

**STRETCHING AND OPERATING HOSELINES**

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**8. STRETCHING AND OPERATING HOSELINES**

8.1 Stretching and operating hoselines is the primary function of an engine company. All members must realize the importance of the initial line stretched at a structural fire. More lives are saved at fire operations by the proper positioning and operating of hoselines than by all other life saving techniques available to the firefighting forces. The majority of structural fires are controlled and extinguished by this initial line.

**8.2 GUIDELINES FOR HOSELINE PLACEMENT****8.2.1 First Hoseline**

The **first line** is placed between the fire and any persons endangered by it. This is accomplished by stretching the hoseline via the primary means of egress, usually the main stairway. This tactic:

- Provides a base for confining and controlling the fire.
- Allows occupants to evacuate via the stairs.
- Allows members to proceed above the fire for search.

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 it is determined there is no life hazard in the building, the **first line** is positioned between the fire and the **most severe exposure**. The most severe exposure does not necessarily mean where the fire is likely to spread. Lines must be stretched to protect life first and in the absence of a life hazard, the first line should be placed to protect the greatest amount of property.

When placing a hoseline to protect an exterior exposure, it should be positioned so that the stream can be used alternately between operating on the exposure and the fire. When using streams to protect exposed buildings, the water should be applied onto the building's surface for best results.

Example: Fire extending from cockloft of vacant row frame building, Exp. 4 is vacant and Exp. 2 is occupied. First line would probably be stretched to protect life hazard in occupied Exp. 2.

### 8.2.2 Second Hoseline

Unless otherwise ordered, the second line is placed to back up the first line. This tactic is used for the following reasons:

- To provide a back-up to the first hoseline in case of a burst length in the first hoseline.
- To provide a second line to be used simultaneously with the first hoseline if fire conditions warrant.
- If the second line is not needed on the fire floor, it can be advanced to the floor above. **The second line stretched must consist of sufficient hose to cover the floor above.**

### 8.2.3 Third Hoseline

Depending on the occupancy and the fire conditions, a third hoseline may be required. Unless otherwise ordered, this line may be stretched to:

- Cover a secondary means of egress.
- Protect persons trapped on fire escapes above the fire.
- Adjoining building to protect exposures or operate across shafts.
- Prevent vertical extension.

See Fig. 8-1 for hoseline placement guidelines.

