HIGH-RISE & STANDPIPE FIRE OPERATIONS

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Approved:	Fire Chief Mike Kennedy

I. PURPOSE

The purpose of this document is to identify key strategic and tactical procedures when using standpipes for structural firefighting. Standpipe use dictates specific equipment and a defined resource deployment model. Buildings with standpipes present diverse problems in firefighting operations. Most problems relate to three specific areas: difficulty of access, complexities of construction, and number of occupants in these situations.

Ladder 1-5 shall be recognized as an engine company for the purposes of this SOP.

II. DEFINITIONS

Apartment Stretch - Used when the conditions in the hallway of the fire floor are tenable with positive door control. Hose packs / bundles are staged and assembled in the hallway on the floor below and connected to the standpipe (drop point 1). The nozzle pack and the adjoining pack are then taken to the fire floor. Pack 2 is placed as the team makes entry into the hallway of the fire floor (drop point 2). The nozzle pack then carried to the fire room and stretched out toward the hinge side of the door (drop point 3). Recon shall establish door control at the door to the fire room and identify hinge orientation.

Base - The base area outside the structure will serve as a point of assembly and initial deployment for personnel and equipment.

Base Manager - Ensures a safe location approximately 200 feet from the structure, as well as determining safe ingress and egress for apparatus and a safe approach route for firefighters deploying into the building. The Base Manager shall also maintain accountability for personnel and resources deployed to and from base, also ensuring adequate reserves of personnel and equipment, e.g., air supply units to refill SCBA, sufficient hose, and radio equipment.

Distributor Nozzle - Also known as “Bresnan distributor nozzle” is a nozzle that rotates to create a 360º spray of water. This nozzle is effective for exterior cladding or attic / cockloft fires. This nozzle and associated 30’ length of 2½” is carried on Tower 1-1.

Door Control – Fire department’s operational capability to gain positive control in the opening and closing of a door to prevent the extension of fire conditions.

Floor Below Nozzle - Also known as “bent-tip nozzle” is a resource available for wind-driven fire operations, which must be attacked from the windward side. Utilizing the floor below nozzle allows suppression crews to apply water to the base of a fire in a non IDLH atmosphere. The bent-tip nozzle is an eight foot (8’) long aluminum pipe with a 68º, two-foot bend at the tip. This angle/bend provides the proper direction for the water stream. The floor below nozzle has a standard (2½” shut-off which is permanently attached along with a 1 1/8” tip. There is a knurled "T" shaped handle that permits the nozzle operator to control the direction of the stream and maintain control of the nozzle. This nozzle is located in the bay at Station 1 and will need to be specially brought to a scene.

Forward D/O – This is the radio designation given to whoever is positioned at the pressure gauge connected to the standpipe.

Forward Staging – Designated area typically two floors below the fire used by the IC to pre-position crews and equipment to supplement fireground operations and managed by an assigned Forward Staging Area Manager.

Ground Support - This function is established to provide transport and accountability for equipment moved from Base to Forward Staging.

High-Rise Building - A structure that involves five (5) elevator stops or greater or 55 feet in height or greater.

High-Rise Hose Bundle - Each engine and ladder company will have one (1) high-rise cache. Ladder 1-5 shall carry the same high-rise hose bundles as the engine companies.

The bundle consists of three sections of hose as indicated below:
Two (2) 50-foot lengths of 2” hose packaged in the Denver Load configuration with designated hose straps.
One (1) High-Stack Tip Nozzle package: without pistol grip, stacked 1” and 1 1/8” smooth-bore tip nozzle

High-Rise Kit - All suppression companies will have one (1) high-rise kit.
One (1) Pressure gauge
Two (2) High-Rise elbow
One (1) Gate Valve
Two (2) Spanner Wrenches
One (1) Swiveling Bell Reducer
One (1) Increased Adapter
One (1) Standard wire brush
One (1) Aluminum 18” pipe wrench
One (1) Elongated flathead screwdriver
One (1) Long-nose needle pliers
Two (2) Fat Ivan Door Props

Lobby Control – A critical function of a high-rise incident and serious consideration should be given to establishing the Lobby Control function early on in the incident. The initial duties of the Lobby Control officer are to gain control of the building systems, make contact with building representatives that have an intimate knowledge of the structure and engineered features, and control evacuation and fire department traffic in the building. Lobby Control is usually the first point of entry accountability checkpoint at most high-rise incidents. As a high-rise incident expands, so does the role and importance of Lobby Control. The IC should assign an officer to manage Lobby Control as soon as resources become available.

Hinge Orientation – Geographic orientation of location door hinge in relation to the fire attack stairwell. Far hinge shall be recognized as door hinges away from the stairwell. Near hinge shall be recognized as door hinges that are closest to the stairwell. Hinge orientation shall be communicated during the reconnaissance follow-up radio report.

