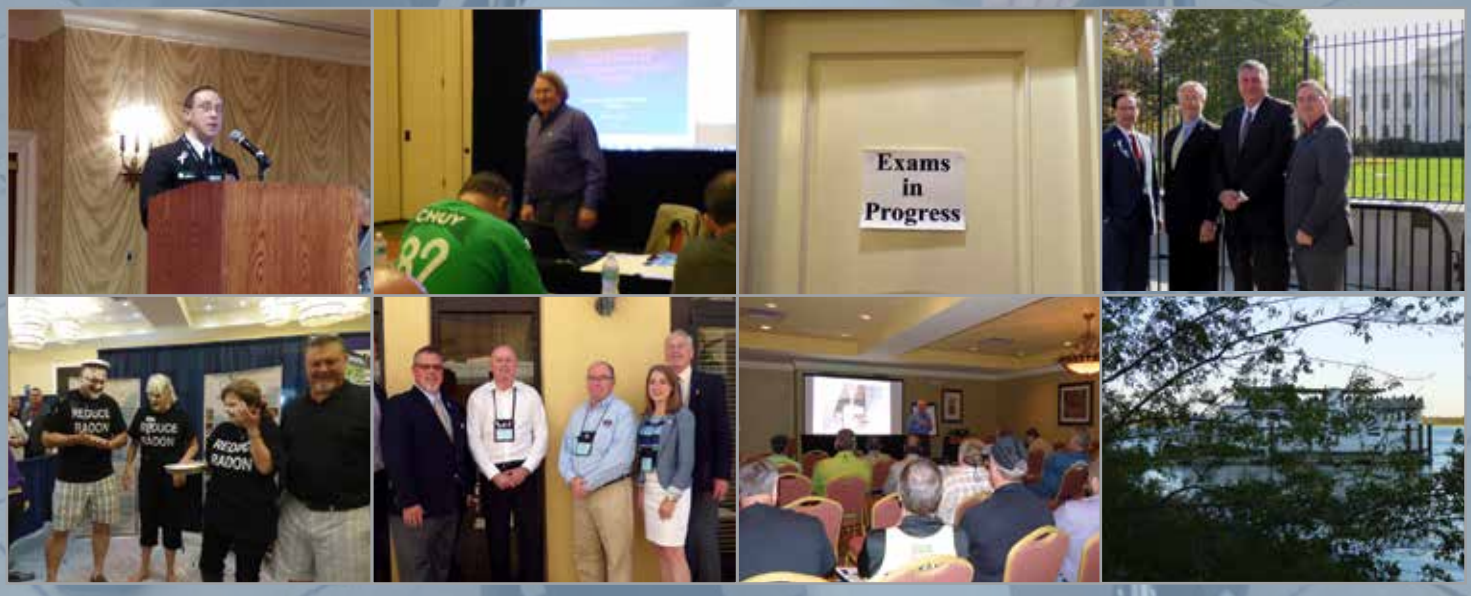
Radon Reporter

AMERICAN ASSOCIATION OF RADON SCIENTISTS AND TECHNOLOGISTS, INC.

AARST

Visit to the U.S. Office of Management and Budget
Radon Control in New Construction
2014 Symposium Highlights and Awards
Credentialing and Standards



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AARST, the American Association of Radon Scientists & Technologists, is a nonprofit, professional organization dedicated to the highest standard of excellence and ethical performance of radon measurement, mitigation and transfer of information for the benefit of members, consumers, and the public at large. AARST's leadership is democratically elected by the members.

AARST represents your voice as we meet the wide range of challenges facing radon professionals and the community. Your membership and participation provides you a voice in the changes to come, and allows you to gain updated information, discover new techniques, learn about new problems before they occur, and hone your professional skills.

AARST has several local chapters where you can meet other radon professionals and state and federal officials who work with the radon industry.

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From the President

"AARST is leading the way into the future."

Shawn Price
AARST President

Let me premise my column by saying that over 26 years ago the United States Congress passed the Indoor Radon Abatement Act (IRAA) and that became the law of the land enrolled as US Code: part and parcel of the Toxins Substance Control Act that names 3 killer toxins, lead and asbestos joining radon as priorities of the U.S. federal government to ensure Americans healthy homes and healthy living.

The other two toxins are regulated under this law. Radon is not, even though the administrator was granted authority to do so under the code.

But change is happening. AARST is making it happen.

First, let me welcome over 2300 NRPP professionals as new Associate members of the Association. Your talents and efforts are a great addition to the important AARST mission of saving lives.

Today, AARST members can be proud of the fact that AARST is an ANSI accredited developer of American National Standards for radon – and we are hard at work on maintaining and developing standards for the future.

2015 sees new standards released for: radon measurement in single-family homes, radon measurement device performance standards, radon measurement in school and large buildings, radon mitigation in schools and large buildings, and radon mitigation in multifamily buildings.

It is still a little too soon to know for sure, but there is also a chance that 2015 will see a new standard for soil gas mitigation for both radon and chemical vapors in single-family homes.

We can also be proud that at the International Radon Symposium, which saw record attendance and had over 60 professionals take advanced certification exams for Multifamily Measurement, Multifamily Mitigation and RRNC.

AARST volunteers and experts on our standards committees are also leading the way to the future, as next year we expect to see advanced standards and potential new certifications for vapor intrusion. Be proud and thank them.

AARST is also leading the way with the National Radon Proficiency Program, and we expect that the NRPP Policy Advisory Board will be issuing new guidelines for compliance and enforcement as we continue to raise the bar on professional adherence to the highest level of national standards.

Recently, an AARST team went to the White House's Executive Office Building to fight for continued radon funding, where they laid out radon success stories to the Office of Management and Budget. They made a professional presentation.

