

<b>TITLE</b> OPERATIONS MANUAL	<b>STANDARD</b> <b>INSTRUCTION</b> 01		<b>DEPARTMENT</b> FIRE-RESCUE
<b>SUBJECT</b> HIGH-RISE EMERGENCY RESPONSE	<b>SECTION</b> 07	<b>PAGE</b> 1 of 29	<b>EFFECTIVE DATE</b> November 5, 2024

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## I. PURPOSE

This policy aims to provide guidelines to effectively manage and control essential functions at all-hazard incidents occurring in high-rise buildings, typically defined as buildings 75 feet or taller.

## II. SCOPE

This policy shall apply to all sworn San Diego Fire-Rescue Department (SDFD) personnel, excluding Lifeguard personnel.

## III AUTHORITY

The Fire Chief authorizes this policy.

## IV. POLICY

### A. High-Rise Response Strategic Objectives

1. The first alarm resources dispatched to a reported high-rise incident include:
  - i. 5 engines
  - ii. 2 trucks
  - iii. 2 battalion chiefs (BCs)
  - iv. 1 Urban Search & Rescue unit (US&R)
  - v. 1 Advanced Life Support (ALS) ambulance
2. The primary objectives of the initial responding companies
  - i. On an unconfirmed incident:
    - a) Fire Attack will be established to investigate (two engines and one truck, assembling with a minimum of 8 personnel prior to ascending)
    - b) Lobby will be established inside the building and work with Fire Attack to locate the fire control room and check the alarm panel (one engine company)
  - ii. On a confirmed incident or once confirmed:
    - a) Assign units of the first alarm as specified in the High-Rise Response Tactics in the next section.
3. Tactical functions that should be given a high priority include the implementation of a search team dedicated to the stairwells, especially the attack stairwell utilizing [rapid ascent tactics](#) (RAT). Factors such as building type, time of day, occupancy load and size of the fire will help define the priority assigned to this function.
4. Establish the need for ventilation and pressurization: Smoke handling systems should be evaluated for effectiveness early in the incident. This may simply mean the monitoring of a smoke management system or require the implementation/augmentation of stairwell pressurization and ultimately ventilation once the location and scope of the fire are determined. Personnel need to develop a ventilation plan to facilitate the strategic objectives.

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5. To help facilitate these objectives, company officers may use the Pre-Fire Plans (PFP) to assist in identifying elevator, stairwell, Fire Protection Systems, and other important information. High-rise operational checklists and the Field Operations Guide (FOG) are resources to assist the Incident Commander (IC) in managing the incident.

## B. High-Rise Response Tactics

### 1. Units of the First Alarm

- i. Initial arriving Officers shall establish Incident Command (IC) and make the following assignments:
  - a) Fire Attack
  - b) Lobby
  - c) Water Supply
  - d) Rescue/Evacuation Group
  - e) Staging
  - f) Accountability
  - g) Rapid Intervention Crew (RIC)
  - h) Ventilation Group

### 2. IC Responsibilities

- i. Company Officer Arrival
  - a) Provide initial report
  - b) Assume command
  - c) Deploy resources to control the incident
  - d) Develop and implement an [Incident Action Plan](#) (IAP)
  - e) Evaluate and continually assess resource assignments and needs, fire progress, structural stability, and fire loading
  - f) Initial ICs should be prepared to provide a turnover to the first-in BC
- ii. First-in Battalion Chief's Arrival
  - a) Assume IC and establish an [incident command post](#) (ICP)
  - b) Make the assignments remaining for the first alarm units
  - c) Consider the following assignments for incoming BCs:
    - 1) Operations Section Chief (OSC)
    - 2) Assign a BC to the incident floor as the [Division Supervisor](#)
    - 3) Rescue Group
    - 4) Safety Officer
    - 5) Logistics
    - 6) Air Operations
    - 7) Liaison Officer
    - 8) [Medical Branch](#) Director or [Medical Unit Leader](#)
  - d) Subsequent arriving Chief Officers will be assigned as required

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- 1) Subsequent arriving BCs shall report to the command post in full Personal Protective Equipment (PPE) with a Self-Contained Breathing Apparatus (SCBA), radio, cell phone and high-rise packet

### 3. IC Guidelines

- i. The first in Company or Chief Officer shall carry out the following tasks:
  - a) Initial radio report, evaluation, and risk assessment of the situation
  - b) View all four sides of the building to accurately identify fire conditions. Keep in mind a sealed high-rise may conceal a significant fire with little to no outward signs.
  - c) Give an initial radio report to the Emergency Command and Data Center (ECDC) of visible conditions that includes the following:
    - 1) Building height (if known)
    - 2) Occupancy type (residential vs. commercial)
    - 3) Obvious conditions
    - 4) Safety concerns (falling glass/debris/collapse)
    - 5) Actions being taken
    - 6) Any additional pertinent information
    - 7) Additional resource request
    - 8) Assume IC
- ii. If there are indications that a working incident is in progress, the IC should request a second alarm followed by a third alarm. Identify a [Base](#) location and relay the location to ECDC with a request for an additional tactical (tac) channel. All resources assigned in the subsequent alarms shall be directed to Base. The first-in Engine of the second alarm should be prepared to assume the assignment of Base.
  - a) For example; “Metro from Broadway IC, requesting a second alarm followed by a third alarm. Base will be located at 1st and Front Street. Requesting an additional tac channel.”
- iii. ICs should anticipate and be aware that an incident of any magnitude may require additional alarms. These requests should be made as soon as possible to minimize [Reflex Time](#). This is necessary to support a continuous fire attack, perform search and rescue and accomplish support functions.
- iv. All working high-rise fires must include a request for a structural engineer in addition to utilizing the building engineer.

### 4. 1st Alarm (Initial Attack) Guidelines

- i. Fire Attack/Division
  - a) Three companies, ideally the 1<sup>st</sup> two Engines and 1<sup>st</sup> Truck from the first alarm, will have primary responsibility to ascend the building. The companies ascending the building are responsible to:
    - 1) Locate and identify the emergency
    - 2) Determine the incident’s scope
    - 3) Initial ascent shall not be made with less than 8 personnel
  - b) Each crew will take the following standard high-rise equipment:

