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OCTOBER-NOVEMBER-DECEMBER NEWSLETTER- OPPOSING HANDLINES

When two hose lines are directed against each other from opposite direction firefighters may be injured. This is especially true when one hose line is being advanced by firefighters inside a burning building and the other hose line is directed from outside the burning building through a flaming window. The pressure and velocity of an outside water hose stream directed through a flaming window fire and heat will be blow back superheated fire gases into the faces of the advancing firefighters inside the structure. As a result steam or hot water may seriously burn firefighters scalded; their helmets and facemasks of breathing apparatus may be knocked dislodged. A powerful hose stream striking a firefighter in the side of the head can cause an eardrum puncture. More seriously fire driven back into the path of firefighters advancing an

opposing hose line may cause to drop a hose line and become disoriented and lost in a burning building. The superheated entrained air, steam and hot water pushed ahead by a hose stream from an opposing hand line are the cause of the injuries. A large caliber master stream directed from an aerial platform or deck pipe directed into a flaming window where firefighters are advancing a smaller attack line is the most serious situation; but smaller diameter hand lines operated by firefighters in to a window can be just as dangerous.

Years ago in the fire service opposing hand lines were a common fireground problem. Without portable radios to communicate and coordinate operations, firefighters often unknowingly directing opposing hand lines against each other for long periods. Each company thought the fire was preventing their advancement on the fire when actually it was the superheated gases each hose line was pushing against each other that prevented advancement and fire extinguishment.

Today there is no excuse for opposing hand lines operating against each other. Fireground commanders each company officer and some firefighters are equipped with a portable radio, so opposing hose lines should not be fireground problem. At some fires it is good firefighting strategy to position a hose line at the opposite side of a burning building. It is not good firefighting strategy to have both of them directed at each other, or to advance them into the burning building from opposite directions.

The first hose line often advances through the front entrance and the second backs up the first line or goes above in a multi-floor building. However sometimes the second or third hose line may be sent around to the back of the building when there is a serious exposure problem. This hose line positioned at the rear of the building does not attempt to advance from an opposite direction to the first attack hose team. Instead it may be used at the rear of the burning building to stop fire spreading to a nearby building, or it may be used to stop flame from spreading up the surface wall of a wood shingle frame dwelling, or it may be used to stop flame from entering the attic space by burning through the cornice or eaves. This hose line may also stop auto exposure by being directed against the spandrel wall (the wall surface between the top of one window and

the bottom of the window directly above). However, this hose line is not directed into a flaming window when the first hose line is advancing in from the opposite side and extinguishing the main body of fire. This hose line stretched to the rear of a burning building by firefighters is intended to prevent fire spread. It does not advance in on the fire, unless directed by the incident commander. This may happen but only in rare circumstances.

An example of a rare circumstance would be when the first hose line is prevented from advancing in on the fire from the front of the burning building. Then the hose line positioned at the rear might be ordered by the fireground commander to advance in and extinguish the fire. This is not a common strategy. Only in unusual conditions will this happen. It is not good practice for a fireground commander to constantly vary the avenue of hose line fire attack to extinguish routine fires. Routine every day room- and content house fires are fought the same way by fire departments. Strategies may vary from department to department, but within each fire department they do not vary very much at routine fires. Fire departments often require several ladder company firefighters to operate simultaneously with the fire hose attack team. Firefighters in many fire departments take positions inside a burning building as a team with a standard operating procedure. They have assignments to accomplish and they must get to certain positions inside or around the building they enter a burning building from many different directions. Even though the first attack hose line is brought through the front door, other firefighters enter the burning building through side windows, or rear doors, while others go to the floor above the fire, and roof. These firefighters at different locations, search, vent and force locks, and they expect the hose line attack to come from a certain direction. When the direction of the hose line attack is changed they are in jeopardy. Firefighters may become trapped or injured due to the absence of the expected hose line attack or if the hose line attack comes from another unexpected direction.

Ninety-five percent of the structure fires in America are extinguished by one attack hose line. Most of the time this attack hose line is advanced through the front door. But in a small percent of the times the firefighters cannot advance the first attack hose line. In some instance a

second hose line backs up the first line. Together they attempt another advance on the fire. The second hose line may be a larger diameter, which discharges more water. If the two lines fail to move in of the blaze and extinguish it, then hose line may be ordered to advance on the fire from the rear or from another direction.

Changing Strategy Steps

Changing strategy of attack hose lines is very difficult. Advancing an initial attack hose line through several rooms of flame and heat to extinguish a fire is a brutal punishing act. To accomplish this feat, firefighters must drag several hundred pounds of hose, spewing a ton of water at fifty pounds of pressure out of a nozzle. They must crawl ahead blindly, over a hot bed of ashes, through several rooms of a scalding steam with chunks of red-hot plaster and boiling hot water raining down upon them. To ask these firefighters to stop everything, back out of the fire area, close the door while another fire company approaches the fire from the opposite direction is not easily accepted. But when it is obvious to the, inside sector, fireground commander that the initial attack hose line is not going to be successful and another approach will quickly extinguish the fire this strategy change must be ordered. To accomplish this the following steps must be taken. First using portable radio communications the interior sector notifies the incident commander outside at the command post of this strategy change. Then by portable radio a hose attack team is ordered in to position at the opposite point of attack. When receiving the ready communication from this alternate hose team attack officer, next the interior sector commander orders the initial attack hose team and all firefighters inside the fire area to back out of the fire into the hallway with the initial attack hose line. This will take a strong interior sector commander and a forceful order. The firefighters will clearly not want to retreat, but a well trained, disciplined firefighting company, with an effective officer in charge, will comply. Next, close the front door to prevent the fire from spreading back into the hallway. Only, when all of this is accomplished, is the order given over the portable radio to advance the hose line from the opposite direction to extinguish the fire.

