Hoseline Operations for Residential Fires

BY BILL GUSTIN

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PROFICIENCY IN STRETCHING, advancing, and operating hoselines cannot be achieved by studying a book or by discussion in a classroom “chalk talk.” Hose evolutions require skill and teamwork developed only through frequent, intense, and realistic drills. There are several ways to get a hoseline into position and operating. It is up to each fire department to preplan the residential developments in their jurisdiction, such as courtyard and garden apartments, to devise the most effective hose evolution for each occupancy (photo 1).

Presented are tactics and some basic techniques for stretching, advancing, and operating hoselines, functions that are vital to fulfilling the most basic duty of the fire service—firefighting. Let’s review size-up factors that must be considered before an engine company deploys a hoseline at a residential fire.

LOCATION OF THE FIRE

At multiple dwellings, the fire’s location may have to be determined before spotting apparatus to find the street or parking lot closest to the entrance leading to the fire. Don’t commit apparatus until it is determined where the fire is and how to reach it (photo 2).

Don’t let civilians or police officers do your size-up; they are not qualified to tell you where to spot your apparatus or stretch a line. Several times, I have experienced well-intentioned police officers’ attempts to direct fire companies into a housing project or an apartment complex where they see smoke or fire showing from a window. Often, however, the door to the fire occupancy had to be accessed from another street or parking lot.

Recently, frantic trailer park residents tried to wave our apparatus down a long, narrow road. Following their instructions could have been a mistake I promised myself I would not make again. I, therefore, ordered our apparatus and all responding companies to stage at the street entrance to the trailer park while I proceeded on foot to determine the exact location.

Educational Objectives

On completion of this course, students will:

- Describe the importance of proper hoseline stretching, advancing, and operation techniques
- Describe the method of selecting the proper route for hoseline placement
- Describe proper hose-handling techniques
- Describe the selection of the proper hoseline size

(1) Prefire planning is essential in devising hose evolutions. These firefighters have found that a pike pole is the most expedient means for raising a hoseline at this new garden apartment complex. (Photo by Eric Goodman.)

(2) Don’t commit apparatus until you are certain it can reach the fire. Here, this apparatus driving up behind this van will have to back out hundreds of feet if it is determined that the van can’t be moved. (Photo by Bill McCann.)
of the fire and where to spot our apparatus. Residents of the trailer park, understandably, viewed this as an unnecessary delay; they reacted by yelling threats and insults. But, the delay was necessary, as the door to the burning mobile home had to be reached from another road in the trailer park. Had we heeded the residents’ directions, we would have had to cut through two chain-link fences to reach the fire or back our apparatus hundreds of feet to the street entrance.

Be careful not to get into a position with fire below you.

Smoke on the first floor necessitates a quick look at the basement. Similarly, firefighters ascending stairs to the “reported” fire floor should check the floor below. Say the occupant of apartment 403 is reporting smoke in her unit. Firefighters investigating the fire should send someone to check apartment 303 for fire that may be spreading smoke to apartment 403.

You must examine several floors when fire involves main electrical panels or an electric meter room. Fire and smoke can spread from floor to floor, following the wiring concealed in a utility chase or bus duct.

THE PATH TO THE FIRE

After a fire is located, an engine company officer must determine the path to the fire—which door, hallway, or stairway should be used to reach the fire. Further, he may have to determine the best method for getting a hoseline to an upper floor, such as a stairway stretch, hoisting by rope, or carrying it up a ladder (photo 3).

