

# THE Radon Reporter



Winter 2016

*Your source for timely practical information  
you need to succeed in the radon profession*

**AARST Professionals: Moving Forward  
and Leaning Into the Future**

**Successes of Radon Awareness**

**Nightmare on Your Street?  
A Houses From Heck Story**

**Symposium 2016 Preview**

**Raising The Bar of your Profession  
The New Look of AARST-NRPP**



# NEW PRODUCTS

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## We've Come a Long Way

By Shawn G. Price, President

The radon community has come a long way in the last 30 years but we're not done yet.

When I got involved back in 1989 I met many researchers, scientists, business, and government leaders and figured that we would have the radon problem solved by now. Things sort of stalled out for a few years though and then the real estate community came along and business increased, as long as we worked on their terms. EPA funding dried up, research disappeared, and we found a comfortable groove of fixing a few houses here and there without much of a long term vision.

Then, with the support of a few AARST leaders, a small group of non-smoking lung cancer patients stepped forward to tell their stories of being diagnosed with lung cancer with the likely culprit being radon exposure in their homes. Their goal was to hold HUD, EPA, and Congress accountable and to do more to stop this terrible disease, but there was no clear path on how to accomplish this. I recall early conversations with Dallas Jones, Terry Howell, and Peter Hendrick indicating that the answer was to have a presence inside the Washington DC beltway; but how do we find a spokesperson and who would fund the effort?

Fast forward to today...We are in DC and are in the game!

AARST has had many successes: refocused state radon funding in the most recent Federal Budget, committee leadership in the National Radon Action Plan, continued collaboration with HUD, EPA, and the Federal Housing Finance Agency (FHFA), ongoing partnerships with CDC, state radon programs, state lawmakers, state cancer control plans, builders, code officials, and real estate agents around the country. These efforts are designed to increase radon testing and mitigation, eliminate elevated radon in new buildings, utilize ANSI-AARST standards, and to hire state licensed and NRPP-certified professionals to perform the work.

A few people, with a small budget, relying heavily on volunteers, have gotten us into the game after all these years!

Now that we are in DC, the hard work begins to take the policy concepts and make them a reality. Look at all of the gray hair and gray beards at the radon meetings. How long will it be until many of my old friends have retired? Who is going to step up and continue to move us forward? Will it be you?

We need you more than ever. We need you to bring your



*"We've opened doors and are working on new opportunities because we are sitting at the table."*

colleagues with you to the table. Standards need to be updated. New laws are needed around the country, such as the Radon Awareness Acts of Minnesota and Illinois. I realize that some of you are too busy to volunteer a lot of your time, but you can join a Chapter or help to form a new one if there isn't one in your area. Chapters can carry our messages locally and get meetings with elected officials that our National office cannot.

Continue your membership and get other professionals in your area to join. Enroll someone else in your company to be an AARST member. Changing policies isn't a one or two year effort, it is ongoing. Donate to the ARPC fund to keep our lobbyist at work. We need your energy, dedication, and commitment in order to get this important work done.

As I enter my last few months as AARST President, I look back with great pride of where we've come. We're just getting started. Please get involved and let's kick lung cancer's butt together! ■

# In This Issue:

## AARST Professionals: Moving Forward and Leaning Into the Future

Learn about the strides AARST is taking to enhance your professional profile, elevate the radon professional and industry. From icons and graphics in the new website Database Searches to certificates in specialty fields, AARST-NRPP is leaning into the future making our association the leading professional radon association and credentialing agency. Our professionals are ready for a future of industry growth and are the leaders in their communities.



## Successes of Radon Awareness

Read how certain states arrived at substantial and tangible increased home mitigations by passing Radon Awareness laws. Make this work in your state, connect with AARST Policy Director, Jane Malone. Page 12

## Nightmare on Your Street? A Houses From Heck Story

Learn from AARST Board Member David Daniels as he shares stories from the field, sharing tips from years in the industry, when dealing with especially troublesome mitigations. Page 16

## Symposium 2016 Preview

Preview the plans for this year's Symposium, September 18-21, 2016. Surf's Up! So begin planning your trip to beautiful San Diego California. Page 20

## Raising The Bar of Your Profession The New Look of AARST-NRPP

This issue is filled with tips and screen shots on accessing the new AARST-NRPP website, exploring AARST-NRPP Members' most exciting benefit, the AARST Toolkit. An easy and accessible portal tool for members to download dozens of curated documents, templates, webinars, and risk communication tools for the radon professional. Explore your Toolkit today! Page 22

## Stakeholders & Chapters Meetings

Quick reference for your upcoming regional Radon Stakeholder and Chapter Meetings. Visit the New AARST-NRPP website Event Calendar to get more meeting information. Page 11

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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-NRPP 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.

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## AARST Professionals: Moving Forward and Leaning Into the Future

-By Jan K. Orr, AARST-NRPP Member Services

For the first time in its history, the radon profession is beginning to experience real, sustainable growth along with substantial radon risk reduction. AARST is right there, moving forward and leaning in to create a higher level of professionalism and raise recognition for all professional members.

For the last decade, we've been raising the bar and expanding our boundaries by creating new American National Standards, new compliance procedures and additional professional resources.

2016 saw AARST-NRPP hit the ground running with the introduction of new logos and designations for AARST, NRPP and AARST-NRPP. Information on the new designations and downloadable logos are available for members on the new, redesigned website ([www.AARST-NRPP.com](http://www.AARST-NRPP.com)). Along with the new look and feel of the website, comes new member benefits, valuable tools and resources that support you in your job and timely information to keep you current in your field.

2016 also kicks off the year of AARST leaning in to create policy initiatives for building codes, radon awareness and testing policies for the secondary mortgage markets, who are the movers and shakers of the housing marketplace. What did Jerry McGuire say? "Show me the money!" and risk management for mortgages is the risk solution, or "money" for radon.

### AARST Wants You to Be the Best – and For the World to Know It!

Our focus is on our professionals being the best, recruiting the best and doing the best in the growing field of home safety as it relates to radioactive (radon) risk reduction.

So, where do we begin?

