

Building Assessment & Structural Checklist

Flood Recovery for Homes and Business Structures

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What We'll Cover....

- What to do before entering the structure
- Initial entry of the structure
- Removing water from flooded basements
- Removing sediment
- Drying out the house
- Sequence for house clean-up
- Rehabbing

Gather Your Tools

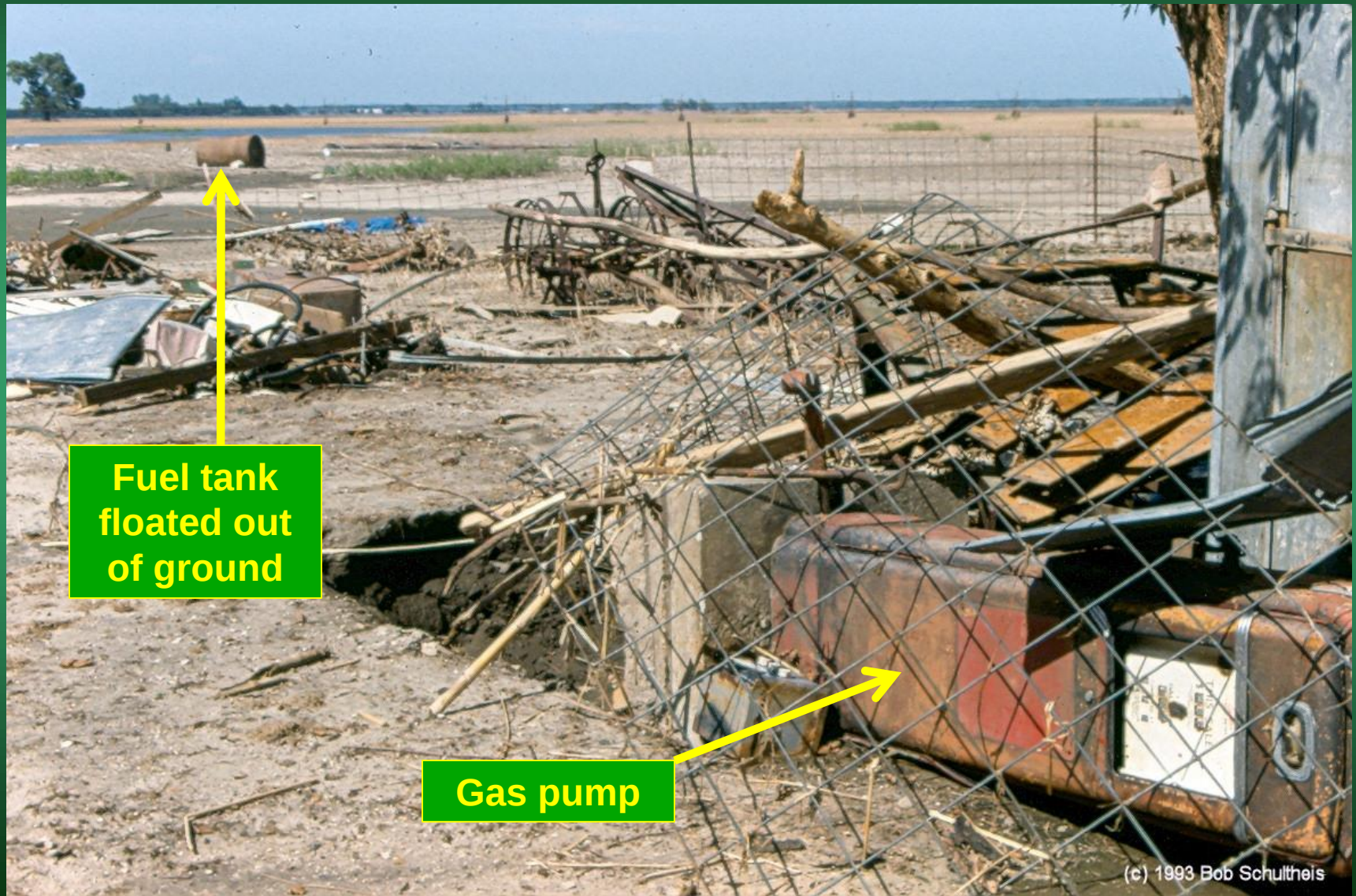
- Tetanus shot (free from Health Department)
- Flashlight
- Camera
- First aid kit
- Waterproof boots or waders
- Hard hat, gloves, eye protection
- Boots or shoes with hard soles
- Dust mask (N-95)
- A wooden stick for turning things over, scaring away snakes and small animals

