

# INCIDENT MANAGEMENT SYSTEM AND TACTICAL OPERATIONS MANUAL

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SERIES 338

## OPERATIONAL GUIDELINE COMMAND CONSIDERATIONS AND TACTICAL PRIORITIES

### PROCEDURE

#### I. FIREGROUND FACTORS

1. Fireground factors offer a standard list of basic items Command must consider in the evaluation of tactical situations. This list should provide Command with a “checklist” of the basic items that are involved in size-up, decision making, initiating action, review and revision on the fireground.
2. The effective Command officer soon learns that he can only deal with a limited number of factors of any kind on the fireground. Within the framework of that limitation, the identification of the critical factors is extremely important. All the factors are not critical in any one tactical situation. Command must identify the critical fireground factors that are present in each tactical situation - the list of factors offers a framework for that process.
3. Many times we begin operations before adequately considering the critical fireground factors. Size-up is a conscious process involving the very rapid but deliberate consideration of the critical factors and the development of a rational plan of attack based on those conditions. Attack is many times an instinctive action-oriented process that involves taking the shortest and quickest route directly to the fire. Action feels good in fireground situations while thinking delays action; and beware of non-thinking attack situations and non-thinking attackers.
4. Fireground factors represent an array of items that are dynamic during the entire fireground process and the relative importance of each factor necessarily changes throughout that time frame. Command must continually deal with these changes and base decisions on factor information that is timely and current. Beware of developing an initial plan of attack and sticking to that same initial plan throughout the fire, even though conditions continue to change. Effective fire operations require attack plan revisions that continually reconsider fireground factors based upon information feedback.
5. In critical fire situations, Command may develop an initial plan and initiate an attack based on an incomplete evaluation of fireground factors. In such cases, he must continue throughout the operation to improve the information he bases his decisions upon. He will seldom operate with complete information during initial operations.

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6. The effective management of each fireground factor requires Command to apply a somewhat different form of information management (visual, recon, preplan) to that factor. This is particularly true between the major categories of factors. Command must find the best way to deal with each factor to that factor.
7. Most tactical situations represent a complex problem with regard to how Command deals with fireground factor information. There are factors that can be determined from his operating position on the outside of the structure and other factors that can only be determined from other operating positions - both outside and inside the structure. Fireground intelligence available to Command is developed utilizing an overlapping variety of these information factors and forms. These forms of information revolve around the three following basic factors:
  - A. **VISUAL FACTORS** - These factors include those obvious to visual observation and those absorbed subconsciously. This visual information is categorized as the type that can normally be gained by actually looking at a tactical situation from the outside. This form of intelligence involves the perceptive capability of Command.
  - B. **RECONNAISSANCE FACTORS** - These factors include information that is not visually available to Command from his position on the outside of a tactical situation and must be gained by actually sending someone to check-out, go-see, look-up, research, advise, call, go-find, etc. This generally involves Command making a specific assignment and then receiving an information-oriented report.
  - C. **PREPLANNING AND FAMILIARITY FACTORS** - These factors include the intelligence that is gained from formal pre-fire planning and by general informal familiarization activities. Such intelligence increases the information initially available to Command from the **OUTSIDE** of a tactical situation. This information arms Command with intelligence that he would normally have to assign a Reconnaissance Factor or do without.
8. **BUILDING**
  - Size
  - Interior arrangement/access (stairs, halls, elevators)
  - Construction type
  - Age
  - Condition - faults/weaknesses
  - Value
  - Compartmentation/separation
  - Vertical-horizontal openings, shafts, channels
  - Outside openings - doors and windows/degree of security
  - Utility characteristics (hazards/controls)
  - Concealed spaces/attic characteristics

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Exterior access

Effect the fire has had of the structure (at this point)

Time projection on continuing fire effect on building

9. FIRE

Size

Extent (% of structure involved)

Location

Stage (inception ---- flashover)

Direction of travel (most dangerous)

Time of involvement

Type of amount of material involved - structure/interior finish/contents/everything

Type and amount of material left to burn

Product of combustion liberation

10. OCCUPANCY

Specific occupancy

Type-group (business, mercantile, public assembly, institutional, residential, hazardous, industrial, storage, school)

Value characteristics associated with occupancy

Fire load (size, nature)

Status (open, closed, occupied, vacant, abandoned, under construction)

Occupancy associated characteristics/hazards

Type of contents (based on occupancy)

Time - as it affects occupancy use

Property conservation profile / susceptibility of contents to damage/need for salvage

Moral hazard

11. LIFE HAZARD

Number of occupants

Location of occupants (in relation to the fire)

Condition of occupants (by virtue of fire exposure)

Incapacities of occupants

Commitment required for search and rescue (men, equipment, and command)

Fire control required for search and rescue

Needs for EMS

Time estimate of fire effect on victims

Exposure of spectators/control of spectators

Hazards to fire personnel

Access rescue forces have to victims

Characteristics of escape routes/avenues of escape (type, safety, fire conditions, etc.

