

**SALVAGE AND OVERHAUL
(Property Conservation)**

Salvage is those methods and procedures allied to fire fighting which aid in reducing fire, water, and smoke damage during and after a fire. There are 2 causes of damage:

1. **Primary fire damage** - attributed to products of combustion. Flame, heat, and smoke .
2. **Secondary damage** - caused by fire fighting operations and procedures. The necessary evils of fire fighting, ventilation, rescue, forcible entry and water application.

Property conservation activities usually come after rescue and fire control, but this is not an absolute rule. Some types of property contain equipment worth more than the structures. In these instances, the priority may be to protect the contents first and to refrain from applying water in certain parts of the building.

Four objectives should be considered during property conservation:

1. Stopping additional loss and damage.
2. Verifying that the fire is completely extinguished.
3. Determining the fire cause and origin.
4. Returning the occupancy to use, when possible.

Salvage and overall operations build good will, and improve the departments image with the public. Property conservation generally produce more positive public reaction than any other fire ground activity. Because of this, fire departments realize improve moral and efficiency of the fire fighters.

I. TYPES AND MAINTENANCE OF SALVAGE COVERS

A. Sizes of covers

1. Will vary in size by department and jurisdiction
2. 12 x 18 feet best suited, and most prevalent size
3. Smaller sizes don't do the job
4. Larger sizes to cumbersome and heavy

II. TYPES OF SALVAGE COVERS

A. Rubber coated covers

1. Not very common anymore
2. Rubberized on both sides
3. Used by larger departments and departments back east where they have specialized salvage companies.

B. Plastic covers

1. Becoming more common.
2. Usually made of nylon with a vinyl coating
3. May be made of heavy polyethylene film
4. Advantages
 - a. Lightweight
 - b. Water and shrink proof
 - c. Chemical and tear resistant
 - d. Will not rot or mildew

C. Greenback cover

1. Canvas with special treatment on one side
2. The dark or treated side is usually working side

D. Duck Cover

1. Canvas treated with a linseed oil compound
2. Sticky in summer stiff in winter
3. Tend to soil objects covered

E. Regular canvas

1. Most Common type
2. Specially treated canvas material
3. Advantages
 - a. Lightweight

- b. Easy to handle
- F. Visquene
 - 1. Heavy gauge plastic sheeting
 - 2. Advantages
 - a. Comes in rolls 3 and 4 feet wide
 - b. Unfolds to 18 - 20 feet wide
 - c. Lightweight, easy to work with
 - d. Can be left at the scene

III. SALVAGE COVER CONSTRUCTION

- A. Seams are doubled stitched and sometimes sealed
- B. The edges are hemmed with gussets sewed in corner for strength
- C. Metal grommets
 - 1. Installed every 32" sometimes every 16"
 - 2. Used to hang covers
 - 3. Sometimes furnished with two grommets at corners for added strength (use both)

IV. PROTECT SALVAGE COVERS FROM DAMAGE

- A. Keep all covers away from chemicals
- B. If burning objects come in contact with covers thoroughly wet down covers
- C. Do not drag or walk on covers unnecessarily. If other material other than plastic, remove them from floors and stairs as soon as possible.
- D. Do not spread over sharp objects, projections or broken glass
- E. Do not throw out windows, etc. when removing. Debris inside may cause damage.
- F. Always use care when removing.

V. CLEANING COVERS

- A. Covers must be washed and dried after every use.
- B. Dirty covers will soil materials being covered
- C. Mild soaps and detergents
- D. Clean concrete surface that is well drained
- E. Rinse and brush with a push broom
- F. Hand to dry
 - 1. Over a fence
 - 2. On poles
 - 3. In hose tower
- G. Cover must be completely dried before re folding
 - 1. May rot and mildew
- H. Covers should be periodically refolded
 - 1. Lay out flat
 - 2. Refold and different points whenever possible

VI. EXAMINE COVERS FOR DAMAGE

- A. Raise cover up over heads, as it is passed overhead it is checked for holes and tears.
- B. Any damage found should be marked and repairs made.

