



**Richard J. Shaughnessy, PhD**

**John Downey, Executive Director CIRI**

The Life and Times of an IAQ Legend  
Healthy Buildings 2021 Research to Practice

This week welcomed Richard Shaughnessy, PhD, IAQ Director at the University of Tulsa and the Cleaning Industry Research Institute (CIRI) Executive Director John Downey. Dr. Shaughnessy is a legend in the IAQ world and many of our listeners express their thanks for his role in trying to bring research and practice together over the years. Dr. Shaughnessy is also the Healthy Buildings America 2021 Vice President. For HB 2021, ISIAQ and CIRI have joined forces with the theme “Bridging the Gap Between Research and Practice; In the Age of COVID 19 and Beyond.” We look forward to interviewing Dr. Shaughnessy about the early days of IAQ right up to the present and getting his and John Downey’s thoughts on HBA 2021.

Richard J. Shaughnessy, has served as Director of the University of Tulsa’s Indoor Air Quality Research Program (TUIAP) in the Chemical Engineering Department since 1987. His studies have focused on particulate research, air cleaner evaluation, indoor chemistry, school studies, asthma/housing research, and resolution and remediation of bioaerosol-related problems. He has also served as President of The International Society of Indoor Air Quality and Climate (ISIAQ), and continues to work with the Society to translate science into practice.

John Downey is Executive Dir. CIRI. He is also a fourth generation carpet cleaner and president of Downey’s Carpet Care of Granville in Ohio. John was also the founder of *Cleanfax* magazine a long-time industry trade publication he sold in 1999. John has been a long-time industry association leader, volunteer and member of numerous committees and boards of directors. His industry connections are second to none and he is respected as a man of his word who

listens to both sides of an issue prior to making his own decisions on the proper direction to take.

### **Nuggets mined from today's show:**

Notable IAQ Radio+ listeners have credited Richard Shaughnessy for getting them into the IAQ field.

### ***Richard, how did you get into IAQ?***

Just out of college not sure what he wanted to do. First became involved in water management, then wastewater and air management. He felt he wasn't serving the common good. Knowing some of the EPA's staff he became interested in IEQ and joined forces with them in moving forward.

### ***Tell us about the early days of IAQ?***

The late 1980s were the wild west days of IAQ. This was the first time that many emerging IAQ issues such as radon were being discussed. Richard knew many of the original 190 founders of ISIAQ. (e.g. Terry Brennan, Bill Turner, Bob Axelrod, Jed Harrison, etc.) The first ISIAQ event was held in Toronto in 1990. Richard said he owes what he knows to early industry pioneers such as: John Kernan, Phil Morey and Bill Nazaroff).

### ***Why bioaerosols not HAZMAT?***

Recognition of problems is important to IEQ investigations. HAZMATs like asbestos and have very prescriptive remedial mitigation methods (e.g.: encapsulate, enclose, remove and manage). He didn't see these problems as a challenge. Microscopic bioaerosols have always been a driver. Microscopic fungi and MVOCs cause immediate reactions such as aggravating allergies and triggering asthma or worse. Harriett Burge was a trailblazer.

### ***History of the Bioaerosols book?***

In 1989 the ACGIH Bioaerosols Committee published Bioaerosols: Assessment & Control 1st Edition. The second edition was published in 1999. According to Richard, it's a hard act to follow. Richard is a member of the next revision's review team. Making sure that all the i's are dotted and the t's crossed and determining are we simply repeating or building upon the prior work?

### *Is ISIAQ for researchers or practitioners?*

ISIAQ has been successful in bringing researchers and practitioners together with a focus on solutions for current problems, not problem 10-15 years in the future. Practitioners need answers here and now for issues encountered during their everyday activities.

In 1990 the MN Dept of Health began looking into ozone. Richard has conducted studies on ozone. He is widely considered to be an expert on ozone producing devices.

Technical journals are the graveyard for scientific research.

- For assessment of biocontamination problems, he stresses investigation. Sampling may not be needed. Field practitioners rely on sampling.

