

	TRAVIS COUNTY ESD #5 MANCHACA FIRE RESCUE	<h1>A202</h1>
	Department Best Practices Authorized by:  Fire Chief Chris Barron	
<h2>Mid-Rise Fires</h2>		Reference: AFD A202 Application: Shift Personnel

I. Purpose

To establish guidelines for mitigating mid-rise fires.

II. Background

The Austin area has been steadily growing in size and population for a number of years. With that growth, developers have been bringing newer construction methods to the area. The Austin area is experiencing a rapid development of buildings commonly referred to as mid-rise buildings. Mid-rises are buildings 4 stories or more, yet no greater than 75 feet. Even with the height limitation of 75 feet for mid-rise buildings, it is not uncommon to find buildings as tall as 7 to 8 floors. Due to mid-rise buildings being less than 75 feet, they do not meet the height requirement for the high-rise building codes.

Historically, the area fire department have utilized the same response guidelines and pre-assignments for both mid-rise and high-rise incidents. However, due to mid-rises not falling into the purview of high-rise building codes, many fire protection features required under high-rise building codes will not be found in mid-rise buildings. This can create confusion during a mid-rise incident when units are operating in the high-rise mode with pre-assignments or tactics that do not meet the demands of the mid-rise building.

While many older mid-rise buildings are represented by office building construction, modern mid-rises are being built with a mixed-use occupancy concept. Some modern buildings are built with a concrete podium construction base, occupied by various businesses or a parking garage, while the upper floors are built as wood frame apartments. Some buildings can be constructed on concrete slabs with 5 stories of wood frame. These structures can be built on busy roadways or in compact residential streets, each causing significant fire load due to the amount of wood frame construction. This fire load has created catastrophic fires in multiple cities across the country.

Given this wide range of possible building types and sizes, this Best Practices document has been designed to be flexible, allowing for a variety of firefighting tactics to be supported with extra consideration given to the difficulty in placing an aerial apparatus on these often narrow and congested streets.

This document is a direct adaptation of the Austin Fire Department SOG on Mid-Rise Fires. It has been adopted by Manchaca Fire Rescue as an Auto Aid partner to maximize standardization between partner agencies. Variations and additions to the language from the parent AFD document will be signified by text in italics. Generic changes that do not affect content such as formatting and changing "AFD" to "MFR" will not be noted.

III. Policy

- A. **Declaration of mid-rise procedures.** Mid-rise procedures shall be utilized when in the offensive mode for a fire in a structure that has 4 or more floors up to 75 feet and does not meet the IBC high-rise criteria. These buildings will often be 5-6 stories in height but can be as tall as 8 stories. The first arriving Company Officer shall state, as part of their initial size-up that mid-rise procedures will be in effect.

IV. Best Practices

The following best practices should be followed at all firefighting and emergency scene operations, except where deviation can be justified by Fire Officers. Any significant deviation should be communicated to responding/on-scene units as soon as possible.

There is also a training manual that accompanies this best practices document. The manual is intended to explain tactics and concepts presented in this best practices document in greater detail.

- A. **Response plan.** A Mid-Rise Alarm complement shall consist of four Engines, three Aerial Apparatus, one Rescue unit and two Battalion Chiefs.
- B. **Pre-assignments.** In the Offensive Mode at a Mid-Rise Alarm, units arriving will assume the pre-assigned functional responsibilities as described below (refer to Figure 1):
 1. **Command.** The first arriving Officer shall assume Command. Command will be passed according to MFR policy until the first arriving Battalion Chief assumes Incident Command and establishes a Command Post. Due to the possibility of an extremely large footprint for the various types of mid-rise buildings, the Command Post should be placed in the most advantageous position to manage the incident; however, a good view of the operations is not always possible. A safe perimeter should be established and maintained with consideration being given to the height of the structure and the probable landing zone of any falling debris. Also, consideration must be given to the collapse zones due to the light weight construction compounded by the height of many newer mid-rises.
 2. **Second Battalion Chief.** The second arriving Battalion Chief should report to the Incident Commander for briefing. Then, one Chief will be the Incident Commander and the other Chief will be assigned as the fire floor Division Supervisor.
 3. **First Engine.** The first arriving Engine will assume Fire Attack 1 and determine the best method for fire attack. Although most mid-rise buildings have standpipe systems, other options may be utilized such as a blitz attack or a short attack with a bundle or a pre-

connected hose line. The driver of the Engine should stay with the apparatus and be part of the Water Supply Group.