VII. REPAIR COVERS

- A. Remove damaged covers from service
- B. Damaged covers will allow water and/or debris to reach protected articles.
- C. Methods of repair
 - 1. Use patches of like materials and contact cement
 - a. Patch should extend over the hole by 2 inches.
 - b. Small holes can be patched on one side only
 - c. Large holes must be patched on both sides and

stitched by a professional.

2. Iron - On Patches and Duct Tape
 - a. Temporary repairs
 - b. May not hold

VII. IMPROVISING WITH SALVAGE COVERS

- A. Salvage covers can be used for various other tasks on the fire ground.
 1. Stairway drains
 2. Water chutes for diverting water
 3. Dikes
 4. Improvised Sumps
 5. Catch alls
 - a. Large areas use leak proof fold.
 6. Improvised stretchers

SALVAGE COVER FOLDS THROWS AND CARRIES

There are four folds the FOOTHILL FIRE ACADEMY teaches they are:

1. The IFSTA Roll for a one fire fighter spread
2. The IFSTA FOLD for a one fire fighter spread
3. The Palo - Alto Accordion Fold
4. The Accordion Fold

We will discuss the method of folding each and the advantages and disadvantages of each.

The advantages of both the IFSTA roll and fold, is that they can be deployed by one fire fighter. The disadvantage however, is that they can only be deployed in one or two methods. The methods of deploying these covers, may be preferred by some departments since they limit the chances of breaking items as you cover them.

The advantage of the Palo - Alto Accordion Fold, is that it can also be spread by one fire fighter, in a controlled and less chance of breaking items. Just like the above two folds. However, it can also be deployed by the use of a one man throw. The IFSTA fold and roll can not be thrown. This is where the chance of objects breaking is high. However, to eliminate the chance of accidentally breaking items, the fire fighter should place breakable items where they are protected by non breakable items. The Palo - Alto Accordion Fold, can also be thrown in a balloon fashion by two fire fighters.

The Accordion Fold can again be deployed by one fire fighter, and also ballooned by two. Both the Palo - Alto and the Accordion Fold are a little more versatile in the way they can be deployed. They offer the department a better choice.

IFSTA ROLL FOR A ONE FIRE FIGHTER FOLD

The principle advantage of the one fire fighter salvage cover roll is that it can be rolled across the top of an object and then unfolded by one person. To form this roll, two fire fighters must make initial folds to reduce the width of the cover.

- Step 1: Place the cover in a flat position on the floor, with the working side up. Place a fire fighter at each end to fold one side at a time.
- Step 2: Fold in corners about 10". Using cross arm technique grasp the cover with one hand midway between the center and the edge to be folded. Using the other hand as a pivot, pull tightly with the folding hand and bring the fold over to the center. Stretch the cover tight to eliminate wrinkles.
- Step 3: With the cross arm technique fold this side again to the center of the cover. Again pull taut to eliminate air and wrinkles.
- Step 4: Fold the other half in the same manner (repeat steps 2 and 3). If the folds are not straight they should be straightened.
- Step 5: Fold over both ends approximately 10" - 12". Start the roll at either end, and compress as tightly as possible. As the roll progresses, tuck in the slack at the center when wrinkles appear. The completed roll can be held tight with inner tubes or tied with cords.

ROLLING THE SALVAGE COVER FOR A ONE FIRE FIGHTER SPREAD

STEP 1 - LAY COVER OUT FLAT WITH WORKING SIDE UP.



STEP 2 - FOLD FROM ONE SIDE TO THE CENTER.



