**High-Rise Standard Operating Procedure**

 **Adopted:** September 2018 **Updated:**

The Polk County Fire Chief’s Association has adopted a standardized procedure for Highrise Standard Operating Procedures. The intent is to have each fire department respond in a like manner for the safety purposes of all personnel in the event of a mutual aid call. Because not all responses will get three Engines and Two Ladder Trucks in a timely manner, the IC may assign Engine Companies to Truck duties.

**Purpose**

The purpose of this guideline is to standardize procedures for the effective management of emergencies in high-rise structures. These procedures shall be considered, and when applicable implemented, when making strategic and tactical decisions so that personnel safety is maximized, and the firefighting/rescue operation is efficient and effective.

**Assumptions**

High rise firefighting/rescue operations are low frequency, labor-intensive, and generally require more personnel to accomplish incident objectives. The serious life hazard to occupants and firefighters endangered by fire and smoke with limited evacuation options requires an organized firefighting effort. It is assumed that the officer in charge of the regular alarm will request additional alarms when a working fire is declared or suspected in a high-rise structure. It is also assumed that the request for additional resources will result in Fire Leadership reporting to their predetermined assignments and call back of off-duty personnel will be considered. Additionally, it may be necessary to request mutual aid resources to assist at the high-rise incident or to provide coverage elsewhere in the city.

**Responsibility**

It is the responsibility of each member to know, understand, and utilize these guidelines as they apply to the situation. It shall further be the responsibility of all Fire Officers to train their subordinates in the proper application of these guidelines on an annual basis and to implement and enforce the use of these guidelines.

**Definitions**

High rise building – Any building that is 75 feet or higher above ground level shall be considered a high-rise building. Also, many buildings in the Metro that do not meet the 75 feet criteria will require the same command structure, high-rise tactics, and additional personnel. Therefore, any building with more than 3 stories above ground level will be treated as a high-rise building.

Fireground perimeter – A perimeter that is established a safe distance from the inherent hazards of a high-rise building due to falling glass, debris, and potential structural collapse. The fireground perimeter distance shall be 200 feet, unless determined otherwise by the incident commander. Use of fire line tape should be deployed early to limit civilian access within the fireground perimeter.

High-rise pack – The high-rise pack consists of a minimum of two (2) fifty- foot hose that are connected and attached to a nozzle.

High-rise bag – The high-rise bag contains appropriate adapters, fittings and wrenches to aid in attaching hose to a standpipe.

High-Rise Arrival Assignments- Although department policy requires the first due officer to assume command, and it is recognized that the shift commander has the ultimate responsibility for strategic and tactical assignments after command has been transferred, use of *high-rise Arrival Assignments* provides responders with a prescribed order of assignments to address fire suppression and related activities that would be anticipated at a high-rise fire event. Company officers may deviate from prescribed *high-rise Arrival Assignments* if so ordered by the incident commander, and the incident commander may deviate if circumstances dictate alternative actions such as assigning Engines Truck duties and vice versa.

**Guideline:**

Based on the critical tasks required in a High-Rise fire, a minimum number of rigs and personnel are needed to fill assignments on a first alarm for a High-Rise Fire. Departments should create team cards that reflect either the minimum for a High-Rise identified in their district if the CAD can be programed for specific addresses, or a second alarm should be sounded as soon as it is known that there is a High-Rise fire. The minimum assignment dispatched to a high-rise incident should consist of: 3 Engines, 2 Trucks, 2 Ambulances, and 2 Chief Officers.

The following should be considered the regular arrival assignments unless the Incident Commander chooses to alter the assignment.

1st in Engine

 Officer – establish division on the fire floor, **locate and extinguish fire**

Engineer – accompany officer to fire floor division, **locate and extinguish fire**

Firefighter – accompany officer to fire floor division, **locate and extinguish fire**

Equipment – high-rise bundle, high-rise bag, TIC

1st in Truck

 Officer – report to the fire floor division, **initiate search/rescue and forcible entry**

 Engineer – position apparatus for defensive operation, **accompany officer to fire floor**

 Firefighter – **accompany officer to the fire floor division**

 Equipment – high-rise bundle, high-rise bag, set of irons, TIC

2nd in Engine

 Officer – report to the fire floor division and assumes role of **standpipe operator**