Reasons For Strategy Change

Heat is the major reason why firefighters are unable to advance a hose line. Superheated gases and steam in a dwelling space or store sometimes bank down to floor level and engulf firefighters pushing a hose line forward. In this instance they may be forced to back out of the fire area when intense heat descends down on them from the ceiling. Venting windows, doors and skylights just before the hose line is advancing on a fire can prevent this superheated build up in a fire area. Until the fire is vented firefighters will be prevented from extinguishing the blaze using an inside attack.

Wind is another problem that can prevent the advance of the hose attack team. Even if the fire area is vented a strong wind blowing through a fire area toward firefighters attempting to advance an attack hose line will drive heat and flame into their path. A hose stream operated from an entrance door cannot extinguish a fire burning several rooms back inside a fire area. Only windblown fire gases mixing with air and turning to flame at the entrance door will be reached by the hose stream, not the seat of the fire. To extinguish any fire with water, it must be discharged directly on the burning material, not on the convection currents. When wind blows at 15 to 30 miles per hour or more, a fire chief should anticipate problems with advancing an attack hose line due to wind. In this instance venting windows opposite the hose line advance may not be as effective as venting side windows or roof skylights. Tall buildings, buildings near open bodies of water, and burning buildings on the sides of mountains are subject to strong winds.

Obstructions also prevents advance on an interior attack hose line. Room partitions and stock piled up to a ceiling in a store will block a hose stream. Some mentally deranged people, over many years, save papers and rags in apartments and houses that obstruct firefighters from advancing a hose line during a fire. Stacked as high as the ceiling the stored material leaves only small paths through several rooms. It is impossible to advance an attack hose line to the seat of a fire in these dwellings and stores. Water from a 30 or 40-foot hose stream will be prevented from hitting the fire. Firefighters are justifiable fearful of advancing too deeply into such a

cluttered fire area. They will not move an attack line into a maze like area. If the piles of stored papers or rags collapse or if a flashover occurs, the chance of escape is small. Firefighters can easily become disoriented and lost in smoke filled mazelike fire areas. They cannot find their way out even when following the hose line that leads to the outside. Excess hose coiled up in several rooms snaked in and out of the fire area, cannot be used as a guide to get back safely.

High Rise Buildings

Considering all of the above the most common reason to require a hose line to advance on the fire from the opposite direction to the initial hose line advance is wind. Wind blowing into the fire area will push flame and heat into the path of the firefighters advancing the first attack hose line. When wind prevents the hose line advance the strategy must change. After notifying the incident commander back out the initial line. Close the door. And when all members are safely out of the apartment, advance a hose line from the opposite direction. Firefighters pushing the alternate attack hose line will be moving toward the fire with the wind currents at their back making it less punishing. In some instance an opposing hose line is taken through a window or doorway to extinguish a fire. At other fires in tall buildings the hose coming from; the opposite direction may have to be stretched up a ladder or fire escape through a window to advanced in on the fire from an opposite direction. At fires in high-rise buildings wind blowing through a broken windows into the path of firefighters also prevents advancing the initial attack hose line. Unfortunately, when the fire is on an upper floor of a high rise, beyond the reach of fire department ladder, and without fire escapes, a fireground commander cannot order a hose team attack from the opposite direction. The usual strategy is to withdraw firefighter to the relative safety of the enclosed stairway and wait for the fire to burn itself out. This so called controlled burning can only be considered by the fire ground commander in a fire resistive high rise building where the structure is designed to confined q fire to one floor. If the high rise is not fire resistive design and fire spread to the floor above, then occupants and firefighters will have to be withdrawn from the entire building, and an outside firefighting strategy will be ordered. Some

fire departments are developing high-rise firefighting procedures to combat the effects of wind on an initial firefighting attack team. For example: a small asbestos curtain lowered by rope from the floor above, in front of a broken window to prevent wind blowing in on the advancing firefighters is one procedure Another is using a, World War II, ten or twelve foot, US Navy, low pressure fog applicator. It is raised by firefighters from a window on floor below, and the nozzle directed up into the broken window on the fire floor through which the wind is blowing preventing the hose line advance. This fog solution depends on the wind and expanding steam indirectly extinguishing the fire. This is done after interior firefighters have been withdrawn and the interior door to the stair enclosure shut.

Lessons learned

Changing strategy by ordering an attack hose team to advance on a fire from the opposite direction is a difficult, dangerous, complex operation. It requires fireground commanders, inside and outside, to have good control and coordination of firefighters on the scene. Firefighters freelancin that mean those firefighters not operating in accordance with their standard operating procedures or operating in a location not their assigned position can be seriously injured when a hose line is advanced from the opposite direction of the initial attack hose line. Only the incident commander should order this strategy change. A fire officer in charge of a hose attack team should never attempt to advance an attack hose line from the opposite direction to the initial attack hose team without permission of the fireground commander.