As a new lieutenant, I directed my company to stretch to the front door of a house with fire showing in the rear. In my excitement and haste, I neglected to walk 360° around the structure. Consequently, I failed to see a second door that led to a rear efficiency or single-room occupancy. This house was originally built for one family but was later renovated into two separate residences. As a result, we could not reach the fire through the front door. The embarrassment of watching the second-due engine put out our fire was a hard lesson. Engine company officers must look for signs that a house has been divided into multiple occupancies. Such indications include more than one mailbox or gas meter or a rear outside stairway leading to a second-floor apartment.¹

SIZE OF HOSELINES

Many engine company officers, including me, tend to rely too heavily on the 200-foot 1 3/4-inch preconnect hoseline. This line is very effective for most of our fires, because

(3) This stairway is the path chosen to reach a fire in an upper-floor apartment. This company has decided that a well stretch is the best method for getting the hose to the fire floor. (Photo by Eric Goodman.)

(4-6) The massive fire load of this garage exceeds the suppression capabilities of a 1 3/4-inch hoseline. Here, Metro-West (MO) firefighters ready a 2 1/2-inch hoseline. Note that fire has involved the header truss. The garage collapsed minutes later. (Photos by Steve Heidbreder.)
most of our fires occur in relatively small, compartmented residential buildings. This can cause an engine company to stretch a 1¾-inch preconnect out of habit when a fire is beyond its reach or flow capabilities. You should strive to flow at least 150 gallons per minute (gpm) from 1¾-inch hoselines; anything less may not be effective for the size and fire load of a modern American household.

Every fire department should conduct flow tests to determine the gpm flow and maximum allowable length of its 1¾-inch hoselines. Flow testing is the only accurate way to determine this, because friction loss varies widely in different brands and models or grades of hose. Determining pump discharge pressures from hydraulic calculations or friction loss charts may result in hoselines that are overpressurized or flow insufficient gpm.² (Hand-stretching 2½- and three-inch hose in cases when the 1¾-inch preconnect isn’t up to the job is discussed later.)

An engine company officer must recognize fire conditions in residential occupancies (however infrequent) that are beyond the suppression capabilities of a 1¾-inch preconnect. Consider the size and design of modern suburban houses. Spacious open floor plans and vaulted ceilings can allow a fire to grow to a volume that can require the flow of a 2½-inch hose.

An engine company faced with a heavily involved two-car attached garage must contend with a massive fire load involving vehicles, gasoline containers, liquefied petroleum gas grill cylinders, and an attic full of combustible storage. The situation is made worse when there are bedrooms above the garage or flames from the overhead doorway or venting through the roof of a one-story garage are impinging on the second floor of a two-story house. This fire demands the immediate application of a 2½-inch hose flowing at least 250 gpm to control the heavy fire condition in the garage and stop its extension to the house. A second hoseline must be stretched through the front door of the house as soon as possible. This second line is critical if firefighters are to stop extension into the kitchen and attic and protect personnel ascending the open stairway to search second-floor bedrooms.

A garage fire is second only to a basement fire in terms of risk for firefighters. Never position an apparatus at the end of a sloping driveway; it could be exposed to a torrent of burning gasoline running down the driveway from the garage. When operating a hoseline into the overhead doorway, do it from a flanking position, thus avoiding a projectile from a vehicle’s exploding gas-filled strut or energy-absorbing bumper. When operating at a garage fire, anticipate early and sudden collapse of the header truss that spans the overhead doorway in modern, lightweight construction. Establish a collapse zone to protect firefighters from a garage that might collapse into the driveway or push out a side wall (photos 4-6).

Finally, never pass under an overhead garage door without bracing it open with a pike pole and clamping locking pliers in its track to prevent it from closing.

**LENGTH OF HOSELINE**

The length of hoseline is determined by the size of the fire building; how far it is set back from the street; and any obstructions, such as fences, landscaping, or parked vehicles, that keep apparatus at a distance from the fire building.

Single-family homes in older neighborhoods tend to be relatively small, less than 2,000 square feet, and have fairly small front yards. This is well within the range of a 200-foot preconnect. At fires in small houses, the nozzleman usually brings the nozzle to the front door and then flakes out 50 feet of hose on the sidewalk leading to the front porch before charging the line. The hose is arranged in an “S” or a “W” to facilitate advancing through the front door and to
ensure that there is sufficient hose to reach any point in the residence (photos 7-8).

