



MULTIPLE DWELLING FIRES

TABLE OF CONTENTS

1.	Introduction	1
1.1	Purpose.....	1
1.2	Types Of Buildings:.....	1
2.	Description Of Buildings	2
2.1	Old Law Tenements-Tenements Built Before 4/12/01.....	2
2.2	Multiple Dwellings Built After 4/12/1901.....	2
2.3	Fireproof Class "A" Multiple Dwellings Including Housing Project Buildings.....	4
3.	General: Non-Fireproof Multiple Dwellings	5
3.1	5
3.2	Deleted.....	5
3.3	General Operations-Engine Companies.....	5
3.4	General Operations-Ladder Companies.....	8
3.5	Operations Of Battalion Chiefs.....	9
3.6	Miscellaneous Problems And Key Points.....	11
4.	Old Law Tenements	14
4.1	Operations-General.....	14
4.2	Operations-Specific Types Of Fires.....	15
4.3	Miscellaneous Problems And Key Points.....	18
5.	Class "A" Non-Fireproof Multiple Dwellings Built After 4/12/01 To Present.	22
5.1	Introduction.....	22
5.2	Operations-General.....	28
5.3	Operations-Specific.....	31
5.4	Problems, Precautions, Key Points.....	37
6.	Class "A" Fireproof Multiple Dwelling Fires	38
6.1	Operations – General.....	39
6.2	Engine Company Operations.....	45
6.3	Ladder Company Operations.....	48
6.4	Chief Officer Positions.....	53
6.5	Rescue.....	54
6.6	Standpipe And Sprinklers.....	55
6.7	Building Features.....	56
6.8	Six Story Or Less Fireproof Projects.....	59

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FIREFIGHTING PROCEDURES
MULTIPLE DWELLING FIRES

GLOSSARY

Accelerant	A flammable liquid or other substance used by arsonists to cause a fire to spread rapidly.
Air shaft	A space between buildings or between rooms within a building, provided for the purpose of admitting air and light to rooms.
All-hands	A term used to show that three engine companies and two ladder companies are at work on the first alarm.
Auto exposure	The extension of fire in or on the exterior of a building from fire originating in the same building.
Back stretch	A method of stretching a hoseline. Members pull off sufficient hose at the location of the fire; pumper then proceeds to the hydrant. The hose peels off the back of the pumper as it travels to the hydrant.
Beam	A horizontal supporting member in building construction.
Bearing wall	A wall of a building which carries any load other than its own weight.
Bulkhead	A structure on the roof of a building which is built over or encloses a stairway, elevator, dumbwaiter or other building facility.
Casement window	A metal framed window which opens outward. This type of window is usually found in high rise multiple dwellings.
Class "A" multiple dwelling	A building housing three or more families in which residency is permanent in nature.
Class "B" multiple dwelling	A multiple dwelling which is occupied transiently.
Coaming	A raised frame around a floor or roof opening or scuttle to keep water from running in.
Cockloft	A space between the roof and the top floor ceiling.
Column	A vertical structural member in building construction.
Compactor	A device for crushing garbage and trash into a small space prior to removal from the premises.
Cul de sac	A portion of a dead end road where vehicles can turn around.

Drop ladder	A vertical ladder normally held in the "up" position at the second floor balcony of the fire escape by a hook. When this ladder is to be used, the hook is released and the drop ladder is lowered or dropped to the ground. Care must be exercised to make certain that no one is struck by this ladder when it is lowered or dropped to the ground.
Dumbwaiter	A device for collecting garbage from apartments by means of a wooden car which is raised and lowered in a vertical shaft by means of a rope and a pulley. In most buildings having these dumbwaiters they are no longer used.
ECC -	Engine company chauffeur.
Exposure # 1, #2, #3, #4	A system of designating the areas or buildings which are adjacent to the fire building. When facing the main entrance to the fire building, exposure #1 is in front of the building, #2 is on the left, #3 is to the rear of the fire building and #4 is on the right.
Fire escape	An emergency means of egress from a building consisting of metal balconies on the outside of a building connected by ladders to each other and to the ground. Some fire escapes have a ladder from the top floor balcony to the roof.
Fire partition*	A partition provided for the purpose of protecting life by furnishing an area of exit, or refuge, and having a fire resistive rating of at least three hours.
Fireproof construction	A building in which the walls, floors, structural members and stairway enclosures are made of incombustible materials with fire resistive ratings as required by the Building Code,
Fire stopping	The closing of all concealed draft openings to form a barrier against the spread of fire with incombustible materials.
Fire wall**	A wall provided primarily for the purpose of resisting the passage of fire from one structure to another or from one area of a structure to another, and having a fire resistive rating of at least four hours.
Fire wall	A wall of any construction having the required fire resistance rating and structural stability under fire conditions.
Gooseneck - ladder	A vertical ladder, the side rails of which are curved at the top. This type of ladder is sometimes used between the top floor balcony of a fire escape and the roof.

* 1938 Building Code.

**1968 Building Code.

Hose tags	Tags used for the purpose of identifying hose lines which have been stretched. There are two tags to a set. One tag is placed on the hose near the outlet of the pumper; the other is placed on the same hoseline near the nozzle.
In-line pumping	A Procedure in which a pumper is placed close to a fire and receives its water supply through a hoseline stretched between the pumper and a hydrant.
"K" tool	A forcible entry tool used for pulling lock cylinders.
Raised roof	A roof which is raised above the roof beams and supported by 2 x 4"s. The extent to which it is raised varies so as to provide proper drainage on the roof. The result is a large open cockloft where fire can spread easily.
Return	The interior surface of a scuttle or skylight between the roof and the top floor ceiling.
Riding list	A list of members on duty. One copy is kept on the apparatus and one copy is carried by the officer on duty. This list (Form BF-4) also shows riding positions, tools assigned, masks assigned and group numbers for each firefighter on the list.
Scuttle	An opening in the roof or a floor of a house fitted with a lid.
Shielded lock	A lock which is protected by a steel plate to prevent unlawful entry.
Single room occupancy	A multiple dwelling in which the apartments, which were formerly rented to families, are now rented as single rooms to unrelated people. These occupants use the kitchen and bathroom facilities in common.
Size-up	An estimate of the conditions and problems of a fire or emergency situation by the officer in command.
Unprotected steel	Steel structural components of a building which do not have any fire resistive covering such as concrete, brick, asbestos, etc.
Ventilate	All those actions which are taken at a fire to allow heat and smoke to escape. Ventilation is necessary to prevent fire from extending and to permit search and advancement of hoselines.
Window gate	A folding gate placed at a window to prevent intruders from entering. The type that is approved by the Board of Standards & Appeals does not have any locks.

1. INTRODUCTION

1.1 PURPOSE

- 1.1.1 To describe certain buildings, listed below, which comprise the major portion of the multiple dwellings in New York City.
- 1.1.2 To point out the problems and features of such buildings with regard to fires.
- 1.1.3 To establish methods of operating at fires in such buildings and recommend precautions that should be taken.

1.1.4 *To ensure all members comply with the provisions of AUC 329. When giving assignments, the Officer on duty shall ensure members are reminded of their designations as safety team members. These members must be aware that this designation is based on their unit's order of arrival at the box and will change as additional units arrive. While operating members shall pay particular attention to the following provisions of Sections 1.2 and 1.3 which state:*

"When a fire progresses past the incipient stage, the fire area must be considered an IDLH atmosphere. Every member entering the IDLH must be equipped with personal protective equipment and a self-contained breathing apparatus. No member shall enter an IDLH atmosphere unless the member teams-up with at least one other member and remains within voice or visual contact with that member."

"If a known life hazard is found and immediate action could prevent the loss of life, appropriate action (rescue activity) may be taken by the individual member. This applies only for a known life hazard, not for standard search and rescue activity. If such action is taken, the Incident Commander must be immediately notified and appropriate adjustments made."

1.2 TYPES OF BUILDINGS:

1.2.1 The types of buildings included in this book are:

- A. Old Law Tenements (tenements built before 4/12/01).
- B. New Law Tenements (tenements built on or after 4/12/01 and before 4/18/29).
- C. Class "A" Non-fireproof multiple dwellings built on or after 4/13/29.
- D. Fireproof Class "A" multiple dwellings, including housing project buildings.

Note: It is not intended to describe and date each law that affects the above listed types of multiple dwellings. It is almost impossible, when arriving at a fire in one of these buildings, to tell the age of the building, nor is that so necessary. It is sufficient to know the general features of the building and this can be accomplished at a glance if the classification of the building is known; namely, Old Law Tenement, New Law Tenement, newer nonfireproof multiple dwelling or fireproof multiple dwelling.

2. DESCRIPTION OF BUILDINGS

2.1 OLD LAW TENEMENTS-TENEMENTS BUILT BEFORE 4/12/01 (See Fig. 1).

2.1.1 Four to seven stories in height.

2.1.2 20' or 25' wide.

2.1.3 50' to 85' deep.

2.1.4 Class 3, non-fireproof construction (brick walls, wood floor beams and wood floors).

2.1.5 Two means of egress from each apartment almost always consisting of an interior stairway and a fire escape.

2.1.6 Two to four apartments on each floor.

2.1.7 Originally the stairs and stairway enclosures were wood with wood lath and plaster partitions. In 1934 most of these buildings were required to fire retard the stairway enclosure.

2.1.8 To provide light and air to each room, shafts of different shapes and sizes are provided between adjoining buildings. (See fig. 2).

2.1.9 "Railroad Flats" are those apartments which extend from the front of the building to the rear. There are usually two of these apartments on each floor. Building with these apartments usually have fire escapes on either the front or the rear. (See Fig. 3)

2.1.10 Some OLT's have four apartments on a floor. These buildings have fire escapes on both the front and the rear.

2.1.11 Stairway to the cellar is located inside the building, usually beneath the interior stairway.

2.2 MULTIPLE DWELLINGS BUILT AFTER 4/12/1901

2.2.1 New Law Tenements -those tenements built after 4/12/1901 and before 1916.

A. Generally six or seven stories high.

B. 35' to 50' frontage.

C. 85' in depth.

D. Five to six apartments per floor.

- E. The first floor (cellar ceiling) is of fireproof construction and unpierced.
- F. The entrance to the cellar is by way of an exterior stairs.
- G. The interior stairs are fireproof and enclosed in partitions of fireproof construction. Apartment doors are constructed of fire resistant materials.
- H. The second means of egress is either another stairway or an exterior fire escape. The fire escape is more generally found in these buildings.
- I. All interior walls and furred partitions are required to be fire stopped at each story.
- J. Steel "I" beams were introduced to carry floor joists which couldn't span the enlarged floor areas. These steel beams generally were supported by masonry walls.

2.2.2 Newer types of NLT's erected between 1916 and 1929 included the following features: (See Fig.5).

- A. They had a much larger floor area, i.e. 150' x 200'.
- B. To avoid being required to be built of fireproof construction, the floor areas were broken up into units of 2500 square feet or less.
- C. This means that between some apartments there are brick or fireproof partitions which effectively limit the horizontal spread of fire.
- D. However, these dividing walls only go as high as the ceiling of the top floor. This results in a very large undivided cockloft area. Fire can, and often does, spread throughout this large cockloft area.
- E. Unprotected steel beams are used to support some of the wood floor joists. These steel beams are supported by vertical steel columns which run the height of the building.
- F. Wooden floor joists (beams) run horizontally from brick wall to a steel girder or from a steel girder to a steel girder.
- G. There are several dumbwaiter shafts, located in the apartments. In most cases 2 apartments share 1 dumbwaiter. They terminate on the roof in a bulkhead with a skylight on top.
- H. Elevators are provided in some buildings. They run from the cellar to the top floor with a bulkhead on the roof.
- I. Entrance to the basement is by a side or rear door at that level via an exterior stair from the first floor, or through a passageway located in the front of the building.

Note: Because of the size and complexity of the larger type non-fireproof multiple dwellings, more complete descriptions are provided in Sec. 5.1.1.

2.2.3 Other Class "A" NFP multiple dwellings built after 4/18/29 (See Fig. 6).

Description:

- A. After 4/18/29 the Class "A" apartment type of multiple dwelling were no longer called "Tenements" and became known as "Apartment Houses."
- B. It must be emphasized that no matter what protection a law provides, it cannot be depended upon entirely in these NFP buildings due to renovations, settling of the building, shoddy workmanship originally or repair work.
- C. Between 1930 and 1940 firewalls were required to be carried to the underside of the roof boards and after 1940 to the top of the roof boards. These changes were designed to effectively reduce the size of the cockloft and limit fire spread.
- D. The size of the area to be enclosed by fire walls is 3,000 square feet. This is larger than the area of an OLT and it should be realized that there are several of these areas under one roof of later built multiple dwellings.
- E. Buildings of extraordinary dimensions are now being built. They include various designs which, although they comply with the 3,000 sq. ft. rule, result in interior public hallways hundreds of feet long.
- F. The limitation of height, six stories or 75 feet, for NFP residence buildings, is bypassed for buildings that are built on grades. It is not unusual to find a NFP seven, eight, or nine story building with no standpipe.
- G. Fire escapes as a second means of egress are still very common. Some of the new buildings may have 10 or more.
- H. Some of the newer buildings have non storage garages below. A sprinkler system may be required, depending when the building was erected.

2.3 FIREPROOF CLASS "A" MULTIPLE DWELLINGS INCLUDING HOUSING PROJECT BUILDINGS

2.3.1 Four to 40 or higher stories.

2.3.2 Irregularly shaped clusters of buildings-Double H, Star, rectangular, semicircular, that may have elevators, incinerators or compactors, standpipes and limited sprinklers.

2.3.3 Well constructed and maintained.

2.3.4 Rarely exposure problems.

2.3.5 Life hazard not severe outside of fire apartment.

- 2.3.6 Usually poured concrete floors, cinder block or gypsum block walls. Newer buildings use gypsum board (sheetrock) in the interior construction.
- 2.3.7 Apartments may be served by two fireproof stairways opening directly into the apartments, or more generally by two fireproof stairways reached by public hallway. The smaller four to six story fireproof buildings usually have one fireproof stairs which may be open or enclosed and runs from first floor to roof.
- 2.3.8 First floor may contain:
Large stores, supermarkets, day care centers, clinics, offices, the size of which may cover several apartments on the second floor.
- 2.3.9 Cellars and basements may contain:
Parking garages, laundry rooms, meeting rooms, stock areas for the first floor stores, tenant storage, incinerator or compactor rooms, loading docks.

