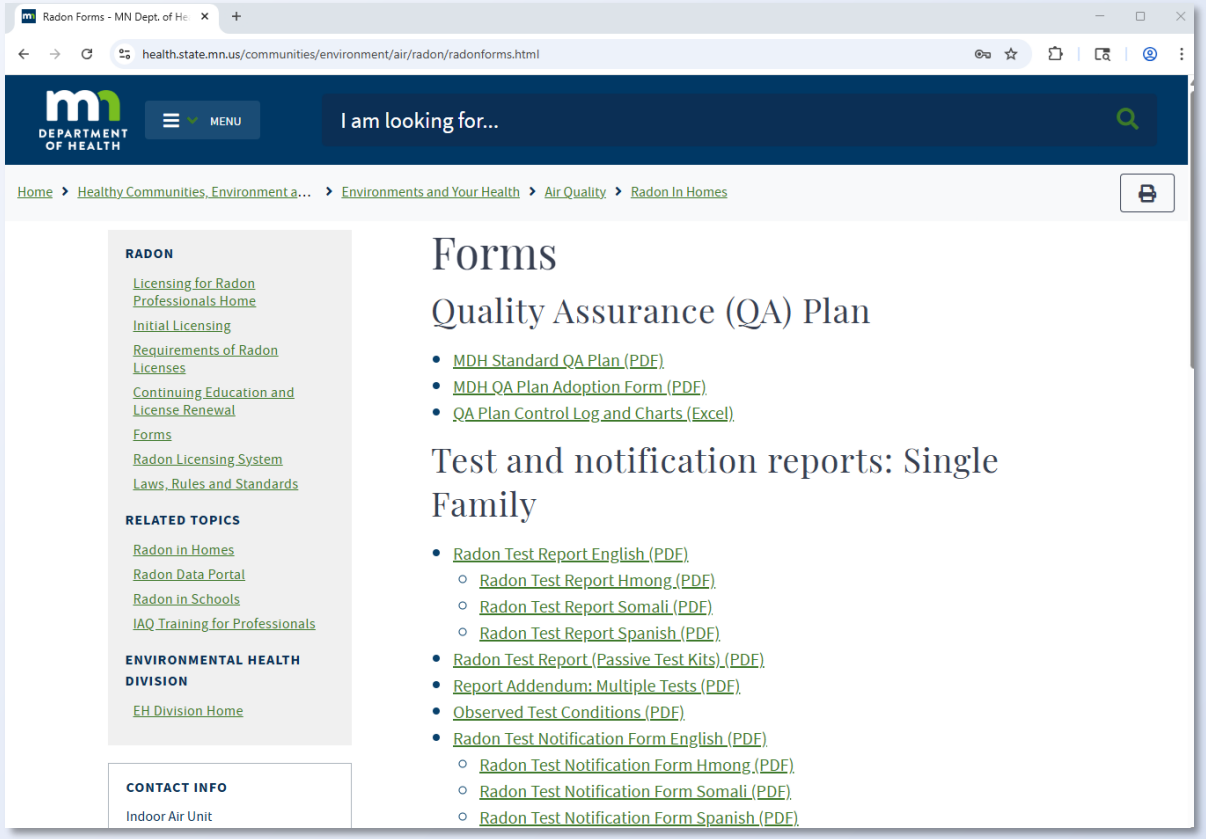
RADON MITIGATION SYSTEM

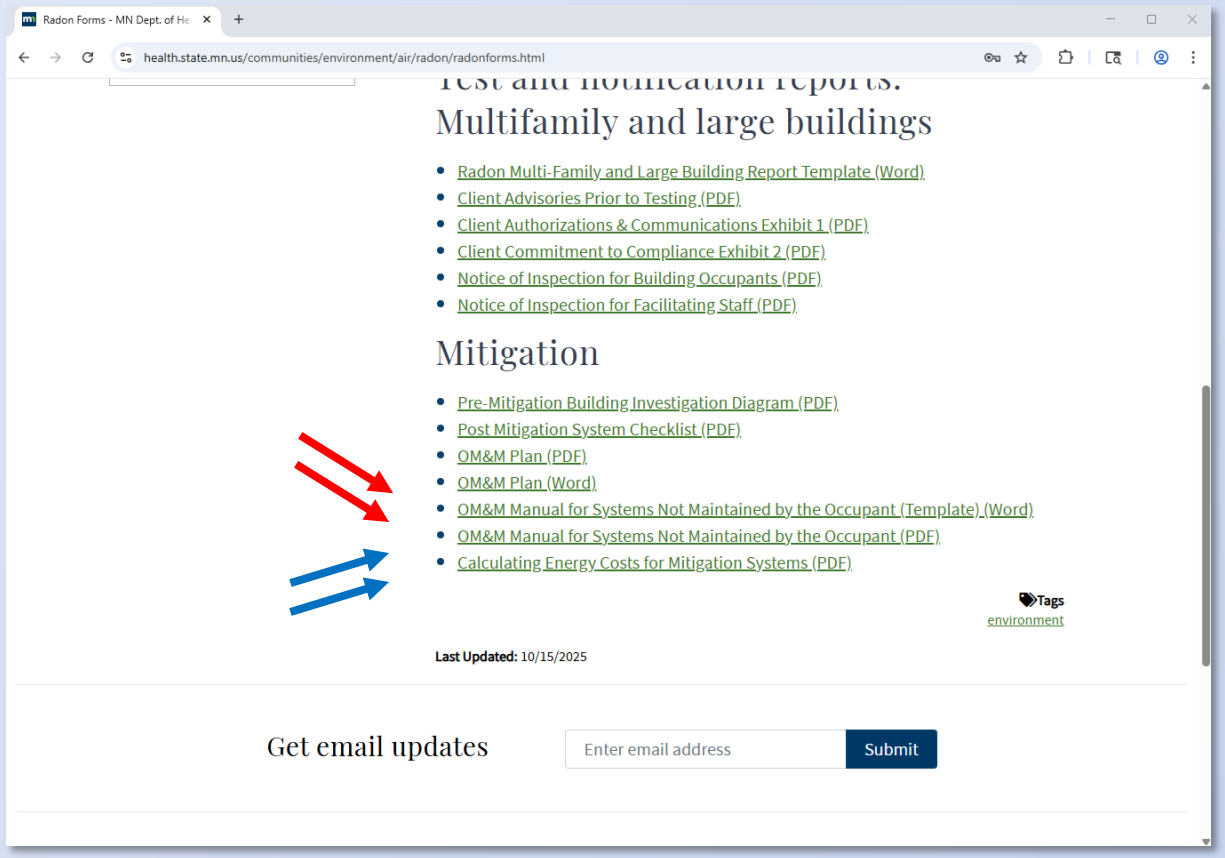
IMPORTANT SAFETY INFORMATION

A radon mitigation system was installed in this building to reduce radon levels. As the homeowner you are responsible for:

1. Making sure the radon levels are tested once the radon system is installed.
2. Checking system monitors monthly to be sure the system is operating correctly.
3. Retesting the building for radon at least every two years.

