

Loss Control (Salvage and Overhaul)




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Objectives (1 of 3)

- Describe the safety precautions that need to be considered when performing salvage.
- List the tools that are used for salvage.
- Describe how fire fighters can limit losses from smoke and heat.
- Describe the steps needed to protect building contents using a salvage cover.

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Objectives (2 of 3)

- Describe some general steps that can be taken to limit water damage.
- Describe the steps needed to stop the flow of water from activated sprinkler heads.
- Describe overhaul.
- List the safety concerns that must be addressed to ensure safety for fire fighters performing overhaul.

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Objectives (3 of 3)

- Describe how to preserve structural integrity during overhaul.
- List the tools that are used for overhaul.
- Describe the importance of adequate lighting at the fire scene and in the fire building.

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Introduction (1 of 2)

- Fire fighter priorities are:
 - Saving lives
 - Controlling the fire
 - Protecting property
- Salvage and overhaul help to protect property.

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Introduction (2 of 2)

- Salvage
 - Efforts to limit smoke, water, and physical damage to contents
- Overhaul
 - Efforts to identify and extinguish hidden pockets of fire and smoldering embers to prevent further progression or rekindles

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Salvage Defined

Those methods and operating procedures allied with fire fighting that aid in reducing primary and secondary damage during fire fighting operations.

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Purpose of Salvage

To reduce damage from fire, smoke, water, heat, cold, or weather during and after a fire.

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Salvage (1 of 3)

- Conducted to save property and reduce damage
- Aimed at limiting secondary losses from smoke and water damage

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Salvage (2 of 3)

- Salvage operations include:
 - Expelling smoke
 - Removing heat
 - Controlling water runoff
 - Removing water from the building
 - Securing a building after a fire
 - Covering broken windows and doors
 - Patching ventilation openings

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Salvage (3 of 3)

- Protecting property is a responsibility of fire fighters.
 - Property can be irreplaceable and/or of high sentimental value (e.g. photos).
 - Contents may be more valuable than structure (e.g., artwork, computers, important files).

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Safety Considerations: Salvage

- Safety is a primary concern.
- Full PPE required, including SCBA
 - During firefighting
 - Until Safety Officer determines air in structure is safe to breathe
- Beware of possible structural collapse due to:
 - Lightweight trusses
 - Heavy objects
 - Extra water weight

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Salvage Tools (1 of 2)

- Equipment used in salvage operations includes:
 - Salvage covers
 - Box cutters
 - Floor runners
 - Wet/dry vacuums
 - Squeegees



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Salvage Tools (2 of 2)

- Submersible pumps and hose
- Sprinkler wedges and stops
- Ventilation fans
- Small hand tools


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Limiting Smoke and Heat Damage

- Keep smoke and heat out of uninvolved areas.
- Close doors after a room is searched.
- Perform rapid ventilation.
- Use salvage covers to protect contents.
- Use floor runners to protect carpets and hardwood floors.

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Salvage Covers




- Begin on floor below the fire.
- Move contents to center of room.
- Place pictures and small objects in drawers.
- Cover with salvage cover.
 - Shoulder toss
 - Balloon toss

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Preventing Water Damage

- Limit water application.
- Turn off nozzles when not in use.
- Deactivate sprinklers.
 - When IC declares fire under control
 - Using sprinkler wedges or stops
 - Using sprinkler control valves



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Replacing Sprinkler Heads

- Replacements are usually stored near main control valve.
- Replacement heads must be of same design, size, and temperature rating.
- System should be placed in service by a qualified professional.

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Closing the Sprinkler Control Valve

- Situations in which sprinkler control valve may need to be closed:
 - Recessed sprinkler heads
 - Too many heads activated for number of wedges or stops
 - Sprinkler heads cannot be plugged using wedges or stops.

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Valve Closure Process

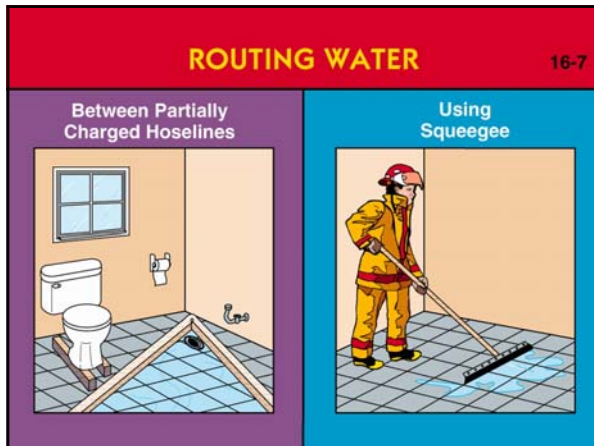
- Use bolt cutters to remove control valve lock if key is unavailable.
 - Cut close to padlock so chain can be reused.
- Close zone valve if possible; otherwise close main sprinkler control valve.
- Open drain valve if one is present.

