



Jackson Hole Fire/EMS

Operations Manual

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PURPOSE

Wildland firefighting is fought in a fast-paced environment with the dynamics of fuels, wind, and topography at play, making every wildland fire incident unique. Structures and values at risk increase the complexity of decision making while balancing public and firefighter safety. The first and foremost intent during structure defense is to keep firefighters and the public safe. Secondly, once that safety can be ensured, then we can aggressively work towards keeping the wildland fire away from structures and communities.

The development of all strategies and tactics should utilize the risk management process to ensure firefighter safety. Defending structures from a wildland fire will not be possible in every situation. Risk analysis must prioritize life safety – to civilians and firefighters – when developing strategies.

This protocol on WUI operations and structure defense is designed to provide common terminology and operating principles for responders.

PRINCIPLES

- The first priority for all risk-decisions is life safety of firefighters and the public.
- Direct protection of improved property is undertaken when it is safe to do so, there is sufficient time, appropriate resources available, and the action directly contributes to achieving overall incident objectives.
- The firefighter's decision to accept direction to engage in structure defense action is based on the determination that the property is defendable and the risk to firefighters can be safely mitigated under the current or potential fire conditions.
- A decision to delay or withdraw from structure defense operations is the appropriate course of action when made in consideration of firefighter safety, current or potential fire behavior, or defensibility of the structure or groups of structures.
- Firefighters at all levels are responsible to make risk-decisions appropriate to their individual knowledge, experience, training, and situational awareness.
- An effective form of structure defense is to suppress the wildland fire; however, a point protection strategy may be the most effective defense when the fire is not "catchable".
- The key to success is preparation and pre-incident planning.
- Property owners have a responsibility to prepare their property for structure defense by providing adequate defensible space prior to the fire emergency. These defendable structures should have priority when allocating resources.

- All resources assigned to structure defense operations must be staffed with adequately trained personnel and equipped with appropriate wildland firefighting equipment.
- Structure Defense Groups reporting to the Operations Section Chief may be assigned to geographic branches to coordinate structure defense with the Division Supervisor and should remain flexible and mobile to initiate perimeter control actions within the division if needed.

SECTION I - STRUCTURE DEFENSE INITIAL STRATEGIES

Strategy- The IC or Operations Section Chief (when assigned) is responsible for establishing the strategy, which should reflect a "general" plan that provides direction for accomplishing the incident objectives.

The strategy must take into consideration the numbers and types of resources necessary to accomplish the incident objectives and the reflex time it will take to have them in position and whether immediate intervention or if a perimeter control strategy should be utilized to stop the fire spread. The strategy is subject to change due to changes in weather, fire behavior, resource availability.

Size up includes evaluating fire behavior and identifying:

- Life threat to civilians or responders
- Evacuation needs
- Area closures
- Hazards (power lines, bridges with load limits, heavy traffic exiting the area, hazardous materials)
- Values at risk

Pre-Incident WUI Plans in the I Am Responding app consist of a map and a written plan to help responding personnel effectively command a WUI incident.

Resource Order should be compiled by the IC listing resource kind, type, and configuration, delivered in one communication in order to avoid dispatcher confusion and extend reflex time. Include fireline overhead, air resources and support personnel.

SECTION II – EVACUATION AND AREA CLOSURES

Address the need as early as possible.

- Co-locate with law enforcement at ICP
- Consider early activation of the Emergency Operations Center for coordination.
- Identify evacuation areas utilizing maps and digital resources.
- Include areas of incident potential when determining evacuation area.
- Areas that must be immediately evacuated - designate **Go Stage: Civilians leave area**
- Areas that are potentially threatened - designate **Set Stage: Prepare civilians to evacuate**
- Identify community safe refuge areas inside evacuation areas:
 - Shelter/Stay in Place: Civilians remain in the immediate area or move to a safe area relatively close to the threatened area.
- Identify traffic control points for entry and exit of resources and civilians
- Determine and publish evacuation routes
- Identify areas of Special Needs populations and large animals
- Consider use of public notification systems for evacuations

SECTION III – STRUCTURE DEFENSE SIZE-UP

Ensure LCES- Do you have adequate lookouts, communication capability, escape routes and safety zones identified?

Evaluate the location of the structure and surrounding area with the forecasted fire behavior in mind:

- Is wind and slope in alignment with topography leading to the structure?
- Where is the location of the structure on the slope, canyon bottom, mid-slope, or ridge top?
- Avoid narrow canyon bottoms, mid-slopes with fire below, or narrow ridges near chimneys and saddles.
- Is there adequate space to park your apparatus safely based upon forecasted fire behavior?
- Evaluate the proximity of the fuels and forecasted flame lengths in relation to the structure; is there defensible space?
- Are there narrow roads, unknown bridge limits, septic tank hazards, or power lines?
- Are there ornamental plants and combustible debris next to the structure?
- Is there an adequate water supply to support the necessary flow rates and GPM output?
- Does the structure have a flammable roof and/or siding?
- Is there adequate time and available resources to protect the structure?
- Consider utilizing lookouts, UAS, or other aviation resources to help evaluate an area before committing/deploying ground resources.

