



SAFETY IN

MAINE

The Way Life Should Be

Maine Safety & Health Conference

October 18-20, 2022—Augusta Civic Center



Beginners Primer
INDOOR AIR QUALITY

WHO WE ARE



Full-Service Environmental Services Company

Founded in 1986

Major Practices

- Environmental Services
- Environmental Health & Safety (OSHA & IAQ)
- International
- Life Sciences
- Risk Management

INDOOR AIR QUALITY (IAQ) BEGINNERS PRIMER

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IAQ



Building Related Illnesses

Sick Building Syndrome

BUILDING RELATED ILLNESSES



- Pontiac Fever
- Legionnaire's
- Bats & Birds
- Humidifier Fever



BIOLOGY LEGIONELLA

- Bacteria is in the 1 to 3 micron range and will clump into filaments.
- Requires special media agar to identify and quantify, thus under diagnosed
- 42 different species of legionellae
- 15- 16 actually cause disease 1-6, out of 46 serogroups, with group 1 most important
 - L. pneumophila L. bozemanii
 - L. micdadei L. domoffii
 - L. longbeache

GRAM NEGATIVE FLAGELLATED BACTERIUM

- Loves warm water, 68 – 140 degrees, 80-120 ideal
- Grows/multiplies within amoeba (biofilm)
- Released from amoeba and aerosolizes
- Infects lung and enters the lungs phagocytes/
macrophages where it multiplies.
- Lung infected, pneumonia, spreads in blood supply to
liver, kidneys, etc.

LEGIONELLA OUTBREAK



- August 2018, Hampton Beach NH
- 49 Cases 34 Confirmed, 2 deaths.
- Sands Hotel on the main strip
- Improperly maintained Hot Tub per State report, exhaust fan to street side shower unit for folks to wash off beach sand.

LEGIONELLA CASES



- Medical facility in Maine
- Hotel southern Maine
- Hotel northern NH
- State Office Building
- Hospitals in NH

COVID

- Solution to Pollution is Dilution.
- Increase introduction of TEMPERED Fresh Outside Air.
- Increase MERV Ratings of filters as high as feasible preferably MERV 13.
 - MERV 6 – 50% reduction
 - MERV 13 98% reduction

BAT QUANO



PERCEIVED IAQ ISSUES

- OSHA Complaint and Letter



COMMON IAQ PARAMETERS



- Carbon Monoxide
 - Should not be present

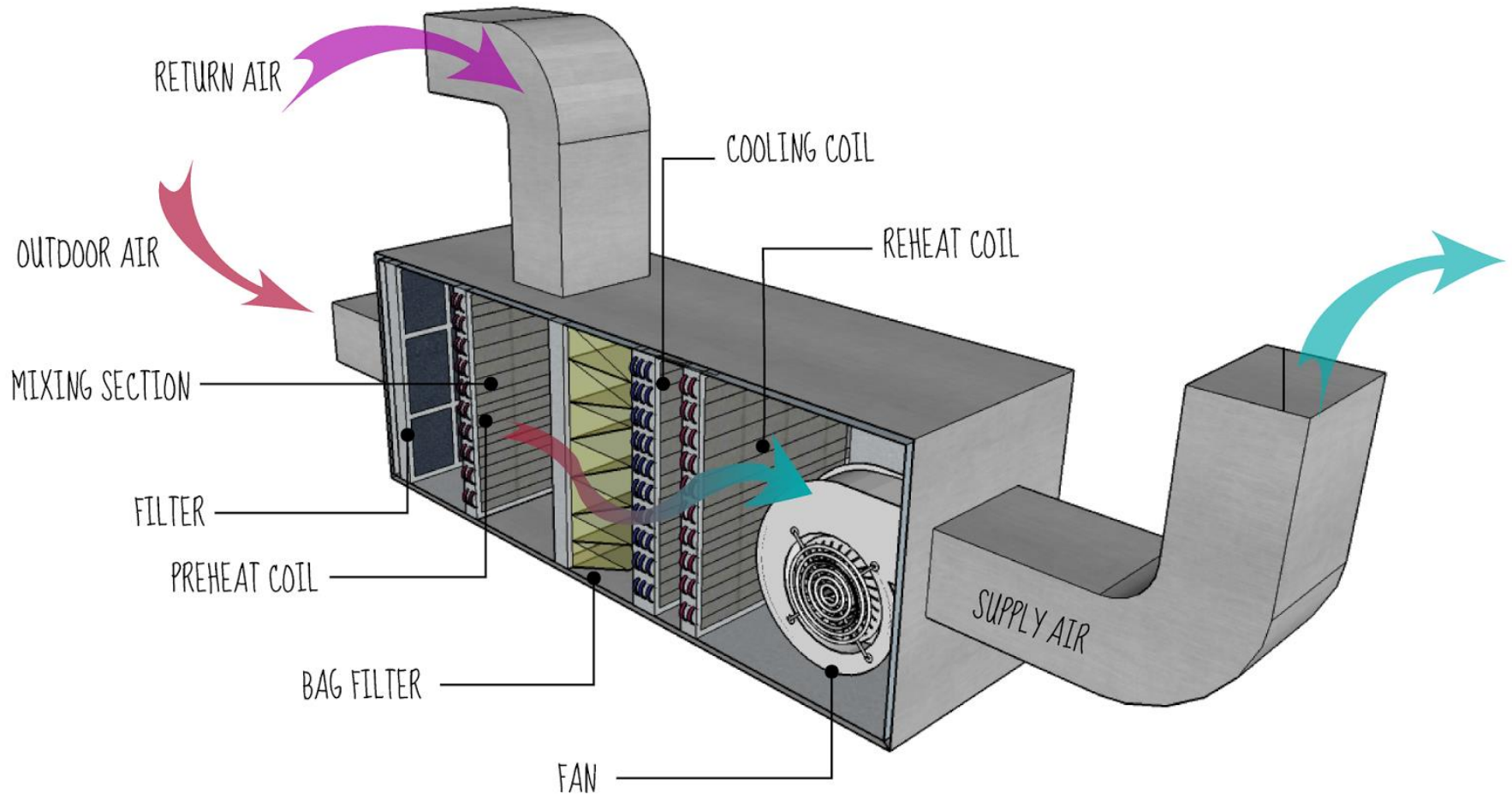
- Carbon Dioxide
 - Guidelines include <700ppm over outside
 - <1,000 PPM

