



# SCHAEDLER YESCO EXPO 2010

## *Hazardous Materials for the Electrician*



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# Introductions

- Presenter
- Attendees



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# Why Should You Care?

## Reason #1 - Regulations/Consensus Standards

- OSHA Construction Rules
    - 29CFR1926.62 (Lead)
    - 29CFR1926.1101 (ACM)
    - 29CFR1926.55 (Exposure Limits)
    - 29CFR1926.59 (HazCom)
    - 29CFR1926.65 (Emergency Response)
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# Why Should You Care?

- Regulations/Consensus Standards
  - ❑ ANSI/ASSE A10.6-1998 (Safety Requirements for Demolition Operations)
  - ❑ National Electric Code
  - ❑ NFPA 70E



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# Why Should You Care?

- Regulations/Consensus Standards (continued)
    - PA DOLI:
      - Asbestos Occupation Accreditation and Certification
      - Lead Occupation Accreditation and Certification
      - Combustible and Flammable Liquids Act
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# Why Should You Care?

## - Regulations/Consensus Standards (continued)

### ■ U.S. EPA

- 40CFR Part 761 (PCB's)
- 40CFR Part 763 (ACM in Schools)
- 40CFR Part 260 et.al. (Hazardous Waste)
- 40CFR Part 745 (Lead-Based Paint)

*\*THE NEW BULLY IN TOWN\**



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# Why Should You Care?

## - Regulations/Consensus Standards (continued)

- HUD:

- Lead-Based Paint (LBP) Safe Work Practices



- Facility HASP

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# Why Should You Care?

## Reason #2 – Protection of Employee and Public Health

### The Nasty Players.....



#### 1. Asbestos

- Siding, pipe insulation, pipe tape, ceiling tile, VAT, linoleum, mastics, drywall joint compound, pipe lag, fire doors, roofing, vibration sleeves, cloth wiring, etc.



# Why Should You Care?

## The Nasty Players (continued)



- Siding, pipe insulation, pipe tape, ceiling tile, VAT, linoleum, mastics, drywall joint compound, pipe leg, fire doors, roofing, vibration sleeves, cloth wiring, etc.
- Health Issues:
  - ❑ Asbestosis, Mesothelioma, Other Cancers
- Exposure Criteria:
  - ❑ OSHA PEL = 0.1 f/cc
  - ❑ STEL = 1.0 f/cc
  - ❑ EPA “Clean Levels” = 0.01 f/cc
- Exposure Scenarios

# Why Should You Care?

## 2. Lead (Pb)

- Piping, batteries, LBP

- Health Issues:

- Nervous, Digestive and Renal Systems + Cancer

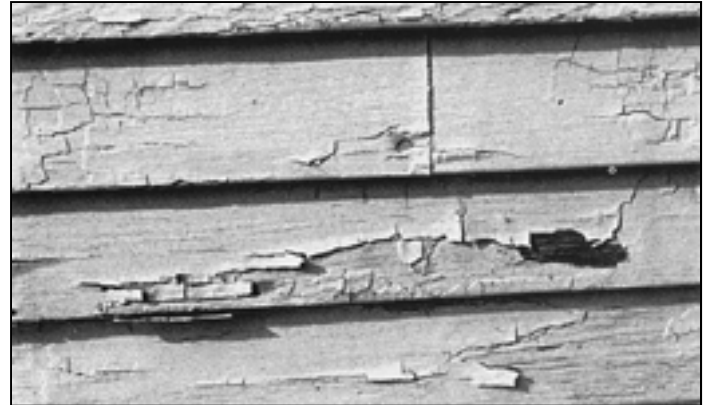
- Exposure Criteria:

- OSHA Action Level =  $30 \text{ ug/m}^3$

- OSHA PEL =  $50 \text{ ug/m}^3$

- EPA Clean Surfaces: 40, 250, 800  $\text{ug/ft}^2$

- Exposure Scenarios



# Why Should You Care?



## 3. Mercury (Hg)

- Switches, Thermometers, Barometers, Fluorescent/HID Lamps
- Health Issues:
  - ❑ Nervous System (“Mad as a Hatter”), Renal System, Fetal Development
- Exposure Criteria:
  - ❑ OSHA PEL =  $0.1 \text{ mg/m}^3$
  - ❑ D.O.H. =  $1 \text{ ug/m}^3$
  - ❑ ATSDR =  $0.0002 \text{ mg/m}^3$  or  $0.2 \text{ ug/m}^3$   
(Chronic Inhalation)
  - ❑ RBC =  $0.00033 \text{ mg/m}^3$



- Exposure Scenarios

# Why Should You Care?



## 4. Polychlorinated Biphenyls (PCB's)

- Ballasts, Transformers, Hydraulic Units, etc. (“No PCB's”)
- Health Issues:
  - Immune, Endocrine, Nervous and Reproductive Systems, Cancer
  - \*Environmentally Persistent
  - \*Thermal Degradation into PCDF's and PCDD's
- Exposure Criteria:
  - OSHA PEL =  $0.5 \text{ mg/m}^3$
  - RBC =  $0.0031 \text{ ug/m}^3$  (PCB)  
=  $0.000000042 \text{ ug/m}^3$  (2, 3, 7, 8 – TCDD)
  - ATSDR for 2,3,7,8 – TCDD =  $0.000001 \text{ ug/kg/day}$
- Exposure Scenarios

