THE TOBER 2023



Mitigation Standards Comparison FHFA Multifamily Testing Update



OFFICERS

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VICE PRESIDENT: Dave Hill dhill@spruce.com

SECRETARY: Jan Fisher jfisher@certi.us

TREASURER: Dan Potter danpotter@dupageradon.com

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CHAPTER COUNCIL ELECTED DIRECTORS

Jim Emanuels / <u>peoriaradon@gmail.com</u> Shad M. Evans / <u>shad.evans@protectenvironmental.com</u>

STAFF

Symposium Manager and AARST Member Services Nicole Chazaud / symposium@aarst.org

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Finance Director Andika Susanti / <u>administrator@aarst.org</u>

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Please submit content, comments, or questions to editor@aarst.org.

AARST[™] is a nonprofit, professional organization of members who are dedicated to the highest standard of excellence and ethical performance of hazard identification and abatement of radon, chemical vapor intrusion, and other contaminants of concern in the built environment. The organization primarily strives to advance the interests of its members through developing industry standards, certifying technical proficiency, enabling advancement of public policy, and communicating health risks to the public.



Letter from Diane Swecker, Executive Director

Ethics – What Role Does It Play for Us?

In conjunction with announcing AARST's rebranding to the Indoor Environments Association, the mission statement was revised to read, "Indoor Environments Association is a nonprofit, professional organization of members who are dedicated to the highest standard of excellence and ethical performance of hazard identification and abatement of radon, chemical vapor intrusion, and other contaminants of concern in the built environment..."

The association's Code of Ethics is a policy on what is considered ethical behavior including work and participation within the annual Symposium, and all association meetings, committees, and councils. This policy is separate from the NRPP Code of Ethics that governs the credentialing body and requirements of the National Radon Proficiency Program and as such it pertains only to actions and events within the association.

A deep commitment to ethics is important for all trade and professional associations for several reasons:

- 1. Maintaining Credibility and Trust: Ethical behavior is essential for maintaining the credibility and trust of the public, clients, and colleagues. When an association and its members adhere to a strict code of ethics, it demonstrates a commitment to integrity, which is crucial in professions involving health and safety, like radon and chemical vapor intrusion measurement and mitigation.
- 2. Protecting Public Interest: Associations often exist to serve the public interest. It plays a vital role in ensuring that radon and chemical vapor intrusion-related services are conducted safely and effectively, which directly impacts public health. An ethical code helps protect the public from substandard or unethical practices.
- 3. Professional Standards: A code of ethics sets clear standards for professional conduct within the industry. This helps establish and maintain high levels of competence, professionalism, and quality in the services provided by members of the association.
- 4. Conflict Resolution: Ethical guidelines provide a framework for resolving conflicts and disputes among members, clients, and colleagues. When disagreements arise, adhering to a code of ethics can help parties find common ground and work toward a resolution that is fair and just.

Specifically, our association's Code of Ethics focuses on three key areas:

- 1. Relations with Colleagues, Clients, and Others: This aspect of the code emphasizes the importance of treating all parties with respect, honesty, and fairness. It sets the expectation that members should maintain confidentiality, avoid conflicts of interest, and communicate clearly and honestly with clients and colleagues.
- 2. Technical Professionalism: In professions like radon and chemical vapor intrusion measurement and mitigation, technical proficiency is essential. The code underscores the importance of maintaining competence, providing accurate information, and using appropriate methods and equipment. This ensures these services are performed effectively and safely.
- 3. Business Ethics: The business ethics component addresses the way members conduct their business affairs. It emphasizes fairness in pricing, advertising, and competition. This ensures that members of the association operate their businesses in an ethical manner, fostering fair competition and protecting consumers from unethical practices.

In summary, ethics are fundamental for trade and professional associations because they help maintain credibility, protect the public interest, uphold professional standards, and provide a framework for ethical conduct and conflict resolution among members. The Code of Ethics, with its focus on relations, technical professionalism, and business ethics, plays a crucial role in ensuring the integrity and quality of radon and chemical vapor intrusion-related services.

ASSOCIATION NEWS

Chapter Report



New England Region Radon Conference Hosted by NEAARST

This annual event took place at the Harborview Sheraton in Portsmouth, NH, June 8th and 9th. Chapter President Ed Beauregard welcomed the 45 attendees, followed by an AARST National update by Dave Hill. Starting at 9am Regional and State Updates were provided by Eugene Benoit from EPA Region 1, Jonathan Dyer and Andrew Hunt from Maine, Ruth Alfasso from Massachusetts, Lynne Clement from New Hampshire, and Michelle Thompson from Vermont. Amanda Perkins of Connecticut Department of Public Health spoke to the group live via web. Next on the agenda was Shawn Price who discussed NRPP updates and AARST Standards.

After the noon luncheon and annual meeting, short presentations were provided by these sponsors: Accustar Labs, RadonAway, Fantech, and Sump Pump Geeks. Ed Beauregard then spoke about AARST Member Benefits and "Do's and Don'ts at Meetings."

Courses on June 8th included "Radon Tips and Tricks," presented

by Matt Hendrick and Rick Saulen. The course discussed such topics as how to use a sniffer properly, testing and mitigating homes with radon in both air and water successfully. Wrapping up the first day was Dave Hill, who provided an update on ARST Branding.

Diane Swecker, who introduced herself as the new AARST Director was the first speaker on June 9th. She was followed by two 4-hour courses covering MAH and SGM Standards, which were presented by Spruce Training.

Rocky Mountain Chapter Annual Golf Tournament

The 4th annual Rocky Mountain AARST Golf Tournament was held on August 9, 2023 at Arrowhead Golf Course in Littleton, Colorado. Approximately 115 golfers participated in a shotgun start scramble with exciting hole challenges and contests. Net proceeds from the event exceeded \$18,000.

Last year's proceeds were used to fund lobby efforts for a new radon disclosure bill in Colorado that was signed into law by Colorado Governor Jared Polis on June 5, 2023 and became effective August 7, 2023. This bill establishes that buyers or renters of residential property have the right to be informed of whether radon tests have been performed and if a radon system is present in the home. Educational materials about radon will be provided when buying or renting a home and buyers and renters will see a warning statement that advises testing the home for radon and mitigating the hazard if elevated radon levels are found. Additionally, if a landlord fails to notify the tenant or fails to mitigate an elevated radon level, tenants may void their lease.

Funds from this year's event will continue to fund radon awareness efforts within Arizona, Colorado, New Mexico, and Utah.



ASSOCIATION NEWS

Welcome New & Renewing Members

NEW MEMBERS

JUNE

Cameron S Butler (NC), Dane shaffer (CO), Dean Kalmukos (ID), Esther Hardesty (CO), James Duke Hunt (NC), James Williams (FL), Keith Sherer (AL), Kevin Chritz (CO), Nathaniel Weiss (ME), Robert Carvalho (FL), Scott Philbrick (CT), Stefanie Santora (MA), Terry Darling (NJ)

JULY

Alex Shpilman (MD), Donald W DeMuth (KS), Eric Thompson (TN), Jeanine P Humphrey (CO), Jonathan Dyer (ME), Joshua Walker (UT), Margaret Horton (CO), Matt Kopko (NJ), Michael Gelsick (PA), Shaunette D Duncan (CO), Stephanie Strickler (CO)

AUGUST

Brad Callister (UT), Cody Sanders (IL), David W. Cook (WI), Emerson Lopes Rezende (MD), Hunter Hill (AL), jeff sanders (IL), JJ Morley (UT), Justin Myatt (TN), Kaber C Robinson (KS), Kurt Manske (MO), Lathan Saperstein (MI), Madeline Wroblewski (MN), Paul Rochette (OH), Robert Cheney (TN), Stephen Grohn (MN), Todd J Mellars (UT), Tom Smith (KY)

SEPTEMBER

Adam McKenzie (MI), Anthony Marco Valdez (TX), Benjamin L Stromberg (IL), Brandi Hamilton (MO), Carl Woolwine (OH), Clay Johnson (KY), Cody Ray (KY), Doug MacDonald (NB), Drake Buster (KY), Elizabeth Storkman (KY), Gary Barclay (PA), Jacob Kruger (CO), Jacob R Smith (NJ), Jed walker (UT), Jeff LeBlanc (NB), Larry Kruger (CO), Larry Warren (UT), Leon Ukishwaka (KY), Michelle Hartman (MO), Paul Bivans (IL), Rick J Nelson (TX), Ryan Kasiski (NJ), Scott Baxendale (IL), Thomas Ross (KY), Thomas W Cassidy (CO), Will Embry (KY)

RENEWING MEMBERS

JUNE

Andrew J Morrison (CT), Aron C Corey (WY), Brian Wilcox (NY), Bruce Jones (VA), Chad Smith (CO), Chrystine Kelley (CO), Daniel W. Stephenson (CO), David Cowan (PA), Donald Morrison (CT), Douglas L. Kladder (CO), Eino A. Anttila (NH), Erika Obrecht (IL), J Arnold Drennen (CO), Jack Wyrick (CO), Jason Andy Smith (OH), Joseph M. Scech (FL), Kelly Winegar (IA), Kenneth J. Accashian (CT), Mark A Gilbertson (MT), Michael S. Cosgrove (VT), Scott M. Drennen (CO), Seth Roberts (CO), Tanya Laurent (CA)

