

Developing Water Supplies for Fire Protection

by Colin Wilson

In rural Mendocino County water for fire suppression is often hard to come by. Many homes have thousands of gallons of water stored in tanks that can't be used by the fire department because they lack the necessary fittings. Property owners involved in building new homes often overlook simple and inexpensive features that can make their domestic water supply extremely functional for fire suppression. Every year in California homes are lost to fire that could easily have been saved if water supply for fire protection had been provided. This article provides information on several aspects of this very important subject.

Rural water systems range from the very simple to the very complex. All systems utilize at least some of the following components: one or more tanks, a pump, water lines, a pressure tank, and of course some type of water source, usually either a well or a spring.

The most common failing of rural domestic water systems is the size of the pipe in the system, typically $\frac{3}{4}$ inch or 1 inch. If the homeowners have done a great job of clearing and managing vegetation around their home, this system and a garden hose may well be all that is needed to successfully defend the home. It will not be capable of providing adequate water supply to a fire engine attempting to suppress a fire inside the home or to defend the home from a major wildland fire.

From a fire protection standpoint, simpler is definitely better. The ideal rural fire suppression system would be a large tank or a pond located from 100 to 250 feet above the home to be protected with a 2 $\frac{1}{2}$ or 3 inch water line running to the site to be protected. The water would be delivered through a 2 $\frac{1}{2}$ inch valve with 2 $\frac{1}{2}$ inch male National Hose threads. This system would be able to provide well over 250 gallons per minute and would function perfectly with no electricity available.

Most of us don't have the ability to provide this perfect system, but there are several ways to either modify or augment existing systems to make them user friendly to the fire department.

GUIDELINES FOR MODIFYING EXSISTING SYSTEMS

If your current system can deliver a minimum of 40 to 50 gallons per minute, it can be relatively easily adapted to provide water to the fire department by simply providing a 1 $\frac{1}{2}$ or 2 $\frac{1}{2}$ inch male National Hose pipe thread fitting in a location that is accessible to a fire engine. Any fittings that are intended for fire department use should be painted red and, where appropriate, marked with blue reflectors.

Most water tanks can be made accessible to the fire department by doing one of the following:

1. Provide a 2 $\frac{1}{2}$ inch male National Hose thread fitting with a valve at the base of the tank **IF** a fire engine can be positioned withing 12 feet of the fitting.
2. If it is not possible to get close enough to the tank, install 2 $\frac{1}{2}$ inch pipe from the tank to a location that the engine can get to and build your fire department connection there.

3. If your tank doesn't have a large enough discharge port and it isn't practical to install one, consider building a siphon by putting a PVC pipe into tank from the top then down the outside of the tank to a valve located approximately one foot above ground level. On the discharge side of the valve, install a 90 degree elbow and finish the fitting with the required 2 ½ inch male national hose thread adaptor. The siphon is established by pumping water into the tank through the fire department fitting then closing the valve. Once established, the siphon should take care of itself and can be easily reestablished if necessary. The siphon pipe should be secured to the tank if possible. If it's not possible to secure directly to the tank, set a 4x4 or larger post next to the tank and secure the siphon pipe to it, being careful not to obstruct the discharge fitting or the valve.

REMEMBER TO PAINT ALL FIRE DEPARTMENT FITTINGS RED AND MARK THE WATER'S LOCATION WITH A BLUE REFLECTOR.

If, for whatever reason, your existing system isn't sufficient or adaptable, consider purchasing a tank solely for fire protection. When possible, place the tank high enough above the house to provide a minimum pressure of 40 lbs (approximately 90 feet in elevation) or as high as practically possible. Use at least a 1-½ inch water line and up to a 3 inch line if it is affordable and the size of the water supply justifies the expense. Run the water line to a point near the house that is accessible to a fire engine, generally next to the road or driveway and approximately 50 feet from the house and build a fire department connection there.

Note: Diagrams and photos to illustrate this article are coming soon!

Colin Wilson is President of the Mendocino Firesafe Council and the Chief of the Anderson Valley Fire Department.