STEP 3 - FOLD FROM SAME SIDE AGAIN TO CENTER



STEP 4 - REPEAT STEPS 2 AND 3 WITH OTHER SIDE



STEP 5 - FOLD OVER BOTH ENDS APPROXIMATELY 10" - 12"
AND ROLL TOWARD OTHER END

**SPREADING THE IFSTA ROLL
(ONE MAN)**

A salvage cover rolled for a one fire fighter spread may be carried on the shoulder or under the arm. If it is fastened with inner tube bands or cords, its compactness makes it useful in several ways. On use, other than covering objects, is as a floor runner, which can be opened out if necessary. Use the following steps when spreading a rolled cover.

- Step 1: Start at one end of the object to be covered and while holding the roll in the hands, unroll a sufficient amount to cover the end.
- Step 2: Lay the roll on the object and continue to unroll toward the opposite end.
- Step 3: Let the rest of the roll either fall into place at the other end or arrange it into workable corners.
- Step 4: Stand at one end and grasp the open edges where convenient, one edge in each hand.
- Step 5: Open the sides of the cover over the object by snapping both hands up and out.
- Step 6: Open the other end of the cover in the same manner, and tuck in all loose edges at the bottom.

**FOLDING THE IFSTA FOLD
FOR A ONE FIRE FIGHTER SPREAD**

As with the one-fire fighter roll initial folds must first be made to reduce the width of the cover. These initial folds are exactly the same as those described in steps 1 - 4 above. However, we will go over them again. The advantages of this fold, is the same as for the roll, allowing one fire fighter to spread the cover with minimal or no damage to items being covered.

- Step 1: Place the cover in a flat position on the floor, with the working side up. Place a fire fighter at each end to fold one side at a time.
- Step 2: Fold in corners about 10". Using cross arm technique grasp the cover with one hand midway between the center and the edge to be folded. Using the other hand as a pivot, pull tightly with the folding hand and bring the fold over to the center. Stretch the cover tight to eliminate wrinkles.
- Step 3: With the cross arm technique fold this side again to the center of the cover. Again pull taut to eliminate air and wrinkles.
- Step 4: Fold the other half in the same manner (repeat steps 2 and 3). If the folds are not straight they should be straightened.
- Step 5: Both fire fighters grasp the one end of the cover and using their foot as a pivot, bring the end to just short of center (4" - 6"). Go back to same end half the cover again, continue until a fold about 8" - 10" on this side remains.
- Step 6: Repeat this procedure with the other end.
- Step 7: Upon completion of folding both ends finish off the fold by placing one set of folds on top to the other.

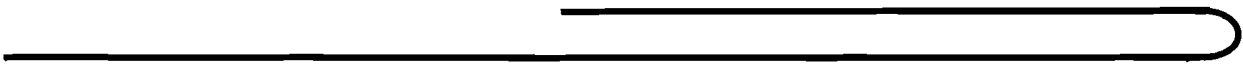
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- Step 5: Open the sides of the cover over the object by snapping both hands up and out.
- Step 6: Open the other end of the cover in the same manner, and tuck in all loose edges at the bottom.

FOLDING THE SALVAGE COVER FOR A ONE FIRE FIGHTER SPREAD

STEP 1 - LAY COVER OUT FLAT WITH WORKING SIDE UP.



STEP 2 - FOLD FROM ONE SIDE TO THE CENTER.



STEP 3 - FOLD FROM SAME SIDE AGAIN TO CENTER



STEP 4 - REPEAT STEPS 2 AND 3 WITH OTHER SIDE

FOLD HERE



STEP 5 - FOLD OVER ONE END APPROXIMATELY 10" - 12"
AND FOLD OTHER END TOWARD CENTER, REPEATING THE
FOLDS UNTIL CENTER IS REACHED. REPEAT WITH OTHER END.



STEP 6 - ONCE CENTER IS REACHED FOLD COVER ALONG CENTER SEAM.

FOLDING THE PALO ALTO ACCORDION FOLD

The Palo - Alto Accordion fold is a variation on the accordion fold developed by the Palo Alto California Fire Department. It's use enables one fire fighter to spread or throw, or two fire fighters to balloon it. It has grown in popularity since it was developed.