JULY

Alan Beal (MD), Alan Whitehead (BC), Andreas C. George (NY), Brendan Doyle (CO), Brian Kennihan (WI), Bruce Fergusson (KY), Carlos M. Avery (MD), Chad Janiszeski (MN), Chuck Pulaski (IL), Colin Chres Jensen (CO), Curtis Drew (NE), David Innes (BR), David W Maddux (KY), Dawn E Coffee (IN), Donald Humphrey (CO), Doug Rode (OH), Eddie Huchingson (CA), Elizabeth Combs (TX), Gary E. Hodgden (KS), Greg Kopenhaver (PA), James D Camp (CO), Jesse Green (MN), Jim Gibson (NJ), John B. Mallon (PA), John Deitz (MD), John Henderson (CA), Jonathan Cartwright (NV), Joseph A Lugo (CO), Karla Granger (KS), Kirsten Schmidt (IL), Larry Adams (PA), Lawrence Welch (IL), LIn Marie Carey (FL), Michael Flueckiger (KS), Michael J. Deitz (MD), Nathan L Gonzales (CO), Peter Weber (PA), Robert Coffee (IN), Robert Hodges (CO), Robert Michael Mallon (PA), Ron Garofalo (PA), Shannon E Coats (TX), Stephen R. Meer (WI), Steve Sowada (MN), Susan Gray (MD), Tom Chartrand (WA), Tony LaMastra (PA), Wesley Hodgden (KS)

AUGUST

Alexey Alimov (KS), Andrew Kelley (MN), Annie-Laurie Hunter (NY), Ari Ghahremani (OH), Beth Riddick (VA), Bradford Charles Schwie (MN), Brett C. Duryea (CO), Brian Nichols (KS), Carly J. Hanna (IL), Casey Wayne Bickes (TN), Chad Robinson (KS), Chris Herman (NM), Crystal Lytle (KS), Daniel Hylland (MN), Daniel Potter (IL), Daniel Tranter (MN), Daniel Weber (IA), Darioush T. Ghahremani, Ph.D. (CA), David N. Shofner (KY), Deborah Madsen (MN), Deontae Dodd-Hrobowski (IL), Eddie Johnson (KY), Eric Gabrielson (MN), Eric Lovenduski (NY), Fred Ellrott Sr. (CA), Glenn Davidson (KY), Glenn Steers (NC), Greg Miller (ME), Henri Boyea (NC), Henry Schuver (DC), Jason Skramstad (MN), Jason T Blanchard (NC), Jeff Gaddis (SD), Jeff Miner (CA), Jeff Tenuta (WI), Jeffrey A Johnson (MO), Jessi Moyle-Bickes (TN), John C. Carpenter (MA), John D. Shane, PhD (FL), John Davis (VA), Joseph Gould (IL), Joshua Kerber (MN), Justin Conforte (ME), Justin Kiger (FL), Kate Berlyoung (GA), Kelly Smeltzer (MN), Kris Kaczor (IL), Lyndsey Beth Hanna (IL), Lynn D. Green (OR), Marc Katz (MN), Maria Stinger (PA), Mark W Meier (MN), Mark Wald (MO), Mark Whitehead (MO), Melissa M Price (NJ), Michael Leggett (GA), Mike Barnhill (CO), Mike Steel (CO), Mitchell Kelley (MN), Nick lawhead (WY), Patricia Macias Basurto (MD), Peter Ruchti (IL), Phillip H. Jenkins Ph.D CHP (OH), Ralph Price (NJ), Richard P. Goss (ME), Rob Roth (OH), Ryan Dahlvang (MN), Saundra L Sininger (IL), Sean Murphy (MT), Shawn Swallow (IL), Steve Leslie (IL), Steve Nokleby (KS), Steve W Davis (IA), Terry A Kerwin (AZ), Tim j Erickson (SD), Tod Boss (KS), W. Scott Berlyoung (GA), William Branch (AZ), William Whipple (GA), Zan Jones (IL)

SEPTEMBER

Aaron Wagoner (CO), Albert J. Pucci (OH), Alexander Elizzar (IL), Alicia Cotton (OH), Amanda Pike (CO), Andre Hawkins (GA), Andrea Stephens (KY), Anthony Purcell (KS), Ashley Falco (NJ), Ashley Shann (NJ), Aubrey L Trudell (MI), Austin Boleman (NC), Austin Rose (OH), Brad Roebuck (OH), Brandy Farrell (CO), Brian Priddy (KY), Brian Schultz (CO), Charif L Simmons (NJ), Charles A Randle (NJ), Chase Cline (KY), Chris Baker (CO), Christopher Ferguson (KY), Christopher Heckle (KY), Corinne A. Soutra (KY), D. Travis Crickenberger (UT), Dana Parkinson (KY), Daniel J Nigara (NJ), David Gillay (IN), David Kulakowski (IL), David Letcher (NJ), David M. Gerard (WA), Dominic Clarin (UT), Dominic Fackrell (UT), Donald Lear (IN), Douglas A Lodge (CO), Douglas Webster (KY), Doyle O Crawford (MI), Eric Motion (MI), Gary Manyak Jr (RI), Grant M Smith (MI), Greg J. Lauer (KY), Gregory Turner (KY), Heidi Bienvenu (CO), Jacob Hartley (CO), James L Parsons (OK), James R. Burns (TX), Jeffrey Sims (KY), Jennifer Baker (IN), Jennifer Fusco (NJ), Jennifer Pittman (FL), Jennifer Rowley (CO), Jeremy Porter (UT), Jessica Karns (OH), Jim Vaughn (VA), John Cooke (IL), john cowell (NJ), John Metallo (UT), John Wessling (MO), Joseph Dionisio (CO), Joseph Webster, Jr. (MI), Joyce Madore (TX), Kai Wundke (FL), Karl L Hopkins (CO), Kathy McDonald (OH), Keith Hoylman (KY), Kenneth L. Deemer, Jr. (PA), Kenneth Waldele (NJ), Kristine Wall (IL), Kurt S. Hudgins (MI), Kyle A Davis (MI), Kyle Gilmore (UT), Kyle Hoylman (KY), Laura Armul (FL), Leigh Ann Schieffer (CO), Lisa M. Lopp (KY), Louis C. Buehler II (IN), Louis Levisky (NJ), Lyndell Johnson (TX), Marek Minta (FL), Marisa Zorzan (MI), Matthew R Sedia (KY), Matthew Wirt (NJ), Melissa Gladstein (FL), Michael Heller (NJ), Michael Jones (KY), Michael Rios (UT), MICHELLE S BRENNER (KY), Mitchell Wilson (KY), Portia Fulton (OH), Rachel A. Peterson (CO), Ralph Madore (TX), Raymond Ortiz (NJ), Rob Carpenter (KY), Robert D. Burns (SD), Robert Melendez (FL), Roberto Zorzan (MI), Salvatore Nolfo (NC), Samantha Elizzar (IL), Sara DeAndrea (CO), Shad M. Evans (OH), Shari Terry (UT), Stacey R Winkler (MO), Stacey Wacholz (CO), Stephanie Leenstra (NJ), Steven A Rose (OH), Susan Russell Dove (AL), Thomas Bendak (IL), Thomas Krone (IL), Timothy Sandberg (UT), Tom Weatherly (VA), Tony McDonald (OH), Travis Fowler (KY), William Kauffman (IN), William M Nicholas II (NJ), William T Browne (CO), Winifred Cheuvront (KY), Yvonne Lewis (CO)

ASSOCIATION NFWS

AARST Election Ballot

Voting in the 2023 AARST election opens October 14 and closes October 30 at 1 pm ET. Members will receive by email from AARST's balloting software the opportunity to select the Association's next president-elect and other officers as well as five National Directors.

PRESIDENT ELECT



DAVE HILL

Executive Vice President, Spruce Environmental, Inc.

Dave Hill is Chief Revenue Officer of Spruce Environmental Technologies, Inc. He is responsible for the overall revenue growth strategy of all Spruce brands and divisions, including RadonAway, AccuStar, Air Chek, Spruce Training, and Spruce Ventilation. A former radon mitigation contractor with a business that served Connecticut, New York, Rhode Island, and other states and managed mitigations nationally. He is a Past President of AARST, Past President of the New England Chapter of AARST, and a current Vice President of AARST, and Board member of the Basement Health Association. He also serves on ANSI/AARST Standards committees. Dave has a degree in business management from the University of Rhode Island, where he also studied engineering and played rugby, a sport he still plays whenever his body allows.

VICE PRESIDENT



LAURA ARMUL SunRADON LLC

Laura Armul is currently the Sales and Marketing Director at SunRADON, LLC. Laura has 24 years experience with all aspects of Radon product sales, marketing, and Continuous Radon monitor product development. Bachelor's degree from the University of Central Florida. Member of the AARST Board of Directors from 2019-2022 and former Ethics Chair and member of the technical and science committee. President of the newly formed Florida Chapter.



DAVID GILLAY

Partner, Barnes & Thornburg LLP

David Gillay chairs the Environmental Law Department and also heads the Remediation, Redevelopment, and Environmental Transactional Practice Groups. He provides environmental counseling in connection with assessing, remediating, and redeveloping contaminated properties. Over the last 20 years, David has focused on the legal, regulatory, and technical impact and implications related to the vapor intrusion pathway and potential long term stewardship obligations. He works closely with leading technical experts on a wide array of environmental matters, including toxic tort litigation, risk based closure, VI guidance and changes to toxicity.

SECRETARY



JAN FISHER

President and Director of Education, CERTI, Inc.