But AARST isn't stopping there. We are going to continue to work with our lobbyist to call for public hearings in Congress on the need for more action and continued support. Why? Well, 546,000 Americans have died from lung cancer since IRAA was passed in 1988 and we can't ignore the fact that more homes are at risk now than when the IRAA was passed.

We are going to move for mandatory testing via all federally-backed mortgages. Short of that, we are going to move for mandatory awareness of radon risk for each home sale, home occupancy permit. This is well within the powers granted to HUD and EPA by Congress under existing law.

You can help. Please donate to either CanSAR or the AARST Foundation. Both organizations are worthy. (See below for websites.)

Or, support our public policy initiatives by purchasing an ad via the ARPC-100, which requires a minimum contribution of $250, payable either as a lump sum or monthly payments. For more information send an email to Peter Hendrick at Director@aarst.org.

Shawn Price

Visit these websites to contribute:

AARST Foundation: www.aarstfoundation.org
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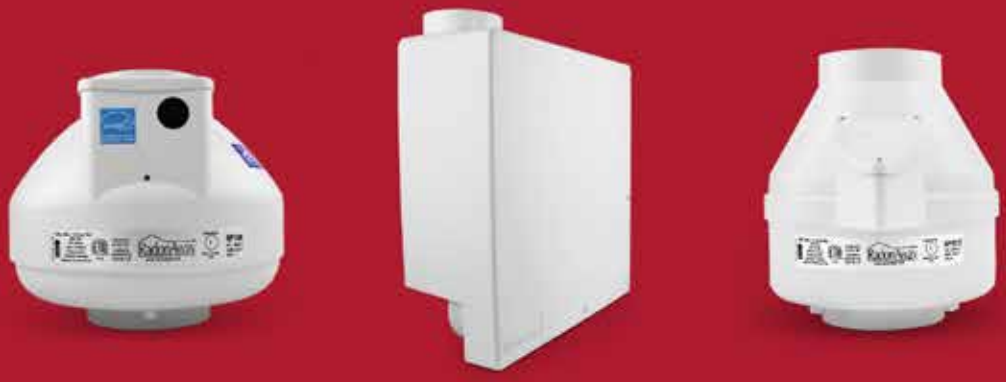
LEADING THE WAY FROM THE START



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Radon Leaders & AARST Brief OMB

On Thursday, October 30, 2014, AARST went to the White House Executive Office Building to talk radon funding. A first!

AARST's advisor in Washington, D.C., Randy Pence, arranged for the first ever meeting between AARST and the President's Office of Management and Budget (OMB), to discuss the necessity of continued funding of the State Indoor Radon Grant programs (SIRG - state and tribal radon program funding) Please note that AARST does not receive any federal funds, but considers SIRG vital to radon risk reduction public education efforts.

AARST invited two radon leaders to attend this important meeting with us: Dr. William Field, professor at the University of Iowa and a world recognized radon researcher, and Joshua Kerber, a research scientist with the Minnesota Department of Health. Mr. Kerber also represented the views of the state radon programs.

The Office of Management and Budget (OMB) is under the Executive Office of the President, and develops the President's official Budget proposal to Congress for all activities in the U.S. federal government. Even in years in which Congress does not pass a separate Budget, the OMB Budget proposal becomes the de facto baseline for all congressional appropriations.

In advance of the meeting, AARST made good on a promise it made to the state SIRG grantees at the Charleston annual meeting:

- That AARST would solicit recent progress reports, and success stories in their states, demonstrating that SIRG funds are relevant, needed, effective, and well-used in the states.
- Further, AARST used the information from the state grantees to support the argument that if SIRG funding were to end, that radon mitigation efforts in the states would suffer a catastrophic failure of funding and would collapse.
- That we would provide this hard data to OMB in a need to justify a possible reversal of federal policy. And it would not have been assembled and presented to OMB staff in this manner, but for AARST's national policy strategy.

During the meeting, it was clear that AARST was presenting new data, and arguments from the field, that OMB staff did not have previously at their disposal. Based on some of the questions from OMB, we inferred they had been informed that SIRG funding was redundant, duplicative, and that some other source of funding would be available to "pick up the slack" if SIRG funding were eliminated.

- AARST assured OMB that this was in fact bad data, the Association is not aware of any alternate funding stream. SIRG is the only game in town for source radon funding.

As a counterpoint, the AARST delegation re-branded SIRG funding as the essential base funding which allows some states to provide matching state funds.

We don't know how this will turn out as it is too early to know what OMB will recommend for next year, and, according to old timers who have done this before us, OMB never commits during an informational briefing. But the AARST team, supported by our colleagues, Josh Kerber and Bill Field, did a great job in presenting the real story about radon risk and radon funding.

Randy Pence, Peter Hendrick, Dr. Bill Field, and Josh Kerber in Washington

Bottom line: Whatever is in the President's Budget for SIRG next year, AARST will be well positioned to work with Congress to ensure it continues.

AARST is beginning to demonstrate that there is an active and effective advocate for radon mitigation inside the Washington Beltway, and that advocate knows where to apply pressure with effect. We are already aware that other government forces are monitoring these new, targeted radon efforts with intense interest.

AARST is about to roll out major policy recommendations for all Americans. Our board will soon be considering several proposals over the next two months, and we will be working with Congress to tell the real radon story, all to get meaningful legislation passed in the coming years. This will all start rolling out in the next few weeks. It's an exciting time.

Peter Hendrick

Interview: Dr. Phil Jenkins

2014 Scott-Åkerblom Award winner

Each year, the Scott-Åkerblom Award is presented at AARST's Annual Meeting during the International Radon Symposium. The award recognizes one or more radon industry professionals for "an idea, application of a new technique, or other creative achievement, which has become or promises to become important for the radon professionals or the radon industry." Recently, AARST's Nicole Chazaud interviewd 2014 award recipient Dr. Phil Jenkins.

