Exploring Hazards in a Denver Art School

Stephanie Walker Stoke MD, MPH
University of Colorado

Rocky Mountain Academy of Occupational and Environmental Medicine

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Presentation Overview

- Hazards
- Background
- Project introduction
- Kids camp
- Adult classes
- Institutional Recommendations
- Future Developments
Art School Hazards

- Industrial Chemicals
  - Lead poisoning
  - Dermatitis
  - Silicosis
  - Liver/kidney damage
  - CO poisoning
  - Cancer (various)
  - Short-term effects

- IH Sampling
  - Chemicals above legal standards
Art School Background

- Denver metro area
- Opened 22 years ago
- 600 students/month
- 60 instructors
- Adult and children’s classes
- 100 year old building
  - No central ventilation
  - Annex
Project Introduction

Art safety initiative

- Collaboration with Colorado School of Public Health (CSPH)
- Creation of internal safety committee
Project Introduction

- Initiative Goals
  - Specific health concerns
  - School wide assessment
    - Materials
    - Practices throughout school
  - Recommendations
    - Improve health/safety
  - Close look at kids summer camp
  - Develop resource for Denver arts community
Project Introduction

Methods

- Materials review
- Classroom observations
- Informal interviews
  - Students/Instructors
- Instructor focus groups
  - By discipline
- Safety committee meetings
- Collaboration with IH from CSU
  - Sampling
  - Site walkthrough
Kids Summer Camp

- Summer of 2009
- 1200 children
- 82 camps
- 1-2 week camps
- Kindergarten - 11th grade (ages 5-18)
- Instructors
  - Denver community
**Kids Summer Camp**

- **Materials review**
  - Hydrofluoric acid (HFA) etching cream

- **Observations**
  - Pastel dust
  - Food in classroom
  - Appropriate use of tools
  - Personal Protective Equipment (PPE)
  - HFA etching cream

- **Recommendations**
  - Food/drink policy
  - HFA etching cream substitution to acetic acid
Adult Art Classes

Fall 2009

- Stone sculpture
- Ceramics
- Oil Painting
- Printmaking
- Drawing (Pastels)
Stone Sculpture

- Materials Review
  - Granite (silica)
  - Soapstone (asbestos/talc)
- Safety committee/Board concerns
  - Observed dust level
- Focus Group Results
  - Sealant use, wet mopping
- Student/instructor comments
  - Grinding indoors
Stone Sculpture

- Observations
  - Settled dust
  - Airborne dust
  - Loud noise
  - Grinding outdoors
  - Dry sweeping
  - Personal Protective Equipment (PPE)
  - Ventilation
    - Windows closed
Stone Sculpture

- IH results
  - Respirable dust: 0.40mg/m³, with respirable quartz <6.2% (<0.025 mg/m³)

- IH interpretation
  - OSHA (PEL): 1.2 mg/m³
  - NIOSH (REL): 0.05 mg/m³
  - ACGIH (TLV): 0.1 mg/m³

Impression: Potential for respirable silica present – further sampling needed
Stone Sculpture

- IH results
  - Noise = 96dB (spot sample)
  - “Worst case” noise levels of 118dB (spot sample)

- IH interpretation
  - OSHA (PEL): 90dB TWA
  - NIOSH (REL): 85dB TWA
  - ACGIH (TLV): 85dB TWA

Impression: Probable elevated noise exposure
Ceramics

- Materials Review
  - Glazes (lead, barium)
- Safety committee/Board concerns
  - Kiln room
- Focus Group Results
  - Clay disposal, housekeeping
- Student/instructor comments
  - Off-gassing from kiln
Ceramics

- Observations
  - Glaze mixing
  - Structural damage
  - Kiln off-gassing
  - Grinder without safety guards
Ceramics

- IH results
  - CO2 = 1430 ppm
  - CO = 0.0 ppm

- IH interpretation
  CO2
  OSHA: 5000 ppm
  NIOSH: 5000 ppm
  ACGIH: 5000 ppm

  CO
  OSHA: 50 ppm
  NIOSH: 35 ppm
  ACGIH: 25 ppm

Impression: Negligible levels of CO and CO2
Oil Painting

- Materials Review
  - Cadmium, cobalt, lead
  - Solvents
- Safety committee/Board concerns
  - Pigments, solvents
- Focus Group Results
  - Glove colors
- Student/instructor comments
  - “Pointing” techniques
Oil Painting

- Observations
  - Solvent covered
  - Using cadmium, lead paints
  - Different types of solvent
    - Odorless mineral spirits
    - Mineral spirits
    - Turpenoid
Printmaking (Monotype and Silk Screen)

- Materials Review
  - Oil-based inks, solvents
- Safety committee/Board concerns
  - Ventilation
- Focus Group Results
  - Ventilation
- Student/instructor comments
  - Chemical inventory
Printmaking
(Monotype and Silk Screen)

- Observations
  - Oil-based inks
  - Solvent spray bottles
  - Strong odor
  - Improper labeling
  - Wearing aprons
Drawing/Pastels

- Materials Review
  - Pigments, fixatives
- Safety committee/Board concerns
  - Pastel dust (pigments)
- Focus Group Results
  - Barrier creams vs. gloves
- Student/instructor comments
  - Laundering clothing
Drawing/Pastels

- Observations
  - Barrier creams
  - Tapping dust
  - Dust trough
Institutional Recommendations

- Elimination
  - HFA cream (school decision)

- Substitution
  - Marble for granite or soapstone
  - Low asbestos soapstone for high asbestos soapstone
  - Odorless mineral spirits for turpenoid
  - Acetic acid for HFA cream
Institutional Recommendations

- Engineering Controls
  - Ventilation remediation
    - Elephant trunk
    - Hood
    - Spray booth
    - Exhaust fans
  - Grinder with guards
  - Housekeeping
    - Wet mopping or HEPA vacuuming dust
    - Removal of settled dust
    - Chemical inventory/labeling
Institutional Recommendations

- Administrative Controls
  - Uniform food/drink policy
  - First-aid protocols
  - Maximum occupancy limits
  - Chemical inventory/MSDS
Institutional Recommendations

• PPE
  ◦ Appropriate clothing
  ◦ Nitrile gloves
  ◦ Hearing protection
  ◦ Respirator
    • Mandatory respirator fit program
Future Developments

- Safety officer*
  - Recommendations follow through
  - Review of new classes/materials
  - Safety programs
    - Respiratory
    - Hearing
    - Hazard Communication
      - MSDS/Labeling
  *Collaborate as needed with CSPH
Future Developments

- Risk communication
  - Education
    - Instructors and students
    - Safety classes
    - Websites
    - Posters
Future Developments

- Waste management assessment
- Environmental assessment (kiln room)
- Ventilation plan based on further sampling
- Further sampling
  - Organics
  - Heavy metals
  - Solvent
  - Sulfur/Nitrogen compounds
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Clean up your mess.
Your mama isn't here.