3. GENERAL: NON-FIREPROOF MULTIPLE DWELLINGS

- 3.1 A great deal of information in this bulletin, pertains to more than one type of building. To avoid repetition the following material, which is applicable to Old Law Tenements, New Law Tenements, and Non-Fireproof Class "A" Multiple Dwellings erected after 4/1 8/29, is presented:
- 3.2 Deleted
- 3.3 GENERAL OPERATIONS-ENGINE COMPANIES
 - 3.3.1 Deleted
 - 3.3.2 Deleted
 - 3.3.3 Deleted
 - 3.3.4 Deleted
 - 3.3.5 Exercise caution when using the front suction inlet so as not to block out arriving ladder apparatus. Place the apparatus as close to parked cars as possible and use the side suction inlet. This will permit an aerial ladder or tower ladder to get in front of the fire building if necessary.

- 3.3.6 In most cases the first line is stretched via the interior stairs to the location of the fire. The purpose of this line is to protect the primary means of egress for occupants evacuating the building and to confine and extinguish the fire. An exception to stretching the first line up the interior stairs may be made when flame is issuing from windows opening onto the fire escape and endangering people trying to come down the fire escape. In this case the first line may be operated from the street to protect people on the fire escape. A second line should be promptly stretched into the interior of the building. If the entrance door to the building is self-closing and equipped with a locking device the first member entering the building should use a chock, rug or other means of preventing the door from locking and thereby delaying other members trying to enter the building.
- 3.3.7 There are other instances in which engine company operations may vary from the usual procedure of stretching to the origin of the fire via the interior stairs, such as store fires, cellar fires and dumbwaiter fires. These will be treated separately.
- 3.3.8 Deleted
- 3.3.9 Deleted
- 3.3.10 Deleted
- 3.3.11 The second engine company to arrive shall assist in stretching the first line. They must remain together as a unit and relieve the first engine company as required.
- 3.3.12 Getting the first line in position and in operation is of vital importance.
- 3.3.13 Deleted
- 3.3.14 Deleted
- 3.3.15 Engine companies other than the first to arrive shall take tentative positions at hydrants and test those hydrants to make sure they will have water if needed. The failure to select and test a hydrant can cause a delay in stretching additional lines especially if it becomes necessary to back up the pumper in order to locate a hydrant. If the pumper gets blocked in by other responding units the delay becomes even greater. Engine company officers and chauffeurs must be prepared to immediately adjust operations and seek alternate sources of supply such as use gated inlets and in-line pumping if original hydrant proves inadequate.

- 3.3.16 Deleted
- 3.3.17 Deleted
- 3.3.18 If two or more apartments are involved in fire with lines being used in each apartment, companies should be aware of the possibility of fire getting behind them through the ceiling space if the line in the adjacent apartment is not advancing as rapidly as theirs.
- 3.3.19 Deleted
- 3.3.20 Do not clutter up the interior stairs. After two lines have been stretched up a stairway, additional lines should be stretched via fire escapes or windows, making use of ropes to pull up hose lines.
- 3.3.21 Tower and aerial ladders should not be tied up by stretching lines up them. These ladders may be needed for egress from the upper floors or roof, or for use of their heavy caliber streams.
- 3.3.22 Deleted
- 3.3.23 Hose lines should not be operated into ventilation holes from the roof as this decreases ventilation and nullifies the action of lines operating on the top floor. A roof line should be used only to prevent fire from extending past the trench, to protect exposures, or to extinguish fire that cannot be reached from below, such as fire in a cornice.
- 3.3.24 Deleted
- 3.3.25 Deleted
- 3.3.26 Deleted
- 3.3.27 The use of the manifold which is carried by Satellite Units or the mini manifold which is carried by some battalions can be a great advantage at fires where many hose lines must be stretched. The manifold can be placed in front of the fire building. The mini-manifold may be placed on an upper floor of the fire building. This cuts down on the amount of hose needed, saves time and energy in stretching hose and makes for a more orderly operation by eliminating surplus hose in the street. Engine companies arriving after the manifold has been set up should be informed as to how many lengths of hose to bring to the manifold for stretching to their point of operation.

3.3.29 Stretching of hoselines on the first alarm:

- A. The first line stretched for a fire in a multiple dwelling should be stretched by way of the interior stairs. The primary purpose of this line is to safeguard the stairway so that it can be used by the escaping occupants. The door to the fire apartment must not be opened while people are coming down the stairway from the floors above. When the safety of the stairway is assured, this first line may be advanced to extinguish the fire.
- B. The second hoseline is also usually stretched by way of the interior stairs to the same floor as the first line. It is meant to augment the first line, if necessary. If not needed on the original fire floor it is then advanced to the floor above.
- C. The third line in the building should usually be stretched via the fire escape. This is especially true in Old Law Tenements because the stairway is narrow and the stretching of a third line via the interior stairs would result in congestion and inability to move any of the hoselines.
- D. In some cases the second or third lines may be urgently needed in one of the exposures. The decision as to the location to which these lines shall be stretched rests with the officer in command and is based on his size-up of the fire situation. For example, at a fire in an Old Law Tenement it is often necessary to stretch the second line or the third line into Exposure #2 or #4 because fire has extended or is about to extend across the narrow shaft or shafts between buildings.

3.4 GENERAL OPERATIONS-LADDER COMPANIES

- 3.4.1 Deleted
- 3.4.2 Deleted
- 3.4.3 Deleted
- 3.4.4 Deleted
- 3.4.5 Deleted

3.4.6 Ladder company officer or forcible entry firefighter should carry "K" tool in order to expedite entry to the many apartments which will be found in these buildings. Very often there is more than one lock on the apartment entrance door, and window gates will frequently be found on the windows opening to the fire escape.

3.4.7 Deleted

3.4.8 Many times occupants of apartments in these buildings are reluctant to leave their apartments and afraid to answer the door. Every effort must be made to search all apartments that present a hazard to anyone therein.

3.4.9 Deleted

- 3.4.10 Discretion should be used in the breaking of windows in apartments not involved in fire. Efforts should be made to open these windows where possible and necessary. Windows should be opened 2/3's from the top and 1/3 from the bottom to allow heat and smoke to vent and cool air to enter the room. If there is a tolerable smoke condition and very little heat in the apartment and the windows cannot be opened, they should be left intact after a search has been made.
- 3.4.11 Officers must not permit any material to be thrown out of windows unnecessarily. A member should always be posted in the yard or street below to prevent injuries to anyone from falling material. Examination of yard must be made before discarding any material into the yard to assure that no occupant has jumped into the yard prior to the arrival of Fire Department units. No material shall be thrown onto roofs of building setbacks or into narrow shafts.
- 3.4.12 When window frames are being overhauled, care must be exercised to prevent any parts of the window frame or counter-weights from failing and injuring persons below.
- 3.4.13 It is the responsibility of the first ladder company to arrive to determine the location of the fire, whether it is extending and to where it is extending.
- 3.4.14 When serious fires occur on the top floor or in the cockloft, it may be necessary to cut openings in the roof to ventilate and stop the horizontal spread of the fire. Cutting holes in the roof must be done only when necessary. However, when the decision has been made to cut the roof, a sufficiently large hole should be made directly over the fire, using portable saws. If possible, the long side of the opening should be at right angles to the roof beams in order to provide venting of as many bays as possible.
- 3.4.15 Venting the windows on the top floor, in conjunction with the hole in the roof, will usually result in an indraft of fresh air into the top floor which will be carried out along with heat and smoke through the roof opening and permit advance of hose lines, search, rescue and opening up operations.
- 3.4.16 When fire is on top floor or in the cockloft, sufficient men with hooks must be sent to the top floor to pull ceilings, especially for the larger non-fireproof multiple dwellings. It may be necessary to use engine companies for this purpose or to special call additional ladder companies.

3.5 OPERATIONS OF BATTALION CHIEFS

- 3.5.1 The first to arrive battalion chief shall assume the position of the incident commander and establish the incident command post in proximity to the front of the fire building. It is imperative battalion firefighters stay with their assigned chief during the incident in the event a command channel is activated.

- 3.5.2 The battalion chief must size-up the situation and note what actions have been taken prior to his arrival. The IC shall determine if sufficient resources are present to deal with conditions and if needed, transmit the necessary alarms or special call additional units. The IC may enter the building to gather further intelligence for a proper size-up, but should not remain inside, nor become directly engaged in firefighting operations. Once this size-up is complete, the Incident Commander shall return to the ICP.
- 3.5.3 Based on his size-up and his anticipation of the progress of the fire, he will make a decision as to whether units in operation before his arrival should be redeployed and whether additional units will be required. Additional lines must be stretched and ladder companies put to work as required to protect life and to confine and extinguish the fire.
- 3.5.4 Deleted
- 3.5.5 The battalion chief must keep in mind that fire in these non-fireproof multiple dwellings can extend very quickly to the floors above and to the exposures. He must transmit special calls and/or greater alarms promptly when conditions warrant such actions.
- For a fire in an Old Law or New Law Tenement, special call an extra engine and truck for fire on two floors. If progress is not made on at least one floor in a short period of time, transmit a 2nd alarm. If fire is in a shaft extending into an exposure, transmit a 2nd alarm. If fire is extending into two exposures, transmit a 3rd alarm.
- 3.5.6 He should anticipate the possible need to use outside streams and have hose lines stretched to supply tower ladders, ladder pipes, deckpipes and other methods of developing heavy outside streams.
- 3.5.7 The battalion chief must be prepared to give an accurate report of conditions to the deputy chief when he arrives. This report should include:
- A. The location and extent of the fire.
 - B. Whether the floors above have been examined and searched and the results.
 - C. The situation with regard to the exposures-whether fire is visible in the shafts between buildings or at the rear.
 - D. Where lines are stretched to and which companies are operating those lines.
 - E. Identification of ladder companies on the scene and where they are operating.
 - F. Whether the all-hands chief or the rescue company are on the scene and, if so, what assignments they were given.
 - G. Any unusual or important information pertaining to the building such as unusually large area, separate stairways with no crossover above the first floor, people reported trapped or missing, etc.

3.6 MISCELLANEOUS PROBLEMS AND KEY POINTS

- 3.6.1 Members inside the building and not engaged in operations on the fire floor or elsewhere should remain in the hallways on the floors below the fire and not crowd the stairs and landings.
- 3.6.2 The incidence of arson is increasing along with the arsonists possessing a greater knowledge of fire travel and the use of accelerants. The use of accelerants can create some unusual fire conditions with an explosive spread of fire after units have been operating for a period of time in the building.
- 3.6.3 In some instances, fire on a lower floor may not be discovered until operations have started on the upper floor fire. Then the lower floor will suddenly erupt with intense fire endangering the members above. One of the best defenses for this problem is the stretching of a back-up line as soon as possible. All members must be aware of any unusual condition or odor as they are operating, whether it is while stretching, opening up, searching, supervising or resting. Wet or stained ceilings or floors, especially in areas where units were not operating could be from fuel or diesel oil. Other tell-tale signs are plastic bottles, balloons, streamers, etc.
- 3.6.4 There have been instances of flash fire or flash over in the cockloft area, some remote from the fire area and not necessarily back-drafts or smoke explosions. A possible explanation may be that there are flammable gases or vapors in this area which are lacking oxygen to burn. When we open the roof, pull ceilings or operate a hoseline, we may be admitting the necessary oxygen which can result in the flash over. The sources of these flammable gases or vapors and the reasons for the flashovers may be one or more of the following:
 - A. The collection of the gases from the fire itself.
 - B. Flammable liquids poured into or placed in containers in these areas (balloons filled with gasoline or fuel oil placed in ceilings from the floor above so that when the ceiling is pulled or drops, the balloon breaks and any glowing ember immediately turns the gasoline into an inferno surrounding the members).
 - C. The possibility of gas lines running from one vertical row of apartments to another row through this area, or other gas lines developing leaks under fire conditions with the gas collecting in the cockloft area or other enclosed areas.
 - D. Hoselines not delivering a sufficient amount of water to properly and thoroughly cool the area, resulting in a flash back.
 - E. Venting the roof at an improper location. The fire could flash through to the hole.

3.6.5 The first officer inside the fire building must make known to the chief and other members the manner in which the floors and apartments are designated, i.e., whether numerically or alphabetically. Apartment 2E could be on the second floor or on the fifth floor.

3.6.6 Multi-unit drills at previous fire scenes are a good way to become familiar with the problems associated with these buildings.

3.6.7 Deleted

3.6.8 Deleted

3.6.9 Doors to the apartments may be of the metal clad type, some with steel frames. The locks (as many as three on one door) are very sturdy and of various designs. Heavy chains with hardened padlocks as well as bars are placed across doors for further security while the apartment is occupied. In most cases these doors are difficult to force open and it may be advantageous to seek other means of entrance, such as through walls from the adjoining apartment or from the fire escape. If many apartments are to be searched it may speed up the process if an effort is made to find any person who may have keys to apartments. These people may also be able to supply information about other occupants. Windows may be barred by protective gates. Many windows on fire escapes are so equipped. With sturdy locks and the construction of gates they are difficult to force. Some of these windows may be barred and some may be covered with plywood. People are literally locking themselves in "steel cages" for security reasons and our task is to penetrate this defense.

3.6.10 Deleted

3.6.11 Members must be aware that when operating near windows, the window sill may be low, debris may be piled high beneath the sill and under conditions of poor visibility at a fire, there is a danger of falling out of the window.

3.6.12 Gas Meters

- A. Gas meters are usually in the cellar but they may also be found in apartments and in public hallways.
- B. If gas meters are burning they should be allowed to continue to burn until the gas supply is shut off. If fire at the meter is extinguished before the gas supply is shut off, gas will continue to discharge and an explosion or flash fire may occur when the gas comes in contact with a source of ignition. Combustible material near the burning meter should be wet down while waiting for the gas supply to be shut off.
- C. If gas is leaking without being ignited, the gas supply should be shut off and the area ventilated as much as possible. Members should be moved away from the area of the leaking gas. Fog lines may be used for venting.

