

Harmonization effort for
SGM-SF, RMS-MF and RMS-LB Mitigation Standards
Continuous maintenance efforts to improve these standards are currently ongoing.



Read me

The proposed revisions to Section 9.2 and 9.3 (Initial Post-mitigation Testing) updates initial procedures relative to determining mitigation system performance as applicable to ANSI/AARST SGM-SF, ANSI/AARST RMS-MF and ANSI/AARST RMS-LB. The proposed revisions are applicable to the following ANSI/AARST publications:

- SGM-SF 2017 rev12/20
- RMS-MF 2018 rev12/20
- RMS-LB 2018 rev12/20

Latest published versions of those standards are available for comparison at www.standards.aarst.org where all ANSI/AARST standards can be found for review at no charge and for purchase.

The current mitigation standards committee roster (consensus body) can be linked to from www.standards.aarst.org/public-review. The current work project includes (1) harmonization, where possible, for all portions of these documents to read the same for the same tasks; (2) update based on new experiences, and (3) renderings that are more conducive to stakeholders who are involved in compliance assessment.

Public Review: SF-MF-LB 9.2 & 9.3 2-22
COMMENT DEADLINE: April 25th, 2022

REQUESTED PROCESS AND FORM FOR FORMAL PUBLIC REVIEW COMMENTS

Submittals (MS Word preferred) may be attached by email to StandardsAssist@gmail.com

- 1) Do not submit marked-up or highlighted copies of the entire document.
- 2) If a new provision is proposed, text of the proposed provision must be submitted in writing. If modification of a provision is proposed, the proposed text must be submitted utilizing the strikeout/underline format.
- 3) For substantiating statements: Be brief. Provide abstract of lengthy substantiation. (If appropriate, full text may be enclosed for project committee reference.)

REQUESTED FORMAT

Title of Public Review Draft: **SF-MF-LB 9.2,9.3 2-22**

• **Name:** _____ **Affiliation:** _____

• **Clause or Subclause:** _____

• **Comment/Recommendation:** _____

• **Substantiating Statements:** _____

• ☐ Check here if your comment is supportive in nature and does not require substantive changes in the current proposal in order to resolve your comment.

Repeat the five bullet items above for each comment.

Requested registration of your contact information and copyright release.

ONE TIME REGISTRATION CONTACT INFORMATION AND COPYRIGHT RELEASE

NOTE: AARST Consortium on National Radon Standards encourages original commentary on its standards. Commenters that choose to submit comments without an author's signature (due to difficulties in timeliness, proximity or other) shall be deemed to have done so at their sole discretion and have thereby acknowledged and accepted the copyright release herein. If commenters submit comments authored by others, those comments must also be accompanied by a signed copyright release from the author of the original comment. The original comment author and representing commenters may be asked to engage in dialog supporting their position.

Name: _____

Affiliation: _____

Address: _____

City: _____

State: _____

Zip: _____

Telephone: _____

Fax: _____

E-mail: _____

Copyright Release:

I hereby grant the AARST National Radon Standards Consortium the non-exclusive royalty rights, including non-exclusive royalty rights in copyright, in my proposals and I understand that I acquire no rights in publication of this standard in which my proposals in this or other similar analogous form is used. I hereby attest that I have the authority and am empowered to grant this copyright release.

Author's Signature: _____

Date _____

PLEASE FAX TO (913) 780-2090 or SHIP TO: StandardsAssist@gmail.com Commenters are responsible for informing the standards assistant staff a when changing contact information or other preferences.

Notice regarding unresolved objections: While each committee seeks to resolve objections, please notify the committee responsible for an action or inaction if you desire to recirculate any unresolved objections to the committee for further consideration. Notice of right to appeal. (See Bylaws for the AARST Consortium on National Radon Standards - Operating Procedures for Appeals available at www.radonstandards.us, Standards Forum, Bylaws): (2.1) Persons or representatives who have materially affected interests and who have been or will be adversely affected by any substantive or procedural action or inaction by AARST Consortium on National Radon Standards committee(s), committee participant(s), or AARST have the right to appeal; (3.1) Appeals shall first be directed to the committee responsible for the action or inaction.