Congratulations, Phil! Your radon colleagues have awarded you the Scott-Åkerblom Award in recognition for your significant role in advancing measurement technology in the field of radon. How many years have you been in the industry?
I've been involved with radon in one way or another since about 1975, so almost 40 years. However, the early part of that was related to uranium mining and milling, or related to monitoring around old sites that DOE was cleaning up. It was about 1986 when I started getting involved in the "radon industry" as you know it; i.e., private companies manufacturing instruments, private labs doing analyses, private testers and mitigators. So, in that respect, about 28 years, and I came to Bowser-Morner in June, 1991.

What did you study in school? And what were some of your pivotal career moves to get you to where you are?
I received a BS in Chemical Engineering in 1970 from Purdue University. During my senior year, I started taking courses in Nuclear Engineering with the intent of going into grad school in Nuclear Engineering. At the same time I took a course in Biomedical Engineering and applied to grad school in that also. However, I was looking for funding for grad school, so I applied for a Fellowship from the Atomic Energy Commission (AEC, now the NRC) in Nuclear Engineering.

Then I discovered that they had a similar Fellowship program for "Radiation Protection," so I applied for that fellowship too, and that became my source of funding along with some fellowships from the Public Health Service.

At Purdue, that put me in a department called Bionucleonics, which no longer exists. Most of the students in Bionucleonics were studying "Health Physics," or radiation protection. I received an MS and PhD in Bionucleonics in 1972 and 1975, respectively. In grad school I continued taking courses in Nuclear Engineering, also several courses in statistics. The entire combination of Chemical & Nuclear Engineering, Health Physics and Statistics has been extremely helpful in the design and operation of a radon chamber facility.

In 1975, I started working at the Tennessee Valley Authority (TVA) in Muscle Shoals, AL in the Division of Environmental Planning in their nuclear power program. I went there specifically because of a breeder reactor that TVA was supposed to build and operate. However, that program was cancelled.

Meanwhile, I became involved in the environmental aspects of TVA's uranium mining and milling operations in the West. As part of that work, I modified a computer program that TVA used to model airborne emissions of radioactive materials from nuclear power plants to be applicable to airborne releases from uranium mines and mills.

Part of that involved the modeling of airborne releases of radon, its dispersion and ultimate deposition of radon progeny and resulting doses to populations in the surrounding environs. I was somewhat shocked to realize how large to the lung results from radon progeny. I found the complicated mathematics of chain decay associated with radon and its progeny to be academically challenging and interesting.

In 1978, I went to DOE's Mound Facility in Miamisburg, OH and thought I would never be involved with radon again. However, in 1979 we became involved with a program of monitoring radon in the environs of several sites that were a

part of DOE's Remedial Action Programs. The Environmental Measurements Laboratory (EML) in New York had started monitoring around a site in Canonsburg, PA, but it became clear that a DOE contractor needed to take over this effort, as there were multiple sites involved.

Initially, we used the chamber at EML to calibrate monitors for use in Canonsburg, but it was clear we needed our own calibration facility. In 1981, we completed building a walk-in radon chamber, which I believe to be the first to have temperature and humidity control. This did not seem to be so important in 1981, but soon thereafter it became extremely important with the use of charcoal devices for measuring radon.

During the period of 1980 to 1986, the Radon Group at Mound was involved in monitoring around about a dozen sites in the following states: PA, NJ, NY, UT, AZ, NM, CO and OR. In 1986, our involvement with the Remedial Action Programs ended, but about that time I received requests from private sector companies to use the chamber for QA testing. This was done until the fall of 1989 when a mishap resulted in the destruction of the radon chamber.

(Continued on p. 8)

Dr. Phil Jenkins Interview

(Continued from p. 7)

From 1989 to 1991, I continued working at Mound but searched for a way to rebuild a radon reference laboratory comparable to a government lab.

In 1991, Bowser-Morner gave me the opportunity to start over. I took the best of ideas from several chambers in the country, and then built a larger chamber than the one at Mound, as economically as possible, but still with the features and flexibility of the government chambers.

How did you come to focus on measurement technology?
During the 80's our role was making radon measurements, primarily in the outdoor environment, around facilities no longer in use, buried wastes, abandoned uranium mill tailings piles, etc. So our focus was providing the best measurements possible at that time with the best quality we could.

Can you express to us your passion for the clarity you strive for in measurement technology?
Radon measurements are the basis for decisions in all aspects of radon; epidemiology and risk estimation, setting guideline concentrations, making decisions regarding remediation, judging the effectiveness of remediation, etc. It is essential that the quality of radon measurements is adequate for these purposes.

The quality of the measurement starts with a recognized "national or international reference" or a "primary standard," and then trickles down to "secondary" reference laboratories, manufacturers, laboratories and end users. And there is a balance among what is technically feasible vs what is economically affordable; the absolute best that can be achieved vs what is adequate. At Bowser-Morner, we strive to provide testing that is of a very high quality, more than adequate, and at the same time is affordable to our clients.

I know you have been very involved in AARST over the years. When did you first join?
Sometime during the 80's, I became aware of AARST. At that time, most of its membership was in and around NewJersey and Colorado. Around the same time, two other radon organizations were formed, the American Radon As sociation (ARA) primarily in Ohio and surrounding areas, and the National Radon Association (NRA) primarily around Atlanta and the Southeast. I was on the board of ARA for several years.