### AARST's Message and Standards of Excellence

As the association has grown, so has the value of membership and the opportunities to sharpen your skills, increase your knowledge and strengthen your professional profile. Here are just a few:

- **AARST-NRPP's New Logo** – Radon Professionals Saving Lives for all AARST and NRPP professionals.
- **The New NRPP Logo** – Our bold, merged design, indicates a commitment to AARST's American National Standards that are creating new markets and promoting trained, certified radon professionals to the American public.
- **www.AARST-NRPP.com** – Online access to valuable resources such as free Tool Kits for AARST Members. This exclusive member benefit is loaded with hundreds of dollars of QA/QC products, papers, resources, sample contracts, webinars, podcasts and flipbooks of online standards.
- **Free Associate AARST Membership for NRPP-Certified Professionals** – AARST membership has never been mandatory for certified professionals and, while we plan on adhering to that policy, we don't want our certified professionals to miss out on valuable member benefits. Therefore, In order to give these professionals a taste of AARST and the tools available to them, we have created a free Associate membership category for NRPP-certified professionals who aren't currently AARST members. That means free basic tools for QA/QC in a special members-only section of the website. To access the full array of tools and resources, Associate members may upgrade to a full Professional membership at any time.
- **Advanced Certificates for NRPP-Certified Professionals** – Advanced Certificate holders have earned recognition and respect for taking our profession to the next level. The AARST-NRPP website clearly depicts the achievement

**AARST-NRPP** Radon Professionals Saving Lives

Home Membership Certification Symposium Standards & Policy Store

About Membership ▾ Certification ▾ Events and Resources ▾ International Radon Symposium™ ▾ Standards & Policy ▾ Bookstore ▾

**New Year, New Look!**  
Page 22 for instructions on how to access your Member Free Toolkit!

with icons and certificates that match the life of the primary certification in a format that is easily accessible by consumers. Would you like your name added to this distinguished list? Take the course, complete the practicum workbook assigned by the instructor, register with NRPP, and the certificate is attached to your primary certification for the life of the certification.

- **AARST's New ARP Designation** – Be recognized as a leader in your field by earning the ARP (AARST Radon Professional) designation. Prospective applicants must meet the following criteria: be NRPP-certified and an AARST member with at least one advanced certificate and two years of certified experience and involvement with AARST or NRPP committees, chapters, stakeholder meetings or symposiums. The ARP is a professional designation that sets you apart as a leader in the radon industry. It means you lead, you lean in, you move the industry forward and we want the world to know you are a leader. There is a one-time registration fee of \$25 and a continued commitment to stay involved in AARST-NRPP.

## A Commitment to Quality and Excellence

All AARST-NRPP members are in the process of stepping up, leaning in and moving forward. Beginning this year, all NRPP newly certified professionals – both measurement and mitigation – will be required to have Quality Assurance/Quality Control Plans (QA/QC) and by mid-2017, all professionals will be required to have these plans on file and will be subject to random audits to ensure compliance.

As always, AARST-NRPP will support you with this new requirement by hosting NRPP-approved QA/QC courses in classroom and online formats. In addition, your AARST-NRPP membership provides access to QA/QC plans and templates on which to model your plan.

Quality Assurance and Quality Control protect the customer, as well as the professional's reputation as a radioactive gas reduction specialist. In addition, QA/QC plans serve as a financial liability safeguard. The Member Tool kit and templates are Ground Zero in protecting you, the AARST-NRPP professional.

## Distinguish Yourself from the Crowd: Earn an Advanced Certificate

AARST-NRPP Advanced Certificates are specialty certificates tied to a primary certification and are replacing the Advanced Certifications which started in 2014. Earning an Advanced

Certificate indicates additional proficiency and education in one or more of three specialized areas: radon resistant new construction, multifamily testing and/or multifamily mitigation. Holders of the advanced certificates are awarded a badge (see below), which identifies this specialized knowledge to consumers and others.



**Multifamily Mitigation** – Eligibility is restricted to AARST-NRPP certified professionals who have attended and passed an approved Multifamily Mitigation course and practicum session. This certificate is in addition to the professional's primary certification and covers specialized standards and procedures for mitigation on an entire multi-family building based on the AARST-ANSI Standard.



**Multifamily Measurement** – Those eligible are AARST-NRPP certified professionals who have attended and passed an approved Multi-family Measurement course and practicum session. This certificate is in addition to the professional's primary certification and covers specialized standards and protocols for properly testing multifamily buildings based on the AARST-ANSI Protocol for Measurement in Multifamily Buildings.



**Radon Resistant New Construction** – Available to AARST-NRPP certified professionals who have attended and passed an approved Radon Resistant New Construction course and practicum session. This certificate will be in addition to the professional's primary certification and covers specialized standards for site preparation and construction of a new building with radon resistant features based on the AARST-ANSI Standards.

*I passed the test but never applied for a Advance Certification, am I eligible for an Advanced Certificate?*

*Yes, if you are NRPP-certified*

## Steps to Earning an Advanced Certificate

1. Possess and maintain a valid primary NRPP certification (Measurement or Mitigation).
2. Successfully complete an approved NRPP Advanced Certificate Course.
3. Complete the required NRPP workbook assigned by the approved course trainer.
4. Collect the Certificate, issued by the trainer.
5. Mail a copy of the Certificate to AARST-NRPP with the registration form.

Professionals who hold any primary certification, are eligible to pursue Advanced Certificate coursework and submit a copy of the course completion certificate to AARST-NRPP with a registration form. Once processed, the AARST-NRPP Advanced Certificate will appear in the Professional Search database on the website, as an icon next to the certified professional's name.

*Do I have to join AARST?*

*No,  
your NRPP certification is  
all you need!*

*And,  
you get more Free  
Tools if you do!*

## What Are the Benefits of Advanced Certificates?

- The certificate demonstrates recognition of advanced skills and knowledge of the certificate holder as qualified to conduct, design, oversee and implement radon testing or mitigation services in accordance with AARST-NRPP approved protocols on advanced topics.
- You will stand out to consumers when they perform a web search on the AARST-NRPP website. Your web profile will highlight your NRPP Advanced Certificate(s) and consumers will notice.

- It's seamless and easy – there are no extra certification fees and no additional CE tracking.
- They are designed to keep you focused on building relationships with your potential customers.
- Only Advanced Certificate holders may apply for AARST's ARP professional designation.

*“AARST is right there, moving forward and leaning in to create a higher level of professionalism and raise recognition for all professional members.”*

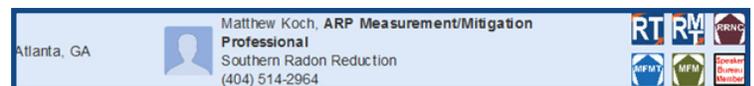
## What's the Difference Between Advanced Certifications and a Certificate Program?

The key difference between a Certificate Program and a Certification Program is the issue of renewal policy. Once you have your advanced certificate(s) in place, and as long as you maintain your base NRPP certification, it is valid until such time in the future that advancements in technology or standards warrant changes in minimum requirements for achieving the certificate. It is simpler for you (and us) to maintain as long as you maintain your regular certification.

AARST Membership is NOT required. Your Certificate is tied to your primary NRPP Certification(s).

## Moving Forward with the AARST ARP Professional Designation

You've been doing everything right. You're positioned at the top of your field. You are a leader among professionals. You are a professional level AARST Member, you're NRPP-certified with two years of experience and at least one, advanced certificate and you're involved in your professional community. You deserve recognition and the ARP Professional badge is for you.



