

Overview of EPA's State Indoor Radon Grants Program: A Focus on Activities Conducted during 2021

Radon is the second-leading cause of lung cancer after smoking. Effective, affordable measures to reduce indoor radon are available and when employed, can prevent radon-induced lung cancer and save lives. For more than 30 years, the U.S. Environmental Protection Agency (EPA or the Agency) has provided critical funding to support state, territory, and tribal efforts to reduce radon-related lung cancer through the State Indoor Radon Grants (SIRG) program. This collaborative partnership between the states, territories, tribes and EPA is critical in reducing radon risk and saving lives.

Despite notable progress, radon continues to be a serious public health concern in the United States. Millions of homes with elevated radon levels remain, and approximately 21,000 Americans die annually from radon-induced lung cancer, including people who have quit smoking or never smoked. In fact, radon-induced lung cancer ranks among the top 10 causes of all cancer deaths in the United States among adults who have never smoked.¹ This reinforces the need for expanded testing for all homes and buildings, protective policy adoption and other continued risk reduction measures in the United States focused on radon.

State and tribal radon programs remain vital to national efforts aimed at reducing radon risk. About 7 million homes are estimated to have levels of radon above the EPA action level. In addition to state and tribal radon programs, EPA and National Radon Action Plan (NRAP) partners play a critical role in expanding the reach of life-saving radon policies.

National Radon Action Plan (NRAP) Updates

In May 2021, NRAP Partners published a new report titled: "[Reflections on the National Radon Action Plan's \(NRAP\) Progress, 2015-2020.](#)" This report focused on strides NRAP Partners have taken towards reducing the risks of radon, preventing nearly 2,000 radon-caused cancer deaths every year.

In January 2022, [the NRAP | 2021-25](#) was finalized. This is the third installment of a collaborative national effort among federal, private sector, and non-profit partners to ramp up action on radon. The strategies in NRAP | 2021-25 remain focused on actions that will save lives by fixing existing buildings, constructing new buildings with radon-resistant features, and preparing a certified, professional radon workforce. The Plan spotlights addressing radon as a health equity challenge and prioritizes new strategies to reduce radon risk in underserved communities, particularly low-income populations and including communities of color.

Reflecting on the past year:

While indoor air quality remained a public health priority for many families and communities over the last year, the ongoing pandemic has continued to present challenges and competing priorities for state and tribal partners. Some new challenges are unique to specific communities or regions of the country. For example, one radon program with a high prevalence of rural and remote residents reported a decrease in the number of radon test kits returned for analysis, when compared to previous years.

¹ Samet, J. M., E. Avila-Tang, P. Boffetta, L. M. Hannan, S. Olivo-Marston, M. J. Thun, and C. M. Rudin. 2009. "Lung Cancer in Never Smokers: Clinical Epidemiology and Environmental Risk Factors." *Clinical Cancer Research* 15 (18): 5626-5645.

The program also identified slower mail delivery as an additional challenge, and this may have prevented activated radon kits from reaching laboratories in a timely manner. Several states described tight housing markets resulting in fewer radon tests completed as part of real estate transactions and indicated that radon professionals have seen a reduction in requests for radon testing and mitigation services. Meanwhile other programs reported record numbers of residents seeking radon information and using test kit services. Many states and tribes indicated that increased attention and concern about indoor air quality has expanded the number of residents and schools interested in leveraging available radon resources and pursuing indoor air quality interventions.

Some new challenges are shared by many grantees and partners. Across the country the pandemic has drawn a significant amount of public health resources away from existing programs and continues to impact in-person public outreach efforts in many communities. To address this, many grantees and partners are employing new communication strategies, leveraging virtual engagement platforms to host training events, and sharing coordinated messaging on general indoor air quality as well as radon-specific messaging. Importantly, state and tribal radon programs, advocates, industry professionals, NRAP partners and federal public health agencies continue to build partnerships aimed at addressing emerging challenges and identifying best practices for risk reduction actions.

