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Background

Tarping roofs is a critical first step toward recovery of homes post wind related events. Its benefits include:

- Temporarily address roof leaks and secure interior of homes or storage space from further damage
- Allows beneficiaries to re-inhabit parts of their home as well as safely sort and store personal items
- Allows AHAH to move forward with muck/gut and sanitation work scopes

When proper safety protocols are followed (i.e. hazard ID, ladder safety, training, and on site communication) tarping can be volunteer friendly. Tarping is a quick temporary fix, designed to stop more water damage from being done and give homeowners time to make permanent solutions.

Section 1: Definition of Scope

This recommended work scope is based on All Hands and Hearts safety protocol on previous programs. Thus, it is subject to change by program based on community needs, resources, and technical experience.

- **Safety!** Site must have safe ladder access. Ladder area must be free of debris, and have a sturdy portion of the existing house to set the ladder against.
- **50 % Rule:** > 50% roof (includes rafters and decking) undamaged. Home must be structurally sound and crews must be able to walk on the roof. The assessor must have been trained on this type of assessment by the Senior Technical advisor. The team must consult with the Senior Technical advisor on any and all structural issues if they are identified.
 - Roof Inspection: check attic and sound roof! Roof assessments should include a walk through inside to check: Joists, holes in the ceiling, etc. Indicators of unsound roof from the outside include: sagging, missing roof and shifted roof. Non structural components to a roof include: shingles, flashing (along edges) and sheathing
- **Fall Protection** – Fall protection is **REQUIRED ON EVERY ROOF**, regardless if it is slightly pitched or even flat.
- **Height/Stories:** Work on single story homes only; or roofs on single story in part of the house.
- **NO GO SITUATIONS**
 - Weather: Rain > 15 min; Winds: > 10 mph
 - No fall protection is being used
 - Height: > single story
 - Structural : < 50% roof (rafters/decking) in tact. Building not structurally sound
- **NOTES:**
 - **Changes in Work Scope:** AHAH can adapt its work scope or priority designation with a written exemption from the Ops Director, PD or PM. The written note should be tracked in the site's folder.
 - **Transparency with Homeowners:** Tarping causes permanent damage to roofs. Please be transparent with the homeowner that they must move forward with repairs down the line. Tarping is meant as a temporary solution. Tarps are designed to last 30 days (3 months, unofficially)
 - **Re-Tarp:** - If the tarp that AHAH has applied is blown loose, a team must go back up on the roof and reinstall.

- **Metal and clay roofs** can be tarped without nails/screws. However, tarps need to be secured with rope and or fastened to the fascia board.

AHAH Tarping Standards

a. Roof

- Plywood: All holes covered 1 ft from damage and secured to purlins
- Roof cleaned of debris, leaves, scraps, etc.

b. Tarp

- Tightness: Pulled taught over damaged area
- Overhang: > 2-4 ft beyond ridge on opposite slope
- Overlaps: > 2 ft on top of other tarps
- Holes, Cuts Tears: sealed with roofing tape or other sealant
- Hazards Painted: roof holes and soft spots are marked on tarp with "X"

c. Furring Strips

- Top of Tarp: 1"x2" size; spaced min 6' apart; installed w/ galvanized nails 24" apart on center
- Valleys/Ridges: furring strips installed 12-18" off valleys/ridges
- Perimeters of Tarp: wrapped minimum 3-4 rolls using overhand method

d. **Vents/Roof Features** - These should not be covered by tarps; they should be cut around and sealed with putty, tar, silicone or tape.

e. **Water Flow** - no pooling water and rain can easily sheet off roof unobstructed.

f. All Scraps/Tools Collected

Tarping Key Goals – These goals must be accomplished to ensure effective tarping. Failure to achieve these goals due to environmental factors, lack of resources, worker error, etc. will result in decreased effectiveness and should be monitored for future leaking.