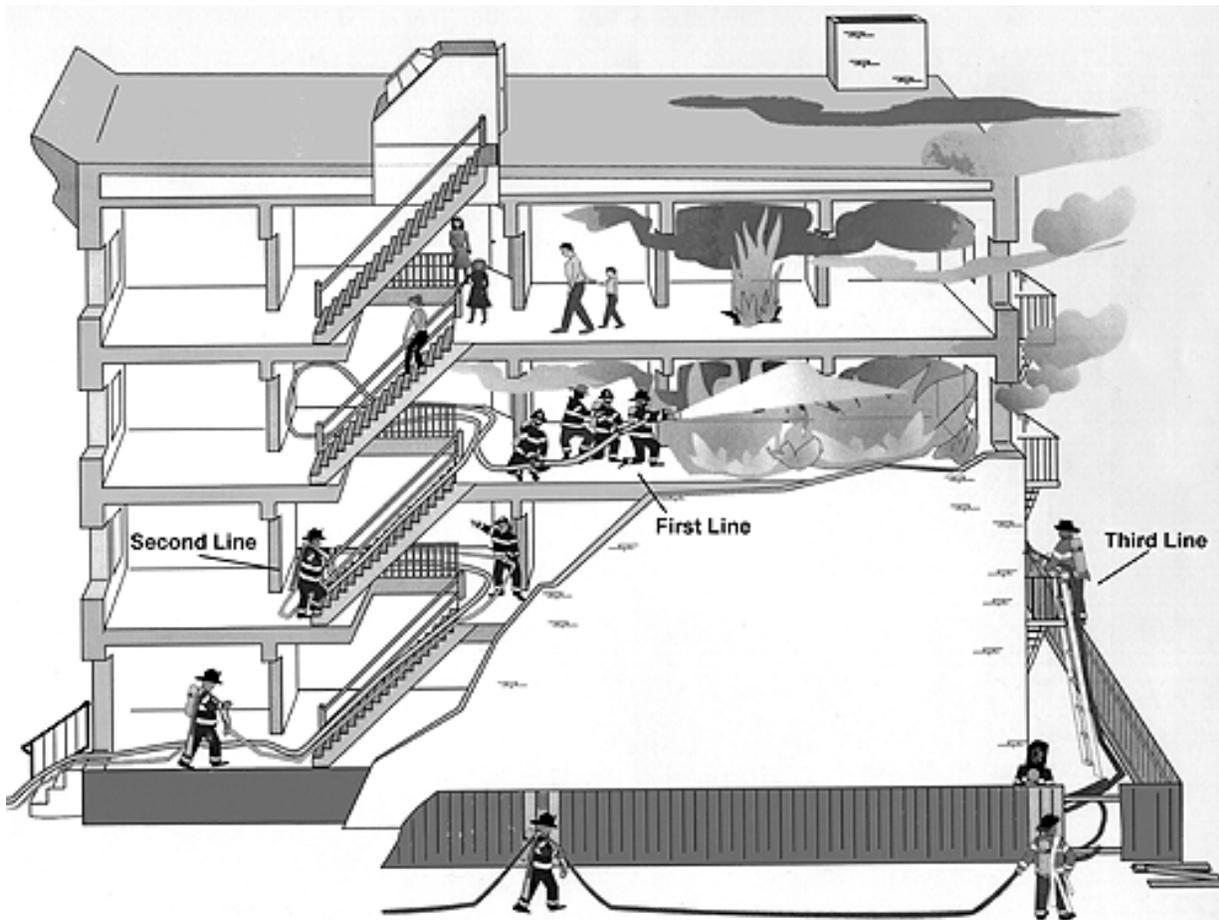


Fig. 8-1

#### 8.2.4 Other Hoseline Placement Guidelines

- A. Difficulty might be encountered at some fire situations in conducting a direct attack through an apartment doorway due to a heavy volume of fire, wind conditions or forcible entry problems. A possible tactic to overcome these problems is to utilize the fire escape to conduct a fire attack into the apartment. **BEFORE THIS IS INITIATED**, members in the apartment must exit to a safe area of refuge and the apartment door must be closed in order to preserve the integrity of the hallway and interior stairs.

Another tactic is to enter an adjoining apartment and operate the hoseline through small holes in the common partition wall. Several small holes strategically located along the length of the common wall at approximately waist level might allow stream penetration into a majority of the rooms in the fire apartment.

- B. Hoselines shall not be operated in opposition to each other.
- C. Permission must be obtained by the IC before exterior hoselines are directed into a fire building.
- D. Immediate notification must be given to the IC when a situation is discovered that requires the positioning of an additional hoseline.
- E. When a hoseline is determined to be operating ineffectively, the IC must be notified.

8.3 In order to assure efficient and timely stretching of the first attack line, the services of the first **two** engine companies will be utilized. Whether staffed by 4 or 5 firefighters, the pairing of engine companies will in most cases result in a more rapid and efficient hoseline stretch and provides for continuity of the hoseline attack in the event emergency relief of the first engine is required.

8.4 Unless the presence of a confirmed life hazard requires the immediate stretching of a second line, the second engine **shall augment and assist** the first engine.

8.5 Both engine companies shall retain unit cohesiveness. With the exception of the first due control firefighter, second due engine firefighters, assisting in stretching the first line, should strive to maintain their position assignment on the line i.e. second due nozzle firefighter, backup firefighter, and control/door firefighter should follow the first due engine company.

8.6 The officers of the first and second due engine companies shall communicate with each other and with the Incident Commander.

8.7 In one and two story structures, where the amount of hose required is four lengths or less, the need to assist on the first hoseline is not as great and engine companies are generally capable of stretching and operating individually. In such cases, the officer of the second engine company should make contact with the officer of the first engine company to ascertain if their assistance is required.

8.8 Once the fire is located and the decision is made by the first arriving units to confine or extinguish the fire, orders must be given for the stretching of hose lines. The type of stretch, size of hose, and number of lengths will depend on many factors:

- Location and severity of fire.
- Type of building or outside fire involved.
- Source of water.
- Type of hose loading on apparatus.