OM&M Plan / Manual





MDH OM&M plan template

RADON MITIGATION SYSTEM

IMPORTANT SAFETY INFORMATION

A radon mitigation system was installed in this building to reduce radon levels. As the homeowner you are responsible for:

1. Making sure the radon levels are tested once the radon system is installed.
2. Checking system monitors monthly to be sure the system is operating correctly.
3. Retesting the building for radon at least every two years.

Please read this document fully to understand how your radon system works and to understand what to do when it is not working properly. This document is required to be attached to the system for reference by current and future occupants. Please do not remove.

For service or questions call:

1

Company Name: _____

Address: _____

Email & Phone: _____

Installer's Name: _____

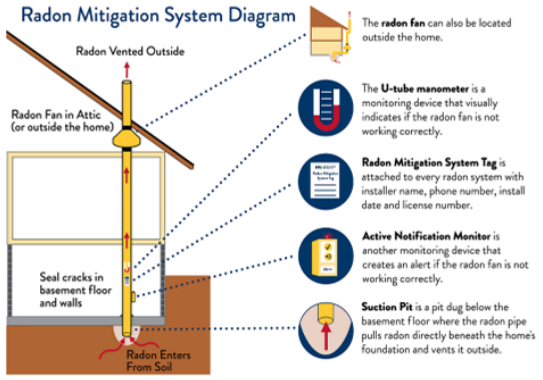
MDH License Number: _____

Operation, Maintenance, and Monitoring Plan (OM&M Plan)

2

This information package is for the building owner or occupant and contains important information on how the radon mitigation system operates, how to maintain the system, and how to monitor it to make sure it continues to operate correctly. This type of system is called an active soil depressurization (ASD) system. It draws radon from the air below the building through a PVC pipe and vents it to the outside above the roof. This system uses a continuously running fan to draw the radon up through the pipe and prevent it from entering the home.

Specific information about the system installed in this building is included on a floor plan sketch or layout description included in this OM&M package. The description should include the location of system piping, suction points (where the radon pipe is inserted through the floor or sump basket cover), fan location, and any valve settings and locations if present. Copies of building or electrical permits should be available upon request.



DEPARTMENT OF HEALTH

Environmental Health | Indoor Air Unit | 651-201-4601 | https://www.health.state.mn.us/radon
10/2/2023 | To obtain this information in a different format, call: 651-201-4601.

Radon Mitigation System Fan Monitors

Every radon mitigation system is required to have two fan monitors: 1) a u-tube manometer and 2) an active notification monitor.

U-Tube Manometer

The u-tube manometer uses colored fluid in a tube to visually indicate the radon system is working. A small tube connects to a hole in the radon pipe and the suction from the fan pulls the fluid up. When the mitigation system is installed, the manometer reading is taken and written on a sticker located next to the u-tube manometer. This monitor does not show or measure radon levels, rather it shows there is suction in the pipe. If the fluid levels are even, it means the fan stopped working or another part of the system is not working properly.

Active Notification Monitor

The active notification monitor alerts you with a visual light and/or audible noise if the radon mitigation system stops working. The monitor either measures air flow or air pressure in the pipe. There are different monitoring devices with different features, so it is best to look at your monitor's operational manual which is included in this OM&M package.

Both fan monitors should be checked monthly to make sure the mitigation system is working properly. The active notification monitor power source should be checked monthly as well since this could be plugged in or use batteries. If the manometer fluid levels are even or significantly different then when the system was installed, or if the active notification monitor alerts, the system may not be functioning properly. Before contacting the installer to service the system make sure the monitor tubing is connected to the pipe and not kinked, and that power is being supplied to the fan. If there is still an issue, contact the installer.

Location of Radon Mitigation System Installed

A detailed narrative and/or a floor plan sketch is included for current and future occupants to understand the extent and location of the radon mitigation system installed in this building.

3

- ◯ Floor plan sketch attached to OM&M document (Appendix A); OR
- ◯ System layout narrative included below:

Number of suction point(s): _____ Location(s): _____

Areas being depressurized: ☐ basement floor ☐ drain tile ☐ sump ☐ crawlspace ☐ Other _____

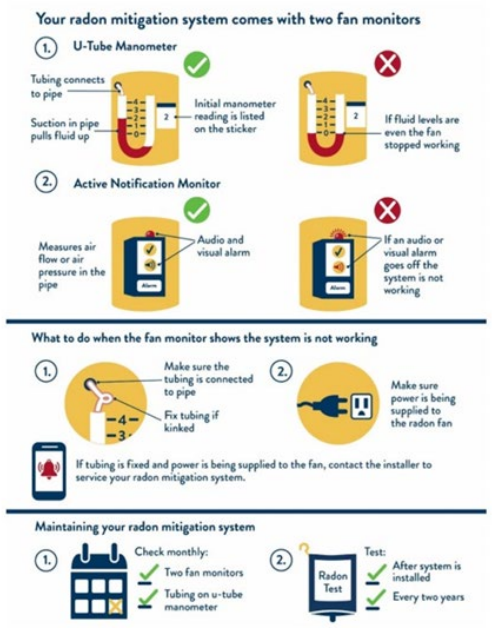
Pipe routed from/to: _____

Fan Model and setting: _____ Location(s): _____

Vent termination point location(s): _____

Pipe valve location and setting: ☐ N/A; or _____

MDH OM&M plan template



DEPARTMENT OF HEALTH

Environmental Health | Indoor Air Unit | 651-201-4601 | https://www.health.state.mn.us/radon
10/2/2023 | To obtain this information in a different format, call: 651-201-4601.

When to Test and What the Test Results Mean

After a radon system is installed, it is required that a radon test be performed to make sure it is working properly and effectively reducing the radon levels. This testing can be done by a licensed radon mitigation professional, an independent licensed measurement professional, or a homeowner. To meet this retesting requirement, a short-term radon test needs to be done between 24 hours and 30 days after the radon mitigation system is installed.