GOAL	ACTION
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<p>1. Safety: Ensure safety of volunteers and beneficiaries</p>	<ul style="list-style-type: none"> ● Wear PPE ● Ground spotter mandatory when on roof ● Ladder Safety ● Working Area: Beware of dropped tools; wear tool belts, keep workspace clean and organized, use ground spotter should ensure area under work space is clear of people.
<p>2. Ensure Roof is Safe to Work On</p>	<ul style="list-style-type: none"> ● Conduct assessment and identify hazards ● Cover holes with plywood
<p>3. Cover Roof with Tarp and Secure</p>	<ul style="list-style-type: none"> ● Install tarp and furring strips ● Caulk or tape around tarp openings ● Use capped roofing nails
<p>4. Ensure Tarp Longevity</p>	<ul style="list-style-type: none"> ● Use quality tarp ● Ensure tarp is pulled taught ● Roll tarp in furring strips 3-4 times ● Place furring strips on top of tarp

Section 2: Safety and PPE

RISK ASSESSMENT

As a site is added to the work-queue, the Project Manager will allocate someone competent to carry out a Risk assessment to identify specific hazards, considering who they affect, how likely they are to occur and how severe the outcome could be. This should include consideration of the following factors: :

- *Weather conditions*
- *Power lines/electricity*
- *Other utilities, propane, natural gas*
- *Standing water*
- *Structural integrity of the roof and unsafe areas*
- *Trees, poles*
- *Debris*
- *People, pets*
- *Ladder safety*
- *Rescue & emergency plans*
- *Slips, trips and falls*

Potential Hazards

- Fall from height
- Electrical shock and potentially death from power lines
- Working in the heat
- Unforeseen medical emergency
- Public entering site
- Unsound structures
- Unsafe tool usage
- Manual handling (carrying stuff)

Controlling the hazards:

Fall from height

Below is a list of ways to mitigate the many risks and hazards that arise when working on roof structures and a detailed rescue security plan for a suspended worker, following a fall.

Safety Harness and Lanyard

A full body harness is a body holding device used to protect workers from falls by distributing the force of the fall over a large area of the body and ensure that the person remains suspended in an upright position. It is designed to minimize the risk of injuries caused by suspension. Harnesses include shoulder straps and leg straps, a

sub-pelvic assembly, adjustable buckles or fasteners, and one or more D-rings to connect to a lanyard.

The dorsal D-ring (between the worker's shoulder blades) is used with a fall arrest system. D-rings in other positions are sometimes included for use with ladder safety devices. For this reason, some harnesses come with D-rings on the front, sides, and lower back.

A safe and effective harness will fit (i.e., be the correct size) and is adjusted so that all straps are snug. Dangling leg straps or arm straps are signs that the harness is not being worn correctly. Although adjustable, some models come in different sizes.

All volunteers working on the roof must have a harness properly fitted and anchored with the Lanyard at all times.

Calculating Rope Length and Worker Positioning.

If as advised on a 10ft roof you have a roof anchor positioned every 8ft, you should never work further than 4ft either side of the anchor point before re-anchoring to a new location as this will keep you from touching the floor following a fall. Please see [The Portal](#) for a guide on calculating fall clearance height if you work on a different sized roof.

A worker who falls while connected to an anchor (unless it is directly overhead) will swing back and forth like a pendulum. Workers can be seriously injured if they strike objects during a swing fall. Having a 4ft wide work space will minimize the swing diameter in the event that a worker falls while working on the edge of the roof.

A consideration must also be made that other workers Lanyard and Rope sets are a tripping hazard. This is exasperated in the event of a fall as the rope will become strung with the weight and in the event of a swing move across the roof very quickly and potentially knock down another worker and cause a fall. To avoid this, it is very important that the issue is communicated to everyone on the team and a note to never cross behind a worker and step over a lanyard/harness.

Rescue Plan and Suspension Trauma

In the event of a fall the important thing is for everyone to remain calm, a fallen worker will be in distress and the team must ensure to not make matters worse by shouting and running. A swift response will always be required however running on

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a roof is never acceptable. Make sure that communication is clear and understandable and the team works together to overcome the situation.

In the event that the worker who fell is either badly injured or unconscious, pulling them back up onto the roof is not an option, therefore a more detailed plan is required.