8.9 To minimize the number of lengths required and provide for rapid hoseline positioning, consideration must be given to the use of:

- Well-hole stretch.
- Fire escape stretch.
- Utility rope stretch via exterior of building.
- Utility rope stretch via interior stair shaft windows.
- In-line pumping.
- Standpipe stretch with folded hose.

### 8.10 ESTIMATING THE STRETCH

8.10.1 When the orders are given to stretch a handline, a rapid estimation of the number of lengths required to reach the seat of the fire is in order. The general rule for estimating the number of lengths in the fire building is:

1 length per floor + 1 length for the fire floor.

Ex. 5 story NLT, fire on the 4th floor would require 5 lengths (4+1=5).

(See Fig. 8-2)

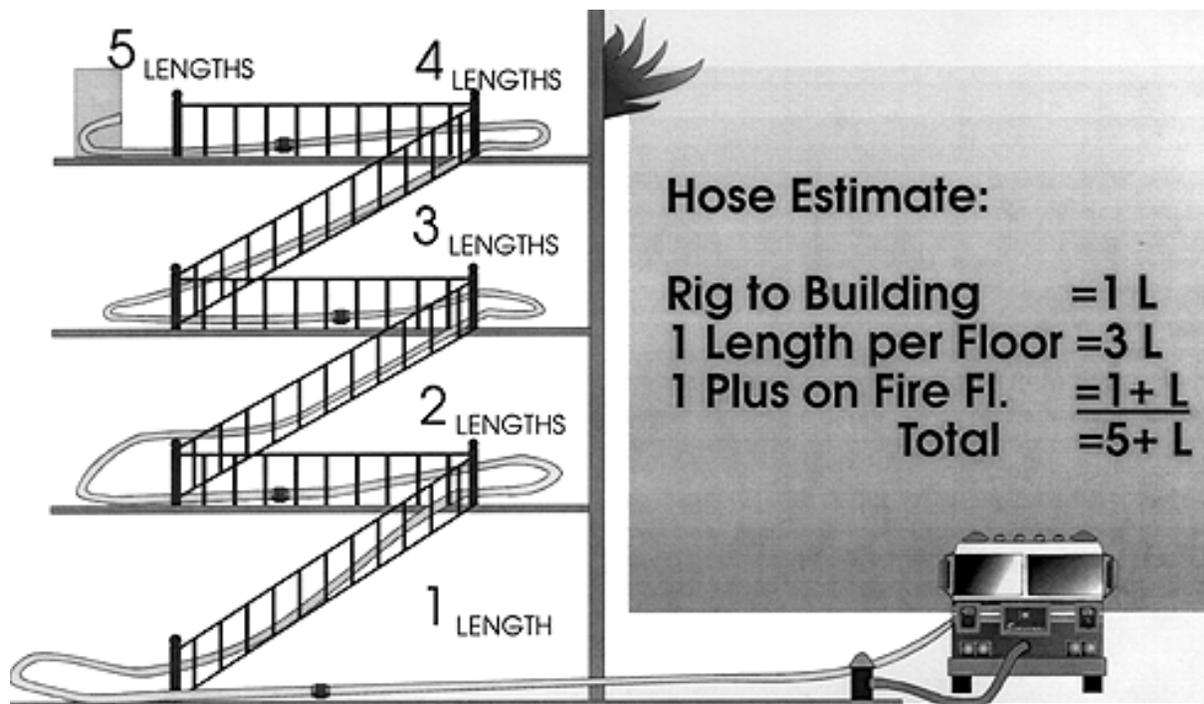


Fig. 8-2

- 8.10.2 This rule assumes that the engine has stopped at the fire building and the required lengths are removed prior to repositioning the apparatus at a hydrant.
- 8.10.3 For large multiple dwellings (H-types and their variations), hose estimations must consider the distance from the backstep of the engine to the entrance door. In some cases several lengths of hose might be required to reach the entrance door. The distance from the entrance door to the base of the stairway must also be considered. This is in addition to the required one length per floor plus one for the fire floor. Some buildings may require two lengths for the fire floor.
- 8.10.4 If the engine apparatus is positioned at a hydrant before reaching the fire building or has to pass the fire building, the additional distance must be taken into account in estimating the number of lengths required to reach the seat of the fire. The building frontage can be used to estimate the required number of additional lengths. Ex: row of OLT's, engine is two buildings past fire building, OLT 20-25' wide, at least 2 lengths will be needed to reach the entrance to the fire building.
- 8.11 Use the apparatus for as much of the stretching as possible. Hose stretched at fires should be laid as close to the side of the street as possible and on the same side as the hydrant or pumper. If it is necessary for hoselines to cross the street, the lines should cross in front of the fire building. This allows as much room as possible for the maneuvering of apparatus.
- 8.12 APPARATUS POSITIONING
- 8.12.1 Initial positioning of the engine apparatus is important. Generally it is better for the engine apparatus backstep to be stopped the proper distance beyond the building entrance, taking into account the type of ladder apparatus responding directly from behind. The location of the *ladder apparatus turntable* dictates how far from the front of the building the engine backstep should initially be on arrival, before backstretching.
- 8.12.2 An exception to the above would be, wide streets with room for both engine and ladder apparatus placement. Another instance would be when large buildings are encountered (e.g. H-type) and long complicated stretches are anticipated where the backstep of the engine apparatus should be aligned with the entrance to the building (and in between parked cars). This allows members to remove the hose from the apparatus and stretch in a straight line to the building entrance. The nozzle and backup firefighters (also door firefighter in five firefighter companies) can take their folds and the control firefighter can remain at the rear step, remove the required lengths, and feed hose to the advancing members. The control firefighter, after making certain the correct numbers of lengths have been removed, then signals the ECC to proceed to a hydrant. In this situation, if the apparatus passes the entrance to the fire building on its approach, the stretch becomes more difficult. The hose must be dragged back towards the fire building