Stairwell Stretch - Used when conditions are non-tenable in the hallway of the fire floor. Hose packs are staged and assembled in the hallway on the floor below and connected to the standpipe (drop point 1). The nozzle pack is brought up to the fire floor stairwell (drop point 2) and arranged appropriately based on stairwell configuration.

All other hose is pulled back from that point to the floor below. Door control shall be in place at the door from the stairwell to the fire floor hallway.

Supply D/O – This is the radio designation given to the D/O that is outside the structure pumping to the standpipe. The D/O on the engine assigned to water supply shall assume this position.

Tower 1-1 D/O – When Tower 1-1 is the first arriving resource, the Tower 1-1 D/O shall be made available to operate the aerial device or to establish elevator control. Following the arrival of Tower 1-1, the first arriving engine company D/O shall assume to Forward D/O position on the standpipe.

III. INITIAL ACTIONS

All incident command SOPs shall be incorporated with high-rise operations.
3.01 Deployment
3.02 Establishing Command
3.03 Situation Evaluation
3.04 Strategy and Incident Action Plan
3.05 Communications
3.06 Organization
3.07 Review, Evaluate, Revise
3.08 Continue, Support & Terminate Command

The first arriving officer must develop strategic goals and tactical objectives that take into consideration the three incident priorities: life safety, incident stabilization, and property conservation. The IC must order an adequate amount of resources early on and stay ahead of the incident. The conditions in each area of the structure must be evaluated for occupant life safety. Other major concerns for the IC are firefighter fatigue and dangerous flow paths. Both have been common problems in these types of structures.

The decision and plan to evacuate occupants or shelter in place must be coordinated with the fire control strategy. The decision to shelter in place shall be broadcast over the radio by RECON. A quick aggressive attack on the fire, control of the building environment, and coordinated occupant movement is often the most effective strategy.

Depending on fire conditions, fire location, and access to the fire, there will be situations where the initial IC decides not to use the standpipe. Fire conditions at or below the second (2^{nd}) level or story of a building including levels below grade, standard strategic and tactical operations can be considered. For this reason, RECON will determine if "standpipe operations" is needed with the IC declaring the incident to be a "standpipe operation" once the decision is made that a standpipe system is going to be used.

Incident Commander (Battalion Chief)

- Complete separate size-up and formal command transfer
- Transmit a 2nd Box Alarm
- Plan for alternate means of communication, e.g., handsets, phones, and/or PA system. The IC should anticipate communication problems and develop a back-up plan.
- Establish a Level 2 Staging area for 2nd Box Alarm resources.
- Consider multiple entry points for operations.
- Consider exterior water application for well advanced exterior fires or fires venting from windows prior to or in conjunction with interior attack. Most deck guns are only effective to the 5th floor.
- Establishes a Forward Staging, if needed.
- Consider assigning an ALS unit to the Forward Staging Area.
- Establish Divisions / Groups / Sectors as needed, e.g. Lobby Control, EMS.

IV. INCIDENT ACTION PLAN AND STANDPIPE OPERATION TASK ASSIGNMENTS

Pre-assigned operational functions and tasks are established based on arrival sequence of resources for working fires in these building types. As initial alarm companies approach the incident location, they shall announce and place themselves at a Level 1 stage position and await assignment.

Potential arrival sequence #1 - Tower 1-1 Arriving 1st

- Tower 1-1 – RECON / Lobby Control
- Engine 1-3 – Fire Attack / Forward D/O
- Ladder 1-5 – Water Supply / FDC / On-Deck

Potential arrival sequence #2 - Tower 1-1 Arriving 2nd

- Ladder 1-5 – RECON / Forward D/O
- Tower 1-1 – Fire Attack / Lobby Control
- Engine 1-3 – Water Supple / FDC / On-Deck

Potential arrival sequence #3 - Tower 1-1 Arriving 3rd

- Engine 1-6 – RECON
- Engine 1-3 – Fire Attack / Forward D/O
- Tower 1-1 – On-Deck / Lobby Control
- Engine 1-4 – Water Supply / FDC / On-Deck

First Function and Task - Establish command, reconnaissance (RECON) and rescue on fire floor.

A. Establish command and conduct RECON. Officer sets the pace.
B. See as much of the structure on arrival as possible.
    - If Tower 1-1, position in best strategic advantage for aerial operations taking into consideration corners for building accessibility. Tower 1-1 D/O shall maintain close proximity to apparatus or establish Lobby Control.
    - If Rescue 1-1 is available as an on-scene resource, Rescue 1-1 shall position out of the way, taking into consideration aerial placement at the corners of the building. Rescue 1-1 personnel shall join with Tower 1-1's personnel to assist in shelter in place operations, search and rescue, fire victim removal, occupant evacuation, or stairwell control.