After the initial retest is complete and the radon levels are low, it is important to continue to test the building every two years because radon levels can change. If possible, perform radon testing during the winter season, when the heating system is run throughout the day and night. This is more likely to give an accurate test result.

Information on what your radon test results mean and the action you should take based on the test results are below.

High

If Test Results are 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 Environmental Protection Agency's action level of 4.0 pCi/L or above. If a radon mitigation system is already installed, then additional work may need to be performed to further lower the radon levels.

Medium

If Test Results are Between 2.0 pCi/L and 4.0 pCi/L

Consider fixing the building if the test result is above 2 pCi/L. If a radon mitigation system is already installed, then additional work may need to be performed to further lower the radon levels.

OK Low

If Test Result is 2.0 pCi/L or Below

The radon levels are considered low.

When to Retest

Retest every 2 years if you have a radon mitigation system installed to make sure it is still effectively lowering the radon levels. For buildings without a radon mitigation system, a retest is recommended every 5 years.

Testing to verify continued effectiveness is to be conducted in conjunction with any sale of a building and after any of the following events occur:

- New adjoining additions, structures, or parking lots;
- Building reconfiguration or rehabilitation;
- A ground contact area not previously tested is occupied or a home is newly occupied;
- Heating or cooling systems are altered with changes to air distribution or pressure relationships;
- Ventilation is altered by extensive weatherization efforts;
- Sizable openings to soil occur due to:
  - Groundwater or slab surface water control systems or sewer lines are added or altered. Examples include sumps, drain tiles, shower/tub retrofits, or
  - Natural settlement causing major cracks to develop.
- Earthquakes, blasting, fracking, or formation of sink holes nearby; or
- An installed mitigation system is altered.

4

Radon Test Results

(Include test reports in OM&M packet if available)

Pre-mitigation: _____ pCi/L Test location: _____ Date _____

Installation date of radon mitigation system: _____

Post-mitigation: _____ pCi/L Test location: _____ Date _____

Retested Level: _____ pCi/L Test location: _____ Date _____

Retested Level: _____ pCi/L Test location: _____ Date _____

Retested Level: _____ pCi/L Test location: _____ Date _____

Retested Level: _____ pCi/L Test location: _____ Date _____

Retested Level: _____ pCi/L Test location: _____ Date _____

MDH OM&M plan template

5 Important Factors Affecting the Radon Mitigation System

Radon levels in a building can be affected by many different things. Below are some items that the homeowner should be made aware of that may affect the radon mitigation system or the radon levels and may need to be addressed in the future.

Openings to the soil

Some openings to the soil cannot be accessed or sealed by the licensed mitigation professional. This could make the radon system less efficient, less effective, or more costly to operate. In instances where this could not be done by the licensed mitigator it is noted below.

- ☐ Openings to the soil under the basement bathtub/shower cannot be accessed to be sealed.
- ☐ Large cracks in the floor that are covered and cannot be accessed to be sealed.
- ☐ Gap between the floor and wall around the basement perimeter that cannot be completely sealed because it allows groundwater to drain into a waterproofing system.
- ☐ Crawlspace areas or sections of the soil barrier cannot be accessed to be sealed.
- ☐ Opening to a well casing within the building that must be sealed by a licensed contractor.
- ☐ Other openings that cannot be sealed _____

Air Exchanger

Heat recovery ventilators (air exchangers) can greatly affect the radon levels in a building and can sometimes be used as, or in conjunction with, a radon mitigation system.

- ○ This building does not have an air exchanger.
- ○ An air exchanger is installed in this building and needs to always run at _____ setting to maintain lowered radon levels. Filters need to be cleaned and maintained as recommended by the manufacturer.

System Freeze-up

System freeze-up means there is an accumulation of ice in the pipe that does not allow radon to vent out of the pipe properly. Extended periods of cold temperatures can cause a system freeze-up. Radon levels in the building will increase if this happens. If this occurs the u-tube manometer fluid will be even and the active monitor should alert you. If this happens on a regular basis (annually or every few years) then the pipe will need to be insulated in unconditioned areas or other changes will need to be made to prevent a system freeze-up. Call the licensed installer to make these changes.

- ○ This vent pipe is insulated in the _____
- ○ This vent pipe is not insulated.

6 Estimated Annual Operating Costs

The radon mitigation system fan continuously uses electricity, and the cost to run that fan is estimated below based on a price of $0.10 per kilowatt hour (kwh). This does not include additional energy costs that may occur because heated or cooled air from the building is vented to the outside by the radon mitigation system through unsealed openings to the soil.

- ○ Small fan (20 watts = $17.47 per year)
- ○ Medium fan (60 watts = $52.42 per year)
- ○ Large fan (150 watts = $131.04 per year)
- ○ Extra large fan or fans that are stacked (300 watts = $262.08 per year)

7 Limitations of Work and Responsibilities

Electrical Work - If electrical work is necessary to power the fan, this is the responsibility of:

- ○ The radon mitigation company or their subcontractor
- ○ The property owner

Initial Retest after System Installation is the responsibility of:

- ○ The radon mitigation company or their subcontractor
- ○ The property owner
- ○ Licensed radon measurement professional

Other Limitations (*including permanent sump pipe installation or extension, flexible sump pump piping replacement, drywall repair, spray foam installation, homeowner installed items, concrete patching, etc.)*

_____

8 Guarantees and Warranties

Radon Reduction Guarantee

The installed radon mitigation system:

- ○ is not guaranteed to reduce radon levels.
- ○ is guaranteed to reduce radon levels below _____ pCi/L for _____ years.

Conditions of the guarantee are ☐ attached or ☐ described below:

_____

System Warranty

☐ The installed system has a warranty: _____ year on parts & _____ year on labor.