and then in between parked cars toward the entrance. This initial turn from the street towards the entrance to the fire building is usually the point where the line will snag a car tire, bumper or protruding tailpipe. It usually requires a member to remain at this position in order to keep the line free and moving.

The least desirable position is one that requires stretching around the apparatus as in the case when the engine stops before reaching the fire building. This is a difficult and time-consuming stretch, but sometimes is unavoidable. A situation that requires the immediate use of an aerial or tower ladder will preclude the engine apparatus from stopping in line with the building entrance **if** this would delay the positioning and operation of the ladder company apparatus. Engine and ladder company chauffeurs **must** communicate.

### 8.13 FIRE ATTACK TECHNIQUES

- 8.13.1 Knowledge of the floor layout is the most valuable asset to a nozzle team advancing under heavy fire and/or smoke conditions. If the smoke is not banked down to the floor, a quick glance at floor level before opening the nozzle can give the nozzle firefighter and officer an indication of the floor layout. From this position, obstructions such as furniture, debris or other obstacles which could impede the advance of the nozzle team may be evident. The glow of the fire may indicate the direction and distance the team has to advance. Once the line is opened, any visibility will be lost until adequate ventilation is accomplished.
- 8.13.2 The nozzle should be cracked open as the nozzle team waits for water. The sound of exhausting air will indicate water is on the way, and any air in the line will be expelled. **The line must be bled before the fire attack begins.**
- 8.13.3 **NEVER** enter the fire area with an uncharged hoseline. However, the hoseline should be stretched as close to the fire area as possible before being charged. An uncharged hoseline is stretched more rapidly and it is less fatiguing than attempting to move a charged hoseline into position.
- 8.13.4 All members should operate on the same side of the line. When the door to the fire area is opened members should be low and to one side of the opening, to let the pent up heat and gases vent prior to advancing.
- 8.13.5 Once the line is advancing, keep moving toward the seat of the fire. In order to reduce the chance of burn injuries and ensure rapid knockdown, the nozzle team should move aggressively but deliberately.
- 8.13.6 Let the reach and penetrating power of the stream do the work, especially in large area buildings or when several rooms are involved in fire.

- 8.13.7 The stream should be operated “out front and overhead”. The water should be deflected off the ceiling and upper walls. The nozzle firefighter should hold the nozzle at arms length to allow for maneuverability and change of nozzle direction (see Fig. 8-3).