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- 1) Standard high-rise for all companies
  - (i) Full PPE with SCBA and radio
  - (ii) High-rise escape pack/Personal Escape System
  - (iii) Spare SCBA bottles
  - (iv) Forcible entry tools
  - (v) FOG & High-rise Checklists
  - (vi) Pre-fire plan
  - (vii) Thermal imager
  - (viii) Accountability box
  - (ix) Flashlights
- 2) Engine specific
  - (i) Hose (may vary depending on compartmentalized vs. non-compartmentalized):
    - a. (2) 100' 1.75" Apartment packs with nozzles (Current SDFD Hose Packs)
    - b. (3) 50' Bundles of 2.5" Hose with one 1 1/8" Smooth Bore Nozzle
  - (ii) Standpipe kit (if equipped):
    - a. Recommended kit to include:
      - (1) 2.5" Pressure gauge
      - (2) 45-Degree Elbow with Bleeder Valve
      - (3) Gate Valve
      - (4) Standpipe adjustment Stick
      - (5) Pocket Spanners
      - (6) Pipe Wrench
      - (7) Screw Drivers
      - (8) Door Wedges
      - (9) Large Adjustable Monkey Wrench
- 3) Truck Specific
  - (i) Rescue saw and blades
  - (ii) A long-handled tool (pike pole, New York hook, etc.)
  - (iii) Dry chemical extinguisher
- c) The Captain of the first crew to enter the building will determine the location of the fire or emergency. This can be accomplished by:
  - 1) Utilizing information obtained from the building's alarm panel
    - (i) NOTE - Personnel should exercise extreme caution and vigilance if multiple alarms are displayed on the alarm panel.
  - 2) Obtaining information from the building engineer, occupants or other knowledgeable representatives
  - 3) Obtaining information from visual indicators

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- d) The actions of the initial ascending companies are critical to the outcome of a high-rise incident. These actions include, but are not limited to:
- 1) Search and rescue
  - 2) Internal exposure protection/flow path control
  - 3) Confinement and extinguishment
  - 4) Forcible entry
  - 5) Personnel accountability
  - 6) Assess the need for evacuations in the immediate area above and below the incident
- e) Identification of the attack and evacuation stairwells
- 1) Crews ascending the building will select the most appropriate stairwell based on the following factors:
    - (i) Roof Access
      - a. Stairwells with roof access are best suited for the fire attack stairwell. This stairwell may be later utilized for ventilation.
    - (ii) Proximity to the incident
    - (iii) Standpipe access
    - (iv) Stairwell information shall be relayed to the IC.
  - 2) Stairwell Considerations
    - (i) Opening of any stairwell or roof access must be closely coordinated with fire attack as these actions may adversely change fire conditions.
    - (ii) Stairwells designated as “smoke towers” should not be utilized as a fire attack stairwell unless no other option is available. Smoke towers, by design, may create a negative pressure, thereby drawing fire conditions towards firefighting personnel.
    - (iii) Attack stairwells should be cleared of any occupant or victim before firefighting can begin.
    - (iv) Evaluate the risk of attacking the fire and potentially exposing the above occupants in the attack stairwell to toxic fire gases. Delaying firefighting temporarily compartmentalizes the fire until a search of the attack stairwell is completed or underway. The size of the fire, time of day and occupant load will be factors that shall be considered.
    - (v) Crews shall attempt to minimize the migration of smoke by utilizing door control tactics to control flow path.
    - (vi) Notch the door on the lower corner opposite of the hinges to facilitate the passage of hose-lines through a closed door.
    - (vii) Equipment that is not needed for immediate operations should be placed in [Staging](#) or the on floor immediately below the fire floor.
- f) Attack Hose Line Management
- 1) For a small, compartmentalized fire, consider the 1 3/4 high-rise hose pack with a low-pressure breakdown (Slug) nozzle.

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- 2) For a large un-compartmentalized fire, consider a 2 1/2 attack line equipped with a smooth bore 1 1/8 tip.
  - 3) Deploying a 2 1/2 line requires sufficient personnel to be effective. Supervisors should plan on at least 6 firefighters to deploy a single line.
  - 4) Reflex Time shall be considered when making hose and nozzle selections.
  - 5) Make initial connections to the standpipe outlet on the floor below the fire floor.
  - 6) Back-up lines should be connected two or more floors below the fire floor.
  - 7) An in-line standpipe gauge shall be used if the company is so equipped.
  - 8) A firefighter should be stationed at the standpipe to communicate with fire attack, feed additional hose for firefighting and adjust standpipe pressure as needed.
  - 9) The firefighting hose line must be flowing water to ensure accurate pressure adjustments.
  - 10) If firefighters are experiencing low nozzle pressure:
    - (i) Ensure kinks are minimized
    - (ii) Ensure valves are fully open
    - (iii) Ensure the water supply group is delivering adequate pressure
    - (iv) Remove the pressure restricting device if the standpipe is so equipped
    - (v) Adjust the field adjustable pressure regulating valve if the standpipe is so equipped
- g) Safety
- 1) Consider the placement of a defensive line in center core construction to prevent a [wrap-around phenomenon](#).
  - 2) Frequent checks of overhead spaces in the [plenum](#) (false ceilings) should be done. Personnel should check for fire extension or spread.
  - 3) Opening of windows should be coordinated between Fire Attack/Division Group Supervisor and IC/Operations.
  - 4) All personnel shall operate in teams of two.
- h) Elevators may be utilized in accordance to the elevator section of this Standard Instruction.
- 1) Prior to the establishment of Lobby Control:
    - (i) The first ascending units shall place their personnel accountability box in the lobby. The box should be left in a visible location, such as the Security Desk.
    - (ii) Officers shall place their Company ID (diamond shaped) tag on the box prior to ascending.
    - (iii) All subsequent companies shall place the Company ID tag on the box with the noted time of entry on the Fireground Accountability Tracking Report.

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- (iv) Lobby Control, when established, will continue the tracking of those companies already inside the building.
    - (v) Ascending companies should also take an accountability box up to the staging area.
  - 2) While ascending to the incident floor (either by stairs or elevator) the initial officer shall periodically stop and check conditions and the layout of the building. This should be done at least every five (5) floors.
- i) The initial officer will provide a report on fire conditions to the IC when requested or conditions change.
  - 1) Identification of areas suitable for staging should be relayed to the IC.
  - j) If the first company to arrive on the incident floor encounters an IDLH atmosphere and they lack sufficient personnel to implement two in/two out, they shall not engage in firefighting activities.
    - 1) An exception to this policy shall be if there is a known need to affect immediate rescue.
    - 2) Actions that can be taken while awaiting sufficient resources to initiate firefighting activities include:
      - (i) Check the stairwell above the fire floor for victims. These victims may require direction to the evacuation stairwell or rescue.
      - (ii) Connection to the water supply system
      - (iii) Prepare for deployment of hose lines
  - k) If the first company encounters an IDLH condition and sufficient personnel are available (eight ((8)) minimum) to begin fire suppression operations:
    - 1) A personnel accountability box shall be placed in a visible or conspicuous location, preferably at Staging
    - 2) The individual (oval-shaped) personal ID tags shall be attached
  - l) Once on the incident floor, the initial ascending Company Officer shall assume the division designation of that floor, i.e. Division 16 for the 16th floor. An immediate report to the IC or Operations shall be made describing Position, Progress, and Needs (PPN) which includes:
    - 1) Floor number
    - 2) Conditions on the incident floor, stairwell, and the floor above
    - 3) Rescue problems
    - 4) Other specific problems
    - 5) Actions of the company or division
- ii. [Lobby Control](#) Unit
  - a) Lobby Control is responsible for ingress/egress and building systems. A company from the first alarm assignment, ideally the 3rd Engine, will establish Lobby Control. Multiple alarm incidents will likely require a minimum of two companies to achieve all the objectives of lobby control. During these expanded incidents,



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Logistics will be established and Lobby Control will be assigned to the Logistics Section Chief.

