



Home Builders Association of South Carolina

1419 Pendleton Street, Columbia, SC 29201
Telephone (803) 771-7408 • Facsimile (803) 254-5762
www.hbaofsc.com



One Vision...One Voice

Mandatory Fire Sprinklers Infrastructure Cost

It is difficult to come up with accurate estimates of the infrastructure cost of installing residential fire sprinklers. Due to the novelty of concept in South Carolina and varying governmental entities across the state the cost will vary greatly from county to county. While it is impossible to come up with a state average cost, one of our members has studied this closely in his area. The information he has gathered on infrastructure costs gives a good insight into the complexity and variability of implementing a statewide mandatory residential fire sprinkler requirement. An executive summary of the research is listed below.

While we cannot determine the full cost of connecting a fire sprinkler system to a public water supply and the associated infrastructure cost, we can say with absolute certainty that fire sprinklers will increase the cost of a new home and the cost to occupy the home. We will try to give you the components of the cost and I think you will understand why it is impossible to determine a cost that will apply to all situations across the state.

Diversity in Water Suppliers: As I was doing this research it became obvious that Greenville County had very similar water service characteristics as the rest of the state. In fact, Greenville County could be used as a laboratory for this issue. The reason is that Greenville County has one very large and old water system, one smaller municipal system, one large rural system and many areas without any public water. The policies, procedures and potential impact on these utilities created by mandatory sprinkler systems in new single family residential homes range from minimal to catastrophic, depending on their policies and procedures and the adequacy of their existing infrastructure to supply water to a sprinkler system in every new house.

Backflow Prevention Valve: I have talked with the manager of the Greenville Water System, the manager of the Greer Commission of Public Works and the manager of the Blue Ridge Rural Water System. There are some commonalities; all of these utilities will require a back flow preventer on the fire system water supply because it is mandated by another statute. These preventers have to be inspected annually by a third party licensed inspector. The annual cost varies but is in the range of \$75.00 per year. Based on current knowledge and technology all will require ¾ inch services and meters. Greenville is the only supplier that will allow the fire connection to be made behind the domestic meter. Greer and Blue Ridge both require a separate meter for the sprinkler system. They both would impose all impact, meter and connection fees to the fire meter. Greenville does not charge any impact or connection fees for the fire line, but do charge an annual fee for the availability of the water.

Water Meter Requirements: There are a number of issues related to what the code requires for a system to meet existing standards. All of them have a direct bearing on the cost of the system. The code requires the water supplier to provide enough water to run two sprinkler heads simultaneously (2 heads in the same space). Due to flow limitations of a 5/8 inch meter, the two head requirement requires a ¾ inch or 1 inch meter depending on the type of meter allowed by the code and policy of the individual utility. These meters cost more and have higher monthly use charges. Apparently, under existing American Water Works Standards fire line meters are required to have strainers to eliminate the possibility of blockage. If this is true, the strainer has to be inspected annually by a qualified person. I am told that the smallest meter with a strainer is 2 inches (I have not verified this but it is being researched. This is only one of many issues that do not have complete answers). Blue Ridge will require a separate meter for fire water and it will be a minimum ¾ inch full port meter but may be 1 inch depending on the fire code and if there is a strainer required. Blue Ridge will require a separate meter. The current charge for one meter is \$950.00. I do not know if there are any impact or capacity fees for the fire connection being considered by Blue Ridge.

Blue Ridge uses only one manufacturer for meters. They intend to use only one supplier. The smallest approved meter for fire protection this company makes is a 4 inch meter. Meters for fire protection have to have strainers and back flow preventers and meet certain design requirements for flow. The meter Blue Ridge would propose to use would be expensive because of its first cost and connection fees (based on meter size). This is the kind of issue that will arise all over the state. Unless the legislators specify what size and type of meter can be used in the legislation, this kind of problem will never be solved.

Special Rural Challenges: Blue Ridge has 300 miles of public roads in its service area that have no water. I suspect that many rural water districts have unserved and under served areas. Blue Ridge has a policy that any line upgrades necessary to supply a fire meter will have to be paid by the customer. If fire sprinklers are mandated a number of property owners in the Blue Ridge Water District could not justify paying to upgrade an existing water line to serve a sprinkler system. That customer would have to buy a pressure tank and fire system pump or other approved system to meet the sprinkler requirement.

Wells as Water Source: The cost to install a fire system in an area on wells varies based on flow and volume requirements. Pumps run from \$500 to \$5,000. Tanks or bladders for storage range from a few hundred dollars to several thousand depending on size. Both the pumps are electrical. The well water is pumped and the fire water is re-pumped. I don't know what the code anticipates in the event of a power outage. I didn't figure a generator in the cost for the homes on wells. The minimum operating pressure for the fire systems is 7 PSI to be maintained for 10 minutes.

Diversity in Water Rates: Blue Ridge Rural Water has 3 different rates for different areas within their service area. The base rate for most of the service area is a minimum monthly charge of \$14.50 for the first 2000 gallons. All water over 2000 gallons is priced at \$4.05 per 1000 gallons. In the Cliffs Communities, Cliffs Valley and Cliffs at Glassy Mountain the first 3000 gallons cost \$38.00 (Valley) and \$34.00 (Glassy) per month. After the minimum the next 7,000 gallons cost \$4.10 per 1000 gallons.

Approval Process: Greenville Water has a special Private Fire Protection Service Charge section in their rate schedule. You can get the rate schedule online. Application for a private protection system requires 3 sets of plans for approval. The supplying tap will not be made until plans are approved and specific pit construction and water valve requirements are met. Bills for private fire services are rendered quarterly in advance (January, April, July and October). The quarterly charge in the City is \$20.00; outside the city is \$40.00.

Cost to Utilities/Special Purpose Districts: There is no doubt that the implementation of mandatory fire sprinklers in South Carolina will have tremendous capacity, infrastructure, cost, and viability impacts for our state's water providers. It has the potential to severely strain their financial resources, and perhaps force some out of business.

Compounding the problem is legislation that passed the General Assembly in 2008 which severely limited the water utility's ability to pass on the increased cost of providing the infrastructure capacity to support residential fire sprinklers in every county of the state. In these poor economic times utilities will be forced to direct their scarce investment dollars away from the development of profitable new water lines and spend their money trying to comply with expensive government sprinkler regulations. With the inevitable increase in the cost of homes, even fewer tap fees and building permits will be sold, making a bad financial situation worse for local governments.

The various water utilities in the state are concerned about the safety of the public water supply and distribution system. That is their first and most important responsibility. When fire sprinkler lines are added to their distribution system, they want to be absolutely sure that the system integrity is protected and that when water is needed to activate the sprinkler, the system will be able to supply the water.

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