- Once a worker has fallen, STOP should be communicated.
 - Emergency services contacted when necessary followed by program staff.
 - Scene assessment should be carried out to determine the status of all of the workers who may be at risk, observing not just the obvious issue.
 - The rescue plan should be quickly initiated with the objective of getting the worker safely on the ground in under 8 minutes.
- IF the worker is unhurt and conscious, the worker can be hoisted back up to the roof where possible, whilst guarding the safety of all other workers.
 - *In the event that the worker who fell is either badly injured or unconscious, pulling them back up onto the roof is not an option, therefore a more detailed plan is required.*
- Ground level worker should immediately create a platform to provide relief from strap tension by lifting the worker.
 - Ladders and appropriate platform material should be accessible at all times when a person is working on the roof.
 - A soft-landing pad is a great option, if available.
- All other workers should descend the access ladder to assist, if requested to do so by the site leader. .
- Three workers should be used to help support the weight of the suspended worker.
 - The worker's body weight places pressure on the harness straps, which can compress the veins, and cause blood to pool in the lower extremities and reduce blood return to the worker's heart. After 8 minutes of suspension a worker's blood may have begun to turn toxic, therefore if you are unable to return the suspended worker to the roof with ease within 4 minutes, a call should be made to the emergency services.
- Once supported, unhook their harness front he lanyard and palace worker in sitting position on the soft-landing pad with upper body supported for 30 minutes before the worker can lie horizontally.

- The seated position prevents blood from rushing to the heart too quickly, which could cause ischemic heart failure or other injuries. Always have a worker who has fallen checked by a medical professional.
- Make the person comfortable, administer first aid (within the boundaries of your own knowledge and training) and wait for the emergency services.

Power lines

Power line hazards have severe impacts, including death.. Always assume power lines are live and not insulated. Ladders, scaffolds, and works should keep at least 10 feet from lines. Flag and barricade areas where fallen power lines are on the ground with orange cones, caution tape to prevent contact. Follow instructions of utility workers.

Working in the heat

Working on a roof offers no protection from the sun, which offers the hazards of increased fatigue, heat exhaustion and heatstroke (a serious medical condition) This should be spoken of at the daily briefing and adequate rest times should be scheduled as and when needed. There are 3-6 members to a roofing team and 4 people on a roof at one time which leaves 2 workers at floor level. These workers should be cycled through for anyone needing a rest. In temperatures of over 90 degrees fahrenheit, water breaks and job rotation should occur each 15 minutes. If someone becomes overheated, move them out of the sun to a shaded area and gradually cool them down, if heatstroke is suspected, contact emergency services.

Housekeeping

Loose debris laying on the ground will cause a tripping hazard. With roofing debris there will be many old shingles that still have nails sticking out of them. It is important to always keep your work area clean and tidy. At the end of each work day the debris created should be tidied and sorted into the correct debris pile. At the beginning of each day, assess the site for any new hazards.

This will eliminate any issues caused by the day previous' work.

Unforeseen Medical Emergency

In the event of a medical emergency the local emergency services should be contacted immediately followed by program staff. Until they arrive, the person on site with the highest level of first aid should administer first aid, within the boundaries of their own knowledge and training.

Public entering the worksite

There is always a risk that the public will wander onto a worksite. Work signs will be posted at the entrances to the site but in the event of a person(s) approaching, work should pause and their presence should be communicated to all onsite. At this point the PC/TL should speak to the person(s) explain the dangers of being present on a worksite and ask them to leave. All communication with the community should be spoken in a calm and respectful manner.

Unsound Structures

Before a team is sent to site the potential worksite will be assessed by the Project Manager and a Project Coordinator. If the structure is deemed unsafe a team will not be sent. If your work has caused some unintended damage to any of the roofing framework, or you are unsure of the integrity of any part of your working space, the team should immediately descend from the roof and a call to the construction staff should be made for reassessment.

Tool Usage

All workers on a roofing team should meet the minimum key competencies checklist as outlined in the procedure. The TL should make sure to verify these skill sets before the specific works to the tool are carried out.

Manual Handling

Some roofing materials are heavy and transferring from the ground to the roof will be a high risk activity. During this act a high level of communication should be encouraged. When transferring via a ladder none should lift more than they can cope and if necessary additional support in the means of straps and hoisting should be made.

When carrying full sheets of plywood on a roof, 2 team members should be enlisted and the board should be carried face down to avoid catching any sudden gusts of wind.

General safety considerations

- Only staff members with the proper training will be allowed to work on heights. Volunteers can be used as ground safety officers and supporting with materials from the ground.
- Do not install tarp when occupants are inside, even if the house is structurally safe. Hammering can cause ceiling tiles to fall.
- Careful where you step - Do not walk on tarp (slippery and can pull loose); Do not walk on a wet particle board as it can lose its strength when wet.
- Weather - Do not install a tarp during a storm, high winds or any precipitation. If it constantly rains more than 15 minutes, suspend work until the roof dries (TL/PC discretion).
- Secure ground under the working area so that passersby and volunteers on the ground are not exposed to hazards from falling objects.
- Watch for tripping hazards including vent stacks, cables, debris, tools, etc.
- Make sure the teams are paying attention to heat stress symptoms. In extreme weather conditions teams on the roof should rotate as recommended every 15 minutes to drink water and take proper breaks in a shaded area to minimize heat impact.