Jan Fisher is the President and Director of Education at the Center for Environmental Research and Technology, Inc., a leading source of online education for the radon industry located in Flemington, NJ. Her widespread experience within the radon industry has helped her to work with industry experts to provide CERTI students with exceptional education. Prior to working at CERTI, Jan worked as the National Sales Manager of Radon Supplies for 15 years and holds widespread experience in the radon industry. Jan is currently serving on the AARST National Board of Directors, sitting on the Ethics Committee and is the Chair of the AARST Advocacy Committee. She also serves as Vice President of the NJ AARST Chapter, and as Vice President of Citizens for Radioactive Radon Reduction. Jan is proud to be a part of the Radon awareness culture that is starting to flourish. INCUMBENT

TREASURER



DAN POTTER

President, DuPage Radon Contractors

Dan Potter is a businessman having held multi-million-dollar P&L responsibilities for start-ups, turn-arounds, and fast-growth companies and business divisions within the home services industry. He is currently co-owner of DuPage Radon Contractors, a larger Midwest radon mitigation company. He is the current AARST Treasurer, Vice President of Midwest AARST, President of the Illinois Radon Policy Taskforce, and sits on twelve radon-related committees. He holds a couple collegiate degrees and various certifications in building science and construction. He has achieved licensure as a general contractor, electrician, and real estate agent. Dan has been a guest speaker at numerous radon events and has been interviewed by local and national publications and shows. Dan deeply appreciates the AARST mission and enjoys the people involved at all levels. INCUMBENT

NATIONALLY ELECTED DIRECTORS



NATHANIEL L. BURDEN, Jr.

President PA AARST Chapter; Dir: MOVES Radon EJ, Activist

Nate Burden is a radon scientist/consultant with over 30 years in radon testing/mitigation. Installed/designed over 5,000 radon mitigation systems (residential, commercial, special historical, school districts and military facilities). Performed specialized chemical vapor intrusion mitigation projects. AARST PA Chapter president. He sits on the National Radon Action Program (NRAP). Board member of AARST Foundation and CR3. He sits currently on the PA DEP Radiation Protection Advisory Committee. Member on the ANSI/AARST radon measurements and mitigation standards committee. Sit on the PA DEP Radiation Program Advisory Committee (RPAC). Sit on the PA Cancer Coalition and PA DOH Health Equity Committee.

ASSOCIATION NEWS

BALLOT CONTINUED - NATIONALLY ELECTED DIRECTORS



BRYAN COY

Managing Partner, 5280 Radon Mitigation

For more than a decade, Bryan Coy has been actively involved in the Colorado Radon Industry as a Mitigator. He cofounded 5280 Radon in 2014, consistently striving to deliver expert and honest services to our valued clients. In 2019, Bryan provided expert testimony to both the House and Senate committees, playing a crucial role in the successful passing of a law in Colorado that mandates Licensure of Radon Professionals. In 2020, I collaborated with AARST to create the Lowe's Member Benefit Program. In August 2021, Bryan was elected President of RMAARST. One of his major accomplishments was the successful implementation of a new Notification and Disclosure Law in Colorado. I am enthusiastic about helping the organization embrace its next chapter and achieve new heights.

ZAN JONES Vice President, Sales & Marketing, Radonova

Zan Jones is the Vice President of Sales and Marketing for Radonova, Inc. where she manages the U.S. and Canadian markets. She began her role at Radonova in February 2022 and since then has participated as a volunteer in helping both Colorado and Illinois pass radon protection laws. Currently, Zan serves as the Member-at-Large Board Member of Rocky Mountain AARST. She has extensive experience in the commercial building construction industry and the medical diagnostic industry and holds a bachelor's degree in Business Marketing from Texas A&M University and an MBA from the University of Texas at San Antonio.





TERRY KERWIN

National Director of Business Development, Protect Environmental

Terry is an NRPP-certified mitigation and measurement professional licensed in Colorado. After losing a friend to radon-induced lung cancer Terry leads with passion and purpose. Terry currently serves on the AARST Government Affairs Committee, served on the National Board, and as President and Treasurer of the Rocky Mountain Chapter. With a background in finance and more than two decades of experience growing multiple businesses, she is currently the National Director of Business Development at Protect Environmental and former owner of Reliant Radon Solutions.



JOHN MALLON

President, Radon Detection and Control, LLC

John Mallon is the President and CEO of Radon Detection and Control, LLC, which he founded in 1986 in Western Pennsylvania / Northern West Virginia Area. John has installed over 45,000 Residential Radon Mitigation Systems and Thousands of Large Radon and Vapor Intrusion Mitigation Projects (Schools, Large Buildings, Multifamilies). His prior relevant experience includes: 10 years in Field Engineering and QA/QC- Nuclear Power Plant Construction / Modification. AARST Member since 1988. John chaired the AARST/ANSI Standard for Multifamily Mitigation. He taught certification and continuing education classes in the US and Canada. John is very proud to have served the Radon Community and is interested in continuing the work. INCUMBENT

BALLOT CONTINUED - NATIONALLY ELECTED DIRECTORS







KEVIN M. STEWART

Director of Environmental Health, the American Lung Association

Kevin Stewart has served the Lung Association since 1987. Mr. Stewart has been honored to serve as a member of the AARST Board of Directors (2009-2015) and the Policy Advisory Board of NRPP (2008-2019). He has experience with radon issues regarding policy, law, and scientific and technical review. He is a member of the ANSI-AARST Committees for Measurement and NCSG standards and serves on the Executive Stakeholder Committee of the AARST Consortium. He works on the Lung Association team supporting the National Radon Action Plan, including creating resources for professional use. He has directed grant funded radon reduction projects annually since 1990 (for which work he was recognized in 2008 by CRCPD). Mr. Stewart holds a Bachelor of Science degree in chemical engineering from Princeton University.

BILL SUBLETTE

Chief Executive Officer. SWAT Environmental

Bill is passionate about quality, service excellence, people, and growing the Radon Industry. He has been instrumental in the support and execution of creating the Tennessee Chapter of AARST. He has a long history of leading businesses in the home services industry, including 23 years with ServiceMaster- specifically as Chief Sales Officer for Terminix and TruGreen. He strongly believes there is tremendous opportunity to increase the awareness of RADON and to save lives. He is eager to utilize his leadership, problem solving, regulatory, advocacy, and communication skills to assist and serve the RADON Industry in the growth and the awareness of the dangers of radon gas. Bill is based out of Milwaukee, Wisconsin. Bill and his wife Natasha are proud parents of three boys.



MICHAEL E. WALTHER

National Manager, Building Sciences, EBI Consulting

Meet Mike Walther, a professional with over 30 years of experience in radon testing and mitigation management, environmental consulting, industrial hygiene, and indoor air quality. With a deep understanding of radon science, Mike Walther has conveyed both the fundamentals and intricate details to clients and the public, empowering them with knowledge. With over 20 years of Due Diligence industry experience at EMG (Bureau Veritas) and EBI Consulting, and seven years of hazardous materials consulting for Baltimore County Public Schools, Mike Walther has helped develop solutions for key private and public stakeholders. He is dedicated to creating healthier and safer environments for all.



KAI WUNDKE

Chief Executive Officer. SunRADON. LLC

Dr. Kai Wundke is Chief Executive Officer of SunRADON LLC. Prior to SunRADON, Kai spent 10 years at Sun Nuclear Corporation as an executive responsible for the companies R&D and Operations teams which included the Radon business unit that later was spun out to create SunRADON. He brings 20+ years' experience working at start-ups and Fortune 500 companies. Kai's passion is to expand radon awareness and bring solutions to the market that allow cost effective and efficient Radon and Indoor Air Quality testing of every home, school, or indoor facility. Kai holds a PhD in Physics from Dresden University, Germany, and is the author of several patents and more than 40 publications in peer-reviewed Journals, Technical Magazines, Conference Proceedings, and Seminars.

LET'S IMPROVE THE AIR WE BREATHE, TOGETHER.

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AARST's Indoor Environments 2023[™] – The Radon and Vapor Intrusion Symposium is the largest gathering of practitioners, training providers, researchers, regulators, technicians, and manufacturers in radon and vapor intrusion in the US. AARST is convening its 37th annual gathering for hundreds of attendees seeking to learn, share, and network. Indoor Environments 2023[™] will offer concurrent technical tracks focusing on Practice and Policy, Vapor Intrusion, Science and Research, and training for State Radon Programs. The agenda, speakers, and topics are determined at the culmination of a public "call for presentations" with thoughtful input from the Symposium Committee and AARST leadership regarding additional important topics. Peer-reviewed and invited presentations will deliver the latest testing and mitigation techniques, scientific findings, recently revised standards, emerging public policies, and current approaches to community outreach and education programs.

Social Times and Fun for Family and Friends The social opportunities offered are indispensable. Whether it is eating lunch with someone, connecting with colleagues, or engaging with presenters after sessions, the social times built into each day are great! In addition, the Nashville Day Out Tour for Friends and Family offers a fun time, getting to see the famous sights of Nashville, eating lunch together at a Nashville-Style Eatery, and strolling back up Broadway checking out performers already on stage, on their way back to the hotel.

Sunday, October 29, 2023 SUNDAY C.E. CONTINUING EDUCATION

8:00 AM - 12:00 PM

Radon and Vapor Intrusion Symposium

Nashville

Radon Mitigation Standards Overview Course Controlling Radon Decay Products: Too Complicated or a Silver Bullet?