Now let’s contrast this with new suburban developments, where homes larger than 5,000 square feet are not uncommon and are usually set back a considerable distance from the street by a large front yard. This can call for a stretch far greater than 200 feet and necessitate that the nozzleman flake out as much as 150 feet of hose at the front door to reach the fire (photo 9).

There is a limit to the length of 1½-inch hoseline that can be stretched. Exceeding this maximum length can result in excessive friction loss, dangerously high pump discharge pressures, or inadequate gpm flow. Again, flow testing is the only accurate way for a fire department to determine the maximum length of its 1½-inch hose stretch.

NUMBER OF FIREFIGHTERS

The number of firefighters needed to stretch, advance, and operate a hoseline is most accurately determined by drilling under realistic conditions. It’s a good idea to conduct occupancy-specific drills in conjunction with prefire planning. Often, firefighters can get permission to conduct drills in new multiple-family residences while they are in the final stage of construction. This is an excellent opportunity to devise the best hose evolution for a particular complex of buildings and determine the number of firefighters needed to execute it.

An excellent example of occupancy-specific training took place in West Palm Beach, Florida, when firefighters were faced with the construction of a large townhouse development. Each attached single-family residence, or row house, has a garage on the first floor, a living room and kitchen on the second floor, and bedrooms on the third floor.

West Palm firefighters were challenged to devise the most expedient method for getting a hoseline to a bedroom fire on the third floor. They had to consider their limited staffing and that the front entrances are inaccessible to fire apparatus. Their objective was to avoid a personnel-intensive hose stretch up two flights of return stairs that did not line up in the same stairway.

They chose a method that involves spotting an engine in the rear parking area, dropping a rope down from a second-floor window, and hoisting a 1½-inch preconnect. Firefighters then take the nozzle to the base of the stairs leading to the third floor, flake out extra hose in the living room, and then secure it with a nylon strap before charging the line. The line is advanced up one flight of stairs with sufficient hose laid out on the floor below to reach any point on the fire floor (photos 10-11).

Engine companies must choose hose evolutions based on the available staffing and realistic expectations of what they can accomplish. Don’t attempt a hose advance that needs six firefighters if you have only three. A fire officer operating with inadequate personnel may have to think creatively and realize he cannot fight fire in textbook fashion. Instead, he must devise “expedient” tactics to get water on the fire.

STRETCHING PRECONNECTED HOSELINES

As I have mentioned in previous articles, certain preconnect hose loads, such as the horseshoe or minuteman, are ideal for stretch-
HOSELINE OPERATIONS

engines carry most of the hose load as it plays off their shoulder or forearm. Hose that is flat loaded or packed in a triple layer is usually dragged into position. Consequently, it has a tendency to snag on fence gates or corners or between vehicle tires and pavement. This necessitates that personnel be positioned at obstacles to keep the hoseline moving. This can be time-consuming when there are more corners and obstacles than firefighters. In this case, firefighters must move from obstacle to obstacle, pulling up slack hose. They should begin at the obstacle closest to the engine and complete the task when sufficient slack hose is laid out at the entrance doorway.

Firefighters can arrange their 1 3/4-inch preconnect into an improvised horseshoe that can be carried and played out through a serpentine of corners and obstacles. To improvise a horseshoe, first stretch the hoseline out on the sidewalk or street, then grasp the nozzle, take three steps back along the hoseline toward the engine, and pick up a fold of hose. Continue to pick up a fold of hose every three steps until you have 50 to 100 feet of hose draped over your forearm (photos 12-13).

STRETCHING 2 1/2- AND THREE-INCH HOSE

Parking and landscaping surrounding courtyard and garden apartments can necessitate a long hand stretch of 2 1/2- or three-inch hose to reach the fire building. Then, a gated wye or other manifold may be connected at an entrance to supply two or more 1 3/4-inch hoselines.