**Fig. 8-3**

- 8.13.8 As the fire darkens down, the angle of the stream may be lowered to directly cool burning solid fuel material.
- 8.13.9 Do not open the nozzle on smoke; try to get as close to the fire as safely practical without risking burn injury.
- 8.13.10 Do not crowd the nozzle.
- 8.13.11 As the advance is made, listen for crackling of fire, look for a glow of fire in the smoke, feel for heat.
- 8.13.12 Listen to the sound of the stream as you sweep the nozzle across a room or area. The sound of the water striking a wall or partition will change if an opening such as a door or window is encountered. This opening might lead to a room or a hallway leading to another group of rooms where fire might still be burning.
- 8.13.13 Once the fire appears to be knocked down consider shutting down the nozzle to let the smoke and steam lift. Be prepared to reopen the nozzle at any moment.
- 8.13.14 Even with the use of bunker gear, the floor should be swept with the stream as you advance to cool any burning material and prevent knee and leg burns. This action will also sweep broken glass, hypodermic needles and other debris from the path of the advancing nozzle team.

## 8.14 WELL-HOLE STRETCH

8.14.1 The use of a well-hole for stretching the hoseline allows for more rapid positioning of the line and reduces the number of lengths required. The rule of thumb is that a 5 story stretch up a well-hole requires about one length of hose (see Fig. 8-4A & 8-4B).

8.14.2 The engine officer should communicate to the members stretching, the presence of a well-hole, as soon as possible. The officer should look up the well to see if it goes up the entire stairway. In certain stair configurations, a well exists between the 1st and 2nd floor, but the rest of the stairway does not have sufficient space to accept a charged hoseline.

8.14.3 The stretch is accomplished as follows:

- A. The nozzle firefighter has two options depending on the size and configuration of the well-hole.
  - *Narrow well-hole* - nozzle firefighter drops his/her folds at the base of stairway, securely grasps the nozzle and proceeds up stairway pulling hose up through well-hole.
  - *Wide well-hole* - nozzle firefighter carries nozzle and lead length in well.
- B. If conditions on the fire floor are favorable, and the door to the fire area is controlled, sufficient hose must be pulled up and flaked out on the fire floor.
- C. If the fire has extended into public hallway, sufficient line must be pulled up and flaked out on the floor below.
- D. When sufficient line has been pulled up the well-hole, the line must be secured with a hose strap.
- E. The backup firefighter initially feeds line to the nozzle firefighter from the base of the stairway, then proceeds up the stairway pulling line up the well-hole.