1:00 PM - 5:00 PM

Radon Measurements Standards Overview Course

Vapor Intrusion Mitigation Case Studies - Diagnostics to Completion

Advanced Design & Diagnostics

8:00 AM – 5:00 PM

Mitigation Compliance Inspector Initial Training

★ 6:00 – 8:00 PM OPENING RECEPTION ★

MONDAY, OCTOBER 30, 2023

GENERAL SESSION (BROADWAY BALLROOM)

8:00 – 10:00 AM

8:00	Welcome & Leadership Updates	Kyle Hoylman (AARST), Joshua Kerber (CRCPD), Katherine Pruitt (NRAP)
8:35	Revised Standards – Significant Changes in Mitigation Standards	Shawn Price
8:45	NRPP Updates and The Certification Council	Amy Roedl, Ashley Falco
9:15	Building Brand You! (Keynote)	Steve Diggs
10:00	Tennessee Welcome	Lt Governor Randy McNally, introduced by TN Chapter President Phil McDonnell

BREAK, EXHIBITS, AND POSTERS 10:00 - 10:45 AM (EXHIBIT HALL)

POSTER: The Evolution of Radon Lending Libraries Anne-Marie Nicol

GENERAL SESSION (BROADWAY BALLROOM) 10:45 AM – 12:00 PM AV SPONSOR - PDS RADON SUPPLY				VAPOR INTRUSION (SOBRO) 10:45 AM – 12:00 PM AV SPONSOR - SWAT	ENVIRONMENTAL Sai, Wates, and Air Technologia
10:45	A Review of Multiple Consumer Digital Monitors at Three Radon Exposure Levels	Alexandra Bahadori M.S. Brian Hanson M.S.	10:45	Summary of State Approaches to Vapor Intrusion — 2023 Update	Lila Beckley
11:05	Federal Agency Updates	Bill Long (EPA) Glenn A. Schroeder (HUD)	11:05	A Regulator's Perspective —Lessons Learned in Characterizing Soil Gas	Susan McKinley
Young Radon Professionals /		Ryan Dahvaling Brian Giancola	11:20	Wisconsin's Vapor Intrusion Zone Contract — Partnerships, Public Outreach and Passive Sampling	Jennifer Borski
11:30	The Next Generation	Mitch Kelley Lauryn Oggier Kaber Robinson	11:40	Update on TCE Exposure Toxic Tort Litigation	David Gillay

LUNCH & EXHIBITS 12:00 - 1:30 PM

GENERAL SESSION (BROADWAY BALLROOM) 1:30 – 5:00 PM			VAPOR INTRUSION (BROADWAY BALLROOM) 1:30 – 5:00 PM			
1:30	Sometimes, Maybe, It Depends — My life is/has been a gas!	Bruce Snead		Den el Discussion	David Gillay (Moderator)	
1:50	From Mapping of Radon in Soil to Inventory of Radon Indoors — The Swedish Story	Linda Aguirre	1:30	Current Events in VI	Susan McKinley Jennifer Borski	
			2:00	Soil Gas Entry Relative to Natural and Mechanically Induced Negative Pressure	Gary Hodgden	
2:10	Spotlight on Chapters	Shad Evans	2:20	Post-Mitigation Verification – Confirming Vapor Mitigation System Effectiveness	Aaron Friedrich	
2:30	Latest Laws — CO Tenants and Buyer Warning, IL Renter Warning, MD Renter Protection	Terry Kerwin Dan Potter Deise Rezende	2:40	Measuring the Last Mile for Vapor Mitigation — Real-Time Remote Monitoring of the Sub-Slab Pressure Field	Chris Ferguson	

BREAK, EXHIBITS, AND POSTERS 3:00 - 3:45 PM (EXHIBIT HALL)

POSTER: Quantifying Radon Exposure: A Nationwide Community-Level Assessment in the United States Longxiang Li POSTER: Demonstration of Centrifugal Vortex Separation of Indoor Radon Mark Whitehead

3:45	Strategies for Increasing Tenant Protection from Radon	Jane Malone Katherine Pruitt	3:45	TN Vapor Mitigation Guidance — One Year Later	Ahmet Bulbulkaya Justin M. Meredith
4:05	Crawl Space Methods	Dane Malmberg	4:20	Community-Specific Attenuation and Factors Point of Compliance for Vapor Intrusion	Henry Schuver
4:25	Premier Youth Ambassadors	Kathryn Dixon, Joshua Keyes, David Trent, Mia Ray, Tanya Yu	4:40	Sources of Contamination and Relationship to Radon Mitigation	Barry C. Westbrook, CIH, PE

ADJOURN 5:00 PM

★ KICK UP YOUR HEELS! LEARN TO LINE DANCE - EVERYONE WELCOME ★ 5:00 - 6:00 PM (GRAND BALLROOM FOYER)

	TUESDAY, OCTOBER 31, 2023							
PRAG	CTICE & POLICY (BRC 8:00 AM – 12:00	DADWAY 1,2) PM	SCIENCE & RESEARCH (BROADWAY 3) 8:00 AM – 12:00 PM			STATES & TRIBES (SOBRO) 8:00 AM – 12:00 PM		
8:00	How to Increase Your Market Using the Internet	Peter Ruchti	8:00	Evaluation of a Pilot Radon Detector Lending Program in Four Rural Public Libraries	King Simpson	8:00	Mapping Estimates Of Residential Radon Exposure at Small Spatial Scales	Heidi Hanson
8:25	Best Hiring Practices	Brent Ulbert	8:25	Geologically Based Correlation of Rock and Indoor Radon Levels in Eastern Pennsylvania	Brian M. Yang	8:25	Portland Housing Authority's Lesson on Working in Multifamily Housing and Vulnerable Populations	Carolina Gomez
8:45	Insurance Liability	Corey Mills	8:45	Long-Term Testing Reveals Interesting Seasonal Variations	Dr. Phillip Jenkins David Metzger	8:45	Offering Radon Counseling and Tests Via the North Dakota Radon QuitLine	Gary Schwartz
9:05	Lessons Learned in Mitigation	Dawn Oggier Duane West Michael Smith	9:05	Radon Levels During Working and Non- Working Hours	Tryggve Rönnqvist	9:05	Neighborhood Socioeconomic Disparities in Radon Testing Rates in North Carolina from 2010 to 2020	Zhenchun Yang, PhD
9:40	Weather Anomalies and Radon Measurements	Joshua Kerber	9:25	Radon-in-Water and Thoron Measurements with a Radon Sniffer	Kai Kaletsch	9:25	Use of Radon Risk Messaging with High Lung Cancer Risk Individuals in the Primary Care Setting	Stacy Stanifer

BREAK, EXHIBITS, AND POSTERS 10:00 - 10:45 AM (EXHIBIT HALL)

POSTER: Geological, Seasonal, and Atmospheric Conditions Affect Home Radon Intrusion Ellen Hahn, for William Hanenberg

10:45	AARST 101	Dawn Oggier	10:45	Residential Radon Sampling in Puerto Rico	Oleg Povetko, PhD, CRMP	10:45	Developing Education Materials for Childcare Providers	Jara Popinga (OR)
11:05	Distributed and Optimized Sub- Slab ASD	Gary Hodgden Leo Moorman	11:05	Radon by the Numbers	Mark Whitehead	11:05	Social Media Outreach Planning	Marc Katz (MN)
11:25	Summary of Solutions for 175 Active Mitigation Failures	Keith Volsted	11:25	Simulation and Empirical Modeling of Soil Radon	Ashwin Ashok	11:25	North Carolina Social Media and Marketing	Phillip Gibson (NC)
11:45	HUD	Glenn A. Schroeder						

LUNCH & EXHIBITS 12:00 - 1:30 PM

CRCPD & AARST AWARDS 12:30 AARST BUSINESS MEETING TO FOLLOW (GRAND BALLROOM 1)



		TUE	SDAY,	OCTOBER 31, 2023 (CONTINUED)		
	PRACTICE & POLICY (BROADWAY BALLROOM 1:30 - 5:00 PM	1,2)	SCIENCE & RESEARCH (BROADWAY BALLROOM 3) 1:30 - 5:00 PM			STATES & TRIBES (SOBRO) 1:30 - 5:00 PM		
1:30	Houses from Heck: Optimal Mitigation	Joshua Kerber Chad Robinson	1:30	Growth, Sustainability, and Impacts of Citizen Scientist-Led Radon Coalitions in Rural Communities	Ellen Hahn	1:30	Georgia Radon Program Update	Derek Cooper (GA)
2:00	Installing Consumer- Grade Electronic Radon Devices as Post-Mitigation Active-Alert Monitors	Dallas Jones	1:50	Reducing Lung Cancer Risk From Radon Exposure in Manheim Township, PA: RRNC A Significant Public Health Tool	Yiguang Zhu	1:50	CRCPD Update and Response to FHFA	Kimberly Steves
2:20	Pressure Field Extension	Gunnar Barr	2:10	Evaluating the Electret Radon Progeny Integrated Sampling Unit for Use Measuring Radon and Radon Progeny in a Cave Environment	Lawrence Welch	2:10	Nez Perce Tribe Radon Program Update	Johna Boulafentis
2:40	Results from the Association's 2023 Survey of Measurement and Mitigation Professionals	Jane Malone	2:30	Progress in Testing, Public Education, and Mitigation of Radon in Indoor Air and Well Water in Georgia during the Last 10 Years	Uttam Saha	2:30	Navajo/Tribal Update	Vivian Craig Darlene JEnkins

