



IAQ RADIO

Show Number: 683

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Jennifer Isenbeck, PE, LEED AP

Meghan McNulty, PE

ASHRAE 62.1 Ventilation & Acceptable Indoor Air Quality
Is Acceptable, Acceptable?

This week we welcomed Dr. Brendon Burley, Jennifer Isenbeck, PE and Meghan McNulty, PE for a show we called ASHRAE 62.1 Is Acceptable, Acceptable?

The ANSI/ASHRAE Standard 62.1-2022, Ventilation and Acceptable Indoor Air Quality has been under the microscope with COVID and now RSV, Flu, etc. The standard has been the topic of many comments and critiques. This week we bring the perspective of three committee members to get their perspective. LEARN MORE & SHARE MORE on IAQradio+

GUEST BIOS:

Brendon Burley, PhD, PE, LEED AP has been in the design industry since 1998 providing freelance CAD services for a number of clients in the Philadelphia area before moving on to work on his degrees and research at The Pennsylvania State University. For the past 14 years he has been focused on designing health care and higher education projects, mostly in the mid-Atlantic region. His projects range from laboratory equipment installations to medical center expansions and replacements, including projects involving advanced imaging equipment, medical and research containment facilities, and clean rooms. In addition to his work experience, he has been a member of ASHRAE since 2011 where he has served as a member of Standard 62.1 Ventilation and Acceptable Indoor Air Quality,

Standard 170 Ventilation for Health Care Facilities, and the Environmental Health Committee. He currently serves as the chair for Standard 62.1.

Jennifer Isenbeck, PE, LEED AP is currently a staff engineer with Moffitt Cancer Center. In the Planning, Design and Construction department, she works with various consultants on implementing best practices in healthcare design, campus infrastructure as well as providing design reviews, commissioning oversight and project implementation into operations. Prior to this role, she was Director of Operations (Facilities) for various corporate and academic institutions. Jennifer is currently chair of ASHRAE MTG.EBO (Effective Building Operations), past Chair of ANSI/ASHRAE Std 62.1 (2019-2022), DRC, Society Board of Directors (2013-2016). She currently is a member of ASHRAE Standards and Publications Committees.

Meghan K. McNulty, LEED PE, is a Senior Project Engineer at Servidyne, in Atlanta, GA. She works with building owners and operators to reduce energy and emissions while improving indoor air quality in existing buildings. She specializes in investigating and modeling energy use, assessing ventilation systems, and compliance with local building energy policies. Meghan is a Registered Professional Engineer (PE) in Georgia and LEED Accredited Professional in Operations and Maintenance (LEED AP O+M). She joined Servidyne in 2013 with a Master of Engineering from Virginia Tech and a Bachelor of Science in Mechanical Engineering from Princeton University. Meghan volunteers with ASHRAE on the Government Affairs Committee; Standard Project Committee 62.1, *Ventilation and Acceptable Indoor Air Quality*; and Technical Committee 4.3, *Ventilation Requirements and Infiltration, as Chair*. In 2019, she received the ASHRAE Government Affairs Award for outstanding effort and achievement in state, provincial, and local government activities in connection with technical issues related to society.

Nuggets mined from today's episode:

Background

“Standard 62.1 is a consensus standard written by volunteers and published by non-regulatory professional organization, ASHRAE. A variety of different participants from companies, building owners, consultants, governmental authorities and professionals are included in the group of volunteers that develop the standards. The volunteers will be expected to maintain the standard over time,

and to reissue a revised standard in a timely fashion. These types of standards can be adopted by governmental agencies, such as building authorities, but not all are intended for this use.

Regulatory standards are legal documents that have been issued by a governmental authority, such as OSHA, USEPA, etc. For example, OSHA issues Permissible Exposure Limits (TLV's) as regulatory standards mandated under the law. The building code is another example of a regulatory standard.

Best Practices standards or guidelines are not consensus or regulatory standards. They are intended to offer the best practices for a specific field of reference, such as the best practices in construction. The use of the words, 'shall', or 'will', is not used in these documents since these best practices are not required under the law by a government authority. ASHRAE issues guidelines on a variety of subjects, including the Indoor Air Quality Guide, and the soon-to-be-issued Guideline 42P, Enhanced Indoor Air Quality in Commercial and Institutional Buildings.”

The show began with a video clip of Joe Allen’s comments at the White House IAQ Summit in which questions the acceptability of ASHRAE’s guidance on acceptable IAQ. <https://youtu.be/q1HCG1aXaBg?t=866>

Brendon Burley: According to ASHRAE an environment which is not objectionable to 80% of the building occupants is considered acceptable. He pointed out that historically, ASHRAE’s ventilation rates have changed throughout history from as low as 4-6 CFM per person to 20 CFM per person. The current standard uses 5 to 20 CFM per person depending on occupancy type and also includes area based ventilation rates ranging from 0.06-0.18 CFM per square foot. ASHRAE’s ventilation rates are not designed to control infection. If you want ventilation rates for healthcare facilities, he advises to refer to ASHRAE standard 170.

Meghan McNulty: ASHRAE 62.1 sets the floor, the absolute minimum ventilation rates. Providing at least those minimum ventilation rates when the building is occupied is not negotiable so many existing buildings are not operating even to this minimum standard, and that needs to change.