12. ARRANGEMENT

Access, arrangement, and distance of external exposure

Combustibility of exposures

Access, arrangement, and nature of internal exposures

Severity and urgency of exposures (fire effect)

Value of exposures

Most dangerous direction - avenue of spread

Time estimate of fire effect on exposures (internal and external)

Obstructions to operations

Capability/limitations on apparatus movement and use

13. RESOURCES

Staffing and equipment on scene

Staffing and equipment responding

Staffing and equipment available in reserve

Estimate of response time for men and equipment

Conditions of men and equipment

Capability and willingness of personnel

Capability of commanders

Nature of command systems available to Command

Number and location of hydrants

Supplemental water sources

Adequacy of water supply

Built-in private fire protection (sprinkler, standpipe, alarms)

Outside agency resource and response time

14. OTHER FACTORS/CONDITIONS

Time of day/night

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Day of week

Season

Special hazards by virtue of holidays and special events

Weather (wind, rain, heat, cold, humid, visibility)

Traffic conditions

Social conditions (strike, riot, mob, rock festival)

## II. TACTICAL PRIORITIES

1. Tactical priorities identify the three separate tactical functions that must be completed in order to stabilize any fire situation - these priorities also establish the order in which these basic fireground functions must be performed.
2. These functions should be regarded as separate, yet inter-related, activities which must be dealt with in order. Command cannot proceed on to the next priority until the current function objective has been completed.
3. Basic tactical priorities are as follows:
  - #1 – Rescue
  - #2 - Fire Control
  - #3 - Property Conservation
4. Rescue = The activities required to protect occupants, remove those who are threatened and to treat the injured.  
  
Fire Control = The activities required to stop the forward progress of the fire and to bring the fire under control.  
  
Property Conservation = The activities required to stop or reduce additional loss to property.
5. The objectives of each priority are reflected in the following bench marks of completion:
  - #1 - Rescue - primary search (search clear)
  - #2 - Fire Control - under control
  - #3 - Property Conservation - loss stopped

All three tactical priorities require somewhat different tactical approaches from both a command and an operational standpoint.
6. While Command must satisfy the objective of each function in its priority order, he must, in many cases, overlap and “mix” the activities of each to achieve the current bench mark. Notable examples are the frequent need to achieve interior tenability with active/extensive fire control efforts before getting on with primary search, or the need to initiate salvage operations while active fire control efforts are being extended.
7. Command must constantly review his/her strategy and may make plan adjustments based on changing conditions. The use of “**5 Minute Time Checks**” provides the Incident

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Commander with a reminder tool to determine if the existing plan is working or if it must be revised.

### III. RESCUE

1. In cases of fully involved buildings or sections of buildings, immediate entry and primary search activities become impossible and survival of occupants is improbable. Command must initially report fully involved conditions and that he will not report search clear. This will be a formal action validated by a radio transmission to FIRE COMM stating: "There will not be a primary search!" As quickly as fire control is achieved, Command must structure what is in effect a secondary search for victims.
2. Command and operating companies cannot depend upon reports from spectators to determine status of victims. Control forces should utilize reports as to the location, number, and conditions of victims as supporting primary search efforts and must extend and complete a primary search wherever entry is possible.
3. Command must consider the following factors in developing a basic rescue size-up:
  - #1 - Number, location and condition of victims
  - #2 - Effect the fire has on the victims
  - #3 - Capability of the control forces to enter the building, remove/protect victims and control fire
4. Command must make the basic rescue decision:
  - A. **Do we remove victims from fire? Or**
  - B. **Do we remove the fire from the victims?**
    - (1). In some cases, occupants are safer in their rooms than moving through contaminated hallways and interior areas. Such movement may also impede interior firefighting.
5. Command must realistically evaluate the manpower required to actually remove victims and then treat their fire-affected bodies. In cases involving such multiple victims, Command must call for the timely response of adequate resource and quickly develop an organization that will both stabilize the fire and provide for the removal and treatment of the occupants.
6. Rescue efforts should be extended in the following order:
  - #1 - Most severely threatened
  - #2 - The largest number (groups)
  - #3 - The remainder of the fire area
  - #4 - The exposed areas
7. Command must make specific primary search assignments to companies to cover specific areas of large-complex occupancies and maintain on-going control of such companies until the entire area is searched. When primary search companies encounter and remove

