

903.3.5.2

Secondary Water Supply



Tank providing secondary water supply

International Code Council®

CHANGE TYPE: Modification

CHANGE SUMMARY: Secondary water supplies must now be designed to operate automatically.

2012 CODE: 903.3.5.2 Secondary Water Supply. ~~A~~ An automatic secondary on-site water supply equal to having a capacity not less than the hydraulically calculated sprinkler demand, including the hose stream requirement, shall be provided for high-rise buildings assigned to Seismic Design Category C, D, E, or F as determined by the *International Building Code*. An additional fire pump shall not be required for the secondary water supply unless needed to provide the minimum design intake pressure at the suction side of the fire pump supplying the automatic sprinkler system. The secondary water supply shall have a duration of not less than 30 minutes as determined by the occupancy hazard classification in accordance with NFPA 13.

Exception: Existing buildings.

CHANGE SIGNIFICANCE: Any high-rise building constructed in accordance with the IFC and IBC requires a secondary water supply when it is located on property classified as a Seismic Design Category (SDC) C, D, E, or F. SDC is a classification assigned to a building based on its structural occupancy category and the severity of the design earthquake ground motion at the site. Buildings located with SDCs categorized as C, D, E, or F are susceptible to damage as a result of soil liquefaction or the level of ground motion it may be subjected to during an earthquake.

Because an earthquake can break underground water pipes, Section 903.3.5.2 requires high-rise buildings within the indicated SDCs to have a secondary water supply. The secondary water supply must be sized to provide the hydraulic demand of the building's automatic sprinkler system, including hose streams, for a minimum flow duration of 30 minutes. In most high-rise buildings, the hydraulic demand is based on an ordinary hazard group I or II occupancy classification in mechanical rooms or similar spaces and the hose stream.

Section 903.3.5.2 was revised by prescribing automatic operation of the secondary water supply; in other words, switchover to the secondary water source cannot be manually activated. This change is consistent with definitions of "automatic sprinkler system" and "classes of stand-pipe systems" in that both systems are required to be connected to a reliable water supply. This code change ensures that if an earthquake disables the primary water supply, the secondary source is available for service.

The second revision to this provision clarifies the requirements for a second fire pump. Section 903.3.5.2 does not require a second fire pump in high-rise buildings located in the indicated SDCs unless the water supply cannot provide the minimum suction pressure necessary to supply the hydraulic demand. In such a case, the installation of a second fire pump is now mandated to ensure that a sufficient volume of water at the required pressure is available at the primary fire pump.