4. **Second Engine.** The second arriving Engine will assume Fire Attack 2 and support the fire attack tactic chosen by Fire Attack 1. If Fire Attack 1 does not need any assistance with fire attack, the second arriving Engine should report to Command that they are available to be assigned as the Backup Team. The driver of the Engine should stay with the apparatus and be part of the Water Supply Group.
5. **Third Engine.** The third arriving Engine will standby at a nearby hydrant. The Officer will assume Water Supply Group Supervisor and utilize the drivers of the first and second Engine along with the crew of the third arriving Engine to supply water for fire attack. Consideration should also be given to supply the FDC for the sprinkler system if a fire attack method other than standpipe operation is utilized. Once the fire is under control, the Water Supply Group should be prepared to determine the best method for shutting down the sprinkler system water supply when directed by Command, usually a cut-off valve for the branch line.
6. **Fourth Engine.** The fourth arriving Engine will standby at a nearby hydrant and await an assignment from Command.
7. **First Aerial/Rescue.** The first arriving Aerial Apparatus or Rescue will assume Inside Truck and perform Inside Truck Work. The Officer will serve as the Division Supervisor on the fire floor until the arrival of a Chief Officer. If an aerial performs Inside Truck, the driver of the apparatus should position for aerial ladder use and then remain with the apparatus and be part of the Outside Division.
8. **Second Aerial/Rescue.** The second arriving Aerial Apparatus or Rescue will assume Evacuation Group. The Evacuation Group should focus on the removal of occupants from the structure. The evacuation should start in the area of most danger usually the fire floor and then the floor above. The Evacuation Group should also "recon" the floor(s) above. The conditions encountered on the floor(s) above, should be reported to Command. The Evacuation Group Supervisor should confirm the evacuation plan with Operations/Command and determine a safe location for the evacuees. If a location inside the building is used, air monitoring should be performed to ensure the safety of that area. If an aerial performs Evacuation Group, the driver of the apparatus should position for aerial ladder use and then remain with the apparatus and be part of the Outside Division.
9. **Third Aerial/Rescue.** The third arriving Aerial Apparatus or Rescue will assume Ventilation Group. The first priority for the Ventilation Group is to determine if any assistance is needed by interior crews to coordinate ventilation with fire attack. Proper flow paths should be established to move products of combustion out of the structure and away from crews entering for fire attack. Often this can best be accomplished by the use of PPV fans. These fans have been found to be effective even when utilized in the long conditioned (enclosed) hallways found in midrise buildings. The second priority of the Ventilation Group is to use PPV fans to pressurize enclosed stairwells because mid-rise buildings typically do not have built-in pressurization systems. The PPV pressurization of enclosed stairwells can keep the products of combustion out of stairwells used for fire attack and evacuation. Finally, the Ventilation Group should develop a plan with Operation/Command for smoke removal from the building once the fire is under control.

10. **Fourth Aerial/Rescue.** The fourth arriving Aerial Apparatus or Rescue will assume Outside Truck and perform Outside Truck Work. The Officer will serve as the Outside Division Supervisor. In addition, the Outside Division will be responsible for aerial ladder placement/use, the management of occupants/bystanders outside the building and locating and silencing the fire alarm when requested.

11. **Medical Group.** A/TCEMS units should be assigned to the Medical Group upon arrival. If medical monitoring is necessary in Rehab, an EMS unit may be assigned there also.

12. **Other tactical assignments.** Command should also assign the following assignments as dictated by the incident, requesting additional alarms if needed.

a. **Rapid Intervention Crew (RIC).** Command should assign as required by MFR Best Practices A101 Fireground Operations.

b. **Backup Team.** A hose line should be placed to protect the fire attack team. Fire Attack 2 may be assigned as Backup if Fire Attack 1 does not need their assistance performing fire attack.

c. **Salvage Group.** Due to the mid-rise construction type and likelihood of sprinkler activation due to fire, a significant salvage operation may be needed on the floors below the fire location.

C. **Staging.** Should the Mid-Rise Alarm escalate to a 2nd alarm, Staging, Base and Rehab should be established as described in MFR Best Practices A713 Staging at Multiple Alarm Incidents.

D. **Defensive mode.** In the Defensive Mode at a Mid-Rise Alarm, the units responding should take the initial tactical assignments as directed by the MFR Best Practices A101 Fireground Operations. The exception is that the second arriving aerial or Rescue should assume Evacuation Group and, regardless of order of arrival, all aerial apparatus should position for aerial use.

E. **Other operational modes.** A Mid-Rise Alarm can be viewed as a blend of a traditional Box Alarm, a Commercial Structure Fire and a High Rise Alarm. As such, some aspects of each alarm type will be applicable. For example, it is acceptable to operate in the "Investigative Mode" at a mid-rise. Additionally, a Light Box Alarm may initially be dispatched to a mid-rise building. Procedures for these variations will be as follows:

1. **Investigation mode.** In the Investigation Mode at a Mid-Rise Alarm, the units responding should take the initial tactical assignments as directed by the MFR Best Practices A101 Fireground Operations. The exception is that the second arriving aerial or Rescue should assume Evacuation Group and, regardless of order of arrival, all aerial apparatus should position for aerial use.

2. **Light Box Alarm.** A Light Box Alarm may be dispatched for fire emergencies in and around mid-rise structures that do not justify a full Mid-Rise Alarm response.