 Engineer – **connect to FDC, support standpipe system**

 Firefighter – accompany officer to the fire floor division, **assist with fire attack**

 Equipment – high-rise bundle, high-rise bag, set of irons, TIC

2nd in Truck

 Officer – establish division on the **floor above the fire floor, check for extension/search**

Engineer – position apparatus for defensive operation, **accompany officer**

Firefighter – **accompany officer** to the division above the fire floor

Equipment – high-rise bundle, high-rise bag, set of irons, TIC

3rd in Engine

 Officer – establish **rapid intervention group** one floor below the fire floor in a safe area (not in the stairwell)

 Engineer – assist/confirm hydrant water supply connection; rapid intervention standby

 Firefighter – rapid intervention standby

 Equipment – RIC kit, set of irons, TIC, stokes basket, reciprocating saw, bag of webbing

1st in Ambulance

 Lead Medic/EMT – Establish Medical group

 Medic/EMT – assist establishing Medical Group

2nd in Ambulance

 Lead Medic/EMT – Accountability unless assigned otherwise by Command (If trained in Incident
 Command. Could also be assigned Rehab, assist with Lobby Control or other assignments)

 Medic/EMT – Assist with Accountability unless assigned otherwise by Command

1st in Chief Officer – Assume command

2nd in Chief Officer – Lobby Control Unit Leader

Actions and Responsibilities of Regular Alarm Units

When achievable, it is generally accepted that an aggressive attack and quick extinguishment of a fire in a high-rise structure improves safety for firefighters and building occupants. The operational areas on the different floors of a high-rise building will be generally be organized geographically as divisions, and each Division is responsible for completing all fireground tasks within their assigned division. The Division Supervisor is responsible for ensuring that all tasks are completed within their division. Groups, if assigned, are responsible for completing a specific fireground function throughout the high-rise building. For example, a Ventilation Group is responsible for completing ventilation throughout the high-rise building.

Following is a detailed breakdown of the expected actions of the first alarm (regular) units at a high-rise fire:

1st in Engine Company

Upon arrival at the scene, contact a building representative, assess the fire alarm control panel to determine the location of the fire, and report findings to incoming units. Report to the fire floor and establish the Fire Floor Division (for example, if the fire is on the 6th floor, the radio designation shall be “Division 6”). When the fire location has been determined, flush the standpipe, then connect the attack line to the standpipe one floor below the fire floor. With the assistance of the 2nd in Engine company, confine and extinguish the fire. The Engineer shall establish Lobby Control and announce the same to Command.

1st in Truck Company

Proceed to the fire floor and announce your arrival to Command. The initial responsibility of the truck company is to locate the fire, identify the attack stairway, and report the same to Command. The truck company officer should determine if it is safe to dry stretch the attack line onto the fire floor or if it is necessary to charge the line in stairway. The truck company officer should also advise the Fire Floor Division Supervisor if an additional attack line is needed. The truck company is also responsible for performing forcible entry on the fire floor to facilitate fire attack and search/rescue.

2nd in Engine Company

Proceed to the fire floor and announce your arrival to Command. Contact the Fire Floor Division Supervisor and assist in deploying and advancing the attack line and extinguishing of the fire. It is desirable to have one fire fighter assigned as the standpipe operator with the radio designation “Standpipe”. Engineer from the 2nd in Engine Company makes the FDC connection and supports the standpipe system as requested by Fire Floor Division Supervisor or Standpipe.

2nd in Truck Company

Obtain a master key from Lobby Control, if available, proceed to the floor above the fire floor, and announce your arrival to Command. Establish a Division. The primary responsibilities of the truck company are to perform a search, evacuate the occupants by directing them to an appropriate stairwell (not the fire attack stairway), and check for extension of the fire. Search should begin above the area of the fire because this is the most likely area for fire extension and where occupants are in the most danger. Other routes of fire extension that must be checked are vertical pipe chases, void spaces, and areas above the fire floor windows from auto exposure.

If fire extension is discovered, the Truck Company should attempt to extinguish the fire with the pressurized water extinguisher. Command should be notified of the fire extension and additional resources requested as needed to deploy an attack line.

The truck company is also responsible for forcible entry on the floor above the fire floor.