Conditions of the warranty are ☐ attached or ☐ described below:

_____

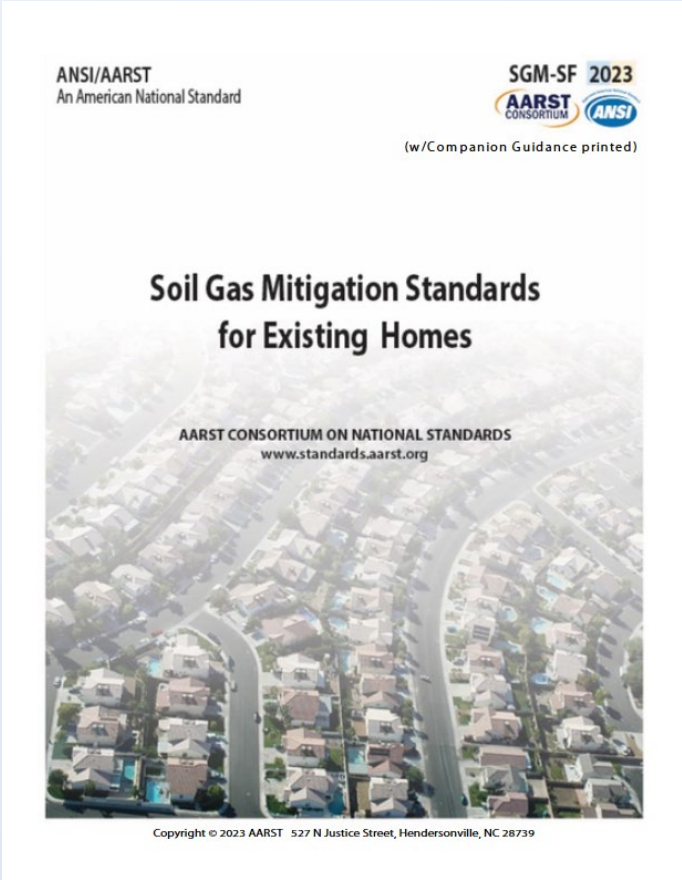
Appendix A: Floor Plan Sketch

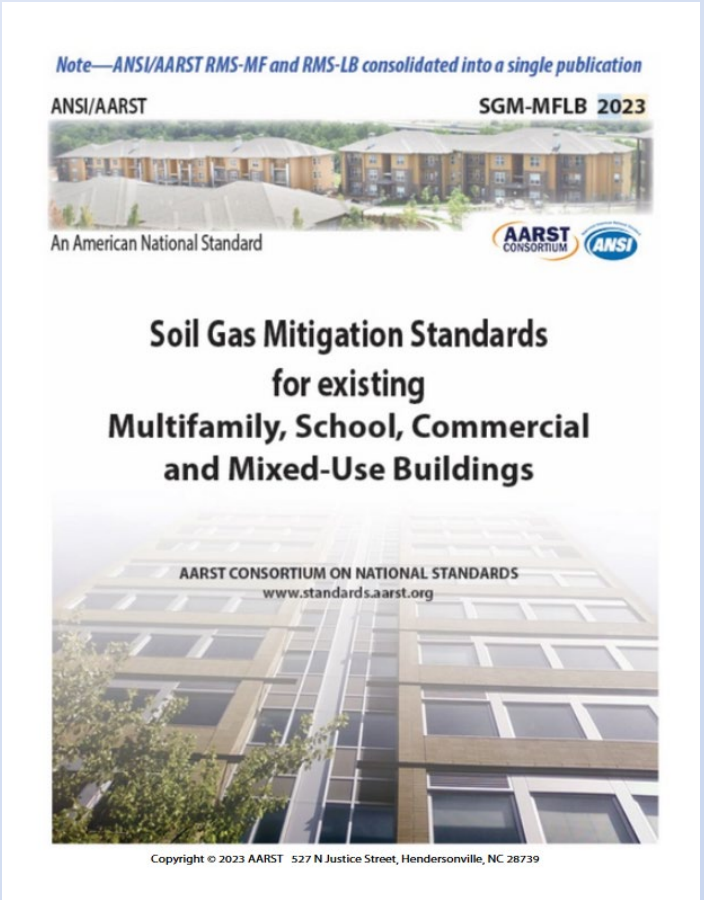
9 (Required if system narrative is not filled out on page 3)

For current and future occupants to understand the extent and location of the radon mitigation system installed in this building, a floor plan sketch and/or detailed narrative is included below. The system components including fan (note model and setting), all system piping, suction point location(s) and any valve settings shall be identified.

1st Question

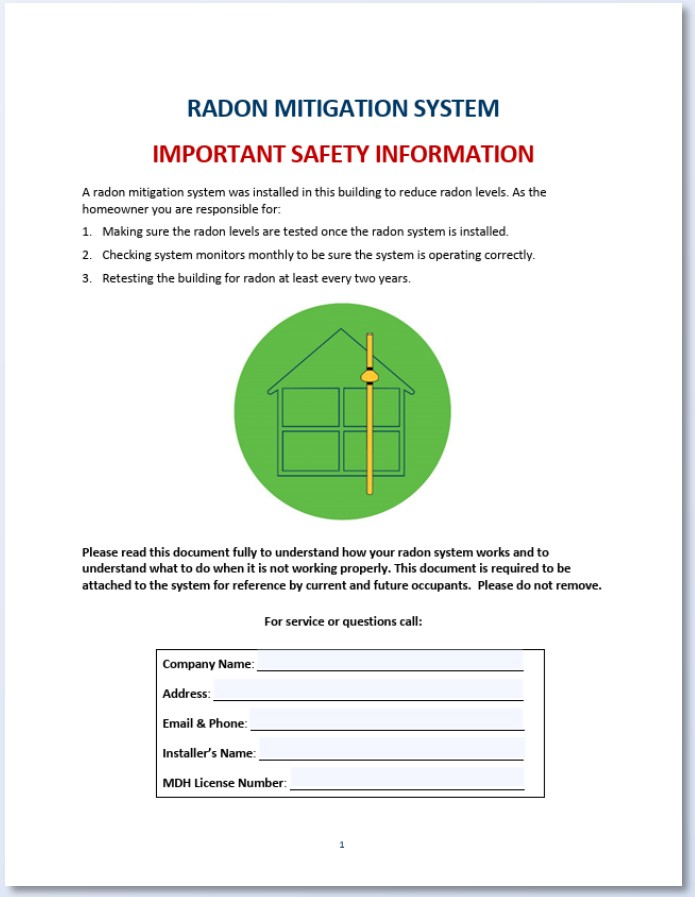
Are you mitigating one unit, or the building?





Mitigating only 1 unit in a shared building?

OM&M Plan
Occupant maintains the system



RADON MITIGATION SYSTEM

IMPORTANT SAFETY INFORMATION

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1. Making sure the radon levels are tested once the radon system is installed.
2. Checking system monitors monthly to be sure the system is operating correctly.
3. Retesting the building for radon at least every two years.