Possible Health Hazards

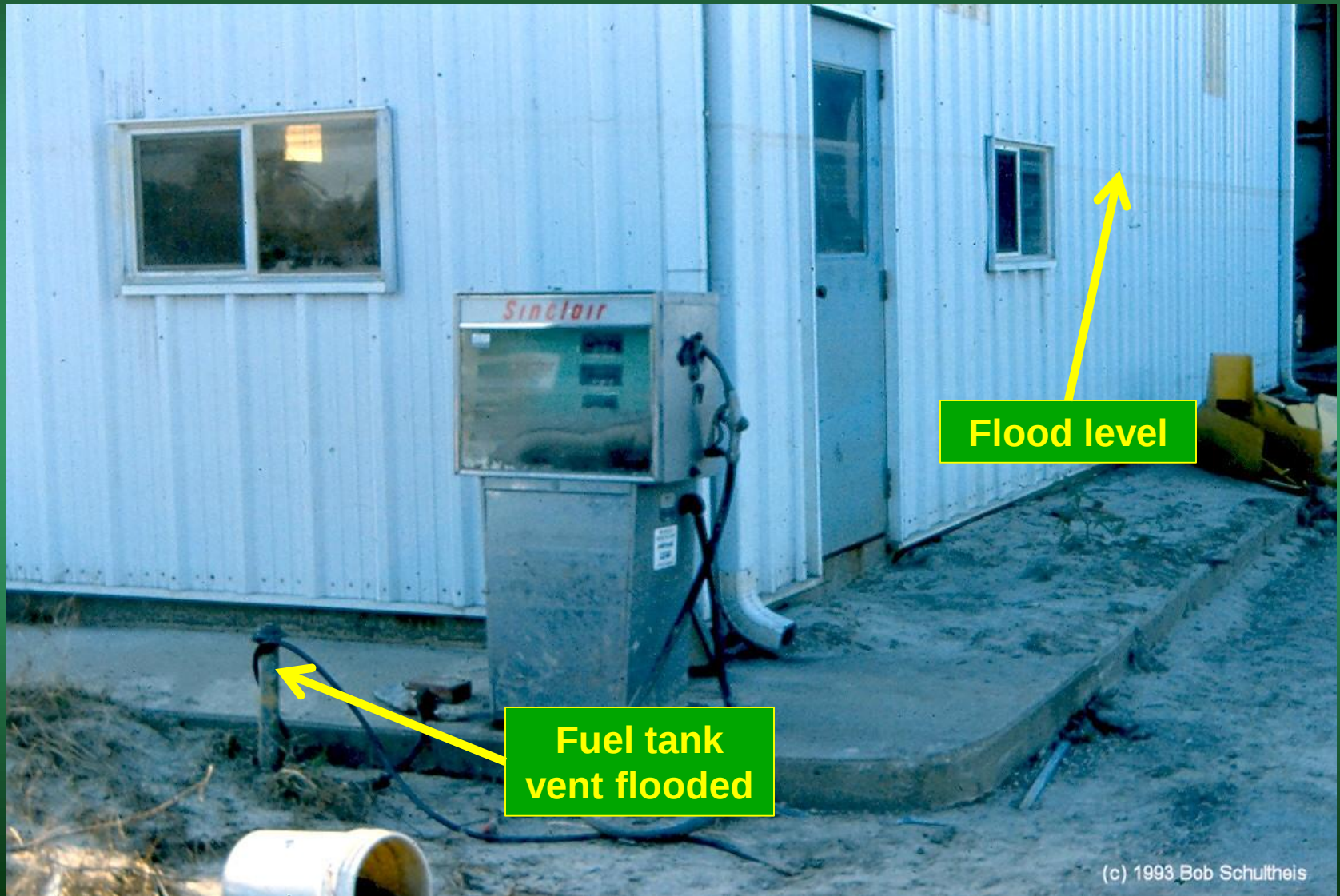
- Layer of sediment (avoid inhaling or ingesting)
- Sewage
- Toxic chemicals
 - Arsenic
 - Chemicals from diesel fuel or gasoline
 - Heavy metals (lead, cadmium, mercury)
 - Pesticides
 - Others???



