

Spartanburg Public Safety Department Fire Division

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| Standard Operating Procedure | No. 102.06 |
| Structural Firefighting in One and Two Family Dwellings | Page 1 of 29 |
| Supersedes: | Effective: 01/22/2010 |

Background: One and two family structures comprise over 50% of building inventory of the City of Spartanburg. This SOP and its appendices describe the construction features, fire spread and life safety hazards, and the tactical considerations associated with these structures.

This SOP has been developed in anticipation that certain specific conditions will be evident on arrival. They are, that a fire is confined to the structure of origin with the possibility of victims trapped in the structure, and there is not an immediate external exposure fire potential. This SOP does not prevent the incident commander from using his/her best judgment and discretion to deviate from the SOP, and employ the appropriate tactics for the conditions found.

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2. PURPOSE

- 2.1 To establish standard tactics and operational procedures for companies operating at fires occurring in one and two family dwellings.
- 2.2 To reduce the loss of life and property by establishing a standard method of operation for companies combating fires in one and two family dwellings.

3. SCOPE

- 3.1 Standard response assignments for structure fires help to ensure operational safety, effectiveness, and efficiency. This SOP amends the apparatus dispatch assignments and operating procedures for fire and rescue personnel and units responding to one and two family structure fires.

4. RESPONSIBILITY

- 4.1 Crew responsibilities and task assignments for this type of incident are determined by arrival sequence. Units that initiate tasks other than those stipulated in this SOP must notify the Incident Commander immediately.
- 4.2 This notification is especially important in the case of quint apparatus that is dispatched and normally assigned the responsibility of engine company operations.
- 4.3 If the status of the incident indicates that the quint apparatus should initiate truck operations, this operational change must be communicated to the Incident Commander.
- 4.5 A company officer in charge of the IRIC can perform the Command function until the arrival of a Command Officer.

5. DEFINITIONS

- 5.1 **Apparatus.** Fire and rescue service vehicles, including engines, truck companies, rescue squads, brush trucks, tankers, and special service units.
- 5.2 **Certified.** Documented proof of an individual's knowledge, skills, and abilities, and determination of competency through a process identified by the Fire Command, which may include successful completion of testing, evaluation, or practical exercise components, indicating an individual is eligible to serve at a specific rank.
- 5.3 **Command Officer.** Usually a Command Officer who is functioning in the operational capacity of the shift commander or battalion Command.
- 5.4 **Crew.** A group of two or more firefighters, rescuers, and emergency medical services personnel responding to an incident, staffing a specific unit.
- 5.5 **Division.** A division is an organizational unit responsible for resources and operations within a defined geographical area. When divisions are established on a horizontal plane they are lettered (A, B, C, D etc.) starting clockwise often from the address side of the building. When divisions are established vertically, they are numbered by floor (1, 2, 3, 4 etc.). A division is supervised by a Division Supervisor. Examples: Division 1, Division A.
- 5.6 **Equipment:** This term indicates full Personal Protective Equipment (PPE). In an IDLH atmosphere, personnel must use Self Contained Breathing Apparatus (SCBA) with integrated PASS device activated, and crews must carry handlights, a portable radio, tools, hose, and other equipment appropriate for the structures construction and operational tactics.
- 5.7 **Emergency Communications Center (ECC).** This term refers to the 911 dispatch center or the Communications Center.
- 5.8 **Group.** Resources assigned to a specific function such as ventilation, rescue or water supply. Groups are responsible for an entire job wherever it may be required. A group is supervised by a Group Supervisor. Examples: Ventilation Group, Rescue Group, Water Supply Group.
- 5.9 **Immediately Dangerous to Life and Health (IDLH).** An atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual's ability to escape from a dangerous environment.
- 5.10 **Incident Commander (IC).** The officer on the scene who is in charge of an incident, and is responsible for making the strategic decisions and assigning other supervisory or functional positions necessary to control an incident. The IC must handle any function or responsibility appropriate to a given incident that has not been delegated to another Command Officer. Radio Designation: Command
- 5.11 **Initial Entry Team (2-in crew).** A minimum of two personnel who are qualified to participate in interior structure firefighting, one of whose rank must be FF II or higher. These personnel must maintain constant visual and/or voice contact with each other while entering and operating in a burning structure.
- 5.12 **Integrated Emergency Command Structure (IECS).** The operational chain of command that provides for the control of emergency incidents by integrating into the command structure all

qualified personnel who have met applicable training and experience requirements. These personnel may be from outside jurisdictions, but possess the qualifications to perform at the level assigned to them within the command structure.

- 5.13 **Interior Structural Firefighting.** The physical activity of performing fire suppression and rescue while inside buildings or enclosed structures that are involved in fire beyond the ignition stage.
- 5.14 **Initial Rapid Intervention Crew (IRIC).** At least two personnel who qualify as minimum staffing on an engine, truck, or rescue squad, who observe the initial two-person entry team entering an IDLH atmosphere, and are available, trained, and equipped for immediate response to rescue the entry team. Personnel assigned to the IRIC must wear PPE and SCBA, and maintain contact visually, verbally, by signal line, or by radio with the personnel operating within the IDLH. This team is often referred to as the “Two Out”.
- 5.15 **Known Life Hazard.** A circumstance where responding personnel can hear or see a person in distress, or have received reliable information from the Emergency Communications Center or a bystander indicating that a person is in an IDLH atmosphere.
- 5.16 **Level one staging.** A standby position for initial alarm response units to prevent unnecessary or premature apparatus positioning on the incident scene. Responding units normally locate one to two blocks away from the incident site. Units remain in their staging location position until given assignments or released from the incident.
- 5.17 **Level two staging.** A standby position at a pre-determined or designated formal staging area. This level of staging used to stage apparatus and personnel as a strategic reserve in the event that additional resources are needed to control and stabilize the incident. When the incident commander designates the location, this level of staging requires the appointment of a formal Staging Manager.
- 5.18 **Level three staging.** Standby in home station. This level of staging is used for units assigned as third engine due to alarm activations; or for units standing by to cover another station’s response area. Crews remain at their station and monitor radio traffic until such time that a fire or other emergency is confirmed by the first arriving unit or they are notified they can stand down.
- 5.19 **MAYDAY.** An emergency distress signal indicating that one or more fire/rescue personnel need emergency assistance to escape an IDLH atmosphere or other life threatening situation.
- 5.20 **PASS Device.** Acronym for the Personal Alert Safety System, a signaling unit that is integrated into the Self-Contained Breathing Apparatus (SCBA).
- 5.21 **Rapid Intervention Team (RIT).** A team, consisting of at least a three member crew, to include two firefighters and one fire officer, that is immediately available to respond to requests for help from lost, trapped or incapacitated firefighters.
- 5.22 **Rural Area.** For purposes of this SOP, any fire beat area or part of a fire beat area in Spartanburg that is not supplied by a municipal water distribution system supporting fire hydrants.

