



Indoor Air Quality

What Every Biosafety Officer Should Know!

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A white sticky note is pinned to a blue background. The note has a red pushpin at the top center. The text on the note is written in a black, casual, handwritten font. The background is a solid blue color with a pattern of white puzzle pieces on the left side.

What's
the
plan?



Noise

Vibration

Lighting

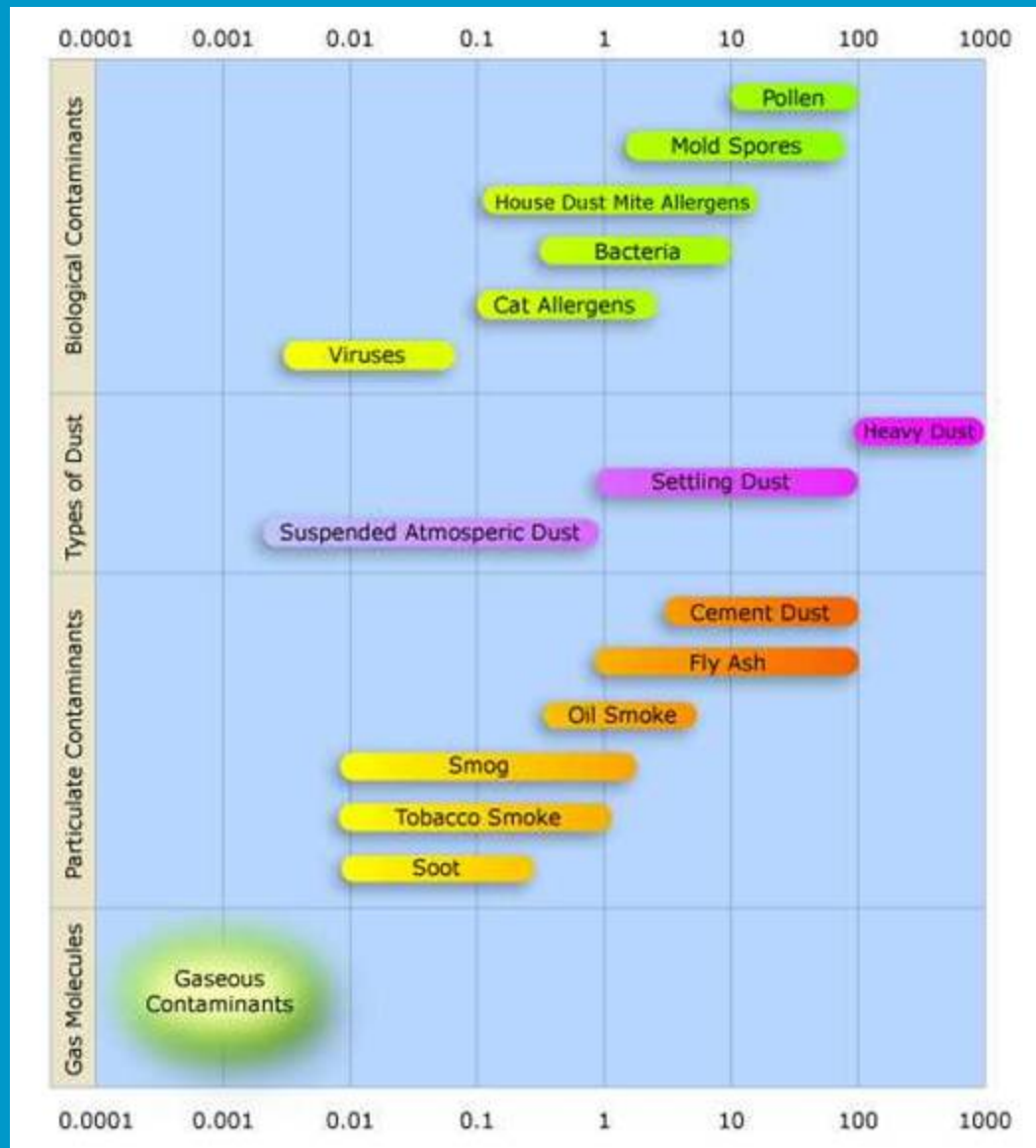
**Indoor
Environmental
Quality**

AIR

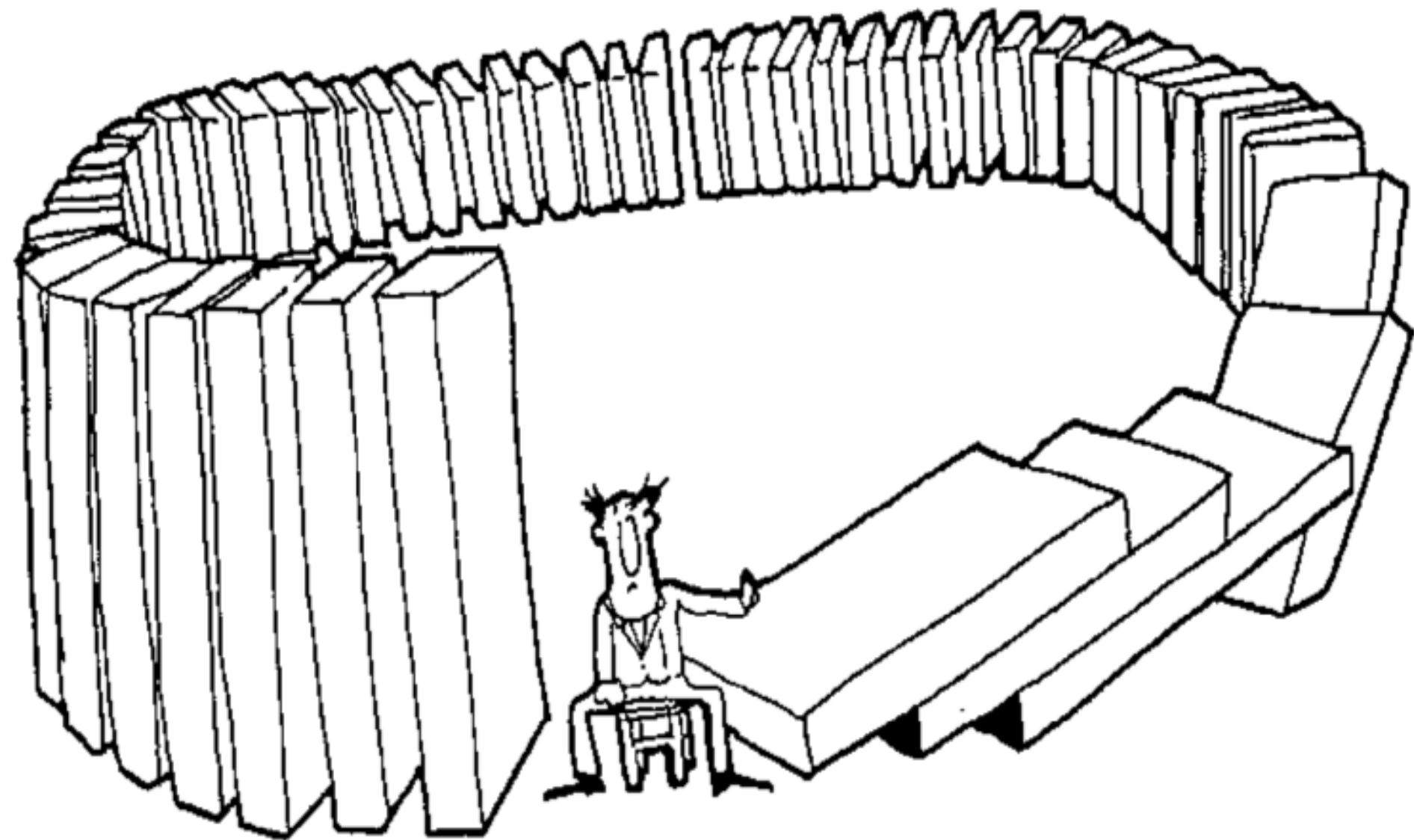
**Psychosocial
Stressors**

**Ergonomic
Stressors**





In complex systems, cause and effect are often distant in time and space





Process

- **Complaint**
- **Investigation**
- **Remediation**
- **Monitoring**





What Do You Need to Know? (Lessons Learned)





By Frits Ahlefeldt



**To sample or not to sample?
That is the question.**









1. Copier/Printer Room

- Ozone
- VOCs
- Carbon Black
- Other Particulates

2. Storage/Cleaning Room

- Cleaning Products (VOCs)
- Pesticides & Herbicides
- Non-HEPA Vacuum

3. Conference Room

- VOCs (Furniture/Markers)
- Particulates (Chalk)
- Improper Air Exchange
- Carbon Dioxide Build-up

