

CHPS Criteria Addendum #2019-EQ-01

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Category: Indoor Environmental Quality

Addendum Type: Revision

Criteria Edition: all

Description: EPA has adopted updated standards for radon testing and mitigation. CHPS has revised the radon criterion to reference the update and to distinguish requirements between new construction and major renovation. The threshold radon level for mitigation remains 4 pCi/L.

Applicable Prerequisites/Credits:

Edition	Criterion Number and Name
US-CHPS 2014 v1.1	EQ 8.1 Low Radon
CA-CHPS 2014 v1.02	
NE-CHPS v3.x	
TX-CHPS v2.0	
HI-CHPS 2012	EQ.C3.5 Install radon mitigation systems...
VA-CHPS 2011	EQ.C3.7 Install radon mitigation systems...

Revisions:

All text is replaced with the following from the CHPS Core Criteria v3.0, EQ C9.1 Low Radon, pp78-80:

Requirements

For new construction, institute radon reduction measures specifically, *but not limited to*: soil gas barrier, gas permeable layer, and vent pipes for fan-activated radon removal systems (should testing warrant system activation). Designs and strategies depend on the types of building foundations and other factors. See *CC-1000 Soil Gas Control Systems in New Construction of Buildings* by ANSI/AARST for radon reduction measures that work best for different construction types and scopes

Radon reduction measures are not deemed effective until testing verifies radon levels below 4 pCi/L. Test for radon according to *MALB Protocol for Conducting Measurements of Radon and Radon Decay Products in Schools and Large Buildings*.

For renovations/modernizations, perform post-renovation radon testing and make necessary mitigations should radon levels meet or exceed 4 pCi/L. Test for radon after HVAC systems are commissioned and performing as intended prior to occupancy. If mitigation is warranted, such as HVAC manipulations or sub-slab depressurization, procedures must follow *RMS-LB Radon Mitigation Standards for Schools and Large Buildings* as soon as possible. If radon levels are near 100 pCi/L or greater, school officials should call their State Radon Contact and consider relocating from affected rooms until the levels can be reduced. All radon testing must follow the *MALB Protocol for Conducting Measurements of Radon and Radon Decay Products in Schools and Large Buildings*.

Implementation

New school buildings have a unique opportunity to prevent radon gas from entering the interior of a school at the USEPA action level of greater than or equal to 4 pCi/L. Design and construction methods for radon reduction should follow *CC-1000 Soil Gas Control Systems in New Construction of Buildings*. Additionally, the USEPA regional office or state radon program and professionals certified in radon testing and mitigation should be consulted. If hiring measurement and mitigation consultants, ensure that they are certified through the National Radon Proficiency Program (NRPP) or National Radon Safety Board (NRSB). Also ensure that projects comply with applicable codes, regulations and certification rules within the project jurisdiction.

Once measures have been incorporated into the construction of the school and HVAC systems have been commissioned and are operating as intended, then test that levels of radon are less than 4 pCi/L. Post-construction radon testing best practices are found in *MALB Protocol for Conducting Measurements of Radon and Radon Decay Products in Schools and Large Buildings*. Where radon testing indicates high radon (4 pCi/L or greater), the radon system can be activated with a fan and/or HVAC can be modified to reduce radon in accordance with *CC-1000 Soil Gas Control Systems in New Construction of Buildings*.

Renovations/modernizations also have opportunities to successfully mitigate radon levels in school projects. Depressurization systems which pull air from below the slab or crawl spaces or changes to ventilation are examples of proven measures that reduce radon. These changes should be made once HVAC systems have been commissioned and are operating as intended. At that point, testing can be conducted to determine presence of radon and whether airflow adjustments are needed. Projects must consult *RMS-LB Radon Mitigation Standards for Schools and Large Buildings* and *MALB Protocol for Conducting Measurements of Radon and Radon Decay Products in Schools and Large Buildings* for guidance on mitigation and testing measures and, as above, USEPA regional office or state radon program and professionals certified in radon testing and mitigation should be consulted.

To maintain low radon environments, a school should be tested at least every five years unless the school previously tested with high levels. In such schools, those rooms or buildings should be mitigated and then retested every two years. Retesting is done to ensure that the mitigation system remains effective and that common building changes are not causing a change in radon levels from previously known levels. The need for retesting is triggered by the following types of events:

- Renovation work that includes energy upgrades
- HVAC equipment that is added, removed, replaced, operated incorrectly or differently, or improperly maintained
- New additions/significant renovations

Documentation

DESIGN REVIEW

The Project Team must provide a statement to CHPS stating that radon prevention and active mitigation systems (if needed) have been designed according to the following standards, and include descriptions of any deviations from best practices:

- For new construction: *CC-1000 Soil Gas Control Systems in New Construction of Buildings, ANSI/AARST.*
- For renovation/modernizations: *RMS-LB Radon Mitigation Standards for Schools and Large Buildings, ANSI/AARST.*

Provide specifications and construction documents delineating radon prevention measures and active mitigation systems in order to support the statement above.

CONSTRUCTION REVIEW

Submit a statement from the Project Team that summarizes the following: whether radon testing was completed, when it was completed, test duration, and the radon levels detected. Indicate whether further mitigation was needed.

Statement must indicate that testing was performed in accordance with *MALB Protocol for Conducting Measurements of Radon and Radon Decay Products in Schools and Large Buildings, ANSI/AARST.*

Resources

1. CC-1000 Soil Gas Control Systems in New Construction of Buildings, ANSI/AARST
2. RMS-LB Radon Mitigation Standards for Schools and Large Buildings, ANSI/AARST
3. MALB Protocol for Conducting Measurements of Radon and Radon Decay Products in Schools and Large Buildings, ANSI/AARST
4. EPA Radon in Schools Webinar: <https://www.epa.gov/iaq-schools/forms/webinar-radon-schools-what-you-need-know-properly-manage-radon-your-school>
5. American Association of Radon Scientists and Technologists (AARST) Mitigation and Certification Courses: <http://aarst-nrpp.com/wp/entry-level-courses/>
6. Schools and Daycares testing: <https://www.certi.us/cms/component/virtuemart/courses/continuing-education/c-16-108-addressing-radon-in-daycare-facilities,-schools-and-large-buildings-certi-323-detail?Itemid=0>
7. Western Regional Radon Training Center courses: <http://kansasradonprogram.org/courses>
8. Eastern Regional Radon Training Center courses: http://www.cpe.rutgers.edu/programs/radon_indoor_air_quality.html National Radon Proficiency Program (NRPP) <http://aarst-nrpp.com/wp/certification/>
9. National Radon Safety Board (NRSB) <http://www.nrsb.org/>