The ARA and NRA merged and became the North American Radon Association (NARA). Shortly thereafter, the decision was made to disband NARA and for us all to join AARST. The best I can recall is that this was I joined AARST in 1990 or 1991. I think by the mid-90's or before, I was a member of the board. I have served on the board in several capacities, including Vice President, Secretary and Treasurer. Early on I volunteered to rewrite the Bylaws of AARST (which took a few years, several iterations, I'm sure I didn't do this alone).

Going back to 1989, before being a member of AARST I was on the Working Group of ANSI N13.34, a standard on the performance criteria of radon measuring devices. Ultimately, I became the chair, and at some point found out that it no longer belonged in N13 of ANSI. That standard is now ANSI N42.51, one of the AARST/ANSI standards, and is now cochaired by Melinda Ronca-Battista and me. It is currently out for its second round of public comments.

I was on the working group of the Measurements in Homes standard (MAH). I was on the working group of ANSI N42.50, a standard comparable to ANSI N42.51 but for radon progeny measuring devices. This standard was not part of the ANSI/AARST set, but rather was promulgated by IEEE.

You serve on the Technical Committee and have presented papers and taught radon professionals for many years...
Over the years, I've made numerous presentations at AARST symposia and chapter meetings, annual meetings of the Health Physics Society as well as chapter meetings, one American Chemical Society meeting, given radon talks at the Mayo Clinic, U. of North Carolina, Purdue, talks to public groups, published several articles, and reviewed a number of articles for several journals. Since I'm not an academic, I don't have to "publish or perish," so I'm not good at keeping track of articles that I've authored or coauthored, but I need to compile a list. And I'm not good at publishing everything either.

What has changed in the maintenance of the chamber or protocols, and interlaboratory comparisons? (By your design?)
First of all, we need standards regarding quality assurance, chambers and calibrations. These items are next in line for our /Standards Consortium and are going to require a lot of work. Because there have been no standards for chambers or for calibrations, our procedures have evolved over the years. They have been primarily based on my previous experience and my opinions of how things should be done.

If you could leave the radon industry with one giant wish pertaining to QA what would that be?
Before I totally retire, I hope to be instrumental in reestablishing a network of routine international intercomparisons for radon measurements among laboratories in the US, Europe and Asia.

What in the many aspects of your work would you say contributes to the advancement of measurement technology?
I have not invented new technology such as some of the previous award recipients, but perhaps some of my work has contributed to the advancement of radon measurement technology.

1) I was instrumental in the design and operation of a radon chamber in the early 80's which I believe to be the first that included temperature and humidity control.

2) About thirty years ago, I implemented a mathematical technique that simplifies the programming and calculation of the radon decay chain. While I didn't discover this technique but rather saw it described in a "Note" in Health Physics, I may have been the first to implement it to the extent that I have, especially for radon and radon progeny. It is described in several of my published articles. One manufacturer is now using the technique to simplify the calculations performed by his instrument. Ultimately, I believe that more complicated algorithms will be possible to perform in instruments based on simplified math that is easier to program and executes faster, based on this technique. I hope to work further in this area in retirement.

3) I have furthered the understanding of how commonly used statistical procedures must be modified for many types of measurements of radon and radon progeny in order to correctly calculate measurement uncertainty. There is more work to be done in this area, which I hope to do in retirement.

Congratulations on your retirement. We thank you for your dedication to precision of measurement of (pCi/l) radon-222.

IS RADON CONTROL IN NEW HOMES EFFECTIVE?[1]

William J. Angell[2]

Photo Credit: Josh Kerber

Radon control in new residential buildings is a critical comment of any national radon risk reduction program as demonstrated by the actions of the World Health Organization, the U.S. Environmental Protection Agency (EPA), Health Canada, and many other countries. However, in comparison to the "find high radon houses and fix them" focus of much of the radon risk reduction efforts, radon control in new construction has been a relatively minor weak part of the overall strategy.

In this article, we will explore the questions of how important is effective radon control in new homes and the evidence of how we may be doing on our efforts in new construction.

Importance of Radon Control in New Residential Construction

Radon concentration in new housing is the result of how architects design and builders construct new homes.

A 2008 paper in Radiation Protection Dosimetry presented an analysis that revealed the number of U.S. homes with indoor radon concentrations above the risk reduction had increased from 1990 to 2005 due in large part because of the addition of new homes with elevated radon[3] .

Later that year, the U.S. EPA Office of Inspector General stated in an evaluation report More Action Needed to Protect Public from Indoor Radon, "Nearly two decades after passage of the 1988 Indoor Radon Abatement Act (IRAA), exposure to indoor radon continues to grow. Efforts to reduce exposure through mitigation or building with radon-resistant new construction have not kept pace. Of 6.7 million new single family detached homes built nationwide between 2001 and 2005, only about 469,000 incorporated radon-resistant features."[4]

In part, the EPA's response has been to initiate the Federal Radon Action Plan. While the Plan has resulted in some notable actions such as the U.S. Department of Housing and Urban Development's policy requiring radon testing and mitigation in some financing multifamily housing, there has been little, if any, change in U.S. federal policies involving radon control in new housing.

The success of national radon risk reduction programs depends on effective radon control in new housing.

In 2010, the World Health Organization published the WHO Handbook on Indoor Radon: A Public Health Perspective which emphasized radon reduction techniques in new house construction as central element of national radon risk reduction strategies. Furthermore, the handbook illustrated the cost-effectiveness of new construction radon control strategies in national programs.[5]

Also in 2010, the President's Cancer Panel released a report on environmental cancer risks[6] and it noted testimony of William Field of the University of Iowa, "It's important to know that radon is naturally occurring, but in the home it's not naturally occurring; it's enhanced. We can build homes radon resistant. We just choose not to do so." The report went on to recommend, "Building code changes should be made to require radon reduction venting in new construction."

