

Aerial Ladders:

- To the Roof- Extend tip at least 5' above the roof
- To a window- less than 6" over the window sill
- Recommended distance of the tip from the objective is 2" to 6"
- In case of rescue use the 2" positioning (ladder will rest against the sill after weight is put on it)
- Alongside a fire escape- Against the building 2" out, with the tip about 1-3' above the balcony railing

Occupant removal *before* roof access with aerial ladder:

“FATSLIDE”

F - Frightened

A - Agitated

T - Threatening to jump

S - Severity of the fire

L - Location of fire

I - Immediate danger

D - Doubt

E - Endangered, seriously disturbed by any delay



Order of *thawing* an aerial ladder:

“Richie Likes To Mambo”

Rungs

Locks

Truss

Main Beams

Inspections for Aerial Ladders:

“MQW”

Monthly- Cables and rungs

Quarterly- Clean and lube slides

Weekly- Emergency system (30 second maximum)

More notes:

- Removal operations with aerial:
 - ✓ Difficult fire- remove most difficult person first
 - ✓ Not so bad fire- remove most ambulatory first
- Very extreme angle- allow ladder to barely touch building.
- Place rig 25-35' from building, maximum 35' inboard side of rig to building.
- Hook is only tool need not to be actually carried: hang it on the rungs as you climb.
- Steep angles: may be necessary to use rungs
- Have at least one hand in contact with ladder at all times unless secured to aerial with leg lock or personal harness hooked to rung

MOTIVATION ALLEY

In the picture to the right, the Nozzle team is beginning its interior fire attack through the door to the fire area crouched low, near the floor, *regardless of conditions.*

Decisions that may be delegated by the Engine Officer to the nozzle team include:

- **D**irection of stream
- **R**ate of advancement
- **O**pening nozzle in an emergency
- **P**artial shutdown of the nozzle to reduce nozzle reaction and regain control
- Calling for **MO**RE line
- **S**weeping floors with stream

An acronym we use to remember these decisions is:

DROP

MO

SWEEP



SIZE UP

“COAL WAS WEALTH”

An accurate and complete *size-up* must include consideration of the following *strategic factors*. They are:

A. Time of day

- Sleeping occupants at night
- Rush hour traffic delays in response
- Limited visibility at night

B. Life

- Residential vs. commercial building
 - Occupied vs. vacant
 - Transient vs. permanent residents
- Ambulatory vs. non-ambulatory occupants

C. Area

- Large volume of fire
- Long stretches

D. Height

- Elevator operations
- Standpipe stretches
- Long stretches

E. Construction

- Frame buildings
- Truss roof and floor beams
 - Fire resistive
- Old Law Tenements

F. Occupancy

- Public Assembly
- Health Care Facilities
- Hazardous Materials

- Fuel Loading

G. Location and extent of fire & smoke

- Cellar, sub cellars
 - Cockloft
 - Dumbwaiter
- Ventilation profile of building

H. Water supply

- Hydrant spacing
- Hydrant serviceability

I. Street conditions

- Construction
- Elevated roadways and railways
- Overhead wires

J. Auxiliary appliances

- Standpipe systems
- Sprinkler systems

K. Weather

- Wind direction and velocity
- Freezing conditions
- Heat stress

L. Apparatus and equipment

- Large caliber streams (LCS)
- Large Diameter Hose (LDH)
 - Foam equipment

M. Exposures

- Six sides of the fire

C- ONSTRUCTION

O- CCUPANCY

A-REA

L-IFE

W-ATER SUPPLY
A-PPARATUS AND EQUIPMENT
S-TREET CONDITIONS

W-EATHER
E-XPOSURE
A-UXILIARY APPLIANCES
L-OCATION/EXTENT OF FIRE
T-IME
H-EIGHT

“MAYDAY – MAYDAY - MAYDAY”

The **Mayday** transmission is an indication that a life threatening situation has developed. This term is used only in the following situations:

1. **Imminent** collapse feared
2. Structural collapse has **Occurred**
3. A firefighter is **Unconscious** or suffers a **life threatening injury**
4. An officer becomes aware that a member under his/her supervision is **Missing**. (If the missing member is an officer, any team member can transmit this message.)
5. Member becomes **trapped** or **Lost**

I OWE U MY LIFE”

I- IMMINENT COLLAPSE

O- OCCURRED COLLAPSE

U- UNCONSCIOUS OR LIFE THREATENING INJURY

M- MISSING MEMBER

L- LOST OR TRAPPED MEMBER

“URGENT – URGENT - URGENT”

This transmission is used to indicate that a member has suffered a serious injury that is not immediately life threatening, or to inform members of a serious change in conditions. The term urgent may be used in the following situations.

