



## IAQ RADIO+

Show Number: 735 FINAL BLOG

Don Weekes, CIH, CSP  
Bioaerosol Sampling Plans, Indoor Air 2024, ASHRAE/AIHA MOU

Good Day and welcome to IAQ Radio+ episode 735 blog. This week, we welcomed Don Weekes a frequent guest and longtime friend of the show. Don provided highlights from Indoor Air 2024, the ASHRAE/AIHA MOU and the Global IEQ Alliance. Don provided insight on his chapter in the ACGIH Bioaerosols 2<sup>nd</sup> Edition on Developing a Bioaerosols Sampling Plans.

Mr. Weekes has over forty-nine (49) years of comprehensive consultation expertise and project experience in the implementation and management of inspections for hazardous materials in numerous buildings throughout Canada and the United States including universities, colleges, governmental offices, and commercial and residential buildings. During Mr. Weekes' career, he has served in numerous senior management positions in both the consulting and insurance industries.

As a Certified Industrial Hygienist (CIH) and a Certified Safety Professional (CSP), Mr. Weekes has served as an environmental health and safety professional for various international corporations and professional organizations. His extensive capabilities in health and safety audits have enabled him to work in facilities involved with manufacturing, warehousing, and logistics.

### Nuggets mind from the show:

Don maintains a busy schedule as a fulltime volunteer.

- **ISIAQ 2024**- the group put on a good show. A record 900 attendees. The primary subject concentration was on public health, social, physical and mental health inequality. The health decline of those with lower income is more rapid than the health decline of the more affluent. The asthma rate of the south Bronx NY is double that of across the bridge.

<https://www.nyc.gov/assets/doh/downloads/pdf/epi/databrief126.pdf>

Sleep comfort- bedding and minimization of thermal issues. Good sleep is the prerequisite for good health. Carbon dioxide levels during sleep. Health concerns over paraben preservatives.

Both the IICRC and RIA participated in a panel discussion of “Should surface cleanliness be an independent factor?” and HVAC cleaning.

***Radio Joe opined that researchers don't care about remediation.*** Don Weekes responded that the lack of research into remediation is due to a lack of funding. Don suggested that IICRC and other groups interested in remediation and cleaning research develop agendas outlining their research interests and offer grant money. 25%-30% of ISIAQ 2024 attendees are graduate students developing their masters' or Ph.D. thesis, their thesis will most likely follow-the-available-funding.

***ASHRAE-AIHA MOU-*** Memorandum of Understanding. Both ASHRAE and AIHA are the gold standards for their respective fields. AIHA's expertise is in health, inspection and sampling. ASHRAE's expertise is HVAC equipment and systems. ASHRAE's RAC (Research Administration Committee) provides up to \$2M annually for funding grants.

Indoor Environmental Quality - Global Alliance (IEQ-GA)-Don Weekes is past president, Bill Bahnfleth is the interim president. Will be providing a free Engineering Glossary of Terms and a Consumer Guide to IEQ.

***AIVC Air Infiltration and Ventilation Centre*** (<https://www.aivc.org/>) is an international group in four continents with 250K members

***Joe Lstiburek*** changed peoples' viewpoints following 9/11.

***Developing a Bioaerosols Sampling Plan-*** the biggest change from the 1999 Bioaerosols book occurred when we began our work to complete an update of the original. Instead, it ended as a new book with additional info on a wide assortment of bioaerosols. The year 2000 marked the “Mold Rush” and litigation, right after the first edition of the Bioaerosols book was issued. The new 2024 Bioaerosols book goes way beyond the 1999 book, now includes endotoxins and other bioaerosols, and includes bioterrorism. A significant change is the new emphasis on thorough building inspections and a preference for observation versus sampling. Creation of a hypothesis and sampling plan should precede sampling. Don cautions: “don't take a sample unless you know what you are sampling for”, “don't take a sample unless you

know the answer first”. Phil Morey was known for taking large numbers of samples on projects; but toward the end of his illustrious career, he took fewer samples as needed.

Don Weekes advocates for minimizing the number of samples taken on projects. According to Don, samples can help to prove or disprove a hypothesis. Air samples only capture what is trapped on the filter surface. Surface sampling captures what is on the surface. Microbial air sampling in quiescent areas may result in false negatives. Both the hypothesis and sampling plan should precede the beginning of sampling. Sampling should carefully answer the questions or problems derived from the inspection and the hypothesis. This includes a thorough visual inspection of what inspector sees, documentation, thinking through what is logical to do and where to sample.

Examples of hypothesis:

“Is mold growth in a crawl space effecting the air quality in the rooms above?”

“Is that substance living mold growth on a surface or bulk sample?”

“When the problem is found in an area, what to do with the rest of the building?”

***There is a good bit of discussion on using a lab to help with your sampling plan but aren't some labs the reason we see so much unnecessary sampling?***

A thorough inspection and the development of a hypothesis as to what is the probable cause of the microbial contamination is needed before discussing air sampling techniques and sampling media with the lab and its CIH. Good labs will be able to assist you with developing your sampling plan.

Labs will tell you how to take a bulk sample, and what analysis is needed.

***Under decisions involved in determining where to collect samples it says select 1 or preferably or  $\geq 3$  samples per location?***

You can take 1 sample when you know what you are looking for.

***What is your opinion on PRV (post remediation verification)?***

Select randomized sample locations based upon the visual inspection. It's hard to prove a negative, e.g. that successful cleaning has been done. There are no numerical guidelines for microbial samples. Concern versus nonconcern areas. AIHA Guideline 3 <https://www.aiha.org/education/marketplace/mold-guideline-2nd-edition>

### ***When is PRV air sampling appropriate?***

Outside versus inside, concern area versus nonconcern area; compare the critical areas indoor versus outdoor,

### ***What is stratified sampling, when and where is it appropriate?***

A stratum is a subgroup. Part time workers versus fulltime workers. Stratified sampling allows the inspector to develop a sampling plan for a building with different populations, different settings and different possible causes of the microbial contamination.

### ***Blank samples?***

Don is an advocate for blank samples. They may demonstrate that blank has little to do with a contaminated field when blank sample tested in field shows no contamination. Blank samples may not be needed when other samples from the same lot tested in the field showed no contamination. When air sampling and you have no idea what you will likely find, blank samples are required. Blank samples are not needed when taking a bulk sample as you can't miss the source.

### ***Wall cavity samples?***

Are discouraged because both false positives and false negatives are common.

### ***Outside samples for PRV?***

Outdoor samples are subject to the unique environmental conditions encountered during the sampling. You will need to explain why you did or didn't include an outdoor sample.

### ***Don's Final Word:***

Encourages attendance at the 2025 ASHRAE Conference on IAQ-Montreal, Canada Sept. 24-26, 2025. Interested in presenting, there is a call for papers. <https://www.ashrae.org/about/news/2024/ashrae-issues-call-for-papers-for-ieq-2025>

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

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

What did the following scientists (Redi, Spallanzanni and Pasteur) try to prove or disprove?

Answer: The occurrence of spontaneous generation

Sorry, there was no correct answer.