How is the Number of New Homes Built with Radon Control Estimated?

A subsidiary of the U.S. National Association of Home Builders conducts a national paper survey of home builders which includes questions about builder reported practices including passively or actively vented radon pipe in new multifamily and single-family detached dwellings[7] . In 2012, 19% of single-family detached homes with basement and/or crawlspace foundations had radon reduction systems (16% with passive vent stacks and 3% with fan-driven systems). The rate of new homes with radon control features was highest in EPA's High Probability Zone (45%) followed by 20% in EPA Zone 2 and 2% in Zone 3. In multifamily living units and townhouse, 32% had radon control systems.

The U.S. 2012 average cost of radon-reducing systems in single-family detached houses was reported to be $334 for passive systems and $665 for active soil depressurization systems (both less than 0.002% of the average single family home cost of $346,000).

Unfortunately, the builders' survey separately tabulates whether builders reported using a permeable layer and membranes under the slab and sealing the slabs in new homes. Forty-nine percent of the new homes with basements and slab foundations had four inches or more aggregate under slabs, 40% of the homes had membranes under slabs for radon control, and only 15% of the slabs in new homes were sealed with caulk to reduce radon entry.

(Continued on p. 13)

[1]This article is largely based upon Angell, WJ, 2012 *Radon Control in New Homes: A Meta-Analysis of 25 Years of Research*, Proceedings of the International Radon Symposium, Las Vegas, NV: AAARST
[2]Professor and Director, Midwest Universities Radon Consortium, University of Minnesota, wangell@umn.edu
[3]Angell, W.J. 2008 The U.S. radon, problem, policy, program and indiustry: Achievements, challenges and strategies. Radiation Protection Dosimetry; doi: 10.1093/rpd/ncn105
[4] Office of Inspector General 2008 More Action Needed to Protect Public from Indoor Radon Risks (Report No. 08-P-0174), Washington, DC: U.S. EPA
[5]World Health Organization 2010 WHO Handbook on Indoor Radon: A Public Health Perspective, Geneva, Switzerland: WHO
[6]President's Cancer Panel 2010 Reducing Environmental Cancer Risks: What We Can Do Now, Bethesda, MD: National Cancer Institute
[7]HIRL 2013 Radon-Resistant Construction Practices in New U.S. Homes 2012, Upper Marlboro, MD: Home Innovation Research Labs (a subsidiary of the National Association of Home Builders)

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- $500.00 a month contributed by 12 companies or individuals pays for Randy Pence to lobby for AARST and Radon in DC.
- If 40 people contributed $6.00 a DAY, that alone would pay for an AARST policy professional to help create partnerships - where they count.
- $100,000.00 this year could see the reality of 17 millions single family homes requiring certified mitigations in the year 2016.

We are getting there. As of Jan 21, 2015, you have helped raise over $39,000.00.

Thank you for your thoughtful consideration. Let's help save lives.

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If you wish to use your credit card for your one-time or recurring payments, please provide the following information and mail this form to the AARST Office as indicated on the front.

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IS RADON CONTROL IN NEW HOMES EFFECTIVE?[1]

(Continued from p. 9)

Combined with passive or active vent stacks, these three components are critical to performance of radon control systems.

Further, the study has a low response rate: about 1,300 responses to about 40,000 questionnaires sent (3%). Together, these limitations create serious limitations to understanding the scope and impact of radon control in new homes on U.S. radon risk reduction.

Limited Effectiveness of New House Radon Control

One-eighth of new homes tested for radon had results above U.S. EPA's Threshold for Action.

The appendices of the report indicate 14.4% of new single family detached homes were tested for radon and 12.4% of those tested had results above the 4 piC/L U.S. EPA Threshold for Action. There were no quality assurance measures reported and thus, the failure rate may be more or less.

Serious Research Challenges

Most of the studies of the efficacy of radon control in new houses involved comparison of indoor radon concentrations with reduction systems functioning and nonfunctioning such as passive vent stacks being opened and capped. A few studies have tested new home radon systems with and without fans. Virtually all research has employed short-term radon measurements versus year-long measurements which lead to uncertainty about the representativeness of the tests. None of the research is capable of identifying the effectiveness of specific components or new home radon control such as the degree vapor retarders alone have an impact. The unresolved questions about only the vapor retarder issue leads to conflicting recommendations, for example in Finland, a soil gas retarder is used at the perimeter of the slab whereas in other countries a complete and ideally airtight retarder is recommended. Finally, there has been no peer-reviewed research on radon control in multifamily housing.

Passive Soil Depressurization (PSD) with Cap-On/Cap-Off

Twelve U.S. studies involving 224 houses with the systems nonfunctional (vent stack capped) and functional (vent stack open) have been published. The average radon reduction due to PSD was 55 percent but the range of reduction was from zero to, in one house, 75 percent. In some cases builder knew their homes would be tested and inspected by investigators and in some cases the systems were installed in jurisdictions with building codes.

Sixteen studies reported different combinations of defects in PSD systems including incomplete crawl space membranes, incomplete slab or sump sealing, vent pipes routed through unconditioned space, and vent pipes not discharge above the roof.

If active soil depressurization performance is better than passive, why are we not advocating the most protective control?

Three investigations assessed the performance of PSD installed in jurisdictions enforcing building codes. After investigating PSD performance in five houses in one municipality and finding only a 25 percent reduction in indoor radon concentrations, the investigators returned two years later and assessed performance at eight houses. They found performance had improved (49% radon reduction) but numerous defects remained.

Another study of PSD systems installed under building code requirements has been completed by the Minnesota Department of Health. The study involved 770 houses. While the Department has to complete its full report, a newspaper article on the study revealed that "roughly one in five homes" with passive systems had radon concentrations above the U.S. Threshold for Action compared to about 40 percent of all homes in the state . While the study did not involve cap-on/cap-off comparisons, the results indicate limitations with PSD even installed under a building code.