A leak or break in the piping may be stopped or greatly diminished by stuffing rags, paper, etc., into the break.

3.6.13 Outside Streams

- A. As a general rule, outside streams should not be directed into occupied buildings. Occupants should be removed first. However, in some cases, life safety or fire conditions may require that outside streams be used in occupied buildings. For example, to protect people on a fire escape or for heavy fire in a store.

- B. There are many types of outside streams which may be used, including hand lines, deckpipes, ladder pipes, tower ladder streams, fireboat streams and Satellite Water monitors. These outside streams form an important part of our fire attack system. Some of the situations which may call for the use of outside streams are:
 - 1. To protect life by putting a stream between the fire and the occupants.
 - 2. To protect exposures.
 - 3. To confine the fire.
 - 4. To diminish heavy fire so that an interior attack can be made.
- C. Revoked
- D. Only the officer in command of operations may order the use of outside streams. This may be the officer arriving first. For example, he may order the deckpipe used for a store fire.
- E. The air movement resulting from the use of large caliber streams must be considered. This air movement caused by the stream will, at times, drive the fire, heat, combustible gases and smoke into uninvolved areas of the building. At large area building fires, a careful positioning of apparatus and operation of outside streams should be attempted so that fire and heat will be driven away from uninvolved areas and back toward the point of origin of the fire. If this is not done, powerful outside streams may drive the fire across narrow shafts and into the exposures.
- F. Outside streams should be used in one position only as long as necessary to extinguish visible fire.
- G. The use of outside streams into a building can cause injuries to members operating inside the building. Members inside the building must be warned, and moved to safe location before outside streams are directed into the building. This safe location must be verified by radio or personal contact, by the officer in command of the fire.

4. OLD LAW TENEMENTS

4.1 OPERATIONS-GENERAL

- 4.1.1 The severe life hazard in these buildings because of the crowded living conditions and the ease with which fire can spread requires prompt and efficient stretching of hose lines by engine companies.
- 4.1.2 Deleted

- 4.1.3 At least the first length of hose should be brought up to the fire floor and the hose strap attached to prevent hose from slipping back down the well hole of the stairway.
- 4.1.4 Deleted
- 4.1.5 If there is fire in two apartments on a floor or fire involves an apartment from front to rear, two lines may be needed on that floor.
- 4.1.6 If people are out on the fire escape when the first engine company arrives, and it appears that those people are in danger because of fire coming out the windows, then two lines should be stretched. One line to remain in the street to protect the people on the fire escape and the other line to be taken into the building.
- 4.1.7 Engine companies with lines in exposures can extinguish a great deal of fire in the fire building by operating across a shaft. However, this should not be done without permission of the officer in command as it may drive the fire at members advancing from the interior.
- 4.1.8 The absence of a fire escape on the front of an OLT will usually indicate that the apartments are railroad flats. That is, apartments with the rooms arranged single file from front to rear, with a single fire escape in the rear and two entrance doors in the interior hall. Corner buildings may be exceptions to this general rule.

4.2 OPERATIONS-SPECIFIC TYPES OF FIRES

4.2.1 Cellar Fires

- A. The first line should be stretched to the cellar entrance door which is located inside the building, under the interior stairway on the first floor. This line should remain at this position to provide protection for people coming down the stairway, and to extinguish fire which may be extending upwards from the cellar via partitions, dumbwaiter shafts and other voids. This line should not be advanced down the cellar stairs if there is an outside entrance to the cellar at the front or rear of the building, unless of course, the fire is minor.
- B. Ventilation must be provided at the roof over the stairway, at the top of the dumbwaiter shaft and other shafts and vertical openings. Ventilation must also be provided via the cellar windows, doors, trap doors, and by intermittently opening and closing the door at the top of the interior cellar stairs after all of the occupants have been evacuated.
- C. The second hose line stretched should be advanced into the cellar by way of the front or rear entrance to the cellar.

- D. Fires in cellars may quickly spread to the upper parts of the building since OLTs do not have the advantage of a fireproof cellar ceiling such as is found in buildings erected at a later date. This spread of fire may be via combustible ceilings, partitions, shafts, pipe recesses and other voids. It is important to check for such extension and have hose lines stretched to stop the spread of fire.
- E. The possibility of living quarters in the cellar cannot be ruled out. This area must be promptly searched for occupants.

4.2.2. Store Fires

- A. Store fires in OLTs may involve a large amount of combustible material. A 2 ½" line should be stretched for large volume fires and a second line stretched to the entrance hallway. When assured that the second line is not needed on the first floor it may be advanced to the floor above the fire.
- B. A charged hose line must be ready before the store is ventilated. It is especially important that no plate glass windows be broken without a charged line being ready.
- C. Fires in stores may extend to the upper floors by auto-exposure or via openings in the store ceilings. These store ceilings were usually constructed of metal. The metal ceiling can communicate heat to the floor above.
- D. Fire issuing from stores may be directly under a fire escape and people attempting to use the fire escape may be in great danger. It is very important to position a hoseline to protect the people on the fire escape.
- E. Hidden fire extending upward from store via floors, partitions and various horizontal and vertical voids may present a very difficult fire problem.

Members trying to locate and extinguish the hidden fire will be subject to very severe heat and smoke conditions. Masks will become depleted and members will have to be relieved.
- F. Rolling Steel Doors. (See information pertaining to Rolling Steel Doors in stores in WNYF, 4th Issue, 1969).
- G. Stores in OLTs may have a door which opens into the public hallway on the first floor. The first floor public hallway should be examined immediately to determine whether the means of egress for the occupants of the building is in danger from the store fire. If so, a hose line should be positioned to protect the interior stairs.
- H. Store owners may use the rear of the store as their living quarters, so it is important to search the rear of stores as soon as possible. Access to the rear will be extremely difficult because of iron bars on windows and the interior hall rear door possibly nailed shut.

4.2.3 Apartment Fires

- A. Deleted
- B. It can be expected that fire will extend quickly to the floors above by way of pipe recesses, partitions, flooring, shafts and various hidden voids. This is particularly important in Old Law Tenements due to many bathroom alterations.
- C. Fire may also extend quickly to adjoining buildings by way of shafts between buildings. In some cases there are two or three shafts between buildings and then the problem of stopping extension of fire to the exposures becomes very difficult. The roof firefighter, especially, should report as soon as possible the layout of shafts between buildings and whether there is any fire visible in these shafts.

4.2.4 Stairway Fires

- A. Fires in stairways in OLT's present a serious situation since the stairway is the primary means of egress for the occupants. If the fire extended into the stairway from an apartment, it is possible that the fire escape exit may also be cut off by flame from the apartment windows.
- B. The first hoseline should be stretched up the stairway, operated to extinguish fire, shut down and advanced further up the stairway. When possible, the line should be operated up the wellhole to cool off the hall and stairs above. This procedure should be repeated until line is advanced to the top floor. A second line should follow to finish up extinguishing operations and to serve as protection for members advancing the first line. Apartments must be checked for possible extension of fire in them.
- C. Ventilation at the roof over the stairway is extremely important so that hoseline can advance up the stairway.
- D. It is important that members do not overload the stairway in these old buildings. Those not immediately necessary to the operation should remain on the floors below.

4.2.5 Top Floor Fires

- A. As with fires in apartments on lower floors, ventilation is necessary for the safety of the occupants and to enable members to advance hose lines and to search.
- B. It may be necessary to cut a hole in the roof over the fire if the heat and smoke conditions are too severe or if the fire has extended into the cockloft.

- C. Cockloft areas of OLT's are much smaller than those in NLT's and therefore are not as much of a problem. It may be necessary to cut a trench in the roof of an OLT in order to prevent the spread of fire but usually such fires are extinguished from below after an adequate ventilation hole is cut over the fire.
- D. The entire top floor must be thoroughly searched and examined because of the lack of fire stopping in these buildings.

4.2.6. Air and Light and Dumbwaiter Shaft Fires

- A. Deleted
- B. Windows opening on shafts may provide means for fire to extend into a building or into two buildings. This is true especially in warm weather when windows may be open. Prompt examination must be made to determine if fire has extended into buildings, and windows must be closed to prevent fire or flying brands from entering. In some shafts there are doors at cellar level leading into cellars of both buildings.
- C. A hose line should be stretched to the nearest point from which water can be directed onto fire in the shaft. Sufficient hose must be stretched to reach the upper floors of the building.
- D. A second hose line may be necessary if it appears that fire might have extended into the adjoining building.
- E. In some cases the base of the shaft may be the roof of a store or ceiling of a cellar and the fire may burn down into the store or cellar.
- F. Shafts may be open or covered. It is important to ventilate over those shafts which have skylights or any other covering.
- G. For fires in rooms in the vicinity of a shaft, after the fire in the room has been controlled, the line should be operated up the shaft to extinguish fire and cool the shaft.

4.3 MISCELLANEOUS PROBLEMS AND KEY POINTS

4.3.1 Deleted

4.3.2 Possibility of Collapse

- A. Because of the short span of floor beams-25', and the fact that the floors are not heavily loaded, the collapse of floors in OLT's is usually not a problem.

The instances of collapse or partial collapse of floors have generally occurred when there were previous fires and the floor beams were badly burned.

Note: Floor joists which are supported by masonry walls are generally provided with fire cuts.

- C. At times there have been collapses of older buildings not associated with fires, such as when adjoining buildings have been torn down or when excavations are being dug on adjacent land.
- D. Any indication of collapsing floors during fire operations should be promptly reported to the officer in command so that units can be withdrawn to safe positions. These indications of possible collapse may include plaster ceilings falling, floors or ceilings sagging, and unusual creaking noises.

4.3.3 Roof Cornices at Front of Building-Possibility of Falling

When the metal cornice at the roof has been involved by heavy fire for a considerable time the cornice or parts of it may suddenly fall. It is important to be aware that this may happen and to keep members, and other people away from the front of the building. Members stretching lines up the front fire escape or operating from the front fire escape must also be warned and moved to a safe position when it appears that the cornice may fall.

4.3.4 Spread of Fire to Exposures

- A. At fires in OLT's the danger of spread of fire to exposed buildings is great. Exposures 2 and 4 are in greatest danger because they are usually closer to the fire building and if they also are OLT's then the layout of the shafts between the buildings makes it easy for fire to spread to the adjoining buildings.
- B. Buildings in the rear are usually not as seriously exposed because they are anywhere from 10' to 25' or more away from the OLT. However, the possibility of spread of fire to buildings in the rear must be kept in mind, especially if there is heavy fire in the rear, windows in the exposed building are open and the wind is blowing in the direction of the exposed buildings.

4.3.5 OLT's Converted to Single Room Occupancies

- A. It is no longer permitted to convert OLT's to Single Room Occupancies but thousands of such buildings have been converted and are still being used as Single Room Occupancies (SRO's).
- B. In these SRO's the individual rooms in each apartment are rented to occupants and the bathroom and kitchen facilities are used by all of the occupants of the apartment.

- C. Each individual room is equipped with a lock; many with padlocks on the outside. Just because a door is found padlocked, do not assume that the room is empty. Someone may be locked in the room. Entry must be made and all rooms searched.
- D. The layout of the rooms must be arranged so that each occupant has access to both means of egress (stairs and fire escape) without having to go through another person's room.
- E. These buildings require sprinklers in each room and in the stairway. The sprinkler system has no roof tank; it is supplied from the water main in the street. The system cannot be supplied by the Fire Department.
- F. These SRO's also require an interior alarm system to warn the occupants of fire. Exit lights and signs must be provided.

4.3.6 Rehabilitated OLT's

- A. Large scale renovations of groups of OLT's have been done. The changes made in these renovated OLT's are not the same in each case but there are some changes that are often found such as, one heating plant installed to serve a group of buildings, hanging ceilings in public halls and stairways, horizontal exits provided from one building to another, compactors and chutes installed.
- B. In some areas two or three adjacent OLT's have been extensively altered and interconnected to create one building with but one street entrance. In many instances a new brick front is placed on these interconnected buildings giving the appearance of a newly constructed multiple dwelling. In reality, the buildings still retain all the original avenues for rapid fire spread peculiar to an OLT, e.g., interior shafts, little or no fire stopping, dumbwaiter shafts, etc.

4.3.7 Severe Life Hazard in OLT's

- A. Because of the combustible nature of the building contents and components and the many voids, fires in OLT's can spread rapidly, endangering the occupants of the building.
- B. The interior stairway may be unusable because of fire, heat and smoke in the stairway.
- C. Fire escapes may be unusable by small children and elderly or handicapped people or because fire is issuing from windows which open onto the fire escape.
- D. There may be a delay in occupants becoming aware of a fire, especially at night time.

- E. For these reasons it is very important to search and evacuate building promptly. Particular attention must be directed to an initial search of the top floor apartments. Regardless of the fire location within the building, a substantial fire will tend to create a heavy smoke build-up in these top floor apartments.

4.3.8 Party Wall Balcony Fire Escapes in OLT's

- A. Some fire escapes in OLT's do not have ladders connecting fire escape balconies. Instead they are arranged so that the fire escape balconies connect two or more buildings. In the event of fire, the occupants would use the fire escape balcony to escape to an adjoining building.
- B. Some problems may arise with this type of fire escape:
 - 1. Firefighters cannot use the fire escape to go from one floor to another for ventilation and search purposes.
 - 2. The fire escape cannot be used to gain access to the roof.
 - 3. The fire escape cannot be used for stretching hose lines.
 - 4. In some cases the party wall balcony fire escapes connect only two buildings. In those cases the demolition of one building would definitely remove the two means of egress of the other building. In other cases the party wall balcony fire escapes may connect more than two buildings.
 - 5. There is also the danger of locked, barred or gated windows preventing occupants from the fire building from using the escape route of the adjoining building.
 - 6. People in some cases may mistake escaping occupants on balconies for burglars or intruders and violently resist them entering their apartment.
- C. In the event of a serious shaft fire between buildings, and major extension into the adjoining building, many occupants could be found stranded on the party balconies. These people would be in a very dangerous situation and it may be extremely urgent to rescue them by ladders or life saving ropes. It will be even a more serious situation if the party balcony fire escapes are in the rear of the buildings where it will be much more difficult to rescue them.
- D. The roof firefighter must inform his officer and the officer in command of the fire of the presence of party wall balconies in the rear of the building. The officer in command should consider calling an additional ladder company to aid in rescue and search via the rear party wall balcony. A line may have to be stretched to the rear to protect the occupants and firefighters on the balconies. Portable ladders may also have to be brought to the rear.