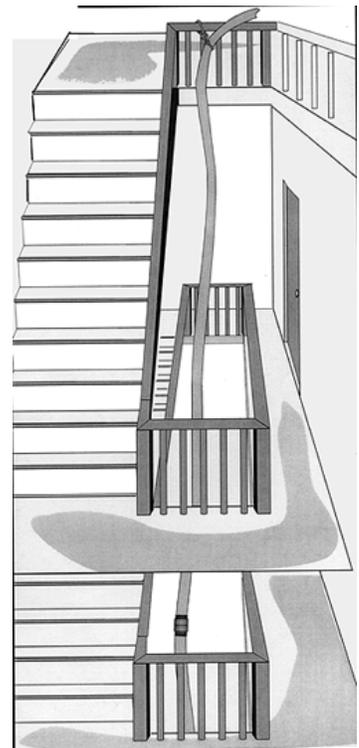
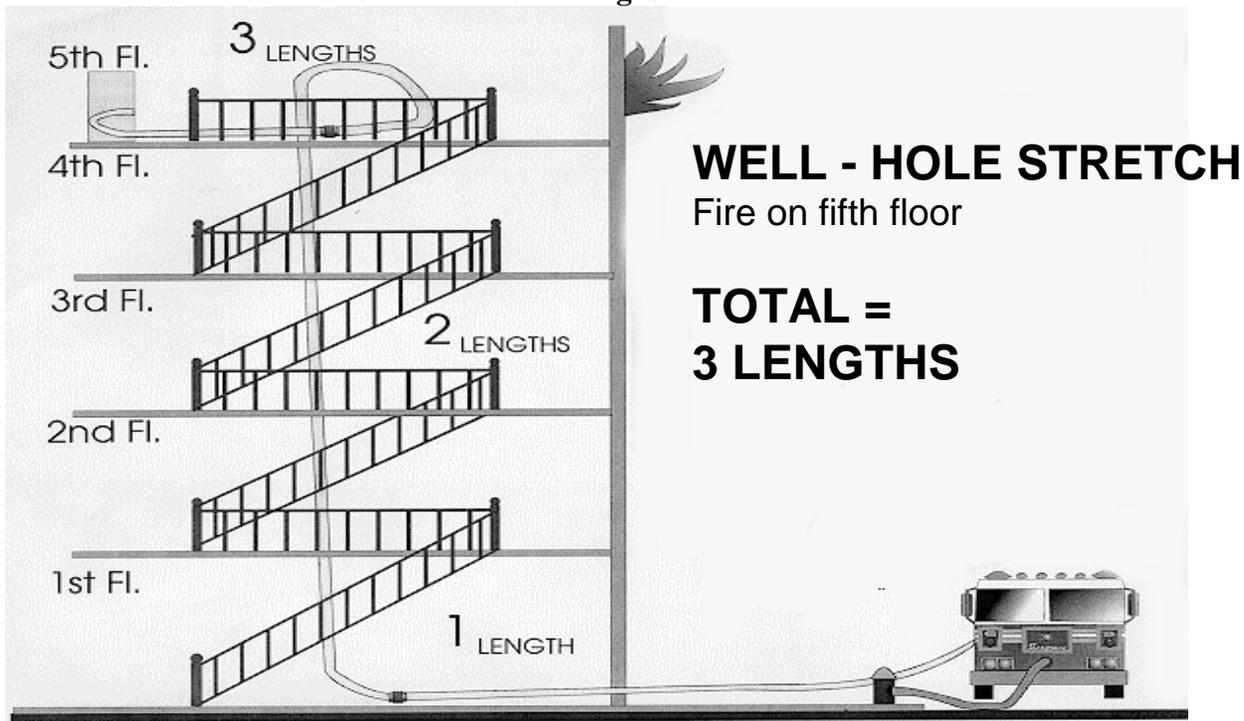


Fig. 8-4A

- F. The door firefighter lightens up on the line and proceeds up the stairway pulling line up the well-hole.
- G. The control firefighter will remain at the base of the stairway until notified by the officer that sufficient hose has been stretched. Any remaining hose on the first floor should be flaked out and checked for kinks, once the line is charged.

8.14.4 When a second hoseline is stretched up a well-hole, caution must be exercised to ensure the first and second lines do not become entangled. To prevent entanglement, the nozzle firefighter should carry *only* the nozzle and change hands at each newel post (turn) as the line is stretched up the well-hole. A utility rope can also be used if the well-hole is large enough to accommodate its use.

Fig. 8-4B



## 8.15 FIRE ESCAPE STRETCH

8.15.1 Sufficient hose should be stretched and arranged below the fire escape balcony. The hose can be hoisted with a utility rope or a 6 foot hook. If the rope is used the nozzle firefighter should proceed to the floor below the fire. The control firefighter will remain at ground level and secure the rope to the hose. In five man engine companies, the door firefighter should take a position between the nozzle team and the street and assist in hoisting and securing the line. Once sufficient line has been hoisted and the line has been charged, the control firefighter can ascend the fire escape and join the nozzle team (see Fig. 8-5).

8.15.2 If a 6 foot hook is used, the control firefighter inverts the hook and places the handle of the controlling nozzle onto the hook. The other members ascend the fire escape and position themselves on successive balconies. The handle is passed from the member below to the member on the balcony above. Once the handle has been passed, each member proceeds up the fire escape to another level until the line is hoisted to balcony below the fire.

