



Buildings and Facilities Reopening and Hazardous Materials Management

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BUILDING REOPENING AND HAZARDOUS MATERIALS MANAGEMENT

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BUILDING OWNER / MANAGER ENVIRONMENTAL CONCERNS

HAZARDOUS MATERIALS

ASBESTOS

LEAD (PAINT/WATER)

BUILDING REOPENING

HAZARDOUS COMMUNICATION



MARCO POLO - 2017

HAZARDOUS MATERIALS – COMBUSTION BY-PRODUCTS

- Combustion By-Products (CBP) – Produced during the Chain Reaction of Incomplete Combustion
- Influenced by Materials Burned
- Residuals Potential Include:
 - Soot
 - Oils / Tars
 - Inorganic Solids - Heavy Metals
 - Asbestos Containing Wastes
 - Polycyclic Aromatic Hydrocarbons (PAH)
 - Dioxins
 - Polychlorinated Biphenyls
- Professional Assessment and Remediation is Recommended



MARCO POLO - 2017

FACILITIES AND HAZARDOUS MATERIALS

Hazardous Materials Essential for Construction of Residential and Commercial Facilities Includes:

- Paints
- Heating, Ventilation, and Air Conditioning Systems
- Plumbing Fixtures and Piping
- Fire Retardant Products
- Architectural Features
- Thermal Insulation

Safe and Suitable for Use but Uncontrolled Disturbance can Result in Dangerous Exposures

- Fires (Combustion Byproducts)
- Renovation and Reconstruction
- Demolition
- Natural and Man-Made Destruction



HAZARDOUS MATERIALS

Waste Streams Found During Operations, Construction and Demolition:

- Polychlorinated Biphenyls (PCB) Caulking
- Lead
- Lamp Ballast / HID Bulbs
- Mercury Switches – Mercury Containing Equipment
- Batteries
- Electronics
- Ionizing Smoke Detectors
- Used Oil / Paints / Solvents
- Radon
- Gas (H₂S / Natural)
- Grease Traps / Pretreatment



ASBESTOS

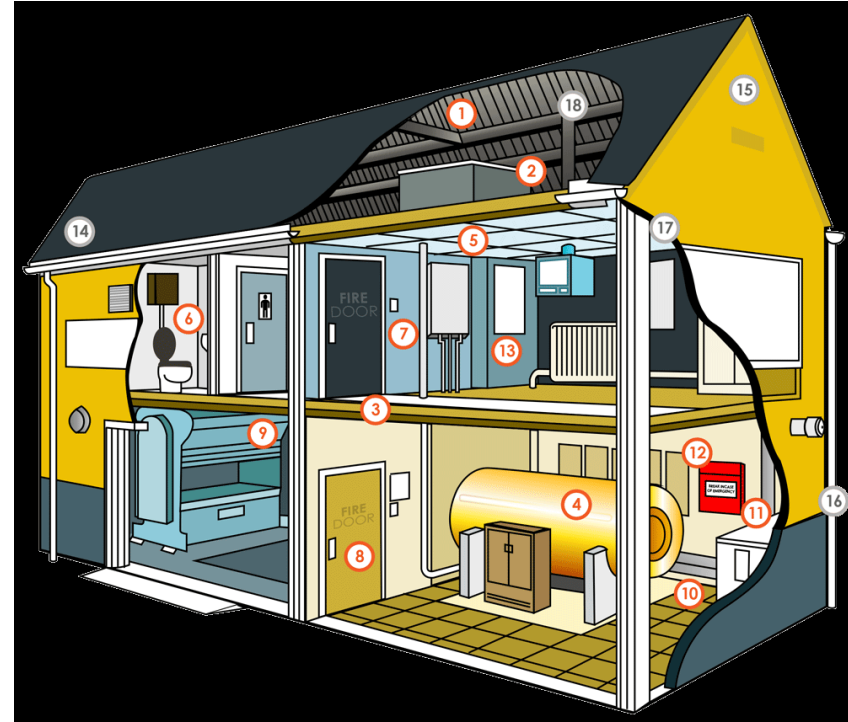
Naturally Occurring Material
Tremendous Physical Properties

- Versatile
- Excellent Tensile Strength
- Chemical/Electrical and Heat Resistant/Indestructible
- Used for Decades until Attempts to Ban in 1989 – Still Prevalent

Human Health Concerns

Fires and Physical Damage

- Significantly Regulated (Professional Assessors, Certified Handlers, Disposal)
- Required Disclosures



Inspectas Illustration (undated)

LEAD (PAINT/WATER)

Lead in Paint, Dust and Soil - Toxic Substances Control Act (TSCA)

- Requires Trained and Certified Abatement Programs
- Residential Lead-Base Paint Disclosure Program
- Establishes Standards and Clearance Levels for Lead

Lead in Potable Water – Safe Drinking Water Act (SDWA)

- MCLG – Is Zero (Action Level is 0.015 mg/L)
- Found in Plumbing, Piping, Fixtures, and Spigots (Municipal Systems Test)
- Treatment is Corrosion Control or New Fixtures – Management Strategies

Lead Discharge – Clean Water Act (CWA)

- National Pollutant Discharge Elimination System Permit



HAZARDOUS COMMUNICATION

OSHA Hazard Communication

- Designed to protect employees from hazardous chemicals used or stored in the work setting.
- Requires that training and information be provided to any employees who have the potential of being exposed to a hazardous chemical "under normal condition of use or in a foreseeable emergency."

