

Structure Fire Response

405.1 PURPOSE AND SCOPE

This document provides arrival and on-scene procedures for fire department units responding to a structure fire.

Corresponding policies:

- Fireground Accountability
- Emergency Response
- Incident Management
- Rapid Intervention/Two-In Two-Out

405.2 FIRST FIVE MINUTES

The first-arriving fire department unit should contact dispatch and provide the following information:

- Unit on-scene
- Initial scene size-up
- Unit command Incident Command (IC)

The IC should:

- If fire or smoke is visible, declare a working incident and request a tactical channel and any additional fireground operations channels needed.
- Consult a building pre-plan, if available.
- Locate a primary (Level 1) staging area and direct units to the scene or primary staging as needed.
- Establish the department personnel accountability system. Whenever practicable, the accountability location should be at the Incident Command post.
- Perform or direct another member to perform a 360 assessment and report the results to the IC.
- Declare a command mode:
 - Investigative
 - Fast Attack
 - Command
- Declare an initial operational mode based on extent of fire, life hazards, building construction, occupancy premises, and resources available:
 - Offensive
 - Defensive
- Develop an initial incident action plan (IAP) and, based on resources, prioritize and assign tasks to incoming units. Task assignments should include but are not limited to:

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- Scene safety.
- Primary search and rescue.
- Initial fire attack.
- Water supply.
- Ventilation.
- Rapid Intervention (RIT).
- Utilize groups and/or divisions to maintain proper span of control.
- As soon as practicable after performing or receiving the 360 assessment report, declaring an initial strategy, developing an IAP, and assigning tasks, contact dispatch and report the following:
 - Points of entry
 - Any hazards or access problems
 - Initial operating mode
 - Initial tasks and tactics
- Establish a hot zone with boundaries determined by the specific hazard. Restrict entry to personnel as appropriate.
- Contact communications for updates on response levels and/or to request additional required resources, including but not limited to:
 - RITs.
 - HAZMAT unit.
 - Utility company.
 - Environmental response agency.

405.3 PROCEDURES

405.3.1 RESOURCE DEPLOYMENT

- (a) Apparatus
 1. Apparatus should position according to a building pre-plan, if available, or as directed by the IC while maintaining the ability to secure a water supply and accountability location.
 - (a) If the structure includes an energy storage system (ESS) containing lithium-ion (Li-ion) batteries, apparatus should position according to the ESS pre-plan or the Hazardous Materials Incident Response Procedure, if no ESS pre-plan exists.
 2. The IC should include but not be limited to the following considerations when ordering apparatus into a scene:
 - (a) Water supply

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- (b) Fire attack
 - (c) Aerial operations
 - (d) Collapse zones
 - (e) Potential for backdraft or explosion from the structure based on fire behavior and known building contents
 - (f) Access to tools and equipment
 - (g) Space for incoming units needed for immediate operations
- (b) Personnel
1. Personnel should be in full personal protective equipment (PPE), including self-contained breathing apparatus (SCBA).
 2. Personnel should remain with assigned crew and enter the hot zone only when directed to do so by the IC.
 3. Personnel should communicate operations benchmarks to the IC. This should include but is not limited to when an assigned task:
 - (a) Is started.
 - (b) Is producing results or is not achieving the task goal.
 - (c) Is complete.

405.3.2 OPERATIONS

- (a) Continuing scene size-up
1. The IC should conduct size-up continuously at every fire to account for changes at the scene, including but not limited to:
 - (a) Resources available.
 - (b) Scene conditions.
 - o Weather.
 - o Fire location, flow, and size.
 2. The results of additional scene size-up should be communicated to dispatch.
- (b) Fire Suppression. Whenever practicable, these operations should take place in sequential order:
1. Locate the seat of the fire.
 - (a) As assigned by the IC, personnel should determine the location and extent of the fire. Equipment and tools used for this task include but are not limited to:
 - o Thermal imaging cameras.
 - o Heat guns.
 - o Entry and access tools.
 - o Hand lights.