Defensible – Prep and Hold (Point Protection of a particular location)

Determining Factor	Safety zone present.
Size-up	Structure has some tactical challenges
Tactics	Firefighters needed on-site to implement structure protection tactics during fire front contact.

Defensible – Standalone

Determining Factor	Safety zone present
Size-up	Structure has very few tactical challenges
Tactics	Firefighters may not need to be directly assigned to protect structure as it is not likely to ignite during initial fire front contact. Patrol following the passage of the fire front will be needed to protect the structure.

Non-Defensible – Prep and Leave

Determining Factor	NO safety zone present
Size-up	Structure has some tactical challenges
Tactics	Firefighters not able to commit to stay and protect structure. If time allows, rapid mitigation measures may be performed. Set trigger point for safe retreat. Remember pre-incident preparation is the responsibility of the homeowner. Patrol following the passage of the fire front will be needed to protect the structure.

Non-Defensible – Rescue Drive-By

Determining Factor	NO safety zone present
Size-up	Structure has significant tactical challenges
Tactics	Firefighters not able to commit to stay and protect structure. If time allows, check to ensure that people are not present in the threatened structure (especially children, elderly, and invalid). Set trigger point for safe retreat. Patrol following the passage of the fire front will be needed to protect the structure.

Tactical Patrol

- A tactic where the key element is mobility and continuous monitoring of an assigned area.
- A Tactical Patrol may be assigned to areas exposed to downwind ember showers and/or areas where the fire has passed but the structures remain at risk from smoldering or creeping fires remains.
- Use this tactic to extinguish hot spots or secondary structure ignitions, and address safety issues such as downed power lines, weakened trees, and other hazards.
- May take appropriate actions to defend structures and secure perimeter lines.
- Involves aggressive mop up around structures.
- Consider Unmanned Aerial Systems (UAS) operations, ensuring deconfliction with other incoming or present aircraft.

SECTION IV - STRUCTURE DEFENSE GUIDELINES AND TACTICS

When choosing a tactical action or plan it is very important to know what the fire behavior will be at the time firefighters engage the fire. Never get locked into a single plan of action but focus on agile tactical solutions to unanticipated changes including contingency planning. Supervisors must keep in close communication with those they supervise and adjoining forces in the area.

The following are tactical actions available to structure defense resources:

Personal Protective Equipment (PPE):

- Structure defense tactics can be undertaken utilizing standard wildland PPE.
- DO NOT base your decision to remain at a structure and/or the safety of your personnel on the use of SCBA's.

Equipment Placement:

- Identify Escape Routes and Safety Zones and Temporary Refuge Areas and make them known to all personnel
- STAY MOBILE and wear all of your PPE
- Back equipment in for a quick escape and keep egress routes clear
- Park in a cleared area (watch for overhead hazards)
- Protect your equipment (park behind the structure, placing the structure between equipment and fire front; be aware of spot fires occurring behind you)
- Watch for hazards (drop-offs, potholes, above-ground fuel storage, chemicals, and septic tanks)
- Have an engine/personnel defense line charged and readily available
- Avoid long hose lays
- Try to keep sight contact with all personnel

Water Use Guidelines:

- Keep at least 100 gallons of water reserve in your tank for your protection and /or escape

- Top off your tank at every opportunity, use a garden hose, draft from a hot tub or pond
- Stay mobile. Be aware that hydrants may not always work if the system is electrically powered and power is lost in the area
- Conserve water, avoid wetting down an area
- Apply water only if it controls fire spread or significantly reduces the heating of the structure being protected
- Keep fire out of the heavier fuels, knock down fire in the lighter fuels
- Have enough water to last for the duration of the main heat wave and to protect personnel
- Carefully consider your options before committing your engine's equipment to a particular location (drop tanks, pumps, etc.)
- Request porta-tanks and sprinklers if needed

Preparing the Structure:

- Determine if residents are home. If so, advise them to leave.
- For roof access, place the owner's ladder at a corner of the structure on the side with the least fire threat and away from the power line drop.
- Clear the area around above-ground fuel tanks, shutting off tanks
- Place combustible exterior furniture inside the structure
- Close windows and doors, including garage, leaving unlocked
- Remove combustibles immediately next to the structure and scatter firewood
- Construct a fire line around out-buildings, power poles and fuel tanks
- Remove vegetation from the immediate area of the structure
- Consider a wet line and/or burnout operations if required and appropriate
- Have garden hose(s) charged and placed strategically around structure for immediate use
- **MAY USE THE STRUCTURE AS A TEMPORARY REFUGE AREA (TRA)**

Estimated Resources for Protection

- Number(s) and type(s) of engines, water tenders, crews, dozers, sprinkler kits.
- General Guidelines: one engine per structure, one additional engine for every four structures to be used as "backup" and for patrol.
- For structures that are close together (50 feet or less), one engine may be adequate to protect two structures.

Consider PACE

Implement prior to engaging in any structure defense action.

- **Primary Plan** (Offense) - Focused on firefighter safety and objectives
- **Alternate Plan** (Offense) - Fallback plan that closely resembles primary plan
- **Contingency Plan** (Defense) - Focused on firefighter safety
 - Move to a safety zone
 - Temporary refuge areas
- **Emergency Plan** (Defense) - Firefighter survival
 - Deployment zones
 - Refuge areas
 - Fire shelters