Asbestos:

- Building Owners Often Only and/or Best Source of Information
- Typically Involves Previously Installed Building Materials
- Assigned Specific Conveying and Retention Duties with Information of PACM or ACM
- Should Possess General Training and Availability of Safety Data Sheets
- Required to Provide Notification to Impacted Individuals of the Presence of PACM/ACM and Work on PACM and ACM



BUILDING REOPENING – POST COVID WORLD

- Mold Assessments
- Water Quality Concerns
- Air Quality Chemical Assessments – Volatile Organic Compounds (VOCs)
- COVID Testing and Response

MOLD ASSESSMENT AND MITIGATION

Typical Current Situation:

- Extended Periods of Unchecked Growth
- Humidity and Moisture
- Generally Aspergillus
- Volatile Organic Compounds – Chemical Reaction of Mold Growth

What to do:

- Limit Exposures to the Affected Areas
- Verify and Eliminate Sources of Moisture
- Call in a Consultant to Determine Cause and Develop Remediation Plan
- Remediate (REMOVE vs TREAT)
- Generally Very Large Areas are Affected
- Porous vs Non-Porous

Case Studies

- Large Hotels
- Retail
- Airport



WATER QUALITY

Typical Current Situation:

- Stagnant Water – Limited Occupancy or Closure
- Chemicals
- Biologicals

What to do:

- FLUSH Source Water
- FLUSH at the Fixture
- Disinfect Fixtures

Testing

- First Draw and Flush
- Test for Metals and Bacteria



AIR QUALITY

Typical Current Situation:

- Chemicals
- Mold/Biologicals

Testing

- VOCs can be Measured with Handheld Meter or SUMMA Canister
- Mold in Air

SEVERE ADULT RESPIRATORY SYNDROME CORONAVIRUS – 2 (COVID-19)

Typical Current Situation:

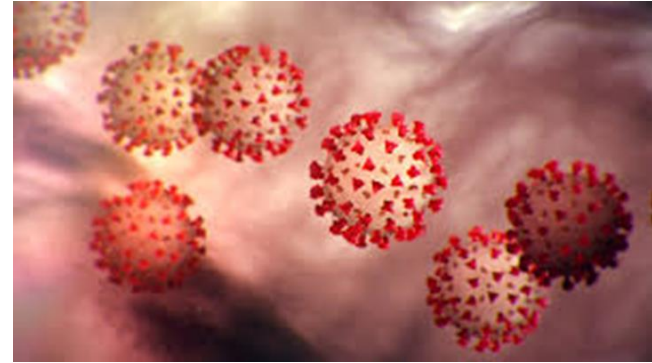
- COVID Cases Declining but Clusters Continue
- Knowledge Base Evolving/Improving

Background:

- ERA Developed First Remediation Plan and First Onsite (Interstate) Executed (Spring 2020)
- Protocols Used over 100 COVID Hotspots / FOS has Conducted 100s of COVID Cleanings
- CDC and HDOH Guidelines

Remediation Approaches:

- EPA N-List Disinfectants
- Electrostatic Sprays
- Triage
- Manual Methods – High Touch Points



COVID-19 - CONSIDERATIONS

No COVID-19 Warranty!

- Residual Chemicals Would be Required to Produce Long Lasting Effect
- Not Informing Cleaning Staff or Anyone else in the Remediation Pipeline. Significant Liability

Other Considerations:

- Air Systems
- Bathrooms
- Notifications
- Outdoor Areas
- Waiting it Out



REOCCUPANCY DETERMINATION CRITERIA

Weight of Evidence Argument

- Use of CDC/EPA Approved Disinfectants
- Implementation of Approved Methods
- Visual
- UV Light
- Adenosine Triphosphate (ATP) Testing

SUMMARY

Hazardous Materials are Essential for the Normal Operation and Construction of Residential and Commercial Facilities

- These Products are Regulatory Compliant, Safe and Suitable for Use
- Physical Damage including Fires Create Significant Human Health and Environmental Impacts
- Routine and Typical Operations Generate Hazardous Materials

Proper Management of these Impacted Facilities and Byproducts are Essential to:

- Prevent Acute and Chronic Human Health Impacts
- Minimize Environmental Impacts
- Reduce Regulatory Liability
- Optimize Mitigation and Rehabilitation Expenditures

Post COVID - Building and Facilities have been Impacted Due to Limited or No Occupancy

- Assessment and Mitigation is Recommended for Reuse
- Mold/Water and Air Quality Concerns
- COVID-19

Seek Assistance (As Needed) from a Trained and Experience Professional



QUESTIONS

