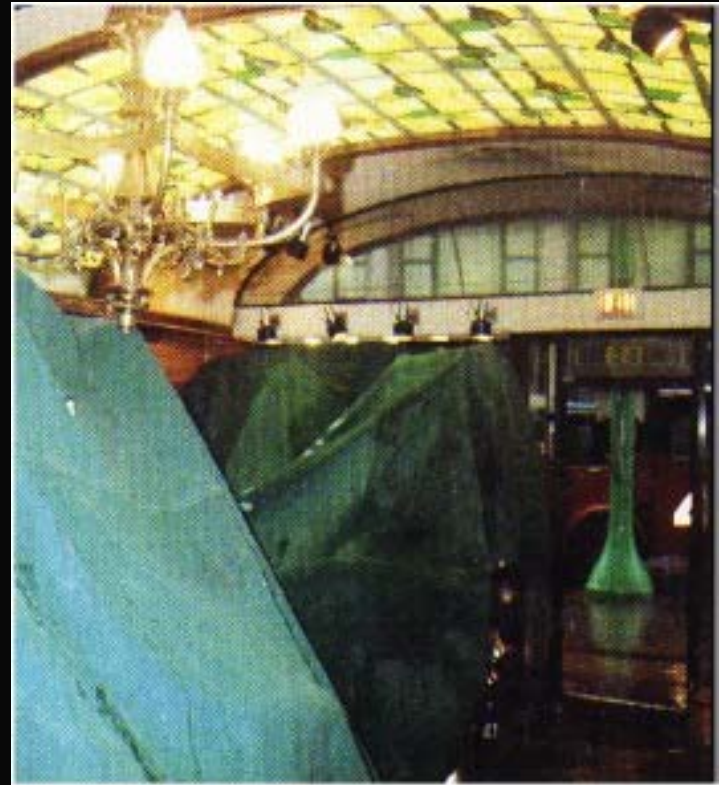


Loss Control (Salvage and Overhaul)



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.

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.

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.

Introduction (1 of 2)

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

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

Salvage Defined

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

Purpose of Salvage

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

Salvage (1 of 3)

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

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

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).

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

Salvage Tools (1 of 2)

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



Salvage Tools (2 of 2)

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

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.

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

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



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.

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.

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.

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

ROUTING WATER

16-7

Between Partially Charged Hoselines



Using Squeegee



Removing Water (2 of 2)

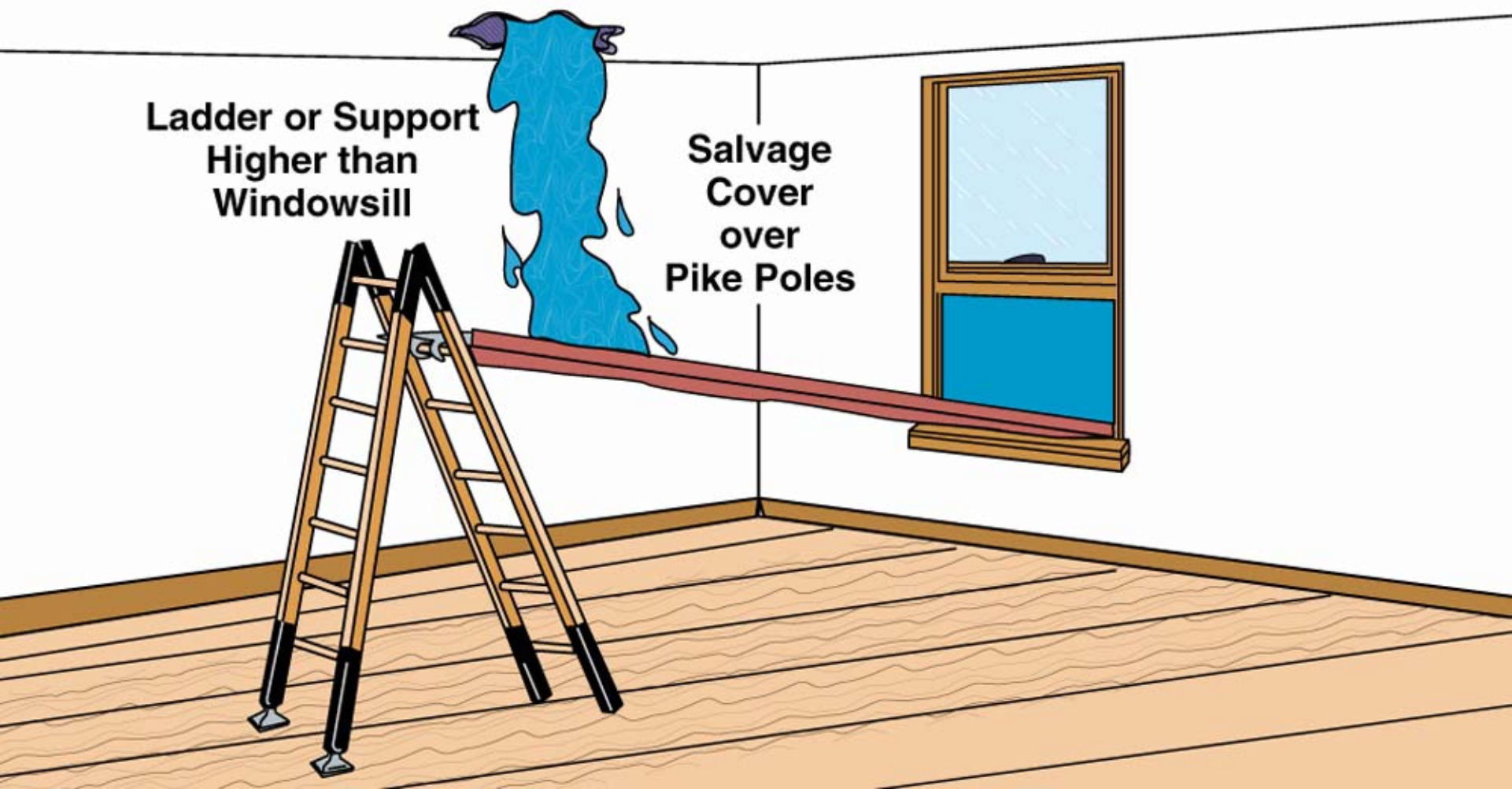
- Water Chute
 - Channels water to a drain or outside the structure
- Water Catch-All
 - A temporary “pond” that catches dripping water and holds it in place