Jennifer Isenbeck: Works mostly with water cooled HVAC systems. ASHRAE has committed to developing a (non-consensus, non-ANSI) [IAQ Pathogen Mitigation Standard](#) for the White House to distribute.

Brendon Burley: Consensus standards are best because they can reduce dominance and bias by bringing all of the stakeholders to the table. During consensus standard development the interested parties often must give something up.

Jennifer Isenbeck, Meghan McNulty, Brendon Burley
ASHRAE SSPC 62.1 – VENTILATION SUBCOMMITTEE FOCUSES ON SOURCES,
SOURCE CONTROL AND VENTILATION RATES

- Currently 20 committee members
- Goal is for ventilation to be better than acceptable. Better, Safer, More Efficient
- Any revisions to the standard are subject to Public review.
- The Standard is under Continuous maintenance- incorporates current information
- With Formal updating every 3-4 years.
- The committee is Open to suggestion; submit Continuous Maintenance proposals: osr.ashrae.org

Brendon Burley: ASHRAE's position is one of humility. ASHRAE cannot guarantee the health and safety of occupants. ASHRAE rules prohibit health and safety claims: "1.201.006 Health and Safety Impacts of ASHRAE Publications (04-06-30-05) Consistent with the ASHRAE' Certificate of Consolidation, Bylaws and Code of Ethics, ASHRAE activities and publications including but not limited to position documents, handbooks, special publications, standards and guidelines, technical and educational programs, and conferences shall consider health and safety impacts, where appropriate. While ASHRAE does not make findings as to the health and safety impacts of environmental exposures, ASHRAE activities and publications where appropriate shall consider and reference findings issued by cognizant organizations with the appropriate scope and expertise."

There is a difference between an acceptable and quantifiable contaminant such as formaldehyde and a pathogen. Pathogens refer to a wide range of contaminants.

Different people require different exposure limits. You can't put a general number on it, nor can you quantify or regulate a pathogen. Health is still considered broadly consistent with ASHRAE policy.

Jennifer Isenbeck: Most ASHRAE members are engineers. **The statements we make today are our personal opinions, not ASHRAE's official positions. ASHRAE needs to stay in its lanes, which is to focus on HVAC&R.**

Meghan McNulty: Formaldehyde is a concrete example. Once we know what limit of formaldehyde is permitted, we can design for it.

Brendon Burley: Issues such as controlling infection risks in operating rooms, pressurizing needed for sterility, etc. is found in: **ANSI/ASHRAE/ASHE Standard 170-2021 -- Ventilation of Health Care Facilities**. Developed in partnership with Facility Guidelines Institute (FGI) and American Society of Health Care Engineering (ASHE), ASHRAE Standard-170 has been providing key guidance on ventilation requirements for health care industry facilities since 2008. Use Standard 170 alongside *HVAC Design Manual for Hospitals and Clinics* for comprehensive design guidance on hospitals, nursing and outpatient facilities.

Meghan McNulty- ASHRAE 62.1 is referenced in many building codes, but only a small portion of 62.1's requirements.

Jennifer Isenbeck: Updates to ASHRAE 62 has been simplified through removal of some indexes and appendices where ASHRAE went out of its lane.

Meghan McNulty- The revised ASHRAE 62.1 ("Simplified Procedure") is easier to apply. There is also a compliance process for existing buildings to meet the current standard – filtration, calculated and measured outdoor air, and controls.



What about filtration requirements? Filtration recommendations were originally meant to protect equipment; MERV 8 is current minimum. Outdoor air may need to be filtered in some instances.

Brendon Burley: Some of his favorite changes are still in flux. He's an advocate for incorporation of information from Facilities Guidelines Institute (FGI). The change from RH to Dewpoint, cautions that no one is enforcing Dew Point. Notes below tables were removed. Density correction was unintentionally removed. ASHRAE is considering adding density correction in the future. It's not just what's new it's also what's next!

What about asthma recommendations? Jennifer Isenbeck: ASHRAE doesn't specifically deal with asthma. She recommends local filtration.

Florida parents are concerned about IEQ in their children's schools? Jennifer Isenbeck: When the schools were originally built they met the code. Schools shut down over summer to save energy, this causes condensation. Due to humidity concerns, opening windows in Florida schools is not a viable option.

Brendon Burley: Exciting research projects being done in ASHRAE 170, such as diseases that are tied to climatic conditions (e.g. respiratory illness in cold dry climates).

ROUNDUP-

Jennifer Isenbeck: As an engineer her thinking has changed, she now is working on a guidelines for buildings as a system. People, pathogens, pathways and pressurization are key considerations for building detectives.

Meghan McNulty: We need to consider improving IEQ along with energy efficiency. How to most affordably fix existing buildings now without causing mold problems.

Brendan Burley: Ventilation, IEQ and Energy. Developing consensus standards while hard is the right way to approach standardization in a meaningful and efficient way. The new pathogen standard is just the beginning with room to grow.

Z-Man signing off

TRIVIA:

In what year was the first patent application filed in the US for the technology used in a continuously operating refrigerator which can be made without moving parts?

Answer: 1922, Munters Carl Georg & Platen Baltzar Carl Von US 1645017A

<https://patents.google.com/patent/US1645017A/en>

Answered by: John Lapotaire

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