## What is the ARP (AARST Radon Professional) Designation?

This new designation represents the gold standard of knowledge, skill and expertise in the radon arena. To qualify, you must hold a Professional level AARST Membership, have completed at least one cycle (two years) of NRPP certification,

currently hold an Advanced Certificate and be involved and maintain your involvement with AARST-NRPP professional activities such as committee work, the Symposium, chapter participation or stakeholder meetings. Or, you may elect to complete approved business courses every two years as an alternative to professional involvement. To apply, simply complete an application and pay a nominal, one-time registration fee.

## AARST-NRPP – Radon Professionals Saving Lives

The AARST Board came up with the first version of that motto in 2002, when they committed to moving ahead with applying for accreditation as an ANSI accredited standards developer. AARST being and ANSI accredited standards developer is now a fact. Everything you do, everything AARST does, leads America to a safer tomorrow because your work on indoor air quality today. AARST members, NRPP certified professionals lead the way, are catching the wave, in protecting American families from radon induced cancers. Congratulations for being members of the most professional radon association in the world! ■

## JUNE is Men's Health Month!

by, Calvin Murphy, AARST Foundation

Anchored by a Congressional health education program, Men's Health Month is celebrated across the country in June with screenings, health fairs, media appearances, and other health education and outreach activities. AARST and AARST Foundation will be co-hosting a social media campaign encouraging men to take the lead in testing their homes for elevated radon levels and emphasizing the importance of taking action to reduce elevated radon levels when found. The joint Facebook, LinkedIn, and Twitter campaign will explain that radon is the leading cause of lung cancer among non-smokers and will advise that reducing elevated radon levels decreases risk of lung cancer for everyone living in the house. We will encourage the Man of the House to step up to the plate and not only reduce his lung cancer risk but to also reduce the risk of his entire family. Please be on the lookout for and share this information with all your Social Media contacts. ■



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**Icon Key**  
(Click Icon/Symbol for more info)

- Certified Residential Measurement
- Certified Residential Mitigation
- Certified Analysis Laboratory
- Radon Resistant New Construction Certificate
- Multifamily Measurement Certificate
- Multifamily Mitigation Certificate

## The New Look:

How a website search will look with the icon graphics at work defining the qualifications of our professionals.

Visit the website and hover over any icon for a definition of the icons and symbols used in the search populations.

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Atlanta, GA		Rick Cobb, Castle Inspector (404) 483-2622	
Atlanta, GA		Jeff L. Howell, Radalink, Inc. (800) 295-4655	
Atlanta, GA		Robert McDonough, National Property Inspections (770) 656-2209	
Atlanta, GA		Matthew Koch, ARP Measurement/Mitigation Professional Southern Radon Reduction (404) 514-2964	

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## Stakeholder and Chapter Meetings

For more information about Regional Stakeholder and Chapter Meetings please visit [www.aarst-nrpp.com/wp/events/](http://www.aarst-nrpp.com/wp/events/)

### Region 3 Stakeholders' Meeting

April 4 & 5  
604 Station Rd, Grantville PA  
April 4th, CE Opportunity & April 5th Stakeholders' Meeting

### PA Chapter of AARST Meeting

April 5  
Grantville, PA  
PA Chapter will have a business meeting during lunch of the Stakeholder's Meeting.

### Region 4 Stakeholders' Meeting

May 3  
Murfreesburg, TN

### Region 5 Stakeholder's Meeting

April 19-21  
Cincinnati, OH  
Stakeholder's Meeting, CE opportunity.

### OARP Chapter Gathering during Stakeholder Meeting

### Midwest AARST Chapter Meeting & 2016 Illinois Radon Stakeholders Conference

March 4  
Oakbrook, IL

### Region 6 Radon Stakeholders' Meeting

March 29  
Santa Fe NM

### Region 7 Stakeholders' Meeting Nebraska

March 8  
Nebraska City, Nebraska

### Pre-Stakeholder Meeting CE Training Lg Building Mitigation

March 7  
Nebraska City, Nebraska

### Heartland Chapter Meeting

March 7  
Nebraska City, Nebraska

### Region 8 Stakeholders' Meeting

April 7  
Salt Lake City UT

### Rocky Mountain Chapter Meeting

April 7  
Salt Lake City UT

### Region 9 Stakeholders' Meeting

May 24  
Reno NV ■

## REALTORS® Lending Leadership To The Fight Against Radon

National Capital Area (DC-VA-MD) real estate leaders joined with Montgomery County (Maryland) Council in issuing its proclamation recognizing January as National Radon Action Month and urging residents to test their homes for radon. At the ceremonies in Rockville January 19 were, from left to right: Ed Krauze of the Greater Capital Area Association of Realtors (GCAAR); Lisa Felt of the Department of Environmental Protection (DEP); William Highsmith, Peg Mancuso and Mike Moran of GCAAR; Foroud Arsanjani of DEP; Councilmember Craig Rice; and Kevin Stewart of the American Lung Association. The County requires testing of homes for radon prior to sales.



At the ceremonies in Rockville were, from left to right: Ed Krauze of the Greater Capital Area Association of Realtors (GCAAR); Lisa Felt of the Montgomery County Department of Environmental Protection (DEP); William Highsmith, Peg Mancuso and Mike Moran of GCAAR; Foroud Arsanjani of DEP's Energy and Air Quality Advisory Committee; Councilmember Craig Rice; and Kevin Stewart of the American Lung Association.

Their presence in a National Radon Action Month ceremony is yet another example of how real estate professionals are stepping forward in the public square to address radon in homes.

AARST will once again recognize members of the real estate community with the AARST Real Estate Healthy Home Leadership Award at the Symposium this year. To submit your nomination contact Peter Hendrick, AARST-NRPP Executive Director, [Director@aarst.org](mailto:Director@aarst.org) or Nicole Chazaud Communications Director, [Nicole@aarst.org](mailto:Nicole@aarst.org) ■

## Radon Awareness in Real Estate Transactions:

### Proven Policies for Reducing Radon Exposure Risk

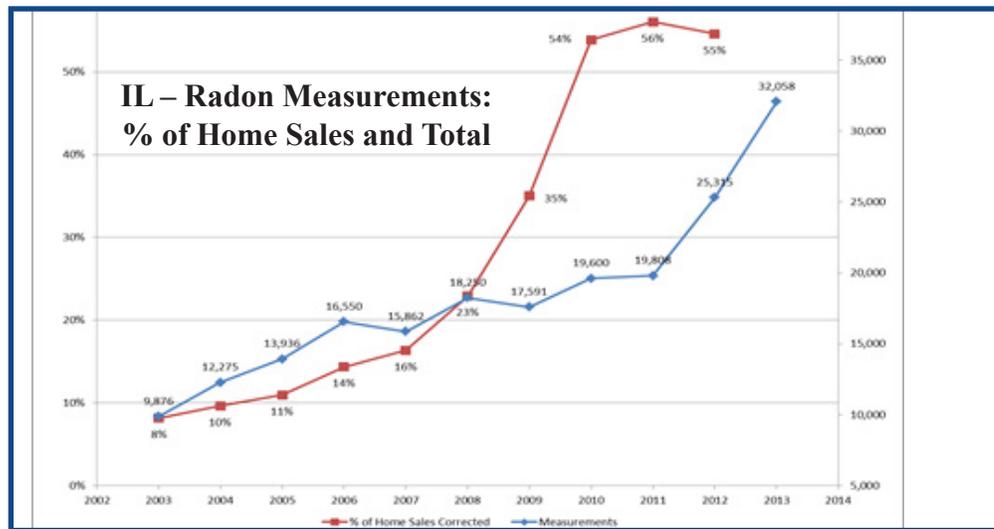
by Jane Malone, AARST Policy Director

Radon awareness laws require that homebuyers be informed of the risks of radon and the possibility that radon is present in the residence that they are considering buying. The standard warning statement, which must be included in sales contracts, also advises buyers to (1) have the home tested for radon and (2) if elevated radon levels are found, have the radon mitigated.