- Step 1: Place the cover in a flat position on the floor, with the working side up. Place a fire fighter at each end to fold one side at a time.
- Step 2: Fold in corners about 10". Using cross arm technique grasp the cover with one hand midway between the center and the edge to be folded. Using the other hand as a pivot, pull tightly with the folding hand and bring the fold over to the center. Stretch the cover tight to eliminate wrinkles.
- Step 3: With the cross arm technique fold this side again to the center of the cover. Again pull taut to eliminate air and wrinkles.
- Step 4: Fold the other half in the same manner (repeat steps 2 and 3). If the folds are not straight they should be straightened.
- Step 5: With two fire fighters (minimum) at on end, start pulling the other end towards you. Using one hand as a pivot, space folds or pleats approximately 9" apart. Continue folding until all the folds are completed and the cover is stacked.
- Step 6: This cover can be secured with straps or cord.

PALO ALTO ACCORDIAN FOLD

CAN BE USED WITH ALL THROWS AND SPREADS

STEP 1 - LAY COVER OUT FLAT WITH WORKING SIDE UP.



STEP 2 - FOLD FROM ONE SIDE TO THE CENTER.



STEP 3 - FOLD FROM SAME SIDE AGAIN TO CENTER



STEP 4 - REPEAT STEPS 2 AND 3 WITH OTHER SIDE



STEP 5 - PULL COVER TOWARDS YOU, AND MAKE PLEATS 10" - 12" EVEN WITH THE END. CONTINUE IN THIS MANNER UNTIL ALL THE COVER IS FOLDED. SHOULD BE APPROXIMATELY 12 FOLDS.

**SPREADING THE PALO - ALTO ACCORDION FOLD
PROCEDURE ONE
ONE MAN**

The Palo - Alto accordion fold can be carried just about any way the fire fighter wishes, but the recommend procedure is to carry the cover on the shoulder with the split toward head. This way the cover is easy to deploy in either way you want.

- Step 1: Start at one end of the object to be covered and while holding the roll in the hands, unroll a sufficient amount to cover the end.
- Step 2: Lay the cover on the object and continue to unfold toward the opposite end.
- Step 3: Let the rest of the folds either fall into place at the other end or arrange it into workable corners.
- Step 4: Stand at one end and grasp the open edges where convenient, one edge in each hand.
- Step 5: Open the sides of the cover over the object by snapping both hands up and out.
- Step 6: Open the other end of the cover in the same manner, and tuck in all loose edges at the bottom.

**PALO ALTO FOLD PROCEDURE 2
ONE MAN THROW**

- Step 1: Hold on forearm and palm, split towards body.
- Step 2: Grasp bottom two folds with ring and little fingers.
- Step 3: Grasp the top 2 or 3 folds with the other hand at the split.
- Step 4: Draw the cover across body and flip folds over hand and wrist.
- Step 5: Throw the top folds directly overhand, cover should land on objects to be covered.
- Step 6: Finish spreading the cover out and tucking corners and sides in and under.

**PALO-ALTO ACCORDION FOLD
TWO MAN BALLOON**

- Step 1: First man holds cover on forearms, split toward body, holding bottom fold.
- Step 2: Second man positions his hands at the folds and extends the cover away from the first man.
- Step 3: First man must now position his hands on the folds and keep the cover from touching the floor.
- Step 4: Center or bottom flap is released.
- Step 5: Men rock to gain rhythm.
- Step 6: On "three" the arms are snapped over the head and as the cover balloons, the men move to cover the object.
- Step 7: If the object is wide, the trailing edge will be released as the men move to cover the object.

FOLDING THE ACCORDION FOLD

- Step 1: Lay cover out flat with working side up.
- Step 2: Fold one side towards center, stopping at center grommet.
- Step 3: Repeat the fold on the other side.
- Step 4: Fold the entire cover in half starting at the center grommet (seam folds made).
- Step 5: With two fire fighters (minimum) at one end, start pulling the other end towards you. Using one hand as a pivot, space folds or pleats approximately 9" apart. Continue folding until all the folds are completed and the cover is stacked.