BREAK, EXHIBITS, AND POSTERS 3:00 - 3:45 PM (EXHIBIT HALL)

POSTER: The Importance of ALARA for the Radon Professional Nate Burden and Michael LaFontaine

3:45	Diagnosing and Mitigating Radon Sources in Difficult Buildings	Jessica Karns			Kerri Robbins
4:20	Emerging Standards: OM&M and Mitigation of Radon in Water	David Grammer Susan McKinley	3:45	Radon — I Didn't Know	Eleanor Divve (UT)
4:40	Case Study for Giant Suction Pits for Large Building, Multi-Family and Industrial	Ralph Quin Tim Pittman	4:15	White Ribbon Project	Crystal Lytle

ADJOURN 5:00 PM

	WEDNESDAY, NOVEMBER 1, 2023							
	GENERAL SESSION (BROADWAY BALLROOM 1,2) 8:00 - 11:30 AM	PROCTORED EXAMS: MEASUREMENT AND MITIGATION REGISTRATION REQUIRED (SOBRO) 8:00 - 11:00 AM						
8:00	Radon in Water – A Deep Dive (Standards, Collection and Measurement, Analysis and Mitigation)	Michael Kitto, David Grammer, David Hill						
	BREAK 10	:00 - 10:20 AM						
10:20	ALA Poster/Video Contest	John DeRosa						
10:40	EPA Credentialing Criteria Status Update	Katrin Kral, Bill Long						
11:20	Closing – Wrap Up	Diane Swecker, Josh Kerber, Dawn Oggier, Duane West						



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• INDUSTRY STANDARDS

Comparison of Single- Family Mitigation Standards ANSI/AARST SGM-SF, EPA RMS, and ASTM E2121

This compilation presents significant differences between the legacy mitigation standards for homes, which are the Environmental Protection Agency's Radon Mitigation Standards (EPA RMS) and the American Society Testing and Materials' E2121 Standard Practice for Installing Radon Mitigation Systems in Existing Low-Rise Residential Buildings (E2121), and the 2023 edition of the ANSI/AARST standard Soil Gas Mitigation for Existing Homes (SGM-SF). While SGM-SF covers soil gases, a radon mitigation project compliant with SGM-SF is not mandated to achieve mitigation of more than radon unless the scope of work specified the other gases, although such result may be a corollary benefit of the radon mitigation.

ANSI/AARST standards embody what has been learned in the field over the last 30 years compared to that written in legacy standards. Related standards have been harmonized and the work on the mitigation standards has included at least 56 different participants since 2012. Reviews for continued improvement, to include additional committee participants, will continue.

Title	Soil Gas Mitigation Standards for Existing Homes	Radon Mitigation Standards (RMS)	Installing Radon Mitigation Systems in Existing Low-Rise Residential Buildings
Last complete review/update	2023	1994	2000
Scope	ANSI/AARST SGM-SF	EPA RMS	ASTM E2121
Buildings	Low-rise residential homes Complemented with a harmonized standard for multifamily, school, commercial and multi-use buildings.	Low-rise residential	Low-rise residential
Торіс	Radon mitigation (and chemical vapor mitigation where the same methods are used to mitigate vapor intrusion)	Radon mitigation	Radon mitigation
Methods	Primarily ASD but also covers dilution, pressurization, filtration, and passive methods	Primarily ASD and a few provisions for HRV	Primarily ASD and a few provisions for HRV
Style	Mandatory style conducive to compliance assessment. Guidance attached.	Requirements mixed with guidance	Requirements mixed with guidance
Contractors	Qualified contractors are defined similarly to EPA; existing private programs, "equivalent" private programs, and state programs as authorities that grant credentials. Qualified soil gas professionals are similarly defined with additional training on chemical radon hazards. Note—All radon programs and standards are in response to a serious and deadly health hazard. Lack of training is known to directly correlate with poor protection of both occupants and installers.	3.0 "Minimum requirements are established in the RMS for individuals nationwide who perform radon remediation work and wish to participate in EPA's RPP as Mitigation Service Providers. To successfully participate in EPA's RPP (radon proficiency program), the mitigation contractor shall have completed all training, examination and other program requirements and shall agree to follow the provisions of the RMS"	Stated up front but no explicit training requirements: Scope 1.1 "This practice is intended for use by trained, certified or licensed, or both, or otherwise qualified individuals."
Quality Management	Requirement for jobsite logs with details of installations to aid ongoing improvement.		

Orange text indicates SGM-SF improvements over, similarities to, and differences from the early standards.

INDUSTRY STANDARDS •

Title	Soil Gas Mitigation Standards for Existing Homes	Radon Mitigation Standards (RMS)	Installing Radon Mitigation Systems in Existing Low-Rise Residential Buildings
Last complete review/update	2023	1994	2000
Scope	ANSI/AARST SGM-SF	EPA RMS	ASTM E2121
General Practices	SGM-SF 4.0	EPA RMS	E2121
Assembling information	Basic needs prior to cost proposals, to include test results	10.1 tests	
Proposals	Basic consumer information much like EPA 1994	18.1 Contracts and documentation	
Notifications	Potential occupant hazards	10.4 and 18.1	7.1.2
Jurisdictional Authorities	State radon and VI offices and local code compliance	13.4 and 14.11	7.1.1 and 7.3.1.1
System Design	SGM-SF 5.0	EPA RMS	E2121
	Safe designs, ease of service, durability, etc.	Section 13	7.2.2
5.1	Compromising or obstructing other building systems is prohibited	A few places but not comprehensive	A few places but not comprehensive
Appropriate Systems	Permanent systems	13.1 and 10.3	7.2.1
	Collateral mitigation (i.e., intentional or inadvertent impact on adjoining units)		
	Inspection of building prior to installation.	11.1	7.1.3
5.2 Nondestructive	Footprint diagrams required	11.5 and 18.2	
Investigation	Designation of interior and exterior components to be visually inspected		
	Not required for radon ASD systems in single family homes.	11.2, 11.4 Recommended but not required	Recommended but not required
5.3 Diagnostic	Required for VI and for Multifamily, School, Commercial and Mixed-use Buildings.		
Investigation	Diagnostics specified for dilution and pressurization methods		
	General consideration for seasonal fluctuation		
Active Soil Depressurization (ASD)	SGM-SF 6.0	EPA RMS	E2121
6.1 ASD Suction Points	Enhanced clarity for what was previously intended in other standards. Covers: Suction pits, drain tiles, sump pits, sub- membrane, non-habitable air spaces and block walls	14.4.1, 14.5.2, 14.5.3, 14.5.8	7.3.4.1, 7.3.9.1
	Restrictions on ASD designs for non-habitable airspaces where closure can't be achieved or where combustion appliances are within a crawl space		

-• INDUSTRY STANDARDS -----

Title Soil Gas Mitigation Standards for Existing Homes		Radon Mitigation Standards (RMS)	Installing Radon Mitigation Systems in Existing Low-Rise Residential Buildings
Last complete review/update	2023	1994	2000
Scope	ANSI/AARST SGM-SF	EPA RMS	ASTM E2121
	6.2.1 Air and water-tight	14.2.1	7.3.2.2
	6.2.2 Slope required	14.2.6	7.3.2.7
	6.2.3 Positively pressurized pipe not in conditioned space		
	6.2.4 Label pipes	16.4	7.5.4
	6.2.5 ASD pipe materials	15.2	7.4.2
	SCH 40 or listed for "Above-Ground Drainage and Vent Pipe"	SCH 20 minimum SCH 40 recommended	SCH 20 minimum SCH 40 recommended
	Others (e.g., SCH 20) permitted if allowed by state radon office or local code office where the is no state certification program		
6.2	Glues, fittings and solvents	14.2.1 15.3, 15.4 glues, fittings and solvents	7.4.3, 7.4.4 glues, fittings and solvents
ASD Piping	Downspout materials allowed outside except for VI systems		
	6.2.6 Flexible couplings (multiple uses)	14.3.7 (fans) 14.2.7 (sumps)	7.3.3.6 (fans) 7.4.3 (other places)
	6.2.7 Secure duct piping	14.2.4	7.3.2.5
	Compliant with current code: 10 ft vertical and 4 ft horizontal	8 ft vertical and 6 ft horizontal	8 ft vertical and 6 ft horizontal
	6.2.8 Provide access clearance	14.2.7	7.2.2 exits
	6.2.9 Protect ducts from the elements (more specific)	14.2.2	7.3.2.3
	6.2.10 Observe codes	1/ 1.3 plumbing codes with	7.2.2 fire codes
	(more specific – with guidance on integrity of building structural members; inhibiting the spread	no further description	7.3.1.2 nlumbing codes with no
	of fire and smoke; and proximity of piping relative to electrical components)	14.1.4 fire codes	further description
	Requirements based on the capacity of the pipe to move air.	15.2	7.3.2.1
	6.3.1 — 3" minimum.	3" minimum.	3" minimum.
	6.3.2 — 4" if 80 cfm or more		
6.3	6.3.3 - 2" if proven to be less than 40 cfm by diagnostics		4" trunk required if joining two or more suction pipes. If different.
ASD Pipe Sizing	6.3.4 Equivalent cross-sectional area (e.g., joining smaller pipes to a larger exhaust pipe)		building owner to be provided with justification based on an
	6.3.5 Maintain whole-system air volume capacity		Industrial Ventilation Manual
	6.3.6 Multiple suction points		
	6.3.7 Sizing for gutter downspout duct materials		
	6.3.8 Air velocities (informative)		