Sixteen studies reported one or more of 24 different construction defects that could reduce radon reduction. These findings are troubling.

Passive versus Active Soil Depressurization

Passive soil depressurization performance is seriously limited even when installed under building codes.

Only eight U.S. studies tested 46 houses with PSD and with the systems activated with fans (active soil depressurization or ASD). The weighted average radon concentration with PSD was 37 pCi/L and after the systems were activated, 5 pCi/L. The studies clearly indicate the superior performance of ASD over PSD for radon control in new homes.

According to the previously cited the Minnesota Department of Health study, the Star Tribune reported that the Department handed out about 50 fans to owners who had PSD systems that tested above 4 pCi/L and the average radon concentration after fan installation was 0.3 pCi/L.

Additional Observations

The only random national survey of radon concentration in new homes built with radon control features was completed in Finland in 2009. The lack of a national survey in the U.S. leads to uncertainty in efficacy of radon control strategies.

It is striking to observe that only two studies report radon concentrations in existing ground-contact units in multifamily buildings is similar to existing houses in the same area but there is no research illustrating what may be true in new housing. Furthermore, there is void in any research involving radon control strategies in new multifamily apartments and condominiums.

This lack of research retards the development of national standards for the prevention of elevated radon in a large segment of the housing stock.

Action Needed on Radon Control in New Housing

It is clear that overall radon risk reduction is dependent upon effective radon control in new residential buildings. Yet, it is equally apparent that research, program, and policy action in the U.S. and other countries are severely limited in the progress needed to reduce the premature loss of life due to lung cancer related to radon exposure in new houses and multifamily dwellings.

It is also important that we advocate for a national survey of radon concentrations in new occupied housing. The U.S. EPA's National Residential Radon Survey, Health Canada Cross-Canada Survey of Radon In Homes, and U.S. State Residential Radon Surveys focused on do not allow for to assess radon concentrations in new multifamily buildings.

It is time to act! We need research to understand the degree to which radon concentrations in new multifamily buildings compared to that in new single-family houses. This type of research provides part of the knowledge needed to produce national standards for radon control in new multifamily residential structures. When designing national standards it is also important to consider how radon prevention strategies may or may not apply to chemical vapors from soil and water contamination.

While not perfect, we need to advocate for tribal, state and local building code adoption of effective radon control techniques. We must also advocate that federal and state housing finance require radon testing as a condition of qualifying for mortgage finance.

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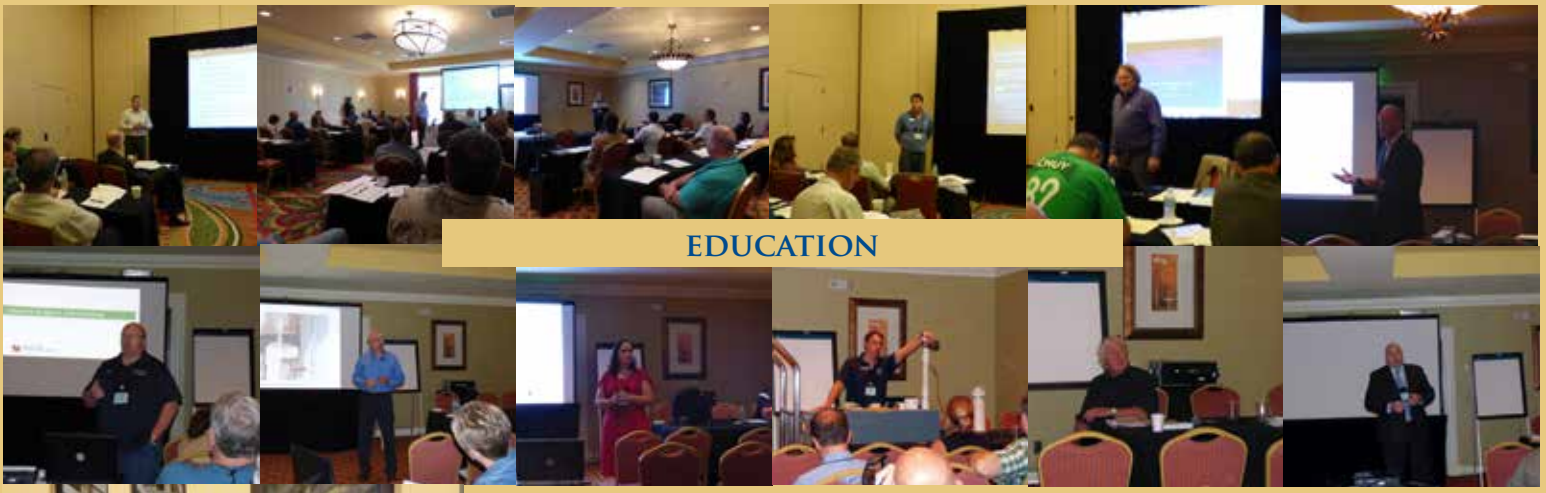
PRESENTATIONS

