



# Building Operator Certification – Level I



*A Partnership of the  
NYC Department of Education  
Division of School Facilities,  
International Union of Operating  
Engineers, and the  
City University of New York*



Class 17

# Objectives

- Chapters 2, 3, 6, 9
- Be aware of the health effects caused by poor IAQ
- Describe different outdoor and indoor air contaminants and their primary sources
- Describe different air sampling and testing approaches
- Define common IAQ Prevention methods and how they are used.

# Agenda

- Review CD – Chapters 12, 13 & 2
- Contaminants
  - Categories
  - Outdoor & Indoor Sources
  - Air Monitoring
- Contaminants: Group Exercise
  - VOC's
- Prevention
- Review CD: Chapters 3, 6 & 9
- Close & Class Reading Assignments



# Review of Practice Questions

## Test Review CD

- Chapters 12,13, 2 – Health Concerns, Controls & BAS Systems
- Resources within the Quick Quiz
  - Text Book – Quick Topic Excerpts
  - Illustrated Glossary

Using these resources will prepare you for the IUOE Union “IAQ Certification Exam” and help to raise your score on the Exam.



# Contaminants Categories

## *Chapter 2, Page 18, 19*

- Acute & Chronic Health Effects
- ***Page 20*** - 6 Categories of Contaminants
- Irritants
- Asphyxiates
- Allergens
- Neurotoxins
- Pathogens
- Carcinogens

# Building Related Illnesses

*Pages 21 – 23*

**What are the most common building related illnesses?**

**Did you get them all?**

**What are the Asthma Triggers?**

# Sick Building Syndrome (SBS)

How is SBS different from Building Related Illnesses?

*Chart on page 24*

- SBS and Building Related Illnesses are both due to poor IAQ

# Acceptable Indoor Environments

*Page 25*

- What defines an indoor environment as acceptable?
- What standards are there?



# Outdoor & Indoor Sources

## *Chapter 3, page 30*

- Define some outdoor sources of contaminants
- Name the common airflow pathways for contaminants, outdoor to indoor.
- *Page 31*
- What are some indoor sources?

# Contamination - Particles

*Page 32 -34*

- Asbestos
- Lead
- Mold
- Fiberglass

# Contamination - Gases

*Pages 35 - 38*

- Carbon Dioxide
- Carbon Monoxide
- Nitrogen Dioxide
- Formaldehyde
- Ozone
- Radon

What equipment in a school produces Ozone?

# Contamination - Mixtures

- *Pages 38 - 40*
- What is a mixture?
- What are some examples of mixture contaminants?
- When do you decide to test for an airborne contaminant?

# Contamination - Biological

- *Page 41 – Read this page*
- **What are biological contaminants?**
- **What are some examples of biological contaminants?**

# Contamination – Air Monitoring

Chapter 6, *Pages 78 -91*

- How can contamination be monitored?
- What is a 'Personal Air Sampling Pump'?
- Chapter 6 examples of monitoring equipment

## Section 2

- Group Exercise – Airborne Contaminants
- VOC's

# Contaminants Group Exercise

Each group is to review a contaminant:

Asbestos

Formaldehyde

Lead

Radon

Mold

Particulate

- 5 -10 minutes to review and make a summary on the sheet
- USE 'PRESENTATION INFO SHEET' provided
- Present your summary to the rest of the class
- Each group to present for a MAX of 5 minutes each



# VOC's

*Pages 40 - 41*

**What does VOC stand for?**

**What are some examples of VOC's?**

**Why is it difficult to investigate for VOC's?**

# Section 3

- Chapter 9, Prevention
- CD Questions: Chapters 3,6 & 9
- Class Reading Assignments

# Prevention – Chapter 9

*Page 157*

*Why are we interested in Prevention?  
What type of costs?*

*Page 158 - CHEMICALS*

- Pesticides
- Painting
- Chemical Inventory
- Storage & Handling
  
- What is a Chemical Inventory Form ?

# Prevention – Chapter 9

*Page 161*

- **Housekeeping Program**
- **MSDS Sheets**
- **LEED**

# Prevention – Chapter 9

## *Page 169*

- Visual Inspection Checklist
- IAQ Log

## *Page 170*

- Pollutant, Source & Pathway Survey

# Review of Practice Questions

## Test Review CD

Review these parts of the CD:

- Quick Quiz – Chapters 3, 6 & 9
- Resources within the Quick Quiz
  - Text Book – Quick Topic Excerpts
  - Illustrated Glossary
- Flash Cards – Chapter 3, 6 & 9

Using these resources will prepare you for the IUOE Union IAQ Certification Exam, and help to raise your score on the Exam.

- These are not the exact questions that will be on the test.



# Class Reading Assignments

- IUOE Chapter 1, 4, 5, 15
- Readings in IUOE Indoor Air Quality Solutions are extremely important for taking the union certification exam
- Use the “Test review CD” that is at the back of the book for study and practice purposes