- b) Once Logistics is established, consider a dedicated tactical channel. Lobby should continue to monitor the primary tactical channel.
- c) Lobby Responsibilities include:
  - 1) Initial accountability
    - (i) In order to maintain personnel accountability, Lobby Control will locate the company ID (diamond shape) tags left by first arriving units and collect them from the Company Officer as a crew enters the building.
    - (ii) In the event of split crews entering the building, individual names will be logged on Form FD-901 contained in the personnel accountability box.
    - (iii) Control should separate the company ID tags to quickly identify which companies are assigned to Immediately Dangerous to Life and Health (IDLH) functions versus non-IDLH functions, such as Stairwell Support.
  - 2) Control elevators
    - (i) Lobby Control will control all elevators and will designate specific elevators to be used with assigned fire department operators.
    - (ii) All elevator cars must be returned to the lobby (Phase I Recall).
    - (iii) If a car will not recall and cannot be accounted for it must be located and searched.
    - (iv) Lobby Control Unit must notify IC or Operations of any unaccounted for elevator.
    - (v) Individual cars must be operated in the Phase II mode (firefighter service).
    - (vi) Refer to the elevator section for detailed elevator operations.
  - 3) Control ingress, egress, and ascent locations
    - (i) Lobby Control will control all personnel entering and exiting the building.
    - (ii) Determine the safest route that will protect personnel from falling glass and other items from the building.
    - (iii) Direct firefighters to appropriate route of ascent.
    - (iv) Utilize law enforcement and the Medical Branch/Division to assist with evacuations.
  - 4) Facilitate movement of gear aloft
    - (i) Lobby Control will facilitate the movement of needed gear & supplies to Staging.
    - (ii) Spare SCBA bottles and drinking water should be considered very early on in the incident

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- (iii) Equipment movement can be facilitated by utilizing elevators if deemed safe to use. (See the elevator section)
  - (iv) Companies en route to Staging should assist in the movement of required equipment.
- 5) Control built-in fire protection systems
- (i) Fire pump(s)
  - (ii) HVAC/smoke management systems
  - (iii) Communications and public address system
  - (iv) Electrical power systems
- 6) Establish a [Systems Control](#) Unit to locate and staff the Fire Control Room.
- (i) Gather pertinent information from all available sources; panels and system printouts, building plans, etc.
  - (ii) Issue available [Red Phones](#) and key sets, with priority to:
    - a. Stairwell search
    - b. Staging
    - c. Fire floor
    - d. Elevator car operator(s)
    - e. Personnel assigned to go to the Fire Pump Room
    - f. Ensure stairwells are unlocked and/or keys are issued.
  - (iii) If alarm panels are equipped with unlocking features for the stairwells ensure that the doors are unlocked.
  - (iv) Consider using the building's public address system to broadcast instructions to occupants.
    - a. In order to deliver effective announcements, information regarding conditions should be obtained from ascending crews (fire attack, stairwell search).
    - b. Direct the occupants of selected floors to the most appropriate stairwell(s) to exit the building, if applicable.
    - c. Instruct occupants on selected floors to shelter-in-place, if applicable.
      - (1) Shelter in place is generally recommended for occupants three or more floors below the confirmed fire floor.
  - (v) Consider notifying ECDC of necessary information to provide to occupants who call 911.
- 7) Fire pump operation
- (i) If there is an indication of water flowing, send a firefighter to the fire pump room to determine whether the building's fire pump is functioning properly.
  - (ii) Verify valves are in correct position.

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(iii) Notify the first-in apparatus, or Water Supply Group what the system pressure is (indicated on the gauge on discharge side of fire pump).

8) Develop a plan for water removal.

(i) Flooding of basement areas should be prevented due to core equipment such as fire pumps and generators being located there.

(ii) Elevator shafts should not be used for water removal.

### iii. Rescue Group

a) Based upon the time of day, building type, occupant load and fire conditions the need for a Rescue Group may be required very early in the incident. The primary goal of this group is to perform rescues or assist with self-evacuation of the occupants. ICs should consider utilizing the 4th Engine, 2nd Truck and Rescue Company for this function.

b) Responsibilities of the Rescue Group:

1) Identify the evacuation and attack stairwells and the implement stairwell searches utilizing rapid ascent tactics.

2) Rapid ascent tactics will not typically require a “hands-on” rescue.

3) Crews should give direction to fleeing occupants to utilize the appropriate evacuation stairwell or travel to a safe refuge area.

4) The highest priority area to search is the Attack stairwell above the fire floor. Ideally this search should be complete or well underway prior to fire attack taking place.

5) Additionally, evacuation stairwells as well as the floors above the fire must be searched in a timely manner. Personnel should prioritize searches on the 2-3 floors above the fire floor and top 2-3 floors of the structure.

6) With the exception of small fires with limited smoke production; the entire structure must be searched due to the movement of fire gases throughout the structure.

7) Evacuation stairwells should be kept clear of smoke and heat to the highest extent possible.

(i) Strict stairwell door opening discipline will help enhance pressurization operations and maintain stairwell integrity.

(ii) Maintaining a pressurized evacuation stairwell will greatly enhance occupant safety.

(iii) Personnel should continually prevent occupants from using the attack stairwell and direct them to the evacuation stairwell.

c) Occupant movement

1) Total evacuation

(i) Considerations:

a. Extremely time consuming

b. Very complex moving large numbers of people

c. Least desirable

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- 2) Partial evacuation
- 3) Shelter in place
- 4) Movement to safe refuge areas
  - (i) If an area is deemed a safe refuge area crews should utilize a gas detector to ensure Carbon Monoxide (CO) levels do not endanger evacuees.

d) Rescue crews should:

- 1) Ensure automatic unlocking stairwell doors are activated (unlocked).
- 2) Obtain keys.
- 3) When using keys to unlock doors ensure they remain unlocked after removing the key.
  - (i) If doors cannot be kept in an unlocked state, duct tape can be utilized to keep the locking mechanism disengaged.
- 4) Do not prop open stairwell doors unnecessarily.
- 5) Obtain red phone if available.
- 6) Conduct a continuous search of the attack and evacuation stairwells. This will be required throughout the incident.

iv. Staging

- a) Staging is the assembly point where a cache of personnel and equipment are maintained awaiting assignment within the building.
- b) The complexity of a high-rise incident requires that conventional Staging Area Concepts be flexible. These incidents may include limited access for equipment and personnel, vertical travel distance to the fire floor, and construction or layout issues of available floors. Considerations should also be made to accommodate a large-scale incident and its need for expanded staging operations.
- c) The Staging Area is generally two or three floors below the lowest fire floor as long as the atmosphere can be kept clear.
- d) The IC should consider assigning staging responsibilities to the 5<sup>th</sup> Engine from the first alarm. Staging reports to the IC or Operations.
  - 1) Once this position is filled and the floor for Staging is identified; the Staging Officer must make a status report to the IC or Operations.
  - 2) The company assigned Staging shall seek out and obtain the personnel accountability tags that were placed by the company entering the IDLH. Staging must then begin personnel accountability utilizing the tags and tracking tools.
- e) The Staging Area is generally two or three floors below the lowest fire floor as long as the atmosphere can be kept clear.
- f) Staging will assume the Initial Rapid Intervention Crew (I-RIC) and manage personnel accountability (see accountability section).
  - 1) Identify an Accountability Officer and report their location to the IC.
  - 2) I-RIC shall ensure that a RIC bag is brought to the Staging floor.