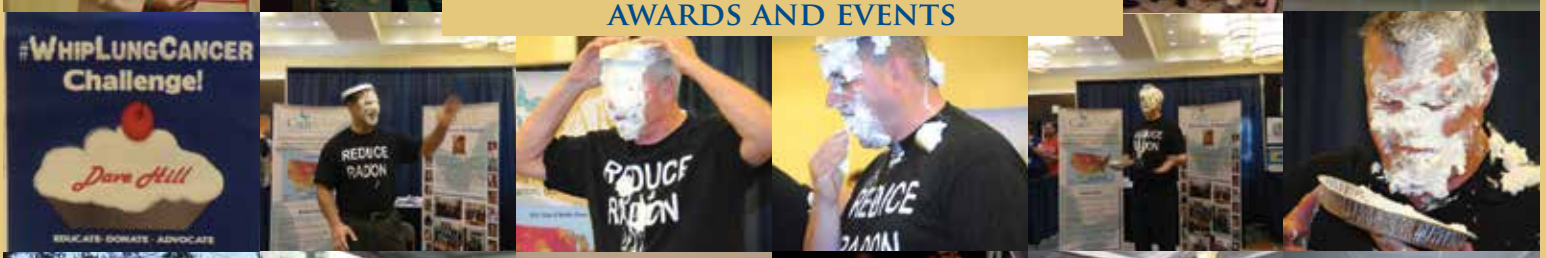
2014 INTERNATIONAL RADON SYMPOSIUM • CHARLESTON, SC

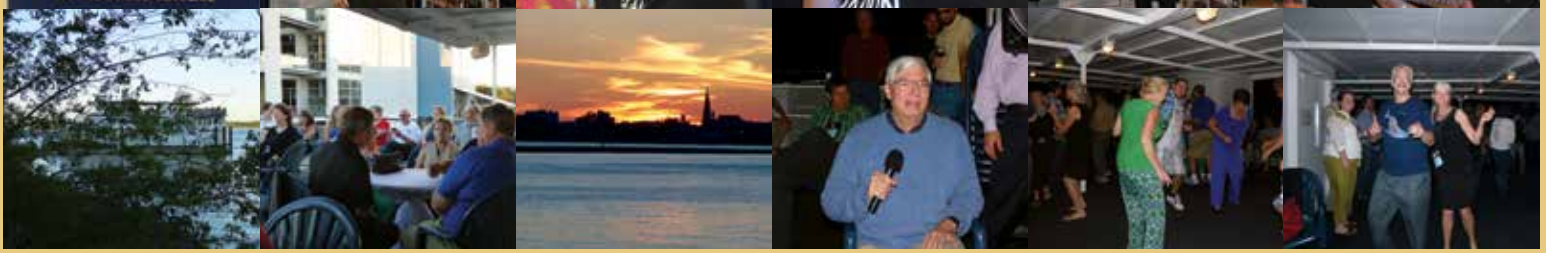


EDUCATION

270+ people attended the 2014 Symposium.
40 presenters from 10 countries shared their research and knowledge.
85 professionals attended 8 CE classes.
65 took 3 Advanced Certificate exams.
$500 was raised for CanSAR by the Heartland Chapter spouse event.
$3500 was donated to CanSAR through the #WHIPLUNGCANCER event.

AWARDS AND EVENTS





INCREASING QUALITY ASSURANCE FOR CERTIFIED PROFESSIONALS

Bruce Snead
Chair, Policy Advisory Board

The NRPP Policy Advisory Board has been working on several issues related to compliance and complaint processing over the last six months. At our September 28 meeting we reviewed an initial draft policy statement. One of the key issues that is likely to be implemented in 2015 is required submission of Quality Assurance Plans for new and renewal entry level measurement and mitigation certification, and also for the new advanced certifications in multi-family measurement and mitigation. Staff is working on guidance documents for mitigation QA plans which will help our members address both entry level and advanced certifications.

AARST members can access extensive measurement QA guidance documents in the AARST Toolkit, and additional information is likely available from your equipment providers. QA submissions will be filed with your NRPP records for program reference if the need arises.Submittal of these QA plans will help with compliance issues if they arise, improve your procedures, and help you achieve the key quality objectives for professional radon services.

Stay tuned for more information on these program improvements and requirements in early 2015.

NEW AMERICAN NATIONAL STANDARDS

Gary Hodgden
Chair, AARST Standards Consortium

Those of us from the field are exceedingly aware of how standards affect our lives. They simultaneously provide defensible justification for our actions and potential penalties when we ignore them. They represent a significant portion of certification exams. Most practitioners exceed the minimum standards while some skirt the fringes of bare minimum compliance. So yes! Details embodied in standards directly affect our daily actions and our survival in a competitive world.

Standards also effect the lives of everyone we touch: citizens we protect; consumers trying to gauge a fair price; health and service professionals evaluating and recommending services; and sales or business associates that we so often annoy when a requested shortcut violates the standards. Radon standards are the stop signs, speed limits and yield signs for the actions we take as practitioners. Where do we post our stop signs? Well .... A tremendous effort that has included more than a hundred people has occurred this last decade to update and enhance radon standards.

The result is a list of American National Standards that will become active during 2015:

MAMF 2012	(Multifamily measurement)
RMS-MF	(Multifamily mitigation)
MALB	(School and large building measurement)
RMS-LB	(School and large building mitigation)
MAH	(Home Measurement)
CCAH 2013	(Model construction codes for homes or RRNC 2.0)
N42.51	(Device performance protocols. The first in a series of work to update measurement quality requirements)