ROUTING WATER WITH A CHUTE

16-8

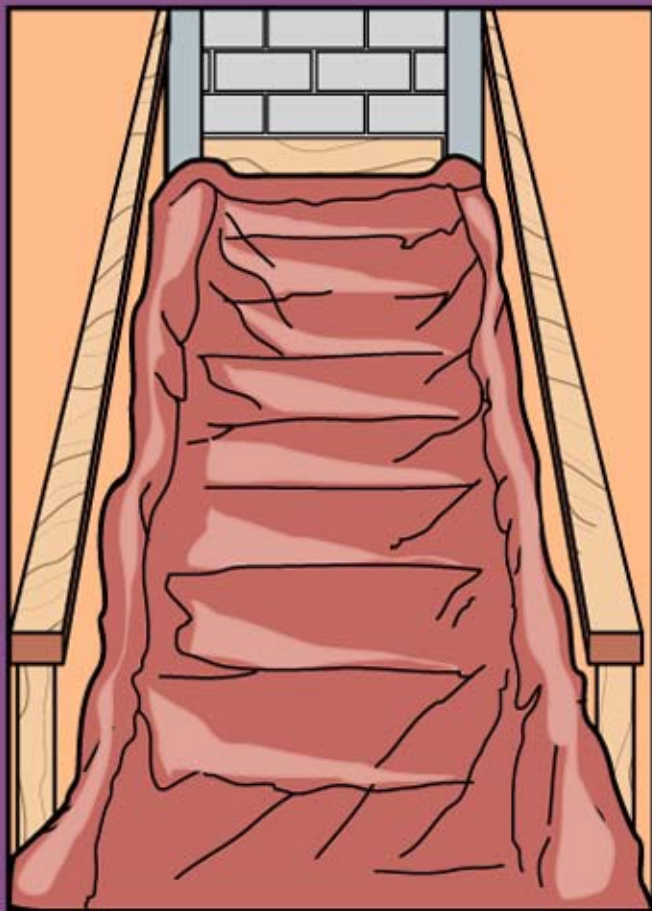
Ladder or Support
Higher than
Windowsill