1. When a **member** suffers from an **Injury** that is not immediately life threatening but which requires medical attention and hospital care.
2. Loss of **Water**, which would endanger **members**.
3. An **Interior** attack is to be discontinued and an exterior attack instituted.
4. Discovery of a structural problem indicating the **danger/Fear** of collapse.
5. Fire is discovered entering an exposure to a degree that any delay may considerably enlarge the fire problem. (**Extending**)

“ I WIFE ”

I-INJURY REQUIRING MEDICAL ATTENTION/HOSPITAL

W-WATER LOSS

I-INTERIOR ATTACK DISCONTINUED

F- FEARED COLLAPSE

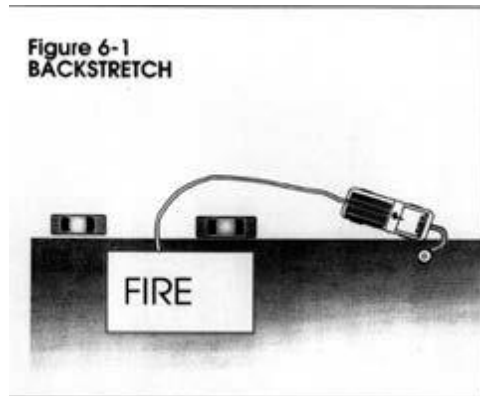
E- EXTENDING FIRE

ENGINE COMPANY OPERATIONS



TYPES OF STRETCHES USING APPARATUS

BACKSTRETCH



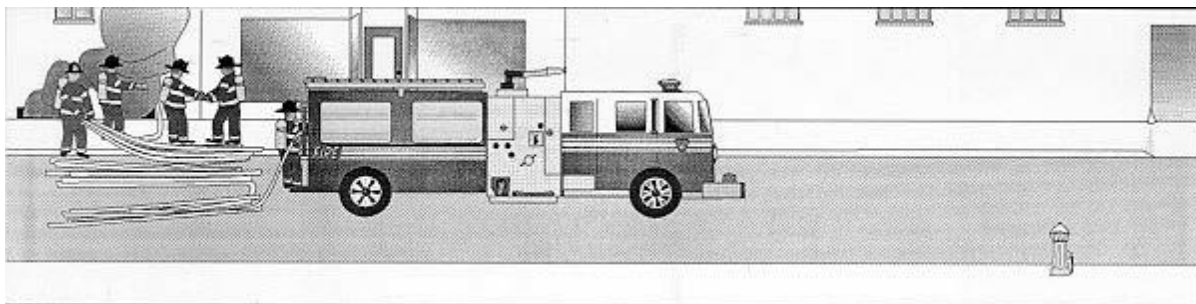
A **backstretch** is a stretch of an attack line in which the pumper reaches the fire before the hydrant. The necessary amount of hose to reach the fire is removed and the pumper can be used to fill out the stretch. As the pumper proceeds to a hydrant the additional necessary hose peels off the rear of the hosebed.

The ECC should position the apparatus for a backstretch *whenever possible*. When stretching hose lines off the apparatus, the apparatus should be positioned so that it will not interfere with Ladder Company positioning. The picture below is the proper placement of apparatus connected to a hydrant after performing the backstretch.

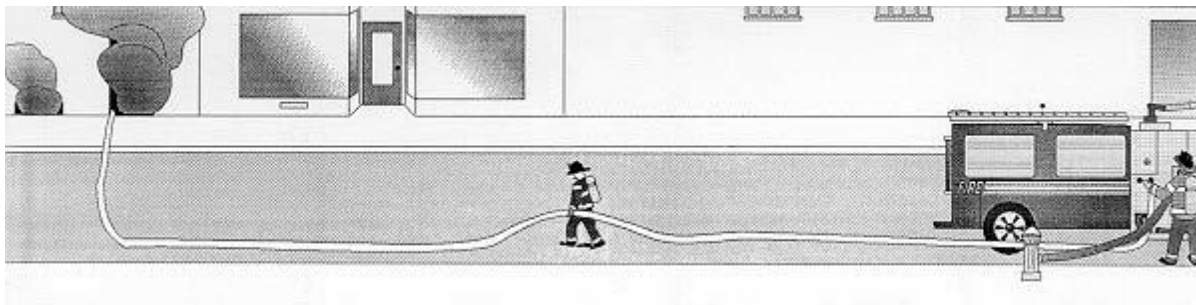


STEPS:

1. **Engine (Pumper)** stops in vicinity of fire building so as not to impede the positioning of a **ladder (truck)** company. (In most cases the engine will stop the proper distance beyond the building entrance.
2. Firefighters remove enough hose to reach fire.
3. Advance with hose to point of operation.
4. Engine proceeds to hydrant playing out hose on way.
5. Control firefighter rides rear step, standing clear of moving hose.
6. Upon reaching hydrant, connect pumper; break hose line and attach to pumper.
7. Officer gives command to "start water"
8. Control firefighter, after controlling stretch, proceeds to fire, moving hose close to curb and removing kinks.



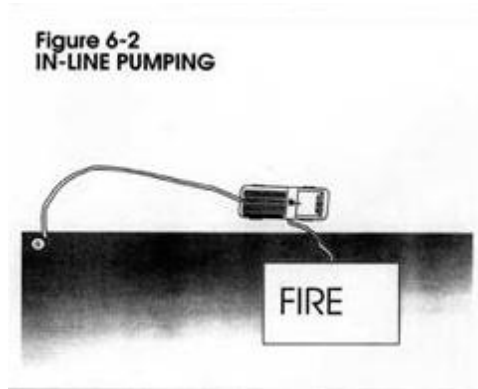
Steps 1, 2 and 3



Steps 4,5,6,7 and 8

***note: when fire building and hydrant are adjacent, apparatus need not to be used in stretching lines**

IN-LINE PUMPING



In-line pumping is a stretch of the supply line in which the hydrant is located before the fire (in relation to the direction of the pumper's response). In this evolution the supply line can be stretched from the hydrant to the pumper's operating point (in this situation the hose would peel off the hosebed as the pumper proceeded to the operating point). Another option would be to hand stretch the supply line from the operating point back to the hydrant.

STEPS:

1. **Engine (Pumper)** stops so that rear step is opposite hydrant. Hydrant Firefighter (control ff) tests hydrant
2. If hydrant is serviceable, the Hose Firefighter (back-up ff) keys the hydrant by pulling sufficient 3 ½" hose from the hosebed
3. At a slow rate of speed, playing out the 3 ½" hose, the pumper proceeds to the vicinity of the fire building so **as not to impede the positioning of a ladder (truck) company.**
4. Pumper stops at operating position where the members remove enough hose to reach the fire.
5. After receiving notification from the ECC (chauffer) to start water, the Hydrant FF opens the hydrant fully and then proceeds to pumper for the purpose of controlling the stretch.

Hydrant keyed with 3 ½" hose:



Hydrant FF maintaining keyed hose:



Hydrant FF connecting 3 ½" hose to 4 ½" outlet of hydrant (along with 2 ½" gate on 2 ½" outlet of hydrant):



Hydrant FF waiting for notification to start water:



WHAT ARE SOME ADVANTAGES OF IN-
LINE PUMPING?

“F-SLEEP”

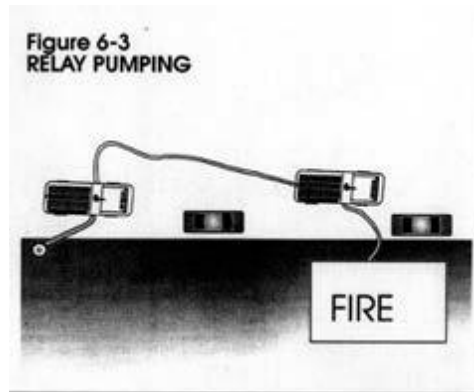
- **Fast water** on the fire
- **Stretches** are **shorter and faster**
- **lower** engine **pressure** required
- **equipment** closer to the fire
- **ECC** in better position to assist
- **Pumper** is in position for **exterior** stream

WHAT ARE SOME DISADVANTAGES OF IN-LINE
PUMPING?