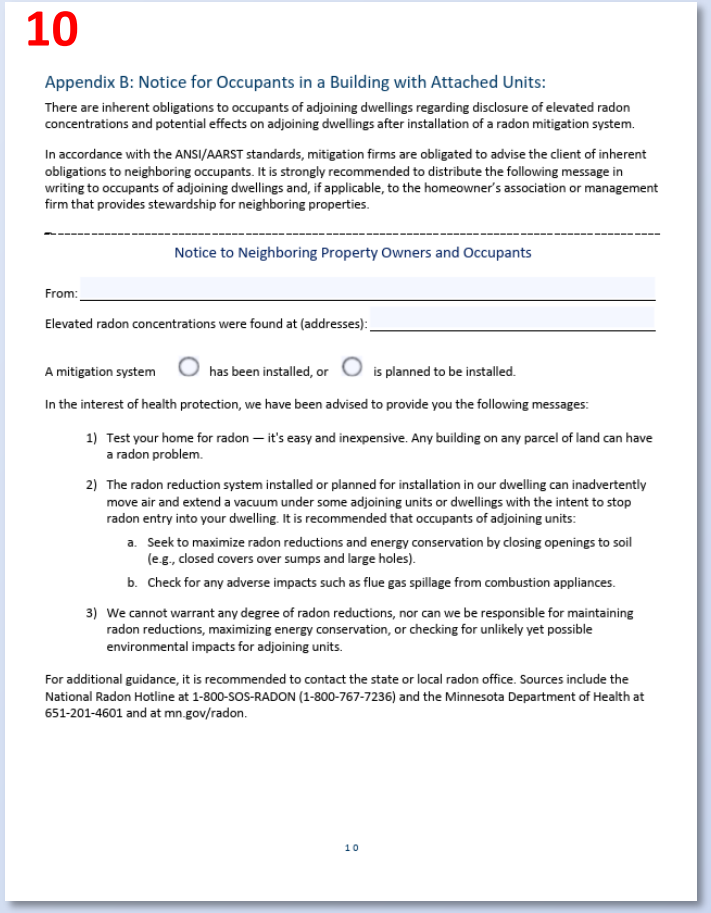
Please read this document fully to understand how your radon system works and to understand what to do when it is not working properly. This document is required to be attached to the system for reference by current and future occupants. Please do not remove.

For service or questions call:

Company Name: _____
Address: _____
Email & Phone: _____
Installer's Name: _____
MDH License Number: _____

1

OM&M Plan - Addendum
Attached units



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Appendix B: Notice for Occupants in a Building with Attached Units:

There are inherent obligations to occupants of adjoining dwellings regarding disclosure of elevated radon concentrations and potential effects on adjoining dwellings after installation of a radon mitigation system.

In accordance with the ANSI/AARST standards, mitigation firms are obligated to advise the client of inherent obligations to neighboring occupants. It is strongly recommended to distribute the following message in writing to occupants of adjoining dwellings and, if applicable, to the homeowner's association or management firm that provides stewardship for neighboring properties.

Notice to Neighboring Property Owners and Occupants

From: _____

Elevated radon concentrations were found at (addresses): _____

A mitigation system ○ has been installed, or ○ is planned to be installed.

In the interest of health protection, we have been advised to provide you the following messages:

1) Test your home for radon — it's easy and inexpensive. Any building on any parcel of land can have a radon problem.
2) The radon reduction system installed or planned for installation in our dwelling can inadvertently move air and extend a vacuum under some adjoining units or dwellings with the intent to stop radon entry into your dwelling. It is recommended that occupants of adjoining units:
   a. Seek to maximize radon reductions and energy conservation by closing openings to soil (e.g., closed covers over sumps and large holes).
   b. Check for any adverse impacts such as flue gas spillage from combustion appliances.
3) We cannot warrant any degree of radon reductions, nor can we be responsible for maintaining radon reductions, maximizing energy conservation, or checking for unlikely yet possible environmental impacts for adjoining units.

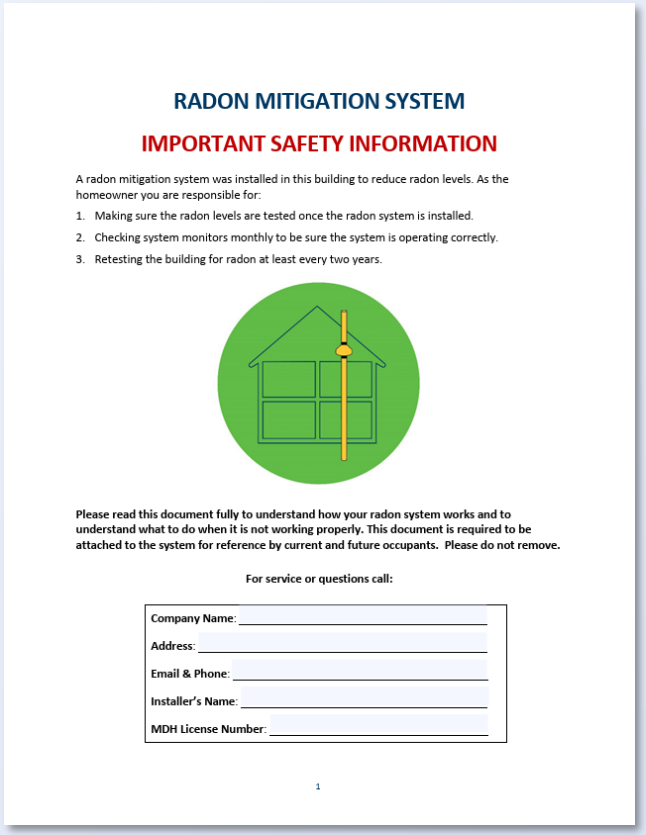
For additional guidance, it is recommended to contact the state or local radon office. Sources include the National Radon Hotline at 1-800-SOS-RADON (1-800-767-7236) and the Minnesota Department of Health at 651-201-4601 and at mn.gov/radon.

10

2nd Question

Who maintains the system?

Occupant



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Please read this document fully to understand how your radon system works and to understand what to do when it is not working properly. This document is required to be attached to the system for reference by current and future occupants. Please do not remove.