Clues to Watch For ₁



Clues to Watch For ₂



Precautions Before Entry ¹

- Inspect for structural damage from outside
 - Is the building shifted off its foundation?
 - Is the foundation itself damaged?
 - Is the building racking – no longer square, but leaning to one side?
 - Is the building partly destroyed – missing a wall, for example, or partially crushed?
 - Is the roofline out of position?
- Be sure utilities are disconnected
- Do not enter the basement if it is flooded

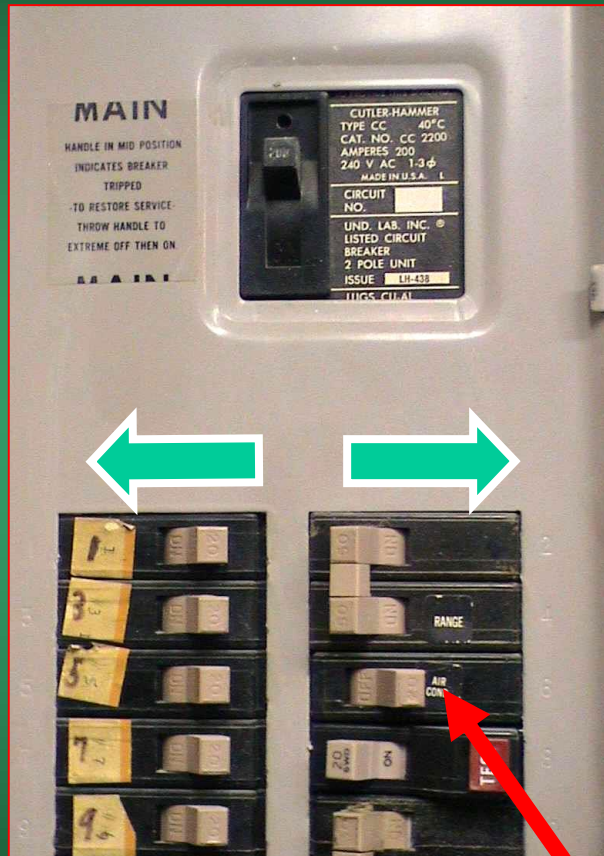


Precautions Before Entry ₃

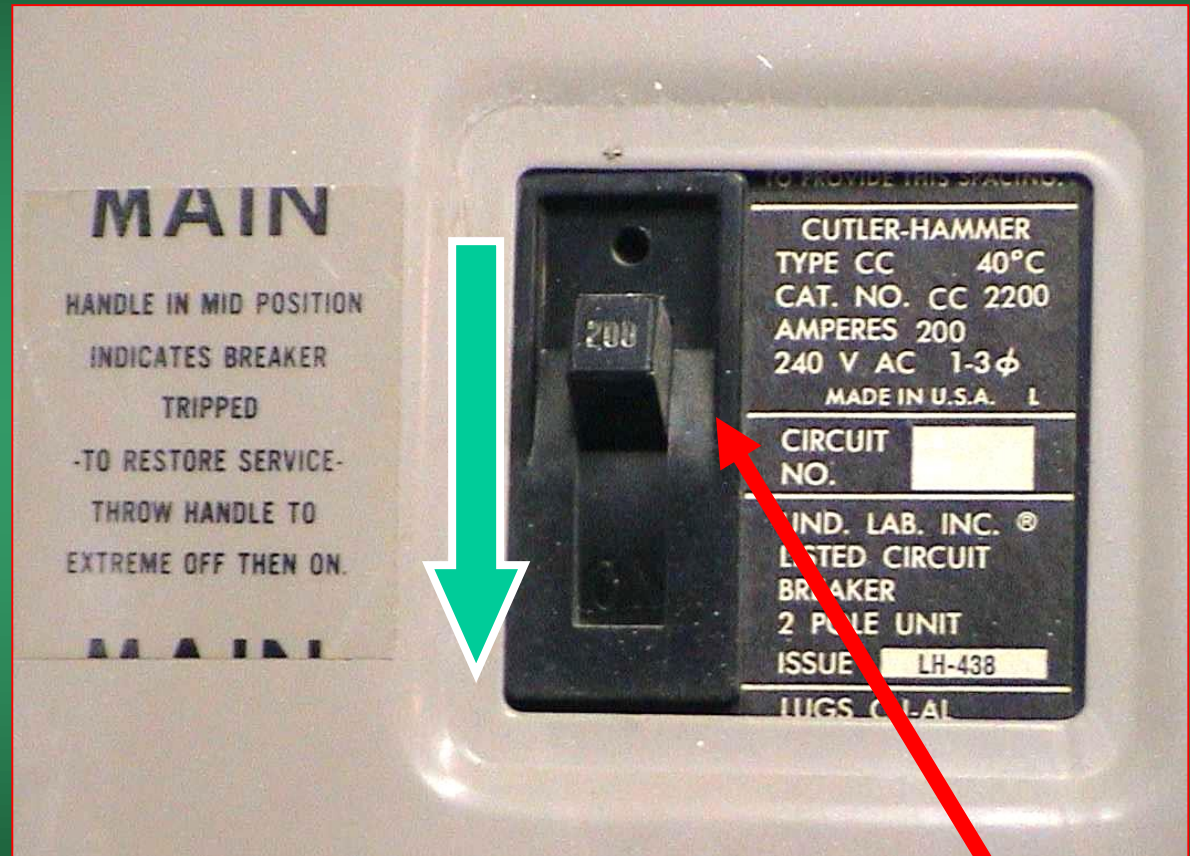


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Shut Off Utilities - Electricity

