



WATER LINE SIZE?

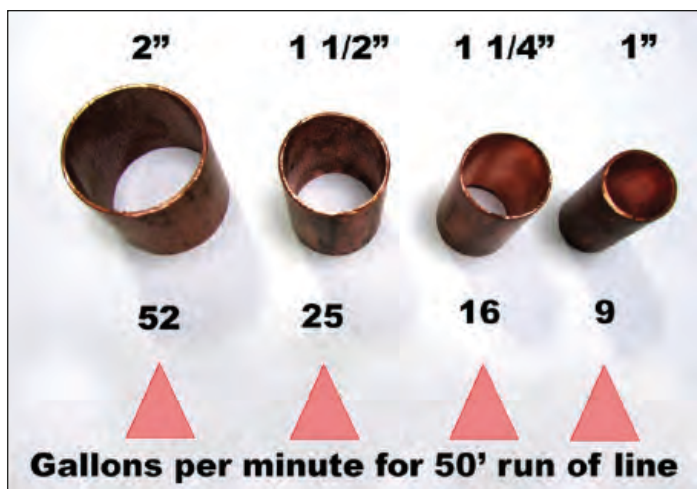
Richard Winters | Circuit Rider I

Since this article will be published for the summer magazine, I thought this might be an appropriate topic to spend a little time on. All too often in my travels, I see examples where either the service lines that were chosen were either too small or too large for the application. The following information on this topic was found on this web-site: <http://www.balkanplumbing.com/required-main-water-supply-line-size/>.

In order to provide an adequate supply for a particular service connection these are the items that should be considered: The fixture count (calculated by adding all plumbing fixtures in the building), the length of the run of pipe, the type of building (whether a residential or commercial structure).

Another important fact to understand is that increasing the size of pipe to be used can make a huge change in the water that is able to be supplied. Increasing the water supply line size to just one pipe size larger makes a dramatic difference. What those not in the plumbing trade do not realize is that understanding length and understanding area are quite different from each other. As an example: 1½" is only 25% larger than 1". But in terms of area, inside like sizes of these size pipes or water tubing is a difference of about 56% greater. As another example, let's compare 1½" pipe to 2" pipe. The difference in area inside a 1½" pipe compared to a 2" pipe is around 77%. Basing calculations of an average run of pipe of 50', a 1½" line provides 16 gallons per minute. On the other hand, a 1" line only provides 9 gallons per minute. Therefore a 1½" line provides almost 77% more gallons per minute than a 1" line. I used these examples because they were already presented in the article I found, but the same dramatic differences would also be found in comparing ½ inch to ¾ inch sizes as well.

I had to include this chart so you could see the huge difference in the amount of water that can be delivered in each increase in pipe size. Every type of plumbing fixture has an estimated gallons per minute factor. All of the plumbing fixtures inside a building combine to factor into the required water service line size for the building. Service line sizing for commercial use is normally calculated at 2 times the size of a residential property as the demand is significantly higher. Part of supplying water to a building is based upon pressurized water passing through the water supply line. The line itself provides resistance to the water flow. Therefore the length of the run is a major factor. The longer the run, the less gallons per minute can flow through the



service line. Again I will use an example found in the article but the information contained can be calculated in your service line sizing as well. Length of run actually has a dramatic effect on the supply capabilities of each water service line size. As an example, the typical water service line will lose approximately 33% of its water delivery capability when the length of the run is increased from 30' to 60'. As a specific example a 1½" line can deliver approximately 21 gallons per minute over a 30' run, yet only approximately 14 gallons per minute over a 60' run. The size of the pipes becomes important when water is being used in the building. The larger the diameter of the supply pipes, the less of a pressure drop will occur as more and more plumbing fixture are used at the same time. I hope this information helps you in deciding what size service lines you recommend your customers use in either existing replacement lines or in any new installations. Feel free to give me a call if you have any questions about a particular installation that has a unique set of circumstances. 💧💧