Reporting Cycle, Recent Appropriations & Key Reporting Metrics

This report primarily covers activities conducted during the 2021 SIRG reporting cycle (October 1, 2020 – September 30, 2021) by state and tribal grant recipients. The report is not tied to a particular appropriation; grantees plan and conduct activities during a specified reporting cycle using available funding. Congress directed a small increase to the SIRG program funding in FY21, approximately \$6,000 above the level of funding provided in the FY20 operating plan (\$7.795 million after rescission). In recent years, the SIRG appropriation has been accompanied by Congressional House Report language which continues to reference recommendations for application of SIRG funds in several broad areas (as outlined in House Report 114–632).^{2,3,4}

Metrics outlined in the House Report align with EPA's implementation of the SIRG program and the goals of the NRAP to eliminate avoidable radon-induced lung cancer in the United States. The primary aim of EPA's radon program is to protect public health by reducing the risk from radon exposure. In addition to standard programmatic reporting metrics, states and tribes that received SIRG funding in FY21 also reported on work planned or already in progress in six activity areas. Key reporting metrics include:

1. Promote awareness about radon exposure to the **medical community**.
2. Include radon in **state cancer control plans (CCPs)**.
3. Promote radon awareness through **real estate transactions**.
4. Test for and remediate radon in **schools** in high-risk radon areas.
5. Provide **continuing education (CE) and technical support**.
6. Include radon-reduction strategies in **state and local building codes (industry codes)**.

² House Report, 114-632. <https://www.congress.gov/114/crpt/hrpt632/CRPT-114hrpt632.pdf>.

³ House Report, 115-238. <https://www.congress.gov/115/crpt/hrpt238/CRPT-115hrpt238.pdf>.

⁴ House Report, 115-765. <https://www.congress.gov/115/crpt/hrpt765/CRPT-115hrpt765.pdf>.

Barriers to Risk Reduction in Underserved Communities

Some communities have less access to radon resources, and low-income families may lack the necessary financial resources to test for and mitigate elevated radon levels. These obstacles prevent state and tribal radon programs from achieving risk reduction for all communities. In addition, the authorizing statute for the SIRG program includes a match requirement for grantees and, generally, grant funds cannot be used for direct mitigation of homes. These limitations present challenges for many grantees, in particular for tribal communities seeking to apply for grant funds.

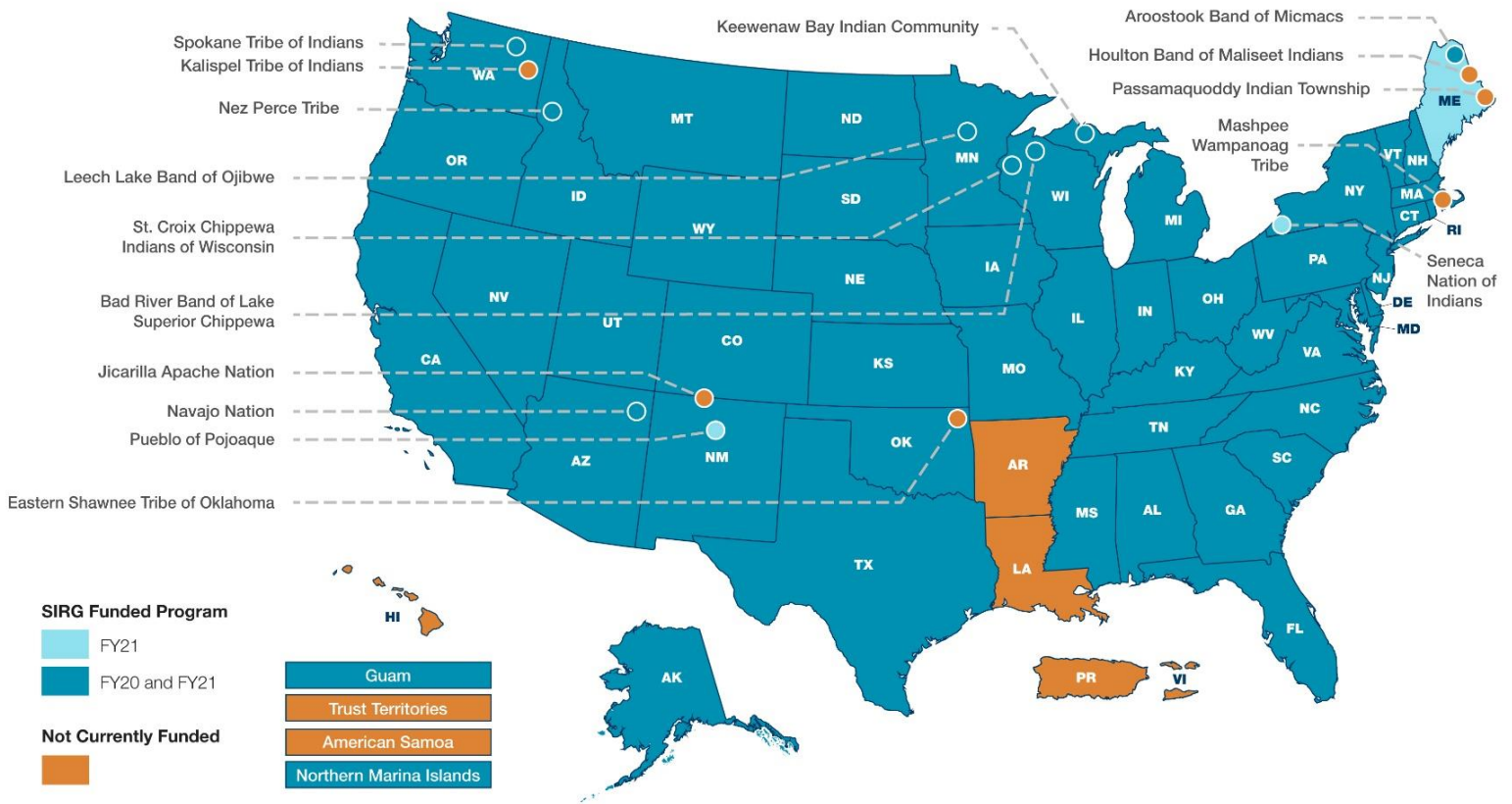
EPA continues to look for opportunities to assist underserved communities through state and tribal radon grants. This Fall, EPA took steps to make Performance Partnership Grants (PPGs) more accessible to tribes. The Agency approved a class regulatory exception to remove the cost-share requirements from tribal PPGs (at 40 CFR 35.536). The Agency determined that this exception is the most efficient and beneficial solution to reduce barriers for tribes applying for PPGs. The elimination of cost share requirements will promote tribal access to grant assistance, foster partnerships, and increase collaboration between EPA and tribes.