4.3.11 Rear Tenements

- A. Some very old OLT's are found in the rear of other buildings. Usually it is necessary to go through the front building in order to get to the rear building.
- B. These rear tenements are small in area, may be of frame or non-fireproof construction, and may range from two to five stories, and many times are occupied by elderly people.
- C. The distance between the front building and the rear building varies but is somewhere between 10 feet and 25 feet usually.
- D. The rear buildings are frequently not visible from the street. This may result in a delay in discovery of fire in a rear tenement especially at nighttime.
- E. Raising ladders at these rear tenements is a problem. Portable ladders may have to be carried through the hallway of the front building. We may find the ladder can not be maneuvered to a standing position in this instance. Portable ladders may be raised via utility rope up and over front building, lowered to yard in standing position and maneuvered to rear building for rescue work. Emergency measures may require bridging from front tenement to rear roof for ventilating purposes or rescue.
- F. Due to the limited access to these buildings, it is difficult to make use of outside streams. The feasibility of operating outside streams from front building windows into vacant rear tenement should be explored.

5. CLASS "A" NON-FIREPROOF MULTIPLE DWELLINGS BUILT AFTER 4/12/01 TO PRESENT.

5.1 INTRODUCTION

This section includes all Class "A" non-fireproof multiple dwellings built after 1901. Emphasis will be on the larger buildings, historically referred to as "H type" since they are our greatest problem. (See Fig. 7). Although there are variations in the shapes of these buildings, such as "U", "O", "V", Double "E" and the newer, larger rectangular buildings, the problems and solutions are similar.

A "worker" in an apartment of an "H type" building is of much greater potential than a similar fire in an apartment of a smaller building. An apartment in an "H type" building is usually larger, irregularly shaped and has long private halls. Once a major fire develops, maintaining control of the fire floor becomes difficult because of the large number of apartments with their complex room layouts.

Generally, in the design of the "H" type, stairs and living units are located in the vertical lines of the letter "H". Elevators and large entrance lobby will be found in the "throat" (that portion which connects the wings of the building). During its period of popularity in building, namely the 1920's and 1930's, the "H" type design was used to connect many sections of housing together to form large residential complexes of apartments which encircled inner courts or gardens. These large non-fireproof multiple dwellings present tremendous fire potential due to the large areas that fire can spread to within the structure. New Law Tenements were constructed in the "H" type design beginning about 1916. In 1929, with the passage of the New York State Multiple Dwelling Law, the term "tenement" was no longer used for newly constructed buildings. The "H" type design was continued, and these buildings are now called apartment houses. Today the "H" type design may be found in non-fireproof residence structures classified J2 Occupancy Group, and Group II C Construction; that is, a multiple dwelling apartment house combustible construction classified in the Building Code as unprotected wood joist.

This section supersedes W.N.Y.F. 3rd Issue 1979 ("Fires in "H" 'Shaped Apartment Buildings").

5.1.1 Construction Features

- A. Construction of "H" type buildings has remained basically the same for over 60 years. The exterior walls are masonry, and generally of brick. The floors, roof and interior framing are partly or wholly of wood. Columns and girders are unprotected steel. Vertical exits and shafts have various degrees of fire retarding protection. In the past, the sections were built in areas of less than 2500 square feet to avoid constructing them fireproof. Today, the Building Code requires that these buildings be divided into areas of not more than 3,000 square feet.
- B. The "H" type design of residence buildings differs from the older tenements and the newer high rise multiple dwellings in that there are three structural elements to support the structure: *Masonry* bearing walls, *wood* beams that support floors and roof, and structural *steel* columns, beams and girders that connect and support sections of the "H" type building.

In contrast, older tenements generally only have two: masonry and wood. The introduction of steel into the "H" type design had the following advantages: it allowed girders to support floors instead of a costly bearing wall of brick; the consistency of steel structural characteristics allowed a fairly exact moment of failure to be determined, thereby eliminating costly overbuilding required by the use of safety factors when using less predictable materials such as masonry and wood.

And finally, the ability of steel to be connected permitted the coupling of several building sections to form the "H" type design of residential housing.

C. Structural Steel

Steel in the " H " type structure creates three concerns to the fire service:

1. Steel when heated expands, and substantial elongation can occur at a fire. This elongation can cause a wall to bulge, move, or even collapse if the steel is set within the wall.
2. Steel when heated to higher temperatures during a fire may fail. Floor beams supported by such failing steel will fall to the floor below.
3. Steel columns or girders, generally in an "I" beam shape, transmit fire and heat. The "I" beam or channel rail, as it is sometimes called, when in the form of a column located in the inner framework of a building may extend from the first floor up into the roof space or cockloft area (See Fig. 8). The space between the enclosing wood framework and "I" beam, when in the form of a vertical column, leads up into the cockloft and many times spreads to this roof space. (See Fig. 9).

D. The Cockloft

1. The "cockloft" is a large, concealed void between the top floor ceiling and the underside of the roof boards. This space, not large enough to be called an attic, has no means of entry. Once a fire occurs within the cockloft, it may spread undetected for some time. When it finally does make itself apparent by smoke drifting down to the top floor apartments or by burning through the roof, the entire roof space may be involved in fire. This area is required to be subdivided in some cases by firestopping, to prevent the entire void from becoming engulfed in fire. However, this firestopping is sometimes defective and fails to restrict the fire.

The cockloft of an "H" type building, if improperly firestopped, will become a very large, undivided area with the potential of a lumber yard. The fire loading of this area is considerable; roof beams, wood roof boards, wood frame work of the ceiling below, wood lath backing for the plaster ceiling and wood bracing connecting all. (See Fig.10)

2. The most common roof has the top floor ceiling several feet below the main roof beams. The roof boards are fastened directly to the top of the roof beams. This provides for a sturdy roof. In the inverted, raised or reversed roof the main roof beams are at the ceiling level and a framework is raised above these beams with the roof boards attached. This roof is normally springy but it permits the roof to be pitched so that water will run off. (See Fig. 11)

If there is a heavy body of fire in the cockloft, expect at least a partial collapse of the inverted roof. Since the inverted roof is constructed of 2 X 4's, they will burn away faster than the main roof beams and the roof section will come to rest on these beams.

E. Stairways

The number and location of stairways do not adhere to a common pattern. Some stairways will be found near the front entrance; others will be some distance away. In some instances there will be no access from one wing to another or from one part of the building to another. Generally, on the first floor there is access between wings. Stairway construction (See. Fig. 12) usually is of the return type, some with no wells, making hoseline stretches more difficult. Some stairways will have windows at the half landing facing the street, courtyard or front entrance courtyard. There are usually two to four independent stairs in "H" type buildings as follows: (See Fig. 12A).

1. *Transverse stairs*-these stairs usually are located at points remote from each other, but a person can go (transverse) from one stairway to another via the public hall on all floors of the building. Their layouts ease evacuation, assist in examination and permit lines to be stretched to any apartment via any stairs. They are a tremendous asset in heavy fire operations on the top floor.
2. *Wing stairs*-these stairs, one or two, are located at the front and rear of each wing. The floor landing lead to the public hall that will join the other stairs in that wing only (if two stairs). The public hall does not transverse to the other wing of the "H".
3. *Isolated stairs*-these stairs are usually identified by their individual entrances. Floor landings are recognized by their limited space and absence of a public hall. Access is limited to the apartments served by the stairs, and there is no access to other wings and hoseline operations are confined to their limited area.
4. It is essential that once the stair layout is recognized, that this information be relayed by Handie-Talkie. This is vital in the size-up picture.

F. Interior Shafts and Voids

1. *Channel Rails*-to provide stability to these large "H" shaped buildings, a steel framework is employed. Steel columns are erected vertically from the foundation to the cockloft. Their locations vary according to the architects design, and are at times difficult to find. They are often located in voids behind closets. Our main concern is that they are not fire stopped. This provides a chimney effect for fire travel from the first floor to all apartments above and to the cockloft.

These vertical voids, about one foot square, may be larger when the void is built to include waste and water pipes. When the fire is knocked down and opening up begins, areas where the lath has been burned must be examined for the presence of these columns. If detected, locations above the fire must be checked immediately. (See Fig. 8, and Fig. 9).

2. *Pipe Recesses*-the danger of allowing vertical fire travel are well known and require little emphasis. A note of caution-repairs by local handymen may have been made around pipe recesses or light fixtures. These poorly repaired openings may facilitate fire entering walls or ceilings. Waste pipe recesses exist wherever a kitchen or bathroom exist. Their presence may be picked up first by the roof firefighter who notes the locations of exposed waste pipes atop roofs which line up with the fire below. If the pipe is hot to the touch a top floor examination is required and notification made to officer and chief in charge of fire.
3. *Closets*-Their construction atop one another sometimes provides a vertical artery. Workmanship may be shoddy in closets creating openings for fire travel. Remember also that they are usually back to back with other closets. This may lead to horizontal extension as well as vertical extension.
4. *Dumbwaiter Shafts*-These are sometimes used as voids for new electrical wiring or water pipes. The openings where these wires or pipes enter the apartment may not have been fire stopped and will allow a shaft fire to readily enter the apartment. (See Fig. 13).
5. *Voids* -In unusual shaped buildings, voids may be created by squaring off rooms or hallways. These voids run the entire height of the building and will spread fire either up or down. (See Fig. 14).

G. Apartment Layouts

1. In the past, professional occupancies, such as doctors and dentists were found on the first floor of the "H " type buildings. It was common to find two apartments joined by inserting doorways in the common partition wall of the adjoining apartments. Today, this practice has become more common for a variety of reasons other than the original intent and can now be found on any floor. This type of alteration creates the possibility of heavy fire conditions throughout two apartments. Extreme caution must be exercised and units must be alert to the possibility of two apartments converted to one.

2. The number and layout of apartments in a wing vary greatly from building to building. Some apartments may have long interior hallways. The rooms of one apartment may be behind another apartment, in "L" or "T" shaped form.
3. Except for the first floor, which contains the lobby, upper floor apartment layouts are generally identical in each vertical line.

H. Floor and Apartment Designation

The manner in which the floors and apartments are designated numerically or alphabetically-has no set rule and can differ with each building. Some consider the floor one flight up as the first floor, and are numbered accordingly. In the Fire Department, the ground floor is considered the first floor. As shown on the diagram below, apartment 2E could be on the second, third, fifth or sixth floor depending on the system used:

<u>Apartment Designations</u>				
	<u>"E" Line Apts</u>		<u>"2" Line Apts.</u>	
6th Floor	5E	6E	2F	2E
5th Floor	4E	5E	2E	2D
4th Floor	3E	4E	2D	2C
3rd Floor	2E	3E	2C	2B
2nd Floor	1E	2E	2B	2A
1st Floor	E	1E	2A	2

Note: At most fires where the fire area is well defined, a good point of reference is the fire floor. When any operation has to be conducted above the fire floor a unit may be simply directed to the floor above the fire rather than give a specific floor, and then find that it was not the correct location.

- I. Entrance to rear yards may be gained through passageways from the street or through interior doors located on the first floor public hallway to exterior stairs.
- J. Fire escapes may be found on one, two, or all sides of the building. Some may have gooseneck ladders to the roof, others may not. Gooseneck ladders to the roof will not be found on fire escapes on the street side or on those in the street side courtyards.
- K. The cellar ceiling is of fireproof construction. Openings below the first floor for pipes, conduits, ducts, dumbwaiter and elevator shafts, must be protected by fireproof doors and assemblies and such doors must be self-closing. Entrance to the cellar is by exterior stairs.

5.2 OPERATIONS-GENERAL

5.2.1 Engine Companies

- A. It is of vital importance that, before a line is committed in an "H" type building, the exact location of the fire be determined. Care must be taken to avoid using a wrong stairway. Determine if the wings are connected above the first floor. Communication is essential. You must know where you are going before you start.
- B. Many times just stretching a line to a fire apartment will prove difficult. It may require many lengths (five or more) just to reach the building entrance. There may be large courtyards, often with obstacles such as trees, benches, fences, shrubbery, etc. Every effort must be made to get the first line in operation before additional lines are stretched. All available engine companies should be used to stretch the first line.
- C. Some stairs wrap around elevator shafts, necessitating very difficult stretches. An alternate method should be considered. Instead of stretching around the elevator shaft, it is much easier and faster to use a rope to pull the hose line up to the floor below the fire via the outside of the building, then up the interior stairs to the fire floor. The stairway windows, if available, can be used for this purpose. When this stretch is made, the location of the fire must be definitely known in order to be certain that the line will be brought into the building on the floor below the fire.

5.2.2 Ladder Companies

- A. The operations of ladder companies in "H" type buildings are very similar to, but more extensive than, operations in smaller multiple dwellings. The rapid location of the fire and determination if it is and how it is extending is an important responsibility of the first ladder company to arrive. The provisions of Fire Tactics and Procedures - Ladder Companies 1, 2, 3 and 6, are appropriate to operations in "H" type buildings. There are, however, inherent problems which may not be found in the older tenements. For example: The inability to cross from one wing to another above the first floor in some buildings.
- B. Aerial ladders, if first to arrive, should not be positioned so as to block off the front entrance courtyard. When possible, this position should be taken by a tower ladder. If rescue operations must be performed, the aerial shall, of course, be positioned to carry out this function. If the fire is showing out windows in the throat, courtyard and front windows, and a tower ladder stream is being used, it should be directed at the windows in the throat first. The stream then should be advanced toward the front of the building and finally operated into the front windows.

- C. When conditions indicate roof operations (top floor fire, shaft fire, two floors involved, heavy fire condition, etc.) the aerial may initially be raised to the roof for rapid ascent of the roof and outside vent firefighter. Primary means of getting to the roof would be other stairways in the same building or in the adjoining building if feasible. The aerial may then be used to vent windows as necessary. Once the windows are vented the aerial should be returned to the roof. It can be used as a means of escape for members operating on the roof.