Engine companies in big cities commonly arrange their 2 1/2- and three-inch hose loads to facilitate a hand stretch. For example, engines in the city of Chicago finish the last 200 feet of their 2 1/2-inch hose load into three reverse horseshoes.

Engines in rural and suburban areas usually do not arrange their 2 1/2- and three-inch hose for a hand stretch, because their typically large booster tanks place the hosebed at an excessive height. On some apparatus, firefighters must climb folding steps to reach the hosebed. In this case, it’s a good idea to attach straps to the end of the hose so that firefighters can pull it while standing on the ground or apparatus back step (photo 14).

Discussed below are three methods for stretching 2 1/2-inch or three-inch hose. Regardless of the method, two rules apply to any long hose stretch: (1) It’s probably going to take personnel from more than one company, so plan and train on “teaming up.” (2) Position the apparatus hosebed facing the direction of the stretch. This will reduce the chances of hose snagging on ladders or grab rails of the apparatus or wedging between its tires and the pavement. The fastest method involves dragging fire hose by shouldering each coupling as it leaves the hosebed. Begin by having the first firefighter in the stretch face away from the hosebed and place the hoseline over his shoulder with the coupling, nozzle, or gated wye resting on his chest. Then, pull 50 feet of the hose, and place the first “double butt” over that firefighter’s other shoulder (photo 15). This firefighter then moves away from the apparatus while a second firefighter readies to shoulder the next two couplings pulled from the hosebed. This process is continued with each firefighter except the first one dragging 100 feet of hose (photo 16).

When personnel are not immediately available, hose can be laid out behind a pumper in advance. First, place the end of the hoseline at the apparatus back step and pull the hose, hand-over-hand, laying it out behind the apparatus. Stop pulling the hose when each coupling leaves the hosebed, then go back, pull, and lay out the next section. This (21) Photo by Hector Cruz.
process will yield loops 25 feet long, each consisting of one 50-foot section with all the couplings laid at the apparatus back step. Later-arriving personnel can shoulder each loop at the couplings and begin the stretch (photo 17).

Firefighters performing this stretch must work in unison. The last firefighter on the line will be the first to feel the slack pull out of the hose. Firefighters should drop their couplings when slack is pulled out of the hose. They should then move up the line to assist firefighters dragging hose around corners and obstacles.

This method of stretching hose is fast but requires firefighters to drag hose in loops that trail 25 feet behind them. It should, therefore, only be used where the hose can make wide turns around corners and there is a minimum of obstacles for the loops to catch on.

The second method involves loading hose on firefighters’ shoulders as they stand at the back of the apparatus. Each firefighter stretches 100 feet of hose—about 80 to 90 feet on his shoulder and 10 to 20 feet between firefighters. Loading hose onto firefighters’ shoulders is time-consuming but makes it possible to stretch hose up return stairs, around corners, and through a “minefield” of obstacles. Hose stretched in this fashion will play off firefighters’ shoulders as they walk or climb stairs. The last firefighter in the stretch will be the first to play out his hose (photo 18).

The third method of stretching 2½-inch or three-inch hose requires that a firefighter be positioned at each corner, obstacle, or change of direction. Firefighters begin the stretch by lining up on the hoseline. When the first corner or obstacle is encountered, the last firefighter on the line remains at that position to “feed” hose. This is repeated in succession with each firefighter taking a position where the hoseline could snap (photos 19-20).

**CHARGING THE LINE**

Stretch hose as close to the fire as safety permits before charging the line. Once a hoseline is filled with water, it becomes heavier and will require that firefighters be positioned along the line to keep it moving. Getting too close to a fire without the protection of a charged hoseline can result in burned firefighters and hose with a melted polyester jacket. At fires in single-family residences, the hoseline is usually charged at the front door (photo 21), but I have seen firefighters waiting for water bail off a front porch when windows failed and fire vented toward them. Fire conditions; wind speed and direction; and hot, cracked window glass are all factors that may influence the decision of where and when to charge the line.