INDUSTRY STANDARDS •

Title	Soil Gas Mitigation Standards for Existing Homes	Radon Mitigation Standards (RMS)	Installing Radon Mitigation Systems in Existing Low-Rise Residential Buildings
Last complete review/update	2023	1994	2000
Scope	ANSI/AARST SGM-SF	EPA RMS	ASTM E2121
6.4 ASD Exhaust Discharge	SGM-SF exhaust requirements retain the same principles and similar distances but speak to the where exhaust air is blown.		
	Similar to the prior standards but elaborated with additional options based on new science, i.e., ASHRAE studies and resulting ASHRAE 62.1 calculations for distances a mechanical air intake must be from locations that exhaust toxic air. The concerns addressed include airborne toxins that might blow on people, damage building materials, and re-entrain through passive and active components of the building ventilation system.	 14.2.8 (1) be above the eave of the roof, (2) be ten feet or more above ground level, (3) be ten feet or more from any window, door, or other opening into conditioned spaces of the structure that is less than two feet below the exhaust point, and (4) be ten feet or more from any opening into an adjacent building. 	 7.3.2.9 (1) Vertical and upward, outside the structure, at least 10 ft (3 m) above the ground level, above the edge of the roof, (2) Ten ft (3 m) or more away from any window, door, or other opening into conditioned or otherwise occupiable spaces of the structure if the radon discharge point is not at least 2 ft (0.6 m) above the top of such openings. (3) Ten ft (3 m) or more away from any opening into the conditioned or other occupiable spaces of an adjacent building. Chimney flues shall be considered openings into conditioned or otherwise occupiable space.
	6.4.1 General		
	6.4.2 Outdoors		7.3.2.9
	6.4.3 Directional spread (exhausted air)		
	6.4.4 Straight-line trajectory (exhausted air)		
	6.4.5 Elevation above grade	14.2.8	7.3.2.9
	6.4.6 Separation from operable openings in structures	14.2.8	7.3.2.9
	6.4.7 Separation from people (exhausted air)		
	6.4.8 Equipment Wells and Parapet roofs		
	6.4.9 Angled Trajectories (exhausted air)		
	6.4.10 Roof	14.2.8	7.3.2.9
	6.4.11 Below the roof (If post-mitigation testing includes a room that adjoins the exhaust location)		
	6.4.12 Horizontal trajectory (That could blow on people)		
6.5 Fan Installation	6.5.1 Fan design —Continuous duty; sealed, allows water to pass through, and represented by the manufacturer as both appropriate for the class of contaminants being extracted and manufactured with features that meet minimum safety standards	14.3.1 (sealed)	
	6.5.2 Safe locations—Not in or under conditioned space	14.3.3	7.3.3.2
	6.5.3 Approved locations (e.g., attics or exterior)	14.3.3, 14.3.5	7.3.3.2
	6.5.4 Fan Installation—Sized for mitigation goals; configure to avoid condensation build-up;	14.3.2, 14.3.4	7.3.3.1, 7.3.3.3
	Mounted with Flexible Couplings	14.3.7	7.3.3.6

INDUSTRY STANDARDS -

Title	Soil Gas Mitigation Standards for Existing Homes	Radon Mitigation Standards (RMS)	Installing Radon Mitigation Systems in Existing Low-Rise Residential Buildings
Last complete review/update	2023	1994	2000
Scope	ANSI/AARST SGM-SF	EPA RMS	ASTM E2121
Sealing	SGM-SF 7.0	EPA RMS	E2121
	Moved to a separate section because sealing is part of multiple mitigation elements and methods have commonalities		
Background and accessibility	EPA 1992-Sealing not considered a standalone mitigation method		
	Closure to resist air movement between soil and indoor air		
	Clarity—Applicable where accessible without disassembly of building materials		
Sealant Materials	Material descriptions	15.5, 15.6, 15.5	7.4.5, 7.4.6
Accessible cracks	Items to seal	14.5.3, 14.5.4	7.3.4.2
Other openings	Items to seal		
Sumps and Pits	Sumps to seal, covers, pit access and labels.	14.1.5, 14.5.1, 15.7, 15.8	7.3.6, 7.3.2.2, 7.3.2.8, 7.3.6.1, 7.4.3, 7.4.7, 7.4.8
	If modifying, appropriate water discharge destination.		
Membranes over exposed soil	6 mil minimum and overlapped 12 inches	14.5.6, 15.9, 15.10	7.4.9,7.3.4.4, 7.3.8
Sub-membrane Depressurization	Membranes <u>shall</u> be closed/sealed at seams, penetrations, and edges. An exception is provided but triggers other requirements	14.5.6 <u>should</u>	7.3.8.1 <u>shall</u>
Drains	Not always needed as prescribed before (on all drains to soil and all drains to daylight)	14.2.9, 14.5.1, 14.7.2	7.3.13.4, 7.3.8.1
Sealed Isolation Assemblies	Closure of depressurized or pressurized spaces, such as non-habitable airspaces	14.5.7	
All Systems and Method	Is SGM-SF 8.0	EPA RMS	E2121
Long-term Plan for OM&M	See Section 10 (documentation)	17.5 Guidance to retest every 2 years	
System Monitors	Viewable operating range monitors (e.g., u-tube manometer)	16.1, 16.2, 16.3	7.5.1, 7.5.2, 7.5.3
	Active notification monitors		
Electrical	Disconnect required within 6 ft. Exterior wire protected in conduit. No plugged fans outside	15.1 UL reference 14.6.5 No plugged fans outside	7.3.12, 7.3.12.6 Per cited 1999 NEC, allows plugged 120 V fan outside. Per 2020 NEC, GFCI safety breakers are required.
	Disconnect labeled (NEC 2020), rather than circuit breaker	16.5 Circuit breaker labeled	7.5.5 Circuit breaker labeled
Labeling	Primary label; system piping and equipment; sealed components; and access to treated non- habitable spaces.	16.4,	7.5.4
Inspection for Compliance	For intended design and compliance with this standard and codes.	6.2, 17.1	
Retention of Records	6 years (system records)	18.2 (3 years)	7.7.1 (3 years)

INDUSTRY STANDARDS •-

Title	Soil Gas Mitigation Standards for Existing Homes	Radon Mitigation Standards (RMS)	Installing Radon Mitigation Systems in Existing Low-Rise Residential Buildings
Last complete review/update	2023	1994	2000
Scope	ANSI/AARST SGM-SF	EPA RMS	ASTM E2121
Post Mitigation	SGM-SF 9.0	EPA RMS	E2121
9.1 Functional Evaluations	Requires a sub-slab pressure check once an ASD system is completed.	17.2 Pressure check recommended	
9.3 Initial Radon Test After Mitigation	Obligated to ensure retesting per EPA (with caveats)	6.2 and 17.4 Obligated to ensure retesting	7.6 No obligation to ensure retesting
Documentation	SGM-SF 10.0	EPA RMS	E2121
Owner-Occupied Maintenance	Information Packet	18.5	7.7.3
Non-ASD Systems	OM&M Manual required		
Independent Maintenance	OM&M Manual required, such as for rental houses. Similar to the information packet but directed to property managers. More detailed for VI projects.		
OM&M Manuals	Information packet details but additional operational details and clarity on obligations to maintain systems and monitor effectiveness over time.		
Inadvertent Collateral Mitigation (notifications)	Notice to the occupant of the adjoining home. Example: An open sump may backdraft a furnace next door.		
Health and Safety	SGM-SF 11.0	EPA RMS	E2121
2022 Safety Management Program required	Section 11. Because all radon mitigators bring helpers or staff on board as needed, safety management is of utmost importance.	Section 12. Identifies safety laws, worker protection plans and specific concerns	Section 6. Cites, and in some cases, interprets safety laws. [Defensible means to prove care for radon exposures were removed from E2121]
Safety Training	Key component of safety management		
Hazardous Building Conditions	Asbestos requirement similar Lead based paint (informative)	12.2.9 Asbestos requirement similar	6.2.7 Asbestos requirement similar
	Flue gas spillage (backdraft). Similar to E2121 where backdraft test not required.	17.3 Flue gas spillage (backdraft) test is required.	Flue gas spillage (backdraft) similar to SGM-SF. Backdraft test not required.
Radon Mitigation	Occupational risks monitoring portrayed similar to EPA where risk estimates can be based on dosemeters or highest known concentration in each building.	Risk estimates can be based on dosemeters or highest known concentration in each building.	No means cited for monitoring risk. Requirements cited from OSHA do not address time weighted average exposure.
Soil Gas Mitigation	HAZWOPER coordination		
Non-ASD Mitigation Met	hods SGM-SF 12.0	EPA RMS	E2121
Sources of Air		14.3.8 (Screen on intakes.)	
Indoor Air Pressurization			
Soil Air Pressurization			
Indoor Air Dilution		14.8 HRV only	7.3.15 HRV only
Soil Air Dilution			
Passive Methods & Systems			
Air Cleaning			
Water			
Building Materials			
Source Removal			



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NRPP

Thanks!

NRPP would like to thank the outgoing members of the Certification Council: Bill Brodhead, Bruce Snead, Angela Tin, David Metzger, Dan West, Jill Newton, and Justin Otto. The leadership you provided has increased the awareness and integrity of NRPP's certification programs and led to new opportunities, including ANAB accreditation of the single-family mitigation and measurement programs. We will miss your guidance and support.