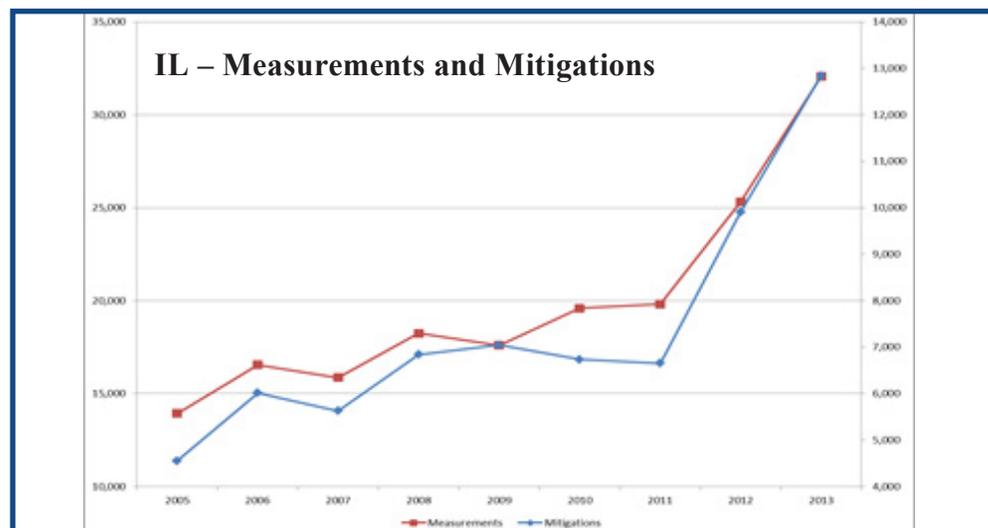
Awareness laws empower buyers of all homes with a basic level of self-protective information, unlike disclosure requirements that offer only specific radon test results only to buyers of homes where such testing has occurred. Disclosure laws work hand-in-hand with awareness: as buyers are notified of general risk, the policy should ensure that they are also notified of any known risk specific to the home that they wish to purchase.

#### ILLINOIS

The state of Illinois enacted the Illinois Awareness Law as a follow-up to debate about a testing requirement. There were concerns about the capacity of the existing workforce to respond to heightened demand for testing. Fear that testing would slow down real estate transactions caused AARST, CANSAR, and ALA advocates to consider an awareness policy that was acceptable to the Illinois Association of Realtors. The policy (ICS Ch. 420, §§ 46/1--25) took effect January 2008.



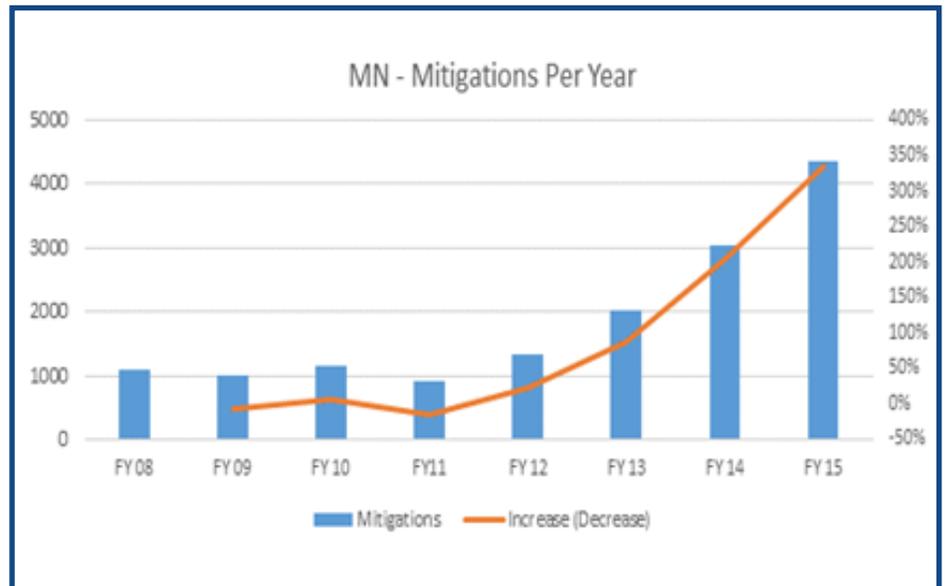
The Illinois Awareness Law has proven effective in informing buyers and prompting self-protective action. Within two years after the law took effect, more than half of buyers of homes subject to the requirement were having their homes tested.



The increased testing inspired by the law and increased public concern has led to the discovery and mitigation of elevated levels in more than a third of the homes tested. In the law's first five years alone, elevated radon levels were reduced in more than 50,000 homes.

## MINNESOTA

In 2013, within the context of broader health policy initiatives, Minnesota's executive branch proposed an awareness policy quite similar to the Illinois law. Ultimately, the real estate community embraced its proposal for radon awareness, and radon awareness was enacted by the legislature (MN Statutes 144.496), taking effect January 2014. Pre-2013 State-led outreach efforts combined with the public debate about the law helped to jumpstart both radon testing and mitigation activities in MN. By 2015, the annual rate of radon mitigations had increased more than 300% above the annual level prior to 2012. ■



### Radon Warning Statement - Minnesota Law

The Minnesota Department of Health strongly recommends that ALL homebuyers have an indoor radon test performed prior to purchase or taking occupancy, and recommends having the radon levels mitigated if elevated radon concentrations are found. Elevated radon concentrations can easily be reduced by a qualified, certified, or licensed, if applicable, radon mitigator.

Every buyer of any interest in residential real property is notified that the property may present exposure to dangerous levels of indoor radon gas that may place the occupants at risk of developing radon-induced lung cancer. Radon, a Class A human carcinogen, is the leading cause of lung cancer in nonsmokers and the second leading cause overall. The seller of any interest in residential real property is required to provide the buyer with any information on radon test results of the dwelling.