- 5.23 **Single Resources.** Is an individual company (i.e., Engine Company, Truck Company, Rescue Company, or Hazmat Unit).
- 5.24 **Stationary Command Post.** The location from which primary command functions are executed. The Command Post should be located in an unexposed area where as much of the incident as possible may be viewed, preferably at Side A, with a view of Side B or Side D. A Stationary Command Post is identified by a geographic locator. Examples: Main St. Command, Dorman Centre Command.
- 5.25 **Strike Team.** Group of five of the same type and kind of resource sharing common communications and a single leader.
- 5.26 **Team.** Two or more personnel who are certified to participate in interior firefighting. One member must be, at a minimum, qualified as a Firefighter I, and the second member must be, at a minimum, qualified as a Firefighter II or higher, in accordance with ProBoard Fire Service Professional Qualifications System (Proboard)PRO-BOARD or International Fire Service Accreditation Congress (IFSAC).
- 5.27 **Unit.** A specific piece of apparatus staffed by firefighter, rescuer, or emergency medical services personnel. The term unit is also used as part of a radio designation for an individual firefighter/rescuer or EMS provider.
- 5.28 **Unit Officer.** The officer in charge of a specific fire or rescue unit. To be a unit officer on fire apparatus, personnel must be a Sergeant or higher rank.

6. FIRE OPERATIONS

6.1 RESOURCES FOR FIRES IN ONE AND TWO FAMILY DWELLINGS

6.1.1 The minimum resources assigned to incidents of reported fires in these types of structures are:

- € . 3 Engine Companies
- € . 1 Truck Company
- € . 1 Rescue Company (when available)
- € . 1 EMS Unit
- € . 2 Command Officers

6.1.2 The assigned resources for fires in one and two family dwellings in areas without hydrants should be modified to include:

- € . 1 Tanker
- € . 1 Tanker Support Engine Company

- 6.1.3 When a working fire is confirmed by the first arriving Unit Officer, the assignment should be modified to include one additional (4th) engine.
- 6.1.4 When reports of occupants trapped are received, the assigned resources should be modified to include 1 additional (5th) engine and 1 additional (2nd) EMS unit, if not already dispatched.
- 6.1.5 Utility-fueled fires will require the assistance of the involved utility company.

6.2 PROCEDURES

6.2.1 INITIAL COMPANY ASSIGNMENTS AND STANDARD OPERATING PROCEDURES

1. First Arriving Engine

- a. **Unit.** Position the engine on Side A, reserving adequate space for the truck company to position. If the first arriving engine is required to position elsewhere, this must be reported immediately to all other responding units and Command Officers.
- b. **Unit Officer.** Must announce the initial on-scene report that contains the following elements:
 - 1. water supply instructions
 - 2. construction and occupancy type, and size
 - 3. fire and smoke conditions observed
 - 4. command mode
 - 5. point of entry and any other instructions
- c. **Crew.** Advance a hand line to the fire floor and begin fire attack/confinement, with attack line placement to best support the search function.
- d. **Equipment.** Includes full PPE, SCBA, portable radios, tools, hose line, thermal imaging camera, and other equipment appropriate for the structure's construction and operational tactics.

2. Second Arriving Engine

- a. **Unit.** Establish a water supply by laying a supply line from a hydrant to the first arriving engine, or using other method depending on water source.
- b. **Crew.** Advance a hand line and back up the first arriving engine.
- c. **Equipment.** Includes full PPE, SCBA, portable radios, tools, hose line, and other equipment appropriate for the structures construction and operational tactics.

3. Third Arriving Engine

- a. **Unit.** Ensure, and as necessary, expand upon the water supply for the first engine, and improve the intake pressure of the first arriving engine, and /or laying additional lines as necessary. Position the unit to reserve adequate space for truck company positioning.
- b. **Unit Officer.** Report to the IC and advise that you will be assuming the RIT group supervisor position; unless specifically ordered otherwise.
- c. **Crew.**
 - 1. Report to the IC and advise that you are the RIT; unless specifically ordered otherwise, assume the operations of the RIT.
 - 2. Secure an additional hose line and immediately relieve the IRIC to become the RIT. This is usually done face-to-face, but on larger scale incidents, it may be done by radio.
 - 3. Secure all utilities if not previously secured and notify Command when completed.
 - 4. Determine the location of the fire and its progression.
 - 5. Monitor all critical operational talk groups.
 - 6. Observe fire conditions, note the progress of the fire attack, and know the location of companies working in the building.
 - 7. Determine the occupancy type and building construction.
- d. **Equipment.** Includes SCBA, portable radios, tools, hose, and other equipment appropriate for the structure's construction and operational tactics, and any additional equipment specific to the RIT function

4. Fourth Arriving Engine

- a. **Unit.** Report to the Incident Commander for assignment as needed to achieve the strategic goal of the incident. Possible assignments may include, but are not limited to:
 - 1. Securing a secondary water supply.
 - 2. Checking for extension of fire.
 - 3. Provide exposure protection.
- b. **Equipment.** Includes full PPE, SCBA, portable radios, tools, hose line, and other equipment appropriate for the structure's construction and operational tactics.

5. First Arriving Truck Company

- a. **Unit.** Position on Side A or as directed by the IC.
- b. **Crew.**
 - 1. Perform the duties of IRIC
 - 2. Perform rapid outside horizontal or vertical ventilation coordinated with the fire attack. If necessary, perform initial forcible entry for the first arriving engine.
 - 3. Provide secondary exit(s) for interior crews with ground and/or aerial ladders on buildings more than one story high.
 - 4. After completing the duties outlined above, report to the fire floor. Initiate or assist the assigned rescue squad with search and rescue. Begin checking for extension by opening concealed spaces as necessary after the bulk of the fire has been extinguished.
 - 5. Support the fire attack by providing lighting, and perform ventilation, overhaul and salvage operations.
- c. **Equipment.** Includes SCBA, portable radios, tools, thermal imaging camera, and other equipment appropriate for the structure's construction and operational tactics.

6. Rescue Squad (when available)

- a. **Unit.** Position to avoid impeding responding or departing apparatus.
- b. **Unit Officer.** Report to the IC or division/group supervisor as soon as the primary and all subsequent secondary searches are completed.
- c. **Crew.** Complete a systematic search of the building; control the building's utilities and assist, in coordination with the assigned truck company, with ventilation, overhaul, and salvage activities.
- d. **Equipment.** Includes full PPE, SCBA, portable radios, thermal imaging camera, tools, and other equipment appropriate for the structure's construction and operational tactics.

7. Quint Apparatus

- a. **Unit.** A quint apparatus will generally operate as an engine company, but may be assigned the duties of the truck company depending on arrival sequence.
- b. If a quint apparatus is the first arriving unit, the apparatus should be positioned for use as a truck, but the crew on the apparatus will perform the duties of the first arriving engine company.
- c. If the quint apparatus is the second arriving unit or if the first due truck company is unable to respond or not yet on scene, this unit and its crew will assume the duties of

the first arriving truck company. However the quint apparatus and crew will still be responsible for laying the initial supply line to the first arriving pumper.

- d. Upon arrival of the first truck company, the Officer of the quint apparatus will brief the truck company Officer on completed duties and then resume the normal duties assigned to the second arriving engine.
- e. This change of assignment shall be communicated to the IC by the Quint Officer.

8. First Arriving Command Officer

- a. **Unit.** Normally position on Side A, allowing space for other apparatus to implement tactical operations, and visibility of two sides of the structure when practical.
- b. **Officer.** Establish a Command Post and assume Command of the incident scene, in accordance with Section 7.5 of this SOP and the *National Incident Command System*.
- c. **Equipment.** Wear appropriate identifier vest and have immediate access to full PPE and SCBA.