The last section of this report focuses on success stories from state and tribal grantees. Several success stories outlined in this report highlight the work grantees are doing to support underserved populations. These include expanded access and coverage of radon programs to include tribal communities through outreach and risk reduction activities conducted by the Nez Perce Tribe, Pueblo of Pojoaque Tribe, and the Navajo Nation. Several additional grantee success stories demonstrate a commitment to assisting other underserved communities including, Colorado's Low-Income Mitigation Assistance Program, Illinois's Whole House Health Environmental Justice Demonstration Project, and the Utah Radon Coalition's Low-Income Radon Mitigation Assistance Program. In addition, grantees continue to focus on broadly translating radon materials in multiple languages as a standard practice. EPA Regional Radon Coordinators play a primary role in engaging their state and tribal governments to conduct outreach and risk reduction activities among underserved populations.

Overall Findings

The most impactful risk reduction strategies are those that directly result in expanded radon testing of existing homes and buildings, mitigation of high radon levels within those structures, and adoption of policy or building codes that require radon resistant features in new construction. Some state and tribal radon programs are pairing SIRG funding with other healthy housing, housing finance, and/or low-income mitigation assistance program funding to expand opportunities for residents to access resources for testing and mitigating homes. This summary report and the variety of program activities and approaches shared by states and tribes tells a powerful story of risk reduction using SIRG funds.

Map of states, territories, and tribes with SIRG-funding in FY20 and FY21⁵



Key Take-Aways

- All 48 states (including the District of Columbia) and eight of the ten tribes expected to report for the 2021 reporting cycle submitted information on planned and conducted activities.
- During 2021, two states issued new radon policies. One state established requirements for licensure via certification for radon professionals (Colorado) and another state established requirements for all schools to test for radon (Vermont).

⁵ To ensure broad representation, this map also shows non-funded states, territories, and tribes. Several tribal grantees (funded between FY16 – FY21) that may not have received funding during the most recent reporting cycle are included on the map. Depending on regional allocations tribal funding may rotate among tribes from year to year, and sometimes risk reduction work in states, territories, and tribes continues even in the absence of funding or through carry-over funds.

Spotlight: Successful Approaches for Reducing Radon Risk

This section showcases examples of activities funded in part by EPA's SIRG program, that states and tribes are undertaking in alignment with the key reporting metrics.

