

## **EBC Seminar**

# **The IAQ/Mold Assessment – Getting it Right! – Controlling Your Risk**

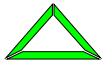
## **Next Speaker**

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**M.B. Amster & Associates, Inc.**

***Environmental Business Council  
The IAQ/Mold Assessment–Getting it  
Right!–Controlling Your Risk-June 1, 2006***

**IAQ Investigations  
Helpful Hints**



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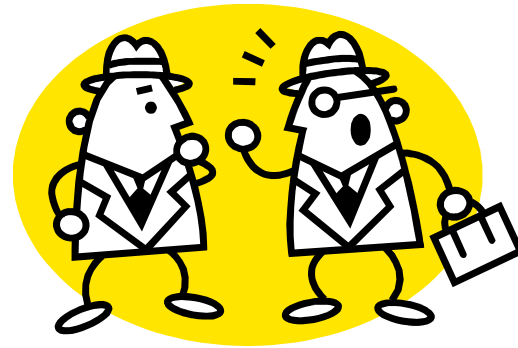
# Objective

- **Can't cover everything**
- **Hopefully, something of interest to everyone**

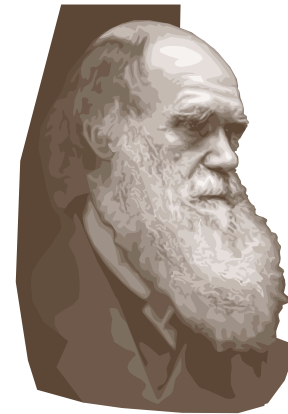


# Discussion Points

- **Background**
- **Acceptable IAQ, Evaluation and Measurement**
- **Case Studies**



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# Energy Conservation

- **First Energy Crisis, early 1970's**
  - Tempering air costs \$
  - Tightened buildings
  - HVAC systems,  
outside air,
  - Nebulous IAQ/health complaints
    - Physiological??



# Mold

- **Ubiquitous in the environment**
- **Water damage/high humidity**
- **Health effects**
  - **Allergens**
  - **Immune-compromised individuals**

# The Occupants

- **MUST** respond in a timely manner – avoid “outrage”
- **Interview those affected/complaining**
- **Admit they feel what they feel**
- **Assure you are trying but may not find THE answer.**
- **Keep them informed of the study and the response**

- **Background**
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# Focus

- **Non-industrial environment**
  - **Office Occupancies**
  - **Office occupancies within a manufacturing environment**



# Guidance

- **Not particularly specific**
  - Some Standards/Recommendations
  - Requires judgment
- **“Conditions consistent with acceptable IAQ”**
- **Issues involve nebulous health complaints, typically when they arrive or after lunch**
- **Mold Specific**
  - Amplification – affected/  
affected, inside/outside



# Parameters – Adequate Outside Air

- **Carbon dioxide as an indicator**
- **MADEP guidance**
  - 800ppm
- **ASHRAE Std. 62.1-2004**
  - 700ppm above bkgd
- **Anecdotal Experience**
  - Approaching and >800ppm

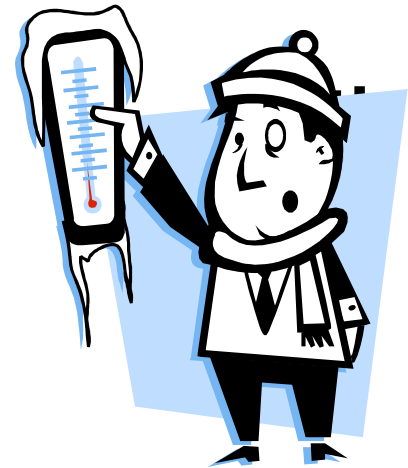


# Parameters – Adequate Outside Air

- **Requires adequate outside air supply (office ~5 cfm/person)**
- **CO<sub>2</sub> levels - beginning of the day**
  - **High and rising or**
  - **Rising from an initial level at or near background (~350-400ppm)**

