Harmonization effort for

SGM-SF, RMS-MF and RMS-LB Mitigation Standards

Continuous maintenance efforts to improve these standards are currently ongoing.

Read me

As attached: The proposed revisions to Section 4.1 (Assemble Building Information) clarifies a few details to collect that are pertinent to mitigation design. The proposed revisions to Section 5.2 (Nondestructive Investigation) identifies a set of minimum details to observe and record that are pertinent to successful mitigation design. The proposed harmonized 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 conductive to stakeholders who are involved in compliance assessment.

Public Review: SF-MF-LB 4.1 & 5.2 2-22

COMMENT DEADLINE: **April 18th, 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 9.1, *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 <u>each</u> 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.

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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.

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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

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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."

Commentary/Rationale: The underlined proposed revisions clarify information normally collected when first contacted and information essential to mitigation design and any resulting proposals.

4.1 Assemble Building Information

Prior to providing proposals, the *contractor* shall obtain or attempt to obtain information that includes:

a) The objective of the *mitigation*, be it *radon* gas, *chemicals of concern (COCs),* flammable gas or proactive *mitigation* efforts due to suspected hazards;

b) The results of any *radon* measurements or measurements of *chemicals of concern* with information relative to any diagnostics conducted, action levels, toxicology, site classification and any other concurrent remedial actions. The measurement results and any related pertinent information shall be recorded and retained in jobsite records;

c) Building details regarding design and construction practices for each attached foundation area. The approximate age of the building or portion of the building targeted for mitigation shall be determined and recorded in jobsite records; and

d) Any *diagnostic* procedures and measurements that have been conducted for each building or the common portion(s) of the building(s) to be mitigated.

Commentary/Rationale: This proposed replacement to previously published Section 5.4 clarifies minimum investigations and tracking of observations needed for mitigation design and quality control.

5.2 Nondestructive Investigation

An investigation of the common building structure(s) shall be conducted prior to initiating *mitigation* work. The investigation shall include visual inspection of both the exterior and interior of the building(s) in accordance with Section 5.2.2. Jobsite logs shall include the date and identity of the person conducting the inspections and resulting observations noted on diagrams or in jobsite logs.

> *Informative advisory*—It is recommended that the *qualified mitigation professional* review all available measurements of radon or soil gas, construction drawings, specifications and other information regarding the building that might be of value in determining the *mitigation* strategy.

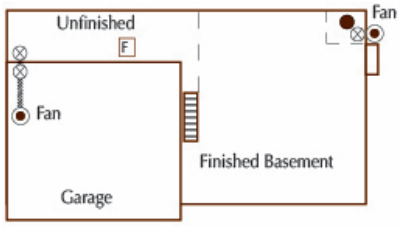
5.2.1 *Diagrams*

Diagrams, that may be accompanied with narrative and photographic documentation, shall be created and retained in jobsite logs that meet requirements of a) and b) of this Section 5.2.1.

a) Foundation Types and Sizes

A diagram or sketch shall be created that identifies and portrays the relative size of each building foundation component of the shared foundation system, to include each attached slab-on-grade, basement and *crawl space* foundation area, including additions to the original building and attached garages.

Figure 5.2.1



b) Multiple test locations

Where *radon* or soil gas measurements have been conducted in multiple *ground-contact* rooms, dwellings or non-residential rooms or units, at least one diagram or sketch shall illustrate available test results and their general location.

5.2.2 *Visual inspections*

5.2.2.1 Exterior Visual Inspection

An exterior visual inspection shall be conducted that includes all exterior faces of the building, as viewed while standing outside the structure. Jobsite logs shall include:

a) Foundation Walls. Notation of foundation wall construction type(s), such as poured concrete, stone and block *(CMU)*; and

b) Elevations. Notation portraying the general height of the building above grade and relative elevation of each attached upper foundation floor compared to the lowest foundation slab or earthen floor.

Where observing air pathways or air handling systems that could hinder or aid effective *mitigation*, as described in Table 5.2.2.1, the conditions observed shall be noted in jobsite logs.

Table 5.2.2.1 Examples of air pathways or systems that could hinder or aid effective *mitigation*

Between indoors and outdoors	Air intakes, exhaust locations and other openings between indoor and outdoor air that, based on their size, could influence a buildings air exchange rate, air pressures or energy consumption.
Between soil and outdoors	Air pathways between soil and outdoor air that, based on their size and location, could represent problems in achieving *ASD* effectiveness
Between soil and indoors	Exterior soil, drain tiles or enclosed spaces over soil that, depending on the total air volume leakage of adjoining interior walls, could need a custom solution

Note—Walking the exterior helps to ensure all portions of the building are accounted for and design choices are viable.

5.2.2.2 Interior Visual Inspection

The interior visual inspection shall be conducted to include all *ground-contact* rooms. Diagrams, sketches or as otherwise recorded in jobsite logs, shall also include components identified in Table 5.2.2.2.