3rd in Engine Company

Proceed to floor below the fire floor and announce your arrival to Command. Establish the Rapid Intervention Group. Extra SCBA cylinders should be positioned two floors below the fire floor in an area that can serve as High-Rise Staging (not in the stairwell). The Rapid Intervention Group should evaluate the floor layout of the building and monitor radio traffic.

1st in Ambulance

Establish the Medical Group/Branch as required based on the number of injured occupants. Notify Command if additional Ambulances are needed. Treat patients as needed. If no patients are encountered, report to Lobby Control with cot/equipment. Assist building occupants in safely exiting the building while maintaining a state of readiness to treat patients.

2nd in Ambulance

The 2nd in Ambulance should be assigned as Accountability and assist the Lobby Control Unit Leader.

1st in Chief Officer

The 1st in Chief Officer shall assume command of the incident. A face-to-face situational update should not be expected, but the Incident Commander should require a situational update as part of the transfer of command process.

2nd in Chief Officer

The 2nd in Chief Officer will assume the Lobby Control Unit Leader role unless assigned otherwise by Command.

**High-Rise Concepts of Command and Operations**

**Lobby Control Unit** - The Lobby Control Unit is assigned to the lobby area of the fire building. The Lobby Control Unit is managed by the Lobby Control Unit Leader, which initially will be staffed by the Engineer from the 1st in Engine until relieved by a superior Officer. Fire department staff assigned to Lobby Control Unit are responsible for directing fire department personnel and to act as the initial liaison with building representatives.

Radio designation – “Lobby Control”

Duties of the Lobby Control Unit:

* Contact a building representative who is familiar with the building’s systems, preferably the building engineer.
* Direct the building’s occupants out of the building and to the designated reunification area.
* Direct fire department personnel to designated attack stairwell.
* With the assistance of the Accountability Officer, maintain a log of companies/fire department personnel entering and exiting the Lobby.
* Perform System Control Unit functions until the Systems Control Unit is formally established.

**Systems Control Unit** - The Systems Control Unit monitors and manages the built-in fire control, life safety, HVAC, communications, and elevator systems. This unit is implemented at the discretion of the incident commander. The Systems Control Unit is managed by the Systems Control Unit Leader, and should be staffed by a Company Officer, or a member of the Command Staff. If the Systems Control Unit is not established, these duties are performed by the Lobby Control Unit.

 Radio designation – “Systems Control”

Duties of the Systems Control Unit:

* Confirm that the elevators have been recalled to the lobby and oversee operation of the elevators.
* Evaluate the status of the building’s fire control systems:
	+ Determine the location of the fire alarm activations. (Silence the audible alarm devices once the fire is located to facilitate communication and reduce occupant panic).
	+ Determine the location of the sprinkler activations.
	+ Determine the status of the building’s fire pump.
* Evaluate the status of the building’s HVAC system; ensure that it is shut down to prevent movement of smoke throughout the building
* Evaluate and when appropriate, use the building’s smoke removal system.
* Use the building’s public-address system to direct building occupants.
* Access the building’s blueprints and floor plans.
* Communicate pertinent information to the Incident Commander

**High-Rise Staging –** High-rise staging is the area where available personnel and equipment are held until deployed to an operational area. High-rise staging is directed by the High-Rise Staging Area Manager and is usually staffed by a second alarm company officer. High-rise staging is located two floors below the fire floor in an area not contaminated by smoke and provides adequate space for personnel and equipment. The Rebab Area is located adjacent to High-Rise Staging and is overseen by the High-Rise Staging Area Manager.

 Radio Designation – “High-Rise Staging”

Duties of High-Rise Staging:

* Establish a check-in procedure for arriving and departing companies to monitor which companies are in High-Rise Staging and Rehab.
* Direct companies and equipment to designated operational areas as requested by Command.
* Maintain an accounting of the equipment available in High-Rise Staging and Rehab and request more from Command as needed (examples: SCBA cylinders, tools, water).

**Rapid Intervention Group** – The Rapid Intervention Group will be staffed by the 3rd in Engine unless assigned otherwise by Command. Initially this will start as a Rapid Intervention Crew but may expand to a Group. For NIMS consistency the term Group will be used for Highrise Incidents. To be in a position for rapid deployment, the Rapid Intervention Group should be located one floor below the fire floor in an area that is not contaminated by smoke. The Rapid Intervention Group should become familiar with the building by surveying the layout of the floor below the fire floor. Depending on the size of the fire building and number of companies operating in it, it may be necessary to assign multiple companies to the Rapid Intervention Group.