### *Delineating fungal ecology.*

The term normal fungal ecology isn't easily defined. DNA sequencing provides intimate new information on what is happening in homes. Richard is working on a tool along with Jordan Peccia (at Yale) that will differentiate between normal fungal ecology (dry) and abnormal fungal ecology (wet). According to Richard, Dr. Peccia is unparalleled at taking a sample and not looking for specific things rather going beyond culturing and microscopy complexities and going to the ultimate. Jordan has narrowed down the determinants. 15 different locations were sampled and thousands of samples have been taken; the resulting algorithm can delineate normal and abnormal ecology.

- Covid while horrific, has accelerated research dramatically and is a remarkable example of what can be done if we work harder on it.

***Healthy Buildings 2021 Honolulu*** is one of the most exciting ventures he has ever been involved with. Previously, ISIAQ only rarely forged research to practice connections. Healthy Buildings 2021 Honolulu is the first all out attempt to bring together researchers and practitioners together. Of the 80 people involved with planning the event, many are practitioners. Practitioners should not be intimidated

to submit abstracts for presentation topics. Research to practice is the centerpiece for the conference and is found in workshops, plenary sessions and events.

### John Downey-

- Research to practice is the key element of Healthy Buildings 2021 Honolulu. Through CIRI's connections with practitioners, Healthy Buildings 2021 Honolulu is reaching out to field practitioners and encouraging them to submit abstracts on a unique problem they've encountered in the field and how they solved it. Through these presentations researchers will learn the types of info that field practitioners need and be able to translate that into more relevant research in the future.
- Short courses before the conference. John, representing CIRI, and David Krause, representing AIHA, are working together on one of the short courses.
- Healthy Buildings 2021 is a science gig, not the typical type of event field practitioners attend. So far, they have received 152 abstract submissions and expect to receive 250-300.
- In the lab setting, narrow research parameters and deep research. In the field, it's the opposite. Wide parameters (problems, challenges) and shallower research.
- Field practitioners' businesses are laboratories in which we devise solutions.  
John's suggestion for abstracts related to practice:
  - Describe the challenge. Explain the approach taken to solve it.
  - Was useful research available?
  - Investigate. What options found to solve it?
  - What did you choose as a solution?
  - Did the applied solution work? What could be done better in the future?

**John Downey "lectures" at Ohio State.** When a researcher (Karen Dannemiller, PhD) at Ohio State, asked Radio Joe Hughes for a recommendation of someone who could talk about carpet cleaning and maintenance, Radio Joe suggested John Downey. When John spoke at a conference at Ohio State, the majority his

audience were PhDs and PhD candidates. John's important takeaway from the event was that researchers want and need input from field practitioners.

- There hasn't been a research-orientated field practitioner organization like CIRI before. CIRI is the ideal organization to help bring practitioners and researchers together.

The age of Covid and beyond. The lasting impact of Covid on jobs, duties and the future.

More information on Healthy Buildings, go to <https://hb2021-america.org/>

## ROUNDUP

### John Downey

- Seeking more field practitioner abstracts for HB2021 which will acquaint researchers with real world issues.
- Field practitioners can't do the same types of research work that academic researchers can do, they lack the expertise, the knowledge, the instruments and the budget.
- Likewise, academic researchers can't do the practical, real-world research field practitioners do in the course of business on a routine basis. Both are needed.
- As a field practitioner, John Downey went to Ohio State and spoke to a group of academics about carpet from the standpoint of a practitioner. While there he was treated like a rock star and formed important relationships with academic researchers.

### Richard Shaughnessy

- The inspectors looked for either dry or abnormal condition information, so no gray data found its way into Jordan Peccia's algorithm. Prediction is this tool will ultimately be used for post remediation verification of water damage and mold remediation projects.
- Not so much what I know, what I know are the people I've met. Those connections bolstered him to where he, the research and industry are now. Shoutouts to Jordan Peccia and Mark Hernandez.

- It's not what happens in the event, it's what happened outside...the one on one interactions, follow-ups, connections, it's irreplaceable.
- The Sloan Foundation often supports topics that are identified both by academics and practitioners.
- After 1.5 years of Covid, its necessary to bring people together.