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- victims, Command must assign other companies to continue to cover the interior positions vacated by those companies.
8. All initial attack efforts must be directed toward supporting rescue efforts and hose lines must be placed in a manner to control interior access, confine the fire, and protect avenues of escape. Hose line placement becomes a critical factor in these cases and Command and all operating companies must realize that the operation is in a rescue mode. It may be necessary to operate in a manner that writes-off the structure in order to buy rescue time.
  9. Normal means of interior access (stairs, halls, interior public areas, etc.) should be utilized to remove victims whenever possible. Secondary means of rescue (platforms, ladders, fire escapes, helicopters, gravity/nets, etc.) must be utilized in their order of effectiveness.
  10. Command must structure treatment of victims after removal. Multiple victims should be removed to one location for more effective treatment. Command should coordinate and utilize paramedic capability wherever available and assign treatment companies as required to an exterior Medical Division.
  11. Once the primary search has been completed and a SEARCH CLEAR transmitted, Command must maintain control of access to the fire area; beware of occupants (and others) re-entering the building.
  12. The most urgent reason for calling additional alarms is for the purpose of covering life safety - Command must develop a realistic (and pessimistic) rescue size-up as early as possible.
  13. The term "Search & Rescue" should be used when structuring a primary search over the radio; "Search Clear" should be used only as a completion report.

#### IV. FIRE CONTROL

##### 1. GENERAL

- A. It is standard operating procedure to attempt to stabilize fire conditions by extending WHEREVER POSSIBLE an aggressive well-placed and adequate offensive interior fire attack effort and to support that aggressive attack with whatever resource and action is required to reduce fire extension and to bring the fire under control.
- B. A critical Command decision (both initial and on-going) relates to the offensive/defensive mode of the situation:
  - (1). Offensive Strategy- Interior attack and related support directed toward quickly bring the fire under control.
  - (2). Transitional Strategy- An attack from the outside of the structure with the intent of containing the fire until offensive lines can be placed, rapid intervention teams can be assembled, and a ventilation profile can be determined.

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- (3). Defensive Strategy- Exterior attack directed to first reduce fire extension and then bring the fire under control
- C. Command must define offensive/ transitional/defensive mode based upon:
  - Fire extent
  - Structural conditions
  - Entry capability
  - Ventilation profile
  - Rescue ability of occupants
  - Resources
- D. BASIC OFFENSIVE PLAN:
  - First line - fast, aggressive interior attack
  - Provide support activities
  - Do primary search
  - Second line - back up first/cover rear
  - Pump water
  - Quickly evaluate success and react
- E. BASIC TRANSITIONAL PLAN:
  - First line to outside to separate fire from victims
  - Establish offensive attack plan
  - Outside attack to buy time for offensive setup
  - Deploy a RIT team to attack entry point
  - Provide water supply
  - Develop a ventilation profile
  - Outside lines shut down before interior operations begin
- F. BASIC DEFENSIVE PLAN:
  - Evaluate fire spread/write-off lost property
  - Identify key tactical positions
  - Prioritize fire streams
  - Provide big, well placed streams
  - Pump water
  - Quick determination on additional resource
  - Surround and drown

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## 2. OFFENSIVE OPERATIONS

- A. Many times offensive/defensive conditions are clear cut and Command can quickly develop a decision that relates to that mode. In other cases, the situation is marginal and Command must initiate an offensive interior attack, while setting up defensive positions on the exterior. The effect of the interior attack must be evaluated and the attack abandoned if necessary. Mode changes can develop almost instantly or can take virtually all night; Command must be aware and responsive to such mode changes.
- B. Command must consider the most dangerous direction and avenues of fire extension particularly as it affects rescue activities, confinement efforts, and exposure protection. He must then allocate resource based upon his fire spread evaluation.
- C. In some cases, the most effective tactical analysis involves an evaluation of what is not burning rather than what is actually on fire. The unburned portion represents where the fire is going and should establish the framework for fire control requirements.
- D. Offensive fires should normally be fought from the INTERIOR-UNBURNED SIDE (interior capability is the principal offensive strategy factor).
- E. Initial attack efforts must be directed toward supporting primary search - first attack must go between the victims and the fire and protect avenues of escape.
- F. Determine fire location and extent before starting fire operations (as far as possible). Do not operate fire streams into smoke.
- G. Command cannot lose sight of the very simple and basic fireground reality that at some point the fire forces must engage the fire and fight. Command must structure whatever operations are required to PUT WATER ON THE FIRE. The rescue / fire control / extension / exposure problem is solved in the majority of cases by a fast, strong, well-placed attack.
- H. Effective fire control requires that water is applied directly on the fire or directly into the fire area. (Fire streams can be bounced off roofs and operated into smoke all night and the fire will progress until it runs out of fuel.) Command must establish an attack plan that overpowers the fire with actual water application.
- I. Attack from the burned side generally will drive the fire, smoke and heat back into the building and the interior fire control forces out of the building.
- J. The fastest place to put water on the fire is generally from the outside at the point where the fire is burning out of the building - the very worst application point most of the time.
- K. When fire is burning out of a building and not affecting exposures, let it burn out, and extend an interior attack from the unburned side. It is usually venting in the proper direction. It requires discipline on the part of control forces to do so and not submit to "candle moth" temptations.