Radio Designation – “Rapid Intervention”

**Upper Search and Evacuation Group** - The Upper Search and Evacuation Group is responsible for performing search/evacuation and an assessment of smoke conditions that are two floors or more above the fire floor. The Upper Search and Evacuation Group will typically be staffed by companies from the 2nd or greater alarms and will be overseen by Upper Search and Rescue Group Supervisor.

 Radio Designation – “Upper Search Group”

Duties of Upper Search and Rescue Group:

* Proceed to the top floor via the evacuation stairs and assess the conditions in the evacuation stairs.
* Check the upper areas of the attack stairs for victims (high heat and smoke is likely to be present).
* Assess conditions on all assigned floors.
* Perform search and evacuation as necessary.
* Notify Command of the conditions found.

**Stairway Support Group** – The Stairway Support Group is established during long-duration events to move equipment from the Lobby to the High-Rise Staging Area when the elevators are not useable for this purpose. A member of the Stairway Support Group should be positioned every two floors to relay the equipment upward. When appropriate, members of the Stairwell Support Group should remove unnecessary PPE to prevent overexertion. The Stairway Support Group will typically be staffed by 2nd or greater alarm companies or mutual aid companies. The Stairway Support Group will be overseen by a Stairway Support Group Supervisor.

 Radio Designation: “Stairway Support Group”

 **Special Considerations in High-Rise Buildings**

**Command Post Location**

The Incident Command System requires that the officer-in-charge of the 1st in company establish command. Generally, the first arriving officer at a high-rise fire will proceed inside the building under the “nothing showing/investigation mode of command. It should be understood that the 1st due company officer’s command role is minimal and merely a formality early in the incident. Incident command at a high-rise incident, when established by a fire company, should still conduct their primary actions as outlined in this Standard Operating Guideline. Formal, organized, and effective incident command will be established by the 1st in Chief.

When the 1st in Chief arrives on scene and assumed command, he/she must determine the best location for the incident command post (ICP). An ICP located in the lobby of the building will provide a first-hand understanding of the events inside the building/lobby and may improve communications, while an exterior ICP may provide a better overall view of fire building. The location of the ICP is at the discretion of the incident commander based on the specifics of the situation. If the ICP is located on the exterior of the building, the green light on top of the shift commander’s vehicle shall be illuminated. Regardless of which location is selected, the emphasis must be to establish a strong, comprehensive command presence. In accordance with the Polk County Fire Chief’s Association Incident Command System SOG, command vests shall be worn.

**Elevator Usage**

Due to the potential hazards associated with the use of elevators under fire conditions, it shall be the policy of the \_\_\_\_\_\_\_\_\_\_\_ Fire Department that elevators will not be used for the transportation of firefighters when there is a confirmed or reported fire in a high-rise building. During long-duration high-rise incidents, elevators may be used to transport equipment from the lobby to the high-rise staging area.

When investigating fire alarm/suppression system activations or reports of smoke in high-rise buildings, firefighters may use elevators when the incident commander determines that it is safe to do so. If there is any question about the safe use of elevators, the stairs shall be used.

**Attack Stairway**

In most situations, the attack stairway will be the stairway that is closest to the fire that contains a standpipe. Once the door from the stairway to the fire floor is chocked open, smoke and fire gases from the fire floor will enter the attack stairway and rise to upper levels, thereby endangering anyone in the stairway above the fire floor. Prior to chocking the attack stairway door open, companies must ensure that the stairway above fire floor is clear of building occupants.

The incident commander must assess the need for manually pressurizing the attack stairway by use of PPV fans to prevent smoke from migrating into the stairway during the fire attack. The firefighter assigned as “Standpipe” (2nd in engine) should be proactive in reporting the need to pressurize the stairway if smoke is accumulating in the stairway. Some modern high-rise buildings contain built-in pressurization systems that automatically pressurize the stairway. The presence of these systems must be identified by the Lobby Control Unit (or Systems Control Unit if established) and relayed to the Incident Commander.