For service or questions call:

Company Name: _____

Address: _____

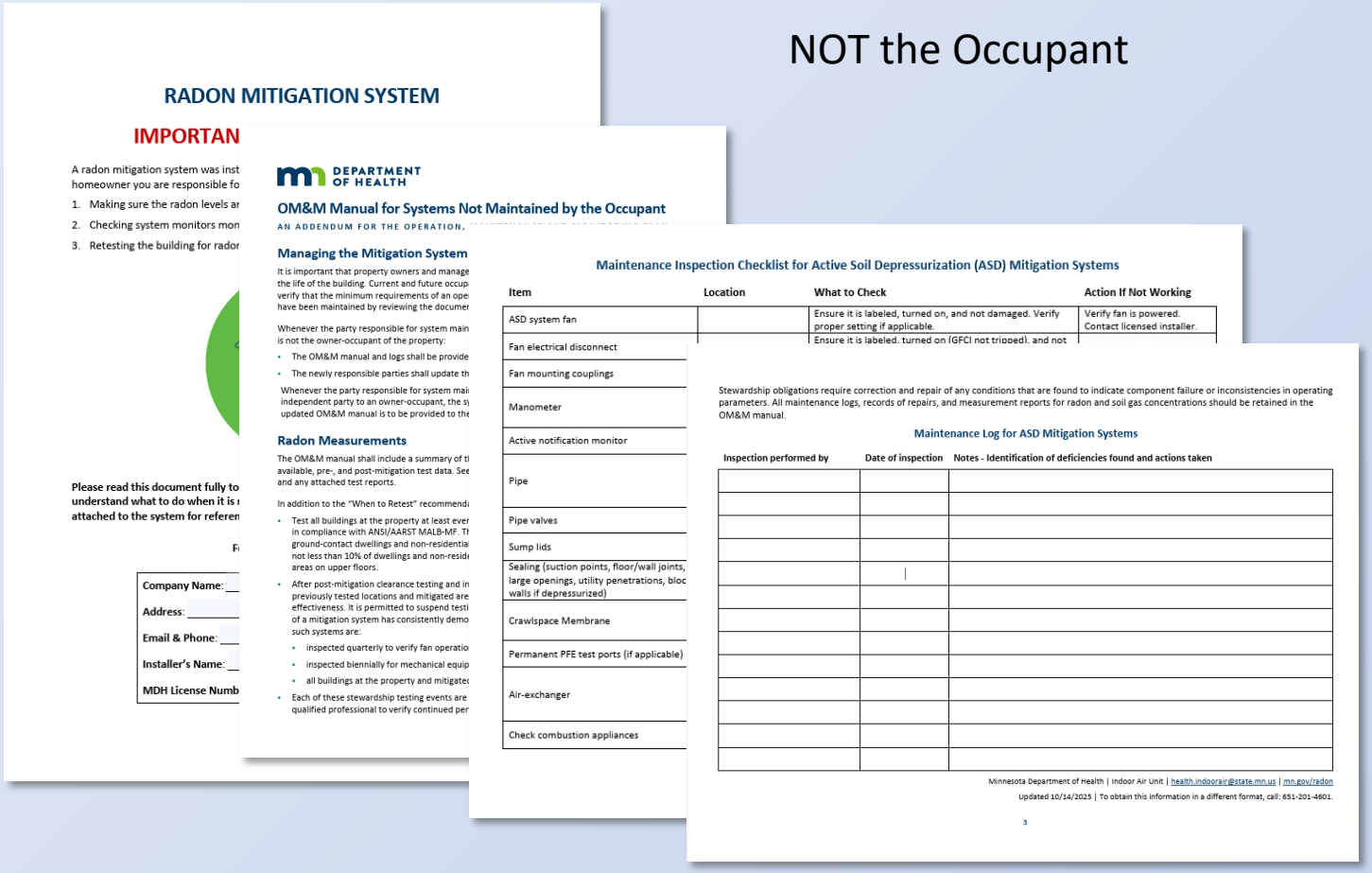
Email & Phone: _____

Installer's Name: _____

MDH License Number: _____

1

NOT the Occupant



RADON MITIGATION SYSTEM

IMPORTAN

A radon mitigation system was inst
homeowner you are responsible fo

1. Making sure the radon levels ar
2. Checking system monitors mon
3. Retesting the building for rador

Please read this document fully to understand what to do when it is attached to the system for referen

Company Name:
Address:
Email & Phone:
Installer's Name:
MDH License Numb

DEPARTMENT OF HEALTH

OM&M Manual for Systems Not Maintained by the Occupant

AN ADDENDUM FOR THE OPERATION,

Managing the Mitigation System

It is important that property owners and manage the life of the building. Current and future occup verify that the minimum requirements of an ope have been maintained by reviewing the docume

Whenever the party responsible for system main is not the owner-occupant of the property:

- The OM&M manual and logs shall be provide
- The newly responsible parties shall update th

Whenever the party responsible for system mai independent party to an owner-occupant, the s updated OM&M manual is to be provided to the

Radon Measurements

The OM&M manual shall include a summary of t available, pre-, and post-mitigation test data. See and any attached test reports.

In addition to the "When to Retest" recommend

- Test all buildings at the property at least ever in compliance with ANSI/AARST MALB-MF. Th ground-contact dwellings and non-residentia not less than 10% of dwellings and non-reside areas on upper floors.
- After post-mitigation clearance testing and in previously tested locations and mitigated are effectiveness. It is permitted to suspend testi of a mitigation system has consistently demo such systems are:
  - inspected quarterly to verify fan operatio
  - inspected biennially for mechanical equip
  - all buildings at the property and mitigate
- Each of these stewardship testing events are qualified professional to verify continued per

Maintenance Inspection Checklist for Active Soil Depressurization (ASD) Mitigation Systems

Item	Location	What to Check	Action If Not Working
ASD system fan		Ensure it is labeled, turned on, and not damaged. Verify proper setting if applicable.	Verify fan is powered. Contact licensed installer.
Fan electrical disconnect		Ensure it is labeled, turned on (GFCI not tripped), and not	
Fan mounting couplings			
Manometer			
Active notification monitor			
Pipe			
Pipe valves			
Sump lids			
Sealing (suction points, floor/wall joints, large openings, utility penetrations, bloc walls if depressurized)			
Crawlspace Membrane			
Permanent PFE test ports (if applicable)			
Air-exchanger			
Check combustion appliances			

Stewardship obligations require correction and repair of any conditions that are found to indicate component failure or inconsistencies in operating parameters. All maintenance logs, records of repairs, and measurement reports for radon and soil gas concentrations should be retained in the OM&M manual.