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Removing Water (1 of 2)

- Channel to a drain or outside of building.
- Use pumps, wet/dry vacuums, or squeegees.
 - Pumps and vacuums can remove large amounts of water, but need power sources.
 - Gas-powered equipment must be located outside.
- Remove toilet to create a large drain.
- Create a “scupper”.
 - A floor-level hole in a wall to allow water to drain to the outside

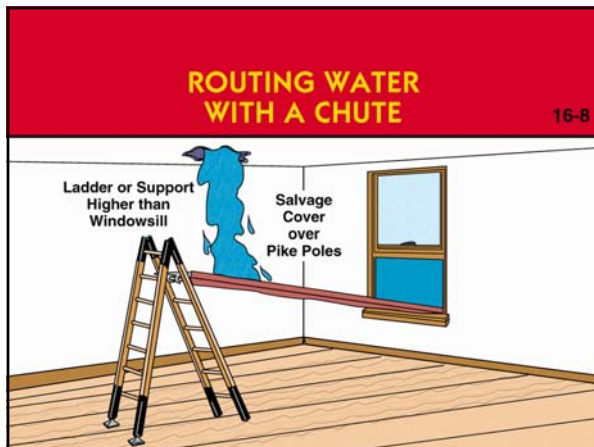
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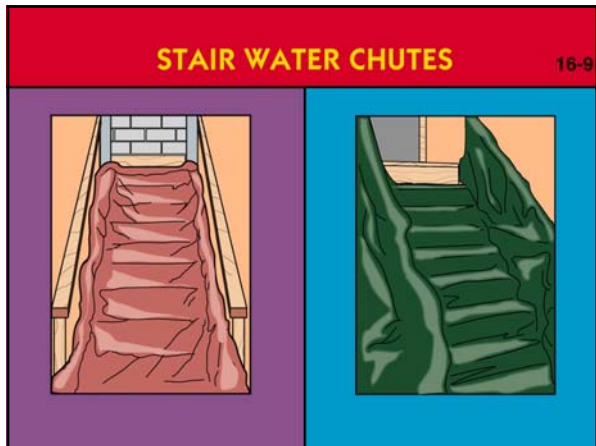


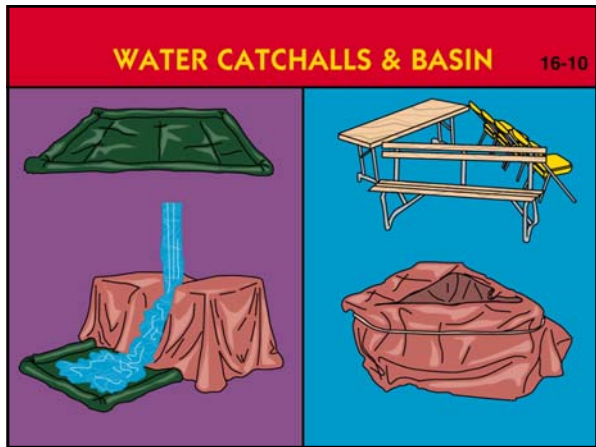
Removing Water (2 of 2)

- Water Chute
 - Channels water to a drain or outside the structure
- Water Catch-All
 - A temporary “pond” that catches dripping water and holds it in place

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Other Salvage Operations

- Move contents to safe location within structure.
- Move contents outside structure.
- Place valuable items in the care of a law enforcement officer.
- Fire investigators may need to be consulted.

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Overhaul Defined

The practice of searching a fire scene to detect hidden fires or sparks which may rekindle and to detect and safeguard signs of arson. To place the building and contents in a safe condition as possible, and to determine the cause of the fire.

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Overhaul

- Process of searching for and extinguishing hidden fire and embers
- Requires physically examining every potential void space
- A single pocket of embers can cause a rekindle.
- Fire not fully extinguished until overhaul is complete

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Safety Considerations: Overhaul

- Overhaul is strenuous work.
- Fire fighters may be fatigued and may overlook hazards.
 - IC should consider using a fresh crew for overhaul.
- Structural integrity may be compromised by fire.
- Limited visibility

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Safety Considerations: Overhaul

- Wet or icy surfaces
- Smoldering areas can burst into flames.
- Air may not be safe to breathe.
- Dangerous equipment used in close quarters
- Fire fighters should wear full PPE.
- Safety Officer should be present.

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USING AN ELECTRONIC SENSOR 16-12



OVERHAULING 16-13



PULLING A CEILING 16-15



- Wear full protective clothing and eye protection.
- Wear SCBA for overhaul.
- Stand between area being pulled and doorway.
- Pull down and away from yourself.

Coordinating Overhaul with Fire Investigators

- Ensure evidence is not lost or destroyed.
- Investigator should examine area before overhaul commences.
- Note burn patterns.
- Note whether appliances are plugged in or turned on.
- If anything suspicious is found, delay overhaul until investigator examines the scene.

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Where to Overhaul (1 of 6)

- Look for avenues for fire to spread.
 - Utility shafts
 - Pipe chases
 - Doors or dampers that do not close tightly
 - Wiring or piping (for electrical fires)
 - Ventilation systems
- Look for voids created by remodeling.
 - False ceilings
 - False doors

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Where to Overhaul (2 of 6)

- Wood-frame Construction
 - Many void spaces exist.
 - Open and check every wall, ceiling, and void space.