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- L. Command must develop a fire control plan of attack that first stops the forward progress of the fire and then brings the fire under control. In large complex fires, Command will not immediately have adequate resources to accomplish all of the attack needs he faces - at that point, he must prioritize attack efforts, act as a resource allocator and determine the response he will eventually require. Don't play "catch up" with a fire that is burning through a building: project your set-up time, write-off lost property and get ahead of the fire. Set-up adequately and overpower it.
  - M. Don't put water into burned property, particularly where there is unburned property left to burn. Many fire streams are directed into property that is already lost, many times at the expense of exposed unburned property. Write-off property that is already lost and go on the protect exposed property bases on the most dangerous direction of spread. Do not continue to operate in positions that are essentially lost.
  - N. Consider the use of an air management system to insure adequate time for the unknown factors which may be found inside a building.
3. TRANSITIONAL OPERATIONS
- A. Organizing an interior attack takes time as the fire ground commander complies with manpower intensive needs such as RIT, back-up teams, ventilation equipment and accountability. It may be the best use of resources to attack the fire from the outside while these resources are being organized and assigned.
  - B. It is critical that Command communicate the "Transitional Mode" as the choice of strategy in order to prevent mixing Offensive and Defensive attacks. Transitional Mode operations are a temporary strategy to buy time for an Offensive attack.
  - C. Transitional Mode firefighting should have a short time frame. If it is successful, the building will be made safe for interior operations in a relatively short time. If the transitional mode is unsuccessful, and the building structure/safety is compromised, the Defensive Mode strategy should be employed and an interior attack abandoned.
  - D. Transitional Mode firefighting provides an excellent optional strategy to protect exposures while the interior teams are prepared. In every case, the goal should be to separate the burned from the unburned property.
  - E. Transitional Mode shall not be used when Command or the first arriving unit declares "**Rescue Mode**" as it adds to the possibility of driving superheated gases on to fire victims. In these instances, if the building is safe from collapse and is tenable, and a strong possibility of viable victims is present; an offensive strategy will be employed while the search and rescue function occurs.
4. DEFENSIVE OPERATIONS
- A. The decision to operate in a defensive mode indicates that the offensive attack strategy has been abandoned for reasons of personnel safety, and the involved structure has been conceded as lost (written off).

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- B. When the announcement of a change to a defensive mode is made all personnel will withdraw from the structure and maintain a safe perimeter. Officers will account for the safety of all personnel. (See Section 343 – PAR procedures)
- C. Interior lines will be withdrawn (or abandoned if necessary) and repositioned when changing to a defensive mode. Lines should not be operated directly into doorways or windows but should be backed away to positions which will protect exposures.
- D. All exposures, both immediate and anticipated, must be identified and covered.
  - (1). The first priority in defensive operations is to protect exposures.
  - (2). The second priority may be to knock down the main body of fire. This may assist in the protection of exposures but does not replace it as a first priority.
- E. Master streams are generally the most effective tactic to be employed in defensive operations. For tactical purposes, a standard master stream flow of 750 GPM should be the guideline. Adjustments may be made upward or downward from this figure but it is very significant in the initial deployment of master streams.
- F. When the exposure is severe and water is limited, the most effective tactic is to put the water on the exposure.
- G. Once exposure coverage is established, attention may be directed to knocking down the main body of fire and thermal-column cooling. The same principles of large volume procedures should be employed.
- H. The completion of bringing the fire under control is reported utilizing the standard radio reporting term: “FIRE UNDER CONTROL.” It is the responsibility of Command to transmit this report to FIRE COMM. This time will be recorded by FIRE COMM.
- I. “FIRE UNDER CONTROL” means the forward progress of the fire has been stopped and the remaining fire can be extinguished with the on-scene resources; it does not mean the fire is completely out.

## V. PROPERTY CONSERVATION

- 1. It is standard procedure to commit whatever fireground resource is required to reduce property loss to an absolute minimum. The activities that relate to effective property conservation require the same early and on-going command functions and aggressive action as both Rescue and Fire Control. All members are expected to perform in a manner that continually reduces loss during fire operations.
- 2. When the fire is out, shut down the fire streams. Early recognition that the forward progress of the fire has been stopped is an important element in reducing loss. The earlier the salvage operations begin, the smaller the loss.
- 3. When basic fire control has been achieved, Command must commit and direct companies into “stop loss” activities; such activities generally include:
  - Evaluating damage to overall fire area.