9. Additional Command Officers

- a. **Unit.** Position vehicles to allow access of other responding apparatus.
- b. **Crew.** Report to the Command Post immediately on arrival to get an assignment from the Incident Commander. The Incident Commander should assign additional command officers to serve command support functions of the greatest need.
- c. **Equipment.** Wear appropriate identifier vest and have immediate access to full PPE and SCBA.

6.3 APPARATUS POSITIONING

6.3.1 Typical positions and initial actions are listed below:

- € First arriving engine – pull past the involved structure or stop short, allowing room for the truck to have the front; on-scene report, layout, size-up, situation report, initial attack line, search as the line is advanced.
- € Second arriving engine – water supply, back up line.
- € Third arriving engine – RIT and the unit officer will assume duties of Safety Officer.
- € Fourth arriving engine – secondary water supply, check for fire extension, and possible exposure line, as deemed necessary by the IC.
- € First arriving truck – position in front of structure; force entry if needed, search, ventilation, ladders, IRIC.

€ . Rescue Squad – Position away from structure; force entry if needed, search, ventilation, ladders.

- 6.3.2 After viewing as many sides as possible, the first arriving engine company should park in a position to allow for rapid advancement of hose lines into the structure, leaving priority position for the truck company. In most cases this will mean that the first engine pulls past the involved structure.
- 6.3.3 The first arriving truck company will take a position at the most strategic location that will allow for rapid placement of ladders (front and rear), and entry into the structure.
- 6.3.4 The second arriving engine must ensure that a water supply is established.
- 6.3.5 The third arriving engine will position to allow the crew rapid access to the structure for RIC operations while maintaining access and egress to the incident for additional resources. The engine should position to provide secondary water supply or supplement hydrant pressure if necessary.
- 6.3.6 The fourth arriving engine should position the apparatus out of the way so as to not block access for incoming trucks and position unit for additional responses.
- 6.3.7 The rescue company should position to allow rapid access to the structure while maintaining access and egress to the incident, for additional resources.
- 6.3.8 The EMS unit should position in an area that will not block fire apparatus, and allow for unimpeded egress from the scene in the event patient transport is necessary.
- 6.3.9 Command Officers should position the vehicle without blocking firefighting units, but in a position that will allow effective command of the incident.

6.4 TWO IN AND TWO OUT

- 6.4.1 All personnel who are prepared to work at the scene of a structure fire must wear full PPE and carry hand lights and other tools appropriate for their assigned position. In IDLH atmospheres, SCBA must be used and PASS devices must be activated.
- 6.4.2 The requirements of 29 CFR 1910.134, *Respiratory Protection Program*, may be met by forming a IRIC outside as the Initial Entry Team enters a structure where an IDLH atmosphere may exist, or by performing exterior functions until the Standby Team or RIT is operational.
- 6.4.4 An Initial Entry Team composed of at least two firefighters and an IRIC must be formed before entering an interior structural fire where an IDLH atmosphere exists.
- 6.4.5 An IRIC prepared to rescue the Initial Entry Team must form outside the IDLH atmosphere before the Initial Entry Team enters the structure. The Initial Entry Team Officer, normally the officer of the first arriving engine, must assign this responsibility to:
 - 1. Certified personnel from additional arriving units (engines, aerial units, and rescue squads);

2. Certified personnel on the first arriving unit who exceed minimum staffing (i.e., a unit staffed with three or more personnel); or
3. Any other combination of certified personnel who are qualified for IRIC assignment

6.4.6 One of the members of the IRIC must maintain contact with the Initial Entry Team visually, verbally, or by radio.

6.4.7 The second member of the IRIC may be assigned to other activities, but must wear PPE, have SCBA immediately available, and must be able to respond immediately to assist in rescuing the Initial Entry Team, if required. This member must not be assigned to functions that would further endanger the Initial Entry Team if he/she abandoned those operations to assist in rescuing them.

6.4.8 If the Initial Entry Team requires assistance/rescue while the IRIC is in place, the IRIC must inform Command or the ECC of the situation and its plan of action. Both IRIT members will assist the Initial Entry Team if it can be done safely.

6.4.9 Any unit assigned as the IRIC must be prepared to carry out its pre-assigned job task in accordance with this SOP, or, once it has been relieved by the RIT, be prepared to be redeployed by the IC. A unit arriving at an interior structural fire where an IDLH atmosphere exists must not begin interior operations if an IRIC is not available. Before an IRIC is in place, the initial crew may prepare the structure for entry. This crew may perform appropriate exterior operations including, but not limited to:

1. Exposure protection;
2. Exterior attack;
3. Stretching attack lines to the boundary of the IDLH atmosphere; or
4. Controlling utilities, i.e., outside gas shut-off.

6.5 EXCEPTION TO THE 2 OUT RULE

6.5.1 If arriving personnel find a known life hazard and immediate action may prevent the loss of life or serious injury, the crew may begin appropriate interior operations without an IRIC in place. Once the known life hazard has been resolved, personnel must withdraw until an IRIC or RIT/RIG has been assembled.

6.5.2 If the initial arriving Unit Officer determines that initial operations must begin in an IDLH atmosphere before establishing the 2-out crew, he/she must make a radio announcement identifying the units involved, their mission, and their location in the IDLH atmosphere. ECC must repeat this announcement to the responding companies and Command Officer. This action is authorized only when a known rescue situation exists and the 2-out requirement has not been met.

6.5.3 The rationale for abating the IRIC must be fully documented on the Incident Report. When interior firefighting operations are significantly delayed because the 2-out requirement has not been met, the circumstances must be fully documented on the incident report.

6.6 RAPID INTERVENTION

6.6.1 The third arriving engine will function as the RIT on all structure fires, unless the IC specifically orders it to take another assignment.

6.6.2 The RIT will relieve the IRIC when it arrives on the fire ground, and the IRIC will carry out its SOP assignment or be redeployed by the IC. The RIT must be on the fire ground, positioned to relieve the IRIC. The preferred relief is face-to-face. During large-scale incidents, relief may take place by radio.

6.6.3 The RIT must be located where it can rapidly assist personnel engaged in firefighting operations. This may be at the Command Post, at the primary entry way or as assigned by the IC.

6.6.4 When stationed on the exterior, the RIT must be outside the collapse zone, and must be able to maintain a view of the structure to observe its collapse potential, or the potential for other catastrophic events.

6.6.5 The RIT must monitor all critical operational radio talk groups in use at the incident, and must know the location of crews operating in/on the structure. The RIT Officer should communicate to Command any need for additional units and/or special equipment to support the rapid intervention mission.

6.6.6 RIT members must be equipped to protect or rescue operating personnel. Appropriate equipment includes, but is not limited to: a portable radio; full PPE on and in place; hose line(s) ready (charged or uncharged, depending on the RIT's location); thermal imaging camera; rope; and any other tools and equipment appropriate for the operation.

6.7 INITIAL COMMAND

6.7.1 To establish command and control of the fire ground before the arrival of a Command Officer, and engage in critical tactical operations, the first arriving Unit Officer will operate in one of the command modes indicated below. The command mode must be announced as the unit engages in operations.

6.7.2 **Investigative Mode.** In this command mode, the first arriving officer has Command by radio while investigating.