5.2.3 Battalion Chiefs

- A. The first to arrive battalion chief shall assume the position of the incident commander and establish the incident command post in proximity to the front of the fire building. The IC shall determine if sufficient resources are present to deal with conditions and if needed transmit the necessary alarms or special call additional units. The IC may enter the building to gather further intelligence for a proper size-up, but should not remain inside, nor become directly engaged in firefighting operations. Once this size-up is complete, the IC shall return to the ICP. It is imperative battalion firefighters stay with their assigned chief during the incident in the event a command channel is activated.
- B. Additional units: Because of the severe life hazard, height area and combustible construction of these buildings, an additional engine company and ladder company (beyond a full 1st alarm assignment) should be called for a medium fire condition, that is, when it is anticipated that two lines will be required. When additional units have been special called, they should be given instructions by radio regarding positions, masks, extra hooks, etc. If two floors are involved, or at extensive cockloft fires, it will generally be necessary to transmit a 2nd alarm. The time that it takes 2nd alarm units to arrive must be considered under these conditions.
- C. Additional chief officers: When transmitting 2nd or greater alarms for fires which have entered the cockloft of large "H" type buildings, the IC should consider special calling additional battalion chiefs to cover critical sectors and/or exposures. These additional battalion chiefs could be assigned to a top floor position, the roof, or as needed.
- D. Communications:
 - 1. The need for immediate, clear, concise information is an essential part of the overall strategy. The officer in command must obtain the information necessary to evaluate the situation and then formulate the proper strategy to cope with it.
 - 2. Deleted
 - 3. With the building of these large multiple dwellings, a system of identification of various sections became necessary. Many wings are already designated: A wing, B wing, East wing, West wing, etc.

Since it may not be apparent to the firefighting force how a particular building designates its various sections and to avoid the confusion of calling a wing the exposure #2 wing, the following method shall apply regardless of the designation that the building uses:

- a. Standing in front of and facing the fire building and beginning on your extreme left, wings shall be designated A, B, C, D etc. The entire wing from the front to the back of the building shall be A, B, etc. The wing shall be further subdivided by the term: front and rear or front, center and rear if necessary. That part of the building connecting each wing shall be designated the throat and shall be referred to as the throat between A wing and B wing etc. (See examples in Fig. 15)
4. The officer who arrives first on the fire floor shall transmit the following information to the Chief:
 - a. Location of the fire apartment: (Wing, Floor, Apartment No.).
 - b. Number of apartments on the floor of the fire wing.
 - c. Fire conditions: (Fire out in public hall, heavy smoke condition).
 - d. Access: Location of stairway in fire wing closest to fire apartment. Report if it is possible to go from one wing to another above the first floor. (Transverse, wing or isolated stairs).
 - e. Fire extension: Whether fire is extending and how it is extending. Need and location for additional lines. (Fire floor or floor above adjacent apartment). Give reasons.
 - f. Difficulties or delays in gaining entrance to fire apartment or in advancing line. Give reasons.
 - g. Occupants: If occupants have been located and are accounted for. (This information may be obtained from one of the occupants or from a neighbor).
5. The roof firefighter shall inform his officer or the Chief in Charge of the following:
 - a. The configuration of the building, "H", "E", "U", etc.
 - b. Fire showing out windows (number and location) which are not visible from the street and whether any exposure is affected.
 - c. Color and volume of smoke coming from windows.
 - d. Persons trapped and their exact location.
 - e. Location of stairways and fire escapes.

- f. If the building fronts on more than one street. Whether there is access for apparatus. Whether it is a street, alleyway, parking lot, vacant lot etc.
- g. Whether there is any difference in the height of the building from street to street, or from front or rear, or from side to side. (See Fig. 16).
- h. Evidence of unusual heat, smoke or fire in the cockloft, if fire has burned through roof. Need for additional saws.
- i. Location of parapet and dividing walls.
- j. Any other information that will be relevant to aid operations.

5.3 OPERATIONS-SPECIFIC

5.3.1 Store Fires

A. Construction Features

- 1. Many of these buildings contain one or more stores on the first floor.
- 2. Deep or wide stores may span two or more apartments above.
- 3. Floor above stores is constructed of wood joists.
- 4. Possibility of unprotected steel columns extending all the way to the cockloft, lally columns, and horizontal I-beams.
- 5. Alterations may have created openings in ceilings and walls that can channel fire and smoke into column and pipe voids some distance from the original fire, horizontally as well as vertically.
- 6. Presence of pipe recesses to floors above and possibly straight through to cockloft.
- 7. Tin ceilings that are difficult to pull and may not prevent fire extension.

B. Fire Tactics

- 1. The first line is stretched to the store and extinguishes fire. Anticipate that store may be deep and that water must be directed into any vertical and horizontal openings that are found or suspected.
- 2. The second line should be used to back up the first line. When it is obvious that the first line can control the store fire, the second line should be advanced to the floor above the fire. If two lines are needed in the store, the third line shall be stretched to the floor above.

3. First Ladder: forcible entry to store, check rear of store for possible extension into public areas of building, quick opening of ceilings and voids.
4. Second Ladder: floor above for forcible entry and search for life and extension. Areas larger than the actual size of the store must be checked due to the possibility of horizontal travel of fire as well as smoke. These buildings have a peculiarity in that many times a fire will *bypass intermediate areas* both vertically and horizontally and then when an obstruction is met will set fire to the surrounding material.
5. Fire can spread to adjoining stores by way of spaces between the ceiling joists or by openings in walls for pipes, ducts and wiring.
6. Fire can extend upward in pipe recesses and vertical steel columns, to the cockloft, *possibly bypassing intermediate floors*. The top floor and cockloft must be promptly checked and rechecked at a later time.
7. Rescue problem above stores may be severe if heavy fire or smoke condition exists. Deckpipes on pumpers may have to be used momentarily to drive fire back into store or to protect people on fire escapes. A quick dash from this large caliber stream may make a tremendous difference in not only protecting life but in quick extinguishment of the fire.
8. Extra ladder companies may be needed immediately and should be called to evacuate upper floors if fire can not be controlled early and the smoke permeates to the many apartments found in these buildings.
9. Heavy fire and smoke can make fire escapes untenable for occupants above the stores or in close proximity to the stores. A line must be stretched to protect this means of egress and an aggressive interior search must be made.

5.3.2 Cellar Fires

A. Construction Features

1. Fireproof construction throughout cellar.
2. Cellar ceiling-concrete and rated at two hour fire resistance.
3. Holes made for wiring or pipes to upper floors are usually sealed but full reliance on this can not be made. Ceilings in the cellar and flooring on the first floor must be checked.
4. Wood sleepers (strips of wood imbedded in the top of the concrete) used to nail the first floor floorboards to.

B. Fire Tactics

1. The first line is stretched by way of the usually numerous exterior approaches to seat of fire and extinguish.
2. First Ladder provide forcible entry and search of cellar to locate fire and search for life. Consider likelihood of cellar apartments for superintendent or maintenance people.
3. First floor checked for extension and smoke condition.
4. Roof firefighter to roof for vent and examination. This firefighter also checks cockloft for possible extension of fire through vertical voids.
5. Numerous ground level windows are usually available at sides and rear, a considerable difference from Old Law Tenements. Due to this they are more easily vented and also provide alternate points of attack if interior attack is very arduous for the engine company.
6. Water damage not a problem.
7. Always be aware of the possible civilian life hazard in these cellar areas

Note: Storage of personal belongings or stock from stores in cellars, with its resultant fire load, is not the problem it formerly was. These goods are usually no longer found in cellars that have any type of reasonably easy access due to the security problem.

This is true in all types of dwelling buildings today except those that have areas under stores that are virtually sealed off from the rest of the building cellar and have interior stairs and/or sidewalk entrances to the cellar.

5.3.3 Top Floor, Roof and Cockloft Fires

- A. Top floor fires always present the possibility of fire extending into the cockloft. This can result in a complete loss of the top floor and roof. Fire car also drop down to the lower floors.
- B. When it is necessary to cut holes in the roof, initially, approximately a 3' x 6' coffin cut is recommended. Two saws should be put into operation promptly to prevent lateral spread of fire in the cockloft.
- C. Ventilation of the top floor must also be accomplished via the windows. This may be done from the interior or from the fire escape, ladders or roof. Ventilation via the windows, in conjunction with the hole made in the roof will make the top floor tenable for search, opening up and extinguishment.

- D. At these cockloft fires it is very important to have the ceilings pulled to expose the fire. Sufficient men with hooks must be assigned to pull these ceilings. At times it may be necessary to assign engine companies or individual engine men to pull ceilings. A charged line must be in readiness to extinguish exposed fire.
- E. One of the most serious problems at these cockloft fires is to determine the extent of the fire. To accomplish this it will be necessary to get all apartments open on the top floor, make openings to find the extent of the fire, get ahead of the fire and work back to the original fire area.
- F. Fire stopping in the cockloft cannot be depended on. Cocklofts may be undivided, as in the case when fire partitions only come up to the underside of the roof beams, or there may be openings in the fire stopping because of poor workmanship.
- G. Attached buildings of the same height, especially if built at the same time, must be checked for possible extension of fire.
- H. Cockloft fires in large area buildings such as these may spread rapidly. Because of the layout of the building sections and apartments, it usually requires many hose lines and many ladder company personnel to bring these fires under control. It is important therefore to send additional alarms in the early stages of the fire.
- I. Trenching (See Fig. 17)
 - 1. One of the techniques used to stop the spread of fire in a cockloft is to cut one or more trenches in the roof.
 - 2. Trenching a roof is a defensive operation that is performed to limit the extension of fire in the cockloft. A trench may be cut but should not be opened until there is an adequate vent opening directly over the fire. Ideally, the trench should be precut, but not pulled. Two or more inspection holes may be cut on the fire side of the trench. When, and if, the fire reaches the inspection holes, the precut trench is pulled.

This sequence lessens the possibility of the fire moving rapidly and prematurely towards what is, in effect, a second distant opening (the trench) cut in a roof.
 - 3. To be effective, the trench must be properly located, at least 3' wide, and cut from wall to wall or other suitable fire stop such as a stair or elevator bulkhead. Failure to complete a trench may allow a fire to pass to the other side of the trench.

4. The position of the first trench cut should be selected at a location that will isolate the fire to a section of the roof far enough away from the present fire position to allow time to cut and still not pull the fire. Fire travel will usually indicate the need for a trench but at times it will be difficult to determine.
5. The trench should be cut about 20 feet from the initial vent hole. It should be cut at the narrowest available roof section taking advantage of bulkhead structures, outside walls, skylights, etc. Do not depend on firewalls constructed within the structure. If the fire is heavy, and the first trench cut appears doubtful to stop the spread of fire, or if during the trenching operation there are indications of fire existing in the cockloft beneath you, then retreat and start a *second* trench a greater distance from your previous position even if this means giving up the entire wing. If fire does not pass the trench your mission was successful.
6. Personnel cutting a trench or a ventilation hole on a roof must be assured of a way of getting off the roof. Their means of escape must not be cut off by the trench cut or other opening. Keep all personnel off the roof on the fire side of the trench. If fire vents out of and/or crosses the trench they may be cut off. It is good practice, on larger buildings, to have two ladders raised to the roof at different ends of the building to provide egress from the roof. Members operating on the roof shall call for and direct the placement of ladders to assure their safe egress from the roof. It should be noted that all fire escapes do not extend to the roof. In some buildings none of the fire escapes extend to the roof.
7. Members must be aware of changing fire conditions in case the means of escape they were depending on can no longer be used because of the changing fire situation.
8. A charged line should be in position on the roof to protect personnel and the trench opening. This line may be operated into the trench in a brief sweeping side to side motion to prevent fire from extending across the cockloft. Such operations should only be conducted after adequate precautions are taken to prevent injury to interior operating forces.
9. Remember, roofs of "H" type buildings are extensive in area and present challenging fire control problems because of potential horizontal fire travel. Understand that there is a mass of wood in the cockloft equal to a small lumber yard. Some cocklofts are as much as four feet deep. Wood components range from 2 x 8 to 1 x 2 braces, all dry and easy to ignite.

10. The absence of fire showing at the trench is no guarantee that fire has not extended across this cut. The smoke and gases coming from the trench may be coming from both sides. Be aware that fire may have extended beyond the trench cut. Additional examination holes may have to be made past the trench. In the early stages of the fire, visibility into the cockloft from the roof trench is extremely limited or nonexistent.

Ceilings on the floor below must be opened up in various apartments, continually working toward the trench area. A large hole must be cut over the main area of fire. This will relieve the roof space of the built up heat and fire and create a thermal updraft. After this large hole is cut over the fire then the trench cuts can be made as defensive moves to separate the roof sections. This will not interfere with the thermal updraft that is venting the main fire and, hence, will provide the venting necessary for the units operating on the top floor. In so doing, they can then continue opening the ceiling with hooks which will more quickly expose the cockloft fire.

5.3.4 Extension of Fire

- A. Checking for fire extension: When a heavy fire is encountered in one apartment, all sides and above and below the fire area, must be examined. Nothing can be taken for granted. The most probable point for vertical fire extension will be the vertical steel channels (in buildings that have steel frame construction). These columns have no specific location and many are completely hidden. Any boxed out area is there for a purpose and if involved in fire must be opened up and examined. Closets are another very probable point of vertical extension. At times the vertical steel columns are located in the walls of these closets. Fires in channel rails necessitates opening up above and at the top floor ceiling for extension into the cockloft.
- B. Other vertical voids to examine would be pipe recesses, shafts of any type, such as elevator, dumbwaiter, vents etc. Any time fire enters a vertical void, the top and bottom must be checked for extension. Unused shafts may be sealed and covered over so that their location is not evident. These unused shafts are at times used for closets or to install new wiring with holes poked into the sides at ceiling level. These holes may not be properly sealed and fire can extend to a number of floors or to the cockloft by this means. These vertical voids may be found in the most unexpected places such as the center of living and bedroom walls. The wall of a closet in one apartment could be the wall of a kitchen in the next with pipes running up the wall between the Closet and the kitchen. Always examine walls in the vicinity of the bathroom for the large void enclosing the waste pipe. In renovated and or rehabilitated buildings the boxed out interior shafts for plumbing, electrical, steam, etc., must be checked.

They may be open from basement to cockloft. These large shafts are generally found behind kitchens and bathrooms and are discernible by unusually thick partition walls which are inconsistent with previous structures. They have been added to facilitate installation of additional services.