Education and outreach to the medical community:

- In collaboration with the **Massachusetts** Department of Public Health (MDPH) Environmental Public Health Tracking Program and funded by the MDPH Comprehensive Cancer Prevention and Control Network, the Radon Unit conducted outreach to medical professionals. This initiative included organizing a Radon Grand Rounds presentation featuring a thoracic oncologist from a local cancer treatment and research institute and developing an online presentation to raise radon awareness that will be used by the Massachusetts Medical Society for Physicians.
- The **Kansas** Radon Program partnered with the Kansas Department of Health and Environment (KDHE) to develop an online-based continuing education course for local health officials and nurses. Once the course is complete it will be hosted on the Kansas TRAIN platform. The TRAIN Learning Network brings together agencies and organizations in the public health, healthcare, and preparedness sectors to disseminate, track, and share trainings for the health workforce on a centralized training platform.
- The **Maryland** Department of Environment (MDE) created a Continuing Medical Education module which was presented through the Maryland Chapter of the American Academy of Pediatrics titled: "Lead, Asthma, Radon, and Healthy Homes in Maryland: New Resources for Clinicians and Patients." This resource is available for viewing and downloading [here](#).
- To raise awareness of the risks of exposure to elevated radon levels, the **Nez Perce** Radon Program shared radon resources, such as the CRCPD Radon Guide for Healthcare Providers, with staff and healthcare professionals at the Nimiipuu Health Clinic.

Inclusion of radon in state cancer control plans:

- The **Tennessee** State Cancer Plan 2018 – 2022 identifies a primary objective aimed at increasing “the number of homes tested annually for radon by the Tennessee Department of Environment and Conservation Radon Program from 1,410 in 2018 to 2,500 by 2022.” The plan also outlines multiple radon strategies under four primary categories: 1) Policy, Systems and Environmental Changes; 2) Provider Training and Professional Development; 3) Patient Access, Education and Programming; and 4) Progress and Evaluation.
- The **Nevada** Cancer Plan 2021 – 2025 includes a specific objective to “decrease exposure to elevated levels of radon” and outlines a goal to increase the number of homes mitigated from 1,513 in 2019 to 2,200 by 2025. The plan also includes specific strategies to “educate and encourage health care providers to add a radon testing question to their annual patient questionnaire” as well as “promote policies for radon-resistant homes, including radon-resistant new home construction and licensure of radon professionals.”

- The **South Dakota** Cancer Control Plan 2021 – 2025 aims to prevent lung cancer among state residents by reducing exposure to environmental carcinogens. The plan includes a strategy to “educate [residents] about radon and other environmental carcinogens, including equitable strategies to reduce exposure.” In addition, the plan outlines a strategy to “promote radon testing and mitigation within homes, schools, and worksites.”

Testing and remediation of schools in high-risk radon areas:

- In 2021, the **Vermont** legislature passed a law requiring all schools to test for radon. Under the Act, schools must follow the American National Standards Institute (ANSI) / American Association of Radon Scientists and Technologists (AARST) Protocol for Conducting Measurements of Radon and Radon Decay Products in Schools and Large Buildings, which includes hiring a certified radon measurement professional.
- The **West Virginia** Radon Program continues to identify opportunities to enhance the state’s school radon testing program required by law, including conducting outreach to maintenance supervisors across 13 counties regarding school testing requirements. During this reporting cycle, 39 schools were tested, one school was mitigated, and two additional schools are evaluating HVAC systems and determining if mitigation is necessary.
- **North Dakota** released a series of [case study videos](#) demonstrating ways to respond to elevated radon levels in schools to ensure a safe environment for staff and children. The state’s radon website features three videos instructing school administrators, maintenance professionals and staff how to interpret testing results and implement a radon reduction plan if needed.
- The **Washington** Radon Program is collaborating with the state’s Choose Safe Places program to create mapping tools on the Washington Tracking Network which was designed to provide childcare facilities increased awareness of environmental exposures at existing facilities or sites of new building/purchase for additional facilities. The Radon Program is also working with home-based childcare centers to test and provide free mitigation to childcare centers with elevated test results.
- The **Connecticut** Department of Public Health Radon Program focused on developing virtual outreach and education efforts for radon risk awareness in response to the pandemic. For example, the Radon Program delivered virtual presentations to 30 undergraduate students at Southern Connecticut State University as part of the 2020 – 2021 Environmental Health Training Program. In the past year, the Radon Program staff also taught a virtual Radon Awareness lesson to students at five Connecticut public schools.
- **Wyoming** established the state’s first radon video contest to promote National Radon Action Month, alongside their annual Radon Poster Contest in 2020. In its second year, the number of video submissions exceeded the state’s expectations and the state received positive feedback from students and teachers. Submissions for the 2021 video contest can be viewed [here](#).
- The **Navajo Nation** Radon Program and the Air Quality Control Program performed radon testing at the Cove Day School in response to questions about indoor radon levels from tribal officials, the tribal community, and the Bureau of Indian Education (BIE). Fortunately, all the measurements taken were below the EPA recommended action level and no further action was needed. Moving forward, BIE is considering developing a plan for on-going radon testing at all Navajo Nation and BIE schools.

