

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



Read me RMS-MF/RMS-LB

The work attached contains a *collection of proposed revisions* for harmonization compared to what is currently published in *rev. 12/20 publications* of: **RMS-MF (existing multifamily buildings)** and **RMS-LB (existing schools and large buildings)**.

The latest published versions of these 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: Collected RMS-MF/LB Revisions 09-22
COMMENT DEADLINE: Sept 11th, 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: **Collection RMS-MF-LB Revisions 09-22**

- **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.

AARST Consortium on National Radon Standards

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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.

AARST RMS-MF Radon Mitigation Standards for Multifamily Buildings
AARST RMS-LB Radon Mitigation Standards for Schools and Large Buildings

Rational/Commentary: This proposal speaks to buildings where several large structures are joined

5.2 Nondestructive Investigation

5.2.1 *Diagrams*

5.2.1.1 For large structures, such as a school or large commercial or multifamily buildings, diagrams and sketches are permitted to be limited to portions of the building to be mitigated.

5.2.2 *Visual inspections*

Rational/Commentary: This proposal summarizes and harmonizes steps required in previous publications of RMS-LB that are essential for designing mitigation systems for many large buildings.

5.2.2.4 Additional Visual Inspections

The visual inspections of the building, including interior, exterior and roof, shall include review for the design of HVAC and other mechanical systems that may influence mitigation system design. Where conditions in Table 5.2.2.4 are observed, jobsite logs shall include notation of components or description of conditions observed that may influence mitigation system design.

Table 5.2.2.4 Conditions That May Influence Mitigation Design	
<u>Exhausts</u>	<u>Exhaust fans capable of causing building depressurization</u>
<u>Ventilation With Outdoor Air</u>	<u>Air intakes vents that may enhance ventilation, or observance of a lack of ventilation</u>
<u>Air Pressure</u>	<u>Unbalanced air pressure relationships across rooms or unique sectors.</u>
<u>Ventilation</u>	<u>Differences in ventilation air across rooms or unique sectors.</u>

Rational/Commentary: This proposal harmonizes with ANS/AARST CC-1000 for test port locations for larger buildings.

9.1.4.1 *Vapor Intrusion Test Ports*

b) *Test port locations*

Strategic locations of test ports shall include all of the following locations where targeted for mitigation:

1. Test port locations remotely distant from suction point(s) that are sufficient in number to:

 - a. evaluate effectiveness of soil gas transport across the major expanse of the slab or membrane; and
 - b. evaluate consistency of soil gas transport across soil gas collection plenums that are joined to a shared ASD exhaust vent pipe.
2. Not less than one test port for each outer quadrant area of the building while also achieving one test port for each soil gas collection plenum addressed by each ASD system; and
3. For larger expanses, not less than one test port for each outer quadrant area of soil gas collection plenums that are 8,000 sq. ft. (744 m²) or larger while also achieving one test port for each additional 8,000 sq. ft. (744 m²) area and remaining smaller area.

Exception: Where there are no openings or utility penetrations through the slab or soil gas retarder, test ports are not required for plenum areas that are less than 64 square feet (6 m²), or collectively represent less than 10% of any 4,500 square foot (418 m²) area.

Rational/Commentary: This proposed change to Section 10.5.2 addresses harmonization of long-term monitoring of radon concentrations in large buildings where radon mitigation efforts have been undertaken. OM&M plans are likely to remain with properties longer than test reports.

10.5 OM&M Manuals

10.5.1 Essentials

10.5.2 Stewardship/ Monitoring

OM&M manuals shall recommend post-mitigation testing and provide instructions regarding post-mitigation clearance testing and long-term stewardship of mitigation systems, to include requirements in a), b), c) and d) of this Section 10.5.1.

- a) Stewardship Statement
- b) Ownership/Management Changes
- c) Radon Measurement/Inspections

Where a radon mitigation system is installed or found in a building at the property, OM&M procedures provided in the OM&M manual shall include all of the following:

1. Quarterly inspection to verify operation of fans and other mechanical components;
2. Testing all buildings at the property at least every 5 years. All radon measurements shall be conducted in compliance with ANSI/AARST MALB/MAMF. This clearance test procedure shall include 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.
3. After post-mitigation clearance testing and in between 5-year clearance test events, test all previously tested locations for mitigated areas at nominally 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:

- a. inspected quarterly to verify fan operation,
 - b. inspected biennially for mechanical equipment performance and integrity, and
 - c. all buildings at the property and mitigated areas are retested every 5 years.
4. Each of these stewardship testing events to include mechanical inspections conducted by a qualified professional to verify continued performance of equipment.
 5. The following or equivalent instructions:

“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, or 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 (e.g., sumps, drain tiles, shower/tub retrofits, etc.) or
 - natural settlement causing major cracks to develop;
- ✓ Earthquakes, blasting, fracking or formation of sink holes nearby; or
- ✓ An installed *mitigation system* is altered.”