6.7.3 **Fast Attack Mode.** In this command mode, the situation found on arrival requires immediate action. The Company Officer's assistance is required, and that officer must be directly involved with the attack. The Company Officer will supervise the crew, and will have Command responsibility by portable radio. This command mode is limited to a few minutes, and will end when:

1. The situation is stabilized or the rescue is completed; or

2. The situation is not stabilized or the rescue is not completed, but the company officer withdraws to the exterior due to untenable conditions and establishes a Stationary Command Post; or
3. Command is transferred to another company officer or to a Command Officer.

6.7.4 Command Mode (Stationary Command Post). By virtue of its size, complexity, or potential for rapid expansion, the incident requires immediate strong, direct, overall Command. In such cases, the Unit Officer will initially assume an exterior, safe, and effective Command position and maintain that position until relieved by a Command Officer. The tactical worksheet shall be initiated and utilized to assist in managing these types of incidents.

When the Unit Officer assumes a Command mode, the following options are available with regards to the assignment of the remaining crew members:

1. The officer may "move up" within the company and place the company into action with two or three members. One of the crewmembers will serve as the acting Unit Officer. The collective and individual capabilities and experience of the crew will regulate this action.
2. The officer may assign the crew members to work under the supervision of another Unit Officer. In such cases, the officer assuming Command must communicate with the officer of the other unit and indicate the assignment of those personnel.
3. The officer may elect to assign the crew members to perform staff functions to assist Command, such as information reconnaissance, filling out the tactical worksheet, etc.

6.8 TRANSFERRING THE INITIAL COMMAND TO A COMMAND OFFICER.

6.8.1 The first arriving Command Officer must assume Command from the Unit Officer at any incident where three or more units are operating, or support the initial Incident Commander by functioning as a Senior Advisor.

6.8.2 The Incident Commander must establish a formal stationary Command Post on all structure fire assignments where five or more units are operating on the fire ground.

6.8.3 The transfer to a formal Command Post is made in one of the ways indicated below.

1. The first arriving Command Officer will assume Command by radio when units are operating in either investigative or attack mode. The first arriving Command Officer will communicate by radio with the Unit Officer who has Command, receive a situation report, and then assume Stationary Command Post operations. If the first arriving Command Officer cannot contact the Unit Officer with Command either face to face or by radio, the first arriving Command Officer will assume Command, and announce this assumption of Command by radio.
2. Command can be passed *only once* from Unit Officer to Unit Officer. The Unit Officer receiving Command must establish a Stationary Command Post. On the arrival of the first arriving Command Officer, he/she will report to the Command Post and assume Command or act as the Senior Advisor.

3. A company officer in charge of the IRIT can perform the Command function until the arrival of a Command Officer.

6.9 STAGING.

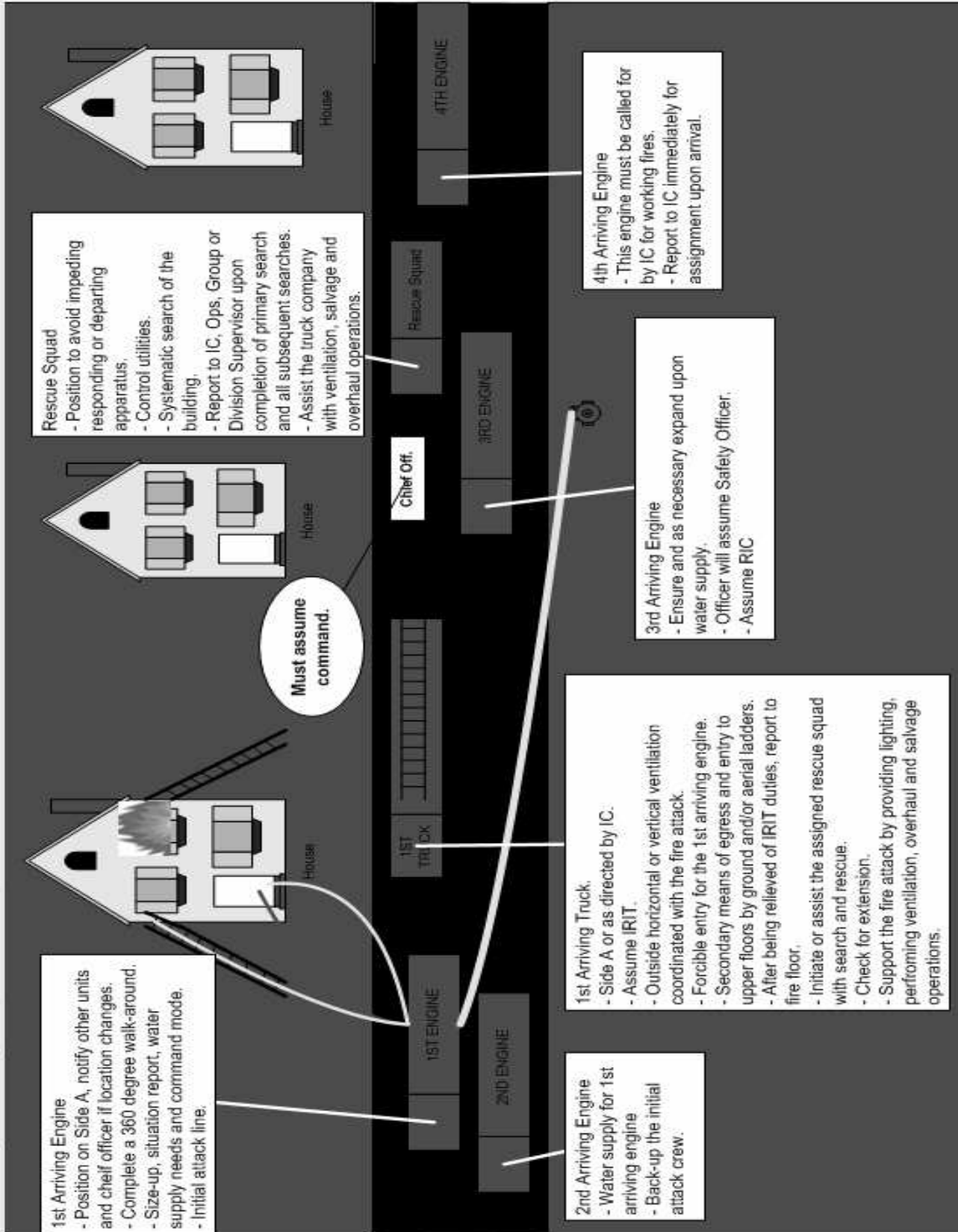
- 6.9.1 Reserve resources should be available in a staging area to meet contingencies as they occur until the fire is declared under control.
- 6.9.2 If Command is not prepared to assign additionally requested resources, the Incident Commander should advise the additional units to Level II Stage or report to a designated Level III Staging Area.