- C. Horizontal spread may be through any of the following means: the ceiling and floor beams, horizontal channel irons which may be found along partition walls at the ceiling level, burning through partitions, holes in interior brick walls, around shafts, through windows, cockloft and cornice. Ceiling beams are not always laid in the conventional manner (across the width of the wings). Some may be laid lengthwise depending on the iron framework. Wooden beams of one building may contact with beams of an adjoining section or building where they are laid on a common wall. Beams may be of unusual length, spanning large areas.
- D. In irregularly shaped buildings (outer walls not squared off) hidden voids may be created because of the necessity of squaring off the interior walls.
- E. The officer of the first ladder company to arrive if the second ladder company is not on the scene shall order members to the floor above, directly over the fire, to feel all the walls for hot spots, including the walls of closets. Any hot spots found must be reported to the officer or to the chief. At times there may be no smoke in this apartment but the fire could be spreading through the vertical voids. These men must also feel the floors above the fire and of the adjoining rooms. Fire may have extended through the horizontal voids and not be evident on the fire floor. This fire will travel horizontally until it encounters a vertical channel and will then travel upward.
- F. If any hot spots are found that require examination, small holes can be made for visual check. Should any fire be encountered, notify officer in command and immediately go to the top floor and check the termination point of this void for any extension to the cockloft area. If fire is found here a line must be provided at that point and the roof opened above. The smoke in this apartment and possibly throughout the top floors may be very heavy necessitating search, evacuation or rescue operations. As conditions develop and more help is available, the entire top floor must be searched and examined for extension. The possibility of heat and smoke traveling horizontally and then banking down at a remote point should be anticipated. If a heavy fire condition exists on a floor, the area and the base of any shafts below the fire must be examined for extension.

5.4 PROBLEMS, PRECAUTIONS, KEY POINTS

- 5.4.1 Many "H" type buildings are now partially occupied and vacant apartments may be found on many floors. It is not uncommon to find fires in two or more apartments at the same time, not necessarily on the same floor.

- 5.4.2 Know the floor, wing, section, side or exposure where you are operating. It is essential that all members at the scene use the same terminology. (See Section 5.2.3D Communications).
- 5.4.3 Consider a special call for the Satellite unit and its manifold. It could be placed in front of the fire building or within the courtyard. Engine companies arriving after the manifold is set up should be informed by Chief in Charge as to the size and number of lengths of hose to bring to the manifold for stretching to their point of operations.
- 5.4.4 A fire escape in the throat often spans the firewall and indicates two (2) separate apartments in the throat.
- 5.4.5 One apartment in throat may span firewall with no fire escape and have two (2) interior exits. One to the stairway in one wing and the other to adjacent wing. Usually one door is nailed shut or obstructed by furniture so as not to be openable. A search of this apartment must be thorough.
- 5.4.6 Some buildings have been found to have a fire partition in the throat which does not extend completely to rear wall. When a fire partition is found it must be checked to be sure it is carried to front and rear fire walls
- 5.4.7 The law requires the subdivision of these large NFP Multiple Dwellings into smaller areas. However, there is no way to determine the location of these subdividing walls, from the outside of the building, except in these few cases where they are continued above the roof.

6. CLASS "A" FIREPROOF MULTIPLE DWELLING FIRES

In the past twenty years many things have changed that affect our fire fighting capabilities. We are no longer fighting fires in residential building where the fire load is natural fiber based. With the onset of the chemical age, properties of the average residential furnishings are for the most part petroleum based. In essence, the fire load has increased tremendously, resulting in higher temperatures and faster spreading fires.

Thermal pane windows are now more common than the exception. Sometimes they are beneficial, in that they may prevent auto exposure. They also allow the fire to burn and smolder undetected for a longer period of time. In conjunction with the heat retaining characteristics of fireproof construction, the results are extreme temperature conditions within the fire area. When indiscriminate ventilation is accomplished, whether naturally, because the windows fail, or by fire fighting forces ventilating improperly, unpredictable results will follow, sometimes with disastrous consequences.

We have the ability to control the ventilation that will be performed by our members after our arrival.

We are now a fully encapsulated fire fighting force. Bunker gear, self-contained breathing apparatus and hoods are providing us with a level of protection unprecedented in the history of our department. The benefits provided by our personal protective equipment are unquestionable. The downside of this encapsulation is that our members are less aware of a potentially dangerous environment outside of their equipment.

The problem can be overcome with proper training and sound tactics.

6.1 OPERATIONS – GENERAL

This section will cover the initial considerations at fires in "Fireproof" multiple dwellings including buildings referred to in the past as projects and in newer hi-rise multiple dwellings. Fires in these buildings can be extensive, extremely hot and, depending on wind conditions and building air flow patterns, very difficult to extinguish. These fires require a coordinated effort from the designated attack stairway with 2½" hose. Two 2½" lines may be required to move down a public hallway when the door to the fire apartment is open and the wind and building air flow are opposing hose line advance. All extinguishment efforts shall proceed initially from the one attack stairway.

When fire is out in the hallway and wind is blowing into the fire apartment consider alternate means to apply water to the fire such as:

- ◆ Exterior streams when possible
- ◆ Via Breached interior walls from adjoining apartments

Close supervision and control of hallway area will be required if any of these methods are employed.

Life Hazard: The potential for rapid fire development and extensive heavy smoke on the fire floor and floors above, especially stairways, mandate the need for sufficient units for extinguishment and search.

Stairways: When scissor stairs are present, this should be communicated via hand-talkie to all units. Care must be taken to maintain the doorway to the evacuation stair closed on the fire floor.

6.1.1 Air and Smoke Movement: Some points that should be stressed;

- A. Generally smoke and air will travel in a direction toward vertical shafts, stairwells and elevators.
- B. When we perform ventilation the risk of drawing fire to that point exists.
- C. Top ventilation is generally beneficial.

- D. The variables that effect smoke movement are many. The most prominent are:
- ◆ Height of building.
 - ◆ Temperature differential between outside and inside of the building. (Stack Effect)
 - ◆ Construction and configuration of the building.
 - ◆ Surrounding structures and their relation to the building.
 - ◆ Mechanical ventilation systems.
 - ◆ **WIND**-Wind is the most serious concern to firefighting, as it alone can override the effects of some or all of the other variables.
- E. We have always been aware of the dangers and problems associated with wind driven fires on the upper floors of high-rise buildings. When the fire apartment door has been left in the open position and the windows fail, the **public hall becomes part of the fire area**. Depending on the dimensions of the hall, the fire can now be considered to be equal to conditions, which we encounter at commercial buildings. **We must strongly consider the effects of wind on lower floor fires**. Improper ventilation, even on a lower floor fire can have disastrous results.

6.1.2 Ventilation Procedures:

- A. The ventilation procedures we employ in high-rise office buildings have served us well in the past. In these occupancies our ventilation is very limited. In fact it is usually not performed until the main body of fire has been controlled. We do this because we do not want to increase the spread of fire and smoke conditions throughout the building. More importantly we do not want indiscriminate ventilation to have a severe impact on our operating forces thus creating a condition that would hamper extinguishment and search procedures or put our forces in grave danger.
- B. The ladder officer in the fire apartment conducting a search and examination should be the only one to initiate the request for additional ventilation. All other ventilation must be strictly limited and controlled by the Incident Commander.
- C. In some older fireproof multiple dwellings there are windows in the stairways. However, newer high-rise structures with scissor stairs are usually windowless.
- D. Stairways other than the evacuation stair may be used for venting the fire floor. Where only two stairways are present the attack stairway will be the primary means for vertical ventilation.

- E. Roof operations in fireproof multiple dwellings are usually of limited scope. A severe fire on a lower floor may not have an effect two floors above, or on the roof which may be 30 stories away. This does not mean that stairways, landings and elevators can be neglected. They must be checked and monitored on a continual basis. Conditions in stairways can change dramatically at a wind driven fire. Stairways that are relatively clear at the onset of the operation may soon become severely contaminated with smoke, especially if this stairway is used for ventilation. The possibility of tenants entering the stairway above the fire must always be expected and all stairways and hallways must be monitored on a continual basis for the presence of victims.

6.1.3 Elevators

- A. Elevators equipped with fireman service shall be operated by a firefighter in the car as per Training Bulletin Emergencies 1, Elevator Operations. Personnel shall exit at least two floors below the fire and survey the hallway, apartment, and stair layout. The firefighter operating the elevator shall then return the elevator to the lobby. When an elevator not equipped with fireman service is used, it shall be returned to the lobby unmanned.
- B. Stairs shall be used when the fire is on the seventh floor or below.
- C. Elevator shafts are conduits for vertical transmission of smoke and heat. Ventilation of these shafts at the roof level will reduce the smoke condition on the upper floors.
- D. Projects may have two elevators, one serving odd and one serving even floors. Members may wind up more than two floors below the fire due to this alternate floor system. In other projects, the elevators serve all floors or there is a LOW/HIGH bank system.
- E. Overloading of elevators must be avoided or the units responding to the fire will be delayed arriving at the fire/emergency. A stalled elevator, is an elevator out of service. Look for maximum load signs and consider each member and his/her equipment to be over 200 pounds.
- F. When both the engine and ladder arrive together and only one elevator is available (non fireman service), the **ladder officer, the forcible entry team, engine officer, and two firefighters (nozzle & control)** with all rolled up lengths and standpipe kit shall go up first. If the elevator has fireman service, the OV will be operating the elevator. This will necessitate reducing the elevator load by one of the engine firefighters. Others in the lobby are to make up a second team for the next elevator or consider using the stairs. This approach will get an initial attack started and pertinent information can be given to the lobby from this first team.

- G. Elevators opening directly into apartments or into foyers in the more exclusive type fireproof multiple dwellings may be found. This type of elevator has each floor landing door locked for security reasons. Other types open onto a small landing or foyer with only two doors, each serving one apartment. **No stairs or other means of egress are provided from this foyer. These elevators are to be avoided.** Check with the building service personnel to determine where these may be located. Use the service elevator to two floors below the fire and take the stairs to the correct floor. Standpipes are usually found in this service stairway. Service stairs in these buildings may be locked on the first floor with a wire mesh door that permits egress from upper floors but no entry up the stairs. These mesh doors are easily forced.
- H. After all units are in position, and two elevators are available and serviceable, maintain one elevator on standby in the lobby and one two floors below the fire, to transport injured members or civilians down to the lobby.

6.1.4 Forcible Entry

Fire Floor

- A. It is not usually necessary to force doors other than the fire apartment door. Adjoining apartments may be forced for sufficient reasons such as high carbon monoxide readings in the hallway or severe smoke conditions. Ladder companies shall report in with their carbon monoxide meters to reported fires in high-rise multiple dwellings. The ventilation effects of forcing doors other than the fire apartment on the fire floor cannot be accurately predicted. Air movement may work against our firefighting and search efforts. A heavy smoke condition in the hallway indicates that the door to the fire apartment most likely has been left open. In addition, we do not want to cause unnecessary damage to the building, or endanger occupants of the other apartments.
- B. The practice of ladder companies forcing an additional door on the fire floor for an area of refuge must be carefully considered. If conditions in the hallway of a fireproof multiple dwelling high-rise building are so severe that the officers feel the need to force a door as an area of refuge, consideration should be given to advancing into the hallway with a 2½" line.
- C. When it is decided that a door is going to be forced to provide an area of refuge, the door selected must be on the same side as the fire apartment door to prevent fire from being drawn across the hall if the fire apartment windows fail.

Floors Above

- A. Generally the only apartment we need access to on the floor above is the apartment directly above the fire apartment. No other doors should be forced without sufficient reasons, i.e. high carbon monoxide readings at the end of a hall, specific reports of persons needing assistance, concentrated smoke conditions due to stack effect on a particular floor, etc.

6.1.5 Communications

When handie-talkie communications are hampered, consider the following:

- ◆ Use of the High-Rise Repeater if available.
- ◆ Setting up a relay on an intermediate floor.
- ◆ Utilizing personnel outside of the building to relay handie-talkie messages.
- ◆ Moving to a different position in the lobby. Example: walking around in the vicinity of the elevators may enhance communications considerably.
- ◆ Cell phone. Phones shall be turned on and carried by Battalion or Division firefighters.
- ◆ Any building communication system.

6.1.6 Signal 10-77

Notification of a Fire in a High-Rise Multiple Dwelling.

Note: High-Rise Building includes all buildings 75 feet or more in height.

A notification signal transmitted when, in the judgment of the Incident Commander, conditions indicate a fire in a High-Rise Multiple Dwelling requires a total response of the following units:

4 - Engine companies
4 - Ladder companies
3 - Battalion Chiefs
1 - Deputy Chief
1 - Rescue company
1 - Squad company
1 - FAST Unit
1 - CFR-D Engine company
Field Communications Unit
Special Operations Battalion
Safety Battalion
Safety Coordinator (4th due Battalion Chief)

- A. The 10-77 signal has been established to provide sufficient units to manage a medium fire and smoke condition in a high-rise multiple dwelling. There are fewer special units than would be assigned on the 10-76 signal.

Some Examples:

- ◆ Heavy smoke on numerous floors.
- ◆ Numerous reports of persons in difficulty due to smoke.

If the Incident Commander feels that the 10-76 signal would be more appropriate due to the fire conditions or the type of building (mixed occupancy), then the 10-76 should be the signal transmitted.

- B. The 10-77 signal will be given at all high-rise multiple dwellings where fire is visible from the exterior on arrival, or other factors indicate the need for the 10-77 assigned units.
- C. A Second alarm after the 10-77 signal will cause response of the following units:
 - 4 - Engine Companies
 - 2 - Ladder Companies
 - Satellite Unit
 - Communications Coordinator
 - High Rise Unit
 - Mask Service Unit
 - RAC Unit
 - Tac Unit
 - Photo Unit
- D. The 10-76 signal can be transmitted after the 10-77 signal and the balance of the 10-76 signal will be assigned. Additional Units Responding:
 - 1 - Battalion Chief
 - Command Post Company
 - High Rise Unit
 - Mask Service Unit
 - RAC Unit
- E. A second alarm after the 10-76 signal will cause response of the following additional units:
 - 4 - Engine Companies
 - 2 - Ladder Companies
 - 2 - Battalion Chiefs
 - Additional Deputy Chief
 - Additional Rescue Company
- F. The 10-75 signal may be the initial signal used at these fires when internal conditions cannot be accurately determined on arrival. The signal should be upgraded to 10-77 or 10-76 when it is found that conditions as described above exists.