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- 3) RIC gear shall be assembled.
  - g) Staging is the assembly point where a cache of personnel and equipment are maintained awaiting assignment within the building.
  - h) Equipment shall not be stored or cached in the stairwell.
  - i) Staging Officer shall place personnel in the stairwell to direct crews to the Staging location.
  - j) Crews must not bypass Staging unless directed to do so.
  - k) The responsibility of the Staging Officer is to prepare the floor for staging operations.
    - 1) Floor preparation includes:
      - (i) Locating an acceptable rehab site
      - (ii) Identifying areas for an equipment cache including full and depleted SCBA cylinders
      - (iii) An area for fresh crews including RIC
    - 2) The Staging Officer shall continually assess the best access for ascending companies. The Staging Officer shall also assess the need for the appropriate gear and equipment necessary to control the incident.
    - 3) The Staging Officer, through the IC or Operations, may direct ascending crews to bring equipment other than that identified as standard high-rise equipment. This includes:
      - (i) High-rise hose packs
      - (ii) Drinking water
      - (iii) Spare SCBAs/cylinders
      - (iv) Medical aid equipment including O2 bottles
- v. Water Supply
- a) A properly operating Fire Protection System (FPS) should be capable of providing adequate pressure and volume (fire flow) for the designed structure. This system should, by design, pump from a cistern to provide required fire flow to the roof. If the building is equipped with pressure regulating valves at each floor outlet, these will be uniquely adjusted to provide appropriate fire flow for the individual floor. All of this is based on the full performance of the FPS fire pump.
  - b) Water Supply Group
    - 1) Whenever two engines are utilized, this operation shall be designated the "Water Supply Group".
    - 2) The Engineer operating the pumper connected to the building's Fire Department Connections (FDC) shall be the Water Supply Group Supervisor.
    - 3) Transfer of [Group Supervisor](#) may be done at any time. The IC shall be notified of the transfer.
  - c) FDC
    - 1) This is a shared responsibility of Water Supply Group

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- 2) Fire department pumping operations must be set up as a standby contingency should the building's system fail to deliver an effective fire flow.
  - 3) Water Supply Group shall charge lines to the FDC.
  - 4) An immediate pump pressure of 150 PSI should be supplied to the FDC unless signage indicates an alternate pressure.
- d) Determine adequate pump pressure
- 1) Coordinate with Lobby Control or Systems Control to ascertain the status of the FPS
  - 2) Communicate with Fire Attack Team for the status of delivery pressure
  - 3) If the FPS is providing adequate fire flow, the engine(s) may throttle down to idle and remain in standby mode.
- e) Additional pump pressure for FDC on High-Rise structures may be necessary. Consider the following:
- 1) To supply higher pressure to upper floors, it may be necessary to insert a second pumper in series.
  - 2) It shall be standard operating procedure to automatically implement this for all buildings that meet the definition of a High-Rise structure.
  - 3) High pressure hose shall be utilized whenever possible for the lines supplying the FDC. Connections to the FDC must be made without the use of shut-off butts.
  - 4) Advantages gained by this procedure include:
    - (i) Sufficient fire flow pressure can be delivered that may be beyond the capability of only one pumper.
    - (ii) The work of producing the high pressure is shared by both pumpers, reducing the chance of failure of one pumper being pushed to capacity or beyond.
    - (iii) Redundancy is case of failure of one pumper during the operation; the other pumper can sustain a continuous flow (possibly at reduced pressure) until another engine can be brought into position and connections made without interrupting the flow.
- f) Hose line protection
- 1) It may be necessary to protect the hose lines from the potential of falling glass.
  - 2) Personnel shall ensure that they are working in full PPE.
  - 3) Covering the exposed hose with a combination of ladders and salvage covers
  - 4) If glass is already falling in the vicinity, the area should be designated an exclusion zone with no entry permitted until deemed safe.
- g) Back up planning for FDC failures:
- 1) Water Supply Group shall formulate a plan for catastrophic failure of standpipe and/or fire pump systems.
  - 2) Aerial ladders may be utilized as standpipes
  - 3) Laying large diameter hose up the stairwell

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vi. Ventilation Group/Smoke Management

- a) The [Stack Effect](#) should be taken into account when considering ventilation/smoke management.
- b) Modern [Life-Safety High-Rise Buildings](#) are equipped with air handling systems designed to control and evacuate smoke. These systems vary depending on the age, size and occupancy type of the building. Generally, these systems are designed to isolate smoke-filled floors by creating positive pressure gradients and exhausting the smoke to the exterior of the building.
- c) Exhaust systems
  - 1) Commercial high-rise building's air handling systems will exhaust smoke from the fire floor upon activation.
  - 2) The system will also pressurize the floors above and below the fire to effectively sandwiching the products of combustion.
  - 3) Stairwells will also pressurize creating a positive pressure gradient in order to keep them relatively free of smoke.
  - 4) It's important to note that exhaust systems may cause smoke to be seen issuing from the top or sides of a high-rise, this may be completely normal.
- d) Elevator shafts
  - 1) These shafts have been responsible for spreading smoke, heat and fire gases due to their un-protected vertical configuration; therefore pressurization systems may help to prevent this.
  - 2) There are a number of variables amongst systems.
    - (i) These variables may be based on the era in which the building was designed, constructed and the codes present when the occupancy designation was made.
- e) Not all smoke control systems provide complete floor pressurization and exhaust. At a minimum it should be expected that modern buildings will have pressurized stairwells.
- f) Positive pressure gradients are essential for two chief reasons.
  - 1) Help to provide tenable routes of egress and refuge for building occupants by limiting smoke migration.
  - 2) Firefighters benefit by operating from areas of relatively higher pressures. The pressure works to push the fire away.
- g) Modern systems when operating properly will effectively manage a considerable amount of smoke and greatly enhance occupant safety.
- h) Even the best system can be overwhelmed either by the amount of smoke, system failures or simply by having too many stairwell doors open.
- i) Utilization of building systems
  - 1) If the building is equipped with a smoke control system, it is essential that Ventilation Group and Lobby Control work in coordination.

