Healthy or Sick
A THERMOMETER FOR COLLECTION HEALTH

Today’s Agenda

1. Hazards in Collections
   A. Libraries and Archives
   B. Museums
2. Risks to Your Health
3. Risks to Collections
4. Managing Hazards
5. Questions
What is a Hazard?

For our purpose today:

A hazard refers to materials found in our collections which may pose a risk to the health of staff, visitors, and other collections.
Mold Outbreaks

Cellulose Nitrate Film

- 1889-1951
- Hazards:
  - Extremely flammable
  - Releases hazardous gases
  - Decomposes naturally
Cellulose Acetate Film

- 1920’s – present
- Safety Film
- Acetate decay produces acidic gasses (vinegar syndrome)

Pests

- Bed Bugs
  - Can be a health issue if someone has a severe allergy – remote chance of occurrence
- Mice
  - From the CDC: When fresh rodent urine, droppings, or nesting materials are stirred up, tiny droplets containing the virus get into the air – VERY RARE chance of occurrence but can happen especially if cleaning up after a mouse infestation.
Sources of Hazards in Our Collections

MUSEUM COLLECTIONS
Plastic Film Supports

- Cellulosic Plastics
  - Nitrate 1889-1951
  - Acetate 1920s-present
  - Polyester 1955-present

Nitrocellulose cousins and plastics

- Jewelry and personal accessories
- Musical instruments
- Dolls
- Household items

Black Powder

Think Big and small
Anything that might have a charge

- Mining equipment
- Life guard search and rescue equipment
- Whaling equipment
- Road flares
- Photographic flash powder
- Farming clothing

- Think of alternative industries!!!

Historic fire extinguishers
Explosion risks

- Pressurized items
- Preserved foods
- Compressed gasses

Fluid Preserved Specimen

- Formaldehyde and alcohol preserving fluids
  - Alcohol is highly combustible
    - Ventilation
    - Raise electrical outlets
    - Flammable cabinets
    - Emergency plan
Medical/Vet/Dental kits
Pharmaceutical Collections

- Picric Acid
- Hidden needles / contaminated with pathogens
- Ether/nitrous oxide
- Nitroglycerine/Picric Acid
- Controlled substances and poisons

Ethnobotanical hazards

- Arrow heads
- Coral Bead Vine
  Abrus precatorius
Corrosive fluids

- Batteries
- Hydraulic fluid
- Break fluids

http://cr.nps.gov/museum/publications/conservogram/10-03.pdf
Heavy Metals

Elemental Clues

HTTP://www.terrymillerassociates.com
Hazardous geology

Radioactive fossilized bone

Uranium


Collection conumdrum

Howard H. Baker Center for Public Policy
Radiation

- Medical, veterinary, dental equipment
- Geiger counters
- Civil defense equipment
- Atomic bomb/nuclear equipment
- Rocks & fossils

Archives

Images courtesy of a Private collection
Natural History

► 150+ Pesticides

Furs and Skins

http://museumpests.net/solutions-residual-pesticides/

http://www.icom-cc.org/84/Biocides%20in%20Collections/#U9pFhjW

Heavy metal preserving solutions/powders
Asbestos 1880-1975

- Appliance insulation/stove top pads/ironing boards
- Fire/theater curtains
- Chalkboards
- Mining equipment & paraphernalia
- Vinyl tiles and backing adhesives

Conserve O Gram Number 2/11

Alternative collection sources

Painting boards
Some watercolor papers
Artificial Christmas snow "flocking"
Fine Art Collections

Mercury

- Barometers/thermometers
- Ship gimbals
- Lighthouse lens assemblies
- Milliners’ supplies
- Christmas ornaments
- Mirrors
- Light switches
- Reverse glass paintings
- Jewelry /cinnabar
Hazardous Dusts

- **Lead**
  - Pottery, lead soldiers, window glazing, roof flashing, utensils, art paints/pastels, food cans, old bullets
- **Zinc (oxide)**
  - Metal working supplies and debris
  - Old portable forges
  - Roof flashing
- **Cadmium**
- **Aluminum**