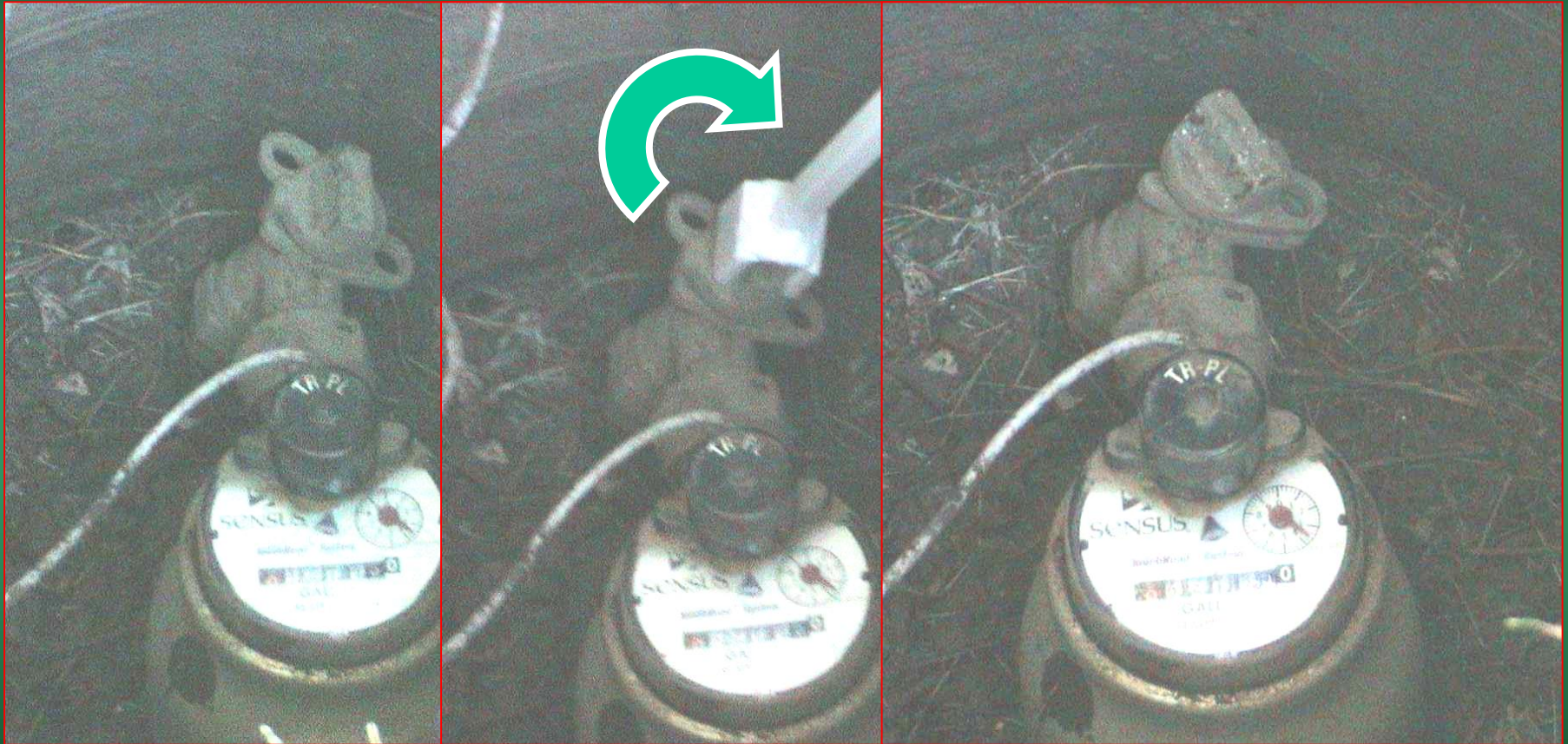


Shut individual
breakers off first



Then shut off
main breaker

Shut Off Utilities – Water ₁



Valve ON

Valve OFF

Shut Off Utilities – Water ₂



Inside Water Shutoff

Shut Off Utilities – LP Gas ₁



Valve OFF

Shut Off Utilities – LP Gas ₂



Valve ON



Valve OFF

Shut Off Utilities – Natural Gas



Valve OFF

Combustible / Explosive Gases

- Gas lines may be broken if building shifted or major appliances have moved about
- Open all windows when first entering a building
- If you smell gas or hear it escaping:
 - Don't smoke or light matches
 - Don't use cell phones or regular phones
 - Don't operate any electrical switches
 - Exit the building immediately, leaving doors and windows open
 - Notify emergency authorities



Initial Entry of the Structure ¹

- Consider probabilities
 - How stable is the situation really?
 - What else could go wrong?
- Observe priorities for protection
 - Your personal life safety
 - Life safety of others with you