If the attack stairs pierce the roof, the door at the top can be opened to clear smoke from the stairway. This procedure should be exercised with caution as opening the roof access doors may create a draft that could depressurize the stairway. This situation must be monitored closely, and the door closed if it negatively impacts fire conditions.

**Standpipe Operations**

Attack lines should be connected to the standpipe on the floor below the fire floor and stretched up the stairs to the fire floor. This allows the attack line to back down the stairs to a safe area of refuge if confronted by a large body of fire on the fire floor. Placing the attack line into operation will require two engine companies, with three personnel advancing the line and one firefighter operating the standpipe valve. Before connecting the 2.5” to 1.5” reducer to the standpipe, the standpipe wheel should be opened to flush the standpipe to ensure that is free of debris. Any doors that the attack line passes through should be chocked open with the door chocks supplied in the standpipe kit to prevent the attack line from being compressed by closing doors.

 **Stretching Attack Line**

Charging the hose line in a stairway is a labor-intensive endeavor due to the size and weight of the hose within the confined area of the stairway that can delay water on the fire when it is not executed properly. The Division Supervisor should conduct a face-to-face briefing with the 1st in Truck officer to decide whether stretching an uncharged attack line to the room/area of origin is plausible based on the size-up from the 1st in Truck company. If the decision is made to charge the attack line in the stairway, the entire length of the attack line must be flaked out prior to being charged with water. Fire fighters must ensure that all kinks are removed from the attack line before it is charged/deployed. Beginning with the fire floor, the nozzle will be read at the point of attack by the doorway. The hose will then be extended downstairs to the next landing. This will allow the first sections of hose to be pulled upstairs. After the hose is extended downward to the lower landing, it will be extended upstairs to the upper landing until the hose is properly flaked out and ready for deployment. Multiple loops will be required, but the key is that the initial hose is pulled from the lower landing and the rest of the hose is pulled the upper landing. This method has been demonstrated to be easier and more efficient when advancing a charged attack line.

It is critical for the attack line to be properly flaked, without kinks, and moved to the outside of the stairway. When deploying a 2-inch attack line in the confines of the stairway, the attack line must be fully stretched out with no kinks or piles of hose at any point before it is charged.

**Fire Department Connection (FDC) Operations**

The FDC connection will generally be made by the engineer from the 2nd in Engine.

Radio designation: “FDC”

Procedures for connecting the FDC:

1. Connect 5” supply line to the closest hydrant and engine intake.
2. Charge 5” supply line while maintaining the pump out of gear.
3. Dry-connect two 2 ½” hose lines to the FDC and engine discharges.
4. Notify the Incident Commander that the FDC connection is complete.
5. Stand by for orders to charge the FDC.

Due to the wide variety of systems present in high-rise buildings, the FDC shall not be charged until requested by the standpipe operator or interior fire attack crew. If the need for increased pressure is identified, the Incident Commander must be notified so that FDC can be charged. When directed to charge the FDC, the FDC/pump operator will charge the system at a base pressure of 150 psi plus five (5) psi for the total number of floors in the fire building.

Example: A nine (9) story building would receive the following pressure calculation regardless of the fire floor….

Base pressure = 150 psi

9 floors X 5 psi per floor = 45 psi

Engine discharge pressure = 195 psi

**Ventilation**

Due to the size and configuration of high-rise buildings, ventilation of smoke and fire gases can be difficult. Prior to attempting ventilation, the following factors must be considered: wind direction, wind speed at upper levels, flow paths, stack effect of smoke, and the presence of built-in smoke removal systems. Due to the potential for creating flow paths and negatively affecting fire conditions, no ventilation shall be attempted, including the breaking of windows, unless approved by the Incident Commander. Once a ventilation method is attempted, its effects on the fire should be carefully evaluated and the ventilation stopped immediately if fire conditions worsen.

Horizontal ventilation through windows on upper flows should be used with caution. Horizontal ventilation has the potential to create a wind-driven fire and should rarely, if ever, be used on the windward side of the structure during firefighting efforts.

Many high-rise buildings have automatic smoke removal systems that begin to operate when the fire alarm is activated. The Incident Commander must determine if these systems are having a positive or negative effect on fire conditions and may order the system shutdown when appropriate.