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- (i) Lobby Control should obtain as much information as possible from any and all indicators in the Fire Control Room
  - (ii) Utilizing the building engineer as a knowledgeable resource
  - (iii) Lobby Control/systems should ensure that the stairwells are pressurized
  - (iv) Considered augmenting stairwell pressurization with blowers
- 2) Ventilation Group should be established if the building is not equipped with a smoke control system or if it is deemed inadequate or inoperable.
  - 3) All activities shall be directed by the Ventilation Group Supervisor
  - 4) Coordination with Lobby Control or Systems Control is essential
  - 5) Pressurization is essential until the location and scope of the fire is known. This action should further protect occupants and firefighters.
  - 6) Ventilation shall be performed in coordination with Fire Attack
  - 7) Ventilation operations may adversely affect fire behavior by creating negative pressures that can potentially draw the fire towards attack crews.
- j) In buildings not equipped with smoke handling systems consideration should be given to shutting down the HVAC system on arrival to limit the spread of smoke, heat and fire gases.
- k) Vertical Ventilation
- 1) Can be accomplished utilizing selected and controlled stairwells
  - 2) Pressurization of these stairwells may need to be shut down, to facilitate the movement of smoke from the fire floor(s).
  - 3) Firefighters should not prop doors open unless absolutely necessary.
  - 4) To vertically ventilate utilizing a stairwell, personnel should ensure that the doors or dampeners are open at the top of the stairwells.
  - 5) The stairwell being utilized for ventilation must be kept clear of evacuating occupants.
  - 6) When developing a vertical ventilation plan:
    - (i) [Stratification](#) should be expected
    - (ii) "Stack" effect should be considered on days with extreme temperatures. The natural movement of air may be altered due to this phenomenon.
  - 7) Blowers can effectively augment stairwell pressurization/ventilation operations by placing them:
    - (i) At the bottom floor
    - (ii) Every ten floors
    - (iii) Two floors below the involved floors
  - 8) Blowers shall not be placed in the stairwells, they shall be placed 4-6 feet back from door openings directing air into the stairwell.
  - 9) When multiple fans are used a "V" converging fan placement shall be utilized.
  - 10) Personnel should be stationed in close proximity to blowers in the event a rapid shutdown becomes required.
  - 11) Monitor CO levels in stairwells when utilizing gas powered blowers.



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1) Horizontal Ventilation

- 1) Can be accomplished by opening any available window(s)
- 2) Windows that have the capacity or mechanism to open offer personnel the best solution for their ventilation needs.
  - (i) These types of windows may be encountered in residential high-rise buildings
- 3) Tempered glass
  - (i) Windows are identified by a 3" luminous white "T" in the lower corner.
  - (ii) These windows are typically at the corners of the building and spaced every 50'.
  - (iii) The following factors must be considered before breaking any windows for ventilation:
    - a. Notify the IC, or Operations of intent and location prior to breaking windows
    - b. Await clearance from the IC or Operations to proceed
    - c. Clear the area below of personnel
  - (iv) Avoid breaking windows on the windward side of the fire floor unless absolutely necessary;
    - a. This action may potentially cause a blowtorch effect
      - (1) Window failure can also cause this effect
      - (2) The high pressures of the wind at upper elevations may be extreme.
      - (3) The fire will be pushed in the direction of the wind movement.
      - (4) Fire can be pushed at extreme speeds down hallways or into other parts of the building.
    - b. The first choice should always be to create openings on the leeward side of the building.
  - (v) Beware of the danger of an unprotected opening where personnel could fall outside the building.
  - (vi) Block the area with substantial objects such as furniture, and post at least one firefighter to maintain an exclusion zone.
  - (vii) Blowers may also be used to augment horizontal ventilation operations.

vii. Accountability

- a) Prior to an Accountability Officer (AO) being established, accountability is the responsibility of the IC or Division/Group Supervisor.
- b) At the earliest opportunity the IC shall assign an AO.
  - 1) More AOs can be assigned depending on access/entry issues.
- c) The AO(s) may be established at Staging or located in the most advantageous area to maintain accurate account of personnel entering the IDLH.

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- 1) All personnel will retain their personal ID tag until they are given a specific operational assignment in the fire area (entry into an IDLH area).
  - 2) At the time of assignment, personnel will give their personal ID tag (oval shaped) to the AO
  - 3) Exceptions to this rule are when crews/personnel are assigned to staff functions in lower floors that are known to be outside any potential IDLH environment. These crews will retain their personal ID tags. Examples include:
    - (i) Stairwell Support, Medical Unit Leader, Medical Branch or Occupant Evacuation Group.
    - (ii) These personnel shall document their accountability with Lobby Control.
5. Arriving Staff Officers and Operations Support Personnel
- i. Staff Officers and Operations Support Personnel must report to the ICP for assignment.
  - ii. The arriving Shift Commander may assume command of the incident or fill the role of the Liaison Officer.
  - iii. If a Shift Commander assumes IC, the initial Battalion Chief shall be assigned as OSC or another position as needed.
  - iv. Subsequent arriving Assistant Chiefs, Deputy Chiefs, Staff Battalion Chiefs, and Operations Support Personnel may be assigned as:
    - a) Public Information Officer (PIO)
    - b) Assistant Safety Officers
    - c) Liaison Officer
    - d) Medical Unit Leader
    - e) Other management responsibilities as required
  - v. The assumption of Incident Command is optional for the Fire Chief, Assistant Chiefs, Deputy Chiefs, and Deputy Chief Shift Commanders.
  - vi. If an extended incident is anticipated, consider early Department Operations Center (DOC) activation and establishing a Plans Section Chief.
6. 2nd Alarm Assignment Guidelines
- i. Base
    - a) The Base location shall be identified by the IC and assigned an additional tac channel.
    - b) Base reports to the IC or Logistics.
    - c) Second alarm or greater units shall respond directly to Base unless specifically assigned elsewhere.
    - d) The Officer of the first engine of the second alarm will typically assume the position of Base Manager, their responsibilities include:
      - 1) Careful consideration should be made for parking, security, and the flow of personnel and equipment to the scene.

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- 2) Evaluate hazards to establish safe routes to the fire building and coordinate the route with Lobby Control.
  - 3) Coordinate with Law Enforcement personnel for area and access control.
  - 4) Assume control of personnel and resources assigned to Base.
  - 5) Notify the IC or Logistics when resources have depleted down to two engines and one truck.
  - 6) Establish routes into the Base parking area.
  - 7) Apparatus parking:
    - (i) Engines
      - a. Should park diagonally, backed into position
      - b. Facing in a direction to permit driving directly to an assignment
      - c. If on a clear street, both sides of the street shall be utilized
    - (ii) Trucks
      - a. Trucks should be parked closest to the incident
      - b. Separate from engines
      - c. If on a clear street, direct trucks to park parallel to the curb utilizing both sides of the street.
  - 8) Identifying needed equipment and place equipment in an accessible area (cache).
  - 9) Coordinate with Ground Support for the movement of equipment and resources into the fire building.
  - 10) Maintain an accurate log of apparatus, equipment, and available personnel in Base and periodically advise the IC.
  - 11) When assigned, crews will transport requested equipment from Base to the predetermined location.
  - 12) Drinking water, high-rise packs, entry tools, spare SCBA bottles, and medical equipment for rehabilitation are examples of equipment that may be needed.
- ii. RIC Group
    - a) Replace the I-RIC duties of Staging
  - iii. Additional Divisions
    - a) Check and control fire extension on the floor(s) above the incident
  - iv. Evacuation Group
    - a) An Evacuation Group separate from the Rescue group should be considered.
      - 1) Time of day and occupancy type will dictate the priority of this assignment.
      - 2) The Evacuation Group Supervisor shall determine the appropriate combination of occupant protective actions.
      - 3) Evacuation Group shall request necessary resources from Operations to maintain control and safety of the occupants.
    - b) Early identification of evacuation stairwell(s) is essential.
    - c) Selective use of the building's public address system should be used to direct occupants.