AARST Consortium on National Radon Standards

Website: www.standards.aarst.org

Email: StandardsAssist@gmail.com

527 N Justice Street, Hendersonville, NC 28739

The Consortium Consensus Process

The consensus process developed for the AARST Consortium on National Radon Standards and as accredited to meet essential requirements for American National Standards by the American National Standards Institute (ANSI) has been applied throughout the process of approving this document.

Continuous Maintenance

This standard is under continuous maintenance by the AARST Consortium on National Radon Standards for which the Executive Stakeholder Committee has established a documented program for regular publication of addenda or revisions, including procedures for timely, documented, consensus action on requests for change to any part of the standard.

User Tools: User tools are posted online (www.standards.aarst.org/public-review) as they become available (such as templates for field notices, inspection forms, interpretations and approved addenda updates across time).

Notices

Notice of right to appeal: Bylaws for the AARST Consortium on National Radon Standards are available at www.standards.aarst.org/public-review. Section 2.1 of Operating Procedures for Appeals (Appendix B) states, "Persons or representatives who have materially affected interests and who have been or will be adversely affected by any substantive or procedural action or inaction by AARST Consortium on National Radon Standards committee(s), committee participant(s), or AARST have the right to appeal; (3.1) Appeals shall first be directed to the committee responsible for the action or inaction."

Disclaimer: The AARST Consortium on National Radon Standards strives to provide accurate, complete and useful information. The AARST Consortium on National Radon Standards will make every effort to correct errors brought to its attention. However, neither the AARST Consortium on National Radon Standards, its sponsoring organization the American Association of Radon Scientists and Technologists nor any person contributing to the preparation of this document makes any warranty, express or implied, with respect to the usefulness or effectiveness of any information, method or process disclosed in this material. Nor does AARST or the AARST Consortium on National Radon Standards assume any liability for the use of, or for damages arising from the use of, any information, method or process disclosed in this document. It is the sole responsibility of radon practitioners using this standard to stay current with changes to the standard and to comply with local, state and federal codes and laws relating to their practice.

Commentary/Rationale: These proposed revisions apply for updating content in Section 9.2 of ANSI/AARST SGM-SF *Soil Gas Mitigation Standards for Existing Homes*. A new Section 9.3 addresses harmonization of related soil gas (chemical vapor) content.

9.2 For SGM-SF (*Soil Gas Mitigation Standards for Existing Homes*)

Initial Post-mitigation Testing

Requirements in this Section 9.2 shall be applicable:

- a) Where the purpose of mitigation includes radon mitigation; and
- b) Where radon mitigation efforts have been applied to existing low-rise residential structures often classified as single-family structures¹ and individual dwellings within a shared structure that contain not more than four attached *dwelling* units on a contiguous foundation.

Where radon mitigation efforts include multiple dwellings or commercial occupancies, post-mitigation testing shall comply with the most current version of ANSI/AARST MAMF or MALB.

Section 9.3 shall apply for post-mitigation measurement of soil gasses other than radon.

9.2.1 Test protocols

Post-mitigation testing shall be conducted in accordance with the most current version of ANSI/AARST MAH "*Protocol for Conducting Measurements of Radon and Radon Decay Products in Homes*"; in accordance with any state protocols and requirements, where applicable; and as allowed in Section 9.2.5. Additional testing requirements specified in Section 12 shall be conducted where non-ASD mitigation methods are employed.

9.2.2 When to retest

As required in ANSI/AARST MAH: To provide an initial measure of system effectiveness, a short-term *radon* measurement shall be conducted within 30 days after installation. The short-term measurements are to be conducted no sooner than 24 hours after activation of a *mitigation system* fan or completion of other *mitigation* efforts. In addition, closed-building conditions are to be maintained 12 hours prior to short-term test periods and throughout the test. Testing is to be either:

- a) postponed until both conditions are met, or
- b) extended if testing with a continuous monitor where device features or other methods are to be used to obtain an average reading that represents no less than 46 hours of contiguous data collected after both conditions are met.