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- Evaluating the salvage value of various areas.
- Evaluate the men and equipment that will be required.
- Committing the required companies to salvage functions.
- Reducing hose lines from fire control functions to salvage functions.
- 4. In cases where there is an overlapping need for both fire control and salvage to be performed simultaneously and where initial alarm companies are involved in firefighting while salvage remains undone, strike additional alarms and commit greater alarm companies to salvage functions.
- 5. Commit the same overall and division command resource to property conservation activities as were devoted to rescue and fire control.
- 6. Be aware that personnel involved in rescue and fire control operations are generally fatigued and have reached their adrenalin-peak by the time property conservation functions must be completed - this can result in sloppy work and many injuries. Evaluate the condition of personnel and replace with fresh troops if needed.
- 7. Prompt fireground lighting, both interior and exterior, reduces fire loss and increases safety.
- 8. The provision of salvage functions must be integrated into the cause determination phase. When fire control becomes stable, back fire control companies out and let fire investigators develop a plan. Beware of personnel who want to quickly shovel out the interior and go home - they will generally shovel out the evidence with the debris.
- 9. Much of the property conservation profile of a building can be identified during pre-fire planning activities. Command must consider this profile in developing and extending a plan of attack.
- 10. Most fire personnel are more attracted to active fire attack functions than to the less active operations that relate to property conservation - simply, most firefighters would rather operate nozzles than throw salvage covers. Command must integrate this awareness into specific company assignments and structure effective follow-up to insure minimum property loss. (Such fire attack inclinations are healthy, beware of firefighters who would rather throw covers than operate hoses lines.)

## VI. FIRE STREAM MANAGEMENT

1. The following items represent an index of the tactical effectiveness of hose lines:
    - Size
    - Placement
    - Speed
    - Mobility
    - Supply
- These factors also represent the options involved in fire stream management.

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2. Hose lines should be advanced inside fire buildings in order to control access to halls, stairways, or other vertical and horizontal channels through which people and fire may travel. Basic hose lines placement:
  - A. The first stream is placed between the fire and persons endangered by it.
  - B. When no life is endangered, the first stream is placed between the fire and the most severe exposure.
  - C. Second line is taken to secondary means of egress (always bear in mind the presence of firefighters opposite the second line).
  - D. Succeeding lines to cover other critical areas.
  - E. Whenever possible, position hose lines in a manner and direction that assists rescue activities, supports confinement, and protects exposures.
3. **It is the responsibility of each engine company to provide its own uninterrupted, adequate supply of water.** "Provide" in this case does not mean they must necessarily lay the line or that they must pump it. It is their responsibility to get water into their pump, by whatever means are appropriate. Typically, this will be with fire hydrants, tenders, or by drafting. Should the company not manually lay a line, that company is still responsible for insuring water supply is provided to their pump from another engine or tender.
4. Hose line judgments generally involve the trade-off of time versus pure tactical placement; if a tactical placement principle is violated, back-up action must be taken.
5. Use the size of hose line that will eventually be required from the beginning; if you need a big line provide it from the outset. If there is any doubt from the beginning go to the next size hose line.
6. When you make a decision on what size fire stream to apply, select the size that is actually required. Beware of automatically going for the size you use most often; or the size that is fastest/easiest - we tend to rely on one size of fire stream.
7. When you change commitment from offensive to defensive and pull hand lines out of the fire building, do not continue to operate them as hand lines - convert them to exterior master streams. Give priority to water supply and application. The operating positions of such streams must also be evaluated - do not continue to operate into burned property.
8. Fire control forces must consider the characteristics of fire streams:
  - Solid Stream: More penetration, reach and striking power - less conversion.
  - Fog: More gross heat absorption/expansion, low reach.
  - 1 3/4" Lines: Fast, mobile, low volume.
  - 2 1/2" Lines: Big water, big knockdown, slow/immobile.
  - Master Streams: Mostly stationary, slow to set up - maximum water.

Choose the proper nozzle and stream for the task.

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9. Offensive attack activities must be highly mobile - as their movement slows down, they necessarily become more defensive in nature and effect. Many times effective offensive operations are referred to as “aggressive”: fast, active, vigorous, energetic, bold, forward, assertive.
10. Offensive attack positions should achieve an effect on the fire quickly - consequently, back-up judgments should also be developed quickly. If you apply water to an offensive attack position and the fire does not go out - react: back it up or move on.
11. Transitional lines are to be considered “temporary attack lines” and should be shut down as soon as the necessary components of an offensive interior attack are in place.
12. Beware of hose lines that have been operated in the same place for long periods. Fire conditions change during the course of fire operations (most things will only burn for a limited time) and the effect of hose line operations must be continually evaluated. If the operation of such lines becomes ineffective, move, adjust, or redeploy them.
13. Beware of the limitations of operating nozzles through holes. The mobility of such streams is necessarily limited and it is generally difficult to evaluate the effectiveness of such streams. Sometimes you must breach walls, floors, etc. to operate - realize the limitations of such situations.
14. Consider that hose lines pump as much air as they pump water (particularly fog streams). Think of them as fans when making line placement judgments and use the fan characteristics in a manner that provides for confinement and reduces loss. When entering basement fire(s) do not open nozzles until you can see and are near the fire.
15. **If you commit attack crews to inside operations, do not operate exterior streams into the same building - particularly ladder pipes.** Do not combine interior and exterior attacks in the same building. It may be necessary to coordinate pulling crews out of the building while an exterior heavy streams knockdown is made. Know when to shut down nozzles - many times continuing operations of large streams prevents entry and complete extinguishment.
16. Do not operate fire streams into smoke - fire location must be determined before water can be effectively applied.
17. If you use an exterior stream, use a big one. Straight bore tips provide better penetration for heavy streams.
18. Hand line companies should not engage in laying any more hose than they require to operate their own lines except for standard multiple line evolutions.
19. The more pumped water, the higher the overall attack capability.
20. Maintain control of key hydrants - be certain that pumpers are assigned to such key hydrants to provide most effective fire stream operation. Beware of numerous unpumped hydrant supply lines instead of fewer pumped lines.
21. Have attack lines ready during forcible entry operations. Attack crews should be fully protected and supervised before forcible entry is effected.