NRPP would like to welcome the following new Certification Council members:



GREG JOHNS is representing Home Inspectors



ERIC GABRIELSON is representing Large Building Radon Measurement



JOE LYONS is representing Radon Educators

All three individuals were recently selected and bring a wealth of knowledge and experience to these roles.

NRPP Volunteer Experts Needed

NRPP is seeking volunteer subject matter experts for a number of its certification activities. We rely on the expertise of radon practitioners in the development of all our certification activities. Our programs are designed by the radon industry, for the radon industry, and we have a number of ongoing and future opportunities available.

We are in search of volunteers who would like to get involved in the certification development process which includes serving on a JTA (job task analysis) panel, writing and reviewing test questions for the various exams, and setting the passing scores on future exams. Detailed descriptions of these tasks can be found on the recruitment form here, which must be completed if you are interested in participating in any of these. We will contact you when we are actively recruiting for each task and, if you are no longer available or interested at that time, just let us know.

Pilot Testing at the 2023 Symposium

These tests are pilot tests, but they will not be scored until a sufficient number of people have taken the tests.

We estimate that it will take at least 4 weeks after the Symposium to achieve this volume. The more people who take the test, the sooner the pilot testing process will be over and the sooner we can score the exams and release the results.

For more information on the pilot testing process or if interested in taking a free pilot test, please see this <u>form</u>. To reserve a spot, provide the requested information and check the boxes to indicate your understanding of the pilot testing process. NRPP will follow-up with additional information as it becomes available.



The AARST Foundation is delighted to invite the entire radon stakeholder community to the Boots and Bling Gala Fundraiser October 28th, 7 PM to 11 PM, at the Renaissance Hotel in Nashville.

The primary objective is to rally support for the AARST Foundation's invaluable mission, which revolves around advancing lung cancer research and bolstering the radon industry with essential resources. The future of the Foundation hinges greatly on the benevolence of individual donors who wholeheartedly share our vision, as well as the invaluable contributions from businesses and corporations.

Your presence and active participation at the gala are sincerely appreciated and warmly welcomed. If you have any inquiries concerning attendance or wish to delve into AARST Foundation research initiatives or donation opportunities, please do not hesitate to reach out to our dedicated contact, Crystal Lytle. Your engagement and support truly make a world of difference. Unparalleled Customer Support from the experts in on-line education

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White Paper Sponsored by Fantech, Inc. Vibration Welding for Radon Fans

All radon mitigation systems perform a similar function, exhausting deadly radon gas from underneath the home. But not all radon fans are created equal. Among the many differentiating features that engineers, building pros, and consumers have to consider when comparing products is the manner in which the blowers are manufactured.

Vibration welding technology, common in other industries, has proven to be an ideal solution for bonding polymeric components in radon fan production. Compared to more traditional methods, vibration welding delivers a number of benefits, including greater strength and increased operator safety.

What is Vibration Welding?

Traditionally, the radon fan's two main plastic body sections are joined by caulking them together.

Vibration welding offers an alternative option: The process vibrates the two plastic parts under pressure, which generates friction and therefore heat to melt two small areas on each surface; the vibration stops, the pressure is held for a few seconds, and the parts weld and fuse into one.

The technology of vibration welding is employed regularly for the production of medical products and electronic components, where it's sometimes referred to as "ultrasonic weld." The benefits seen in those industries have translated well to radon fan manufacturing.

Why Is Vibration Welding Ideal for Radon Fans?

Vibration welding is performed largely by machine. By eliminating most of the human factor from this part of the production process, the technique delivers a number of advantages for operators and end users alike.

The vibration weld process is safer for operators because it eliminates the repetitive motion of caulking that can lead to employee safety and even health challenges such as carpal tunnel syndrome. Vibration welding takes roughly half the time of caulking, about 15 seconds per unit versus 30 seconds per unit. Caulking also requires 3 or more hours of drying time and more than 24 hours to fully cure. In addition, because caulk is applied by humans, there is a chance of too little material being applied, potentially leading to leaks. The bond created by vibration welding is stronger, 100% leak proof 100% of the time, and it is longer lasting and more consistent. Caulk may break down over time.

Along with consistency and control, the machinery used in vibration welding provides immediate identification and notification of potential errors or problems.

Finally, vibration welding also is more environmentally friendly than caulking or a chemical weld.

How Is Vibration Welding Performed?

Though a relatively simple method, vibration welding uses sophisticated equipment. For manufacturers, getting started involves an initial capital investment in machinery, tools, and fixtures, as well as time and resources to redesign components to meet the needs of the process.

Manufacturing with vibration welding needs machinery capable of generating the required vibration with highly controlled and specific manufacturing criteria. Vibration frequency and amplitude are determined based on part size, geometry, and material.

Not all components are suited to vibration welding, so the manufacturer will need to redesign the geometry of the fan sections to ensure parts do not become compromised during the process. The geometries of the two parts are designed such that small features as small as a few millimeters—on each surface are in contact to melt during the vibration weld rather than the entire fan sections.

During design, products are subjected to comprehensive testing to verify the safest and most efficient process that ensures utmost quality for the manufacturer's product line. This includes drop testing, pressure testing, impact testing, and others.

The transition to vibration welding involves investment and commitment, but the positive returns for the manufacturer and customer alike can be seen almost immediately.



The FHFA and Government Sponsored Enterprises' Multifamily Radon Policy - Update

In February 2021, Federal Housing Finance Agency (FHFA) directed the Government Sponsored Enterprises (GESs) to develop a new multifamily radon policy. Fannie Mae and Freddie Mac's Joint Multifamily Radon Policy (JMRP) was <u>announced</u> in January 2023 with an effective date of July 1, 2023. The GSEs released <u>"Frequently Asked Questions"</u> (GSE FAQ) on June 28, 2023 and again August 3, 2023. The elements of the Joint Multifamily Radon Policy (JMRP) are described below.

Exemptions.

The JMRP exempts from any radon testing requirements:

- Properties with existing debt to GSEs that have undergone previous radon testing in compliance with the 2023 GSE policy
- Supplemental mortgages, cooperative, manufactured housing communities, and properties secured by an SBL mortgage
- Properties with no ground-contact residential units (e.g., ground-floor is retail, amenities, or leasing office only; residential units above a parking garage or ventilated crawl space compliant with local building codes)
- Properties with property-wide mitigation systems in place operating under an existing radon Operation and Maintenance (0+M) plan
- Properties that, when newly constructed, incorporated radon-resistant design elements per the Enterprises' Guides, including a
 - Layer of clean gravel or aggregate installed beneath the slab or flooring system;
 - Layer of plastic sheeting or a vapor retarder installed on top of the gravel layer;
 - Gas-tight venting pipe installed that runs from the gravel level through the building to the roof; and
 - Thoroughly sealed and caulked foundation.
- Properties determined by the Environmental Professional to not require testing and/or mitigation for documented reasons. EPA radon map zone designation is not an acceptable sole or primary reason for exemption.

Testing - Qualification.

Despite the availability of personnel certified by two private national proficiency programs that have been recognized by the US EPA since 2001, the JMRP requires no radon professional credential nationwide to perform radon testing. Instead, the JMRP states that testing must be managed by (but not necessarily performed by) an Environmental Professional (EP), a job classification that is not inherently qualified to perform or oversee radon testing.

Both Freddie Mac (Exhibit 11) and Fannie Mae (Form 4251), acknowledge "If applicable State law requires radon testing to be conducted by a State-certified radon professional, the Environmental Professional must be State-certified or engage a State-certified radon professional to conduct the testing." GSE FAQ states that the "involvement of the EP

• POLICY

may trigger state requirements for licensing and certification that require placement of devices be performed by a radon professional" this statement reflects some confusion: the actual performance of radon testing in a state with credential and standards requirements triggers the need to comply with these requirements.

Testing – Scope.

The JMRP requires that initial testing include at least 25% of all ground-contact units (GCUs) at the <u>property</u> and no fewer than one test conducted per building containing GCUs at the property. *The ANSI-AARST standard and several state measurement protocols require testing 100% of GCUs in each building. There is a 38% chance of missing a high radon unit if 25% of GCUs in each building is tested. The JMRP's novel testing protocol further scatters risk across multi-building properties, where only one unit might be tested in most buildings and the remainder of the 25% property-wide target is fulfilled in a few others.* No more than 15% invalid tests (such as lost or deficient) are permitted; the EP determines sufficient valid results for characterization or if additional testing is required.

The JMRP does not require any testing on upper floors. *The ANSI-AARST standard and several state measurement protocols require testing 10% of upper floor units in each building.*

If after completion of initial testing, any building has a unit(s) with radon concentrations \geq 4.0 pCi/L, the JMRP requires that either a second round of testing occur, by testing at least 25% of the building's GCUs, where the 25% must include retesting the unit(s) already found to have radon concentrations \geq 4.0 pCi/L (and may include only the other ones already tested), or the EP recommend mitigating just the unit(s) already found to have radon concentrations \geq 4.0 pCi/L. The ANSI-AARST standard and several state measurement protocols require testing 100% of GCUs in each building.

Testing – Supervision of Device Placement.

The JMRP allows, unless expressly prohibited by state law, the EP to "direct a Property representative to place and/ or retrieve the radon testing canisters as deemed appropriate" by the EP if the EP has provided "proper training and direction must be provided to the Property staff." *The ANSI-AARST standard requires that, in addition to providing training, the qualified radon measurement professional "be physically present during all onsite activities for placement and retrieval of radon detectors and shall be immediately available to direct, instruct, oversee and control activities of any other individuals placing and retrieving detectors." It also requires that the qualified radon measurement professional "create and present a written work plan specific to apportioned tasks and obtain evidence that the work plan is understood" by any non-certified person who has not recently demonstrated appropriate training and skills in device placement and retrieval.*

Testing – Methodology.

