Nothing Compares
NORTH CAROLINA

Salvage, Debris Removal, Muck Out and Tear out after a Disaster

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Planning is essential

At the organization, team, and personal level plans are needed on

- What we can do and what we cannot do
- Coordination with state and local agencies involved in response and recovery
- Teams need a “competent person”
- Equipment, supplies, food, water, sanitary facilities

Plan for multiple overlapping hazards

- Consider all flood water and residues after the water recedes as grossly unsanitary
- May contain pathogens microorganisms (bacterial viruses, and fungi), untreated sewage, petrochemicals, pesticides, industrial chemicals, household chemicals, and debris

Restoring buildings flooded or water damaged Buildings

Hazard Assessment

Exterior Debris removal

Removal of salvageable possessions.

Muck-out of dirt, sand, debris, and damaged possessions.

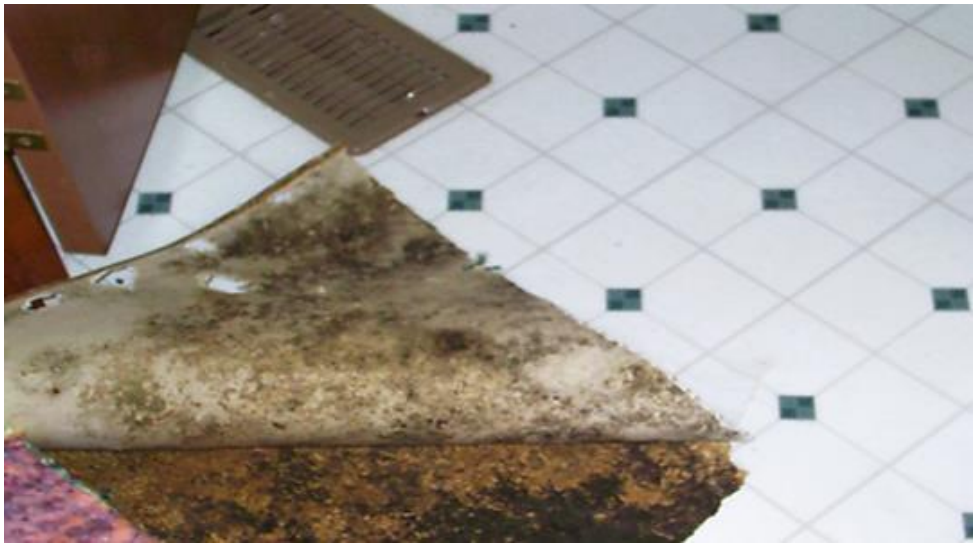
Gutting of all damaged building materials.

Cleaning mold from hard surfaces (treating all remaining building components for mold).

Drying and dehumidification

Rebuilding

Mobile Homes



- Constructed of materials sensitive to water damage
- Often has an integrated floor system with plastic barrier called a “bottom board”

Real or personal property?

- Only real property when owner occupied, with permanent foundation, no moving hitch, wheels, or axles, owner also owns land underneath

Three Multiple Overlapping Hazards

Asbestos Containing Materials

Lead-based Paint

Mold

Asbestos Containing Building Materials

Assume the presence of ACM in buildings before 1979

Inhaled asbestos fibers are known to cause mesothelioma and asbestosis

Disturbing, removal, and disposal of ACM is regulated by the EPA under a part of the Clean Air Act called the National Emissions Standards for Hazardous Air Pollutants (NESHAPS)

OSHA has an expanded health standard for workers exposed to asbestos

Disasters do not change federal law

NEHSAPs authority has been delegated the Health Hazards Control Unit (HHCU) in the NC Division of Public Health. https://epi.dph.ncdhhs.gov/asbestos/ahmp.html

NESHAPS

Commercial buildings must be inspected by accredited (licensed) asbestos inspectors prior to renovation or demolition activities that may disturb suspect ACM materials.

ACM that may be disturbed during renovation or demolition must be must properly removed and disposed by accredited asbestos workers and supervisors.

Single family homes are exempt, but inspections are highly recommended.

Planning for the Presence of ACM

Organizations should plan for and have policies regarding ACM in buildings

A competent person must be on site to identify potentially suspect materials and determine potential actions

Brief team members and owners about on the likelihood of ACM on the site

Consult with local authorities about disposal

Friable ACM

Do not disturb or touch Friable ACM

- Friable materials can be crumbled reduced to powder by hand pressure

Non-Friable ACM

Do cut, grind, drill, abrade, sand, or drop disturb nonfriable suspected ACM in good condition. Fibers are unlikely to be released unless materials are disturbed.

Loose pieces of suspected of containing ACM damaged in the disaster could carefully removed in whole pieces under damp conditions, and disposed of in double bags, labelled, and segregated from other waste materials

Lead-based paint

Assume any home built before 1978 will contain lead-based paint. Lead in dusts is mostly an ingestion hazard (hand to mouth) and sometimes an inhalation hazard.