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22. Company officers must assume responsibility for the effectiveness of their fire streams. Such officers must maintain an awareness of where fire streams are going and their effect and report the general operational characteristics back to division/Command.
23. Ladder pipes are particularly useful and effective when operated on large open-type fires. A good general rule is that you have in effect written off the building (or portion) when you initiate ladder pipe operations and you are essentially in a defensive mode.
24. **Ground crews should be advised before ladder pipes go into operation.**
25. Do not apply water to the outside of a roof and think you are extinguishing the fire. Such water application may offer effective exposure protection; but, if part of the roof is intact, it will shed water just like it was built to do and will prevent water from reaching the seat of the fire. This is particularly true of ladder pipe operations.
26. Do not operate fire streams down ventilation holes during offensive operations.
27. On the fireground everyone wants to hold a line of their own - be careful who has water from the standpoint of type of company, position and function.

## VII. APPARATUS PLACEMENT

1. Command must maintain awareness that access equals tactical options and that the immediate fire area can quickly become congested with apparatus. He must regard apparatus on the fireground in two categories:
  - A. Apparatus that is working
  - B. Apparatus that is parked - "taxis"
    - (1). Park "taxis" out of the way. Apparatus that is not working should be left in the Base Area.
2. Command Divisions and all operating units should attempt to maintain an access lane down the center of streets wherever possible.
3. Think of fire apparatus as an expensive exposure: position working apparatus in a manner that considers the extent and location of the fire and a pessimistic evaluation of fire spread and building failure. Anticipate the heat which may be released with structural collapse. **Apparatus should generally be positioned at least 30 feet away from involved buildings, even with nothing showing.** Greater distances are indicated in many situations.
4. Beware of putting fire apparatus in places where it cannot be repositioned easily and quickly - particularly operating positions with only one way in and out; i.e., yards, alleys, driveways, etc.
5. Beware of overhead power lines (and trees) when positioning apparatus. Do not park where lines may fall (and weather conditions).
6. If apparatus does become endangered, operate lines between it and the fire while you reposition it. When you do move it - move it to a position that is safe. It is dysfunctional to move a rig several times throughout the progress of a fire.

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7. Aerial ladder companies are a scarce resource and must be considered before the placement of engines and/or hydrant supply lines. When possible, commit the first engine at the most strategic corner of the fire building and commit the ladder company (typically on the opposite corner of the same side) before committing any additional companies on the same tactical side.
8. Take maximum advantage of good operating positions and “build” the capability of units assigned to these effective positions. Initial arriving pumpers should be placed in “key” positions. These positions should offer maximum fire attack access the fire area and be supplied with large diameter-pumped supply lines as quickly as possible. Subsequent arriving companies can operate the hose lines from this apparatus. Place these “key” companies first - before they are “buried” by later arriving units.
9. Key tactical positions should be identified and engines placed in those locations with a strong water supply.
10. Hydrants located closest to the fire area should be regarded as “key” hydrants. Large diameter steamer hook-ups of big pumpers take maximum advantage of such hydrants and facilitates pumping multiple lines. Do not take away the capability of such hydrants with single-unpumped hydrant lines.
11. Position pumpers on “key” hydrants before tying up secondary hydrants that require longer hose lays. Pumpers hook-up to key hydrants can supply water to two or more pumpers in forward positions.
12. Take advantage of the equipment on apparatus already in the fire area instead of bringing in more units. Connect extra lines to pumpers which already have a good supply line instead of making “daisy chain” supply line connections.
13. Stacking pumpers takes maximum advantage of the delivery capacity of strong “key” hydrants. Command must maintain an awareness of stacking potential where increasing fire flows are required. Some pumpers are better suited to stacking due to their internal plumbing arrangement.
14. Do not hook up to hydrants so close to the fire building that structural failure or fire extension will jeopardize the apparatus.
15. Fire hose (particularly large diameter) soon limits the general access as the fireground operation gets older. Command and Divisions must get apparatus well-placed in key positions. Lines should be laid with attention to the access problems they present. Try to lay lines on the same side of street as the hydrant and cross over near the fire.
16. When the aerial ladder is not needed for upper level access or rescue, spot apparatus in a position that would provide an effective position for ladder pipe operation if the fire goes to a defensive mode. Ladder officers must consider extent and location of fire, most dangerous direction of spread, confinement, exposure conditions, overhead obstructions and structural conditions in spotting apparatus. The truck should be spotted where the ladder can be raised and used effectively without repositioning.
17. Spot the command vehicle in a manner that will allow maximum visibility of the fire building and surrounding area and the general effect of the companies operating on the