“D-AMAGE W-AT-CH”

- **Damage** to rig from falling debris
- **Water** supply is limited to supply line and/or hydrant
- **Aerial/Tower** ladders blocked out by pumper(parked in front of fire building)
- Full pumper **capacity** may not be attained
- Pumper may be blocked out from next **hydrant** if 1st is OOS

RELAYING WATER



Relaying water is an operation in which one pumper supplies water to another. Relay operations can complicate pumping operations because they require coordination between two or more pumpers (potentially accruing higher pressures) and two or more pump operators (necessitating more communication). One situation in which relay operations are necessary is when the first arriving engine has connected to an Out Of Service hydrant and needs to be supplied for firefighting purposes. Another is when the first arriving Engine has been blocked out of proceeding past the fire building in an attempt to back stretch. The pumper will remain in front of the building and be supplied by the 2nd arriving engine.

STEPS:

1. The operating pumper (normally 1st due), upon finding no viable water source transmits signal 10-70 and decides on optimum position of the pumper.
2. The next arriving pumper, designated as the Water Resource Unit, upon hearing signal 10-70 must find a viable water source.
3. The supply pumper connects to a hydrant utilizing either the 10' or 35' hydrant connection. The necessary lengths of 3 ½" hose are stretched from a 3" outlet of the Supply Pumper to the Operating Pumper's 3" gated inlet on the pump panel side of the pumper.



3 1/2" hose from supply



3 1/2" hose into operating pumper

High Rise Fireproof Multiple Dwellings



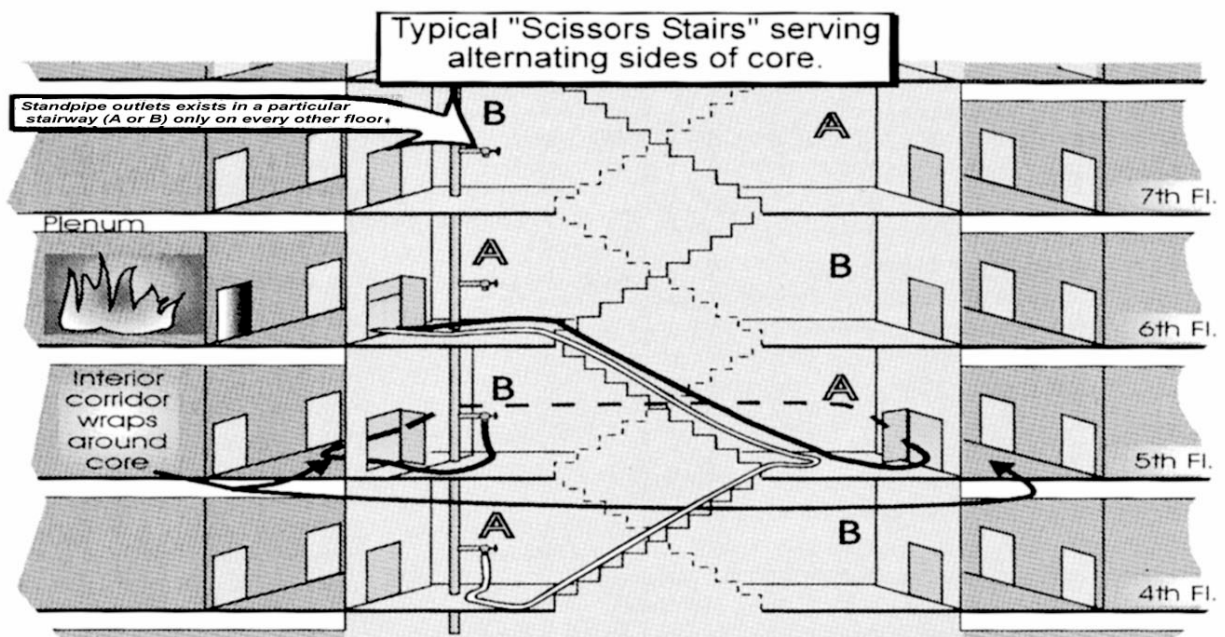
Construction and features in HRFPMMD's:

- **Usually poured concrete floors, cinder block or gypsum block walls. Newer buildings use sheetrock in the interior construction.**
- **4-40 or higher stories**
- **Irregularly shaped cluster of buildings- Double H, star, rectangular or semicircular.**
- **Generally apartments are served by two fireproof stairways reached by public hallway.**
- **Smaller fireproof buildings (4-6 stories) usually have one fireproof stair which may be open or enclosed and runs from 1st floor to roof.**

- Fires in these buildings can be extensive, extremely hot, and depending on wind conditions and building air flow patterns, very difficult to extinguish.