8.15.3 The line must be secured with hose straps on alternate floors, beginning with the floor below the fire.

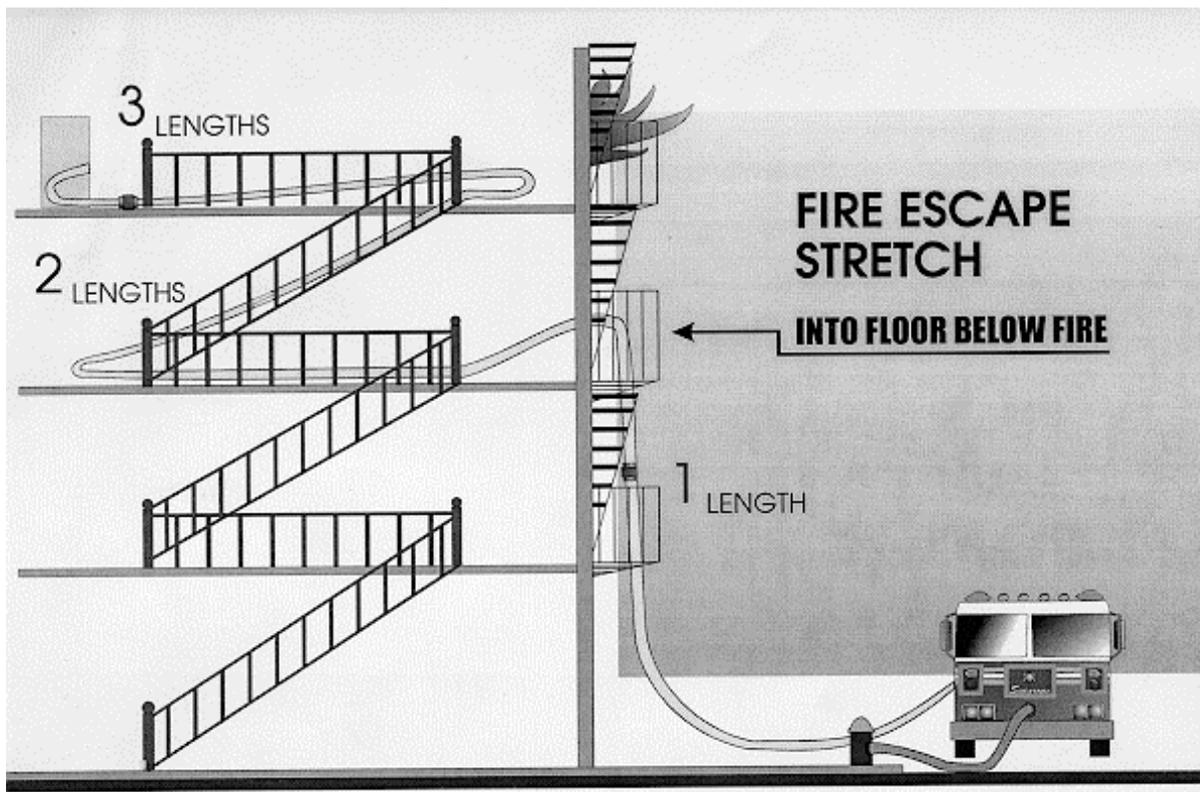
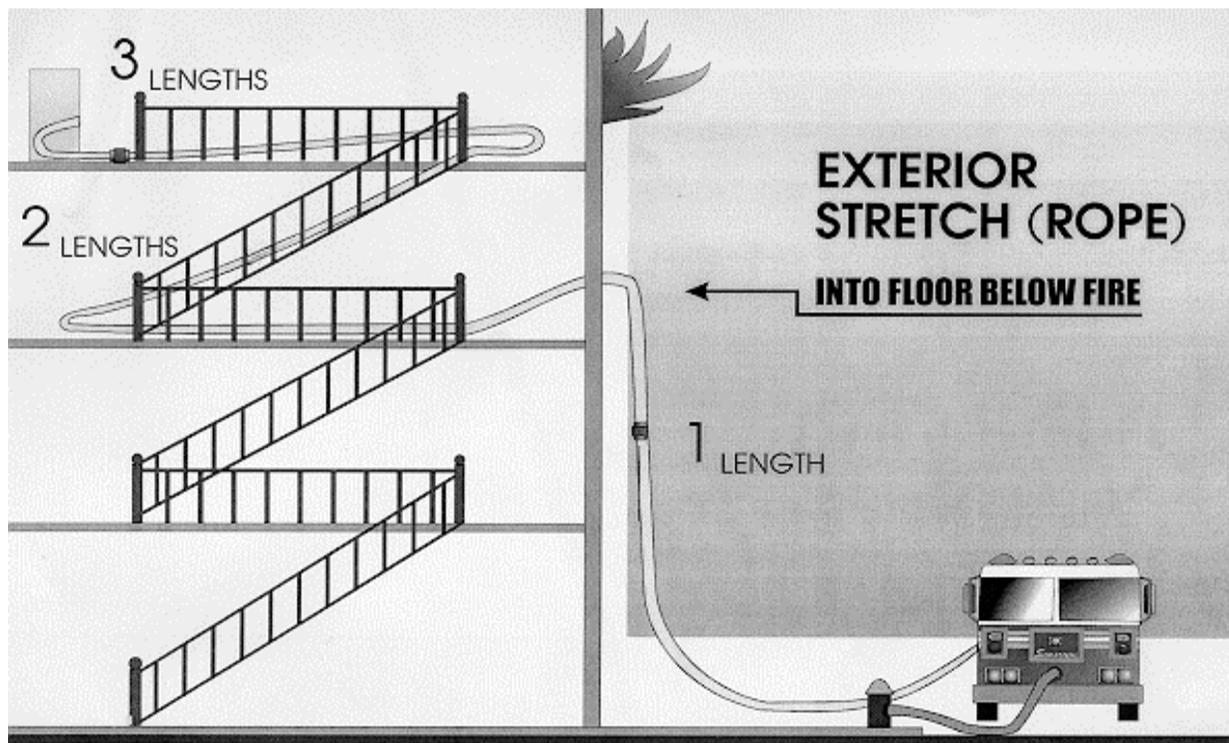