### **Global Restoration Watchdog- Pete Consigli**

- Understands Richard's viewpoint on face-to-face networking. Since Covid, the nonprofit model has changed. People now meet and get together virtually. There is a group of people who wouldn't travel to Hawaii and would call-in and participate virtually.
- Abstract is an academic term. Pete attributes Joe Lstiburek, PhD with destigmatizing the term abstract by saying:
  - How did we apply what we knew?
  - What did we do? How did it work?
  - Don't try to explain the science to scientists.
- Pete recommends optional use of the term case study in place of abstracts.
- Consigli Epistle- The funder of the research determines the subject matter for the research. Citing a Purdue University model, where: 1) all of the professors who teach construction had on-the-job experience, 2) construction advisory council formed through industry meetings, job fairs, career fairs, industry has influence on curriculum which improves job placement after graduation.
- The spirit of ISIAQ and CIRI = bridges formed.
- Understands the organizations concerns about people not attending an event if a virtual option exists; he opines that those really interested will attend live and those who can't afford the cost will participate virtually.

### ***Z-Man signing off***

#### ***Trivia Question:***

Here is today's trivia question: How many people founded the International Society of Indoor Air Quality and Climate (ISIAQ)?

Answer: 109

Answered by Terry Sopher

Following this podcast, additional firsthand information was provided by J. David Miller, PhD: Our thanks to Dr. Miller for providing this additional information.

Canada had the first committee that proposed guidelines for Indoor Air Quality in 1987. This was started at the request of the Provinces (who have jurisdiction) and a hard working group produced the first set of guidelines.

- <http://publications.gc.ca/collections/Collection/H46-2-90-156E.pdf>

The meeting in Toronto in 1990 was in fact the first meeting that led to the formation of ISIAQ which was first incorporated in Canada.

There was little government interest in IAQ and powerful commercial interests at work not least from the cigarette industry. It took a lot of brave people like David Jacobs at HUD, Mark Mendell (who prepared the first NIOSH response to a query about the impact of IAQ on the US worker, and some folks at the EPA to change things.

ISIAQ was started by IAQ scientists and engineers after IAQ 90 which was the first large meeting. It followed a series of meetings in Europe. Doug Walkinshaw and friends were able to convince a number of Canadian agencies to support the Toronto meeting which was for its time very good.

- [https://www.isiaq.org/previous\\_conferences.php](https://www.isiaq.org/previous_conferences.php)
- [https://www.isiaq.org/about\\_us.php](https://www.isiaq.org/about_us.php)

ISIAQ was first incorporated in Canada. Richard was involved. In the Mendell 1993 paper there is a citation that shows the corporate address in Ottawa.

- [https://www.ic.gc.ca/app/scr/cc/CorporationsCanada/fdrlCrpDtls.html?corpId=3078361&V\\_TOKEN=null&crpNm=international%20association%20of%20indoor%20air%20quality%20and%20climate&crpNmbr=&bsNmbr=](https://www.ic.gc.ca/app/scr/cc/CorporationsCanada/fdrlCrpDtls.html?corpId=3078361&V_TOKEN=null&crpNm=international%20association%20of%20indoor%20air%20quality%20and%20climate&crpNmbr=&bsNmbr=)

Health Canada has done pioneering work on radon.

The senior author of these papers (of many) Dr. Letourneau (MD) started working on radon from Canadian uranium miners (think Manhattan Project: the uranium came from Canada) and this quickly transitioned into indoor air work. The first primary data on this and the health epidemiology came from Health Canada and Dan Krewski (then at Health Canada).

- <https://academic.oup.com/rpd/article-abstract/7/1-4/303/3108643>
- <https://academic.oup.com/aje/article-abstract/140/4/310/73352>

Dan was a leader in this field sorting out the attributable risk of cancer and radon together (a lot).

<https://www.nationalacademies.org/news/1998/02/radon-especially-in-combination-with-smoking-contributes-to-lung-cancer-deaths>

As the EPA found its footing in IAQ (there was as I recall Congressional resistance) a bunch of excellent people worked to create the group that Laura Kolb is associated with which is excellent.

Serious mold and dampness study began in countries with single payer health systems (Holland, Sweden, Denmark and Scotland and Canada).

Cheri Marcham and Jack Springston are in charge of the ACGIH Bioaerosol book rewrite.