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- fire. Command vehicle position should be easy and logical to find and should not restrict the movement of other apparatus.
18. Rescue units should be spotted in a safe position that will provide the most effective treatment of fire victims and firefighting personnel, while not blocking movement of other apparatus or interfering with firefighting operations.
  19. Rescue units must also provide for (air & medic unit) ambulance access to the Treatment Area in situations involving patient transportation.

## VIII. SUPPORT ACTIVITIES

1. Tactical support activities are those functions that assist active fire control and rescue operations. They generally include forcible entry, ventilation and the provision of access. Most confusion on the fireground is the result of lack of such support functions and does not generally relate to a breakdown of basic water application activities. Command must cause these support functions to be completed in a timely and effective manner - he must support the end of the nozzle. We lose most often because of a lack of support, not a lack of water.
2. You ventilate a building principally for two reasons:
  - A. To prevent mushrooming
  - B. To gain (and maintain) entry
3. Vertical ventilation as close to directly over the fire as possible is the most effective form of ventilation in working interior fire situations.
4. The timing of ventilation becomes extremely important and must be coordinated with fire attack activities - ventilation should be provided in advance of attack lines. Portable radio communications between engine and ladder companies facilitate this interaction.
5. Fire will naturally burn out of holes in roofs, regardless if you cut the hole or if the fire does. If the fire burns through the roof (defensive ventilation) it will generally do so in the best location - directly over the fire. If ladder companies cut the roof they must locate ventilation holes in a manner that will support rescue activities and fire confinement. If vent holes are cut in the wrong places, the fire will naturally be channeled to them and expand loss.
6. When you cut a hole in a roof, cut a big one.
7. We ventilate to alter interior conditions. The best operating positions to determine whether a building requires ventilation and the location and timing of that ventilation are the attack team(s). Interior and roof forces must communicate in order to coordinate the effort effectively.
8. Do not operate hose lines, particularly ladder pipes, down ventilation holes. Be cautious of hose lines to roofs - "candle moth" syndrome tends to overpower personnel operating on roofs when fire and smoke come out vent holes. Operate roof lines only for the purpose of protecting personnel and external exposures unless Command orders a coordinated roof attack.

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9. Effective topside ventilation will tend to keep roofs intact longer and roof condition necessarily becomes extremely important to ventilation activities. If ladder crews cannot get on the roof to ventilate because of advanced fire, Command had best begin to react in marginal offensive/defensive terms. Hose line crews can probably get inside and stay inside longer than ladder crews can stay on the roof. Axiom: It is better to abandon the building a bit too soon rather than a bit too late.
10. Forcible entry involves a trade-off in time versus damage; the faster you force - the more damage you do. The more critical the fire, the less important forcible entry damage becomes and vice versa. If the fire is progressing and you must go in and attack from the unburned side, don't waste time trying to pick the locks - bash the doors.
11. The provision of access many times will determine if the fire is cut off and extinguished or not. These access-oriented activities generally involve pulling ceilings, opening up concealed spaces and voids, and the activities required to get fire attack efforts in to operate on hidden fire. Such operations beat up the fire building and must be done in a timely, well-placed manner. In such cases, do not hesitate - if you size up fire working inside a concealed space, get ahead of it, open up and cut it off.
12. Beware of the premature opening of doors, holes, access efforts, etc. before lines are placed and crews are ready to go inside. Good timing requires effective communication between engine and ladder companies.

## IX. ADDITIONAL RESOURCE MANAGEMENT

### 1. GENERAL

- A. The decisions required to provide for adequate resource are an important factor in effective fire forecasting. Command must balance the tactical problems with the resource required to control those problems and stay ahead of the situation. Beware of the "Crisis Management": situation grows at a rate faster than the response rate to that situation - Command ends up with an out of control situation and inadequate resource to control it.
- B. Many times Command will reach a point where he begins to debate with himself to call another alarm or not - in such cases call for it. Always opt for the extra in the "Should I or shouldn't I" stage. If the extra resource is not needed, it can easily be put back in service.
- C. In most cases, Command should utilize the greater alarm mechanism - it is the quickest, provides for move-ups and indicates in a standard manner that the fire problem is in an expanded mode. Command should resist the temptation to dribble in help in a piecemeal fashion. Additional alarms should be struck sequentially.
- D. It is the continuing responsibility and function of Command to determine the resource required to control the situation, to provide continuing protection for the rest of the community while engaged in this firefight and to provide for the timely call for any additional resource required. The early call for additional resource will tend to consistently save the day.