Maintenance Log for ASD Mitigation Systems

Inspection performed by	Date of inspection	Notes - Identification of deficiencies found and actions taken

Minnesota Department of Health | Indoor Air Unit | health.indoorair@state.mn.us | mn.gov/radon

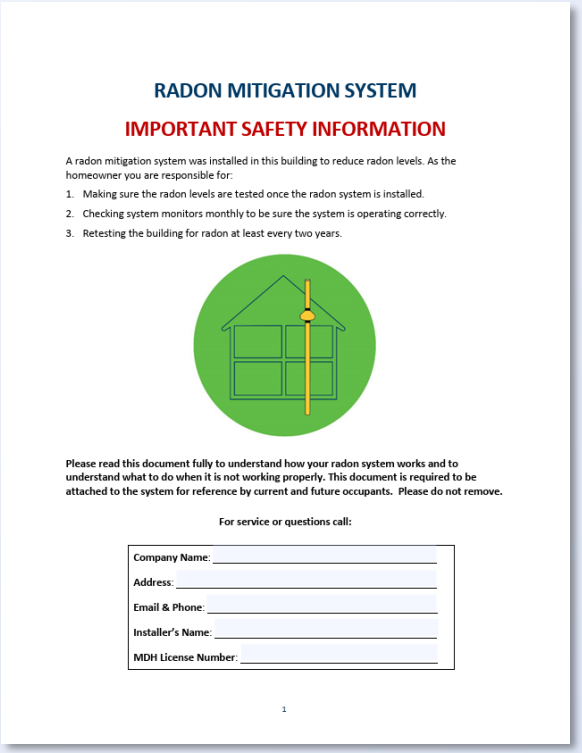
Updated 10/14/2025 | To obtain this information in a different format, call: 651-201-4601.

3

OM&M Requirements

System maintained by someone other than the occupant

- Provide OM&M Manual and OM&M Plan info



RADON MITIGATION SYSTEM

IMPORTANT SAFETY INFORMATION

A radon mitigation system was installed in this building to reduce radon levels. As the homeowner you are responsible for:

1. Making sure the radon levels are tested once the radon system is installed.
2. Checking system monitors monthly to be sure the system is operating correctly.
3. Retesting the building for radon at least every two years.

Please read this document fully to understand how your radon system works and to understand what to do when it is not working properly. This document is required to be attached to the system for reference by current and future occupants. Please do not remove.

For service or questions call:

Company Name: _____

Address: _____

Email & Phone: _____

Installer's Name: _____

MDH License Number: _____

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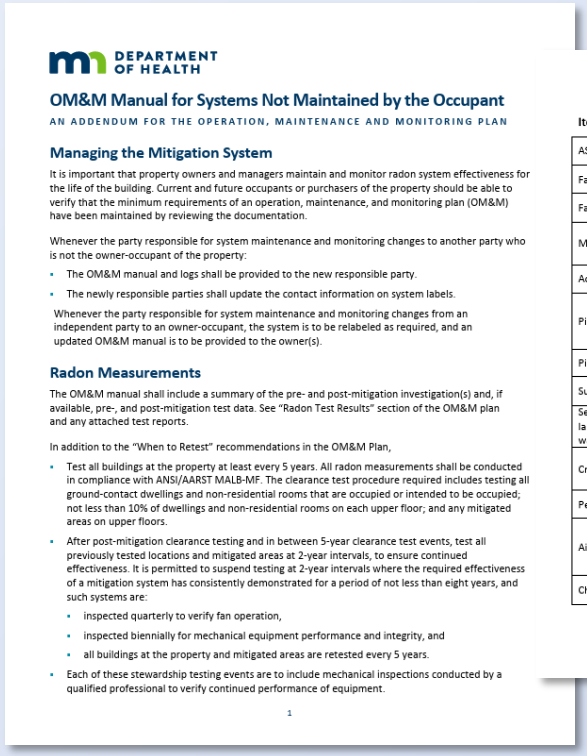

DEPARTMENT OF HEALTH

OM&M Manual for Systems Not Maintained by the Occupant

AN ADDENDUM FOR THE OPERATION, MAINTENANCE AND MONITORING PLAN

Managing the Mitigation System

It is important that property owners and managers maintain and monitor radon system effectiveness for the life of the building. Current and future occupants or purchasers of the property should be able to verify that the minimum requirements of an operation, maintenance, and monitoring plan (OM&M) have been maintained by reviewing the documentation.

Whenever the party responsible for system maintenance and monitoring changes to another party who is not the owner-occupant of the property:

- The OM&M manual and logs shall be provided to the new responsible party.
- The newly responsible parties shall update the contact information on system labels.

Whenever the party responsible for system maintenance and monitoring changes from an independent party to an owner-occupant, the system is to be relabeled as required, and an updated OM&M manual is to be provided to the owner(s).

Radon Measurements

The OM&M manual shall include a summary of the pre- and post-mitigation investigation(s) and, if available, pre-, and post-mitigation test data. See "Radon Test Results" section of the OM&M plan and any attached test reports.

In addition to the "When to Retest" recommendations in the OM&M Plan,

- Test all buildings at the property at least every 5 years. All radon measurements shall be conducted in compliance with ANSI/AARST MALB-MF. The clearance test procedure required includes testing all ground-contact dwellings and non-residential rooms that are occupied or intended to be occupied; not less than 10% of dwellings and non-residential rooms on each upper floor; and any mitigated areas on upper floors.
- After post-mitigation clearance testing and in between 5-year clearance test events, test all previously tested locations and mitigated areas at 2-year intervals, to ensure continued effectiveness. It is permitted to suspend testing at 2-year intervals where the required effectiveness of a mitigation system has consistently demonstrated for a period of not less than eight years, and such systems are:
  - inspected quarterly to verify fan operation,
  - inspected biennially for mechanical equipment performance and integrity, and
  - all buildings at the property and mitigated areas are retested every 5 years.
- Each of these stewardship testing events are to include mechanical inspections conducted by a qualified professional to verify continued performance of equipment.