## Call For Papers

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## How a New Logo is Designed

Don't be fooled, even suggesting the redesign of a brand is reason for fist fights!

The goal was to combine the AARST and NRPP logos into one visual statement. Members' business focus has shifted over the years, the majority of our membership are technical professionals. We are also still considered the highly respected place for developing science, technology and research, to publish most topical radon peer-reviewed subjects. These are the main elements which identify our professionals.

The AARST Board appointed a logo development committee to identify such elements. The task at hand was branding a fresh look. To "say" even more than the two combined logos said originally. The committee consisted of 3 AARST board members (working professionals and radon advocate), and a staff member to facilitate and communicate suggestions to a professional graphic designer.

Important elements identified were; honor the historical oval reference of both old logos; use the AARST blue of both; communicate "we are radon professionals", by using the slogan "Radon Professionals Saving Lives"; incorporate the radiation symbol; and finally, communicate AARST-NRPP is leading the way, moving forward. And, yes, this can be done using graphics. The swoop suggests our oval, and then opens, pointing to an upward direction. With grace and movement the swoop says "AARST-NRPP is moving forward, leading the way. The acronyms of both were used in a fresher, but similar style, of the old AARST font, and finally adding the slogan as part of the logo, completed the visual message.

The logo also needs flexibility, to be "deconstructed" when needed. It needs multiple uses within the association; horizontal for the website banner, and as we see it here in formal shape, for use on documents and other association watermarks, and ultimately members use. More versions of logos and ideas for use are still under development and will be added to members Toolkits when available.

The Logo Committee took its recommendation to the Board at a December's meeting. The AARST Board consists of 24 board members, 22 were present. The board voted unanimously to approve the newly designed logo. ■



### AARST Bookstore News

Premiered at this year's Symposium, AARST is excited to introduce our new line of AARST branded apparel and business products through Gem Marketing.

Visit the AARST Bookstore at <https://aarst-nrpp.com/wp/store/> to order your staff jackets and sweatshirts (and much more) today.

## Nightmare on Your Street? A Houses From Heck Story

by David Daniels, Radon Specialists of WI Inc

Illustrations by Nicole Chazaud

Anyone who has been in the radon mitigation business for any length of time has, at one time or another, dealt with a house where the radon system did not work. Or, the system worked, but the radon levels did not get to the desired levels. If you have been in business for as long as I have, then you have had multiple homes where this happened.

### The Keys to Solving Radon Problems

After getting a few hundred systems under my belt I came to the simple conclusion that solving radon problems in most cases came down to a few simple things we all learned in class. First, discovering what was under the basement slab. In my area of Wisconsin it is typical for the majority of homes from the 70's on are built on gravel, some sand, but earlier homes mostly have clay and most homes are on basements.

Second, you need airflow under the slab from footing to footing. This is easy when you have gravel under the slab, right? Getting good airflow is also possible when there is a drain tile system. Getting good airflow with sand is a little harder. And then there is clay. Ah, good old sloppy, wet and sometimes the opposite, hard-as-brick clay. I still have nightmares from the first time I cored through a slab and found clay. It was the hard-as-brick type. Did I walk away from this job as some in my area have in the past? No, I tightened my boot laces and got to work, got the system in and started the post-test with a radon monitor. Then I made about 10 more trips to the house.

What about crawlspaces? I have dealt with those also. Some crawlspaces are paved, which is great.

Some have gravel. Some have sand and some clay. Some have plastic floating over them and some are open, with nothing separating them from the air in the home. Crawlspaces can be a challenge also.



### When the House Doesn't Pass the Post-Test

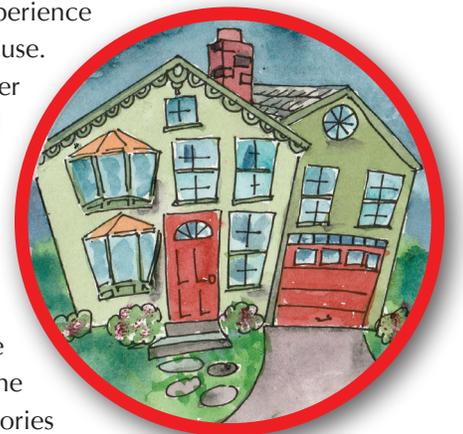
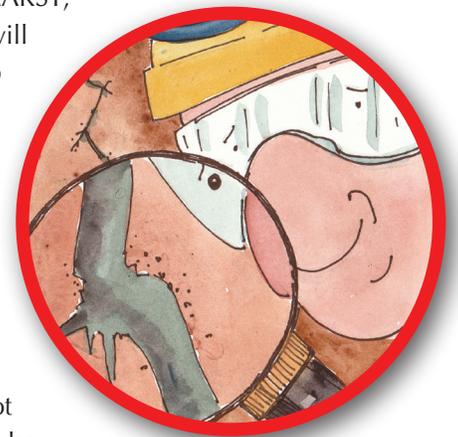
We all have our horror stories about homes that don't pass post-tests right away. Naturally, the home owner is upset when they see the first post results. Before they lose all the confidence they had in you, you simply state "no worries, I will figure this out, happens sometimes." After a few more trips to the home with the same result you start to second guess yourself. Don't! You are a trained professional. We have all had situations where we have had to make an SOS call to another radon guy to ask for help. That's one of the great things you'll find out about being a member of AARST;

most other members will help. All you have to do is ask. I believe that all homes can be fixed, when it comes to radon. It's just a matter of going through all the detective work to find out why the levels are not where they should be.

Sometimes the obvious is the quick fix. Sometimes you're going to lose sleep over it. But, you will find a fix.

Back to my first experience with a nightmare house.

The home was over 100 years old and being sold in a real estate transaction. No sump pit existed and no drain tile was present in the basement. The garage was detached and the home was two stories with a full basement and no crawlspace. Because of the detached garage and how all the closets lined up, this was going to be an outside system. The system was also going to have to go up past the second story roof line. A positive aspect of the home was the basement was only 800 square feet and in great shape. There was only one

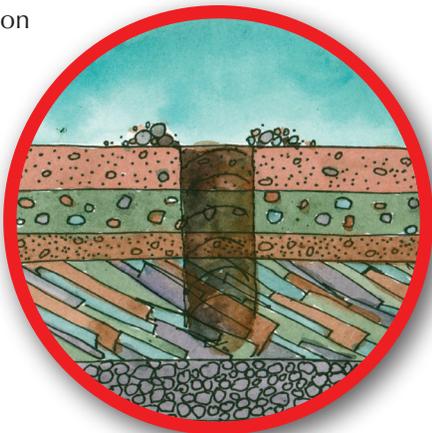


# Nuts and Bolts

real choice of where to locate the system. With an abundance of windows I was sensitive to our climate and the aesthetics of the system for the homeowner.