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- d) Evacuated occupants must be given clear direction toward a designated area.
  - 1) This location should be at least 200' from the involved building
  - 2) Away from Base.
  - 3) Continually managed
  - 4) Consider law enforcement assistance
- e) Evacuation management may be assumed by the Medical Unit, Law Enforcement, or a combination of each.
- f) Anticipate the need for medical services and shelter needs of the evacuees (weather, time of day, etc.) The IC should coordinate with the Medical Group to ensure timely and adequate capabilities are provided where needed.
- v. Systems Control Unit:
  - a) Systems Control is a function of the Lobby Control Unit. However, a separate Systems Control Unit may be established if the building systems are complex.
  - b) The Systems Control Unit Leader reports to the IC or the Logistics Section Chief.
  - c) In coordination with Lobby, the Systems Control Unit Leader monitors and maintains the built-in fire control systems found in the fire control room. These may include:
    - 1) The fire pump
    - 2) Smoke control & HVAC systems
    - 3) Building communication systems (red phones & public address system)
    - 4) Fire Control Systems
    - 5) Elevator Control Systems
    - 6) Utility control and management. This may include power back-up systems
  - d) Maintain contact with technical experts. These may include:
    - 1) Building Engineer
    - 2) Utility Company Representatives
    - 3) Elevator Service Technicians
  - e) Develop a dewatering plan to avoid the flooding of basement areas.
    - 1) The fire pump and generator are often located in these areas and flooding will damage these vital systems.
    - 2) Keeping the fire pump and generator running are a high priority.
  - f) Develop a plan to deal with catastrophic failure of systems such as fire pump and/or generator failures.
- vi. Ground Support Unit
  - a) Reports to the IC or Logistics.
  - b) Ground Support's primary function is the movement of equipment from Base to the incident.
  - c) Coordinates with Base for the movement of equipment and resources into the fire building. This may include establishing the ground level traffic/movement plan and marking safe access routes.

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- d) Provides transportation of equipment and supplies within the building.
- e) Implements an SCBA filling and bottle exchange plan.
- f) Elevators, if deemed safe to use, are the preferred method to move firefighters and gear aloft. See the elevator section.

vii. Stairwell Support

- a) The responsibilities of Stairwell Support fall under Ground Support until the Stairwell Support is established.
- b) The Stairwell Support Manager reports to Logistics or the Ground Support Unit Leader.
- c) A Stairwell Manager should be assigned for fires involving floors above the tenth floor.
- d) Responsible for shuttling equipment from the equipment cache(s) to the Staging floor or designated area.
  - 1) Ideally consist of one person per two floors for a limited work period.
  - 2) Work periods should be based on stairwell conditions and workload.
- e) Stairwell support will take considerable resources and time.
- f) Companies assigned to Stairwell Support shall give their company ID tags to Lobby Control.
- g) Develop a stairwell lighting plan in the event of power failure.
- h) Advise civilians evacuating the building to utilize the evacuation stairwell and stay to the right side of the stairwell as they descend.

viii. Medical Unit Leader (Rehab)

- a) The Medical Unit Leader reports to the Logistics Chief. Responsibilities are primarily for incident personnel and include, but are not limited to:
  - 1) Assessment of the current situation and request of necessary resources
  - 2) Establish a medical aid station in Staging.
  - 3) Establish a rehab area in Staging.
  - 4) Preparation of the [Incident Medical Plan](#)
  - 5) Identifies the procedures to be taken for the care and transportation of injured and ill emergency personnel
  - 6) Incident rehab
  - 7) Treatment locations
  - 8) Reporting

ix. Safety Officer

- a) The Incident Safety Officer is a member of the [Command Staff](#) and reports directly to the Incident Commander. Their responsibilities may include:
  - 1) Monitoring and assessing hazardous and/or unsafe situations and developing measures for assuring personnel safety.
  - 2) Correcting unsafe acts or conditions through the chain of command.

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- b) The Safety Officer (or designated assistants) has emergency authority to alter, suspend, or terminate unsafe acts or conditions when danger is imminent.
  - 1) The IC or Division/Group Supervisor shall be made aware that emergency authority was used and under what conditions.
- c) Additional Assistant Safety Officers may be assigned as needed.
- x. Other 2<sup>nd</sup> Alarm considerations based on incident needs include:
  - a) Establish Medical Branch (Medical) when there are multiple civilian patients
  - b) Augment and/or relieve Fire Attack personnel
    - 1) Consider reflex time when assigning crews to reinforce or relieve the fire suppression forces located on the fire floor. The IC should make assignments as early as possible.
  - c) Augment Rescue Group
  - d) Augment Staging
  - e) Assign units to Staging to reduce reflex time for future assignments
- 7. Third Alarm Assignments (or greater)
 

For sustained incidents, additional alarms will be required to fill other functions. These functions may include, but are not limited to:

  - i. Address any objectives from the Second Alarm considerations
  - ii. Establish Ground Support Unit
  - iii. Establish Stairwell Support Unit
  - iv. Establish Medical Unit Leader (REHAB) if not done in the 2<sup>nd</sup> Alarm
    - a) Consider utilizing Operations Support personnel or a Staff Officer
    - b) Initial rehab will be in staging for crew rotation
    - c) Consider establishing an additional rehab location as needed (ie. releasing units)
  - v. Establish Medical Branch Director (Medical) as required for incidents with multiple patients if not done in the 2<sup>nd</sup> Alarm
    - a) Consider utilizing Operations Support personnel or a Staff Officer
  - vi. Augmentation of RIC personnel shall be considered based on the size and complexity of the incident.

**C. Elevator Operation**

Elevator use at a high-rise fire will greatly reduce reflex time. Elevators use shall be permitted if the reported fire is above the 7th floor and the “Elevator Operational Checklist” is utilized.