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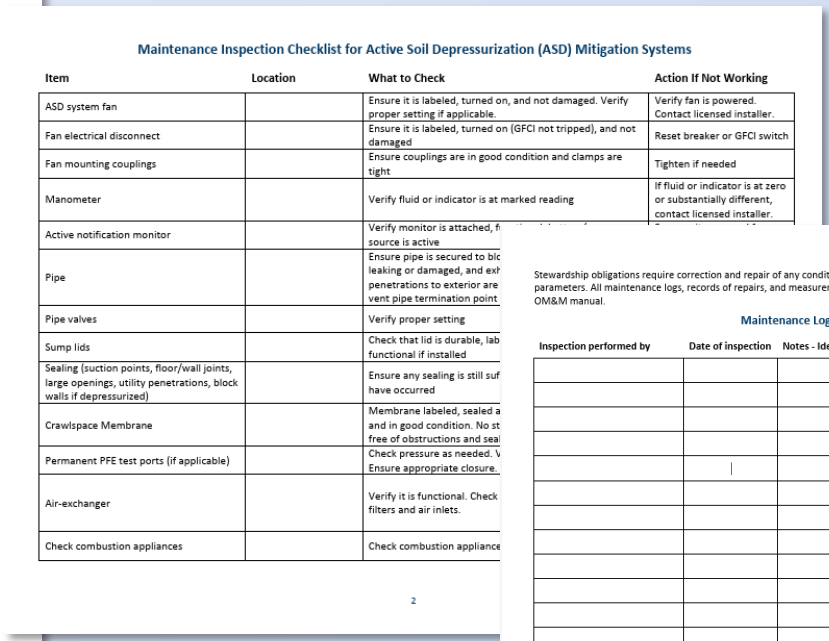

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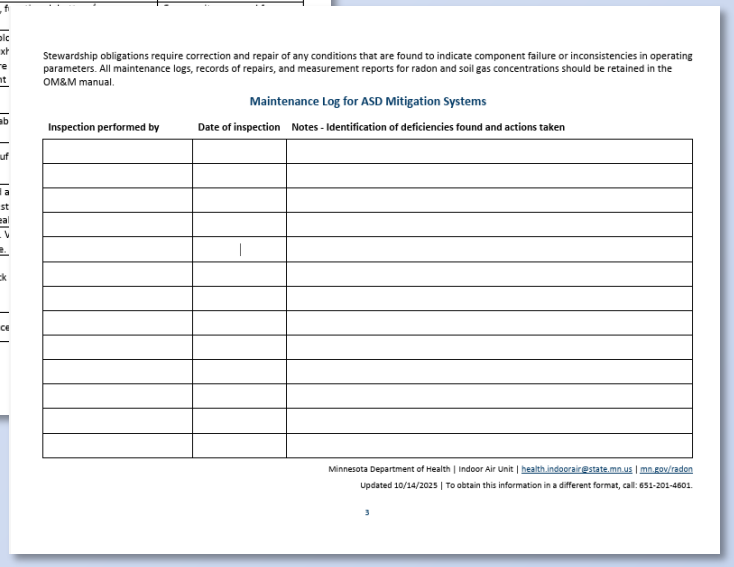
Fan electrical disconnect		Ensure it is labeled, turned on (GFCI not tripped), and not damaged	Reset breaker or GFCI switch
Fan mounting couplings		Ensure couplings are in good condition and clamps are tight	Tighten if needed
Manometer		Verify fluid or indicator is at marked reading	If fluid or indicator is at zero or substantially different, contact licensed installer.
Active notification monitor		Verify monitor is attached, f source is active	
Pipe		Ensure pipe is secured to blc leaking or damaged, and exh penetrations to exterior are vent pipe termination point	
Pipe valves		Verify proper setting	
Sump lids		Check that lid is durable, lab functional if installed	
Sealing (suction points, floor/wall joints, large openings, utility penetrations, block walls if depressurized)		Ensure any sealing is still suf have occurred	
Crawlspace Membrane		Membrane labeled, sealed a and in good condition. No st free of obstructions and seal	
Permanent PFE test ports (if applicable)		Check pressure as needed. V Ensure appropriate closure.	
Air-exchanger		Verify it is functional. Check filters and air inlets.	
Check combustion appliances		Check combustion appliance	

2



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OM&M Manual

OM&M Manual - Addendum
Occupant does NOT maintain the system

DEPARTMENT OF HEALTH

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11

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1

8.4.2.2 Independent Maintenance

Where system maintenance and monitoring are the responsibility of someone other than the occupant:

a) Informational content on a primary label that is observable to building maintenance staff or occupants shall include:

1. A description of system monitor(s) or monitoring systems and, as applicable, actions to take if the system monitor indicates system degradation, and
2. The name and contact information of the party responsible for maintenance and repairs.

Fig. 8.4.2.2 Example

RADON REDUCTION SYSTEM
System Fan Monitor
The system fan is active if oil level on the left is different from the right. Please call to report if the fan appears to be off.

This system is under the care of:
R. Smith, L.L.C 1-800-RN2-2222

OM&M Manual

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Fan mounting couplings		Ensure couplings are in good condition and clamps are tight	Tighten if needed
Manometer		Verify fluid or indicator is at marked reading	If fluid or indicator is at zero or substantially different, contact licensed installer.
Active notification monitor		Verify monitor is attached, functional, battery/power source is active	See monitor manual for specific functions
Pipe		Ensure pipe is secured to bldg., labeled, sloped, not leaking or damaged, and exhaust flows freely. Ensure pipe penetrations to exterior are sealed (roof or walls), and vent pipe termination point clearances have not changed.	Contact licensed installer
Pipe valves		Verify proper setting	Adjust to marked setting
Sump lids		Check that lid is durable, labeled, sealed, and pumps are functional if installed	Seal as necessary
Sealing (suction points, floor/wall joints, large openings, utility penetrations, block walls if depressurized)		Ensure any sealing is still sufficient and no new openings have occurred	Seal as necessary
Crawlspace Membrane		Membrane labeled, sealed at perimeter and penetrations, and in good condition. No standing water. Suction point free of obstructions and sealed to membrane	Contact licensed installer
Permanent PFE test ports (if applicable)		Check pressure as needed. Verify ports are not damaged. Ensure appropriate closure.	Contact licensed installer
Air-exchanger		Verify it is functional. Check for proper setting. Check filters and air inlets.	Clean or replace filters and inlets. Adjust settings and call a service professional if needed.
Check combustion appliances		Check combustion appliances for signs of backdrafting	Contact HVAC professional

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Final thoughts

- Easy to understand
- Concise - more is not always better
- It has to be there when they need it
- Can cut down on callbacks and nuisance phone calls

Thank you!

Dan Hylland

dan.hylland@state.mn.us

mn.gov/radon