Ladder Safety:

- Ladders need to be set up on secure & stable ground. Take the time to make sure the ladder is stable.
- Ladders are for access and egress and should not be used as a working platform, unless there is no other option.
- At least one ladder needs to stay set up whenever anyone is on the roof.
- The access point from the ladder to the roof needs to be inspected for structural integrity before any weight is put onto it.
- Ladders need to be footed whenever someone is getting on a roof.
- Extension ladders should be set at a 4:1 ratio- out one foot for every four feet up.
- 3 points of contact on a ladder at any time.
- Never lean out so far that your naval (belt buckle) extends beyond the standards (sides) of the ladder.
- Only one person on a ladder at any time.

See [the Portal](#) for further guidance on using ladders safely.

Fall Protection:

- [Fall protection](#) harnesses will be worn at all times when on a roof.
- At least 2 people (the TL and the one wearing the harness) will verify the entire rigging, end to end.

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- The rigging needs to be adjusted anytime you move from one part of the roof to another.
- Tape off the region below the area being worked on to stop foot traffic.
- Harnesses need to be tightened up, but not too tight that it restricts blood flow. Ill-fitting harnesses are not safe.
- The TL should inspect the roof from below before going up. Flag potentially unsafe areas.
- Keep yourself low when on the roof and spread out your weight.
- Keep spotters in place where needed.
- If it starts raining for over 15 minutes, cover up open areas, then get down from the roof as soon as possible, stay safe, and don't rush.
- Review and discuss the emergency plan every time the kit is checked.
- Consider anchor points and verify the [fall clearance height](#) is correct for harness setup.

Emergency Vehicle:

- An emergency vehicle needs to be on site at all times.
- Emergency vehicles should be parked facing the exit with nothing blocking them in.
- Everyone on the team should know who has the keys and where they're located (pocket, bags, etc). Whoever has the keys should never wander off.

PPE

As with all work with AHAH **hard hats and appropriate footwear** are required when on any worksite. Soft-toed boots with non-slip soles or sneakers are recommended for enhanced traction on the roof.

Harnesses with secure anchor points are necessary for work on the roof. See [Fall Protection System](#) and [rescue plan](#).

Gloves are necessary when working on roofs with sharp sheet metal and are recommended at all times.

Safety glasses are mandatory when using power tools, clearing debris off the roof, and hammering down the tarp.

Training requirements

Only staff members with proper training and competence will be allowed to work on heights.

Competence is derived from:

- Skills
- Knowledge
- Aptitude
- Training
- Experience

Proper training on tarping processes will be completed before any work begins. The TL will ensure all team members are competent with all processes, tools, equipment, and materials to be used.

[Safety briefings](#) will be conducted to ensure workers are informed of emergency procedures, rescue plan, safety precautions and proper training and PPE use. See Team Site Briefing for additional information.

Section 3: Tools and Materials

I. Tools Needed:

- A. (1-2) Extension Ladders
- B. (5) Hammers
- C. (2) Tape Measure
- D. (2) Utility Knife
- E. (1) Hand Saw
- F. (1) Level
- G. (1) Speed Square
- H. (2) 5 Gal Bucket
- I. (1) Push Broom
- J. (1) Kitchen Broom

II. Power Tools

- A. Drill and Bits
- B. Circular Saw

III. Other

- A. (2-4) Tool Belts/Apron
- B. Pencil or Sharpie
- C. (1-2) Fall Protection Kit
- D. Leaf Blower

IV. Consumables

- A. Tarps
- B. Furring Strips - 1" x 2" x 6'
- C. Plywood $\frac{3}{8}$ "
- D. Roofing Cap Nails
- E. Contractor Bags
- F. Spray Paint - neon
- G. Painters Tape
- H. Duct Tape
- I. Utility Knife Blades
- J. Caution Tape or Flagging
- K. Paracord
- L. Galvanized Screws

Equipment Selection, Use, Proper Care

Procurement Notes and Alternate Materials

Materials or equipment recommended may be unavailable or out of budget. Procedures can be adapted to fit project resources as long as the team understands the importance of each step (see chart above).