4. Manufacturing Room

- Improper Ventilation Rates
- Temperature Extremes
- VOCs
- Particulates

5. Office Room

- VOCs (Furnishing)
- Pesticides (Apples/Tracked)
- Improper Ventilation
- Computers (VOCs/Ozone/Particulates)

6. Bathroom

- Air Fresheners (VOCs)
- Cleaning Products (VOCs)
- Sewage Gas
- Water Leaks (Mold/Bacteria/Viruses)

7. Break Room

- Cooking Odors/Oven Fumes
- Tobacco Smoke
- Water Leaks (Mold/Bacteria)
- Allergens (Cockroach/Mouse/Rat)

8. Cooling Tower

- Legionnaire's Disease
- Pontiac Fever
- Humidifier Fever
- Improper Use of Biocides
- Elevated Humidity

9. Birds

- Odors & Allergens
- Histoplasmosis
- Cryptococcosis & Psitticosis

10. Intake Vent

- Intake of Contaminated Air/Exhaust Entrainment
- Improper or Lack of Filtration
- Improper Sizing

11. Exhaust Vent

- Entrainment Into Air Intake Vents
- Excessive Exhaust (Causing the Structure to Have Negative Pressure)
- Improper Sizing

12. Trash Containers

- Odors
- Bacteria
- Fungi
- Rodent/Insect Avian Allergens
- Particulates

13. Loading Dock

- Exhaust/Combustion Fumes
- Carbon Monoxide
- Chemical Storage/Spills
- Outdoor Air Entry Portal (By passing Proper Filtration Radon Risk - Underground Areas)

14. Cubicle Room

- Computers (Ozone/VOCs)
- Electromagnetic Field/Particles
- Inadequate Ventilation
- Furniture (VOCs)

15. Boiler Room

- Improper Combustion (Particulates/Gases)
- Improper Ventilation
- Asbestos Insulation
- Fiberglass Insulation
- Legionella from Improperly Heated Water Tank

16. Plants

- Fungi
- Insects
- Insecticides/Fungicides/Herbicides
- Standing Water

17. Moisture Intrusion

- Leaks
- Wicking of Moisture (Slab/Walls/Roof)
- Mold, MVOCs & Mycotoxins
- Bacteria & Endotoxins

18. Carpeting/Flooring

- Potential Microbial & Chemical Reservoir
- VOCs
- Asbestos Floor Tiles
- Improperly Sealed Concrete

19. Ductwork/Ventilation

- Improper Exchange Rate
- Fiberglass Insulation
- Contaminated Ductwork (Dust/Pollen/Fungi/Bacteria)
- Temperature Extremes
- Improper Filtration

20. People

- Perfume/Cologne
- Body Odor
- Skin Fragments
- Transmittable Disease (Tuberculosis/Common Cold/etc.)

21. Ceiling Plenum

- Asbestos & Fiberglass
- Vermiculite
- Mold & Bacteria
- Dust/Debris

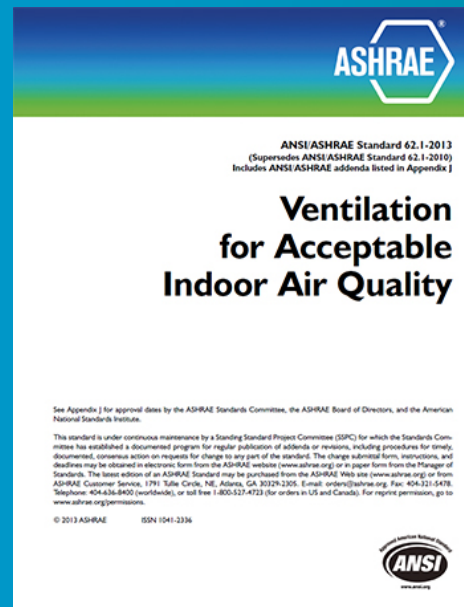
22. Paints/Stains

- VOCs
- Lead (Paint Pre-1978)
- Corrosion Preservatives and Fungicides
- Flaking/Aerosolization

in a



nutshell



Questions?