In a private dwelling, it usually is best to take the hoseline in the front door because it provides the shortest and most direct path to the fire. Additionally, the stairway leading to the second-floor bedrooms in most homes is at or near the front door.

Now, consider this problem: Fire is showing from a second-floor bedroom window in a complex of two-story apartments or townhouses built around a courtyard. This makes the front of the residences inaccessible to fire apparatus, necessitating a long hand stretch into the courtyard to reach their front doors. Bedrooms on the second floor are reached by an open interior stairway just inside the front door. These types of residential occupancies typically have a rear entrance at the kitchen or a utility room that faces a street or parking lot that may be accessible to fire apparatus.

Which door, front or back, would you choose to get a hoseline to a fire in a second-floor bedroom, and where would you charge it? I would choose the back door, because it will be a much shorter stretch from an apparatus spotted near the rear entrance. I would not, however, charge the line at the back door. Instead, stretch the line dry through the kitchen and utility room, into the living room, and out the front door; then flake out 50 to 100 feet of hose outside at the front door before charging the line. This gives the hose a straight shot up the stairs and eliminates the need for extra firefighters to snake charged hose through the first floor (photos 22-23).

Stretching a dry, uncharged hoseline down a smoky hallway in an apartment building places you at great risk. Ask yourself, Why is there smoke in the hallway? It’s probably because the
door to the fire apartment was left open or burned through. Firefighters have been burned to death when windows in a fire apartment failed and a strong wind pushed a blowtorch of fire into the hallway.

What if a hallway is not smoky? What if the door to the fire apartment is closed and is keeping fire out of the public hallway?

In this situation, you must weigh the benefits of stretching dry to the door to the fire apartment against the risk of getting burned if the apartment door is opened or fails before water is available. The benefits of stretching dry are clear. Say there is a fire in an apartment, a condominium unit, or a hotel room on the fourth floor. The hallway is clear so the engine company drops a rope from a fourth-floor window, hoists the hoseline, and flakes it out at the door to the fire unit. Then the firefighters secure the hose with a strap and charge the line. This is much faster and less personnel intensive than if they hoisted or stretched their hoseline to the floor below the fire,

pulled and laid out sufficient hose to reach the fire apartment, and then advanced a charged hoseline up the stairs and down the hallway to the fire apartment.

A fire officer who decides to stretch dry to the door of a fire apartment must project strong leadership and communicate to all personnel that they must keep the door from being opened prematurely. This takes close coordination and control over firefighters stretching the hoseline and those performing forcible entry.
The apartment door must remain closed until the nozzle reaches the fire apartment and at least 50 feet of hose is pulled up behind the nozzle to ensure that there is sufficient hose to reach the fire and to facilitate a rapid and smooth advance. Further, the hallway must be cleared of civilians and police officers. Firefighters must be in position with SCBA masks, hoods, helmets, and gloves on. Do not open the apartment door until the nozzle is fully opened and flowed, not just bled of air.

Firefighters are taught to bleed a hoseline of air before they enter a fire area. Many are taught to crack open the nozzle, allowing the trapped air to escape, and then close the nozzle as soon as water begins to flow. This is a generally accepted technique, but I believe it is fundamentally flawed, because a hoseline can appear stiff under pressure and expel air and water when it is bled, but it can be tangled in a mess of kinks or caught in a stair railing or under a door. The nozzleman won’t realize that he has an inadequate stream until he actually flows the nozzle wide open and observes the reach and quality of its stream (photo 24).

The entire length of a hoseline must be checked to make sure it’s not kinked or otherwise restricted before it is charged. This begins with the apparatus engineer, who must check to see that a preconnect hoseline is completely pulled out of its hosebed, as any hose remaining will kink and jam inside the hosebed. Further, engineers should not charge a hoseline until ordered to do so by the engine company officer. Charging the line prematurely before it has been checked along its length can result in hose that can be wedged under a door, caught in a fence gate, or jammed in a stair or porch railing.