This cover can be spread from either of the methods described above. The one-man counter payoff, the two man counter payoff or the two man balloon. It does not afford itself the luxury of being able to be thrown by one fire fighter.

ACCORDIAN FOLD

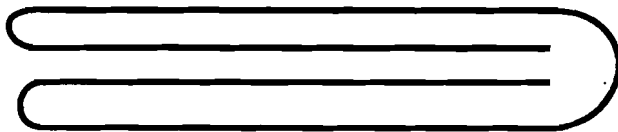
STEP 1 - LAY COVER OUT FLAT WITH WORKING SIDE UP.



STEP 2 - FOLD IN FOURTHS USING CENTER GROMMET AS MARKER

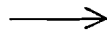


STEP 3 - FOLD OTHER SIDE TO CENTER GROMMET



STEP 4 - FOLD IN HALF AT THE CENTER GROMMET

PULL TOWARDS END



PIVOT POINT



STEP 5 - PULL COVER TOWARDS YOU, AND MAKE PLEATS 10" - 12" EVEN WITH THE END. CONTINUE IN THIS MANNER UNTIL ALL THE COVER IS FOLDED. SHOULD BE APPROXIMATELY 12 FOLDS.

OVERHAUL OPERATIONS

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 fire cause.

I. Overhaul tools

- A. Many of the tools used in fire fighting can be used.
 - 1. Pike poles
 - 2. Axes

II. Overhauling

- A. Check everything
- B. Hose down objects
- C. Utilize carryalls
- D. Large items (mattresses etc) move outside

III. Searching for hidden fires

- A. Determine structural conditions first
 - 1. Must be aware of weakened floors
 - a. weight of water
 - b. burned support members
 - 2. Weakened walls and any other support members
- B. Often detect hidden fire by sight, touch, & sound
 - 1. Sight
 - a. See discoloration of materials
 - b. Peeling paint
 - c. Smoke emissions
 - d. Cracked plaster
 - 2. Touch
 - a. Feel walls and floors with back of hand to sense heat in walls etc.

- b. Sound
- c. Popping or cracking sounds
- d. Hissing of steam

3. If at all suspicious open it.

IV. Extinguishing hidden fire

- A. Wear proper safety equipment including SCBA
- B. Have charged hose lines ready

V. Determine fire cause and origin

- A. Check for signs of fire advancement
 - 1. Burn patterns
 - 2. "V" patterns
 - 3. Light bulbs
- B. Check for signs of Arson
 - 1. Holes in walls
 - 2. Forcible entry
 - 3. Trailers from room to room

VI. Protecting and Preserving Arson Evidence - 2 things must be kept in mind while overhauling.

- A. Keep the evidence where found, untouched and undisturbed if possible.
 - 1. Avoid trampling over
 - 2. Minimize use of hoselines
 - 3. Sometimes better to wait before overhaul
- B. Properly remove, identify, and safeguard evidence that can not be left on scene.
 - 1. Properly tag
 - 2. Label and mark diagram where found
 - 3. Collect samples in clean metal containers
 - 4. Preserve chain of evidence

VII. Return building to safe condition

- A. If livable or habitable
 - 1. Cover any openings with salvage covers or visquene
 - a. Roof, windows or walls
 - 2. Secure utilities
 - a. Turn back on if you can
 - b. Have utility companies turn on
 - c. Remove all debris and dispose of in proper manner.

- B. If unlivable
 - 1. Cordon off area
 - 2. Limit access
 - a. Especially if fire is still under investigation
 - (1) preserves evidence
 - 3. Secure utilities (leave off)
 - a. Better to have utility company handle
 - 4. Cover all openings to prohibit entry once you leave