- If an engine company, position out of the way, taking into consideration aerial placement at the corners of the building. The engine D/O shall assemble and enter into the building with their officer and firefighter.

C. Check the annunciator panel and provide a follow-up radio report acknowledging all codes and findings.
D. Access Knox Box and secure one set of building keys.
E. Communicate IAP to include designated stairwell operations, e.g., going up south stairwell, south stairwell number 1, or using the elevator.
F. Assemble essential equipment.
   - One set of Knox Box keys
   - High-rise kit
   - Thermal imaging camera (TIC)
   - Rope bag
   - Forcible entry tools
   - Pressurized water can or dry chem extinguisher
G. Select the closest and safest stairwell for the attack and designate attack stairwell. Shall be reported over the radio; e.g. number 1, south stairwell.
H. Ascend the stairs or take the elevator two floors below, whichever is the quickest and safest.
I. The standpipe should be checked / located on the way to the fire floor.
J. If supplying a dry standpipe, the stairs shall be used.
K. If elevator is used, the Phase II control shall be disengaged inside the car with the key left in it when the team exits to allow the elevator to be used for later arriving units. When using the elevator be mindful of weight limits.
L. Make a ventilation assessment on the way up (if possible).
M. Identify rescue needs, starting at the fire location and expand out from there, while closing open doors.
N. Reconnaissance and communicate findings based on a LCAN report.
   - Location of fire
     - Floor
     - Room number
     - What is burning?
     - Is fire contained to unit, floor of origin or is it extending
   - Method of fire attack
     - Apartment stretch
     - Stairwell stretch
     - Amount of hose required to make the fire attack stretch from the standpipe to the seat of the fire, e.g., number of 50’ lengths of 2” hose from standpipe connection to fire.
     - Hinge orientation
       - Near
       - Far
   - What will it take to fight the fire successfully?

Second Function and Task: Fire Attack

A. Establish first attack line and forward D/O with three (3) personnel.
   - If Tower 1-1, the captain and firefighter shall assemble essential standpipe equipment including high-rise hose packages from the first arriving engine company.
   - Tower 1-1's D/O shall maintain close proximity to this apparatus and initiate establishing a FDC water supply by deploying supply lines from the FDC for the water supply engine.
   - If Rescue 1-1 is available as an on-scene resource, Rescue 1-1 shall position out of the way, taking into consideration aerial placement at the corners of the building. Rescue 1-1 personnel shall join Tower 1-1's interior crew
   - If an engine company, position the apparatus to the best tactical advantage to access the designated stairwell or elevator.

B. The engine D/O shall assemble and enter into the building with their officer and firefighter.

C. The D/O from the fire attack company shall assume the forward D/O position - responsible for setting and monitoring the pressure gauge on the standpipe. They are also responsible for communicating additional pressure needs to the D/O supplying the system.

D. Take essential equipment and meet up with first arriving company.
   - High-rise hose cache
   - High-rise kit
   - Forcible entry tools
   - Thermal imaging camera (TIC)

E. If elevator is used, the Phase II control shall be disengaged, and the key left inside the car. This will allow the elevator to be used for later arriving units.

F. The attack line should be connected on the declared standpipe on the floor below.

G. Control ventilation prior to and during the attack. Consider hydraulic ventilation.

Third Function and Task: Water supply / Supply D/O / On-Deck

A. Establish a water supply with three (3) personnel
   - Water Supply D/O shall remain with the FDC engine and have a radio designation of "Supply D/O"
   - Consider reversing out and supply the building.
   - Be prepared to supply and support the fire sprinkler system if the building has a separate sprinkler connection rather than a combination connection.
   - Protect hose from falling debris.
   - Notify IC when water supply is established.
   - If the standpipe is supplied by a fire pump, allow hydrant pressure to charge the standpipe. The supply engine shall remain at idle and make adjustments as needed per the request of the Forward D/O.
   - If supplying a dry standpipe or one supplied by only domestic water pressure (no fire pump), supply it at 100 psi plus elevation (5psi /floor) as a starting point and adjust as needed per the request of the Forward D/O. If the fire pump is maintaining sufficient pressure to the stand-pipe, the Supply D/O shall make hose connections and charge at idle pressure. This will afford an immediate pressure back-up should the fire pump fail.

B. Establish On-Deck / RIT assignment with two (2) personnel.
    - Assemble all essential equipment as needed for On-Deck / RIT operations to an appropriate area. In high-rise operations, take the elevator to two floors below the fire floor, leave the key in and lock the elevator in the Phase II position to hold the elevator at that floor.
    - Take a set of keys out of the Knox Box, if available.
    - High-rise hose bundles
    - High-rise kit
    - Forcible entry tools.
    - Thermal imaging camera (TIC).
    - Medical bag, AED, and Mega-Mover.
    - Rope bag.
    - RIT bag.
    - Pack Tracker – located in Battalion 1-1, behind the driver side back seat
    - Spare air cylinders.
C. On-Deck company shall position one floor below the fire floor / division.
    - If building has multiple elevators consider using one for RIT operations.
    - Take the elevator to two floors below, leave the key in and lock the elevator in the Phase II position to hold the elevator at that floor.
    - Assess for additional secondary egresses and areas of refuge.
    - Establish areas of refuge on the windward side of the building, if possible.