Appendix A

Standard Operating Procedures for One And Two Family Dwellings

| | |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 st Arriving Engine | <ul style="list-style-type: none"> - Position on Side A, notify other units and command officer if location changes. - Complete a 360° walk around. - Size-up, situation report, water supply needs and command mode. - Initial attack line. |
| 2 nd Arriving Engine | <ul style="list-style-type: none"> - Water supply for 1st arriving engine. - Back-up the initial attack crew. |
| 3 rd Arriving Engine | <ul style="list-style-type: none"> - Ensure and as necessary expand upon water supply. - Assume RIT. |
| 4 th Arriving Engine | <ul style="list-style-type: none"> - This engine must be called for by IC for working fires. - Report to IC immediately upon arrival for assignment. |
| 1 st Arriving Truck | <ul style="list-style-type: none"> - Side A or as directed by IC. - Assume IRIC. - Outside horizontal or vertical ventilation coordinated with the fire attack. - Forcible entry for the 1st arriving engine. - Secondary means of egress and entry to upper floors by ground and/or aerial ladders. - After being relieved of IRIC duties, report to the fire floor. - Initiate or assist the assigned rescue squad with search and rescue. - Check for extension. - Support the fire attack by providing lighting, performing ventilation, overhaul, and salvage operations. |
| Rescue Squad | <ul style="list-style-type: none"> - Position to avoid impeding responding or departing apparatus - Control utilities. - Systematic search of the building. - Report to IC, Ops, Group or Division Supervisor upon completion of primary search and all subsequent searches. - Assist the truck company with ventilation, salvage and overhaul operations. |

Appendix B



Appendix C

C1. CHARACTERISTICS

- C1.1 The structure may be found in several different settings, most commonly as part of a housing development surrounded by similar type dwellings. The structure may also be found situated somewhat alone on a property in a rural setting. Access may be simple or complex.
- C1.2 The interior area of the structure may also vary. The construction cost and value dictate the square footage. Expect many extremes throughout a typical first response district. Knowledge of the company's first due is the only sure way to be familiar with these types of structures.
- C1.3 These types of dwellings may vary in height from one to three stories. The grading surrounding the dwelling may affect the height.
- C1.4 These types of dwellings may be serviced by several utilities. Water, sewer, gas, electric, and communications systems are most often found within these occupancies.
- C1.5 There are several common types of one and two family dwellings found in Spartanburg: 1- story or ranch, 1½-story Cape Cod, 2-story colonial, 2-story split level, 2-story split foyer, 2-story balloon frame, and 1 to 3- story unique designs.

C2. HAZARDS

C2.1 LIFE HAZARDS

- C2.1.1 As stated in the introduction, most deaths, related to structure fires, occur in one or two family dwellings. This fact indicates the priority life safety has, when dealing with this type of occupancy and thus, the need for proficiency in executing tactics.
- C2.1.2 The potential for trapped occupants exists at all times (day or night) in a one or two family dwelling. During the period when occupants may be sleeping, their chance of survival is decreased due to their inability to quickly detect and flee from a fire.
- C2.1.3 The location of the fire in this type of dwelling affects the life hazard. Most fires in one or two family dwellings start in the vicinity of cooking or heating appliances. This situation directly exposes the fire floor and those floors above (basically the entire home) and more important, the bedrooms.
- C2.1.4 The age, physical, and mental abilities of the occupants affect the life hazard. It is common to find people with varying degrees of mobility within one and two family dwellings.
- C2.1.5 The intended use of a one or two family dwelling is for a place of residence. The possibility exists that the occupants may not be using the home as intended, therefore, creating other hazards that affect life safety such as a day care center or a clandestine drug lab.

C2.2 FIRE HAZARDS

- C2.2.1 The fact that one and two family dwellings are generally constructed of wood adds greatly to the fire hazard.
- C2.2.2 The use of combustible interior finishes and the type of furnishings found within these structures, contributes to the fire loading. Generally, these types of occupancies are considered to have a relatively “low” fire loading. Fire flow estimates will be based on a flow rate of 10 gpm per 100 square feet of involved area. Therefore, attack lines should be a minimum of 1-¾ inches in size.
- C2.2.3 The presence of highly combustible siding can greatly affect the fire hazard. Vinyl and asphalt siding may contribute to vertical and horizontal fire spread, and creates a severe exterior exposure problem.
- C2.2.4 The presence of interior void spaces may add to fire spread. Vertical and horizontal openings allow smoke and fire to enter and attack the structure itself. Fire that has entered these voids will necessitate the opening of floors, ceilings, and walls. This is especially crucial in balloon-frame construction.
- C2.2.5 The presence of cooking, utility, and mechanical areas creates the potential for fire. It should also be recognized that in the residential setting, the potential for ignition exists from many sources that include space heaters, pilot lights and burners, and smoking materials.
- C2.2.6 The presence of fireplaces and chimneys may create a potential for fire extension to unwanted areas of the structure. As improper installation or time may compromise the integrity of the components, allowing fire or heat to escape and ignite surrounding combustible members.
- C2.2.7 Storage of flammable or combustible liquids, such as gasoline, household cleaning agents, pool chemicals, pesticides and fertilizers may contribute to increase fire spread.

C2.3 OTHER HAZARDS

- C2.3.1 The potential exists for flashover to occur in these types of structures. The amount and type of combustible materials, rate of heat release of the burning materials, and an adequate supply of oxygen allow a fire to progress rapidly to the flashover stage.
- C2.3.2 The potential for collapse in one and two family dwellings as a result of fire is related to two distinct factors.

(1) The presence or absence of lightweight construction materials and;

(2) Whether the fire is attacking the structural components or contents only.

The greatest collapse potential exists when fire is in the basement attacking the vital structural supports under the first floor. Since there may be no walls or partitions in the basement, large portions of the first floor can collapse into the basement fire area. This condition is exacerbated if plywood "I" beams or other lightweight components are involved.

- C2.3.3 The presence of overhead electrical service wires to the dwelling should be suspected and their integrity assessed. The hazard of this service dropping into the yard is a common one. Should this occur, the incident commander must be advised and all companies operating made aware by radio as well as cordoning off the area with Fire Line tape or cones.

C3. STRATEGIC FACTORS

- C3.1 Life safety is the highest priority at all structure fires. However, the potential for life loss is most prominent in residential occupancies. This objective should be achieved through aggressive interior fire containment and primary search. All operational tactics should be assigned to support this strategic goal.
- C3.2 When it has been confirmed that the occupants of the structure are accounted for, self evacuated, evacuated with assistance, or rescued, the strategic goal should then focus on firefighter safety and fire extinguishment.
- C3.3 In most cases fire extinguishment should be achieved through an offensive interior attack. At times, size-up will indicate otherwise; however, personnel should anticipate an offensive interior attack
- C3.4 The conservation of property should be a strategic goal throughout the entire incident.
- C3.5 The rescue problem should be addressed through an aggressive interior primary search for life that focuses on the area near the fire, as well as the bedrooms and means of egress. Ventilation in this type of structure is critical in facilitating a primary search. This may be achieved through the aggressive removal or opening of selected windows where occupants might be located.
- C3.6 An EMS unit shall be requested to the incident for the treatment of injured firefighters or occupants, if not dispatched on the initial assignment.
- C3.7 The interior exposure problem should be addressed through rapid containment of the fire. This must include advancement of an interior attack line to protect any occupants within the structure, focusing on the interior stairway if present or other vertical voids. The interior fire will be of two types: fires involving only the contents or fires that involve the contents as well as structural members. The latter scenario provides the means for fire to extend throughout the structure.
- C3.8 The exterior exposure problem should be addressed through an aggressive Offensive interior attack, an offensive exterior attack, or by protecting the exposures with a defensive attack.
- C3.9 The confinement of the fire should be achieved through the rapid advancement of an interior attack line to protect the interior stairway and advance to the seat of the fire. If it cannot be ensured that rapid extinguishment will be achieved, then it is imperative that the hose line(s) is located in such a way as to protect the victims.
- C3.10 The extinguishment of the fire should be achieved through the proper selection, placement, and application of the attack line(s). The compartmentation generally found within one and two family dwellings and the fire loading suggests that the 1¾-inch attack line should be effective in extinguishing most content fires. Fires involving structures of this type of occupancy may require the support of several equally effective and mobile lines.