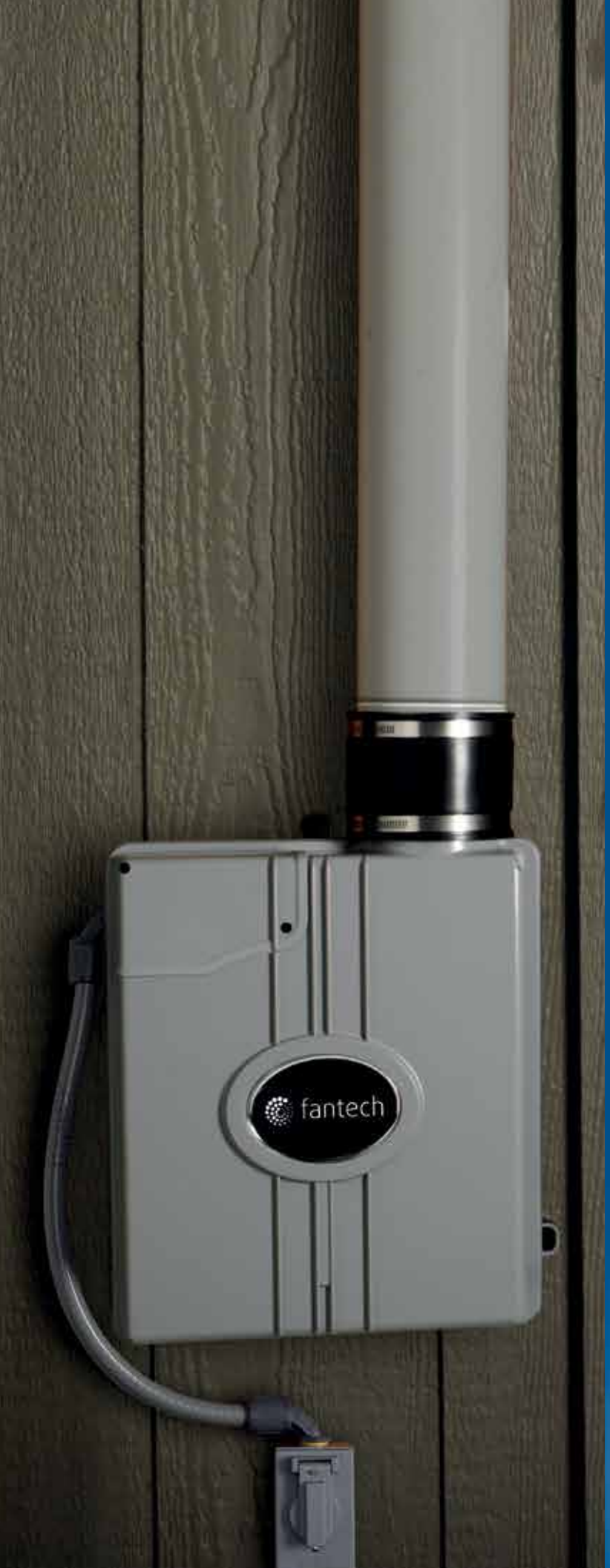
Work to maintain and improve these documents will go on and the list is not fully complete. But on behalf of the scores of hard working participants, we are proud to have crossed a multitude of important milestones.

The AARST Consortium on National Radon Standards (AARST/ANSI) is accredited by the American National Standards Institute.

REMEMBERING JACK HUGHES

Jack Hughes passed away on Thanksgiving morning. Jack worked many years as a mitigator in Kansas, and in the southern region after his move to Georgia. He became a lead trainer for MURC and the Southern Regional Radon Training Center, and made major contributions to quality, diagnostic driven, mitigation training. His advanced diagnostics courses, and fan sizing apparatus and forms represent some of the best mitigation practices ever developed. He served on both NRSB and NRPP policy boards, participated on AARST standards development committees, and was one of the lead investigators on the pioneering moisture research study conducted in Pennsylvania. He was an exemplary member of our radon community, who brought insight, intelligence and integrity to the effort to fight lung cancer. This loss, coupled with the passing of Jack Bartholomew in July, has left a huge hole in radon training capacity. They are, and will be, greatly missed.

Bruce Snead (left), who wrote this memoriam, enjoyed the music with Jack Hughes during the St. Louis Symposium Night Out.



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AARST MEMBERSHIP BENEFITS & LEVELS FOR 2015

Starting in 2015 AARST is offering even more Membership Benefits. Members of the Association already enjoy a variety of discounts, networking opportunities, membership support in the form of regional chapters, and legislative support, as well as a variety of Symposium and AARST Bookstore discounts. AARST has added special discounts with Angie's List and Staples. Now we are seeking to provide member discount coupons for products and services offered by member companies and those in related industries. We also are working on obtaining discounts for Standards sold in the AARST Bookstore.

AARST stands for you - the radon professional. By choosing to join the Association and receive your credentials through NRPP, you demonstrate your support of the oldest, most widely recognized radon professional association and credentialing agency. As you work every day to maintain your credentials and elevate your professional profiles, we hope you enjoy our support services. We work on these every day, too! The AARST-NRPP team plus legions of volunteers make things happen for the radon industry; they collaborate to make AARST-NRPP the leading association and credentialing agency for radon professionals.

As an ASSOCIATE Member (inc. Student, and Complimentary State members) *You receive these benefits:*	As an INDIVIDUAL Member *You receive these benefits:*	***Coming in 2015 for all*** INDIVIDUAL Members:
Professional Networking & Help Forums	Professional Networking & Help Forums	ONLINE Access to Standards **Subscribe*
A voice in Washington DC	A voice in Washington DC	ONLINE Access to Member Tool Kit
Volunteering Opportunities	Volunteering Opportunities	AARST Luggage Tag
◆Quarterly Issues of the Radon Reporter *1 Print & PDF*	◆Quarterly Issues of the Radon Reporter *Print & PDF*	Online CE courses - "Winterim Tools" Mini-Symposium
◆Radon Professional Database Web Listing **Basic*	◆Radon Professional Database Web Listing **Rankings and Links*	1 FREE Printed AARST Standard
◆Symposium Discount	◆Symposium Discount	
◆AARST Loyalty Pin	◆AARST Loyalty Pin	
	◆Access to Member Tool Kit **Full*	
	◆Access to Standards Online **Complimentary*	
	The following are available at extra costs:	
	◆Discount on Printed Standards	
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	◆Marketing & Business Tools	
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