Resource	Specs	Notes	Alternatives
Tarps	FEMA Blue Tarps (Fiber Reinforced)		Low grade tarps are not durable. > Old Recycled Billboards > Store Bought Tarps
Furring Strips	1"x 2" x 6'		Salvage wood, Sandbags or Bricks (not recommended if they could fall off roof and hit bystander)
Roofing Nails	1-1.5" Round Cap Nails	Use when installing directly over tarp; The cap spreads the load and ensures the tarp will not rip around nail during wind events	Nails
Deck Screws	2-2.5" galvanized		Nails
Tape Measure			Use visual aids (i.e. single garage door = 9'x7'; shingle tabs = 3'.
Plywood	min 3/8," should extend ~ 1 ft from roof holes	If plywood is not used, beware of water pooling in these locations.	Scrap wood or other flat material. Require follow-up driveby post installation
Duct Tape		Used to secure	Any strong tape or sealant
Spray Paint	Bright colors	To identify hazards on roof	Any strong tape

Section 4: Procedure

1. Pre-scheduling assessment

An initial assessment should be conducted before scheduling teams to determine safety, hazards, equipment and consumables required. Note that assessors will not always have the technical knowledge of tarping.

There are several ways to detect and evaluate the roof's condition. Assessors must note the following on assessments:

- [Hazards](#): storm damaged trees/widowmakers, holes in roof, termite damage to roof structure, downed power lines, roof access concerns
- [Attic](#): water spots or signs of water underneath roof (tip: check attic)
- [Roof](#): roof indentations (warped or dented), fallen trees on roof, torn or missing shingles/tiles, dented metal roof vents, broken skylights, missing panels
- [Drawing, Roof Measurement](#): Measure width and length of roof. Draw roof and identify hazards, power line location, holes, roof features (i.e. vents) and other problem areas. Make note of best roof access and limitations. Also note the pitch of the roof.

2. Site inspection

Establishing Scope of Work (Initial Walkthrough and Safety Inspection)

Person(s) responsible: Team Leader

TL and ATL walk through site to discuss the work that will be completed as well as perform risk assessment. Meanwhile, the rest of the team will unload the vehicle and prepare for the day of work. Notify PC/PM of changes in scope or major concerns. Refer to [section two](#) for risk assessment items.

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Team Site Briefing

Person(s) responsible: Team Leader

A safety briefing is required before work begins. Providing information on hazards, safety precautions, proper PPE, emergency procedures and work plan. Team lead will walk through the site with the team with appropriate PPE on to go over the work plan, point out potential hazards and precautions to mitigate hazards, and answer

any questions or comments the team may have. Team lead will ensure all team members have proper PPE and utilized in its intended manner. Briefing should include the following topics:

- Who is responsible for the Project (PC) & the Site (TL);
- Review risk assessment with team members;
- Summary of work & key competencies for the day/session;
- Summary of the tools and methods to be used in the day/session;
- Highlight the hazards identified for the site;
- Location of first aid kits;
- Actions required on incident (stop work, make safe, go to the assembly point)
- Location of assembly points and how an emergency will be announced (whistle?);
- Standard Operating Procedures to reduce the likelihood of a hazard occurring;
- Summary of emergency plans;
- Safety words (such as STOP) and when they should be used;
- Fall protection - how to wear, test and how to calculate fall clearance (as per portal);
- Summary of rescue plan;
- Highlight any team members who require training;
- Reaffirm that breaks should be taken as required by the individual, promote water intake.

3. Work Preparation

Person(s) responsible: Team Lead

- **Setup safe methods of access and egress**
- **Review the emergency / rescue plan and put resources in place**
- **Clean Roof/ Create the Canvas** - clean off leaves, loose shingles and debris. Hammer down any nails, remove sharp objects that may cut tarp. Remove damaged gutter systems and unsalvageable roof materials.
- **Cover Holes** - Cover holes with minimum 1/2" Plywood. Secure to purlins with nails or screws.
- **Establish Tarp Size**- Measure and cut tarp on ground. Make sure to account for slope. Tarp size should extend: TOP - 3-4 ft over ridge; SIDES - 2-4 ft beyond holes. Add extra 2 ft to all measurements for rolling tarp into furring strips.