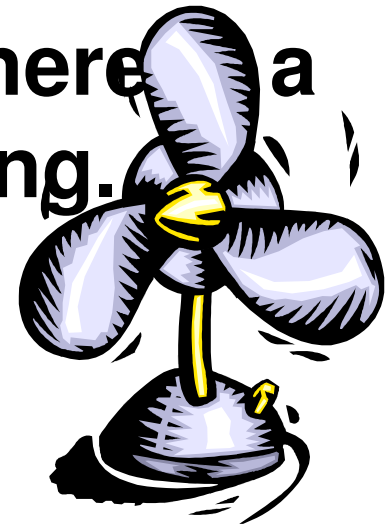
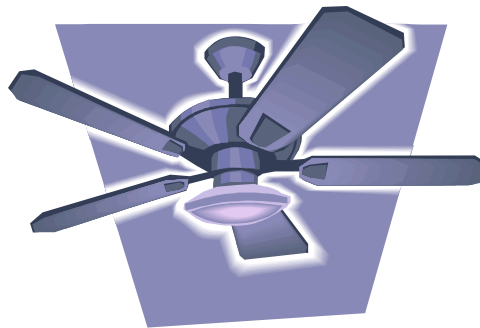
# Parameters – Temperature Control

- **ASHRAE 55-1992, Thermal Environ. Conditions for Human Occupancy**
- **Temp Range (10% Dissatisfaction)**
  - Winter 71 degF (68–75 degF)
  - Summer 76 degF (73–79 degF)
- **Varies seasonally and humidity**
- **Can't satisfy everyone**
- **Cooler better than warmer**



# Parameters – Air Movement

- **HVAC system should move air during occupancy**
- **Regardless of whether there is a call for heating or cooling.**



# Parameter - Humidity

- **ASHRAE Std. 62.1-2004**
  - Recommended <65%
  - Seasonally in NE at times <20%
- **Humidifying for human comfort - discouraged**
  - Humidification system maintenance
  - Minimize potential for mold growth.

# Parameter - Mold

- **No water - no mold**
- **Issue of amplification**
  - Site of water damage
  - Site of mold growth
- **Be clear on the focus of the investigation**
  - Affected, Non-Affected, Outside
- **Remove visible mold**



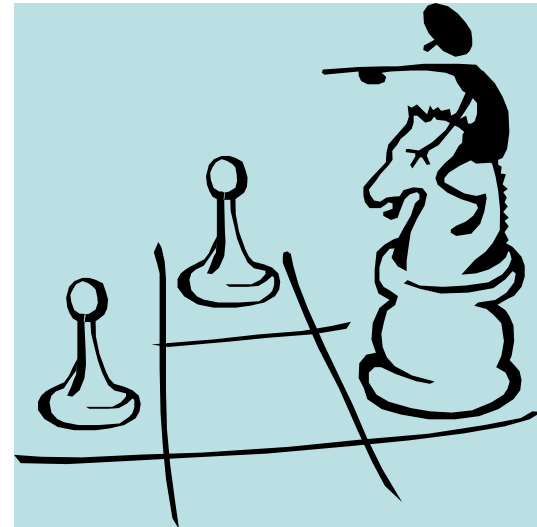
# Parameter – Chemical Contaminants

- **Non-Industrial Environment**
  - 10% of the occupational health limit



# Evaluation

- **In the Space**
  - HVAC equipment – design, location, operation, and maintenance
  - Other activities
- **Adjacent Spaces/**
  - Re-entrainment



# Measurement

- **Instruments for IAQ parameters**
  - **Easy to operate**
  - **MUST understand the numbers**