# Why Should You Care?

## 5. Americium – 241 (Radioactive Isotope)

- Smoke Detectors (Ionization Type)  $\frac{1}{2}$  life = 432.7 years  
(Man-made from plutonium + neutrons)  
1° = Alpha Emitter, Some Gamma
- Health Issues:
  - Low Exposures (Average < 1 m rem/year)  
→ Cancer
- Exposure Criteria: 5 rems/year
- Exposure Scenarios



# Why Should You Care?

## 6. Heavy Metals.....Beyond Lead

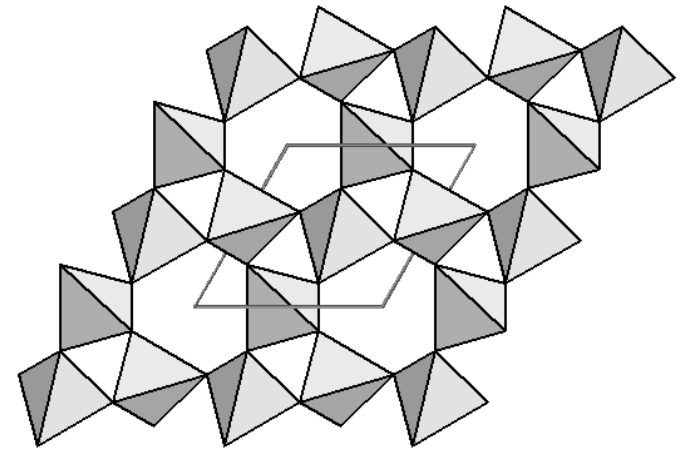
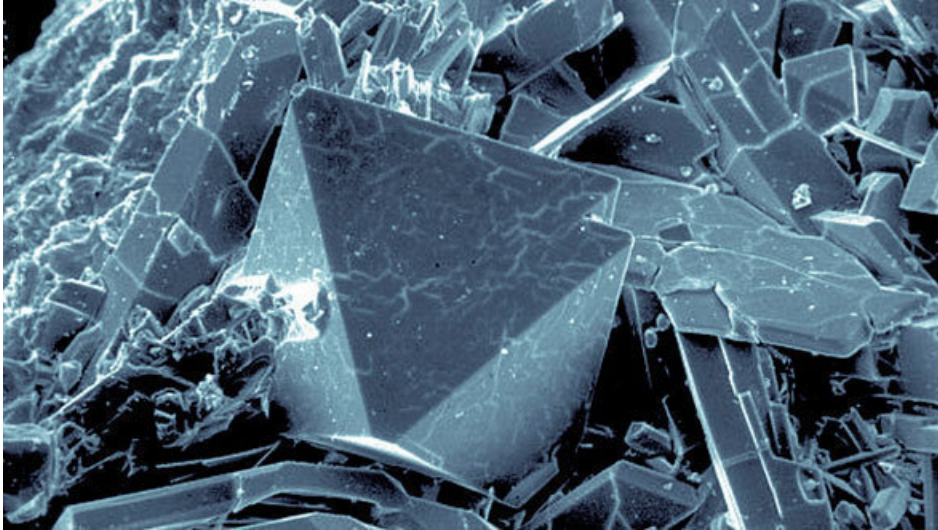
- Batteries in Rechargeable Equipment, Emergency Lighting, etc. (NiCad, Pb Acid, Lithium Ion, etc. → Pb, Hg, Ni, Cd, Ag, etc.) and Computers
- Health Issues:
  - ❑ Various Systems, Cancer
- Exposure Criteria:
  - ❑ Cd OSHA PEL =  $0.005 \text{ mg/m}^3$
  - ❑ ATSDR =  $0.0002 \text{ mg/kg/day}$  (Oral-Chronic)
  - ❑ RBC =  $0.00099 \text{ ug/m}^3$
- Exposure Scenarios



# Why Should You Care?

## 7. Miscellaneous

- Silicas – Quartz, Cristobalite, Tridymite



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# Basic Regulatory Compliance

- A. Identification
  - B. Notification
  - C. Training
    - HazCom
    - PPE
    - Emergency Response
      - ACM, LBP, Hg, PCB's, etc.
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# Basic Regulatory Compliance

## D. Disposal

- Recycle (Government Sponsored, Private Sector)
- Return to Manufacturer
- Universal Hazardous Waste
- Hazardous Waste vs. Non-Hazardous Waste

\*Who Owns the Waste?\*

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# Basic Regulatory Compliance

## E. Reuse/Recycling Considerations

- ❑ Salvage doors, hardware, fixtures, appliances, etc.
- ❑ Wood cut-offs for cripples, lintels, and blocking or chipped for mulch
- ❑ Place gypsum inside wall cavities (temporary fix)
- ❑ Some depapered, crushed gypsum can be used to amend soils
- ❑ Brick, concrete, etc. → clean fill or driveway base
- ❑ Extra insulation → interior walls for noise deadening
- ❑ Extra paint → use in garage, storage areas or as base-coat
- ❑ Return packaging to vendor

# Basic Regulatory Compliance

## E. Reuse/Recycling Considerations (continued)

- ❑ Some suppliers take back scrap such as carpet, vinyl tiles, etc.
- ❑ Manufacturer's may take back material when delivering an order
- ❑ Metals

\*<http://www.epa.gov/epaoswer/non-hw/debris-new/recycle.htm>

→ Click on “Building Savings: Strategies for Waste Reduction of Construction and Demolition Debris from Buildings”

## F. Use of “Rated” Components in Classified Areas

.....The National Electric Code

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Class I, II, and III      Division 1 and 2

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# Basic Regulatory Compliance

## G. Special Considerations

- ❑ ACM Abatement or Leave in Place
- ❑ PCB's Releases

(Highly Regulated → Translation: Costly)

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# QUESTIONS