Salvage
Cover
over
Pike Poles



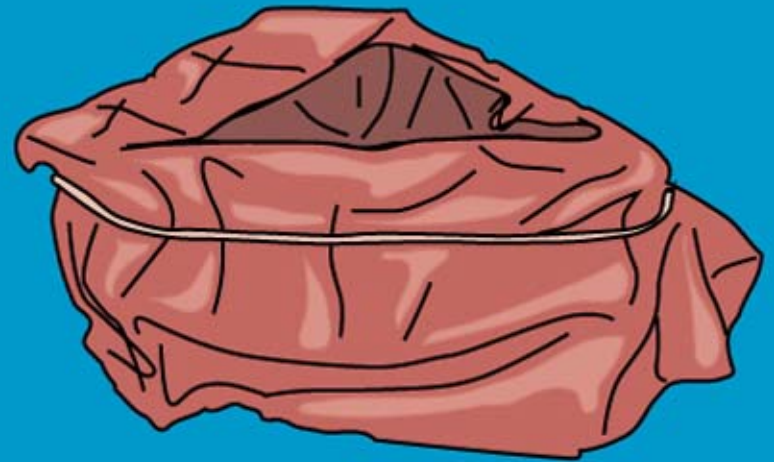
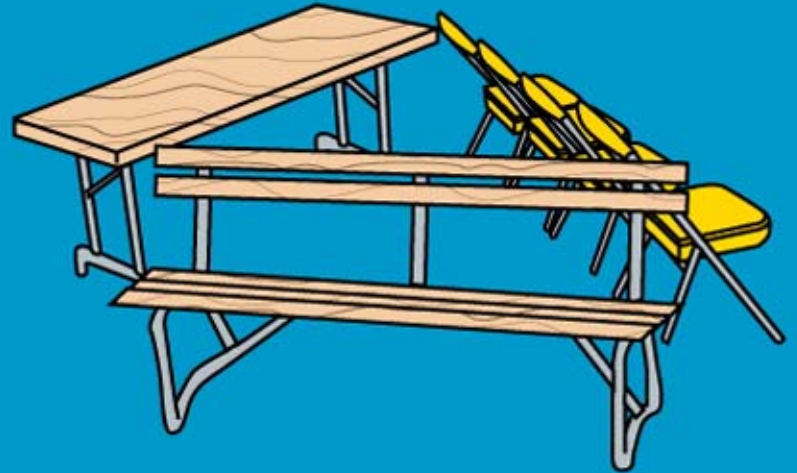
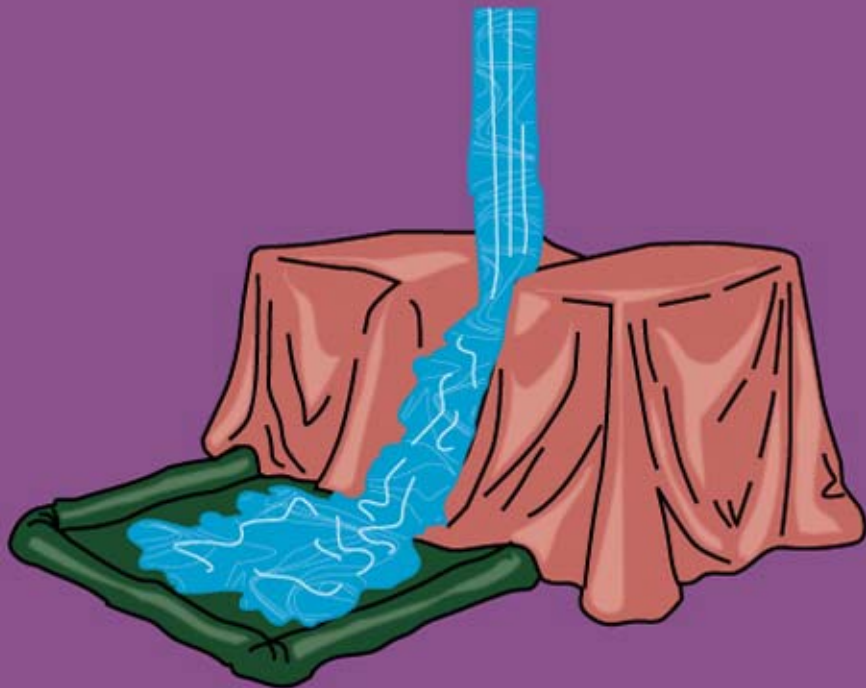
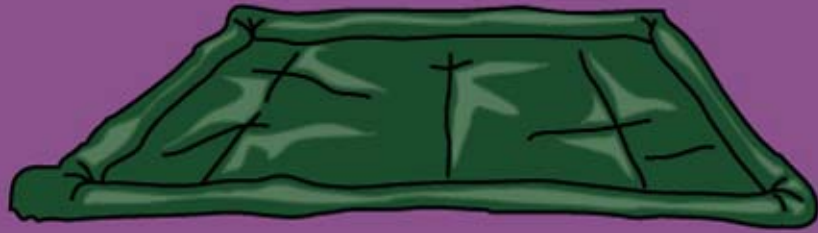
STAIR WATER CHUTES

16-9



WATER CATCHALLS & BASIN

16-10



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.

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.

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

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

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.

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.

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

Where to Overhaul (2 of 6)

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

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.

Where to Overhaul (4 of 6)

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

Where to Overhaul (5 of 6)

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

Where to Overhaul (6 of 6)

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



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.

Overhaul Tools (1 of 2)

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

Overhaul Tools (2 of 2)

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



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.

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

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.



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

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).

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.

Lighting Equipment (1 of 3)

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



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

Lighting Equipment (3 of 3)

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



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

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.

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.

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.

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.

Summary (3 of 3)

- 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.