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- **TL Inspection Before Tarping** - Follow the inspection checklist

4. Work Steps

Person(s) responsible: workers

- **Stage** - tools and supplies on the roof
 - Set up safe access, egress, and emergency access points.
 - Assign/confirm team roles.
 - Especially if implementing a rotation work set up.
- **Install Tarp** - Reference the [HOW to Tarp a Roof|Hurricane Prep](#) for instructions. Install to [AHAH Tarping Specifications](#) on Section 1. Refer to the [Section 5: Troubleshooting](#) section for specific tips.
- **Quality Control**
 - Pin Holes/Tarp Tears - seal with duct tape or other sealant
 - TL inspect that tarp was installed to AHAH Standards

5. Clean Up

Person(s) responsible: workers

- **Stopping for the Day** – If the site is not complete, the TL should determine a good stopping point.
- **Clean-up and Decontamination** - DO NOT leave tools at the job site. Notify PC of any broken tools or tool/consumable needs.
 - Consumable waste – Dispose in contractor bags.
 - Tools/Equipment – Collect, inventory, and pack.

6. Post Work inspection

Person(s) responsible: PC/Team Lead

Post Tarping Checklist:

- **Work Complete** - Roof tarp installed and secured? Site is safe and secure? AHAH Standards met?
 - **Homeowner Brief** - TL to discuss with the homeowner that tarping is a temporary fix (1-3 months) and notify AHAH of any leaks.
 - **Post Tarping Check and Pre-Sanitation Assessment** - AHAH should conduct a tarping quality control check. An in field visit can be conducted in conjunction with a pre-sanitation assessment. Best practice is to wait at least one week or after a significant rain event. This process uses sense visual inspection and a moisture meter.
1. [Ensure AHAH Tarping Standards](#)

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2. **Inspect Attic** - with headlamp and moisture meter, check the attic for signs of leakage.
3. **Conduct Pre-Sanitation Assessment** based on project protocol.

If the tarping has been unsuccessful, PC or trained Team Leader should inspect the tarp job and determine further action for tarp repair or re-installation.

Tarping Key Goals – These goals must be accomplished to ensure effective tarping. Failure to achieve these goals due to environmental factors, lack of resources, worker error, etc. will result in decreased effectiveness and should be monitored for future leaking.

GOAL	ACTION
5. Safety: Ensure safety of volunteers and beneficiaries	<ul style="list-style-type: none"> ● Wear PPE ● Ground spotter mandatory when on roof ● Ladder Safety ● Working Area: Beware of dropped tools; wear tool belts, keep workspace clean and organized, use ground spotter should ensure area under work space is clear of people.
6. Ensure Roof is Safe to Work On	<ul style="list-style-type: none"> ● Conduct assessment and identify hazards ● Cover holes with plywood
7. Cover Roof with Tarp and Secure	<ul style="list-style-type: none"> ● Install tarp and furring strips ● Caulk or tape around tarp openings ● Use capped roofing nails
8. Ensure Tarp Longevity	<ul style="list-style-type: none"> ● Use quality tarp ● Ensure tarp is pulled taught ● Roll tarp in furring strips 3-4 times ● Place furring strips on top of tarp