The policy mentions that all testing must be conducted in compliance with all applicable state and local laws and regulations and specifies that if a conflict exists between applicable laws/regulations and the GSEs' policy, the lender shall follow the more stringent requirement. Otherwise, *the JMRP does not specify the ANSI-AARST standard, or any other protocol or guidance on testing methodology, and it does not require quality assurance actions to address the risk of bias, contamination, or error in sampling.*

Testing - Notification of staff and tenants.

The JMRP requires that staff and tenants receive guidance on maintaining building conditions for testing, device placement and retrieval dates, and information to obtain federal and/or state guidance on health risks.

Mitigation – Scope.

The JMRP requires mitigation of any unit with radon greater than or equal to 4.0 pCi/L. After mitigation, under the 25% GCUs per property / one GCU per building testing scope, occupants of the untested, non-mitigated units (up to 75% of the GCUs per property and as many as all units minus one per building) will remain exposed to an unknown radon level. The radon level in such a units may increase due to soil depressurization elsewhere.

Mitigation - Qualification.

The JMRP requires mitigation of any unit with radon greater than or equal to 4.0 pCi/L by a qualified radon mitigation professional that will determine the type of appropriate mitigation system required and whether the installation of a multi-unit mitigation system is necessary.

Post-mitigation testing.

The JMRP states that testing after mitigation must confirm radon concentrations < 4.0 pCi/L in any unit on the mitigation plan. The ANSI-AARST standard states: "Performance testing mitigation systems by testing only locations where elevated radon concentrations have been found shall not be reported as clearance testing verification that a building has been fixed."

Mitigation – Methodology.

The JMRP states that all mitigation must be conducted in compliance with all applicable state and local laws and regulations; if a conflict exists between applicable laws/regulations and the GSEs policy, the more stringent applies. *Otherwise the JMRP does not specify the ANSI-AARST standard, or any other protocol or guidance*.

Operations and Maintenance (O&M) - Program Requirements.

The JMRP states any required mitigation system must be managed under an O&M program that includes periodic inspections of all system components.

Ongoing Radon Testing:

The JMRP states that ongoing testing is not required unless specified under the O&M Program to confirm ongoing performance of the mitigation system.

Industry Response

Throughout FHFA's development of its policy, AARST has repeatedly registered concerns regarding the importance of requiring the use of EPA-recommended consensus standards and qualified personnel, and especially the necessity of testing each ground contact unit in order to avoid missing any unit with high radon when characterizing a multifamily building. FHFA and the lending community have been misled into believing that inadequate testing without regard to qualifications or standards is acceptable. AARST efforts to improve the policy will continue.

Monitoring Improper Contracting

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AARST is tracking improper offers/contracts and reporting for multifamily radon measurement or mitigation work solicited by a lender or an environmental consulting/due diligence firm and will report on such activity to states, FHFA, HUD, and other authorities having jurisdiction.

For this purpose, AARST created an online form that allows radon professionals (and others) to report information about improper offers / contracts. "Improper" is defined as radon projects where the solicited/contracted scope of work is in violation of an applicable state law or regulation or radon standard, such as testing less than 100% ground-contact units.

The report should identify the due diligence firm and/or lender involved in the contracting. The report must include a property address. Partial building sampling, partial building mitigation, and using untrained/unqualified persons to test are examples of the offers to be reported. The reporting person's identity will be kept confidential by AARST, but an email address is requested so that we can reach out with any questions.

To access the reform:

Google Form https://tinyurl.com/RnReportMF

Microsoft word doc (download/send to AARST)

BUSINESS



Hiring Tips for Today's Job Market

Brent Ulbert, PDS Radon Supply

"No one wants to work anymore." I've heard this sentiment, unironically, from far too many people this year. In the last 18 months, I've made three hires. Our longest-tenured current employee is entering his fourth year and was just promoted, and our longest employee ever was with us for over two decades. We still chat from time to time.

Hiring has never felt like a problem for me, so when I started hearing, "No one wants to work anymore" from my customers, I felt like I needed to do something. I started documenting my methods, and--as usual--here I am with unsolicited advice.

I admit it hasn't been all roses. In the last twelve months I've had three hires, one firing, and one hire quit on day two. Mistakes are part of learning, and I'm going to share those too so that you can get a full picture.

When I first took over PDS seven years ago, we had no mission statement. We knew what we did, but it was never explicitly stated as to why. In business school, mission statements were 101, so I wrote one. I wrote our mission statement and our values statement, then didn't touch them for six months. One day we were hiring a new employee, and it came down to two candidates. It felt like a coin flip. My gut wasn't giving me advice one way or the other, so I pulled up our mission and values statements and put them next to the resumes. Immediately, one candidate stood out over the other. We made the hire and had a great working relationship for nearly three years. I tell you this story because it's important to know exactly what your company is about so that you can be explicit when hiring.

A job interview is like a first date. You want to learn about them, but they also should want to learn about you. After all, you're going to be spending a lot of time together. If you can't articulate your business, its values, its mission, its operations, then you won't land any 10/10s. So step one of any hiring process is to know your business and explicitly write down what you're looking for. This will help with step two: job posting.

Where do you post your jobs? Craigslist, Facebook--YUCK. Like everything else these days, there are services designed to do the work for you, so use them. I use ZipRecruiter. I heard ads on a podcast, and one day I decided to try it out. There are other options, but I've stuck with them. The benefits are: They post to multiple job sites, so you eliminate redundancies; they craft the posting for you, so no graphic design work is needed; they ask "deal-breaker" questions, so you don't waste your time; and they have a big ol' dashboard that can reach out for interviews, communicate with candidates, etc.

Spend a considerable amount of time with your job posting. Be honest. Be specific. Post a wage or salary. If you're hiding your salary, it probably means it's not enough. We start our employees quite low, but we give them raises often. This protects us from risk and incentivizes them to work hard. We're upfront about it, and that helps tremendously with retention. Why spend all this time trying to find good candidates if you don't touch base with them and keep them happy? Retention is always cheaper than hiring.

 6 My hiring advice in one sentence: Know exactly what you're looking for and pay a fair price for it.

We do a private, one-on-one employee review every six months. We grade the employee on 5 basic job skills on a scale of 1 to 5, with 5 being the best score. They are given the employee review worksheet on day one of employment, so they know exactly what is expected of them. We have an employee handbook that's nearly two dozen pages long for all the nitty gritty. They should be getting 5/5 and a raise every six months. If not, they are told why and given something to work on over the next six months. Explicit, honest communication: Are you seeing a theme?

The nice thing about Zip Recruiter is the "deal-breakers". I find that when I post I get too many candidates. You can ask questions like, "Are you comfortable working in a hot 3-foot-high crawlspace for half a day?" and if potential candidates say "No" you don't even get an email, they just go to junk. Use these questions to your advantage. You don't want to

BUSINESS



sit down to an interview and learn that the candidate has never held a drill before and needs a ride to work every day.

So, you've written a mission and values statement; you've posted a job; you've created deal-breaker questions; and you're offering a competitive wage. Now you wait. I'm in a top 50 US metro area, so I get a few dozen applications a day, with maybe five or six that make it through dealbreakers. You may not get that many, but review each one as it comes in and start reaching out for phone interviews ASAP. I try to schedule 45-minute interviews at my office. Look for red flags during this scheduling time. Are candidates prompt and detailed in their replies? Or do they miss things right off the bat? They need to be able to make it to the interview on time and be prepared. That's a bare minimum. Don't be afraid to call off the interview if they cannot communicate properly. Tell them why; it'll help them get the next job.

Again, interviews are like a first date. Meet the candidates at a jobsite. Show them around. You want them to know what they're getting into. I always end the interview by introducing the candidate to their future co-workers, thanking them for their time, and urging them to ask their future co-workers a lot of questions. Then I leave. This gives the candidate ample opportunity to ask about you, in a private setting.

Once the candidates leave, I do a straw poll with my current employees and ask for a vibe check. Did you like candidate A or B? What did you like about them? Would they fit in? My current employees are often the deciding factor when it comes down to one or two candidates for the gig. They can see in my blind spots. If you and your employees differ significantly on an opinion of a candidate, that's a red flag.

Throughout the entire process, trust your instincts. Every time I've had an employee wash out early, there were signs beforehand. Things I overlooked or "powered through." When I've had to fire someone, it was often months after the cracks in the relationship started to show. If you give yourself some time to quietly contemplate how things are going with your team every now and then, you'll be doing yourself a great service.

Oh, remember those employee reviews? I get reviewed then, too. Turn the questions around: What is one thing you'd like me to keep doing as your manager? What is something you'd like me to stop doing? Are there any team issues I'm unaware of?

When you ask questions directly, you get direct answers. My employees love this time to talk about their working environment in a constructive manner and setting. Issues don't fester. People can deal with a tough day knowing that in X number of weeks they can sit down with me and talk about it. They might not storm up to my office with a problem because they know they can take a breath and think about it, then save it for our review. It's like an oil change for our relationship.

I'll be giving a longer presentation on this topic at the symposium in Nashville. Join me and bring your anecdotes and your questions. We're all in this together! My hiring advice in one sentence: Know exactly what you're looking for and pay a fair price for it.