- C3.11 The ventilation of this type of structure during a fire should generally be achieved through natural horizontal methods. The reason for venting should be identified and communicated to the assigned units.
- C3.12 The need for roof openings typically will only be required when the fire has entered the attic area or has gained access to vertical void spaces. Conventional construction provides the needed support to accomplish rooftop ventilation. Lightweight construction does not provide the support necessary and may result in early collapse. Crews ordered to perform rooftop ventilation in lightweight construction should be independently supported by the use of aerial devices.
- C3.13 Fire travel within these types of structures will be affected by the method of construction. Balloon-frame and platform-frame construction methods are common, and each presents a different concern. Balloon-frame construction requires the checking of all levels within the structure. Fire should be suspected of having entered the exterior walls, and extending vertically to the highest level of the structure. Platform construction offers some level of fire-stopping, but all affected vertical voids must still be checked for the presence of fire with attention given to the plumbing and heating areas

C4. ENGINE COMPANY TACTICS

C4.1 WATER SUPPLY

- C4.1.1 When dispatched for a fire in a one or two family dwelling, the first arriving engine will stretch adequate size and length of hand line for an offensive interior attack. The location of the closest hydrant and method of the hose lay needed for supply to the first arriving engine, should be communicated to the second due engine company.
- C4.1.3 A forward (or straight) hose lay of a supply line(s) shall be used when possible. Modifications to this procedure may be made to ensure sufficient fire flow to extinguish the fire.
- C4.1.4 In areas where hydrants are not readily available, the procedure for relay or shuttle operations will be followed.

C4.2 SIZE-UP AND SITUATION REPORT

- C4.2.1 The first arriving engine officer should attempt to view all sides of the structure, noting location and extent of smoke and fire, rescues, access points, utilities, and exposures. The unit officer should use the thermal imaging camera while completing the 360o survey to assist in determining the location and extent of the fire. The unit officer must keep in mind while a thermal imaging camera can be a very useful tool it has its limitations. Examples of these limitations can be the result of daytime heating of the exterior wall surface, insulation, interior finishes and furnishings, windows and burn time inside the structure.
- C4.2.2 The information gathered from the size-up will dictate the mode of operation, action plan, and tactics employed. The size-up results are reported through the situation report, which must include command statement, initial assignments, and requests for greater alarms. Progress reports will follow.

C4.2.5 Should interior operations be initiated, the first engine company will begin operations following departmental two-in/two-out guidelines.

C4.3 INITIAL LINE

C4.3.1 The initial attack line for most fires within this type of structure will be the 1¾-inch pre-connect, allowing for the needed speed, mobility, and fire flow. The first arriving engine crew will usually be responsible for deploying this line. An exception might be when the unit arrives alone, and an obvious need for an immediate rescue is indicated.

C4.3.2 The advancement of the initial attack line will generally be through the front door of the structure. In most cases, the hose line will be charged prior to entering. The attack should be made from the unburned portion of the structure toward the seat of the fire. This may dictate entrance from a location other than the front door. The first arriving engine will normally accomplish entry on its own. However, the forcible entry task, when needed, remains the responsibility of the first arriving truck or rescue.

C4.3.3 The purpose of the initial attack line is to protect occupants, the interior stairway, and if possible, advance to the seat of the fire for confinement and extinguishment.

C4.3.4 The conditions found upon arrival and the information gained during the size-up, may dictate changes in these tactics.

C4.4 BACK-UP LINE

C4.4.1 The back-up line for most fires within these types of structures will be a minimum of a 1¾-inch pre-connect, allowing for the needed speed, mobility, and fire flow. The line should be of sufficient length to reach the location of the initial attack line or to be advanced to the area above the fire, if required.

C4.4.2 The back-up line will generally be stretched from the first-arriving engine company apparatus. In most cases, the second arriving engine company will accomplish this task.

C4.4.3 This line shall be capable of delivering an equal amount, or more water as the initial line. The need for advancement will be determined by the progress of the initial attack line. If the back-up line is not needed to support the attack line, it may be used as the line above the fire. Command must be informed.

C4.5 LINE ABOVE THE FIRE

C4.5.1 Officers should consider an additional hose line for operations above the fire. There are two purposes of the line above the fire. The first is to protect the company doing the primary search of the floor above and the second is to extinguish vertical extension.

C4.5.2 **No more than two hose lines shall be stretched through any one entrance into a building.** The advancement of additional lines should incorporate alternate means of entry.

- C4.5.3 The line assigned to the floor above the fire in these types of structures will be a minimum of a 1¾-inch pre-connect, allowing for the needed speed, mobility, and fire flow.
- C4.5.4 This line should be of sufficient length to reach the area above the fire and into the attic, if required. Often the fourth arriving engine company will be responsible for this task. The unit this line is deployed from will be determined by the incident commander, or assigned unit officer.

C4.6 BASEMENT FIRES

- C4.6.1 Size up at a basement fire is critical to the success of the operation. The location and extent of the fire, building construction, as well as points of access to the basement must be determined early. If the fire is known to be in the basement, the officer must quickly determine if an exterior access to the basement is present. This exterior door most often will be in the rear.
- C4.6.2 The objective, when attacking a basement fire, is to keep the fire from extending vertically by containment and extinguishment. This will require two lines. The need for both lines to be coordinated and rapidly get into position is of utmost importance in these types of fires.
- C4.6.3 The first line should be stretched to the first floor to contain the fire and protect the occupants and searching firefighters by closing the basement door or using a fog pattern aimed at the ceiling over the stairway. It is imperative that this fog stream NOT be directed downward into the stairwell. The interior basement stairs are normally located under the stairs to the second floor and face the rear of the structure. The officer of this line must carefully size-up the structural integrity when determining if the line should be positioned at the top of the stairs or in a position closer to the entrance door.
- C4.6.4 The second line shall be stretched to the exterior doorway for attack. This stream should be a straight or solid stream to avoid forcing fire, heat, products of combustion, and steam up into the first floor. The exterior attack line must not begin the attack until it has been confirmed that the first line is in position and ready. The preferred point of attack is the exterior door that leads directly into the basement.
- C4.6.5 Basement fires sometimes need to be attacked with the first line going down the interior stairs. This may be necessary because an exterior entrance into the basement is not accessible, or there may be no entrance at all. Under these circumstances, the officer will need to determine if it is safe to attempt going down the basement stairs for a direct attack on the fire. The officer must carefully evaluate the structural stability, life hazard, and the fire and heat conditions at the top of the stairs. Good judgment must be exercised in deciding if it is safe to proceed down the stairs. In this case, the second line shall back up the first line.
- C4.6.6 If **only one line is available**, or fire or structural conditions do not permit the first line to go to the first floor, then the first line should be stretched to the exterior doorway for attack. After the fire has been knocked down from the exterior entrance to the basement and the first floor is deemed safe for entry, the second line will be brought to the first floor to extinguish any vertical extension on the floors above. The officer of this line must carefully size-up the structural integrity in determining where or if the line should be positioned on the floor above the fire. This line has two objectives, extinguish any fire that has extended upward and to protect searching firefighters.