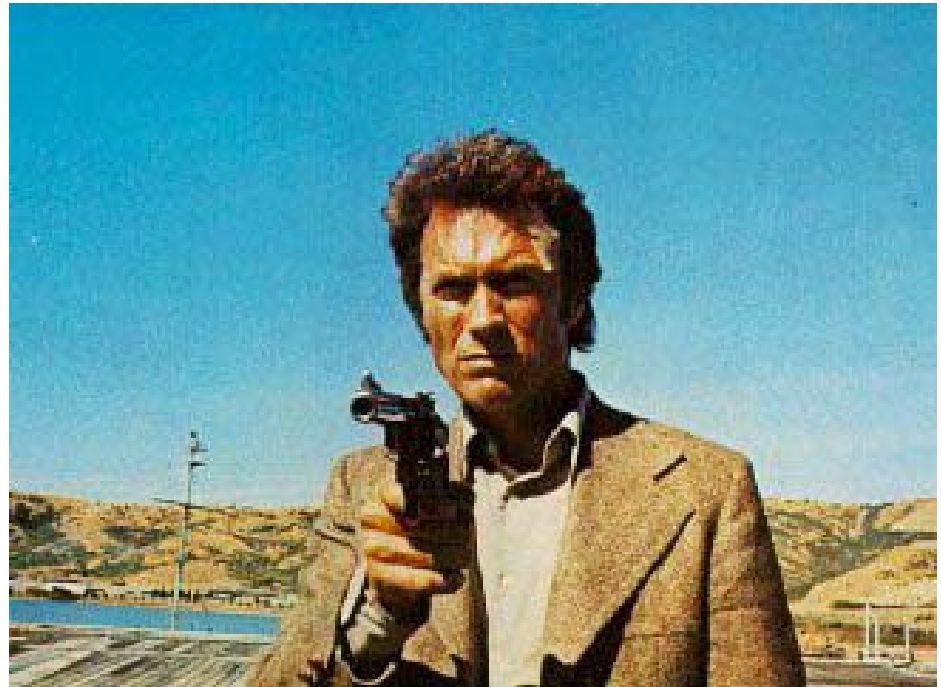
# Just Be Careful Out There

**“A man's got to know his limitations.”**

**Magnum Force**

**Clint Eastwood**

**(1973)**



# Communication

- **Effectuated want to feel good, or at least understand what is going on**
- **Regardless of the environment – don't want to know they are below the OSHA TLVs or the ACGIH TLVs – they mean!**



- **Background**
- **Acceptable IAQ, Evaluation and Measurement**
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# Office

- **During pre-mold remediation air sampling heard comments about the mold making everyone feel “bad”**
  - **IAQ survey found high levels of CO<sub>2</sub> at the beginning of the day, got worse as the day progressed. Also, low and intermittent levels of CO**

# Office Area – Chemical Plant

- **Complaint about feeling bad after lunch.**
- **Solvent samples in the production area all within limits**
  - **IAQ survey found nothing out of the ordinary**

# Office Area – Shared Occupancy

- **“Typical IAQ Complaints” also engine exhaust in the morning**
- **Sales office – small warehouse area adjacent**
  - **IAQ study found elevated CO<sub>2</sub> ; elevated temperature and humidity; and low and intermittent levels of CO.**

# Recommendations

- Usually not just one issue that requires attention
- Be responsive, fix what you can
  - If the problem goes away, you are a hero
  - If the problem persists, keep

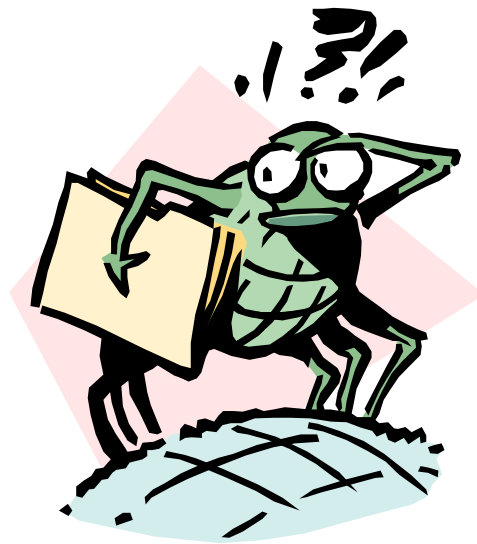


# Summary

- **Background**
- **Acceptable IAQ, Evaluation and Measurement**
- **Case Studies**

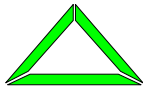


# Questions ??



# Thank You!

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