- 1. Fire Attack will notify the IC the following information once an elevator has been cleared for use:
  - i. Elevator location
  - ii. Elevator identification
  - iii. Elevator operator designation
- 2. Elevator use:

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- i. Prior to the use of an elevator the alarm panel should be examined to ascertain the level/floor of the fire alarm.
  - ii. NEVER utilize an elevator to carry firefighting personnel closer than two floors below the lowest level of the alarm.
  - iii. If the elevators have automatically recalled to the lobby in Phase I; they shall not be utilized on initial attack. This situation urges extreme caution, requiring further investigation prior to elevator use.
  - iv. Banked elevators whose shafts terminate more than two (2) floors below the fire floor are considered safe for firefighter transport use.
  - v. Caution should be noted with banked elevators, as the machine room can extend upwards of two floors above the upper termination point of the shaft.
  - vi. Fire conditions on floors within two floors of the upper termination point of a banked elevator shaft may affect the machine room; therefore they shall not be utilized for initial attack.
  - vii. Blind elevator shafts should not be utilized.
  - viii. Elevators shall be operated by fire personnel that are trained in their use.
  - ix. Personnel operating elevators shall comply with the elevator operational checklist found in High-rise check list packets.
  - x. Elevator operators must be thoroughly familiar with emergency elevator operations.
  - xi. Elevator operators shall report to Lobby Control with:
    - a) An elevator operational check list
    - b) Forcible entry tools
    - c) Radio
    - d) Portable light
    - e) Red phone (from alarm panel control room)
    - f) Dry chemical extinguisher
    - g) Six (6) foot pike pole
    - h) Spare SCBA bottle
  - xii. Personnel utilizing elevators shall have their:
    - a) Masks donned in the stand-by mode
    - b) Dry chemical extinguisher at the ready
    - c) The maximum amount of personnel in an elevator should be determined by the manufacturer's elevator capacity, accounting for a 300-pound average per firefighter.
    - d) Personnel should be familiar with the location of nearby stairwells in the event of an emergency evacuation of the elevator car.
3. The elevator operational checklist shall be utilized when using elevators
- i. Phase I Recall:
    - a) This feature may occur automatically or be manually initiated.

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- b) If a smoke or heat detector [Fire Alarm Initiating Device \(FAID\)](#) is initiated in an elevator lobby, machine room or hoist-way the elevators will automatically recall to the designated level and remain there with the doors open.
  - c) Phase I may also be manually initiated in the main lobby/designated level or from the Fire Control Room.
  - d) Elevators shall not be used for initial attack if in Phase I recall upon arrival. This situation urges extreme caution, requiring further investigation prior to elevator use.
    - 1) If the alarm system indicates that fire, smoke, water, or heat is affecting one of the elevator system's components, crews shall ascend via the stairs and investigate the problem.
    - 2) Once the scope of the incident is determined and the safety of the elevator system is confirmed, the IC may approve the use of the elevators.
- ii. Smoke detector activation
- a) Be aware that if smoke/heat detectors outside the elevator lobby area are activated first, fire control doors will automatically close, and isolate elevator lobbies.
  - b) This may result in delayed Phase I automatic activation.
  - c) Use caution because elevators may still allow occupants and/or firefighters to travel directly to a fire floor in normal operating mode.
- iii. Phase II Elevator Operations
- a) Firefighters shall only use Elevators equipped with Phase II capabilities.
  - b) Phase II is activated after Phase I is manually initiated.
    - 1) The key is removed from the Phase I slot and placed in the “Firefighter Service” slot within the elevator car
    - 2) The key should be then turned to the “on” position
    - 3) In Phase II the car will only respond to inputs from within the car.
    - 4) If during Phase II operation the key is turned to the “off” position, the car will revert to Phase I and return to the designated floor
4. Fire Service Mode
- i. When in Fire Service Mode (Phase I & II) the Fire Helmet symbol within the car will illuminate solid.
  - ii. If the symbol flashes, do not use the elevator.
  - iii. The “flashing helmet” is initiated by activation of a heat and/or smoke detector (FAID) located in the elevator hoist-way or machine room.
  - iv. Shunt Trip
    - a) If the hoist-way and/or machine room are sprinklered you should expect a feature called “shunt trip”.
    - b) This item will activate prior to the fusing of a sprinkler head.
    - c) This feature removes all power from an elevator causing the car to stop, the brakes will set and only an elevator mechanic can retrieve it.
    - d) This may occur outside the elevator “landing zone”.



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- e) This feature exists because water in a machine room or hoist-way can create catastrophic problems with elevators.
5. Inspect the shaft with a flashlight, if you see any smoke or water do not use.
  6. Test “door close” & “door open” functions.
    - i. Provide constant pressure on the door close button until closed
    - ii. Next provide constant pressure on the door open button until opened completely
    - iii. While closing briefly release the button and ensure door reverses direction
    - iv. When the button is pressed and held again the door movement should resume closing/opening
    - v. If the elevator does not have a door open/close button the floor selection buttons will serve this purpose
  7. Test “call cancel”
    - i. With the doors open make a floor selection
    - ii. Depress “call cancel”
    - iii. Floor light on panel should go out
    - iv. Call cancel clears the input register/floor selection of all inputs
    - v. If the elevator is moving, and call cancel is depressed it will cause the elevator to stop at the next floor in the direction of travel
  8. Test “Hold” function.
    - i. Select a floor on the panel and remove key.
    - ii. The elevator should not accept commands until returned to Phase II.
  9. Periodic check on fire conditions
    - i. Stop every 5th floor en-route to your destination and check the shaft
    - ii. Periodic stops will ensure the car is taking commands.
    - iii. Always stop a minimum of 2 floors below the lowest level of alarm.
    - iv. NEVER take an elevator to the floor of alarm.
  10. Failure of protection functions
    - i. If the car is not responding properly immediately select “call cancel”.
      - a) Options include activating the “emergency stop”
      - b) Returning the car to Phase I by turning the key to “off”
      - c) The car should stop and return to the designated level.
      - d) If there is no response from the elevator then pry open the car door. This should interrupt the interlock and stop the car.
  11. Upon arrival at the desired floor
    - i. Conduct [“Peek-A-Boo”](#) door opening to ensure a tenable environment.
    - ii. It’s critical to remember that the doors must be fully open before exiting the car, if not the doors will close behind firefighters
    - iii. The elevator will be out of service because the crew will not be able to reopen the doors unless they have another elevator key.
    - iv. If crews want to keep the car they can place the key in the “hold” position.

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- v. If Firefighters want to return the elevator car to the designated level they can do so by placing the key in the off position & exiting the car. Leave the key in the slot for others to use.
- vi. The car is now in Phase I and will return to the designated level and open the doors.
- vii. This may be beneficial in the initial phases of a fire prior to the assignment of dedicated elevator operators.

**D. Helicopter Operations**

1. All helicopters shall report to the Incident Commander, Operations Section Chief, or the Air Operations Branch Director.
2. Helicopters may be utilized for the following, but are not limited to:
  - i. Locate occupants in windows
  - ii. Provide smoke reports to command on the ground
  - iii. Provide vertical ventilation options
  - iv. Provide intel on fire extension to other floors
  - v. Spot exterior air shaft extensions in the building's construction that could allow for an exterior ground attack
  - vi. Identify locations for ground crews to bring in high-volume water streams just a few stories from the fire floor. From these vantage points high volumes of water can be directed to the seat of the fire.
  - vii. Provide "real-time" imaging of the incident with the Forward-Looking Infra-Red (FLIR) system and video downlink equipment to the Command Post and ECDC, if equipped.
  - viii. The Air Operations Chief or Pilot-in-Command will be responsible for coordinating and/or shutting down the airspace with the FAA and/or any other aircraft supporting the incident. If assigned, this responsibility may be delegated to the Helicopter Coordinator.