Section 5: Troubleshooting Tips

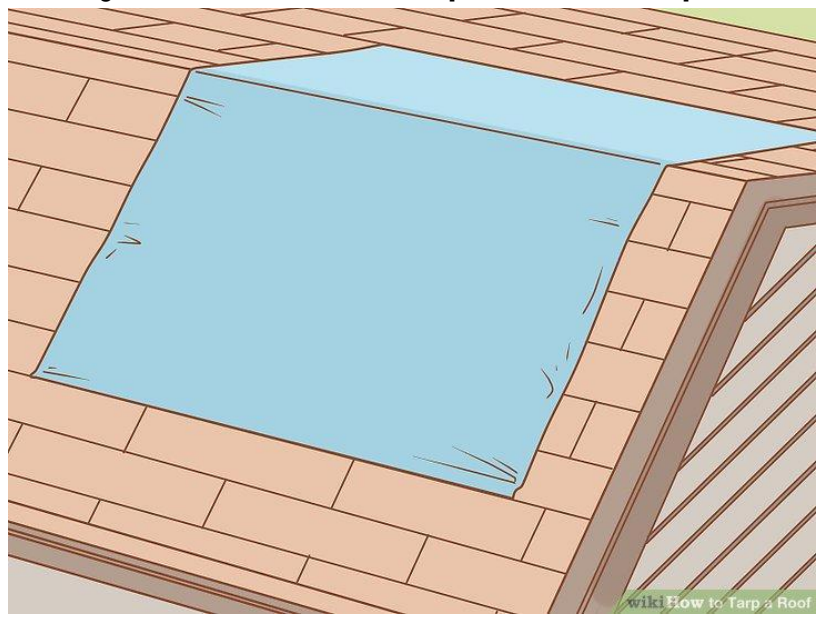
- **ASSESS** - roof condition/stability prior to working.
- **Team Lead Check** – It is the responsibility of the TL to perform regular quality control checks during all steps.
- **Work Systematically** - Work in a method understood by the entire team
- **Measure and Cutting the Tarp**
 - **Measurements** - Record in feet; round up to the nearest foot, do not use decimal measurements. Not all roofs are the same front to back.
 - **Tarp Coverage** - Best practice is to ensure tarp coverage at least 4 feet from damaged areas in all directions. When possible, extend the top portion of the tarp 3-4 ft beyond the other side of the ridge.
 - **Cutting Tarp** - Measure and cut tarp on ground. If measuring from the ground include slope % in measurement. Add excess material on each side. An extra 5 ft on top (ridge or overlap to other tarp) and 2-3 ft on all other sides is a good rule of thumb; excess can be cut later.
- **Installation**
 - **Overlap Ridge** - All tarp jobs should extend to and overlap the ridge to ensure water completely sheets over all roof damage.
 - Start on windy side first
 - Some suggest sandwiching the edges of the tarp (one furring strip rolled and the other screwed on top). This holds the tarp tight
 - Nail down using ridgeline or fascia as a straight line. Do this step from a ladder when possible.
 - Furrings strips: 1"x 3" can be used. For longer tarps use multiple strips on top and roll at the same time with partners. Use cap nails to secure the end of the tarp to furring strip; Furring strip should be at least 2" longer than tarp. Roll tarp minimum of 3 times.
 - Nails: Install about every 8-12", ensuring one is within 2-3"
 - Pull Tarp tight: Roll excess into lumber -- Work out slack on top and bottom then pull in from the sides.
 - Vent Pipes - carefully cut out the opening and wake watertight
- **Quality Control**
 - Tarp tight - To achieve tight tarp, it is okay to cut excess or roll more than 3-4 times as long as the furring strip can be secured to the roof or fascia. Work out slack on top and bottom then pull slack to sides.
 - Pin Holes/Tarp Tears - seal with duct tape or other sealant
- **Screw/Nail Rolled Tarp to Fascia** - whenever possible to ensure tarp is tight and secure.
- **Screws vs. Nails** - Best practice is to use 2.5" galvanized screws on furring strips; and cap nails directly on the tarp.
- Work on the windy side first.

Section 6: Additional Notes

Clear all debris from roof to create a clean work surface.



Layout and unroll the tarp over the roof peak



Standard Operating Procedure (SOP) Tarping

Nail with button cap nails onto a 2x4



Roll the 2x4 as shown to strengthen the connection to avoid tarp tearing



When using screws, pre-drill to avoid tarp spinning.



Continue building a frame for the tarped section of the roof



Here is how to handle the edges



Standard Operating Procedure (SOP)

Tarping

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Approved by:



Section 7: Links

Ladder Safety:

- *** Ladder Tool Box Talk*
- [Ladders and Stairways - Guideline to OSHA Rules](#)

Health Considerations, OSHA and PPE Recommendations

- [ELCOSH - Disaster Responder Roof Safety](#) - guidelines on ladder setup and use, risks, risk controls, roof hazards, Fall Protection and PPE.
- [OSHA - Roof Tarping \(Blue Roof\) Safety](#)
- [RRFR - Training Skill Drill - Sounding a Roof](#)

Disaster Resilient Roofing

- [FEMA - Roof Covering and Best Practices](#) - discusses why different roof construction types fail.

Procedures and Training:

- [USACE - Self Help Tarping Guide](#) - thorough guide to tarping shingle, metal and clay roofs
- [Blue Roof - Tarp Installation Time lapse \(Video\)](#) - Good training visual with tips.
- [Blue Roof - How to Assess Structure \(Video\)](#) - Assessors should watch this.
- [Blue Roof - Roofing Quality Assurance \(Video\)](#)
- [AHV Safety ToolBox Talks](#) - includes one pagers on ladder safety, PPE, and more
- [Guide to Post Disaster Restoration for Safe and Healthy Homes \(HUD\)](#) very thorough guide with pictures to discuss mold ID, PPE, gutting, setting up containment barriers, etc.