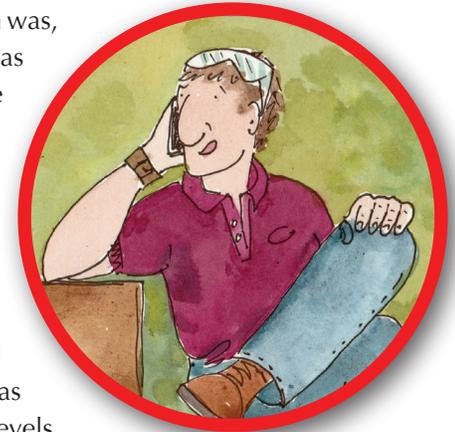
After finalizing the location of the system, it was time to start work. I like to core through the slab first. Due to the age of the home, I knew I was going to find clay. We always check where the plumbing drain stacks are and the water main. One thing you don't want to do is cut through those two items. Normally a slab is about four inches thick. My core bit is almost that deep. You can feel it give a little when you're just about through the slab. Once through, the core is pulled out. If the core falls back into the hole I just use the shop vac hose to help lift it out. Once I pulled out the core I just stared into the hole. What was I looking at? Was there another slab under the first slab? I reached down to feel the material. It felt like brick. The slab must have compressed the clay over time. I wasn't going to pull any air with what I was looking at, so went back to coring. Another four inches cored down into the material with the same result. Now I am getting concerned. Let's go down further. Hopefully, I will find something to work with. After coring a total of twelve inches, I found some looser material. It was still clay, and hard, but it could break it apart with a screw driver. I then proceeded to dig out the suction point as best I could. Now, here is where I can give some advice. Get a dirt auger! And a drill that can handle it, like a Milwaukee right angle drill or Hole Hog. Digging out a suction point with your fingers and a screwdriver is not the way to go.

Now that the coring and suction point was finished I proceeded to install 3" schedule 40 Cellular core PVC. I have always used 3" pipe. I have used 4" and 6" on larger commercial jobs but never on residential. Then the electric was installed along with a RP140 fan. Remember, I was mostly self-taught at this point and it was when I was still fairly new to the radon business. I did not have any diagnostic testing equipment either. This brings me to mention that if you are new to radon mitigation make sure you get educated on what type of fans to use on what types of sub-slab material you run into. Always be prepared for different scenarios.



And if you don't have diagnostic tools, I encourage you to invest in them. Smoke bottles, sticks or machines are a great help to see if you are getting any communication under the slab. Then, when you can afford it, get a micro-manometer to see what kind of air you are moving. A few years ago we purchased the RadonAway grab sampler/Micro Manometer. It is a great tool to help gain good information.

I don't remember what the resistance on the system was, but I am sure the fan was maxed-out because the first post-test came back with no change in levels. On this house I discovered the GP501 by calling the technical line at RadonAway and discussing what I was running into. The levels dropped a little after installing the 501 but still were elevated. Resistance was basically maxed-out. I then pulled the pipe and made the suction point larger. The third test came back even lower, but still above 4 pCi/L. I was starting to sweat a little as the closing date on the home was getting closer. Finally, I remembered about suction points near plumbing drain stacks. There was a drain stack about ten feet away from the system. I had nothing to lose so I started drilling by the drain stack.



I looked at where the other drain stack was in the basement, if there where was a floor drain (there wasn't one) and where the front of the house was. The drain would have to go towards the front of the home and towards the city sewer line. I drilled about a foot from the drain stack and to the side that looked like it would have nothing else connected to it. Again, I didn't

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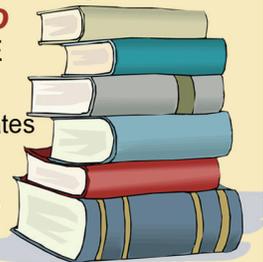
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# Nuts and Bolts

want to cut through a drain line . Once through the slab and material I proceeded to make the second suction point as large as possible. The piping was installed, pitching it up a little in the middle so I had good drainage in both directions between both suction points and installed a tee towards the top of the initial piping. Resistance was about 3 ¾", so not a lot of air movement, but some. Remember, this was some hard material under the slab. I was hoping for air gaps around the outside of the plumbing drains.

The next test came in at 2.5 pCi/L. Success! The realtor and home owners were happy. With no diagnostic tools to check communication, two suction points, and a large vacuum fan we achieved communication by incorporating the plumbing drain system. Going back to the training in class I had by Jack Hughes and checking the workbook with notes paid off. So, remember to always have your education materials with you. It will help.

## Good Communication Under the Slab

Remember when I said we would

"get back" to having gravel

under the slab? We

worked on a small

three bedroom home

built in the mid-

1990s , about 1200

square feet. There

was an attached

garage, confirmed

gravel under the slab

by open stubbed in

shower box. confirmed

as well as an interior and

exterior drain tile with sump

system. This was a slam dunk right? We proposed to route

through the garage and roof with a sub-slab system. The fan of

choice was the RP145. Everything went well with this install.

Resistance was ¾" on the U-tube. We left an Alpha Trac as

we do with most homeowner transactions when it's not a real

estate deal.

A few months later as I was checking my online test results I

noticed that the post- test came in at 0.6 pCi/L. Pretty good,

everyone is happy. This was in the late winter, early spring

time. A few months later the homeowner calls me to say they

ran another short-term test, just to double check their levels



and it came in around 7 pCi/L. My first thought was "did they turn off the system?" What did they do to screw up the test? I told them that the long-term test came in at 0.6 pCi/L and that the Alpha Trac is regarded to be more accurate than a short-term test. They agreed but said they were going to run another test. I made sure they did not touch the system and verified that it was still operating.

The homeowner called a few weeks later with the news that the second short-term test came back at 7 pCi/L again. I went over with a radon monitor and checked the system to see what was going on. Upon arrival the system was operating at the same resistance. They had not touched our system. [ I forgot to mention that before we installed the system, the homeowner had sealed his own sump pit. They had experienced water issues in the past and had a backup pump system. So, he just wanted to take care of that portion of the system. To be honest, he did a good job of it.] The test with my monitor came in the 7's also. This made no sense. The system was working, nothing had changed. Everything was sealed, so no air leaks. They hadn't blasted to put in the foundation so were not pulling air vertically down through a fissure in the earth. We don't have Karst soils in our area. It's time for me to break out the diagnostic testing equipment and we have communication at all four points in the basement. Now I am stumped. [ I remember hearing at a symposium about a system not working because of underground piping going to the electrical panel. Air was leaking from that in the panel on someone's install, and once sealed it fixed their issue. I'll check that. Nope, everything is as tight as can be.]