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Where to Overhaul (3 of 6)



- Balloon-frame Construction
 - Fire can spread from basement to attic without showing on other floors.
 - Careful overhaul of every floor is required.

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Where to Overhaul (4 of 6)

- Using Your Senses
 - Look
 - Smoke
 - Embers
 - Burnt areas
 - Discolorations
 - Peeling paint or cracked plaster

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Where to Overhaul (5 of 6)

- Listen
 - Crackling sounds
 - Hissing sounds
- Feel
 - Heat (use back of hand)

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Where to Overhaul (6 of 6)

- Thermal Imager
 - Displays minute differences in temperature
 - Can quickly identify areas that need to be opened



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USING AN ELECTRONIC SENSOR 16-12



Overhaul Techniques

- Charged hose line should be available to douse sudden flare-ups.
- Extinguish any fire or embers.
- Drop smoldering objects into bathtub or bucket of water.
- Remove smoldering contents to outside.
 - Far enough away to prevent damage
 - Do not block entrances or exits.
- Adjust techniques to meet situation.

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Overhaul Tools (1 of 2)

- Pike poles
- Ceiling hooks
- Crowbars
- Halligan tools
- Axes
- Power tools
- Pitchforks
- Shovels
- Rubbish hooks
- Rakes
- Small hand lines

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Overhaul Tools (2 of 2)

- Buckets, tubs, wheelbarrows, and carryalls are used to remove debris from a building.



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Opening Walls and Ceilings

- A six-foot pike pole is sufficient for most residential fires.
- Power saws and handsaw can be used to make cuts in walls and ceilings.
 - Pull wall section away by hand after cutting.

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Lighting

- Many incidents occur at night.
- Most incidents require power to be shut off.
- Lighting required for safe and efficient operations
- Types of fire service lights
 - Spotlights: narrow concentrated beam of light
 - Floodlights: diffuse light over a wide area

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Battery-Powered Lights

- Used to illuminate immediate work area
- Every crew member should have a high-powered hand light.
- Personal flashlight should be kept with fire fighters' PPE.



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Electrical Generators

- Inverters usually not sufficient to power lights, tools, or ventilation fans
- Gas- or diesel-powered generators provide ample power.
 - Portable: up to 6 kW
 - Vehicle-mounted: can be > 20kW

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Safety Principles and Practices

- Lights and equipment use household current (110-volt AC).
- All equipment must be properly grounded.
 - Use a grounding rod, if provided.
 - Generators should be equipped with ground fault interrupters (GFIs).

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Safety Principles and Practices

(2 of 2)

- Do not use equipment that is poorly insulated, worn, or undersized for load.
- Avoid areas of standing or flowing water.

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Lighting Equipment (1 of 3)

- Portable lights
 - Used to illuminate the interior of the building or the fire scene



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Lighting Equipment (2 of 3)

- Junction boxes
 - Serve as mobile power outlets
 - Are protected by waterproof covers
 - Are often equipped with small lights to make them easy to locate
- Connectors and plugs
 - Use a special connector that attaches with a slight clockwise twist.
 - Prevents accidental unplugging or use in standard household outlets

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Lighting Equipment (3 of 3)

- Apparatus-mounted lights
 - Body-mounted flood and spotlights
 - Light towers



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Lighting Methods (1 of 2)

- Light early, often, and safely.
- Exterior lighting
 - Fire fighters can see what they are doing, recognize hazards, and locate victims.
 - Makes scene visible to drivers
 - Provides some light inside structure

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Lighting Methods (2 of 2)

- Interior lighting
 - Set up portable light at entry point to serve as a beacon for disoriented fire fighters.
 - Illuminate interior areas as needed.
 - Provide ample illumination to facilitate operations and increase safety.

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Electrical Equipment Cleaning and Maintenance

- Clean and maintain to ensure critical equipment works when needed.
- Test and run generators weekly or monthly.
- Examine equipment for cracked or broken covers or outlets.
- Examine power cords for fraying, heat or mechanical damage, etc.
- Refill generator fuel tanks.

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Summary (1 of 3)

- Protection of property is a responsibility of the fire fighter.
- Salvage is the process used to protect property from the effects of smoke and water damage.
 - This includes expelling smoke, removing heat, and preventing water damage.
 - Salvage can begin while fire is being fought.

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Summary (2 of 3)

- Overhaul is the process of checking for and extinguishing hidden pockets of fire and smoldering embers.
 - This requires a methodical and thorough examination of any place where fire or embers may be hidden.
 - Walls, ceilings, and void spaces must be opened and visually checked.

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Summary (3 of 3) 18

- Salvage and overhaul are activities that still present dangers to the fire fighter.
- Wear PPE and SCBA to prevent injuries.
- Providing lighting is important to ensure fire fighters can work efficiently and safely.

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