Don’t ever attempt to stretch or flake out an uncharged hoseline in areas with limited space or visibility. Under these conditions, there may not be sufficient room to lay out hose without kinks, and firefighters may not be able to see where it is kinked or ensnared. Conditions can deteriorate rapidly. Firefighters on a hoseline that is a mess of kinks can end up with fire over their heads and an inadequate stream to protect them.

Now, let’s apply this rule to the tactic of laddering and stretching hose through an apartment that is near the fire apartment. This takes less time, fewer firefighters, and less hose than a conventional stretch to the entrance of an apartment building, up a stairway, and down a hallway.

Consider a fire in a third-floor apartment: Flames can be seen issuing from a rear window overlooking the parking lot. Here, firefighters decide to ladder, enter, and bring their hoseline through an adjoining apartment. A critical consideration with this tactic is when to charge the line. Firefighters must check conditions in the adjoining apartment and public hallway before they bring the hoseline up the ladder. If the public hallway is clear of smoke, the firefighters can stretch dry through the adjoining apartment, into the public hallway, to the door of the fire apartment. This is ideal for apartments and motels with exterior balcony halls (photos 25-27). Again, firefighters who decide to stretch dry to an apartment in an enclosed public hallway are depending on an intact door that remains closed until they are ready to encounter the fire.

Firefighters who ladder an adjoining apartment and find smoke should charge the line (where it is flaked out) at the base of the ladder (photos 28-29). It is definitely more difficult to pull up charged hose and advance it, but firefighters will have its protection and will not have to contend with flaking and charging a hoseline in smoke or in insufficient space.

Firefighters who stretch the first attack hoseline to an upper floor by ladder bypass the interior stairway and thus cannot check lower floors for smoke or fire as they ascend. It is critical, therefore, to assign a company to the stairways to check lower floors and search stairways above the fire floor for any trapped or overcome occupants.

**Hose- and Nozzle-Handling Techniques**

As a fire recruit, I was taught to back up a nozzleman by grasping the hose about three feet behind him (photo 30). This method was fine for operating a 1 1/2-inch hose-line flowing 95 gpm; however, it is not effective today to withstand the nozzle reaction of a 1 3/4-inch hoseline flowing 180 gpm. That is because the hose between the
nozzleman and the backup firefighter tends to kink when the stream is directed up, down, or to the side (photo 31).

For years, we taught our fire recruits to always keep one hand on the nozzle bail so they could immediately shut it off if they lost control of the line. Today, a nozzleman who keeps his hand on the bail of a nozzle flowing 180 gpm is holding it too close to his body and is probably kinking the hose (photo 32). Also, the hand remaining on the bail does nothing to help resist nozzle reaction and sometimes results in the nozzleman's partially closing the nozzle.

After extensive research and testing by Chief Dave Wood, Miami-Dade (FL) fire-rescue, the department equipped all of its 1½-inch hoselines with a “low-pressure” combination nozzle that flows 180 gpm at 50 psi nozzle pressure and 220 gpm at 70 psi nozzle pressure. While training with the new nozzle, Wood taught the “back-to-back” method of handing a hoseline he had learned as a firefighter in New York City (photo 33). This method minimizes the amount of hose between the nozzleman and his backup, eliminating the chances of its kinking between the two firefighters.

Notice that the nozzleman in photo 33 holds the pistol-grip nozzle well out in front of him. This prevents hose behind the nozzle from kinking against his body. The photo also demonstrates why I’m not an advocate of pistol-grip nozzles: A nozzleman using the pistol grip holds the nozzle too close to his body and is likely to kink the hose. Additionally, pistol-grip nozzles tend to “hang up” in a crosslay when the hose is pulled from the opposite side of the nozzle.

On many engine companies, the nozzleman won’t always have a backup man right behind him and must withstand the entire nozzle reaction himself. Considering that the leg muscles are the strongest muscles in the body, tightly wrapping his legs around a hoseline will help the nozzleman withstand considerable nozzle reaction with very little effort.