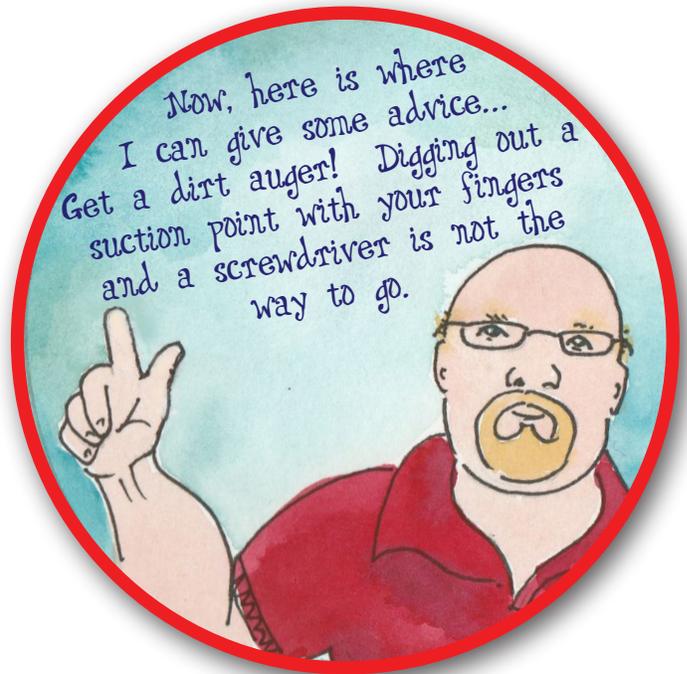
It was now July or August. I figured I'd bring a new set of eyes to this home so I brought my field manager out with me. The radon monitor is fluctuating between 6 and 8 on most days. Did I mention that the homeowners had allergies and almost never opened windows? So, the air conditioning had been on since late May. We were on our hands and knees checking everything. We re-drilled the ports for airflow testing. Good communication was shown at all points. We were shaking our heads in unison. How could the levels be 0.6 pCi/L on an Alpha Trac and now be at 7 pCi/L? "Just for the fun of it", I said, "let's pull off the sump pit lid to check air flow, see if we can find anything". It's the only thing we haven't checked because we did not seal the pit. The system is on the opposite side of the home and we are right on top of the interior drain tile. The homeowners were reluctant but let us proceed. When my manager pulled off that lid his hair was blown back. I have never

seen a rush of air come out of a sump pit like that before. The radon system was working; we had communication, no air leaks, and perfect conditions. But whatever was, (major stack effect?) forcing air up like that was pushing more radon into the home than our system could pull out. Possible seasonal changes from cold to hot, along with higher moisture in soil in the summer could produce this effect. The question was how can we compensate for this? The AC was set at 76 degrees so also, pretty typical. The AC system seemed balanced too. No returns or vents larger than normal. We decided that we just needed to move more air and suck out more than was being pushed in. We installed a 2nd suction point about 15 feet from the first one. This helped bring down levels to the fours but still not good enough. Ports still showed good air flow, but not much more. In fifteen years only a few have ever needed a third suction point and this was one of them. In this case we went to the pit, since this is where the drain tiles are meeting and all that air pressure came shooting out. This did the trick; levels were back down below 1 pCi/L and have stayed there since. The solution was not to have a bigger fan but to relieve the pressure that was being pushed up to the home once the outside temps went up. I actually think one suction point, the pit, would have worked from the start in this case. That was the hot spot when it came to positive pressure. But we don't like to use pits for suction points when possible and it was nowhere near the garage for the system the homeowner wanted for aesthetics. Diagnostic testing did not show us what the issue was on this house. Sometimes you have to look at things that might not have anything to do with what would normally affect the system from doing its job. In this case the pit was already sealed, so it was an afterthought to check the pit.

### When in Doubt, Ask

I will say that, in my experience, ninety percent of the time the main cause of systems not lowering radon down to desired levels immediately after an install is air leaks. My advice is to smoke test every nook and cranny you can on every single system. Sometimes it will be an air leak you can hear. Sometimes it's a 1/8th inch by 1" long gap under the stair case where the stringer meets the slab.

Don't ever be afraid or embarrassed to reach out to someone with more experience to solve a problem. We who have been at it for a long time have gone through tough installs many times. There is always a fix. ■



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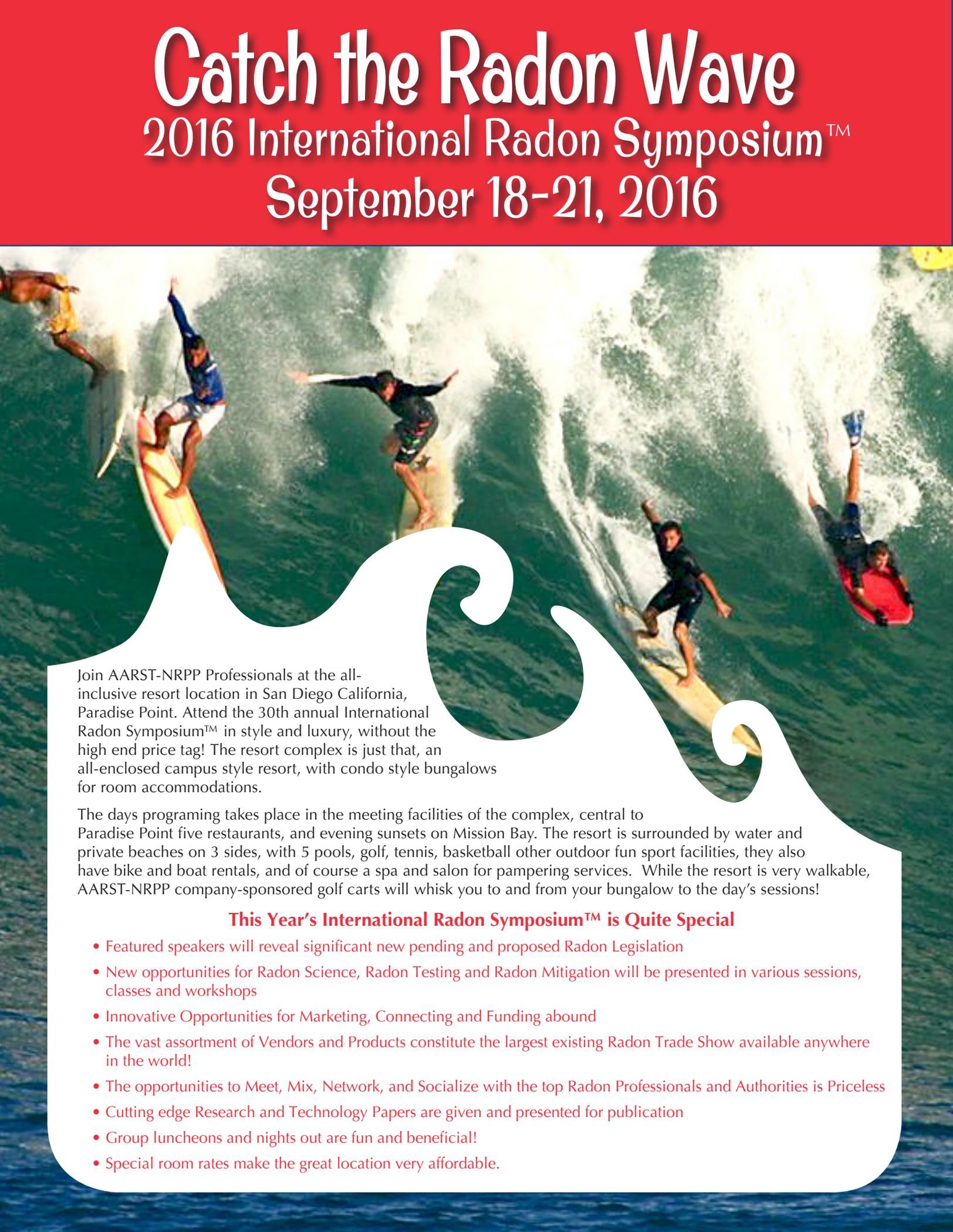
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*This year’s program is being designed for you by AARST-NRPP professionals to make the dual programming the best it can be. Tool-focused, this year, session will be arranged in themed time blocks. Repeating again this year, opportunity earn up to full 6 Category I CE credits for Monday’s Programming. In addition to Monday’s Category I CE, there is a full day of Pre-Symposium CE courses offered as well.*