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2. Identify the flow path.
 - (a) As assigned by the IC, personnel should, as is reasonably practicable, determine any flow path. The presence of a flow path should determine coordinated ventilation and suppression operations to, as much as reasonably practicable, limit fire growth and protect personnel and building occupants.
 3. Cool the space from a location that allows for brief, rapid water application to cool or reset the fire when high heat may exist in spaces where occupants may be trapped and/or personnel may have to operate.
 - (a) From a location determined to best account for size, location, and flow path of the fire, water should be applied for a period of 10 to 30 seconds to reduce high thermal conditions and energy levels of the fire.
 - (b) Fire reset operations should be communicated to operating units before starting and when completed. After completing a fire reset, task assignments should be communicated to operating units.
 4. Extinguish.
 - After the fire has been reset, the IC should direct personnel to extinguish the fire as directly as reasonably practicable under the conditions.
- (c) Additional fireground tasks that should be considered based on fire conditions.
1. Search and Rescue
 - (a) The IC should consider assigning personnel to search and rescue tasks based on information from:
 - Dispatch.
 - Witnesses on-scene.
 - Occupants who have exited the structure.
 - Visual or auditory identification based on size-up, 360 assessment, and/or personnel engaged in operations.
 2. Property Preservation and Salvage
 - (a) Personnel should make reasonable efforts to preserve property and reduce the potential for property damage from smoke, fire, and firefighting operations. This includes but is not limited to:
 - Checking to see if doors and windows are unlocked before engaging in forcible entry.
 - Closing doors of rooms not directly impacted by firefighting operations.
 - Moving contents from rooms where firefighting operations are taking place or are otherwise affected by firefighting operations.
 - Grouping contents into one area and covering with tarps.
 - Isolating rooms and areas where fire exists from other rooms or areas of the structure.

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3. Ventilation
 - (a) Personnel should engage in ventilation activities only at the direction of the IC. Ventilation should be coordinated with all other fire suppression and search and rescue operations to minimize an unanticipated change in the flow path and to protect, as much as reasonably practicable, personnel and occupants.
- (d) If Li-ion batteries are involved or suspected of being involved, consider the following:
 1. Li-ion batteries are prone to thermal runaway. In cases of thermal runaway involving an ESS or where a battery cannot be removed from a building, vehicle, or other enclosure, personnel should use copious amounts of water to cool adjacent batteries, enclosures, and exposures to allow time for the battery to burn out. Some batteries may take several hours, or even days, to fully burn out.
 2. If a large commercial ESS is involved in fire or off-gassing, personnel should remain at least 300 feet away from the involved equipment and use water to prevent fire spread, as needed.
 3. Batteries that can be removed safely from a building or other enclosure should be submerged in water or placed in a containment device designed for that purpose.
 4. For Li-ion fires inside a structure, additional hand lines may be necessary to achieve the fire flow needed to control the fire.
 5. If practicable, Li-ion batteries should be removed before starting overhaul.
 6. Members should not pick up or move Li-ion cells or battery packs by carrying them in their hands. When practicable, members should use non-conductive tools or carrying devices.
 7. Do not use interior stairs to remove Li-ion batteries from a structure unless the batteries have been properly over-packed by HAZMAT specialists.
 8. Due to the danger of re-ignition, full PPE including SCBA with face-piece should be worn at all times when working around or moving Li-ion batteries or devices that have been involved in fire or exposed to high temperatures.

405.4 UNIVERSAL PRACTICES

- (a) When practicable, scene preservation practices should be used to preserve evidence for fire investigators. Personnel should make reasonable efforts to disturb only what is necessary to complete rescue and fire suppression operations.
- (b) ESS facilities and Li-ion powered devices may explode with enough force to result in structural damage.
- (c) During Li-ion battery emergencies, seemingly safe conditions can rapidly and violently escalate, leaving no time for a safe retreat. The restricted zone established by the IC should be large enough to reasonably include any area that could become unsafe if the hazardous condition escalates.

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- (d) Li-ion is not water-reactive. Water is the preferred agent for fire confinement and exposure control.
- (e) Li-ion batteries that are off-gassing or in thermal runaway create hazardous atmospheres. Firefighters must remain on-air and avoid the vapor cloud.
- (f) The IC should take reasonable steps to ensure that adequate gross decontamination is performed before releasing units from any scene where personnel were exposed to potentially harmful substances including:
 1. Smoke.
 2. Soot.
 3. Body fluids.
 4. Hazardous materials.

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405.5 PROCEDURE DECISION TREE

