



2" hose, the middle child of the fire service

Here is some perspective on the parallels of the 2" fire hose and the middle child. The latter as you might guess is the author, so I claim the authority to speak to those truths. The former is in most cases misunderstood, and in my opinion is an underutilized attack choice for specific scenarios.

Where does the middle child of fire attack belong? That is a subjective question answered by an equally subjective statement. The 2" line belongs in the

hands of a crew fighting an advanced fire condition with a doubtful outcome, and/or a situation that has an inherent delay of reaching the fire due to the distance from the pump to the seat of the fire. Understand that a doubtful fire for you and your organization is maybe not one for mine, or visa-versa. If you are not interested in thinking about the rate of water application vs nozzle reaction and the applicable maneuverability of the hose, then the 2" hose is not for you. I cannot speak to the history of the 2" hose but I can explain what it can do for a short staffed crew that is dealing with an identified target area that is topographically different than the bread and butter operation.

Start from the water source when considering your fire attack equipment. In my area the water systems can be more than 100 years old which leads to slag coated mains that may be a 6" OD pipe, but are now only capable of flowing 3" of water. This effects strategies in a couple of different ways. The first is that we need to be as effective as possible with our tank water. Low pressure/High volume nozzles coupled to hose that has a low friction loss coefficient are essential. We need to put our on board 700 gallons into the seat of the fire, and not just into the leading edge that may be showing. Getting the 2nd due engine on the water supply and pumping to the attack engine before stretching the second line is essential on most of our operations, and for this different scenarios it is essential.

A fire in a residential high rise built pre 1995, with no PRV's is one of these special types of incidents. The stand pipe design was built around the 2½ hose and a low pressure nozzle. Specifically to get 250 GPM to a low pressure high volume tip fastened to 150 feet of hose. A mistake the fire service continues to make is one that the Elkhart Brass national trainer Jerry Herbst has summed up nicely. Mr. Herbst sums up the issue with "The fire service chooses to pump to comfort, and not to the needed flow." The comfort with the 1¾ hand line has some merit but this scenario does not allow for



taking the easy way out. The same 1200sq ft. fire configured as a ranch home is much worse 70 feet in the air with limited access. If you think not, then wait 10 minutes on the street the next time you arrive at a bread and butter house fire, and see what gpm attack package you would then have to use.

In my own reality based back yard testing the modern 2" hose averages 20 - 24 pounds of friction loss per 50 ft. at about 240 gpm. The effective fire flow range of this attack hose is as much based on the hydraulics as it is the training and ability of the fire attack crew. The reaction force of a 1-1/8 smoothbore at 50 psi, or even 65 psi, is the same regardless of what hose is behind it. You need to practice handling these upper limit flows! Nozzle mechanics is a basic job requirement that is sorely glazed over. The next step is understanding the increased mobility of 2" vs 2 1/2 . This is the "why" you should consider 2 inch hose!! The 2-1/2 is much heavier per length, and unless you have the bale 1/3 open, it is much harder to bend around a turn. The shear amount of water pushing against the inner wall of the deuce and a half resists any effort to bend the hose. I cannot offer a scientific measurement of the force needed to bend the 2" but I can tell you that the effort is easily half of what this 40 year old middle child needs to put a 2-1/2 in place.



The 2" does have its limitations. It does not come from the same low friction loss pedigree as the 2 1/2. The 2" has an effective length where it must operate to justify its use. Using it as a lead 100ft length on a residential stand pipe. Or a 200 ft attack line on a main street type 3 building. The easier maneuverability and lighter weight will allow crews to move the line a bit easier. The far reaching stream from the 1-3/8 ball shut off topped with a 1-1/16 smooth bore tip, will give more options to the crew when faced with a fire condition that has had more time to develop and attack the building.



From the street - to the pump - to the discharge point - to the nozzle – to the seat of the fire. A simple plan but the choices of equipment effect your efficiency. If you have the benefit of multiple companies responding to one of these incidents, then I suggest you stick with the high volume with low pressure 2 1/2 hose. If your organization could benefit from using this

alternative, clearly map out where this should be used with the explanation of why. The 2" is not a replacement for the 2 ½!

A target flow for the middle child of fire attack in my opinion is 240 to 250 gpm. I recognize this is not the higher level of fire attack via a 2½ at 265 gpm. However; I also recognize that I can get to 265 gpm by over pumping a 2" hose if need be. 50 psi at the smooth bore tip is the target pressure for a reason. Steam quality, volume and reach are at their best and the hose is still manageable.

The middle child takes the wisdom of the older 2½, and blends it with the speed of the younger, more deployable 1¾. The results are a hard hitting attack package that gives smaller crews a better chance at taking the building back from the fire. If you are not fortunate enough to work for a big organization that can put a couple dozen hands on a working fire that is beyond the norm, then consider a look at putting all of the fire service siblings in play.