6.1.7 The "FAST" Unit and CFR-D Engine shall be assigned to the Operations Post when the fire is above the sixth floor. At lower floor fires (sixth floor or below) the position of the "FAST" Unit and the CFR-D Engine will be determined by the Incident Commander. The "FAST" Unit should carry a set of elevator keys.

6.2 ENGINE COMPANY OPERATIONS

6.2.1 Engine Companies First to Arrive

The first and second engines should team up to place the first 2½" hose line into operation on the fire floor. Initial hose lines will in all cases be stretched from a standpipe outlet on a floor below the fire.

A. Equipment:

- ◆ One length of 2½" hose per firefighter (some floors require more than three lengths).
- ◆ Standpipe kit with controlling nozzle.

Notes: Officers and firefighters shall use every opportunity during outside activities to identify buildings where a three length stretch from a standpipe would not be sufficient. The identity of these buildings should be made known to all first alarm units and should be entered into the CIDS program.

The Engine Company officer shall announce via the handi-talkie when the initial hoseline attack is to commence. Advancing hoselines will cause conditions opposite the hose line and above to worsen as the heat, fire, and steam are pushed in the direction by the force of the stream. Conditions in areas behind, adjoining or above the operating hoseline must be monitored for sudden possible deterioration due to the effects of hoseline advancement on the fire. All members must be alert to fireground communications concerning hoseline placement and the commencement of hoseline operations so that they may seek refuge if necessary.

Variations from stretching initial hoselines from standpipe outlets on a floor below the fire due to building configurations shall be approved by division commanders and placed in the CIDS program.

1. Duties: Take elevators to at least two floors below the reported fire floor using precautions normally taken with elevators. Examine this floor to check layout and determine the closest stairway to fire apartment. Communicate with the ladder company officer to select the attack stairway. The attack stairway need not be the stairway with a standpipe outlet. The hose line can be connected and stretched on the floor below and then up another stairway that is closer to the fire apartment to facilitate advance. Take time to make a reasonable choice. Once the attack stairway is selected all hose lines will be stretched and operated from this stairway. The other stairway shall be maintained for evacuation. Notify the second engine and Battalion Chief of the designation of the attack stairway.
2. Charging the 2½" hose line: If the ladder company has control of the fire apartment entrance door, the line can be advanced to that location and charged. If the apartment door has been left open, the public hallway is now considered part of the fire area, (fire apartment and public hallway), and the hose line should be charged before exiting the attack stairway. Engine companies shall not enter the **fire area** without a charged line. The control firefighter will

charge the line when directed by the officer and use the in-line pressure gauge at the standpipe control valve to monitor the pressure.

3. Line Advance: There are instances where changing fire and heat conditions are caused by any combination of the following:
Window in the apartment self venting due to fire.
 - A. Adverse change in air flow through the fire apartment caused by:
 - ◆ The necessary opening of the apartment entrance and attack stairway doors.
 - ◆ A tenant opening an apartment door in the hallway on the opposite side of the fire apartment.
 - ◆ Increased stack effect caused by the opening of the attack stairway lobby and bulkhead doors.

If any of these conditions exist and the line cannot be advanced, the unit operating the first line should maintain their position. The second hoseline should be charged and advanced in unison with the first line.

4. Use of fog tip for ventilation: After the fire has been extinguished, the engine company officer shall consider the use of the fog tip for ventilation of the fire apartment and call for it to be brought up to the fire floor.

6.2.2 Second Engine Company to Arrive

The second engine company shall team up with the first engine to stretch and place the first line into operation on the fire floor.

- A. Equipment
 - ◆ One length of 2½" hose per firefighter
 - ◆ Standpipe kit with controlling nozzle
1. Duties: Take elevators to at least two floors below the reported fire floor using precaution normally taken with elevators. Support the first engine company operation by assisting in the stretch, ensure sufficient lengths of hose available for advance into fire apartment, facilitate smooth advance onto fire floor and into apartment, insure proper water pressure. Relieve the control firefighter of the first engine after proper hook up has been completed, and water has been started.

6.2.3 Third Engine to Arrive

The third engine company to arrive can be used to start a second hose line if one is needed. They will be assisted by the fourth engine company.

- A. Equipment (as per 6.2.1 A)
1. Duties: Take elevators to at least two floors below the fire floor using precautions normally taken with elevators. If a second line is needed after the first line is operating on the fire, stretch this line from two floors below the fire.

The second line will be stretched via the attack stairway and this will be the factor in determining which standpipe outlet to use. Additional lengths of hose will probably be needed from the second or fourth engine company. The additional lengths should be added between the last length of the second line and the standpipe outlet. The third control firefighter will complete the connection to the standpipe outlet and await the order to charge the line.

2. Charging the 2½" hose line:

The third engine officer will determine when this hose line shall be charged. This may be at the stairway door to the fire floor or at the door to the fire apartment, depending on conditions.

When the second line is charged the pressure on the first line may drop momentarily, therefore the control firefighter for the first line should be notified of the possible need to adjust pressure on the first line.

In no case will an uncharged line be brought into the **fire area**.

3. Line Advance:

The second line will be used to back up the first line, advance with the first line, or may be called for on the floor above due to auto exposure and/or extension via utility voids.

6.2.4 Fourth Engine to Arrive

The fourth engine company to arrive will support and assist the third engine company's operation.

A. Equipment (as per 6.2.1 A)

1. Duties: Take elevators to at least two floors below the fire using precautions normally taken with elevators. It is critical that the fourth engine supply the additional lengths of 2½" hose that will be needed to assure that the second hose line will reach its destination. Relieve the third control firefighter after proper hook up has been completed. Ascertain designation of attack and evacuation stairways and ensure hose line is stretched via attack stairway.

6.2.5 CFR-D Engine Company

This unit will report to the Incident Commander and stand by with the "FAST" Unit as per Section 6.1.7.

A. *Equipment*

- ◆ *CFR-D equipment*
- ◆ *Forcible Entry Tools*

1. *Duties: Announce designation as CFR-D Engine and ascertain identity of "FAST" Unit. Monitor handi-talkie transmission while standing fast.*

Note designation of attack and evacuation stairways, apartment numbering system, etc.

6.2.6 Lower Floor Fire

If the fire is located on the second floor and there is no obvious standpipe outlet on the first floor, a hand stretch of 2½" hose from the pumper will be required. A hand stretch from a pumper may also facilitate a smooth advance into the fire area on these lower floors.

6.3 LADDER COMPANY OPERATIONS

6.3.1 First Ladder Company to Arrive

This unit is responsible for the search and ventilation of the fire apartment. The officer of the ladder company will initiate and control ventilation. No other company officer or firefighter should attempt any ventilation of this apartment without the approval of the first ladder officer.

Entry and search of this apartment can be extremely hazardous based on the height of the building, weather and wind conditions, the location of the apartment and the stack effect. The officer may decide that the fire can best be extinguished without additional exterior ventilation.

A. Officer and Forcible Entry Team

Tools: Extinguisher, hook, axe, halligan, rabbit tool, search rope, mask, carbon monoxide meter.

1. Duties: Take elevator to at least two floors below the reported fire floor using precautions normally taken with elevators. Examine this floor and try to determine fire apartment location, stairway, etc. This slight delay will enhance your operation on the fire floor should you encounter a heavy smoke condition.

Proceed to the fire floor and notify the Battalion Chief and engine officer of the stairs that are closest to the fire apartment. Also communicate hallway smoke and heat conditions to both Battalion Chief and engine officer. Consider using the search rope if conditions mandate use, e.g., long hallway, heavy smoke, etc.

Consult with engine officer before selecting attack stairway. Once the designation has been made, all operations are to proceed from this stairway. In many multiple dwellings there are only two stairways and the other stairway must be maintained clear of smoke for evacuation.

Locate and force entry into the fire apartment if the door has not been left open. If conditions allow, enter the apartment to search.. Search team must be prepared to exit quickly and control door under all circumstances. Do not chock the door open until a charged hose line is moving into the apartment.

Control of the fire apartment door can be accomplished by:

- ◆ Position firefighter inside the door with door closed but not locked. Door can be ajar with dead bolt extended preventing door from closing.
- ◆ Position firefighter outside the door with door closed (not locked).

The intent in either case is to deny air to the fire, maintain control of the door and provide for verbal direction to search team in the event of a change in conditions.

B. Outside Vent Firefighter

Tools: Halligan, hook or axe

1. Duties: ***Conduct an outside survey with chauffeur.***

If ***VES*** can be made with ladders, initiate same with chauffeur and notify officer.

If no outside operations are indicated and building has fireman service elevators, proceed into lobby and take control of elevator car using fireman service feature (1620 key). This position shall be maintained until relief is provided by Incident Commander.

If building does not have fireman service elevators, proceed to the fire floor, team up with officer and assist in search of fire apartment.

C. ***Roof Firefighter***

Tools: Hook, halligan, life saving rope, life belt

1. ***Duties:***

Proceed to the apartment directly above the fire via attack stairway, gain entry and check the outside of the building for occupants showing at windows on the fire floor. ***If the attack stairway is an IDLH area, team up with the 2nd roof firefighter before proceeding above.*** Notify ladder officer of condition found, apartment layout, fire location on fire floor – if it can be determined from floor above, persons trapped, etc.

Make sure that the attack stairway door is maintained closed on the floor above when gaining access to the apartment above the fire.

If the fire vents down the hallway on the fire floor, the floor above would be exposed if the stairway door is open.

If person is showing at window, notify officer, try to calm person and prepare for life saving rope operation. The Incident Commander will have to reinforce this position with second ladder, rescue, squad or an engine company.

Units will be needed at point of rescue and in apartment below the fire to prepare window for members entrance.

If there is no one showing at any window, the roof firefighter should preplan tie off points for the rope in the event a rescue becomes necessary.

D. Chauffeur

Tools: Halligan and axe

- 1. Duties:** *Conduct outside survey with OV as per sec. B. above. If no outside operations are indicated, team up with 2nd chauffeur and proceed to roof to vent attack stairway bulkhead. Prior to opening the attack stairway bulkhead door inform the Incident Commander.*

If hose line is not moving into the fire apartment, delay opening the attack stairway bulkhead door to avoid pulling fire down the hallway towards the engine company.

Check evacuation stairway at roof level for presence of smoke and notify Incident Commander and ladder company officer of condition.

Proceed down into building using the evacuation stairway checking all floors and attack stairway for trapped occupants. Close any stairway doors that have been chocked or left open.

There is the possibility that ventilation ducts in the public hallway may spread smoke to hallways on upper floors. Report conditions found to Incident Commander. A severe smoke condition on a number of floors (stack effect) will require additional units for search. Notify the Incident Commander.

- 2. Access to the roof:**

Verify the identification of both the attack and evacuation stairways.

If elevators cannot be used, then proceed to the Operations Post and ascend the evacuation stairway to roof.

6.3.2 Second Ladder Company to Arrive

The second to arrive ladder company is responsible for control of all ventilation other than the fire apartment *as directed by the Incident Commander*. This assignment is critical as improper ventilation can severely hamper our operation and contribute to serious injury.

Opening windows or doors on the fire floor can sometimes create the same conditions as opening the stairway door to a fire tower in a commercial building. The wind current on the upper floors is unpredictable and has driven our forces from the public hallway.

- A. Officer and Forcible Entry Team
Tools: Extinguisher, hook, axe, halligan, rabbit tool, search rope, mask, carbon monoxide meter.
1. Duties: Take elevator to at least two floors below the reported fire floor using precautions normally taken with elevators. Proceed to the fire floor, communicate with the engine and ladder company officer on the fire floor to confirm the attack and evacuation stairways. Maintain the evacuation stairway door closed and initiate search of hallway on the fire floor. Be aware that the building occupants will not know which stairway is being used for evacuation or which stairway is safe to use.
- Before directing building occupants into any stairway, the integrity of the stairway on the fire floor must be maintained. Communicate with the ladder company officer in the fire apartment to see if any help is required. In most cases the first ladder company will handle the fire apartment unless multiple removals are necessary.
- Search the public hallway and use sound judgement when deciding to force entry into adjacent apartments. Severe heat and smoke conditions or high carbon monoxide readings are two possible indications of the need to force adjacent apartments.
- After searching the hallway on the fire floor initiate search of the attack stairway for five floors above the fire to search for any building occupants that may have tried to evacuate using these stairs. Communicate results of searches to the Incident Commander.
- B. Outside Vent Firefighter
Tools: Halligan, hook or axe
1. **Duties: Contact 1st OV/chauffeur via handie-talkie. If outside operations are in progress, team up with 2nd ladder chauffeur and assist with same. If no outside operations are indicated and the building is equipped with fireman service elevators, the OV should operate in conjunction with the OV from the first ladder company and secure another elevator. If the building does not have fireman service elevators, proceed to the fire floor, team up with officer and assist with search.**
- If the building has a service elevator that is remote from the fire area that can be safely used, the Incident Commander should be notified and the service elevator used with building personnel and the OV firefighter.
- C. **Roof Firefighter**
Tools: Halligan and maul
1. **Duties: Proceed to the apartment directly above the fire via the attack stairway. If attack stairway is an IDLH area, team up with 1st roof firefighter before proceeding above. Operate as per section 6.3.1 C.**

D. Chauffeur

Tools: Halligan, axe/maul

- 1. Duties: If outside operations are in progress, team up with 2nd OV and assist with same.**

If no outside operations are indicated, team up with 1st to arrive chauffeur and operate as per sec. 6.3.1 D.

6.3.3 Third Ladder Company to Arrive

This unit shall report into the lobby with all personnel and be directed by the Incident Commander. Smoke conditions in the stairways and hallways of the floor or floors above the fire will determine the assignment of the ladder company.

If roof operations are not initiated by the 1st and 2nd to arrive ladder companies due to outside operations, then the Incident Commander shall assign this responsibility to the 3rd to arrive ladder company. This unit shall operate on the roof and upper floors as per section 6.3.1 D.