Lead-based paint is regulated by the EPA under the Toxic Substances Control Act

- Lead-based paint disclosure rule
- Lead-based Paint Renovation Repair and Painting (RRP)
- Lead-based Paint Abatement Rule

The RRP rule is intended to protect workers and occupants from inhaling or ingesting lead dusts and to avoid creating lead hazards.

The lead-based paint abatement rule in intended to protect workers and occupants by eliminating lead-paint hazards

During disaster recovery operations, protecting workers from inhaling or ingesting lead is the biggest concern.

Tear out activities are not RRP or Abatement –the purpose is to remove water damaged materials and promote structural drying during an emergency.

Lead-based Paint after the Emergency

Lead-based paint disclosure rules in real estate transactions or inspections by lead-based paint risk assessors may still be required during final renovation

After tear out there may be numerous surfaces remaining in the structure, where lead dust and residue has accumulated

Additional inspections, risk assessments, and cleaning by certified lead-based paint inspectors and risk assessors or cleaning conducted RRP certified firms with trained renovators may be required.

Authority to regulate Lead-based Paint RRP and Abatement NEHSAPs authority has been delegated the Health Hazards Control Unit (HHCU) in the NC Division of Public Health.
https://epi.dph.ncdhhs.gov/asbestos/ahmp.html

No special waste disposal requirements

Mold

Mold is not directly regulated by the Environmental Protection Agency or by the State of North Carolina

- No standards of threshold limits for acceptable or unacceptable levels of airborne mold
- EPA and North Carolina do not license, register, or recognize mold specialists
- Some states licensed mold specialists and require them to be certified by one of several accrediting bodies

- Environmental mold is mostly a respiratory hazard for irritation, allergic and reactions.

Assess mold hazards and based on

- Quality of source water
- Types of affected material (porous versus nonporous)
- Degree that materials are colonized with mold or water damaged
- Degree that activities disturb, generate, and disperse moldy dusts

Assessing mold hazards

- The **source(s)** of water penetration, accumulation, or abnormal condensation. Rising water and wastewater is unsanitary caring nutrient sources, microbial growth and other contaminants. Even clean water degrades as it ages, the water accumulates contaminants from the environment and microbial growth begins.

- The **types** of affected materials, the **locations** where mold and water damage are present, and the **size** of affected areas. Mold growth on porous and organic materials is a more serious condition than mold growth on nonporous and inorganic surfaces.

- The **degree** that materials are colonized with mold growth or water damaged and the **duration** that damp conditions have existed.

- The **activities**. Cleaning with wet methods tend to reduce levels of airborne mold and mold products. Muck out and tear out of porous and organic materials heavily colonized with mold generate and allow dispersal of large amounts of mold spores mold products when disturbed

Mold and Health Effects

Epidemiological evidence and clinical evidence

- Indoor dampness and mold are associated with:
  - Upper and lower respiratory tract symptoms - cough and wheeze, respiratory infections,
  - Asthma, and exacerbation of asthma,
  - Shortness of breath (dyspnea)
  - Allergic fungal rhinosinusitis and allergic fungal sinusitis
  - Occasional Hypersensitivity pneumonitis
  - Most indoor fungi are not human pathogens
  - Occasional few opportunistic pathogens – Histoplasmosis, Blastomycosis and Coccidiomycosis – always from disturbing reservoirs (bird droppings, and contaminated soils),
  - Toxic reactions – from inhalation is medically unproven

- Dose response effect—likelihood and severity health of impacts increase as the size, severity, and duration of mold growth, musty odors, and water damage increase

- Susceptibility -- intrinsic factors and extrinsic factors

Muck out, tear out, cleaning, sanitizing and disinfection

Predetermine scope of work, muck out, tear out, promote drying, cleaning or mold remediation. What is the goal when you are done?

Rising water and residues after a flood are grossly contaminated with pathogenic microorganisms, chemical contaminants, other biological contaminants, and other materials picked up as flood water moves through the environment

Cleaning is physically removing unwanted contaminants from hard nonporous, or semi porous surfaces that not been damaged or decayed

Think of "log" reduction of contaminants

1 log 90% reduction gross muck out and tear out

2 log 99% reduction – cleaning and drying

3 log 99.9% reduction – application of sanitizers

4 log 99.99% reduction –application of disinfectants

Layers of worker protection

Pre-existing conditions may exclude some people from participating in some activities

Consider all flood water as grossly contaminated

Containment depending on site and situation

Dampen materials to reduce generation and dispersal of dusts

Personal protective equipment

- Selection appropriate for the hazards
- Does not cause a hazard in itself
- Worker training
- Monitoring the use
- Cleaning and disinfecting

Establish a safety and cleanup area

Shared Control measures

Awareness

Engineering controls

Administrative

Personal Protective Equipment – boots, gloves, coveralls, safety glasses, respirators

Debris segregation – vegetation, garbage (rotted food), trash, construction debris, hazardous wastes

Sanitation

Establishing a safety and cleanup area

Outside the job site

Soap, water, and hand drying facilities

Ways to separate work clothing from street clothes

Respiratory and other personal protective equipment (PPE) -- Disposal and/or cleaning and storage.

First aid equipment

Emergency contact information

Drinking water

Clean and shaded area for breaks

Questions?

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