Fourth Function and Task: Lobby Control

A. Position apparatus out of the way, taking into consideration aerial placement at the corners of the building.
B. Lobby Control
    - The lieutenant shall assume Lobby Control with the assistance of their D/O and firefighter.
    - Get elevators to designated floor or lobby for use. If the elevator is being used to shuttle crews and equipment, assign the firefighter as the elevator operator.
    - Get building keys from the Knox Box.
    - Re-check annunciator panel (note changes from initial report and communicate any to the IC).
    - Obtain control of HVAC. It may need to be initially shut-down.
    - Assist in ventilating the stairwells, when requested, using PPV. Use electric fans, if possible. If using a gas fan, a four-gas monitor shall be used.
    - Get equipment moving up stairwells or elevators to designated floors.

Fifth Function and Task: Ground Support

A. Position apparatus out of the way, taking into consideration aerial placement at the corners of the building.
B. Establish Ground Support assignment with three (3) personnel.
C. Ground Support operating in the firefighting stairwell can also serve to redirect any civilian evacuees attempting to use this means of egress. For intermediate vertical distances one firefighter every two or three floors can be used to relay equipment need at Staging.

D. This operation may be supervised by a manager roving in the stairwell to monitor atmospheric conditions and the physical well-being of the Ground Support members

LARGER SCALE INCIDENTS

For incidents that are not quickly controlled, the IC will to expand the incident management team. The following assignments may be used as the incident grows in complexity.

Base - The base area outside the structure will serve as a point of assembly and initial deployment for personnel and equipment. The functions and responsibilities of a Base Manager may be assigned to a mutual aid chief officer that includes:

A. Ensuring a safe location approximately 200 feet from the structure, as well as determining safe ingress and egress for apparatus and a safe approach route for firefighters deploying into the building.
B. The Base Manager shall also maintain accountability for personnel and resources deployed to and from base, also ensuring adequate reserves of personnel and equipment, e.g., air supply units to refill SCBA, sufficient hose, and radio equipment.

Lobby Control

A. Assign staff to the "fire command center" or "control room." This room will contain communication devices (phones to plug into jacks), elevator controls, HVAC system controls, keys, public address systems, and other critical items for us to use in the event of an emergency.
B. Monitoring the continued safety and serviceability of elevators. Lobby Control will delegate which elevators are designated for firefighter use and to be mindful of weight limits.
C. Consideration should be made to control the stairwells exiting to the interior of the building. Fire companies shall be properly directed to ascend the firefighting stairwell and civilian evacuation maintained in the evacuation stairwell.
D. Ensure civilians completely exit the building via the determined safe route and keep a path of access open for firefighters to enter the building.
E. Keeps an accountability log for fire companies ascending the stairs or elevator noting approximate time in/out, unit designation and assignment.
F. Remind ascending companies reporting to Forward Staging that no personnel shall report to Forward Staging empty handed. Additional tools, hose, SCBA cylinders, lights, etc. are always needed for the Forward Staging Area.
G. During certain incidents the Lobby Control Manager may be assigned the duties of system control. This may include acting as a liaison with the building engineer to coordinate control of HVAC, electrical, gas, water, or other service functions.

Forward Staging - The Forward Staging Area is a point of deployment for fire companies en-route to the fire floor as well as a rehab area where firefighters relieved from the fire floor may rest, obtain hydration, and receive medical evaluation and initial treatment

A. A Forward Staging Area shall be two floors below the lowest fire floor unless deemed unsafe or impractical by the IC.
B. The Forward Staging manager shall be responsible for maintaining accountability of personnel in and out of the Attack Staging Area.
C. A location as close as practical to the firefighting stairwell shall serve as a cache for spare equipment to be deployed. An distinct location should be designated for used / spent equipment, e.g., empty SCBA bottles.

D. Firefighters awaiting deployment to the fire floor shall maintain a state of readiness near the firefighting stairwell.

Rehab: shall be established in the Forward Staging Area at a location remote from firefighters awaiting deployment. This area shall be staffed with rescue personnel sufficient to support the number of companies deployed on the fire floor. When feasible, hydration supplies should be sent to this area.

EMS/Medical: The EMS/ Medical Group may operate in several divisions with supervisors in Forward Staging and an EMS Branch (exterior) for civilian evacuees. Resources capable of treating a large number of heat stresses and shortness of breath and chest pain cases should be expected, as high-rise operations are particularly taxing on firefighters.