Exception: It shall be permissible that the initial retest after mitigation is delayed beyond 30 days in accordance with Section 9.2.5.1 or as elsewhere allowed in this standard.

9.2.3 Where to retest

As required in ANSI/AARST MAH, "Testing is to be conducted in the same location(s) as the pre-*mitigation* test(s), or, as an alternative or additional test location, in the lowest level that could be occupied to help ensure the safety of current and future occupants who may use these areas."

In addition:

- a) "A post-*mitigation* test is to be conducted in the lowest livable area above any *crawl space* that is structurally isolated from occupiable or tested rooms"; and
- b) Where ASD exhaust is below the roof, a post-*mitigation* test is required herein to be conducted within the occupiable area(s) adjoining the exhaust location as required in Section 6.4.11 c.

¹ As point of reference, see the International Residential Code (IRC) Section R101.2 and the International Building Code (IBC) Section 310 for Residential Group R3 (as published by the International Code Council).

9.2.4 *Radon test devices*

Radon test devices employed shall be listed by: the National Radon Proficiency Program (NRPP), the National Radon Safety Board (NRSB) or other program that verifies device compliance with the latest version of ANSI/AARST MS-PC; or as required by the state where the measurement is being performed.

9.2.5 *Contractor obligations*

Contractor obligations to ensure post-*mitigation* testing is conducted have been satisfied once post-*mitigation* test results are accepted by the *client* as satisfactory evidence for the initial status of system effectiveness. For the purposes of this initial post-*mitigation* test, *contractor* obligations are satisfied regardless of whether this testing is conducted by:

- a. an independent, *qualified measurement professional*; or
- b. the *contractor* who installed the *mitigation* system(s), if also a *qualified measurement professional* (and if allowed by local statutes or code). To avoid any appearance of conflict of interest, the *contractor* shall recommend to the *client* that post-*mitigation* testing be conducted by an independent *qualified measurement professional*; or
- c. the owner or occupant of the home.

9.2.5.1 **Exception:** *Contractor* obligations to obtain some form of test data that sufficiently demonstrates initial system effectiveness are, under this standard, satisfied when the *client* and *client* representatives or other person responsible for the property:

- a) refuse to provide access or retest reports, or
- b) are nonresponsive to outreach efforts to coordinate testing or obtain test reports; or
- c) are prohibited by state or local law from contacting the person(s) responsible for the property.

If access is refused or legally unavailable, or if reasonable efforts across 3 months after installation do not result in a response, the *contractor* shall forward a *radon* test kit to the property in care of the current occupant. The firm analyzing the test kit shall be an independent laboratory listed with NRPP or NRSB or the state *radon* laboratory licensing or certification program and be provided instructions to deliver copies of the test results to the person(s) who conducted the test. The *contractor* should also instruct the independent laboratory to forward a copy of the test results to the *contractor* for retention in the *contractor's* records.

9.3 **Post-Mitigation Testing for Chemicals of Concern**

Post-mitigation measurements of hazardous chemical vapors or other substances are outside the scope of this standard and therefore, *qualified soil gas mitigation professionals* are not required to ensure such post-mitigation measurements are conducted.

Commentary/Rationale: These following proposed revisions apply for replacing content in Section 9.2 of ANSI/AARST RMS-MF *Radon Mitigation for Multifamily Buildings* in ANSI/AARST RMS-LB *Radon Mitigation for Schools and Large Buildings*. A new Section 9.3 addresses harmonization of related soil gas (chemical vapor) content.

9.2 For RMS-MF/ RMS-LB: *Radon Mitigation for Multifamily Buildings, Schools and Large Buildings* Initial Post-mitigation Testing

Requirements in this **Section 9.2** shall be applicable:

- a) Where the purpose of *mitigation* includes radon mitigation; and
- b) Where radon *mitigation* efforts are applied to existing multifamily buildings, schools and other non-residential or mixed use buildings.²

Section 9.3 shall apply for post-mitigation measurement of soil gasses other than radon.