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- E. Command must be aware of both the capability and response time of additional resource and effectively integrate these facts into calls for additional resource.
  - F. Some tactical situations move slowly, while some move very quickly. Command must call for additional resource at a rate that stays ahead of the fire. Some situations require the categorical call for additional alarms upon knowledge of particular characteristics or conditions; in other situations, Command will initiate some fire control activities, ask for reports and, based upon receipt of bad news, will strike more alarms.
  - G. As Command calls for additional resource, he must build a corresponding command organization-structure to manage that additional resource. Command cannot encounter a big fire situation, call additional alarms and then expect to effectively manage that additional resource in a single alarm command mode.
2. WHEN TO SUMMON ADDITIONAL RESOURCE
- A. An actual or potential fire situation exists and the life hazard exceeds the rescue capabilities of initial alarm companies.
  - B. The number, location, and condition of actual victims exceed the rescue/removal/treatment capabilities of companies. As a general rule, each victim will require two companies to treat and transport.
  - C. An actual or potential fire situation exists and the property protection demand (both internal and external) exceeds the fire control capabilities of initial alarm companies.
  - D. Fire conditions become more severe or the situation deteriorates significantly.
  - E. All companies have been committed and the fire is not controlled.
  - F. Forces are depleted due to exhaustion or injury or are trapped or missing: Command must forecast the effect the fire will have on personnel and provide for the support of such personnel in advance.
  - G. Command runs out of some resource (staffing, apparatus, water, equipment, command, etc.).
  - H. There is evidence of significant fire but companies are unable to determine location and extent.
  - I. The commitment of companies is not effective.
  - J. Companies cannot effectively perform early salvage operations.
  - K. Situation becomes so widespread/complex that Command can no longer effectively “cope” - the situation requires larger command organization and more division functions.
  - L. Command instinctively feels the need to summon additional resource - (don't disregard fireground hunches).

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**X. FIRE CAUSE INVESTIGATION**

1. It is the responsibility of Command to provide for cause investigation of every fire incident causing injury or property damage. This must be accomplished after fire control activities and before taking salvage and overhaul actions which could hinder the investigation. There is a responsibility to attempt to determine fire cause in all cases, not only when arson is suspected. The lessons learned in cause determination of accidental fires will be related back to our property management data and will be used to prevent future fires.
2. When a fire investigator is on the scene or responding, companies shall delay non-essential overhaul until the investigator has time to survey the area. Salvage activities which stop further property damage should continue if they do not interfere with the area of origin and any possible evidence. (Command will attempt to assign a liaison person/aide to the investigation).
3. When delay in response by an investigator is indicated, Command shall assign personnel to protect the fire scene and maintain custody until the arrival of an investigator. If the incident is of a minor nature (no injuries, slight damage), and the cause can be readily determined, units on the scene will gather the information and contact the investigator by telephone.
4. After achieving fire control, Command will release companies not required to complete investigation and overhaul. In some cases involving lengthy investigation times, companies can return to quarters and later return to the scene to complete overhaul activities.
  - A. Command will turn over jurisdiction of the fire area to the investigator as soon as possible after the fire is stabilized.
  - B. The investigator will request from Command any staffing or equipment needed to assist in the investigation. Command will respond to such requests to the extent possible under the prevailing circumstances.
5. All personnel will cooperate with the investigator. Protection of the fire scene and preservation of physical evidence will be a primary concern once life safety is secured and fire control is achieved.
6. **DESTRUCTION OF EVIDENCE:** The misconception that evidence is destroyed in a fire has been the reason many incendiary fires have never been brought to the attention of the courts.
  - A. **EVIDENCE IS NOT DESTROYED IN FIRES, EXCEPT IN RARE CASES:** The form, shape, color, size, and weight are certainly altered, but it can still be identified and placed in proper perspective.
7. **FIRE DEPARTMENT MUST PROTECT THE SCENE FROM DAMAGE DURING FIREFIGHTING:**
  - A. Extinguishment - Evidence can be washed out the door with misuse of fire streams.

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- B. Overhaul - The most damaging time for evidence to be used by the fire investigator and Police Department in court cases.
  - C. Salvage - This operation should not be too thorough until the investigation is completed, except to diminish the eventual loss.
8. The fire scene is the investigators laboratory. He must:
- A. Search it carefully and thoroughly.
  - B. Photograph everything, in place.
  - C. Diagram carefully.
  - D. Collect and preserve all evidence.
9. EVIDENCE GUARD THE SCENE
- A. Post a guard.
  - B. Maintain custody until release of the scene.
  - C. No unauthorized persons enter; Fire Department has the authority to close the scene, even to the owner.
  - D. Prevent personnel from unnecessarily walking through fire area. Avoid working on evidence.