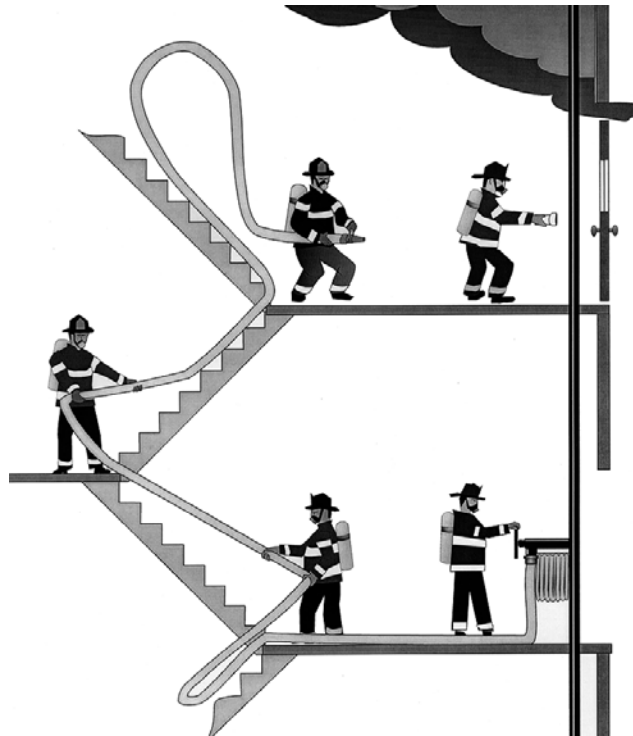
Standpipe operations

- Prior to advancing to the reported fire floor, members must gather information from the floor below, or two floors below if scissor stairs are present.



- Fires in these buildings require a coordinated effort from the designated attack stairway with 2 ½" hose.
- Identify the stairways that have a standpipe.
- Determine the layout, shape and size of the public hallway.
- The 1st and 2nd engines shall always team up to place the 1st 2 ½" hoseline into operation on the fire floor.

- Initial hoseline stretched from a standpipe shall be from an outlet on the floor below the fire.



- Each engine company shall carry a "standpipe kit" with the following minimum basic complement of tools:
 - ✓ 2 1/2" controlling nozzle with 1 1/8" main stream tip and 1 1/2" x 2 1/2" increaser
 - ✓ Hand control wheel(s) for outlet valve.
 - ✓ 2 1/2" x 2 1/2" 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 2 1/2" hose to National Standard Thread or National Pipe Thread may be required.

- **Each member shall carry one length of folded 2 1/2" hose. In most instances, three lengths will be brought into the building by each engine company. A 2 1/2" controlling nozzle must be pre-connected to one of the folded lengths.**
- **In tall buildings, PRDs may be installed. These PRDs are designed to reduce, restrict, or otherwise control the pressure available at the standpipe hose outlet. Several types of PRDs produced by various manufacturers may be encountered in the field. At fire operations, whether supplying or operating from a standpipe outlet, the PRD should be removed because of the reduced water flow. If the PRD cannot be removed, and there is no other outlet available without a PRD, then it is permissible to use an outlet with a PRD.**
- **Nozzle pressure is to be adjusted by use of the hand wheel at the hose outlet valve and by observing the in-line gauge.**
- **As a rule of thumb three lengths of 2 1/2" hose requires 70 psi at the outlet and four lengths of 2 1/2" hose requires 80 psi at the outlet WITH WATER FLOWING.**
- **As the first due engine company begins its advance on the fire, the second due engine must assist with line movement and be prepared at any moment to relieve the first engine company. Air conservation is an important consideration for the second due engine.**



Each engine company shall carry a standpipe kit with the following tools:

“CAPSONG”

***C*hock**

***A*dapter**

***P*ipe wrench**

***S*panner wrench**

***O*utlet valve wheel**

***N*ozzle**

***G*auge**