

	TRAVIS COUNTY ESD #5 MANCHACA FIRE RESCUE Department Best Practices	A107
	Authorized by:  Fire Chief Chris Barron	Effective: 1/22/2018 Rescinds: Reference: AFD A107.1 Application: Shift Personnel
Commercial Structure Fires		

I. Purpose

To provide guidelines for fighting fires at warehouses, strip shopping centers and other commercial structures.

II. Background

Residential structure fires occur more frequently than fires in commercial occupancies. Nationwide, residential structure fires account for the majority of firefighter fatalities, but commercial structure fires account for the majority of multiple firefighter fatalities. There are many hazards inherent to commercial occupancies. The construction techniques associated with these buildings vary with age. The potential for collapse, localized or catastrophic, appears to be greater than that found in residential structures. External construction features such as mansard overhangs, parapets, large signs, and false fronts also pose hazards not frequently encountered by firefighters.

Internal features present additional hazards for firefighters. There are often wide-open spaces with roofs supported by lightweight construction materials (metal bar joists, engineered trusses). Typically, there are drop ceilings with void spaces, and there exists the possibility of entanglement from collapsed grid work or helical spiraled ductwork. The potential for high piled, high BTU output and possibly hazardous materials is great. Flammable roofing materials have been known to produce an interior overhead rolling roof fire. All of these building features are dangerous to firefighters and demand heightened awareness and a deliberate risk/benefit analysis.

Commercial structures may have fire protection features such as sprinkler systems, fire alarms, fire doors and fire walls. The presence of these fire protection features, however, can be problematic. Firefighters can be lulled into a false sense of security, as these systems may fail due to an absence of needed internal systems, inappropriate systems for the application, a lack of maintenance, or improper response by the occupants.

This document is a direct adaptation of the Austin Fire Department SOG on Commercial Structure 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. **Incident command.** All Fireground Operations will be conducted under an Incident Management System (IMS).
- B. **Incident priorities.** All firefighting operations and emergency scene operations shall be conducted with the three fire service incident priorities as the overall focus of incident operations: life safety, incident stabilization and property conservation.
- C. **Two-in Two-out.** Unless there is an immediate need for rescue, no interior operations will begin until there are two firefighters available outside the structure that can attempt rescue of firefighters, if necessary.

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.

Territory knowledge. Company Officers and their personnel shall strive to be aware of the location, arrangement, contents, and fire protection features of commercial structures, including warehouses and strip shopping centers, in their assigned territories.

- A. **Size-up considerations.** Arrival at a reported fire in a commercial structure requires recognition of the need for additional information for subsequent action.
 - 1. **Life safety potential.** Are civilians endangered
 - 2. **Fire protection features.** What types of systems are present
 - 3. **Size of occupancy.** The number of separate occupancies and access problems associated with size.

4. **Construction features.** Especially important is the determination whether the building is an enclosed structure or not.
 5. **Fire load.** *The amount of fuel loading in the structure*
 6. **Fire stage.** What stage is the fire in as well as growth and potential for extension.
- B. **Unit to rear.** Thorough reconnaissance should be undertaken by initially directing at least one Company to the rear of structure, especially in the case of large commercial structures and strip shopping centers.
 - C. **Early establishment of Divisions.** Geographic considerations, and the normally large area encompassed by commercial occupancies, necessitate early dividing by Command.
 - D. **Incident action plan.** Command will develop an Incident Action Plan based upon common fire strategies. The entire warehouse or shopping center must be evacuated if there is a working fire.
 - E. **Life safety.** Life safety is always the number one incident priority. Occupant life safety is dependent upon the time of day and the nature of the business. Although most occupants will be able to self-evacuate, MFR must make every effort during a primary search to clear the building. Searches of the large open spaces often found in showrooms, warehouses and other commercial structures, in low visibility or deteriorating conditions, should be conducted utilizing personal search lines tethered to hose lines or main search lines. These lines facilitate egress and help to prevent firefighters from becoming lost. *Target Exit Devices (TEDs) are available on AFD aerial and rescue companies* and their use at exits should be considered of high importance.
 - F. **Fire confinement.** After assessing incident priorities and addressing the Life Safety of civilians, the most common strategy to be employed is to confine the fire to as small an area as possible and to protect exposures, both internal and external.
 1. **Support of fire protection systems.** Often, the most effective steps that an Engine Company Officer can take towards incident stabilization are pumping water into the building sprinkler system and making sure the fire pump is working. If the first-in Officer determines that he or she can control the fire in its incipient stages, it may be acceptable to delay augmenting the building systems.
 2. **Risk/benefit.** After sprinkler supplementation, confinement to an area inside the occupancy of origin is the preferred strategy, if a deliberate risk/benefit analysis indicates a safe offensive attack can be undertaken. Decisions must be based on the amount of fire and the Officer's ability to effectively deal with the situation. After normal business hours, the risk factor for occupant life safety is low while firefighter safety needs remain critically high. The Officer will communicate all decisions via radio to next arriving Companies.

3. **Cut-off lines.** A common confinement tactic is the deployment of cut-off lines in order to stop the spread of fire through concealed spaces. Firefighters should use 3" hose and bundles or 2½-inch hose for cut-off lines. Companies tasked with the responsibility of deploying a cut-off line should select an entry point based on the intensity of the fire and the probable rate of spread.
 4. **Blitz attack.** If possible and timely, a solid or straight stream should be used for a blitz attack. For larger fires, a deck gun or RAM with a smoothbore nozzle can sometimes provide for cooling greater than the heat the fire can generate. A blitz attack is a brief operation followed by an evaluation of the results while deploying handlines for interior attack. When interior attack is made, the fire attack team should normally use the shortest interior path to attack the fire and ensure that attack is made in coordination with proper ventilation.
- G. **Fire load and fire flow.** Fire load and fire flow are normally great at commercial occupancies, and must be taken into consideration by Command when formulating the Incident Action Plans. Master streams and additional water supply sources deserve careful consideration.
- H. **Ventilation.** Ventilation must be coordinated with fire attack so that firefighters do not enter a ventilation-controlled environment. Positive pressure ventilation should be utilized when possible to ensure the safest flow path and entry conditions for the fire attack team. Roof ventilation can be a dangerous operation but may be necessary. Roof operations should only be undertaken when the risk/benefit analysis clearly indicates the need, and experienced Company Officers and crews are available to perform the operation.
- I. **Property protection.** The loss of a large warehouse or a strip shopping center has a direct economic impact on the community. Based on Command's initial and ongoing risk assessment, MFR will attempt to protect the structure and contents by putting out the fire and controlling water damage. The Operations Officer and the Ladder Company Officers should coordinate efforts to cover and salvage building contents. While aware of the economic impact to the community, MFR will not risk lives to save a structure that cannot be saved.