- C4.6.7 Occasionally, heavy fire conditions are encountered that prevent an attack from the first floor and there is no exterior entrance to the basement. An option that officers can exercise is that of knocking the fire down from outside the basement. This can be accomplished by applying a fire stream into the basement through a window opening. In most cases, this stream should be a straight or solid stream to avoid forcing fire, heat, products of combustion, and steam up into the first floor. Another option would be to cut a hole in the floor above and operate a fog or distributor nozzle. In either case, officers must ensure that no firefighters have entered the basement and that the application of the stream is simply to knock the fire down so that entry can be made.
- C4.6.9 Should a basement fire occur in a balloon-frame structure, early attention should be given to checking for extension through the stud spaces in the exterior walls. Fire should be expected to extend to all floors and the attic.
- C4.6.10 The advancement of lines for an interior attack of a basement fire must be coordinated with aggressive ventilation of the basement and floors above.

C4.7 GARAGE FIRES

- C4.7.1 The objective when attacking fires that originates in an attached garage is to confine and extinguish the fire from the unburned area of the structure, secure the overhead door in the open position, and prevent extension of the fire to the living area.
- C4.7.2 The need for quick assessment of extension into the living area and attic is imperative. The attached garage fire is known for its ability to extend to upper floors and the attic. The need for companies to check these areas and have charged lines to support them is crucial.
- C4.7.3 The garage may be located under a living area. This area must be quickly checked for smoke and fire spread. Companies operating in this area should be cautious, as the fire below them has direct access to the floor members supporting them.
- C4.7.4 The fact that a garage may have two means of access offers two alternatives that may be utilized to proceed to the seat of the fire.
- C4.7.5 When the initial line is advanced through the overhead door, the status of the door leading to the living area must be known. This door must be closed and protected to prevent the spread of fire and/or smoke to the interior of the house. A hose line must also be advanced through the house to the garage door to prevent extension. The fire attack must utilize a straight or solid stream to prevent the fire and products of combustion from being driven into the main portion of the house.
- C4.7.6 If the decision was made to advance the initial line through the living area of the structure for the attack, the engine company must be ready to operate the line when the door is opened. If this door was left open at the time of the fire, the advancing engine company should anticipate encountering fire in the living area near that door. A second line should be advanced to back up the first or to proceed to the upper floors.

- C4.7.7 Many times the fire will have originated in a vehicle parked within the garage. Standard precautions associated with all vehicle fires, such as exploding bumper cylinders or ruptured fuel tanks, should be observed. An option may be to breach an exterior wall to accomplish initial knockdown.
- C4.7.8 Breaching the overhead door in the center about three quarters of the way up from the bottom, can at times provides access to the overhead door manual release. If the manual pull cord is still intact, it may be within reach of the opening made in the door. Pull the cord to disengage the door from the motor, and allowing the door to then be raised.

C4.8 ATTIC FIRES

- C4.8.1 Fires in the attic of a single-family dwelling are a result of fire originating in one of several areas. These areas or situations include:
- . The living area or basement that has extended into the structural components and enters the attic via void spaces.
 - . Interior fire that has vented through a window and exposes the vented soffit area.
 - . Fire that has originated on the exterior of the dwelling and has involved the siding and exposes the soffit area.
 - . Fire that has originated in the attic itself by natural occurrences such as lightning strikes, electrical, or mechanical malfunction.
- C4.8.2 Tactics involving fire in the attic will vary to some extent based on the location of the seat of the fire. In the case where fire has originated in the living space or basement, the fire will have to be controlled based on an aggressive interior attack on the seat of the fire followed by hooking voids and ceiling to expose hidden fire in voids and the fire in the attic. These fires may be controlled by one line in the area of fire origin, or normally will require extensive hooking and multiple lines to extinguish depending on the amount of extension and spread.
- C4.8.3 In some situations, fire exposes the soffit area under the eaves which is vented into the attic. This can be caused from fire blowing out windows, a doorway below, or from a fire that originated on the exterior of the structure. In these cases, the first task is to conduct a quick sweep of the soffit and eave line with a hose stream. This quick sweep is intended to knock down fire extending into the attic through the soffit vents. The steam conversion drawn into the attic area can help deter fire advancement to this area before an attack on the seat of the fire is commenced.
- C4.8.4 When encountering fire in the attic only, with no involvement of the living space, unit officers must consider the following as operations commence.
- C4.8.5 At this time the occupant's personal belongings in the living space are not involved in the fire.
- C4.8.6 Conditions may be very tenable in the living area, even when there is extensive fire above.

- C4.8.7 At this point there is high heat and fire in an unoccupied, relatively confined area. A hose stream utilizing a fog pattern is indicated in this instance. Crews will want to use an attic scuttle if readily available, or poke a small hole for placement of the nozzle. Flow the fog pattern for several seconds. The fire should darken down due to the steam conversion and expansion. Avoid flowing the nozzle too long, or the ceiling may become saturated and collapse into the living area.
- C4.8.8 The intent of this approach to attic fires is to rapidly knock down the bulk of fire in the attic area until primary search, vertical ventilation, and salvage operations are completed. Extensive ceiling removal may still be required to check for extension, expose pockets of fire, or for the removal of blown in insulation. However, this tactic can “buy” crews the time to search the occupancy and deploy salvage covers without pulling the fire down into to the living space.
- C4.8.9 If the attic area has a floor, the nozzle stream will normally not be able to penetrate the attic. In these instances, the officer should look for a pull down or constructed stairway. If no stairway is found, consider opening the ceiling within approximately 2 feet of the exterior wall where the pitched roof eaves terminate. This area is often not floored due to its inaccessibility and lack of storage space.
- C4.8.10 Pull-down attic stairs shall not be used where fire has been present. These stairs are typically rated to only 250 pounds. Their integrity due to exposure to fire is questionable. An FD attic ladder may be needed, however in most situations the nozzle can be advanced through the opening in the 8-foot ceiling without ladders.
- C4.8.11 Attacking the fire through an exterior gable vent should be considered when access to the attic area from the interior would be too time consuming due to the presence of flooring in the attic. Breaching the siding for nozzle access is also an option when interior access is not possible. A piercing nozzle, which typically flows over 100 gpm, is also an option, but the reach of its stream is very limited.
- C4.8.12 Aggressive salvage operations and primary search should be ordered as the hose line is being deployed.
- C4.8.13 The interior officer should request a report from the command officer on the exterior to convey their observations as the fog stream is being deployed. For example, a report of heavy steam production would indicate that the stream is effective.
- C4.8.14 A roof collapse hazard is present in the single-family dwelling. However, it is not as significant as in a commercial structure where large expanses of ceiling and roof support members are present.
- C4.8.15 Members should be aware of the presence of furnaces and hot water heaters in the unfinished attic areas. This is prevalent in larger homes with multi zone HVAC systems.
- C4.8.16 If an access hole is made in ceiling below the fire the hole should be made large enough and a ceiling joist should be removed to facilitate ease of entry and egress incase of rapid deterioration of atmosphere.