This technique is also effective when a nozzleman must direct his stream at an extreme angle to the doorway. This, however, requires arm strength to keep the nozzle well out in front. If he slightly relaxes his arms, the hose will bend backward and form a kink against his chest (photo 34).

Another technique for handling a nozzle alone is for the nozzleman to hold the hose against his knee and brace his shoulder in the doorway. This transfers reaction forces from the hose to the knee and the door frame (photo 35).

While I am writing this article, local television stations are featuring news reports of firefighters in South Florida training in eradicating Africanized honey bees by spraying them with firefighting foam. Additionally, I see reports on local firefighters training in how to rescue horses and livestock when they are submerged in mud.

These new services in themselves are fine. Because firefighters are the public’s first line of defense, we are continually being called on to take action in a widening variety of nonfire emergencies.

It is not fine, however, when a new discipline or another government-mandated training program takes training time away from basic functions such as hose evolutions. Firefighters must train on the basics to safely and effectively provide their most basic and important service of firefighting.

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ENDNOTE


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Hoseline Operations for Residential Fires

1. At multiple dwellings, it may be important to first:
   a. spot the apparatus.
   b. select the street closet to the entrance leading to the fire.
   c. both a. and b.
   d. neither a. or b.

2. In a mobile home park, it may be best to:
   a. follow the instructions of the residents since they know the layout of the complex best.
   b. listen to police officers who arrived before you and know the location.
   c. walk to the location yourself to determine the best access.
   d. none of the above

3. The way to advance to an upper floor fire with a hoseline is to:
   a. use a stairway stretch,
   b. hoist it by rope,
   c. carry it up a ladder
   d. all of the above

4. 2 ½” handlines can be called for when:
   a. fire involves an attached garage.
   b. fire involves large areas and vaulted ceilings.
   c. both a. and b.
   d. neither a. or b.

5. 2,000 square foot single family homes in older neighborhoods are usually within what length preconnect?
   a. 150 foot
   b. 200 foot
   c. 250 foot
   d. 100 foot

6. A 5,000 square foot home can require at least how much hose at the front door to reach the fire?
   a. 150 feet
   b. 200 feet
   c. 250 feet
   d. 100 feet

7. West Palm Beach firefighters stretch hose in three story attached single family homes by dropping a rope down from a second-floor window and hoisting up a 1 3/4-inch preconnect. They then take the nozzle to the base of the stairs leading to the third floor, flake out extra hose in the living room, and then:
   a. advance to the third floor.
   b. attach the nozzle.
   c. secure it with a nylon strap before charging the line.
   d. none of the above.

8. Which of the following types of hose loads necessitates hose being dragged into position?
   a. minuteman
   b. flat
   c. horseshoe
   d. none of the above

9. The City of Chicago:
   a. never uses preconnects
   b. only uses 2½” hose
   c. keeps preconnects a maximum of 150 feet
   d. finishes the last 200 feet of their 2½-inch hose load into three reverse horseshoes.

10. When dealing with a long stretch of 2 ½” hose, plan on teaming up companies and:
   a. have the officer stretch the first length of the hose.
   b. carrying the nozzle separately.
   c. position the apparatus hosebed facing the direction of the stretch.
   d. none of the above.

11. The first hose stretching method that the author describes is the one in which the “double couplings” of the hose is placed on:
   a. both shoulders.
   b. one shoulder.
   c. under one arm.
   d. under both arms.
12. Stretch hose:
   a. without regard to smoke conditions.
   b. by way of the path with the least amount of broken glass.
   c. only from a gated wye.
   d. as close to the fire as safety permits before charging the line.

13. In single family homes, it is usually best to:
   a. let the truck company assist in stretching the hose.
   b. keep hose stretches to 150 feet.
   c. take the hoseline in the front door.
   d. use fog nozzles.