 - Protection of the environment
 - Protection of property



Initial Entry of the Structure ³

- Check for:
 - Ceilings cracked or sagging
 - Floor sagging or bulging
- Step carefully
- Document and protect
 - Contact your insurance agent immediately
 - Record serial numbers of appliances or equipment
 - Take photos of the damage inside and out

20-ft. deep hole under this house



Initial Entry of the Structure ₄



Initial Entry of the Structure ⁵

- Prevent further damage
 - Remove floodwaters, mud and silt
 - Open doors to allow water to exit
 - Allow the building to dry out
 - Secure the building from looters
 - Salvage valuable items first
 - Discard items that cannot be salvaged

Patch Holes and Stabilize

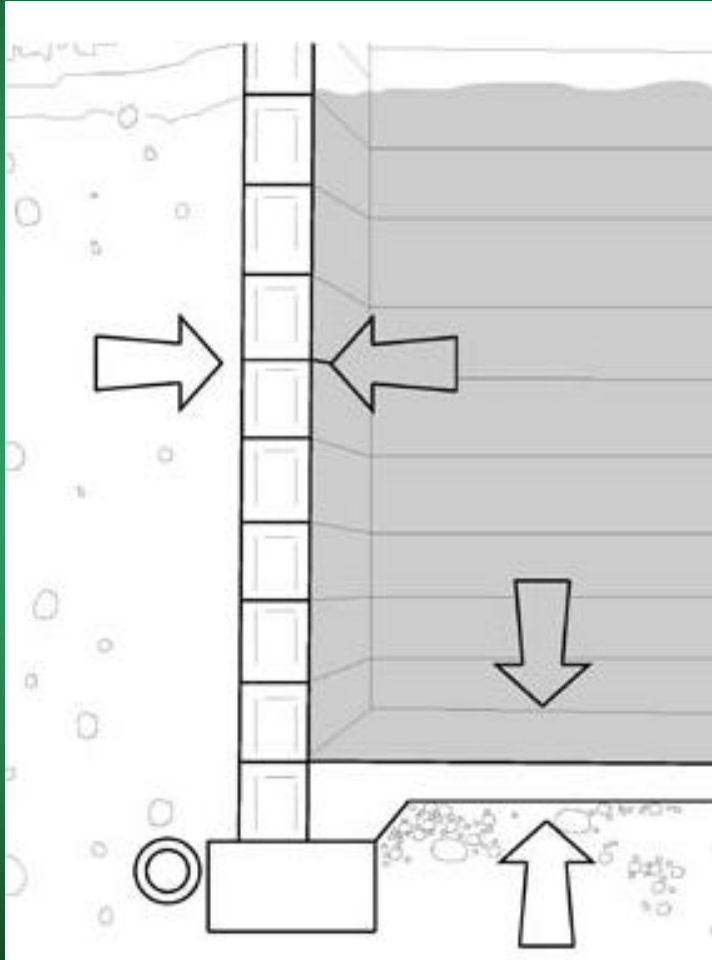
- Cover holes in the roof, walls or windows with boards, tarps, or plastic sheeting
- Plastic sheets should be nailed down with wood strips or taped with duct tape
- Use 4x4s or other heavy lumber to brace weak areas