C5. TRUCK AND RESCUE COMPANY TACTICS

C5.0.1 **NOTE:** The rescue and truck company's functional duties on a one and two family dwelling fire closely parallel one another. Tasks assigned such as a search for victims and location of the fire, forcible entry, ventilation, and control of utilities, may be carried out by either of these units. Assignments specific to the truck would normally involve laddering. Success in preserving life and property hinges on the proficiency of the members performing these duties.

C5.1 POSITIONING

C5.1.1 The preferred position for the truck company at fires in one and two family dwellings will be the front of the structure with deployment of ground ladders as a primary concern.

C5.1.2 The position of the rescue company at fires in one and two family dwellings will generally be one that affords rapid access to the structure, but does not block other companies.

C5.1.3 Other units responding on the incident shall keep the front of the structure open for the truck. Units arriving after the truck should be cognizant of the possible need for access to the ground ladders, and keep the rear open at least 50 feet for ground ladder deployment.

C5.1.4 It is recognized that there are circumstances that will prevent units from positioning as preferred. At times, only one engine will be able to position in close proximity to the structure, as is the case with a home located at the end of a long narrow driveway.

C5.2 INITIAL ACTIONS

C5.2.3 The initial actions of the first arriving truck or rescue will be determined by the plan of action developed from the size-up. After ensuring entry, these initial actions will generally be tactics focusing simultaneously on primary search and ventilation. Ventilation must be done to support the search as well as the advance of the attack.

C5.2.4 The initial actions of the truck and rescue company will depend on their arrival sequence. Should the rescue company arrive at the same time as the truck, the rescue company will generally be assigned the task of entry and primary search and the truck is responsible for laddering and outside ventilation.

C5.2.5 When only the truck or the rescue is on the scene, the officer may have to split the crew. The tasks of search and ventilation must be accomplished simultaneously requiring the crew to split with a member venting from the exterior while the officer and other member conduct the primary search inside.

C5.2.6 Upon arrival of the other unit, this officer is responsible for ensuring laddering and outside ventilation is accomplished.

C5.2.7 Certain size-up factors (untenable conditions, signs of backdraft, flashover, or smoldering stage, etc.) may indicate the need for ventilation prior to entry into the structure. When these conditions are observed the fire shall be vented prior to entrance into the structure. Before venting, the initial charged line must be in place and ready. In most cases, ventilation should occur from the

top down using the removal of windows as the avenue for hot gases to escape. If ladders are used to remove upper-story windows, consideration should be given to leaving one or more in place. This allows the advantage of interior crews seeing the ladder placement prior to entrance into the structure. Paths of ingress should also be forced, but not opened.

C5.2.8 Truck officer must inform internal crews of the location of secondary means of egress.

C5.3 FORCIBLE ENTRY

C5.3.1 The purpose of entry will be to initiate a primary search and allow access for the advancing engine company.

C5.3.2 The task of gaining entry into one and two family dwellings will generally be easily achieved using basic conventional methods.

C5.3.3 The access point for the engine company will almost always be the front door. This location may be altered due to the location of the fire, in an effort to attack from the unburned part of the structure. In situations where the front door is not the primary access point, it should still be opened for safety purposes.

C5.3.4 Secondary means of egress may also need to be forced.

C5.4 RESCUE AND PRIMARY SEARCH

C5.4.1 The area close to the fire on the fire floor and the area directly above the fire, are considered to be the two most *dangerous* areas. Means of egress and sleeping areas are generally considered to be the most *critical* areas to search. The objective in a primary search will be to check these areas first. Various means may be used to arrive at these locations. Support for the primary search should include ladders to upper-story bedroom windows and hose lines engaged on the fire.

C5.4.2 The task of executing the primary search should be accomplished quickly due to relatively small areas within most one and two family dwellings. As the area to be searched increases in relation to size of the structure, there must be an equal increase in the resources to accomplish the task. This need must be identified early, and requested immediately.

C5.4.3 When accessing the fire floor, crews should begin the search as they make their way to the fire area. Crews going to the floor above the fire must also begin searching immediately, but with the objective of quickly getting to the area over the fire first, and then searching outward from that point.

C5.4.4 Should the tactic of vent, enter and search (V.E.S.) be used to search the bedrooms, the incident commander must be notified to avoid duplication of effort and possible injury.

C5.4.5 The outcome of the primary search must be reported to the incident commander because this is the primary strategic focus of the operation.

C5.5 VENTILATION

- C5.5.1 Ventilation is performed either to support a search, “venting for life” or support the fire attack, “venting for fire”. This strategic decision will determine the method, location and timing of ventilation.
- C5.5.2 “Venting for life” will be accomplished through the aggressive removal of windows where appropriate. The areas of reported or suspected occupants should be addressed first. This must be immediately followed by a search of that particular area.
- C5.5.3 In most cases, ventilation is accomplished simultaneously with search and is sometimes required PRIOR to the commencement of the search. Therefore, ventilation must be coordinated with the search. Ventilation coordinated with an aggressive primary search can improve the survivability of victims because it:
- Reduces heat and smoke on the interior.
 - Reduces potential for flashover.
 - Allows firefighters to search faster and more effectively.
 - Allows for locating the fire more rapidly.
- C5.5.4 “Venting for fire” will be accomplished through the coordinated and limited removal or opening of windows in the fire area. The areas where fire can be seen or are showing the highest concentration of smoke should be opened when the attack line is in position to confine the fire.
- C5.5.5 The need for rooftop ventilation in a one and two family dwelling will depend on the extent and location of the fire. Generally, the roof will not need to be ventilated unless the fire has entered the attic area, extended into the structure walls, or has considerable hold of the top floor.
- C5.5.6 Vertical, rooftop ventilation should be accomplished through common methods, when ordered by command. The discovery of a lightweight trussed roof should be made known and reacted to appropriately. Members MUST be independently supported when operating on lightweight construction. A viable and safer option is to vent the ends of a gable roof.
- C5.5.7 Mechanical and positive pressure ventilation (PPV) works well for smoke removal in these types of structures. PPV should NOT be used in balloon-frame construction until fire is under control and structure is checked for extension.

C5.6 LADDER DEPLOYMENT

- C5.6.1 The purpose of laddering is to provide access into the dwelling, and an escape route for firefighters operating within.
- C5.6.2 Laddering at a fire in a one or two family dwelling should at least be done to the front and rear of all floors above ground level, with attention given to the bedroom windows. This can generally

be accomplished with ladders of 35 feet or less that are found on most apparatus at the incident scene.

C5.6.3 The need to ladder the roof at a fire in a one or two family dwelling will depend on the extent and location of the fire. Generally, the roof will not need to be laddered unless the fire has entered the attic area, extended into the structure walls, nor has considerable hold of the top floor.

C5.7 BASEMENT FIRES FOR SUPPORT OPERATIONS

C5.7.1 The interior crew will provide support for the initial line regardless of where attack begins. If the initial line is to enter from the front, this crew will force entry, locate the basement stairs, and assess severity of fire. The truck will carry out the tasks of venting and search in support of the attack. The crew must monitor radio traffic to ensure they are aware of the direction of the attack and any information transmitted regarding fire extension and structural stability.

Priority should be given to the sleeping areas and **consideration for V.E.S. must be given** if fire has possession of the stairs or the first floor is untenable.