14. A fire officer who decides to stretch dry to the door of a fire apartment must project strong leadership and communicate to all personnel that they must:
   a. have at least two folds under their arms.
   b. keep the door from being opened prematurely.
   c. "pop" the door to the fire apartment when the hose reaches the floor below the fire.
   d. maintain radio silence.

15. The apartment door must remain closed until:
   a. the nozzle reaches the fire apartment
   b. at least 50 feet of hose is pulled up behind the nozzle to ensure that there is sufficient hose to reach the fire and to facilitate a rapid and smooth advance.
   c. the hallway is cleared of civilians and police officers.
   d. all of the above

16. A nozzleman won't realize that he has an inadequate stream until he:
   a. "cracks" the nozzle and bleeds off the air
   b. actually flows the nozzle wide open and observes the reach and quality of its stream.
   c. is informed the problem by the engine officer.
   d. informed of the problem by truck company officer.

17. The tactic of laddering and stretching hose through an apartment that is near the fire apartment:
   a. takes less time
   b. fewer firefighters
   c. less hose than a conventional stretch to the entrance of an apartment building.
   d. all of the above.

18. The "back-to-back" method of handling a nozzle minimizes the amount of hose between the nozzleman and his backup:
   a. allowing each to control the nozzle.
   b. allowing the proper use of pistol grips.
   c. keeping the nozzle close to the ground.
   d. eliminating the chances of its kinking between the two firefighters.

19. When handling the nozzle alone, the nozzleman can hold the hose against his knee and brace his shoulder in the doorway:
   a. transferring the reaction forces from the hose to the knee and the door frame.
   b. allowing the hose to be moved forward.
   c. and keeping the doorway clear for search operations.
   d. none of the above

20. A single family house that has been converted into a multiple dwelling is characterized by:
   a. more than one mailbox
   b. gas meter
   c. a rear outside stairway
   d. all of the above

Notes
Hoseline Operations for Residential Fires

PROGRAM COMPLETION INFORMATION
If you wish to purchase and complete this activity traditionally (mail or fax) rather than Online, you must provide the information requested below. Please be sure to select your answers carefully and complete the evaluation information. To receive credit, you must answer at least six of the eight questions correctly.

Complete online at: www.FireEngineeringUniversity.com

### PERSONAL CERTIFICATION INFORMATION:

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### TRADITIONAL COMPLETION INFORMATION:

Mail or fax completed answer sheet to
Fire Engineering University, Attn: Carroll Hull,
1421 S. Sheridan Road, Tulsa OK 74112
Fax: (918) 831-9804

### PAYMENT & CREDIT INFORMATION

Examination Fee: $25.00   Credit Hours: 4

Should you have additional questions, please contact Pete Prochilo (973) 251-5053 (Mon-Fri 9:00 am-5:00 pm EST).

- I have enclosed a check or money order.
- I am using a credit card.

My Credit Card information is provided below.

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- Visa
- MC
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Signature

### COURSE EVALUATION

Please evaluate this course by responding to the following statements, using a scale of Excellent = 5 to Poor = 1.

1. To what extent were the course objectives accomplished overall?  S 4 3 2 1
2. Please rate your personal mastery of the course objectives.  S 4 3 2 1
3. How would you rate the objectives and educational methods?  S 4 3 2 1
4. How do you rate the author’s grasp of the topic?  S 4 3 2 1
5. Please rate the instructor’s effectiveness.  S 4 3 2 1
6. Was the overall administration of the course effective?  S 4 3 2 1
7. Do you feel that the references were adequate?  Yes No
8. Would you participate in a similar program on a different topic?  Yes No
9. If any of the continuing education questions were unclear or ambiguous, please list them.

10. Was there any subject matter you found confusing? Please describe.

11. What additional continuing education topics would you like to see?

### PLEASE PHOTOCOPY ANSWER SHEET FOR ADDITIONAL PARTICIPANTS.