Remove Destroyed Furnishings



Drain Basements Carefully



- Be sure power is off
- Pump down 2-3 feet & wait overnight
- If water goes back up, wait
- When water stops rising, pump down another 2-3 feet
- Pumping too quickly can cause wall collapse or floor buckling

Would FEMA Total the House?

Was the water line to
the window sills?



Removing Sediment – Shovel It

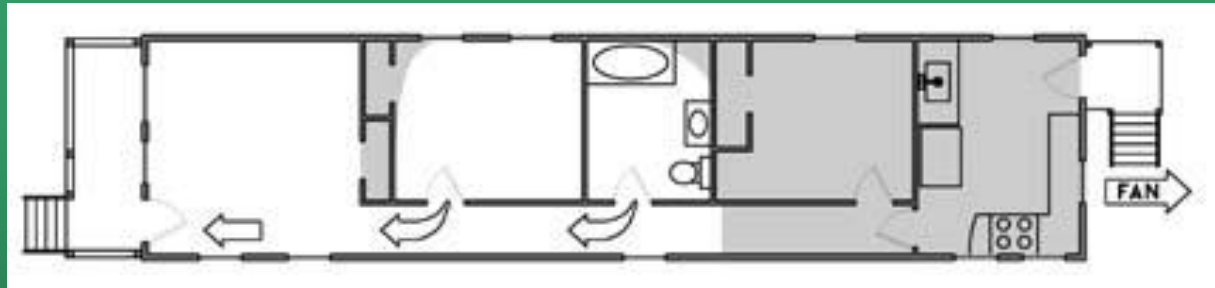
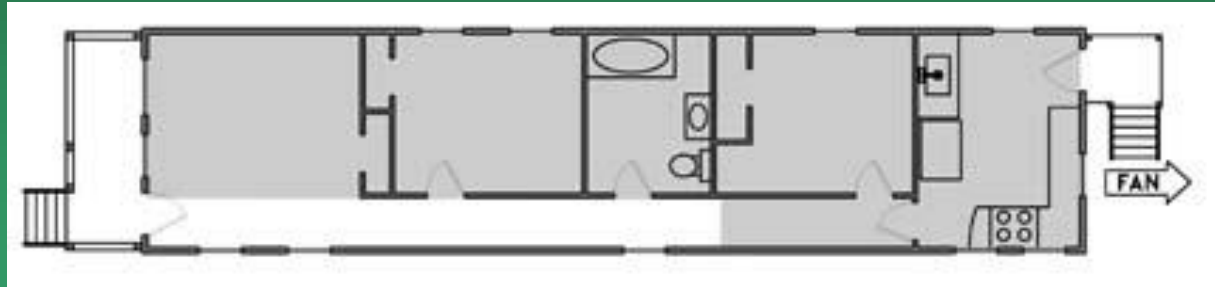