- The **Iowa** Radon Program (IRP) continues to support the Iowa Department of Human Services requirement for radon testing and mitigation in licensed childcare centers. The IRP developed education materials focused on properly testing childcare facilities and providing additional technical assistance if mitigation is necessary. In Iowa, licensed childcare centers are required to test for radon every two years and mitigate if levels are above guidelines. During this reporting cycle, approximately 250 childcare centers were tested. In coordination with the Iowa DHS the department has developed a guide entitled "Radon Testing Protocols for Iowa Child Care Centers" to assist facilities with their radon monitoring.

Addressing radon in homes and real estate transactions:

- The **North Carolina** radon program, in partnership with the NC Cancer Control Branch, developed a four-hour real estate continuing education course for licensed real estate brokers. During this reporting cycle, 24 live online classes were conducted. Licensed real estate schools and the NC Cooperative Extension Service hosted the classes taught by the NC Radon Program Coordinator. More than 350 licensed real estate brokers completed the course. The development of this CE course is vital to promote radon testing and mitigation and providing resources during real estate transactions by providing the necessary tools to the real estate brokers.
- The **Oregon** Radon Awareness Program (ORAP) staff redesigned the state's "Have you tested your home for radon?" brochure. The redesigned material focused on providing radon information in a more accessible screen reader format and reading level, while also translating the resource into the most common languages spoken in Oregon. The brochure was designed and translated for environmental justice communities in the following languages: Spanish, Russian, Somali, and Vietnamese. This resource is available on the state's website for community outreach events.
- The **Alaska** Radon Program and the Institute for Tribal Environmental Professionals at Northern Arizona University collaborated on a radon education video targeting rural Alaskan communities. These communities in Alaska have traditionally received less access to testing and other radon resources. This video provides new options for education and increased testing and is available [here](#).
- The **New Mexico** Radon Program established a collaborative partnership with the American Lung Association in New Mexico (ALANM) to jointly work to promote radon awareness and collaboratively work with multiple stakeholders and decision makers through marketing materials, press releases, public events, and remote training. During this reporting cycle, ALANM hosted a webinar titled "Radon Detection and Remediation: What Every Broker Should Know" for the Greater Albuquerque Association of Realtors. The presentation was recorded and is available [here](#).
- The **Pueblo of Pojoaque** tribe estimates that more than 130 residents have reduced exposure to potentially elevated levels of radon by living in homes with operational radon mitigation systems.

Continuing education, outreach, and technical support:

- The **Georgia** Radon Program employed a unique approach to increase outreach and awareness. The program included radon information in Gwinnett County water utility bills during National Radon Action Month (NRAM). The outreach materials included information about radon and home test kits. As a result of this new outreach strategy the Georgia Radon Program estimates radon information was distributed to hundreds of thousands of residents and also resulted in an increased rate of test kits use in the county during that month.

- The **Nebraska** Radon Program traditionally provides in-person continuing education opportunities to radon licensees each year. In February 2021, the state partnered with Kansas State University to host a full-day virtual training and continuing education event which more than 130 licensees attended. The state is considering maintaining the virtual format into the future as it allowed broader attendance and participation from individuals that may not have been able to take advantage of previous training opportunities.
- The **Indiana** Department of Health (IDOH) partnered with AARST to evaluate mitigation systems installed throughout the state. Systems were inspected by experienced, certified mitigators to ensure they meet minimum work standards. Data from the reports were compiled and used to correct any critical issues, inform mitigators about the most current standards, and establish a benchmark to track future improvement.
- The **Minnesota** Department of Health (MDH) had their most successful NRAM media campaign since they started tracking it in 2008. The 2021 media campaign included several outreach strategies including billboards, TV and radio promotions, and website content linking back to the state's radon test kit ordering page. In January 2021, MDH tracked more than 30,000 web hits to this website, representing the highest monthly number ever recorded. There were 4,275 radon test kits ordered during the month of January, which was also a monthly record. MDH also observed an increase in the test kit analysis rate--64% of valid test kits were returned for analysis from December 2020 – March 2021.