~~10.5.5 Frequency of inspections for functionality~~~~The OM&M manual shall instruct that stewardship obligations require:~~

- ~~a) Visual operational inspections conducted quarterly; and~~
- ~~b) Mechanical inspections to verify continued performance of equipment, as designed, conducted annually by a qualified professional.~~

~~10.5.7 Monitoring concentrations~~~~The OM&M manual shall instruct that stewardship obligations require a regimen of ongoing radon or soil gas measurements to verify continued systems effectiveness as required in a) and b) of this Section 10.5.8.~~~~a) Radon Measurements~~~~The OM&M manual shall instruct that stewardship obligations require a routine schedule of ongoing measurements for radon gas where systems are known to mitigate radon gas.~~

Commentary/Rationale: The proposed revision to Section 9.2.4 is to align with ANSI Essential Requirements 2021 when personal or product certifications or listings are required by a standard.

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 a program that verifies compliance with the most current version of ANSI/AARST MS-PC; or as required by the state where the measurement is being performed.

Commentary/Rationale: The proposed revisions to Section 3 are to align with ANSI Essential Requirements 2021 when personal or product certifications or listings are required by a standard.

3.2 Radon Mitigation Professionals

A “qualified radon mitigation professional” is defined as:

“An individual who has demonstrated a minimum degree of appropriate technical knowledge and skills specific to design and installation of systems that mitigate occupant exposure to radon gas in existing multifamily, school, commercial and mixed-use buildings, as established in listing or certification requirements¹ of:

- a) the National Radon Proficiency Program (NRPP), the National Radon Safety Board (NRSB) or equivalent national program²; and
- b) as required by local statute, state or provincial licensure or certification programs that evaluate individuals for radon-specific technical knowledge and skills.”

3.3 Soil Gas Mitigation Professionals

A “qualified soil gas mitigation professional” is defined as:

“An individual who has demonstrated a minimum degree of appropriate technical knowledge and skills specific to design and installation of systems that mitigate occupant exposure to hazardous chemicals vapors and gas in existing multifamily, school, commercial and mixed-use buildings, as established in listing or certification requirements¹ of:

- a) the National Radon Proficiency Program (NRPP), the National Radon Safety Board (NRSB) or equivalent national program²; and

¹ The definition of “certification requirements” is located Section 14, *Description of Terms*. The definition includes minimum educational requirements associated with listing or certification of qualified mitigation professionals.

² Note that identification of the two competing certification bodies listed is not an endorsement of either program. The definition of “equivalent national program” is located Section 14, *Description of Terms*.

- b) as required by local statute, state or provincial licensure or certification programs that evaluate individuals for soil-gas-specific technical knowledge and skills.”

Section 14 Description of terms

Commentary/Rationale: These proposed additions to Section 14 (Description of terms) are to elaborate on what is meant by the term “equivalent programs” as compared to the benchmark established for 25 years by the two competing national programs identified in Section 3.

Equivalent National Program: A national program that evaluates and lists qualified individuals, training courses and other products or services, such as laboratory services, integral to achieving public health goals intended by this standard. Equivalent programs are programs with published policies that:

- (1) require persons to undergo education and an impartial examination process prior to granting personal certification or certificates of educational achievement;
- (2) have a written policy and means for receiving and adjudicating complaints against individuals who have been granted the credential; and
- (3) require surveillance of continued competence, not less than as demonstrated by continuing education in related technical knowledge and skills, prior to granting recertification or renewed certificates.

Commentary/Rationale: These proposed definitions are specific to RMS-MF and RMS-LB.

Certification Or Listing Requirements (Qualified Radon Measurement Professionals-Multifamily and Commercial): Listing or certification credentials granted by the *equivalent national programs* that qualify individuals as proficient in designing radon or soil gas *mitigation* systems in existing multifamily, school or large buildings are to include:

- (1) current certification as a qualified radon measurement professional in existing homes; and
- (2) prior to granting advanced level certifications or listings, additional education and processes approved by the program relative to tasks required in the most current version of ANSI/AARST MAMF / MALB.

Certification Or Listing Requirements (Qualified Mitigation Professionals-Multifamily and Commercial): Listing or certification credentials granted by the *equivalent national programs* that qualify individuals as proficient in designing radon or soil gas *mitigation* systems in existing multifamily, school or large buildings are to include:

- (1) current certification as a *qualified mitigation professional* in existing homes; and
- (2) prior to granting advanced level certifications or listings, additional education and processes approved by the program relative to tasks required in the most current version of ANSI/AARST RMS-MF / RMS-LB.

Commentary/Rationale: These proposed for certification and listing requirements from SGM-SF are referenced in definitions for certification/listing requirements.

Certification Requirements (Qualified Radon Mitigation Professionals-Homes): Certifications granted by *equivalent national programs* that qualify individuals as proficient in designing radon *mitigation* systems require no less than 32 hours or more education, to include a focus on tasks required in ANSI/AARST SGM-SF *Soil Gas Mitigation Standards for Existing Homes*, and no less than 16 hours continuing education biennially prior to granting recertification.

Certification Requirements (Qualified Soil Gas Mitigation Professionals-Homes): Certifications granted by *equivalent national programs* that qualify individuals as proficient in designing soil gas *mitigation* systems require no less 32 hours or more education, to include a focus on tasks required in ANSI/AARST SGM-SF *Soil Gas Mitigation Standards for Existing Homes*, training on chemical hazard protection, and no less than 16 hours continuing education biennially prior to granting recertification.