Removing Sediment – Wash It



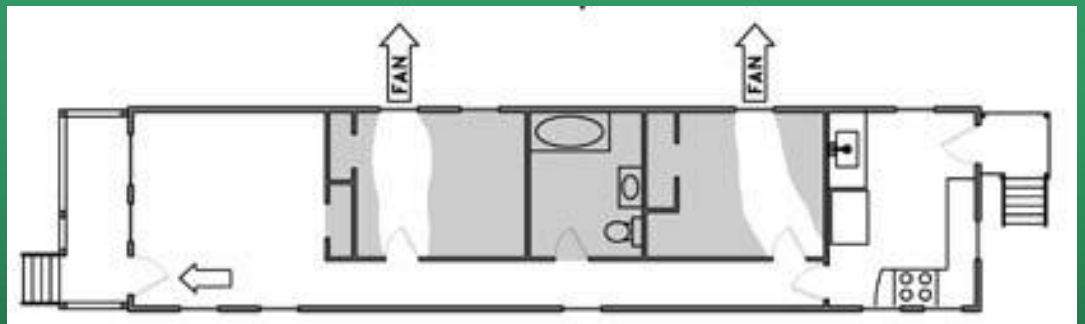
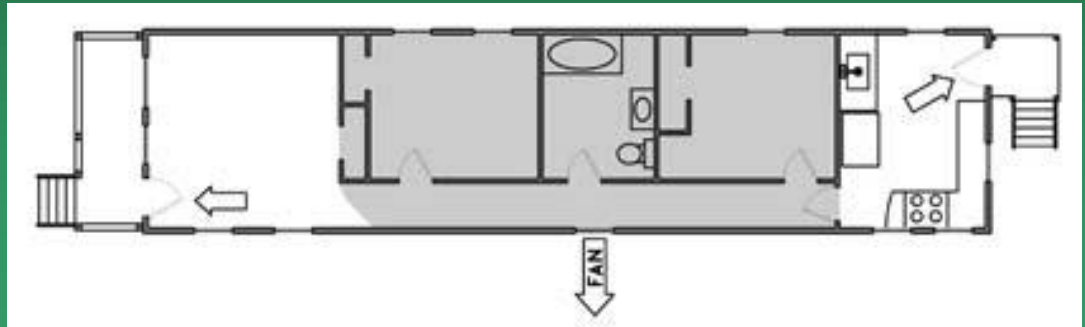
Cleaning Sequence – with exhaust fan at rear of house

- Always work from a cleaned area
- Use fan to pull air from cleaned areas
- Carry materials shortest distance possible



Cleaning Sequence – with exhaust fan in side windows

- Always work from a cleaned area
- Use fan to pull air from cleaned areas
- Carry materials shortest distance possible



Dry Out the House ¹

- Open doors and windows when outdoor humidity is lower than indoors
- Open cabinet and closet doors
- Open walls
- Use fans
- Use dehumidifiers
- Use dessicants
- Do not use propane or gas heaters
- Do not use HVAC system if it was submerged



Dry Out the House ₂

- Water will “wick up” walls 3-4 feet above flood level



Dry Out the House ₃

- Make more vents in foundations, if needed, then add fans



Dry Out the House ₄

- Cut holes in floors to enable crawl space ventilation



Dry Out the House ⁵

- Remove or dry out the accumulated silt



Dry Out the House ₆

- Check for mold in walls; remove saturated drywall



Dry Out the House ₇

- Plaster may be salvageable if allowed to dry



Dry Out the House ₈

- Fiberglass insulation won't dry; must be removed



Rehabbing Flood Damage ¹

- Mold problems will create future respiratory health hazards



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Rehabbing Flood Damage ₂

- Veneers will de-laminate and must be replaced



Rehabbing Flood Damage ³

- Wood must be dried back to <15% moisture content before covering it with drywall or mold can develop
 - Will likely exceed 28% M.C. if submerged 2-3 days
 - May take 2-3 weeks to return to < 15% M.C., depending on wood density and amount of ventilation
 - Less-dense wood takes longer to dry than more-dense wood
 - Wood submerged 2-3 weeks will likely take 2-3 months to dry out



Rehabbing Flood Damage ⁴

- Water heaters usually need to be replaced



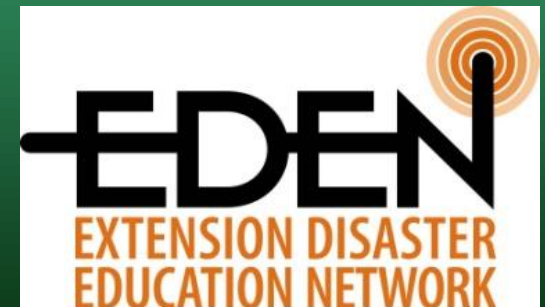
Rehabbing Flood Damage ⁵

- Most modern major appliances will need to be replaced



Information Resources ²

- University of Missouri Extension
Web: extension.missouri.edu/cemp
extension.missouri.edu/pdf/YourFloodedHome.pdf
- HUD – Rehabbing Flooded Houses
Web: www.huduser.org/Publications/pdf/Rehab_FloodedHouses.pdf
- Extension Disaster Education Network (EDEN)
Web: www.agctr.lsu.edu/eden
- Federal Emergency Management Agency (FEMA)
Web: www.fema.gov
- County Health Department
Web: www.dhss.mo.gov
- County Emergency Management





Questions???

**Contact your county University of
Missouri Extension Office.**