Think about your dusts

- Youth science kits

Digitalfire Hazards Database
http://digitalfire.com/4sight/hazards/ceramic_hazard_zinc_compounds_340.html
Risks and How to Move Forward

MANAGING RISKS AND HAZARDS

Risks to Human Health

- **Inhalation**
  - Surface deposits (arsenic, mercury), hazardous dusts (asbestos, lead), biological sources (mold, mouse droppings), gases (nitric acid, acetic acid) – during cleaning, processing, access.
- **Absorption**
  - Leaking specimen fluid, bodily fluids on medical instruments, mothball chemicals, radiation
  - Can come from items or storage materials.
- **Ingestion**
  - Always wash your hands!
Hazardous Dusts

- Lead
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- Zinc (oxide)
  - Metal working supplies and debris
  - Old portable forges
  - Roof flashing
- Cadmium
- Aluminum
HVAC Filtration Level

- MERV 1-16
  - Minimum Efficiency Reporting Valuations
- MERV 14-16
  - 0.3 Microns
  - Replacement 3-6 mos.
- Electrostatic charge

Zeolites

- 100% safe and non toxic at any level
- Removes heavy metals & toxins
- Requires air movement
Risks to Collections

- Contamination
  - Off-gassing can impact other collections
- Explosion
  - Home-canned items
- Fire Hazard
  - Nitrate film, jarred items

Managing Health Hazards

- Plan
- Prioritize
- Policy
- Seek Assistance
Plan and Prioritize

- Don’t Panic!
- Carry out a risk assessment specifically focusing on hazards in your collection
- Look for signs of potential hazards in storage and exhibit areas
- Determine what steps need to be taken to protect staff and collections from hazards
- Prioritize which collections are the most hazardous and plan for those first

Electrical hazards
Electrical

Electrical codes
Explosive hazards

Facilities

Fire hazards
Man triggered

Construction projects risks

1880's Hancock County Courthouse, Sparta, GA

Policy

- Establish good work habits
  - PPEs, food and drink, hand washing
- Establish good labeling and cataloging practices
- Establish access guidelines
- Train staff to identify signs that hazardous materials are deteriorating
  - White powders/crystals, bubbling film, active vs. inactive mold, leaking jars
Control Exposure

- Inventory and assess condition
- Clear labeling and handling procedures
- Practice good housekeeping
- Practice good personal hygiene
- Wear appropriate Personal Protective Equipment
- Maintain MSDS sheets
- Dispose of hazardous materials properly
- Get Expert Advice
- Professional development/training

Seek Assistance

- If you suspect objects but are not sure if they are hazardous, contact your conservator for advice. If you don’t have a conservator, consider starting a relationship with one.
- Before disposing of any hazardous materials, check regulations and consult the experts. Not everything can just be thrown in the trash nor should it be given to another institution.
Risk Evaluation and Planning

www.heritagepreservation.org/PROGRAMS/TFresources.html

Walk Thru Check List

Procedural
- EM Access & Relationships
- Insurance
- Staff Responsibilities/Training
- Policies
- Best Practices

Facilities
- Exterior risks
- Interior
- Storage & Exhibition Areas
- Fire Safety
- Water risks
- Indoor hazards
Site Assessment Checklist

Tools

- Light
- Raking
- Transmitted
- Spectral
- UV
Bookshelf resources

- **The Artist's Complete Health and Safety**
  - Monona Rossol
  - Second Edition

- **Health & Safety for Museum Professionals**
  - SPNHC

ACTS FACTS

- [www.artsdraftstheatersafey.org](http://www.artsdraftstheatersafey.org)

Arts, Crafts and Theater Safety (ACTS)

181 Thompson Street, #23

New York, New York 10012-2586

ACTSNYC@cs.com
KEEP CALM AND REMAIN VIGILANT

Questions

"Excuse me, is this the Society for Asking Stupid Questions?"