*In a nutshell Certified professionals who need CE can earn up to 14 Category I CE Credit and 8 Category II if attending the entire Symposium.*

The Exhibit Hall gets better and better each year. This year the committee is hard at work developing all the social elements of the symposium to work in tandem with the exhibit hall, AARST-NRPP members and exhibitors are reaching out to their connections with suggestions to attend. This means a hall full of highly sought after vendors in attendance because you want them there!

This being San Diego, of course the beauty of the location will not be ignored, as special events are being planned to get you out of the resort and exploring on your own, much that San Diego has to offer.

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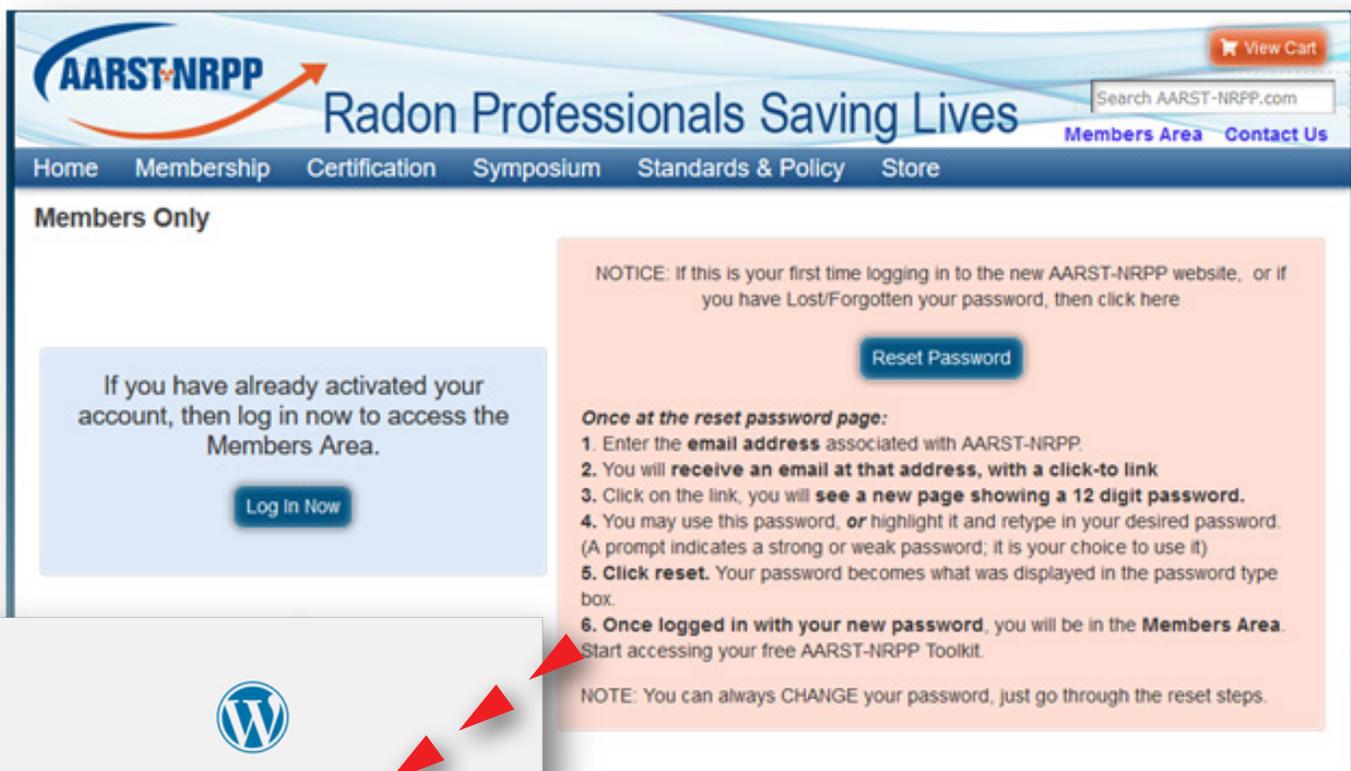
## A New Year and a New Look for AARST-NRPP!

### How to Access the TOOLKITS

All Members can Log In to the Members Area by clicking on the words “Members Area” and the right side of the website banner



Once at the Log In page:



If you have not yet activated your account, you will need to follow the instructions at the right side of that page.

If you have activated your account click the button on the left, and Log in Using your email associated with AARST-NRPP, and the password you created when you activated your account. AARST Members who had access to the old AARST.org website, your old information still works here. Can't remember your password? Just reset it by using the Reset Password button!

Once in the Bookstore you will see your name and your expiration date of your membership. The tool kit tells you if you are in the Professional or Associate version, based on your membership level. The left side of the Members Only page contains the Toolkit sections, in Zipped Files which you may download. Each zip file has a content bubble as you hover over it, so you can see what is in that particular file before you download the file. The ANSI-AARST standards in the Flipbook form are on the right side, and available to you 24/7.

Associates will see less content, but the basics for Best Practices will be there. ■

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### AARST Online Standards

The AARST standards are now available for retail sale via the ANSI web store and for licensing via ANSI's subscription platforms. Use the code [Code] to receive a **20% discount** for AARST Members

The following documents are available for online viewing. Printed copies are available at a discounted price for AARST members at the **AARSTbookstore** and the **ANSI Web Store**

- ANSI-AARST MALB-2014 Radon Measurement in Schools and Large Buildings**
- ANSI-AARST RMS-LB 2014 Radon Mitigation Standards for Schools and Large Buildings**
- ANSI-AARST RMS-MF 2014 Radon Mitigation Standards for Multifamily Buildings**
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