- a. **Unit assignments.** Units responding on a Light Box Alarm to a mid-rise building should perform the initial tactical assignments as directed by the MFR Best Practices A110 Light Box Alarm.
- b. **Additional duties.** An additional consideration for the second arriving pumping apparatus is to assist as directed with incident needs outside the structure and on the first floor such as managing evacuating occupants, silencing the alarm, shutting down the fire pump, etc.

F. **Mid-Rise Considerations.**

- 1. **CAD Caution Notes.** Mid-rise buildings should be marked in the CAD notes section as “***MID-RISE***” along with important information such as the number of floors, occupancy type, FDC location, etc. Dispatchers and Companies Officers should utilize this CAD mid-rise information to ensure the proper response and procedures are used at mid-rise buildings.

- 2. **Building Construction.**

- a. **Variety of types.** Building constructions features of mid-rises vary usually based on occupancy use. Office buildings can be constructed of poured-in-place concrete, similar to high-rise buildings. Whereas, residential structures can be constructed entirely of wood. Mixed-use structures are commonly found to consist of both of these types of constructions methods.
- b. **Overhaul considerations.** Because of newer construction methods, overhaul can be time consuming and challenging. Smoldering fire and hotspots can easily be hidden in exterior walls of wood frame sided structures. The wood frame exterior walls are not always load bearing and should be checked near the ceiling level and floor levels of affected floors for possible void spaces and extension.

- 3. **Fire Protections Systems.**

- a. **Local-only smoke detectors.** Smoke detectors/alarms in dwelling units on residential floors generally will not activate the whole building alarm system. Therefore, elevators will not recall to lobby levels and may be used by residents as a means of egress. This is typically encountered for food on the stove type responses.
- b. **General alarm detectors.** Common area smoke detectors/heat detectors, manual alarm pull stations (if present), automatic sprinkler activation or alarm activations in retail spaces will generally cause the building to enter full alarm. This should result in all occupants evacuating the structure.

- 4. **Aerial placement.** Aerial ladder operations such as rescue and an elevated master stream may be critical to successful tactics at a mid-rise building. Therefore, aerial apparatus placement is a higher priority than Engine placement. Engines arriving on scene should not commit their apparatus or lay hose which would block access until aerial apparatus are properly positioned. The deployment and use of multiple ground ladders should also be considered. Due to the close

proximity to easements, above ground/overhead utilities and proximity of nearby exposures, overhead obstructions are commonly encountered. Due to the complexity of the building layout and set-back from a suitable road surface, aerial ladder scrub areas may be limited, if accessible at all.

5. **Size-Up.** All operations depend on the conditions found and actions taken by the initial companies. Therefore, it is critical that the size-up information is communicated as companies progress into a mid-rise building including:
 - a. **Exterior.** The exterior upon arrival; including the number of stories and if fire/smoke is showing.
 - b. **Interior.** The interior; including if the fire alarm is sounding and if smoke is in the stairwell being used.
 - c. **Fire floor.** The fire floor; including confirmation of the fire floor number, the fire/smoke conditions on that floor and actions being taken.
 - d. **Fire room.** The fire room/apartment; including the fire room/apartment number and actions being taken.
 - e. **Other information.** Other information such as the method of fire attack being utilized, the status of occupant evacuation, whether or not a sprinkler system is operating, etc. should also be conveyed.
6. **No Fire Control Room.** Most mid-rise buildings do not have a Fire Control Room. This means that there are no firefighter phones and the only building keys available will be in the Knox Box. There is no need to first go to the fire alarm panel upon arrival if the first arriving companies can locate the fire by another method, such as being directed by an occupant or seeing fire/smoke.
7. **Elevator use.** Since most mid-rise buildings are less than eight stories tall, elevators should not normally be used for initial investigation of a reported fire or during preparation for fire attack. If elevators are used, their operation should comply with MFR Best Practices B303 Use of Elevators.
 8. **Standpipe selection.** Many modern residential mid-rises can have extremely long interior hallways. These long hallways may require long hose stretches to reach the fire apartment if the wrong standpipe outlet is utilized. It is imperative that Fire Attack crews make a thorough assessment in locating the fire and choosing the proper outlet for standpipe operations. This outlet may be in the closest stairwell or it may be in the hallway protected by a closed fire door. Officers may rely on pre-incident plans and/or size-up of the floor below to find the best standpipe outlet.
9. **FDC support.** Standpipe systems in mid-rise buildings are not designed for use without the FDC being supplied. For example, the building may have a manual dry standpipe system in unconditioned or open stairwells, or a wet system supplied only by city main pressure, or a wet system supplied by a fire pump that is designed only to meet the demand of the sprinkler system. Therefore, if standpipe operations are chosen for fire attack, the correct standpipe FDC must be

supplied by an Engine with a sustainable water supply before the fire attack team can set the pressure on the attack line and begin fire attack.

Figure1: Mid-Rise Offensive Mode (1st Alarm Assignment)