9.2.1 Test protocols

Post-mitigation testing shall be conducted in accordance with requirements of the state or equivalent local authority where the measurement is being performed and in accordance with the most current publication of the applicable ANSI/AARST measurement standard:

- a) MAMF “Protocol for Conducting Measurements of Radon and Radon Decay Products In Multifamily Buildings”; or
- b) MALB “Protocol for Conducting Measurements of Radon and Radon Decay Products In Schools and Large Buildings”.

Additional testing requirements specified in **Section 12** shall also be conducted where non-ASD mitigation methods are employed.

- 9.2.1.1 Except where testing is conducted by owners of an individually owned and occupied *dwelling* or unit, testing **shall** be conducted by a *Qualified Measurement Professional*.

9.2.2 When to retest

As required in ANSI/AARST MAMF/MALB: Short-term measurements are to be conducted no sooner than 24 hours after activation of a *mitigation system* fan or completion of other *mitigation* efforts. In addition, closed-building conditions are to be maintained 12 hours prior to short-term test periods and throughout the test. Testing is to be either:

- a) postponed until both conditions are met, or
- b) extended if testing with a continuous monitor where device features or other methods are to be used to obtain an average reading that represents no less than 46 hours of contiguous data collected after both conditions are met.

9.2.3 Where to retest

As required in ANSI/AARST MAMF-MALB: Test locations for clearance testing to verify all portions of a building are below the *action level* shall be in compliant with a) and b) of this **Section 9.2.3**.

- a) Test locations shall include all *ground-contact* dwellings and non-residential rooms, in accordance with **Section 3**, to include not less than 10% of the dwellings and non-residential rooms on each upper floor; and
- b) Where any *active soil depressurization* (ASD) system exhausts below the roof, a test shall also be conducted in the room(s) immediately adjoining the outside exhaust location.

Performance testing mitigation systems by testing only locations where elevated *radon* concentrations have been found shall not be reported as *clearance testing* verification that a building has been fixed. *Performance testing* mitigation systems shall be limited to evaluations of active systems prior to *clearance testing* or related to maintenance of active systems.

9.2.4 Radon test devices

² As point of reference, see the International Building Code (IBC) as published by the International Code Council.

Radon test devices employed shall be listed by: the National Radon Proficiency Program (NRPP), the National Radon Safety Board (NRSB) or other program that verifies device compliance with the latest version of ANSI/AARST MS-PC; or as required by the state where the measurement is being performed.

9.2.5 **Contractor obligations**

Where system maintenance and monitoring are the responsibility of someone other than the occupant, the *qualified mitigation professional* cannot be obligated to ensure that post-mitigation testing is conducted because the logistics are beyond their control.

9.3 **Post-Mitigation Testing for Chemicals of Concern**

Post-mitigation measurements of hazardous chemical vapors or other substances are outside the scope of this standard and therefore, *qualified soil gas mitigation professionals* are not required to ensure such post-mitigation measurements are conducted.

Commentary/Rationale: These provisions in RMS-MF and RMS-LB are to be deleted. For large building projects, the contractor cannot control when, who by or if post-mitigation testing is conducted.

~~9.2.2 Contractor obligations~~

~~Contractor obligations to ensure post mitigation testing is conducted have been satisfied once post mitigation test results are accepted by the client as satisfactory evidence for the initial status of system effectiveness.~~

~~9.2.2.1 For the purposes of this initial post-mitigation test, contractor obligations are satisfied regardless of whether this testing is conducted by:~~

- ~~a. an independent, *qualified radon measurement professional*; or~~
- ~~b. the contractor who installed the *mitigation system(s)*, if also a Qualified Measurement Professional (and if allowed by local statutes or code). To avoid any appearance of conflict of interest, the contractor shall recommend to the *client* that post *mitigation* testing be conducted by an independent Qualified Measurement Professional; or~~
- ~~c. the *client* when the *dwelling* is an individually owned and *occupied dwelling* (if allowed by local statutes or code).~~