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IAQ RADIO+

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Jeff May

Life and Times of an IEQ Pioneer

Good Day and welcome to IAQ Radio+ episode 770 blog. This week we welcomed IEQ Pioneer Jeff May for a Life and Times interview. The meeting focused on indoor air quality (IAQ) consulting work, where the discussion covered various IAQ issues, including odor detection methods, proper filtration systems, and the impact of central air conditioning on respiratory health, with particular attention to maintenance requirements and environmental factors affecting indoor air quality.

Jeffrey C. May is co-author of the textbook "Spaceship Earth: Physical Science," as well as author or co-author of four books on indoor air quality (IAQ) including "My House is Killing Me" and "The Mold survival Guide." A nationally known speaker on IAQ topics, Jeff combines his education as an organic chemist with his professional experience as a teacher and building inspector to help people improve the environmental conditions where they live and work. He is committed to working with people who like himself suffer from allergies, asthma, and chemical sensitivities. He grew up in Forest Hills, NY and resides in Massachusetts with his wife and co-author Connie L. May.

Nuggets mined from today's episode:

Jeff May shared his background, including his transition from teaching chemistry to home inspection and eventually to indoor air quality work. While working in real estate, Jeff's wife Connie suggested that Jeff become a home inspector. She arranged for Jeff to shadow a home inspector and Jeff was hooked. ASHI chapters (homeinspector.org) have a ride-along program for those considering home inspection as a career. Jeff stressed the importance of IEQ investigators understanding both Building Science and Mechanical Systems. Jeff's work as a home inspector prepared him for his career in IEQ.

Author: Impressed with Jeff's skills, a client who worked for Johns Hopkins University Press suggested he write a book. The outline came about when stuck in a traffic jam for 5 hours; Jeff created the outline verbally while wife Connie took dictation. Jeff May's first book was inspired by both his personal and a client's experience with mold problems in her home. The title of the book was "My House is Killing Me" came from a phone message left by the client on Jeff's office answering machine.

Sampling Self Analysis: Jeff is among the small minority of IEQ professionals who are skilled and experienced enough to analyze their own sample by microscopy. By taking courses and through books and self-study Jeff has learned how to analyze his own samples via microscopy. Jeff often takes 15-20 samples on an inspection and doesn't charge clients for sampling. Jeff has analyzed tens of thousands of samples. Through his microscope, Jeff looks for allergens (e.g.) mold, pollen, insect parts & frass, allergens, "surrogate allergens", etc. Jeff defines "surrogate allergens" as nonallergic particles to which allergens attach and are transported such as corn starch donning powder used in latex gloves, corn-based kitty litter, rust particles from puddles in air handlers, etc. Jeff disagrees with the EPA's preference for only visual inspections over sampling and lab analysis, though Jeff agrees visual inspections are a critical part of any investigation. Jeff discussed multiple problems which were resolved by sampling and analysis such as mold in a buckwheat pillow and wood char fragments in a mattress that appeared to have gotten wet in a warehouse fire and been set outside to dry.

Jeff's concerns over the accuracy of mold analysis performed by mold labs were reinforced by two studies during which identical samples were sent to different labs for analysis. The lab results demonstrated varying degrees of accuracy. Jeff explained that only one or two labs report (in a footnote) on the presence of chains/clusters of Pen/Asp spores in an air sample, which are always indicative of an indoor *Aspergillus* and/or *Penicillium* mold-growth problem. He strongly recommends asking your lab to report the presence chains/clusters of Pen/Asp mold spores in indoor samples.

Retirement? Jeff has slowed down some, he still goes out to do investigations at least once a week.

Allergist vs Pulmonologists: Jeff opined that allergists seem unconcerned about indoor allergens, while pulmonologists refer patients to him who are facing life-threatening lung conditions clearly known to be caused by allergen exposures.