- Relative Humidity 30 – 50% EPA



heti 

BASIC IAQ



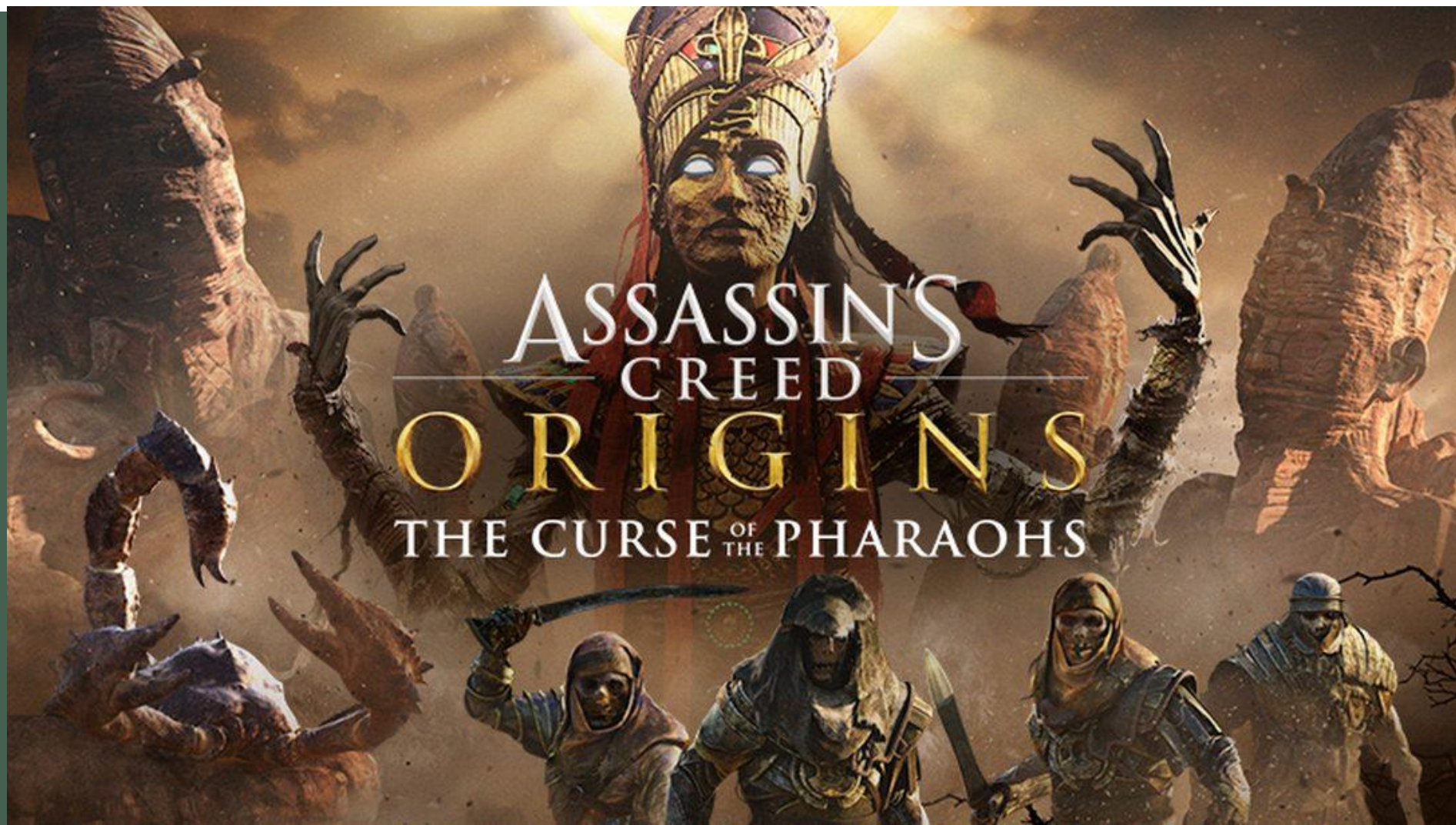
CONDENSATE PAN OF HVAC UNIT



FUNGI ASPERGILLUS NIGER



CURSE OF THE PHARAOHS





WEAR A HELMET

100% NEW YAMAHA
1800-888-8888

SONY
CD RECEIVER
EXTRA BASS
AUTO REVERSE
AUTO PAUSE
AUTO EJECT
AUTO STOP
AUTO REVERSE
AUTO PAUSE
AUTO EJECT
AUTO STOP

MOLD

- No federal Standards
- Few State Regulations
- Fungi = Mold – is everywhere
- Elevated moisture levels and organic material = Mold Growth
- Inside Versus Outside.
- Control Moisture results in Minimal Fungal Growth

HVAC CYCLING - ON OFF



RECOMMENDED STANDARDS

- Green Building Council LEEDS
- ANSI - ASHRAE multiple standards
- OSHA only no Standard
- EPA Tools for Schools
- American Industrial Hygiene Association Guidelines, several
- NADCA Cleaning Standards
- IICRC S520



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THANK YOU - QUESTIONS?