**Communication**

Due to the size and configuration of high-rise buildings, fire department personnel will be operating over a widespread area on several different floors (divisions). To ensure incident control and accountability, it is essential that all fire companies preserve crew integrity and maintain communications with their immediate supervisor. Each company officer is responsible for keeping the Incident Commander informed of his/her company’s location and reporting arrival at their assigned operational areas.

Examples: “Command from Truck 5, Truck 5 has established Division 6.”

 “Command from Engine 2, Engine 2 has arrived at Division 6.”

As soon as practical after establishing a Division, the Division Supervisor should give an initial report to the Incident Commander and then provide situational updates throughout the duration of the incident. These reports should address: what do you have, what are you doing, what do you need….also known as the CAN Method: **C**onditions, **A**ctions, **N**eeds.

Examples: “Command from Division 7, we have light smoke present, we are beginning primary search, request an additional company to assist.”

“Command from Division 6, we have knockdown on the fire and are continuing the primary search.”

Each company arriving at a Division should notify the Division Supervisor of their arrival. Preferably, this notification should take place face-to-face, otherwise the radio may be used. While portable radios are the primary means of communication between companies operating in the fire building, some buildings are equipped with portable emergency phone handsets that may be plugged in at various points in the building. These phones may be used to communicate with Lobby Control when portable radios fail, and they may be especially useful if the ICP is in the lobby. The company officer of each arriving company should obtain a phone handset from Lobby Control before proceeding to their assigned operational area.

Many high-rise buildings will be equipped with a public address (PA) system, which may be used to direct building occupants as to the appropriate actions to take during a fire. Occupants on the fire floor and floor above the fire should be directed to evacuate immediately by using the designated evacuation stairs. Depending on the circumstances of the fire situation, the occupants below the fire floor and two or more floors above the fire floor should be given directions to shelter in place until conditions on those floors can be evaluated by fire department personnel. Controlling evacuation in this manner will reduce panic and allow fire-fighting operations to proceed unimpeded. Evacuation procedures announced over the PA system shall be coordinated by Lobby Control (or Systems Control Unit, if activated).

**Non-Standpipe Equipped High-Rise Buildings**

There are some buildings within the Metro that meet the definition of a high-rise building but are not equipped with a standpipe or sprinkler system. Fires on upper floors of these buildings will require innovation to get attack lines into operation rapidly. The 1st in Truck Company will be responsible for locating the fire and consulting with the Incident Commander to determine the best means to attack the fire.

Some options for getting attack lines to upper floors include:

1. Advancing hose lines up the stairs (the size of hose needed will be dependent on the length of the stretch). Consideration should be given to stretching 2 ½” to the door, adding a 2 ½” to 1 ½” gated wye, and stretching 2” hose from the high rise-pack or 1 ¾” hose from the pre-connected crosslay.
2. Hoisting attack lines into windows with ropes/strap.
3. Advancing attack lines up ground ladders or aerial ladders.
4. Utilizing aerial devices as an improvised standpipe. If used for this purpose, be mindful that the aerial device will not be available for other uses such as rescue.

When bringing an attack line into a window by ladder or rope, approaching from a safe area must be considered. It may be necessary to come in a window adjacent to the area of origin on the fire floor or below the fire floor. The decision on where to bring in the hose should be based on fire conditions and building layout.

The Incident Commander should consider using a transitional attack (also known as a blitz attack) with master streams from the exterior when a large body of fire is present in one of these buildings when getting an attack line into operation will be delayed. The blitz attack can be initiated while firefighters are deploying attack lines into the buildings if firefighters are not in the same general area where the blitz attack is used. Communication is the key to performing this operation safely.

**Evacuation**

The level of evacuation of building occupants at a high-rise building fire should be based on smoke and fire conditions. Initially, the only areas that will typically require mandatory evacuation are the fire floor and floor above the fire floor. Occupants who are below the fire floor and two floors or more above the fire floor should be advised to shelter in place, unless circumstances dictate otherwise. As soon as is practical, the Incident Commander should assign companies to assess the conditions on the non-evacuated floors to determine if the need to evacuate exists. This function will typically be performed by the Upper Search and Evacuation Group, which is staff by additional alarm units assigned by the Incident Commander.