**E. Incident Communications Procedures**

1. Communications on High Rise incidents should follow established procedures used on all large/expanding incidents. High Rise buildings present additional considerations, such as:
  - i. The need for additional tac channels/Expanded Communication Plan. These additional tactical channels may be assigned to Branches, Groups, or Divisions.
  - ii. Radio channel(s) failure requiring use of Direct Channels
2. At least one radio at the ICP should be set to direct to continuously monitor for this condition.
3. If the use of direct channels becomes necessary due to signal degradation from the structure, it is advisable to assign individuals at strategic locations inside to serve as "Human Repeaters".
  - i. Repeaters will ensure integrity of radio communications between units inside and the ICP outside.
  - ii. These personnel can relay messages that have been transmitted but not acknowledged.

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## V. DEFINITIONS

- A. Base: The exterior location at which the primary logistics functions are coordinated and administered, apparatus are parked, and initial stockpiling of incident equipment is assembled during a high-rise incident. Base is located a minimum of 200 feet from the building. [\(RETURN\)](#)
- B. Command Staff: Consists of the Liaison Officer, Safety Officer, and Information Officer who report directly to the Incident Commander. [\(RETURN\)](#)
- C. Division Supervisor: Division Supervisors manage a specific geographic area, usually one floor in a high-rise; and will assume a corresponding radio designation (e.g., "Division 12" on the twelfth floor). Division Supervisors report to the IC or the Operations Section Chief. Division Supervisors must ensure that company officers keep their personnel together and under their control. Company effectiveness, personnel safety and accountability will be greatly enhanced by adherence to this fundamental rule. [\(RETURN\)](#)
- D. Fire Alarm Initiating Device (FAID): water flow, smoke, or heat detector. [\(RETURN\)](#)
- E. Group Supervisor: Group Supervisors manage a specific function and may not be confined to a specific geographic area. Examples: Ventilation Group, Rescue Group and/or Evacuation Group; each working several floors of a high-rise simultaneously. Group Supervisors must ensure that company officers keep their personnel together and under their control. Company effectiveness, personnel safety, and accountability will be greatly enhanced by adherence to this fundamental rule. [\(RETURN\)](#)
- F. Incident Action Plan: A plan that contains the objectives reflecting the overall incident strategy for rescue of endangered occupants, control of the incident, and property conservation. [\(RETURN\)](#)
- G. Incident Command Post: That location at which the primary command functions are executed. The location should be highly visible and provide safety for the Incident Command personnel. [\(RETURN\)](#)
- H. Incident Medical Plan: This plan is developed by the Medical Unit Leader under the Logistics Section and identifies the procedures to be taken for the care and transportation of injured or ill emergency personnel, providing incident rehabilitation, treatment locations, and reporting procedures. For civilian injuries, the Incident Commander shall implement a Medical Branch under the Operations Section Chief to initiate a Mass Casualty Incident or Multiple Patient Incident plan. [\(RETURN\)](#)
- I. Life Safety Building: Modern high-rise buildings >75' built in the mid 1970s until present time. They are equipped with many modern safety features including a fire control room, public address system, emergency lighting, automatic stairwell unlocking, generators, fire pumps and smoke handling/pressurization systems. [\(RETURN\)](#)
- J. Lobby Control: This unit functions to maintain company accountability, control all building access points, direct incoming crews to appropriate stairwell or elevator, monitor building systems until the Systems Control Unit is established, and account for and operate elevators, and liaison between the IC and building engineers. Lobby Control initially reports to IC or Logistics. [\(RETURN\)](#)

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- K. Medical Branch: That portion of the Incident Command structure designed to provide the Incident Commander with a basic expandable system for handling any number of civilian patients in a Mass Casualty Incident or Multiple Patient Incident plan. [\(RETURN\)](#)
- L. Medical Unit Leader: This section that is responsible for providing medical aid and transportation for injured or ill emergency personnel and rehabilitation functions. This unit may provide support to Operations by providing care and transportation to civilian casualties but this is limited to situations where civilian casualties are few. [\(RETURN\)](#)
- M. Peek-a-boo Technique: Technique of elevator door opening to be utilized during phase II elevator operations. Upon arrival at the desired floor destination the operator briefly presses and releases the door open button. The door will open slightly and then reverse direction and close. This provides the operator an opportunity to get a quick peek of the landing area before totally opening the door. [\(RETURN\)](#)
- N. Plenum: The area above a suspended ceiling that often serves as the return for the HVAC. [\(RETURN\)](#)
- O. Rapid Ascent Tactics: Rapid ascent tactics involve a rapid search of the attack stairwell, with an emphasis on searching the stairwell above the fire floor. Ideally, this will be well underway or completed prior to fire attack operations. The attack stairwell must be kept clear of civilians once suppression operations begin. Crews assigned this function may also be tasked with giving floor updates and assisting with the opening of roof top access as directed. [\(RETURN\)](#)
- P. Red Phone: Handset designed for communications within the building, which plugs into jacks on floors, in elevators and stairwells, as well as various other locations. The Color of the handset may not always be red. [\(RETURN\)](#)
- Q. Reflex Time: The amount of time required for a crew to ascend a building in order to reach the designated floor. [\(RETURN\)](#)
- R. Stack Effect: The natural air movement throughout a high-rise building is caused by the difference in temperature between the inside and outside air. The greater the difference, the more pronounced the stack effect will be. When temperatures inside a building are warmer than outside temperatures, the natural airflow inside the building will be in an upward direction, creating a “positive stack effect”. When temperatures inside a building are cooler than outside temperatures, the natural airflow inside the building will be in a downward direction, creating a “negative” stack effect. [\(RETURN\)](#)
- S. Staging: For a high-rise, the conventional concept of staging has been modified. Staging is generally two or three floors below the fire. This location places firefighters and equipment outside the IDLH environment in a position to be immediately ready for an operational assignment. [\(RETURN\)](#)
- T. Stratification of smoke: As smoke rises in a tall building, it cools to a degree that is equal to or less than the ambient temperature inside the building. Once the buoyancy is lost the smoke stops rising and begins to spread laterally. [\(RETURN\)](#)

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- U. Systems Control: This function monitors and maintains the building's fire control, life safety, environmental control, smoke handling systems, communications, and elevator systems. The Systems Control Unit Leader must establish and maintain close liaison with the building/facility engineering staff, utility company representatives, and other technical specialists. [\(RETURN\)](#)
- V. Wrap-Around Phenomenon: in center core construction, an advancing attack line can push the fire around the center core and behind advancing crews. [\(RETURN\)](#)