Fig. 8-5

## 8.16 UTILITY ROPE STRETCH

8.16.1 Engine companies should carry 75 feet of 3/8 inch nylon rope to be used for a quick, efficient stretch to upper floors or roofs (see Fig. 8-6). This rope can be used to haul the line:

- To roofs of low buildings, i.e., taxpayers, three story frames, brownstones.
- In vacant buildings when interior stairs are missing or damaged and would present a hazard in supporting an interior stretch.
- In buildings with the staircase winding around an elevator shaft.
- At fires requiring three lines, when the interior stairs already have two lines on them.
- When CIDS or previous knowledge indicates its use.
- In non-standpipe project buildings.



**Fig. 8-6**

## 8.17 Utility Rope Stretch Via Stair Shaft Window In Buildings With Stairs That Wrap Around An Elevator.

8.17.1 In order to reduce the number of lengths required and speed up the stretch, the line can be hoisted via stair shaft windows with the utility rope. If the fire is below the third floor, the line is stretched up the stairs.

8.17.2 The officer's initial size-up will determine if this type of stretch would be beneficial. Knowledge of the building, the location of the fire, and availability of stair shaft windows will assist in making this determination.

8.17.3 The line is stretched as follows:

- The officer proceeds to the floor below the fire with the rope, selects the window to be used, and communicates this information to the control firefighter. The rope is deployed from this window.
- Sufficient lengths must be brought into the lobby and the folds arranged near the window selected by the officer. The nozzle firefighter attaches the rope to the nozzle, places the nozzle outside the window, then proceeds to the floor below the fire.
- The backup firefighter will join the nozzle firefighter when relieved by the control firefighter. The control firefighter must remain at the window until enough line is hoisted to ensure that the line does not get hung up. Once the line is charged, the control firefighter will check for kinks and join the nozzle team.

## 8.18 OPERATIONAL CONSIDERATIONS USING UTILITY ROPE

8.18.1 Before the utility rope is deployed, look out the window and check for obstacles or obstructions such as air conditioners, clotheslines, overhangs or setbacks which might interfere with the rope.

8.18.2 Remove the child guard if present, raise the lower sash and ensure that it stays open.

8.18.3 At the lower floor window, lower the top sash, grab rope and tie to nozzle.

8.18.4 Members must be aware that tools will be required to remove child guards. Some windows will be secured closed and others may have stops which limit the raising of the sash only a few inches.

8.18.5 Hinged windows which open outward can prove difficult and similar windows on intermediate floors may have to be closed to prevent the line from getting hung up.

8.18.6 If difficulty is encountered in raising a window, remove glass from sash.