Building support for adoption of radon-reduction strategies in building codes or state/tribal policy:

- The **Idaho** Radon Program conducted radon-resistant new construction (RRNC) trainings throughout Spring 2021. Nearly 50 individuals throughout the state, including contractors, home inspectors, architects, radon professionals, realtors and homeowners attended the trainings.
- In 2021, **Colorado** passed a law requiring licensure via certification for radon measurement and mitigation contractors. The bill requires radon professionals to meet training and continuing education requirements and follow established best practices when performing radon testing and mitigation. This bill will help to ensure all radon mitigation and measurement conducted in Colorado is performed by individuals with proper training and according to ANSI/AARST standards.
- Several counties in **Virginia**, including Montgomery and Tazewell, reported adopting radon provisions of the International Residential Code into their local building codes, expanding radon controls for residents in those areas.

Additional State and Tribal Success Stories

This section showcases other radon risk reduction activities that may not have been explicitly described in Congressional direction and/or may draw on different sources of funding.

- The **Rhode Island** Department of Health (RI DOH) Radon Program partnered with the Lead Safe Providence Program (LSPP), a HUD-funded healthy homes and lead hazard reduction loan program, to provide free radon testing. Radon mitigations were completed by LSPP with HUD healthy homes funding for all homes with radon levels above the EPA action level. As a way of sustaining this effective collaboration and radon risk reduction program, RI DOH plans to sponsor regular radon measurement and mitigation training for the LSPP lead inspectors.

- The **Utah** Radon Coalition (URC), a nonprofit member organization was created to provide radon education and awareness, advocacy, and community service programs across the state. Funding comes primarily from private and public donations and foundation grants. The URC Low-Income Radon Mitigation Assistance Program provides financial assistance for radon mitigation services to qualified low-income homeowners. In 2021, the URC conducted outreach through six community newspapers, tested 500 homes, and mitigated five low-income homes with elevated radon levels.
- In 2016, **Colorado** passed a bill that provides state funding for a radon education and awareness program at the Colorado Department of Public Health and Environment (CDPHE) and allocates \$100,000 to assist low-income individuals with the installation of radon mitigation systems. To expand the reach of messaging about these resources, CDPHE conducted a pilot outreach project using the Nextdoor for Public Agencies program. Several census tracts were identified and received messages through Nextdoor (in both English and Spanish) about free radon test kits and the state's Low Income Radon Mitigation Assistance (LIRMA) program. More than 100 free radon test kits were distributed through outreach via Nextdoor. Moving forward the state plans to use this targeted outreach approach to effectively direct resources to specific areas of the state.
- **Illinois** initiated a Whole House Health and Environmental Justice Demonstration Project which includes a combined approach to health and environmental hazards aimed at producing measured risk reduction for home occupants. The Illinois Emergency Management Agency has partnered with the Southern Illinois University School of Medicine, the Illinois Department of Public Health, the Illinois Environmental Protection Agency, and the City of Springfield (including the police department and the municipal utility operators) to develop a plan for addressing environmental health hazards and improving whole house living conditions for low-income and vulnerable individuals. The city applied for U.S. Department of Housing and Urban Development Healthy Homes Production Grant to repair and improve homes identified through the project.
- The **Vermont** Radon Program established two new partnerships to connect eligible residents with financial assistance for mitigation costs. The first new partnership with the USDA Rural Development's Section 504 Home Repair Program, primarily intended to serve rural residents, offers grants in addition to low-cost loans that can be used for radon mitigation. The second partnership with the Burlington Lead Program assists eligible residents with radon mitigation and lead hazard reduction, focusing primarily on underserved residents in the cities of Burlington and Winooski.
- The **New York** State (NYS) Public Health and Health Planning Council has updated the NYS Prevention Agenda for 2019-2024. The Prevention Agenda is based on a comprehensive statewide assessment of health status and health disparities, changing demographics, and the underlying causes of death and diseases. The overarching strategy of the Prevention Agenda is to implement public health approaches that improve the health and well-being of entire populations and achieve health equity. The plan includes a built and indoor environment focus area with objectives aimed at increasing the number of homes/schools tested for radon, increasing the number of homes/schools built using radon resistant techniques and adding radon testing questions to routine electronic medical questionnaires.