Generally they should be used to conduct searches of stairways and hallways where reports from the second ladder company roof/chauffeur team indicate severe smoke conditions. They should be assigned specific floors and advised of the identity of the Battalion responsible for searches on the upper floors. A carbon monoxide meter should be taken into the building.

6.3.4 Fourth Ladder Company to Arrive

This unit will also assist in searches on upper floors as determined by the Incident Commander. Specific assignments shall be given along with the identity of the Battalion responsible for searches on upper floors.

A carbon monoxide meter should be taken into the building.

6.3.5 Rescue and Squad Companies

These Special units can be used to reinforce position:

- ◆ Assist when life saving rope rescue is in progress.
- ◆ Assist in searches on floors above.
- ◆ Perform secondary searches.
- ◆ Standby at Operations Post to be assigned as needed by Incident Commander.

6.4 CHIEF OFFICER POSITIONS

Establish Lobby Command Post

High-rise multiple dwellings generally have limited or no communication systems available in the lobby that can be used by Chief Officers to control and direct evacuation. If a communication system does exist, the first arriving Chief may utilize this system to direct and control evacuation of the floors above and below the fire floor.

Buildings with communications systems should be entered in CIDS.

A. *LOBBY COMMAND POST CHIEF - First Battalion Chief to Arrive*

This Chief must:

- ◆ Announce attack stair designation on department radio and handi-talkie.
- ◆ Establish communications with the Operations Post.
- ◆ Relay information received from dispatcher and building lobby phone system to Operations Post or Search and Evacuation post.
- ◆ Stage units in the lobby.
- ◆ Control elevators.
- ◆ Utilize third or fourth ECC to assist in receiving calls from occupants on floors above.

B. *OPERATIONS POST CHIEF - Second Battalion Chief to Arrive*

This Chief must:

- ◆ Verify attack and evacuation stairs.
- ◆ Supervise operations on the fire floor and floor above.
- ◆ Maintain order in the attack stairway.
- ◆ Maintain the integrity of the evacuation stairway.
- ◆ Control ventilation.
- ◆ Establish communications with the lobby Command Post.
- ◆ Remain mobile and personally evaluate conditions on the fire floor.
- ◆ Insure that the first and second engines position the first line.
- ◆ Insure that the third and fourth engines position second line when needed.

C. *EVACUATION POST CHIEF - Third Battalion Chief to Arrive*

Third Battalion Chief to arrive will be responsible for searches on the floors, stairways and hallways above the fire floor.

This Chief must:

- ◆ Establish communications with Operations Post and Lobby Command Post.
- ◆ Request sufficient units to conduct searches.
- ◆ Record assignments and results to avoid duplication.
- ◆ Continually monitor stairways.
- ◆ Insure roof ventilation via coordination with Operations Post Chief.

D. Deputy Chief Responsibilities:

Deputy chiefs shall insure that all positions are covered and shall assign chief officers and or special call additional chiefs as necessary.

Adequate resources shall be on hand to cover all floors. In many instances engine companies can be used for search of upper floors, stairs and hallways.

The Deputy Chief shall assume command of the Lobby Command Post assisted by a Battalion Chief. The Deputy Chief may decide to reassign the Battalion Chief depending on fire condition.

6.5 RESCUE

A. Problems:

1. Some windows in these buildings have fixed panes for the first tier above sill.
2. Windows of casement or awning type may have fixed sections that limit accessibility and area for VES.
3. Sills are usually narrow.
4. Persons may be trapped hanging out the window or standing on the sill. Sitting or straddling the window may not be possible if lower window section is fixed.
5. Victim may be inaccessible due to height or ground area may limit aerial positioning.
6. Heat or smoke from fire or hose line can cause victim to lose position.
7. Lack of communication between inside and outside team may cause delay in removal.

B. Solution:

1. Removal by interior team.
2. Removal by aerial, tower, or portable ladder.
3. Communication between inside and outside teams and also additional arriving units.
4. Rescue from floor above with life saving rope and lowering to floor below fire or ground. Members will have to be positioned on the floor below to assist.
5. Bridging from adjacent balcony or window.
6. Breaching walls from adjacent apartment.

- C. Key points:
1. When it is not necessary to remove occupants, generally, they should be instructed to remain in place with the door to the room they are in closed and the window open.
 2. It must be emphasized that the inside approach to removal is always preferable for both the victim and the firefighter.
 3. Be aware that rescue/removal can be made from any side, above, or below.
 4. If Doorman or Superintendent is present, inquire as to size of apartment i.e., number of rooms, duplex, triplex, etc., are keys available.
 5. If the occupant of the fire apartment is in the lobby, ascertain if possible, if the door to the fire apartment is open, closed, locked, and are keys available.

6.6 STANDPIPE AND SPRINKLERS

- A. The ECC of the first to arrive engine company shall connect a 3½" line to the standpipe siamese and charge the system if any evidence of fire is present. The second to arrive ECC is to assist in the operation. A second 3½" line shall be stretched to supply the siamese if:
- ◆ More than one line is to be used from the standpipe.
 - ◆ There are indications that the system is not receiving enough water volume or pressure. (Handie-talkie communication from Engine Officer or Incident Commander).
- B. The second or third line shall be connected to the first floor standpipe outlet if:
- ◆ There is a stuck valve between the siamese and the riser.
 - ◆ The riser control valve and/or post indicator valve is shut down.
 - ◆ There is a leak in the piping system at any point below grade allowing the water to drain off. (In this case it may be necessary to shut down the riser control valve or the post indicator valve).
 - ◆ Foreign matter (cans, bottles, balls) have been pushed into the siamese inlets.
 - ◆ Anytime siamese has been supplied and Engine Officers or Incident Commander communicates that there is not enough water pressure.
- C. Indications that no water or insufficient water is being supplied are:
- ◆ Insufficient nozzle pressure.
 - ◆ Heating of water in pumps indicating water is not passing through pump into hose line.
 - ◆ No change in pump pressure when discharge gate is closed. If water is flowing, pressure will rise on the gauge.

- D. When charging the system, a reasonable estimate is 100 psi plus 5 psi for each floor above street level.
- E. Sprinkler siamese should be supplied when sprinklers are located in fire area or adjacent area. Buildings with sprinklers in areas other than below grade should be entered on CIDS.
- F. Standpipe kit carried by the engine company should include:
 - ◆ 2½" controlling nozzle with 1⅛" main stream tip and ½" outer stream tip
 - ◆ Hand control wheel(s) for outlet valve
 - ◆ 2½" x 2½" in-line pressure gauge
 - ◆ Pipe wrench (minimum 18" in length)
 - ◆ Spanner wrenches
 - ◆ Door chocks
 - ◆ Special adapters as required. For example, some buildings may contain floor outlet valves with non New York City threads. Adapters for connecting FDNY 2½" hose to National Standard Thread or National Pipe Thread may be required.

6.7 BUILDING FEATURES

Duplex and Triplex Apartments

- A. Simply stated, duplex apartments are those apartments with living spaces on two distinct floor levels of a building, and an internal private stairway inside the apartment. Triplex apartments are those with living spaces on three levels interconnected internally by stairs. This does not mean that there must be two or three stories in height as some are built on staggered floor levels on the style of a split-level house.
- B. The varieties of design in duplex and triplex apartments make it very difficult to formulate a standard operating procedure for all types. Inspection by units on AFID or special drills are the best way to be prepared for fire and emergency operations in these types of apartments.
- C. Most of these apartments have only one entrance from a public hall or open air walkway, and may have an interconnecting balcony to a similar apartment. Others may have two means of egress.
- D. The simplest type of duplex is one that has all doors on the public hall entering apartments with identical floor layouts. In the apartment a stair leads up to bedroom areas. Therefore, if fire conditions are so severe that entry is impossible, consideration can be given to breaching walls from the adjoining apartment, if is known exactly where this breaching will lead to.

A second type has doors leading from the public hall into the main level and the second level is down. This presents the same problems as a cellar fire with the added problem of bedrooms on that level with possible trapped occupants.

A third type, while not strictly a duplex or triplex, but with similar problems for firefighters, is one in which all of the entrances open on to a public hall and there is only one public hall every three floors. This is called the "sandwich" type. From this public hall, one apartment entrance door leads to a stair down one flight to an apartment; a second door on the public hall leads directly into an apartment on the same level. A third door leads to a stairway up to an apartment on the next floor level. The rooms in each apartment are on only one level, but as can be seen, if the fire is in the lower level apartment, the firefighting techniques will have to be the same as for cellar fires.

- E. Engine operations will be the same as outlined for apartments in fireproof buildings except that the third and fourth engines have to be readily available if a second line is needed to be stretched through an adjoining apartment and into the fire apartment by way of a breached wall. This line may require more than three lengths, as it may have to come from two floors away, possibly from a different stairway or standpipe, and will require extra manpower for a quick stretch. However, hose line should still be brought into the attack stairway from below and advanced up to the fire floor.
- F. Ladder operations: The ladder company first to arrive operates as in a fireproof building. When it becomes known that the fire is in a duplex or triplex apartment and conventional firefighting techniques are not working, consideration must be given to gaining access to the fire area by other approaches.

Many of the newer apartments have outside balconies that serve two apartments. Entry into the apartment adjacent to the fire apartment will provide a quick and safe means of entry to the fire apartment via this balcony. On lower floors a firefighter may reach the balcony by way of the aerial ladder.
- G. Rescue operations may have to be performed by breaching walls and following the hose line in so as to reach trapped occupants who are in the bedrooms with the doors closed.
- H. Many of the newer buildings have double $\frac{5}{8}$ " sheet rock walls, two thickness' of $\frac{5}{8}$ " each, between apartments, mounted on metal studs. Breaking directly through them is a fast way of entry into the fire apartment.
- I. Fire may extend in many of the new buildings due to inadequate sealing of floor and ceiling openings around pipe, electrical and duct work. This is particularly important in kitchens and bathrooms.
- J. Ventilation from the apartment above may be impossible as this may place the firefighter two floors above his objective. Many of the newer buildings are designed with large plate glass windows that are extremely difficult to break.
- K. Doors on some floors have no letter or number designations on them indicating that they are a second exit from an apartment. It is extremely difficult to tell which apartment they serve.
- L. Local planning and drills on the type of duplex or triplex apartments found in a unit's response area will help to insure an effective operation.

6.7.1 Balconies and Terraces

- A. Many private fireproof multiple dwellings and the newer city projects are being built with balconies and terraces which provide us additional access to the apartments.
- B. The balcony or terrace may serve only one apartment or be connected to two apartments with a partition between them. Access can be provided to both sides of the balcony by way of adjoining apartment, or ladder. Member can either climb over, around or break through the partition to get to the outside door of the apartment. These doors generally have glass in them, either as a full panel or smaller panels which can be broken if necessary and opened from the inside. Always try the handle, as they may not be locked.
- C. Members entering apartments from the balcony shall, via handie-talkie notify the members inside the building that they are going in. This member must be aware that the fire may vent through the balcony door by itself or it may be pushed there by the advancing hoseline.

6.7.2 Access and Addresses to Building Complexes

- A. Maps showing building locations, streets, cul de sacs, access drives, and building configuration are available for city projects and privately owned complexes either at maintenance offices or renting agents.
- B. These maps are small and can easily be carried on the apparatus. The information they supply is invaluable when all the information you have while responding is a street address. Some of the items to be drawn in or noted on the maps are:
 - ◆ Hydrant locations, interior and exterior.
 - ◆ Size and height of buildings. Note any irregularity in height due to grade, i.e., six story in front, nine story in rear-such buildings have been allowed to be built without standpipe, necessitating long hand stretches.
 - ◆ Chained or posted access driveways that must be opened to allow entry of apparatus.
 - ◆ Which buildings the aerial can be used at.
 - ◆ Cellar entrances.
 - ◆ Which buildings have compactors or incinerators.
 - ◆ Day Care Centers.
 - ◆ Maintenance shops, boilers, etc.
 - ◆ Standpipes, sprinklers and siamese locations.

6.7.3 Store Fires

Large stores may be found on the first floor extending beneath several apartments on the second floor. These apartments should be checked and monitored for life hazard and fire extension. Venting of this ground floor may be difficult. Consider the use of fans.

Day Care Centers, Clinics and offices may also be found.

In older buildings fire proof self-closing doors are connected to the public halls. Ladder companies should check for them and call for a hose line to protect the public hallway if necessary.

6.7.4 Cellar Fires

Cellars contain storage areas, meeting rooms, sprinklered motor vehicle garages, laundry rooms, and gas and electric meter rooms. These areas also contain air conditioning with associated heat and vent ducts. The entire run of ducts should be checked to their termination points.

Access to below grade areas may be via the interior enclosed fireproof stairways or outside ramps and driveways.

Motor vehicles in these cellars can generate an extremely heavy smoke condition which can delay locating the vehicle even though sprinkler may be discharging water. A search line should be used in these situations and a limited number of personnel should be used.

6.8 SIX STORY OR LESS FIREPROOF PROJECTS

Six story or less projects are generally older and may be found in proximity to 14 story projects. While they are fireproof, and found among the larger buildings, they are not equipped with standpipes and require a hand stretched line supplied by a pumper. These buildings may have elevators, incinerators or compactors and fire problems similar to those in other fireproof apartments. An important exception to this is that there is one fireproof stair from the first floor to the roof, which may or may not be enclosed on each floor. Usually two units are built together so roof access is by way of the interior stairs of the adjoining unit. Back stretches with the pumper, or in line pumping, save considerable time. There are usually stairway windows on each floor from which a rope can be lowered down to pull the hose line up the outside of the building. The only obstruction to the line is the small ledge over the building entrance door.

Fires in these type buildings may be extinguished using 1³/₄" hose hand stretched from a pumper.

If the hallways in these structures are small, that is, *every* apartment door is within 50' of *every* stairway on that floor, then 1¾" hose can be stretched from the pumper when compatible with fire conditions.

However, if a project type building has long hallways, that is, *any* apartment door is more than 50' from *any* stairway on that floor, then the additional GPM available from 2½" hose may be needed and 2½" hose should be hand stretched from the pumper.

Division Commanders shall ensure that non-standpipe buildings where 1¾" hose may be used are entered into CIDS.

BY ORDER OF THE FIRE COMMISSIONER AND CHIEF OF DEPARTMENT