Table 5.2.2.2 Interior Inspection Components

a)	Foundation walls	Notation, where different from exterior inspections, regarding poured concrete, stone, block *(CMU)* or other wall foundation material(s)
		Load bearing assemblies, such as masonry partitions, and as associated with unusual foundation design
b)	Rooms	A general floor plan layout of room partitions that also denotes finished areas and open earth crawlspaces
c)	Mechanical systems	The location of furnaces, air handlers, boilers and water heaters
		Locations of any ductwork under slabs
d)	Openings to soil	Both observed sizable openings between soil and indoor air and suspected openings, such as under bathrooms or utility access points
e)	Water drainage	Observations regarding water control systems
	1. Sumps	The location and nature of openings to soil within any pits
	2. Surface Water Drainage	Presence or absence of drainage systems for surface water on floors or walls
		Drains or drain systems that drain directly to soil or grey water piping
f)	Safety concerns	Observed conditions that pose safety concerns to workers or occupants
	1. Fire ratings	Observance of fire-rated assemblies or separation required (including for fire-rated walls and fire-rated ceiling and floor assemblies)

Exception—Where components listed for identification in this Tables 5.2.2.1 and 5.2.2.2 are obscured or inaccessible for visual review, or later found to have been inadvertently overlooked during the visual inspection, jobsite logs during *mitigation* processes shall be updated with pertinent findings.

Note—Walking through *ground-contact* areas is also a good time to consider custom solutions, such as additional suction points, that could be needed for addressing other radon or soil gas source areas not initially targeted.

5.2.3 *Reporting unexpected conditions*

The *contractor* shall provide the *client* timely notice of suspected or unexpected conditions revealed during visual investigations, diagnostics or installation that can significantly impact occupant health, budgets, schedules or other concerns relative to the scope of work.

5.2.3.1 Where the purpose of the *mitigation* includes chemical vapor intrusion, the *contractor* shall document and provide immediate or timely notice to the *client* regarding:

a) hazardous materials observed but not identified in documentation received from the *client*; and

b) observations of failed or deficient water control systems, to include standing water in a basement or *crawl space*; evidence of groundwater intrusion; and failed pumps or *sump* systems and any pipes that inappropriately discharge or leak contaminants.

Commentary/Rationale: Section 5.2.4 *Unique Sectors* shall only be published in RMS-MF and RMS-LB where this section would replace Sections 5.4.4 through 5.4.12. Most of the considerations that were previously published in those sections relate more to Non-ASD methods and are being moved and reconfigured into Section 12 *Non-ASD Methods*.

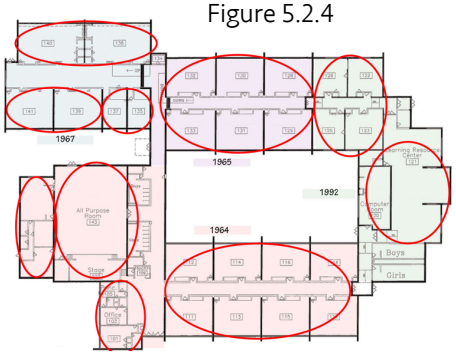
5.2.4 *Unique Sectors*

Where a building contains *multiple zones* of tempered air, such as buildings with multiple dwellings and non-residential spaces, or resulting from room additions, the following procedure is required to evaluate *mitigation* design needs for each portion of a building:

a) In each *ground-contact* area, identify the general design of the *HVAC* system(s) that are present and classify each of the following areas as a "Unique Sector":

1. Each *ground-contact* area of a shared building where the dwellings, non-residential rooms or mixed use areas are served by individual "Group 1" Basic Heating and Cooling systems, as defined in Table 5.2.4; and
2. Each *ground-contact* area of a shared building where dwellings, non-residential rooms or mixed use areas share a central *HVAC* air handling system. These areas shall be annotated on the diagram(s) or otherwise documented in jobsite logs.

Figure 5.2.4



b) Each *unique sector* that is served by "Group 3" Variable Outdoor Air Ventilation systems or "Group 4" Variable Air Distribution systems, as defined in Table 5.2.4, shall be annotated on the diagram(s) or otherwise documented in jobsite logs.

Table 5.2.4 Operational Design of HVAC Systems (as grouped for the purposes of this standard)
Group 1 Basic Heating and Cooling A dedicated system for each room or unique area that does not provide seasonally variable outdoor air ventilation. • Forced-air *heating and air conditioning (HAC)* systems, such as normally seen in single-family residences. • Ductless Systems - Non-forced-air hot and cold water circulation (sometimes called radiator systems). - Window AC (w/fresh air closed). - Wall or baseboard heating/cooling. • Split Systems: Individual heating and cooling systems, such as baseboard heat and window AC for cooling.
Group 2 Multi-Zone Systems Independent systems with independent controls for different areas within the same room or unique sector.
Group 3 Variable Outdoor Air Ventilation Systems that seasonally vary outdoor air ventilation for individual rooms, a unique area, or the whole building. Systems include: energy economizer systems, heart or energy recovery ventilators and evaporative cooling systems.
Group 4 Variable Air Distribution Systems where airflow from a single air handler is distributed among multiple rooms with independent thermostat controls in each room or unique area that variably open and close dampers to deliver heated or cooled supply air.

Informative advisory—If it is unclear what type of system is present, consider consulting with the building representative, a mechanical engineer or a heating and air-conditioning contractor.