Dust is food. The edible portion of dust is comprised of skin particles, starch, insect parts, insect frass, pollen grains, etc. upon which microorganisms and insects feed; the other part of dust are the allergenic fecal pellets left by the insects and the mold spores from indoor growth. *Because Dust is Food-Dust is the Devil.*

HVAC systems: According to Jeff, HVAC systems are risky, especially those which provide cooling. System cooling coils are difficult to access for cleaning and collect dust which in combination with moisture amplifies microbial growth causing IAQ issues for building occupants. Jeff discussed a novel method he uses for sampling the interior of forced air HVAC systems. After opening some doors and windows for ventilation, he places an inverted Burkard spore trap sampler resting above a supply register to collect an air sample while gently patting the supply-plenum sheet metal surrounding the A/C coil to aerosolize collected dust. He emphasized the importance of proper filtration and regular cleaning to prevent dust and microbial growth in air conditioning systems. Jeff also shared insights from his research on the link between central air conditioning and respiratory problems, highlighting the need for regular maintenance of heat pumps and mini-splits. Radio Joe added a reminder to always use a flashlight when inspecting HVAC components.

Recommended Reads: In addition to reading his books; Jeff recommended Carl Zimmer's book Airborne as an important read. ("the long-forgotten pioneers of aerobiology including William and Mildred Wells, who tried for decades to warn the world about airborne infections, only to die in obscurity.")

Patch Test- Jeff May is credited for inventing the "Patch Test" for odors. While investigating an odor problem in a law office, Jeff sniffed various building materials and contents and found that a Yellow Pages phone book resting on a table was retaining odor on the bottom side only and asked an employee of the firm to confirm if that was the malodor of concern. Jeff realized that paper could retain odor. Jeff's patch test consists of a paper towel folded in half placed on the target surface and then covered with aluminum foil and held in place by painter's tape.

Indoor Air Quality Sampling Challenges

Jeff discussed his experience in indoor environmental quality consulting, highlighting the challenges of the profession due to opposition from large industries.

Most Rewarding Project: Jeff shared an interesting case where a vibrating, recently installed attic hardwood floor, due to air-pressure changes in the well-ventilated attic caused the occupant to have severe sleep disturbances due to air pressure oscillations in the bedroom under the attic; the problem was resolved by adding boxes of books to change the floor's resonant frequency.

Humidifiers: The group also discussed humidifier preferences and safety, Jeff prefers warm-mist humidifiers.

Mold remediation practices: Jeff emphasized the importance of controlling relative humidity in basements and properly sealing framing after remediation.

More on mini-splits- Jeff noted that their energy efficiency comes at the cost of poor air filtration, requiring more frequent cleaning in dusty environments, though Linda Wigington (ROCIS.org) suggested proper installation and air purification can help mitigate these issues. Odors from mini-split units are caused when moisture meets dust and odorous microbial amplification occurs. In order to meet government mandated energy guidelines, manufacturers reduced the power of blowers so low that proper filtration cannot be installed on a mini-split; an efficient filter would create too much air resistance for the blower.

The Future of IEQ: The future is sad. There is no University Level training in IEQ. Jeff expressed his ongoing frustration with the challenges to overcome opposition from large industries (e.g. asbestos, lead paint, fiberglass, chemical, HVAC manufacturers) who overlook or deny that their products pose health risks to building occupants.

Mold panic and the cure: People terrorize themselves by searching for help and finding misinformation on the internet. An example of misinformation is, “Bleach doesn’t kill mold, it makes it angry and it makes more mycotoxins.” The cure is to read Jeff’s book: “Mold Survival Guide.”

Mold that swims: While examining with a microscope water from his ultrasonic humidifier Jeff found small motile mold spores with tails. ("'Motile' refers to the ability of an organism to move independently using metabolic energy. This term is often used in biology to describe organisms that can move spontaneously, as opposed to those that are sessile or immobile." Wikipedia) Jeff found the humidifier emissions allergenic and switched to a warm-mist humidifier. (Motile spores from Chytridiomycota destroyed the roots of potato plants in Ireland and caused the infamous potato famine there.)

Biggest Lesson Learned: Don't fix anything. Once you fix it, you own the problem.

Common Mold Remediation Mistakes:

1. Leaving fiberglass and allergenic debris atop the foundation.
2. In basements that have not been continuously dehumidified, invisible mold is commonly found on wood, especially ceiling framing. Wood should be HEPA vacuumed and sealed.

Wartime Economy: War between energy efficiency and air quality.

Z-Man signing off